



Wyoming's State-Wide
VHF Digital Trunked Radio System
Handbook

Record of Changes

DATE	SECTION and PAGE	ACTION
3-13-2007	All	Approved by PSCC
6-22-2007	Section III – Page 6	Definition of CAT Talkgroup
6-22-2007	Section VI(B) – Page 20	Site Trunking Failure revision and addition
6-22-2007	Section VII(C) – Page 28	County-Wide Talkgroups addition
6-22-2007	Section X(B) –Page 32	Add sub-section (c)
12-26-2007	Section VIII(A) – Page 27 and 28	Revised Channel Naming to NPSTC Standard Interoperability Channel Naming
12-26-2007	Section IX(D)	Added standard conventional channel naming for consoles
3-20-2009	Section XI – Pages 35 - 42	Revised System and Subscriber Support
6-18-2010	Section III – Page 7	Added definitions for First Responder and Emergency Response Support
6-18-2010	Section V(B) – Page 18	Member Priorities 3,6 & 8 names revised
6-18-2010	Section IX – Page 29	Added non-government applicant requirements and revised headings to First Responder and Emergency Response Support
6-14-2011	Section IX(D)(1) – Page 31	Revised Application policy
6-14-2011	Section XI(A) – Page 36	Responsibilities chart was revised and footnotes added
6-14-2011	Section XI(I) – Page 42	New Section I was added
6-15-2016	Section I	Removed – renumbered Sections
6-15-2016	Section III – Page 11	Removed subsection A and renumbered remaining sub-section
6-15-2016	Section IV – Page 13	Removed Subsection 5- Simulcast Operations
6-15-2016	Section IV – Page 17	Removed Subsection 10 – Digital/Analog Radio Coverage Comparison
6-15-2016	Section VI – Page 19	Sub-Section C Revised
6-15-2016	Section VIII – Page 28	Removed National Interoperability references
6-15-2016	Section VIII – Page 30	Revised Sub-Section E – Contact Address
6-15-2016	Section X Pages 33 -36	Changed reference to Executive Director to Administrative Support
6-15-2016	Section XII - Attachment	Removed references, kept State Statute and Rules and Regulations
8-31-2017	Section IX – Page 26	Revised Section D (1) Application Process
8-31-2017	Multiple Sections	Removed PSCC Administrative Support and replaced with WyoLink Support Office
8-31-2017	Appendix 1	Removed PSCC Statute – renumber Appendix 2

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I. INTENT

To describe the basic radio communications procedures for statewide digital trunked radio system. The goal of the procedures is to assure consistent, clear radio communication for routine operation and effective standardized emergency incident communications.

II. DEFINITIONS OF TERMS

Affiliate -- Radios on the trunked system will send a signal with radio ID and the talkgroup selected to the master controller. This occurs when the radio is turned on, when a new talk group is selected, or when the radio selects a new site by checking RSSI levels of tower sites.

Alias – A unique identifier that is displayed on dispatch’s screen when a radio is transmitting on a talkgroup that is being monitored. The alias corresponds with a specified subscriber ID.

Analog Signals -- Analog radio systems continuously transmit radio waves that are usually modulated by a voice. A typical analog voice radio consists of a transmitter and receiver.

APCO – Association of Public-Safety Communications Officials – International, Inc.

Authorized Service Provider (ASP) - means a radio service provider that is approved, certified and/or authorized by a radio equipment manufacturer and registered with WyoLink to service WyoLink compatible equipment.

Call Alert – A call can be sent to a specific user radio to alert the operator, much like how a pager functions.

CAT Talkgroup – County Agency Talkgroups – Interoperability talkgroups with one (1) calling talkgroup and three (3) tactical talk groups for each Wyoming County.

Channel -- This term is used rather generally to denote a communications path or mode. It is an older term and is often used interchangeably with "frequency," "mode," or "talk-group." This is why it can be confusing and imprecise. In the discussion of trunked radio systems "channel" typically refers to the individual transceivers at radio site.

Channels & Zones - When a user radio is programmed with a large number of channels, those channels are accessed by the user in two ways: (1) The channel knob, which typically accesses 16 channels, and (2) either a three position switch or up/down zone buttons on a radio with a display. A large number of channels can be organized into a series of zones.

Communications Commission – Wyoming Public Safety Communications Commission.

Control Channel -- Dedicated channel on each radio tower site that passes information between the radio and the zone controller.

Digital Signals -- A combination of zeros and ones that are transmitted. These signals must be converted by digital radios (computers) into sound that can be heard and understood.

Duplex Repeater -- A repeater system that uses different transmit and receive frequencies.

Emergency Response Support – Those who are involved in the critical mission areas surrounding the incident response, such as protecting against the incident, preventing the incident, or recovering from the incident.

First Responder – Those individuals in the early stages of an incident who are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers as well as emergency management, public health, clinical care, public works, and other skilled support personnel, who provide immediate support services during prevention, response and recovery operations. Emergency response providers includes: Federal, State, and local emergency public safety, law enforcement, emergency response, emergency medical (including hospital emergency facilities), and related personnel, agencies, and authorities.

Frequency - Frequency is defined as the number of cycles that occur each second. Thousands of radio wave cycles usually repeat themselves each second, so engineers have adopted the practice of writing kilohertz (shortened to KHz), which means 1,000 cycles per second, megahertz (MHz), which means 1 million cycles per second, or gigahertz (GHz), which means 1 billion cycles per second, when they refer to radio frequency. In a trunked radio system the user never changes the frequency of their radio; the control system does that automatically.

MAT Talkgroup – Multiple Agency Talkgroups – Interoperability Talkgroups with one (1) calling talkgroup and three (3) tactical talk groups for each Wyoming Regional Response Area and State-Wide Talkgroup with one (1) calling talkgroup and three (3) tactical talk groups.

Master Controller -- The network management equipment that directs all activities of the radio system.

Mode – This is a newer term and is used to denote the different configurations in which a user radio may operate. For example, two different modes may use the same radio channel with one mode using encryption while the other does not. The term mode has been adopted because it signifies a broader range of variables that can be programmed in a radio.

MON—Monitor button allows the radio to receive analog signals without protection tones.

Out of range – Indication of no service available to radio. You will hear a long tone at regular intervals.

Project 25 (P-25) – A non-proprietary standard for public safety radio communications. This allows manufacturers to build equipment that is compatible.

Queue - Circumstance where member keys up on a site that is fully utilized. As all resources are in use, radio system puts the member in a "queue", or waiting line for the first open resource. Member will first hear the "busy" signal followed by a chirp when a resource is available to transmit on. If system is extremely busy, each additional keying of the push-to-talk button will reset the member to the bottom of the queue.

RF - Radio frequency.

Roaming - The ability of a radio on a trunked radio system to move from site to site without any interaction by the member.

RSSI—Receive Signal Strength Indication.

SCAN—Allows radios to search programmed channels/talkgroups for activity.

Simplex - Non-trunked radio channel that uses the same frequency for receive and transmit.

Site busy - Indication that no repeater resources are available at the tower the radio is affiliated at, accompanied by short repeated tones, much like telephone busy signal.

Site lock - Optional button that allows member to "lock" radio on a particular site, this prevents the radio from roaming.

Site Trunking - Indication that site connectivity to network master controller has been lost. Radio will be operational only in the coverage area of the tower on which it is affiliated.

Subscriber ID – Number that system uses to identify individual radios on a trunked system. No two radios will use the same subscriber ID number.

Talkgroup - This term is used to denote the channels in a trunked radio system. This term is sharply distinct from "frequency," as the radio user never actually changes the frequency. The trunked radio controller will automatically configure the system so that all radio users that have selected a given talk-group may communicate with one another. Unlike a radio frequency, a talk-group does not really exist but is a virtual-channel, much like an e-mail address.

1. Non-Proprietary Talkgroup – means a Talkgroup established by the WyoLink for the benefit and good of several WyoLink Members. The WyoLink administration grants access to these talkgroups by proper request and with demonstrated need.
2. Proprietary Talkgroup – means a Talkgroup assigned exclusively to a WyoLink member for use while performing their duties.

3. Conventional Channel – means a non-trunked radio channel that may be programmed into a WyoLink member’s radio.
4. Multi-group – a special talkgroup that is comprised of multiple talkgroups that are pre-configured through programming.

Talk group busy - Circumstance where member keys up on a talkgroup that is already in use.

Trunked - Trunking permits a large number of members to share a relatively small number of communication paths or trunks. This sharing of communication paths is managed automatically by a computer. Channel selections and other decisions normal handled by the radio member are made by a computerized switch in the zone controller. Thus, the member needs only to pick up the radio, select a talkgroup and talk, just as one does an ordinary telephone. Channel assignment is automatic and completely transparent to the individual member.

WYDOT – Wyoming Department of Transportation.

WYHP—Wyoming Highway Patrol

WyoLink Support Manager - State of Wyoming employee responsible for the day to day operations and management of the WyoLink radio network.

Zone – Radios -A grouping of channels/talkgroups for ease of use or radio configuration.

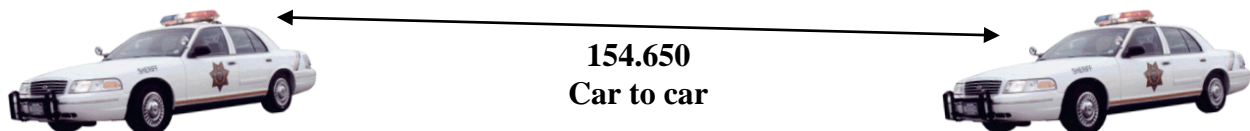
Zone - Network – Controller and interconnected radio sites

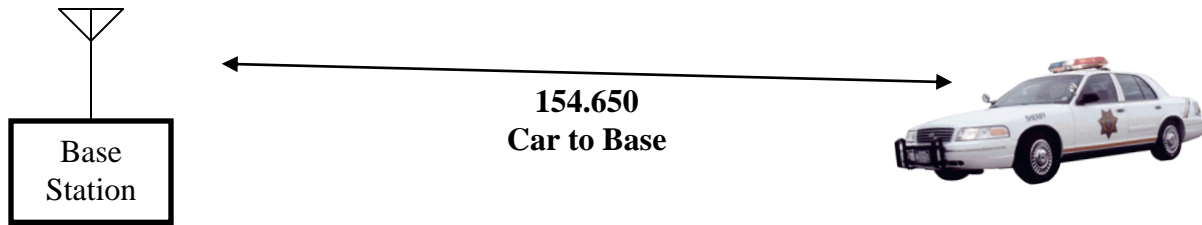
III. UNDERSTANDING RADIO TERMS

A. Operating Modes

1. Simplex Operation

The most basic mode of two-way radio operation is called "simplex." In simplex operation one radio communicates with another radio (or more than one) using a single radio frequency to send and receive messages. This may be either car-to-car or car-to-base.

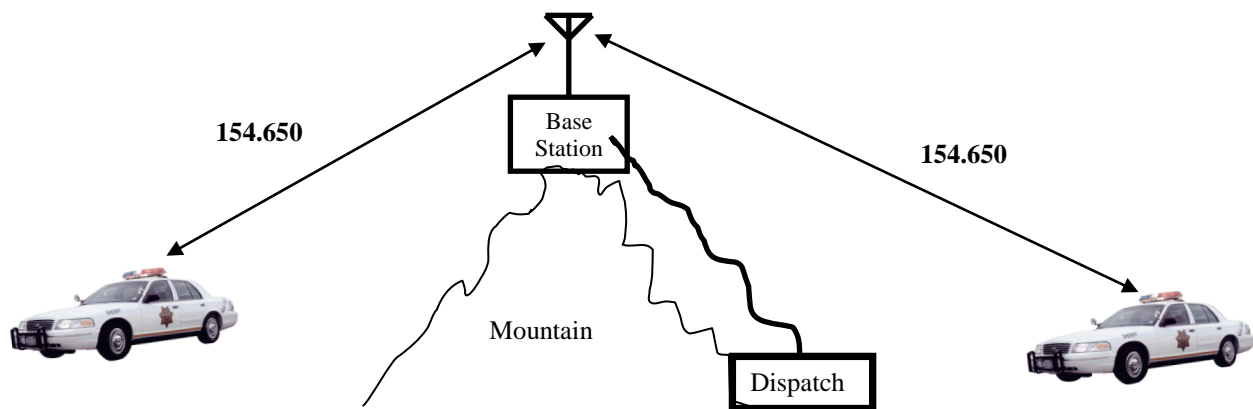




This mode of operation has the advantage of simplicity. Only the two radios are involved; no other technology is required. However, this mode has the disadvantage of limited operating range.

2. Remote Simplex Operation

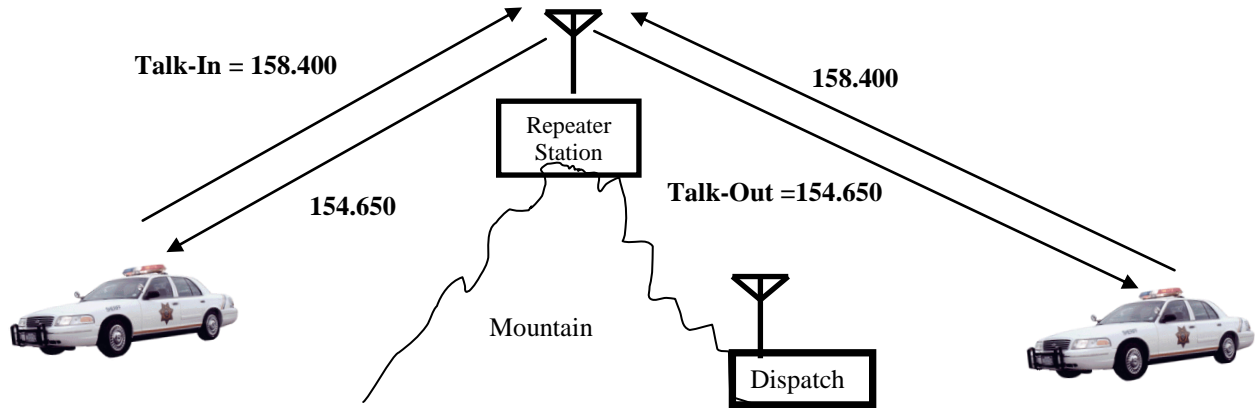
A surefire method to overcome the limited range of simplex operation is to move the base station to a mountaintop that overlooks the operating area. In doing this, the control of the base station must be routed back to the dispatch location. This is typically done with telephone wires or some other circuit.



In this illustration, the dispatcher will be able to communicate with both patrol cars. However, with the mountains separating them, the two patrol cars will not be able to communicate with one another. The dispatcher will have to relay messages between the two cars.

3. Repeater Operation (Duplex)

To overcome the limitations of Remote Simplex Operation requires an additional level of complexity: duplex operation, which is commonly referred to as a "repeater." A repeater is a base station radio that receives on one frequency and simultaneously retransmits what it is receiving on a different frequency.



As illustrated above, the repeater receives the frequency being transmitted by the patrol cars (talk-in or repeater input) and the patrol cars receive the frequency being transmitted by the repeater (talk-out or repeater output).

The telephone line from the dispatch center to the base station can be removed as a radio at the dispatch center will now receive everything that the base station receives. A radio being used in this manner is referred to as a Control Station Radio.

4. Multi-site Repeater Operation

Where multiple mountaintop repeaters are used to create a larger system it is possible to use the same input and output frequencies by adding control tones, which are not heard by the operator, to access each repeater individually.

From the user perspective, the mobile radio users are required to change channels as they drive from area to area, which allows them to use the frequency for the repeater that serves each geographic area. On the other hand, the dispatch radio operators will have a separate control button on their radio consoles that allow them to select the correct radio site based on the location of the mobile radio user they want to reach.

5. Trunked Operation

Trunking involves the sharing of a communications resource; the term is easily pictured by the way the branches of the tree share the common trunk in drawing nutrients from the roots. A trunked radio system requires a complex control system to manage communication resources.

An easily understood illustration of trunking is an office telephone system. In the average home a single telephone line connects to all of the telephones. In an office telephone system the incoming telephone lines and all of the telephone sets are connected to an electronic switch. This electronic switch can be used to connect one telephone set to another telephone set for internal calls, or can be used to connect one telephone set to an outside line, placing a call outside the office phone system. When a user hangs up from outside call the telephone line you use is now available for other users. Efficiency is achieved by sharing the outside telephone

lines: The number of telephone lines required is a function of how many calls will be made at a time rather than the number of telephone sets in the office.

A trunked radio system operates in very much the same way. Multiple radios at one or multiple sites are shared between radio users and controlled by a central electronics switch. Like a cellular telephone system, there is a great deal of complexity that the user never sees and with which they never need be concerned.

There are advantages and disadvantages to a trunked radio system. A trunked radio system is very efficient in that it shares communications resources. Likewise, a trunked radio system is very reliable, as the control system is capable of routing communications around a failed communications channel and the control system employs multiple levels of redundancy. Flexibility is provided in that talk-groups are virtual communications channels, which can be added by configuring software rather than adding hardware as would be required in a conventional radio system. The two primary disadvantages to a trunked radio system are the technical complexity of the control system and the cost associated with that control system.

Before explaining the features of a trunked radio system, the meaning of certain terms must be established.

a. **Frequency:** This is the actual radio frequency used by the radio. In a trunked radio system each radio at a site is a repeater using two frequencies, an input and output. In a trunked radio system the user never changes the frequency of their radio; the control system does that automatically.

b. **Channel:** This term is used rather generally to denote a communications path or mode. It is an older term and is often used interchangeably with "frequency," "mode," or "talk-group." This is why it can be confusing and imprecise. In the discussion of trunked radio systems "channel" typically refers to the individual transceivers at radio site.

c. **Channels & Zones:** When a user radio is programmed with a large number of channels, those channels are accessed by the user in two ways: (1) The channel knob, which typically accesses 16 channels, and (2) either a three position switch or up/down zone buttons and a display. A large number of channels can be organized into a series of zones with up to 16 channels in each zone.

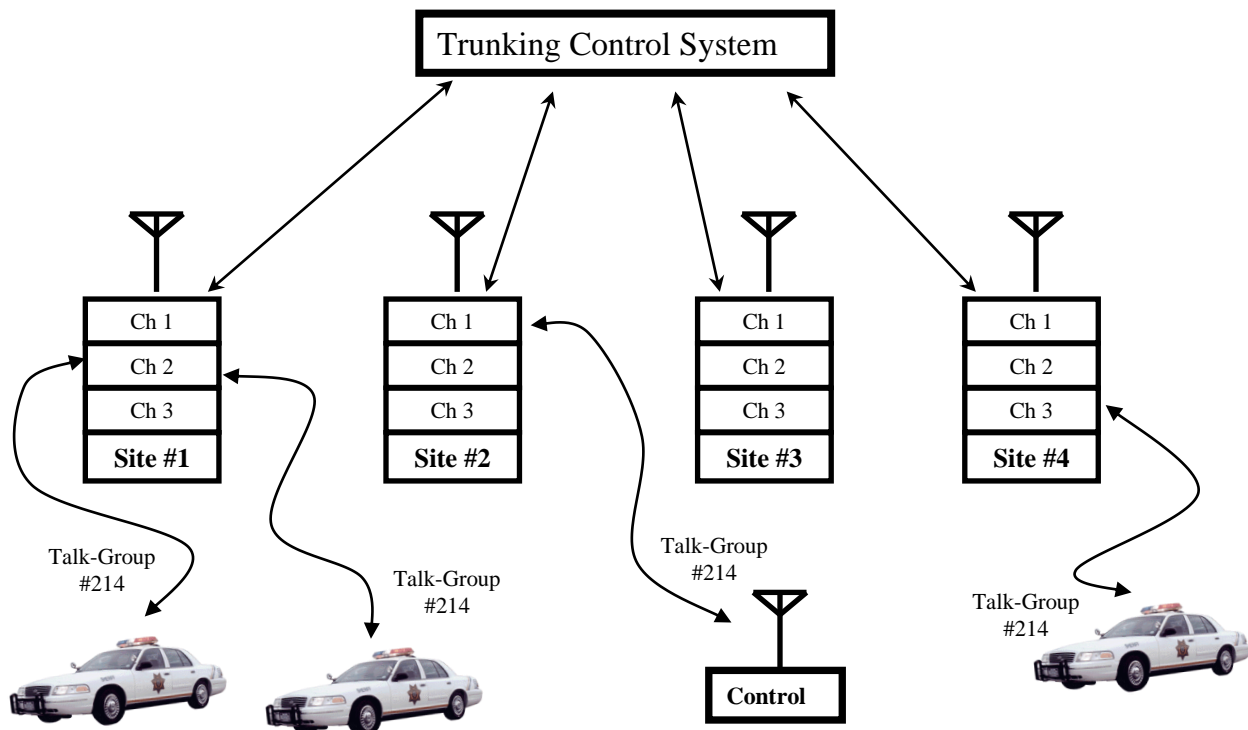
d. **Mode:** This is a newer term and is used to denote the different configurations in which a user radio may operate. For example, two different modes may use the same radio channel with one mode using encryption while the other does not. The term mode has been adopted because it signifies a broader range of variables that can be programmed in a radio.

e. **Talk-Group:** This term is used to denote the channels in a trunked radio system. This term is sharply distinct from "frequency," as the radio user never actually changes the frequency. The trunked radio controller will automatically configure the system so that all radio users that have selected a given talk-group may communicate with one another. Unlike a radio frequency, a talk-group does not really exist but is a virtual-channel, much like an e-mail address.

6. Wide-Area Trunked Operation

Trunked radio operation involves great deal of activity takes place without user intervention or awareness.

- a. When a trunked radio is turned on it automatically registers its presence with the nearest radio site that is part of the trunking system. In registering its presence, the trunked radio communicates its unit identification and talk-group that has been selected by the user.
- b. When a radio user presses their push-to-talk button the radio automatically requests that a call be established with other users of the talk-group.
- c. The control system responds by assigning communication resources (channels) at each of the radio sites where users are registered on the requested talk-group.



In this illustration shows three cars and one control station radio on the same talk-group. The control system has assigned radio channels at three different sites in order to establish the call. The two cars on the left are both registered on the same radio site while the other units are registered on different sites.

7. Shared Radio Sites

In a trunked radio system, unlike a conventional repeater system, a radio is not limited to the repeater sites within range. The trunking control system configures a call so a radio will communicate with other users in the selected talk-group. Thus, the coverage of a trunked radio

system is the sum of the coverage of all the radio sites. Likewise, all radio sites are available to all trunked system users, depending on how the system controller is configured. In the same way a cell phone allows a customer to move from place to place, a with a trunked radio system as a radio user drives from location to location their radio will automatically register with the appropriate radio site without user intervention. The talk-group they have selected will follow them from radio site to radio site automatically.

The number of radio sites located in a given county has no relationship to the actual radio coverage provided. Coverage is a function of terrain, and the location of radio sites is selected to overcome obstacles.

8. Mobile Data Subsystem

The WyoLink system has the capabilities of mobile data traffic. Initial access will be granted to public safety. Agencies accessing data through the Wyoming Division of Criminal Investigation, including FBI data, will be required to have approval from the Division of Criminal Investigation. Further applications beyond public safety will be reviewed on a case by case basis by the WyoLink Support Manager and the Communications Commission Executive Committee.

The data system will be a low-speed data (9600bps).

V. RADIO INFORMATION

A. How It Works

Each radio is a computer with a receiver and transmitter attached. The computer allows each radio to have a unique ID that enables the Master Controller to identify that radio and which talkgroup is selected. Each radio is in constant communication with the tower through the control channel at the tower site where the radio is affiliated. This control channel passes on information such as surrounding site information and site status.

The radio also samples the signal strength (RSSI) of the control channel and compares it with others that the radio is receiving. At preset levels a radio will switch from one radio site to another that has better signal strength. This allows the radio to roam between sites without member action, similar to a cell phone.

1. Sounds:

- a. Listen for other radio traffic before attempting to transmit.
- b. Wait until the quick chirp is done before you begin talking.
- c. If a continuous beep is heard, radio is not affiliated with a radio site.
- d. Two longer beeps indicate local site is busy, wait, and the system will give you the quick beeps indicating when access is ready.

2. **If a “busy tone” is received.** The member should wait until receiving a talk permit tone. At this time the radio will key up for a few seconds. Do not continue to push the Push-to-Talk button once you hear the busy tone, each push-to-talk lowers the queue, extending the time for callback.

3. **Alert Tones:**

- a. **Busy tone similar to phone busy signal.** This tone is heard when a member attempts to transmit a message on a trunked talkgroup when all frequencies are in use.
- b. **4 short beeps received after a busy tone. Automatic Callback** – A frequency is now available for you to transmit. Press PTT and begin the transmission.
- c. **4 beeps every six seconds. Call Alert** has been received by the radio.
- d. **1 beep followed by 5 beeps.** The **Emergency button** has been pressed and was acknowledged by the system.
- e. **3 short rapid beeps when the “PTT” is pressed. Talk permit tone** – The member must wait for these tones before talking on a trunked talkgroup.
- f. **A continuous tone when pressing the PTT. Talk prohibited** – Occurs when pressing PTT and radio is out of range of the trunked system or system is out of service.
- g. **A continuous tone. Time out timer** – This continuous tone indicates your transmission is approaching 60 seconds, and will be discontinued at the 60-second point.
- h. **Momentary higher pitched tone. Valid key chirp** – This tone confirms that you have selected a valid, programmed button.
- i. **A low pitched tone every 10 seconds. Failsoft** – Trunked system failure where multiple agencies share a conventional channel.
- j. **Momentary lower pitched tone. Invalid Chirp** – Indicates that you have selected an un-programmed function.
- k. **High pitched chirp. Low battery** - Portable radio’s battery needs charging.

4. **Radio usage outside of Normal Operating Area:**

- a. Any digital trunked talkgroup will work across the required operational area.
- b. To contact local units, turn to the closest MAT calling channel and call. i.e.; Douglas Dispatch – MS 111 on MAT2
- c. Unless for an approved activity such as prisoner transport, ambulance transfer or other essential service, it is not advised to leave radio on a busy local talkgroup when traveling outside the normal service area:
 - i. This ties up resources on the system, possibly limiting access to other members.
 - ii. Member may miss important emergency traffic in the area that is being traveled through. If this becomes critical, the WyoLink Support Manager may force the offending radio out of the system temporarily.
 - iii. Switching to the local interagency talkgroup will limit i & ii.

B. Member Priorities

Trunked system access priority can be designated by the network administration. There are different levels of system access from 1-Emergency (highest) to 10 (lowest). The access priority affects the position in a queue when the system is busy. **The queue is the order in which system access is granted when all radio site resources are busy, if system resources are available when initiating a call, the priorities are not used.**

1. The order in which member priority is assigned is as follows:
 - 1 – Emergency — Highest priority, when emergency button, if programmed, is activated.
 - 2 – Public Safety Communication Centers - Dispatch.
 - 3 – Law Enforcement, Fire Departments, and Emergency Medical Services
 - 4 – Multiple Agency Talkgroups (MAT) and Emergency Management
 - 5 -
 - 6 – Public Works and Regulatory agencies – Cities, Towns, Counties, State and Federal
 - 7 -
 - 8 - Support Providers and other Government designated agencies & volunteer groups
 - 9 - Public Transportation including School Buses
 - 10 – Data Transmissions

C. ID and Alias Administration

Each agency or entity will be responsible for maintaining a current list of radio serial numbers, radio ID's and aliases.

The WyoLink Support Manager will be responsible for ensuring that all subscribers utilizing the system have complied with these requirements. The WyoLink Support Manager will also furnish, upon request, new subscriber ID's for radios that authorized agencies need to add to the system. In addition to this, the WyoLink Support Manager will also coordinate additional alias needs with the requesting agency.

1. The current configuration has the alias displayed on calls received by dispatch centers that are networked.
2. Every Radio Member ID in the system has to be unique; there can be no duplicated IDs.
3. System limitation is 10 characters – including radio zone identification and alias.
4. The only figures that the system will accept are: Upper Case Alpha, Numeric, Period, Dash, Forward Slash, and Number Sign.
5. The WyoLink Support Manager is responsible for seeing that the defined naming standard is followed and maintained.

D. Call Sign Assignments

Call Signs of any agency or entity, subscribing to the system must be obtained or approved by the WyoLink Support Manager. All Call Signs must conform to the structure specified as follows.

1. **State Agencies:**
State Agencies will format call signs beginning with a phonetic designator that is indicative of the agency they are associated with, followed by a number designator, i.e. **WYDOT###, PAT###, GF###, SH###, DCI###, SP###, HS###, PHN#####, etc.**
2. **Local/Federal Agencies:**
Agencies outside of state government will continue to maintain current call sign naming systems in day to day operations within the agency
3. **Public Service Agencies:**
Agencies outside of state government will continue to maintain current call sign naming systems in day to day operations within the agency
4. **New Agencies on System (Without numbering system):**
Agencies applying for access on the system need to have call sign numbering system approved by the WyoLink Support Manager.
5. **Emergency/Interagency Radio Traffic:**
Call signs for initial emergency or interagency communications on the digital radio system will need to be descriptive of calling agency, *i.e. Worland PD#, Johnson County SO#, FBI#, DCI#, MS #.*
 - a. Once Incident Command has been established, a radio plan will be developed identifying call signs & communications procedures. Each agency will have a person designated as a Member Liaison Officer (MLO) that will maintain a current call sign registry.

VI. FAILURE MODES

A. Description

Trunking system failures may occur due to software problems or equipment failures. Additionally, storms, vandalism, and other events can damage system equipment..

All system failures create significantly increased demand for radio airtime on the available channels as well as limitations in power and coverage. Radio discipline must be maintained at a high level. Radio use will be limited to emergency related and resource management traffic only during System Failure conditions.

B. Site Trunking Failure

1. Failure of the communications link to a trunked site. Radio displays “SITE TRUNKING”. Radios are limited to coverage of the tower where affiliated. Trunking radios are programmed to affiliate to radio sites that are not in “Site Trunking”, but in some cases the radios will only be able to affiliate with a site in “Site Trunking”.
2. When degraded WyoLink capabilities require site trunking, WyoLink Support shall notify affected agency contact personnel. Affected agency supervisors may direct personnel to shift to alternative communication systems or they may arrange for appropriate communications relay of traffic on agency talkgroups at sites in “Site Trunking”. It may be necessary to staff agency control stations site-locked to affected WyoLink sites for relay of site trunking communications outside the local area. There are no provisions for monitoring the MAT talkgroups outside the range of a radio site in “Site Trunking”.

VII. OPERATIONAL PROTOCOL SUMMARY

A. Routine Protocols

1. All communications regardless of nature shall be restricted to the minimum practical transmission time and employ an efficient operating procedure.
2. Unit to unit tactical communications, when feasible, shall be conducted on the appropriate talk around channel.
3. Pronounce words distinctly and rather slowly.
4. The voice should be as emotionless as possible, emotion tends to distort the voice and render it unintelligible.
5. Attempt to make your voice a regular monotone.
6. Emergency messages require no expression, but a high degree of intelligibility.
7. Do not try to be humorous on the air, it never sounds as funny as you think.
8. Do not let anger or impatience be heard in your voice.
9. The FCC forbids profanity and any superfluous or extraneous transmissions.
10. Procedure of initiating a radio call – the calling radio unit shall state the name of the receiving unit followed by their unit. For example, “Johnson County Dispatch, Charlie16” or “Pat 15, Pat 8”. The unit being called shall answer with their own radio call. For example, “Johnson County Dispatch” or “Pat 15”.

11. Procedure for when not on Primary Talkgroup – When a unit of dispatch center makes a call that is not the user’s primary talkgroup or conventional channel, the name of the talkgroup or channel shall also be transmitted. For example, “Goshen Dispatch, Pat 57 on 08MAT1”
12. Calling Talkgroups (Dispatch) – The calling talkgroup is used to dispatch calls for service, contact local dispatch centers and coordinate day-to-day activities of each agency. Lengthy transmissions and specific tactical operations will be conducted on appropriate tactical talkgroup/channel.
13. Tactical Talkgroups – Used for tactical communications between field units and the dispatch center or between field units. On larger incidents, separate and unique tactical talkgroups shall be established for specific functions. Agency specific assignments using agency specific talkgroups/channels are made by local dispatch center. Assignments using county-wide talkgroups/channels are made by dispatch as requested by the Incident Commander or designee.
14. Clear Text shall be used for all radio communications. The use of codes, particularly agency-specific codes have been found to be a barrier in the transmission of information. The most negative effect of codes is a reduction in communications interoperability during multi agency response.
15. Phonetic Alphabet – A phonetic alphabet shall be used for spelling out unusual names, license plate letters and so forth. They are always transmitted as “Alpha,” “Bravo,” or “Charlie” not “A as in Alpha,” etc. Due to the variations of phonetic alphabets, no one phonetic alphabet will be required. Any phonetic alphabet that clearly identifies a letter is acceptable.

B. Routine Traffic

1. All radio communication should be brief and to the point. Radio system traffic shall be limited to official business only. Agency heads are responsible for the appropriate use of the system in accordance with adopted standard protocols. Proper radio etiquette is expected on any communications system. Agency protocols will dictate operations locally.
2. Radio messages will be made and received in the following manner:
 - a. Caller waits for talk permit tone on selected talkgroup.
 - b. When initiating communication on the statewide radio system, the following format will be used.

“Receiving agency/unit—sending unit— on talkgroup used”
i.e. “Wyoming Patrol – DCI-5 on MAT7”.

- c. Receiver acknowledges by stating their state assigned/approved call sign.
 - d. When utilizing private agency talkgroups, call sign protocol is at agency discretion.
3. Local Operation:
- a. Normal operations will be conducted on assigned agency talkgroups.
 - b. Interagency traffic will be conducted on the County Agency Talkgroup (CAT) for that county or Multiple Agency Talkgroup (MAT) for that geographic area.
 - c. County Agency Talkgroups (CAT) and Multiple Agency Talkgroups (MAT) are not to be used for normal dispatch.
4. Operation outside of local area.
- a. Members traveling outside their normal operating area will switch from their local talkgroup to the appropriate MAT talkgroup for the geographic area you are currently in. This is needed to prevent radios from unnecessarily tying up system resources.
 - b. The digital trunked radio system is not currently set up to limit talkgroups to particular sites. This configuration allows necessary communications outside of the normal service area of an agency, often made necessary by prisoner transports, EMS & fire support outside of area.
 - c. The drawback to this wide area operation is that when a talkgroup is transported to another area of the state, all traffic associated with that talkgroup is then repeated over the local tower on which that the member is affiliated. This can cause an overload situation for the local radio site, especially if a large number of members are affiliated on their home talkgroups on a single radio site. This may result in a busy condition for not only the local members where the outside talkgroups are brought into, but a potential talkgroup busy back in the home area of the member.
 - d. The system is designed for this purpose, but within capacity limitations. Use home talkgroups outside of normal service area only when necessary.
5. Monitoring of talkgroups outside of home area for non-service related business is prohibited.
- a. The effect on system same as outlined above in Section VII(B)(4)(c).
 - b. Monitoring is defined as the actual affiliation of the radio on the talkgroup selected.

- c. Non-selected talkgroups being scanned do not have the same impact on system. Scanning listens but does not affiliate with a radio site.

C. Events

An event is defined as a non-scheduled significant incident that requires the coordinated response and interoperability of multiple agencies or jurisdictions, this includes incidents that move between jurisdictions.

1. When a situation dictates coordinated resources from agencies without common talkgroups, communications will be on the CAT Talkgroups for that county or MAT talkgroup for that geographic area.
2. All responding units will monitor the CAT or MAT calling talkgroup designated by the requesting agency for additional information and the initial report on conditions.
3. CAT and/or MAT tactical talkgroup(s) will be assigned for the duration of the emergency upon request.
4. The responsible radio dispatch will be notified by the requesting agency or Incident Commander when the requested talkgroup(s) will no longer be needed.
5. If the event “travels” from one MAT talkgroup area to another (i.e. a law enforcement pursuit or a series of severe weather events), it is recommended that the radio traffic be routed through the appropriate Dispatch Center in that area for coordinated communications.

D. Planned/Scheduled Events

Any event, known in advance, that requires additional communications resources.

1. CAT and/or MAT tactical talkgroup(s) will be assigned as available for the duration of the event upon request. Talkgroup assignment is subject to pre-emption if required for reassignment to an emergency incident.
 - a. CAT and/or MAT tactical talkgroups should be scheduled as far in advance as possible.
2. Appropriate radio dispatch will be notified by requesting agency or Incident Commander when the requested talkgroup will no longer be needed.

E. Heavy Radio Traffic Conditions

1. If a Communications Center or an Incident Commander feels that excessive non-essential radio traffic is impacting dispatch operations or incident operations, the Incident Commander or Communications Center will make a radio traffic restriction announcement. This announcement will be made on appropriate talkgroup(s). The radio traffic restriction announcement will normally be, "Hold all non-emergency traffic".
 - a. An alternate agency talkgroup can be assigned by Communications Center for non-incident related communications.
2. When the condition is over, the Communications Center or the Incident Commander will broadcast a message announcing resumption of normal radio traffic conditions.

F. Use of Equipment in Electronically Sensitive Areas

Radio equipment generates Radio Frequency Interference (RFI) that may interfere with blasting operations, operation of medical or other sensitive electronic equipment. Caution needs to be observed when operating radio equipment in such areas. Trunked radios continually transmit and receive information on the control channel. In known or marked areas of RFI, the trunked radio shall be shut off.

VIII. TALKGROUPS

The WyoLink Support Office will work with and prepare a Fleetmap for the Member based on the Member's current and ongoing communication needs and priorities. Fleetmap programming by WyoLink will commence once the Member approves the Fleetmap and the Authorization for New Talkgroup or System Access and Membership Agreements are received by Communications Commission. The WyoLink Support Office will work with each member to design unique talkgroups to be used by the member for normal internal traffic. The number of talkgroups allowed is determined by agency scope, size and service delivery area.

WyoLink firmly advocates and aggressively pursues multi-agency sharing of county-wide (CAT) and regional (MAT) talkgroups.

A. Statewide Talkgroups

All MAT talkgroups are available for use by all WyoLink agencies. The following MAT talkgroup descriptions and allocations are recommended for operational usage however individual events will govern the actual assignment and usage of any MAT talkgroup.

Four multiple agency talkgroups have been assigned to each of the seven geographic areas throughout Wyoming and state-wide for multi-agency coordination. All dispatch centers within each MAT area shall monitor the MAT calling talkgroup for that MAT area.

Region 1: Sheridan, Johnson, Campbell, Crook, and Weston counties.

MAT 1: This talkgroup will be used for intra-regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 1. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 1-A(lpha), MAT 1-B(ravo), and MAT 1-C(harlie) – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses.

Region 2: Natrona, Converse, and Niobrara counties.

MAT 2: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 2. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 2-A(lpha), MAT 2-B(ravo), and MAT 2-C(harlie)– Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses.

Region 3: Albany and Carbon counties.

MAT 3: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 3. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 3-A(lpha), MAT 3-B(ravo), and MAT 3-C(harlie) – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses

Region 4: Sweetwater, Lincoln, and Uinta counties.

MAT 4: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 4. This talkgroup can be used by non-public safety agencies for multiple agency

coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 4-A(lpha), MAT 4-B(ravo), and MAT 4-C(harlie) – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses

Region 5: Fremont, Teton, and Sublette counties.

MAT 5: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 5. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 5-A(lpha), MAT 5-B(ravo), and MAT 5-C(harlie) – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses.

Region 6: Washakie, Big Horn, Hot Springs, and Park counties.

MAT 6: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 2. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 6-A(lpha), MAT 6-B(ravo), and MAT 6-C(harlie) – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses.

Region 7: Laramie, Platte, and Goshen counties.

MAT 7: This talkgroup will be used for intra -regional multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within Region 2. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

MAT 7-A(lpha), MAT 7-B(ravo), and MAT 7-C(harlie) - Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses

Region 0: State-Wide Multiple Agency Talkgroup

MAT 0: This talkgroup will be used for state-wide multiple agency coordination and communications. This also has been designated the contact channel for any

subscriber user that has an incident or need for a multiple jurisdiction response involving agencies from multiple regions.

MAT 0-A(lpha), MAT 0-B(ravo), and MAT 0-C(harlie) - Tactical talkgroups that can be assigned as needed within the state for multiple agency responses.

B. National Weather Service (NWS) Talkgroups

The NWS talkgroups are a direct link to the National Weather Service Offices. These Talkgroups are to be used for communications with NWS when relaying weather spotter, fire conditions and other weather related information from the field. All radios on the system may be programmed with these talkgroups. These talkgroups shall be labeled as follows:

Cheyenne Weather – NWS CHY
Riverton Weather – NWS RIV
Rapid City Weather – NWS RC
Billings Weather – NWS BIL
Salt Lake City Weather – NWS SLC

C. County-Wide Talkgroups

All CAT talkgroups are available for use by all WyoLink agencies. CAT talkgroup descriptions and allocations are recommended for operational usage however individual events will govern the actual assignment and usage of any CAT channel.

Four county agency talkgroups have been assigned to each of the counties throughout Wyoming for multi-agency coordination. All dispatch centers within each County should monitor the CAT calling talkgroup for that County.

##CAT 1: This talkgroup will be used for inter-county multiple agency coordination and communications. This also has been designated the contact channel for any subscriber user coming into the region who needs to communicate with an agency within that county. This talkgroup can be used by non-public safety agencies for multiple agency coordination and communications or by any public safety agency whose assigned talkgroup may already be in use.

##CAT 2, ##CAT 3 and ##CAT 4 – Tactical talkgroups that can be assigned as needed within the Region for multiple agency responses. ## is the county number – e.g. 07 for Goshen County

D. Agency Talkgroups

Each agency is considered as "owner" of the private talkgroups assigned to them. Agencies are expected to use the talkgroups assigned to the department for all intradepartmental traffic. Policies and procedures for the use of the agency talkgroup are at the discretion of the department, within the technical limitations set forth in Section VII(B)(4).

E. Requests for Additional Talkgroups

Requests for new talkgroups will be submitted to WyoLink Support Office using the WyoLink Application for System Access or New Talkgroup. Authorization of private talkgroups for operations and monitoring of other agencies will be processed through WyoLink Support Office. WyoLink Application for System Access or New Talkgroup will be filled out for each authorization, a copy kept on file, and another copy sent to:

WyoLink
Wyoming Department of Transportation
5300 Bishop Blvd
Cheyenne, WY 82009
Or E-Mailed to wyoink@wyo.gov

IX. AUTHORIZED SYSTEM ACCESS

A. Access

Generally, access will be granted to first responders and emergency response support providers, as defined in Section III. However, all applications are subject to review by the WyoLink Support Manager. If the governmental response to emergencies would benefit from the participation of a non-governmental entity on the WyoLink public safety interoperable communication system, that non-governmental entity shall apply for WyoLink Membership with a sponsorship of a cognizant governmental first responder agency.

B. First Responder

1. Law Enforcement

Any agency recognized by the WY Attorney General, and their associated dispatch/911 operations

Any agency recognized by US Attorney General

Any agency recognized as a tribal law-enforcement agency

2. Fire Departments

Any agency recognized by State Fire Marshal's Office or Wyoming Forestry

Any federally recognized fire agency/department

Any tribal fire agency/department

3. Emergency Medical Services

Ambulances: Any licensed ambulance service

Medical Facilities: Any hospital or health care facility recognized by the Wyoming Department of Health

4. Homeland Security and Emergency Management

Any emergency management agency recognized by the Wyoming Office of Homeland Security

C. Emergency Response Support

1. Public Works with first responder and emergency response roles

State agencies with public works missions, such as Department of Transportation and State Engineer
Town, City, and County Road & Bridge departments, etc.

2. Support Providers

Volunteer organizations explicitly named in official governmental emergency response plans such as Red Cross, Salvation Army, Amateur Radio Emergency Services and like emergency support providers.

Communications service providers contracted by governmental agencies to support first responder radio maintenance or operations.

National Weather Service: Five (5) current weather services offices

Utilities

3. Public Transportation

Organizations with resources explicitly named in official governmental emergency response plans, including School Buses

4. Other Governmental Agencies

Court Services/Corrections and Regulatory, but not designated as law enforcement
Others with first responder and emergency response roles in Wyoming

D. Applying for System Access

1. Application Process

Agencies wishing to participate in WyoLink should implement the following steps:

- a. Complete the WyoLink Membership Application. The Membership Application is available from the PSCC and is available on the WyoLink and PSCC web sites – <http://wyolink.wyoming.gov/> or <http://psc.wyoming.gov/> .
- b. Mail or email the application to WyoLink Support Office at the address listed on the application.

- c. The WyoLink Support Office will review the application to validate qualifications and prepare recommendations to the PSCC.
- d. The PSCC decision will be communicated to the applicant as well as any documentation needed and any provision made.
- e. Upon the PSCC approval of the application, the WyoLink Support Office will develop a WyoLink Membership Agreement. Upon review by the Wyoming Attorney General's Office and signed by the PSCC Chairman, the WyoLink membership Agreement will be sent to the applicant for signatures. The completed signature page shall be returned to the WyoLink Support Office.
- f. Coordinate feasibility, agency radios and fleet mapping with the WyoLink Support Manager.
- g. The applicant will coordinate with one of the authorized subscriber programming agencies for template development parameters.
- h. The applicant is encouraged to begin attending WyoLink and Communications Commission meetings and may participate in committee meetings on topics in which they may be interested.

2. Acceptance of New Members

To ensure compliance with WyoLink rules and regulations and to properly coordinate Subscriber ID and Talkgroup assignments on WyoLink, the WyoLink Support Manager will coordinate these assignments for the initial integration of the agency. This will include agency specific talkgroups as well as standard Multiple Agency Talkgroups that are available. The agency will need to discuss the talkgroup/channel layout for their radio equipment, available features and functions to be included in their programming template. The type and model of the agency's radios will also need to be provided. Upon receiving the talkgroup assignments, subscriber profiles and authorizations the agency can then contact an authorized service provider to program subscriber's radio equipment for use on WyoLink. Upon the completion of the programming, the authorized service provider shall contact the WyoLink Support Manager to have the subscriber ID's activated in the master controller.

E. Console Access

Direct connected dispatch consoles must be closely coordinated and conform to the technical requirements established by the WyoLink Support Manager and WyoLink Technical Support. Agencies requesting direct dispatch console connection to WyoLink shall mark the "Communications Center" box on WyoLink Membership Application and submit documentation indicating area and agencies served, channel or talkgroup recording capabilities, and console type and model.

Channel naming for conventional channels and /or frequencies for any console that connects to WyoLink shall be in a standardized format with a maximum of ten (10) characters with the first two (2) characters as the County Numerical Identifier and up to six (6) characters of the agencies choice. For Example - 22FIRE, 06RFD, 10RFD, 02LE1, 07TORPD

X. RELATIONSHIP MANAGEMENT/DISPUTE RESOLUTION

A. Relationship Managers

Each party to the Membership Agreement will designate a member of its senior management staff who will be single points of contact involved in the operational aspects of the relationship between WyoLink and the Member. WyoLink will meet with the relationship manager by request to discuss relationship strategies affecting both parties, summarize current activities, performance results, service requests, error corrections, dispute resolutions, as well as planned activities. The member shall inform the WyoLink Support Manager of any changes to their relationship manager in writing.

B. Dispute Resolution

If any issue of WyoLink non-compliance arises, the parties agree to resolve the issue at the lowest management level of each party. In the event the issue remains unresolved, the parties agree to immediately escalate the issue to the Relationship Managers for their consideration. The Relationship Managers will consider the details of the non-compliance issue, assess whether there have been past issues of non-compliance, determine how long the non-compliance has been continuing, determine the seriousness of the non-compliance, and negotiate, in good faith, a mutually agreeable solution. In the event the Relationship Managers cannot agree on a solution, the non-compliance issue shall be directed to the WyoLink Support Manager who will consult with and seek advice from the Communications Commission on resolution of the non-compliance issue.

1. Recommended procedure for non-compliance may come to the attention of various personnel as a result of routine monitoring, an audit, a report or complaint from radio members, to name a few of the possible alternatives.
2. Regardless of how the issue arises, as soon as there is awareness of non-compliance:
 - a. The individual discovering non-compliance is obliged to immediately report it to their respective relationship manager or administrator.
 - b. The relationship managers shall negotiate, in good faith, a mutually agreeable solution.
 - c. The relationship managers will follow up to ensure that all steps and or corrective action have been completed within the time frame.
 - d. Should immediate action be required, the WyoLink Support Manager will notify the non-compliant agency of the required action. This will include a request to explain the reason for noncompliance.

3. If the matter is determined to be urgent by the WyoLink Support Manager, it will be placed on the next Communications Commission meeting agenda.
 - a. The WyoLink Support Manager will notify the Relationship Manager of the agency not in compliance.
 - i. The date the matter will come before the Communications Commission
 - ii. Their rights to appeal.
 - b. The Communications Commission will hear the issue and recommend corrective action or consequences. These will be communicated to the violator within 10 days.
 - c. For urgent situations where non-compliance with these procedures is degrading the overall system performance, the WyoLink Support Manager or the WyoLink Support Office designee is authorized to take necessary technical measures to change the permissions on any subscriber's radio to correct the problem immediately. Appropriate follow-up notification will be made in accordance with the relationship-management procedures.

C. Revocation of Privileges

The objective of this procedure is to describe the consequences of non-compliance. These consequences will be spelled out for varying degrees and duration of non-compliance.

The ability to communicate between full participants and non-participants in the statewide system is possible due to the inter-operational hardware and software. The improper use of this hardware can have minor to grave consequences. These standards, policies and procedures have been set forth to describe how and under what conditions WyoLink will be used. This is essential in order to maximize service to the citizens of the state and minimize potential negative consequences. Responsible management of this resource, therefore, requires that standards, protocols and procedures be enforced and that consequences of non-compliance be developed and implemented.

Recommended Protocol/ Standard: Consequences of failure to comply with these standards, protocols and procedures fall into two categories of non-compliance.

Moderate to high - potential for serious adverse effect on participants and/or non-participants of WyoLink.

Low - potential for adverse effect on participants and/or non-participants of WyoLink.

Wyoming Statutes 9-2-1101(a)(v) authorized the Wyoming Public Safety Communications Commission to promulgate necessary rules and regulations governing system operation and participation and upon failure to comply with adopted rules and regulations, may suspend system

use and participation by any participating and non-complying public safety agency or private entity;, and shall be regarded as the system owner. Failure to comply with the protocols may result in the following actions:

Moderate to high

First violation	Written order to immediately stop the non-compliant practice. Either the WyoLink Support Manager, Communications Commission, owner agency of affected Systems/Sub-System may send this letter, with a copy to the all affected parties. The governing body of the violating agency shall be notified of the violation.
Failure to correct problem and respond within 30 days <u>or</u> 2nd offense within 180 days	Suspension of member privileges on WyoLink to the extent of time recommended by the Communications Commission and executed by the Communications Commission with prior notification to the affected agencies.
Failure to respond within 60 days <u>or</u> 3rd offense within 180 days	Revocation of member privileges on WyoLink. This action must be recommended by the Communications Commission and executed by the WyoLink Support Manager

Low

First violation	Written warning calling attention to the non-compliant practice. The violator is asked to stop the non-compliant practice(s). The WyoLink Support Manager or owner agency may send the warning with a copy to the Communications Commission and affected parties. The governing body of the violating agency shall be notified of the violation.
Failure to respond within 30 days <u>or</u> 2nd offense within 180 days	Written order to immediately stop the non-compliant practice or be subject to suspension or revocation of member privileges. The WyoLink Support Manager or the owner agency may send this letter with a copy to the affected agencies and the Communications Commission.

Failure to respond within 60 days or 3rd offense within 180 days	Suspension or revocation of member privileges on WyoLink. The specific penalty must be recommended by the Communications Commission and executed by the WyoLink Support Manager
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D. Appeals

All members of WyoLink, whether full participants or conventional members connecting by means of inter-operational infrastructure, have the right to appeal a procedure, a decision or a sanction set forth.

1. In the event of a dispute regarding the outcome of non-compliance procedures, an aggrieved party may file a written appeal to reverse recommendations or sanctions within 30 days of issuance of directives.
2. Within ten days of receiving a request for appeal, the WyoLink Support Manager shall provide written notice of the request to all involved parties and set a date for an appeal hearing by the Communications Commission within 45 days.
3. DECISION – The Communications Commission, after a hearing on the matter, shall make a decision regarding the dispute within 60 days and transmit an order to all parties involved. The action called for shall be implemented in accordance with the order. Copies of the order will be mailed to all affected parties and the WyoLink Support Manager.

XI. SUBSCRIBER AND SYSTEM SUPPORT

A. Support Responsibilities

Subscriber shall be responsible for the maintenance and repairs of the subscriber owned radio equipment including dispatch consoles, base stations, repeaters, mobile radios, portable radios and recording equipment. This assures that the Member’s radios are in optimal operating order and will not have an adverse impact on other Members’ use of WyoLink. The Member’s service provider and the service provider’s credentials will need to be reviewed by WyoLink to assure the service provider understands and can comply with Communications Commission standards, guidelines, and protocols and is “qualified” to service the Member’s radio equipment.

The following chart outlines the responsibilities of WyoLink Support and the owning agency for the listed tasks or equipment.

	WyoLink Zone & Master Site Equipment	Core WyoLink Sites	Portable Coverage Enhancement Sites	Sites Not Built by WyoLink	Console Equipment (At Console Location)	Subscriber Equipment (Mobile & portable radios)
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System Administration & Monitoring	WyoLink	WyoLink	WyoLink	WyoLink	WyoLink	WyoLink
Connectivity Maintenance (T-1 Lines)	WyoLink	WyoLink	WyoLink	WyoLink ⁽¹⁾	WyoLink ⁽¹⁾	Not Applicable
Upgrades to Support WyoLink Version Upgrades	WyoLink	WyoLink	WyoLink	WyoLink	WyoLink	Owning Agency
Equipment Maintenance	WyoLink	WyoLink	WyoLink	Owning Agency	Owning Agency	Owning Agency
Radio Hardware Upgrades ⁽²⁾	WyoLink	WyoLink	WyoLink	Owning Agency	Owning Agency	Owning Agency
Site and Facility Maintenance	WyoLink	WyoLink	Owning Agency	Owning Agency	Owning Agency	Not Applicable
Console Programming Changes	WyoLink	Not Applicable	Not Applicable	Not Applicable	Owning Agency	Not Applicable

⁽¹⁾ Leased telephone circuits are generally WyoLink responsibility, but redundant microwave, if desired by a locality, is the responsibility of the owning agency

⁽²⁾ Radio Hardware Upgrades are optional upgrades which do not affect the WyoLink System operation or owning agency WyoLink usage. Examples include: base repeater upgrades, end user equipment upgrades, site controller upgrades, or any upgrades not required by system upgrades.

B. Problem Reporting

When a problem is detected on the WyoLink system, the WyoLink Member will first make every reasonable effort to determine that the problem is not due to malfunction of the Member's equipment. Once the problem has been determined to be with WyoLink equipment, the Member will call the **WyoLink Support Center (WSC) at 307-777-4885** and report the problem. Problems of all Severity Levels can be reported and will be attended to in accordance with the procedures outlined in this chapter

C. Severity Levels

With the 24/7 mission critical requirements for WyoLink, it is absolutely necessary to strive for maximum system availability with minimum down time, service impairment or disruption. The overall design of WyoLink provides several levels of redundancy that enables meeting this objective however, failures of varying degrees will occur. Depending on the location and type of failure or outage, the impact to the system and users can range from no impact to the total loss of service. Failures and outages must be defined in several levels according to the impact on the system and users. The level will then drive the type of response required. The following levels and definitions have been established. Specific failure and outage are listed in Table XI-A. The initial failure/outage level shall be determined by the affected agency/users using Table XI-A. The level may be escalated or de-escalated as described in Section E.

Critical (Level 1) – A system failure or outage that creates total system unavailability to one or more sites, one or more coverage areas, or one or more groups of users.

Severe (Level 2) – A system failure or outage that impacts or reduces the coverage, the capacity, or the operational capability of the system, site, coverage area or group of users. (Approximately 1/3 or more of the available resources have failed)

Impaired Service Affecting (Level 3) - A system failure or outage that reduces the coverage, capacity, operational capability of the system, sites, coverage area or group of users. (Approximately less than 1/3 of the available resources have failed.)

Impaired Non Service Affecting (Level 4) - A system failure or outage that has little or no reduction in coverage, capacity, operational capability of the system, sites, coverage area or group of users.

Table XI-A

WyoLink Severity Classifications			Reporting Requirements			
Classification Type	Classification Level	Failure or outage type	Initial Mobilization Plan	Initial Follow up after mobilization	Subsequent follow up notifications	Maximum Restoring time upon arrival
Critical	1	Entire zone down	1 hour	2 hours	4 hours	4 hours
Critical	1	Multiple Sites Down	1 hour	2 hours	4 hours	4 hours
Critical	1	Single site down with no overlapping coverage	1 hour	2 hours	4 hours	4 hours
Critical	1	Dispatch center down (all consoles)	1 hour	2 hours	4 hours	4 hours
Critical	1	Microwave backbone down effecting 2 or more sites	1 hour	2 hours	4 hours	4 hours
Critical	1	More than 66% of site channels down	1 hour	2 hours	4 hours	4 hours
Critical	1	No interzone traffic	1 hour	2 hours	4 hours	4 hours
Severe	2	Single site down with overlapping coverage	2 hours	2 hours	4 hours	8 hours
Severe	2	More than 33% of site channels down	2 hours	2 hours	4 hours	8 hours
Severe	2	microwave system down at a single site	2 hours	2 hours	4 hours	8 hours
Severe	2	Primary power outage, no generator	2 hours	2 hours	4 hours	8 hours
Impaired - Service Effecting	3	Single channel down at a high traffic site	4 hours	2 hours	4 hours	8 hours
Impaired - Service Effecting	3	Single site reduced coverage	4 hours	2 hours	4 hours	8 hours
Impaired - Service Effecting	3	Interference at 1 or more sites	4 hours	2 hours	4 hours	8 hours
Impaired - Service Effecting	3	HVAC alarm	4 hours	2 hours	4 hours	8 hours
Impaired - Service Effecting	3	Single dispatch console down	4 hours	2 hours	4 hours	8 hours
Impaired - Non Service Effecting	4	Single channel down	4 hours	NA	24 hours	72 hours
Impaired - Non Service Effecting	4	Primary power outage, generator running	4 hours	NA	24 hours	72 hours
Impaired - Non Service Effecting	4	Primary power up, generator out of service	4 hours	NA	24 hours	72 hours

D. Maintenance Response and Service Restoration

In order to meet the system availability objectives, a specific response and service restoration level must also be defined based of the failure/outage level. Due to the remote locations of WyoLink sites and the access conditions, methods and seasonal changes, it is not possible to provide specific or guaranteed service restoration times. It is however reasonable and necessary to provide specific response plans including target service restoration times, depending on the failure/outage level. The response plan for each level is defined as follows:

Critical (Level 1) - Upon notification of a failure/outage by either automatic or manual means, the responsible agency shall immediately begin investigation into the reasons, location and system/user impact. Additional notifications should be made as soon as practical to the WSC at 307-777-4885, affected areas, users and/or other service providers as necessary. Service personnel shall strive to have the location and failure/outage identified within 1 hour after the initial notification. Mobilization of the required resources necessary for service restoration should begin within 1 hour after the location and failure is determined. Initial follow up notifications should take place within 2 hours after initial notification to the affected areas, users and/or other service providers as necessary and every 2 hours thereafter until service is fully restored or the level reduced to Impaired Non Service Affecting. The follow up notifications shall include the estimated time for service personnel to be on site at the failure/outage location, overall system impact, temporary work around if applicable. Within 1 hour after arrival at the failure/outage site a restoration plan and time estimation shall be communicated to the affected areas, users and/or other service providers as necessary. Follow up notification on the progress with revised restoration time estimates shall be made every 2 hours. If the estimated restoration time frame exceeds 4 hours from arrival on site, a notification call with details of the failure/outage and the restoration plan including estimated time to repair shall be made to all affected parties and all service providers. Once service is restored the affected areas, the WyoLink, users and/or other service providers shall be notified to confirm system restoration prior the leaving the site or demobilization. Outage reporting and documentation shall be completed and submitted as required in Section F.

Severe (Level 2) - Upon notification of a failure/outage by either automatic or manual means, the responsible agency shall immediately begin investigation into the reasons, location and system/user impact. Additional notifications should be made as soon as practical to the WSC, affected areas, users and/or other service providers as necessary. Service personnel shall strive to have the location and failure/outage identified within 2 hours after the initial notification. Mobilization of the required resources necessary for service restoration should begin within 2 hours after the location and failure is determined. Initial follow up notifications should take place within 2 hours after initial notification to the affected areas, users and/or other service providers as necessary and every 4 hours thereafter until service is fully restored or the level reduced to Impaired Non Service Affecting. The follow up notifications shall include the estimated time for service personnel to be on site at the failure/outage location, overall system impact, temporary work around if applicable. Within 1 hour after arrival at the failure/outage site a restoration plan and time estimation shall be communicated to the affected areas, users and/or other service providers as necessary. Follow up notification on the progress with revised restoration time estimates shall be made every 4 hours. If the estimated restoration time frame exceeds 8 hours from arrival on site, a notification call with details of the failure/outage and the restoration plan including estimated time to repair shall be made to all affected parties and all service providers. Once service is restored the affected areas, the WSC, users and/or other service providers shall be notified to confirm system restoration prior the leaving the site or demobilization. Outage reporting and documentation shall be completed and submitted as required in Section F.

Impaired Service Affecting (Level 3) - Upon notification of a failure/outage by either automatic or manual means, the responsible agency within 1 hour shall begin investigation into the reasons, location and system/user impact. Additional notifications should be made as soon as practical to the WSC, affected areas, users and/or other service providers as necessary. Service personnel shall strive to have the location and failure/outage identified within 2 hours after the initial notification. Mobilization of the required resources necessary for service restoration should begin within 4 hours after the location and failure is determined. Initial follow up notifications should take place within 2 hours after initial notification to the affected areas, users and/or other service providers as necessary and every 4 hours thereafter until service is fully restored or the level reduced to Impaired Non Service Affecting. The follow up notifications shall include the estimated time for service personnel to be on site at the failure/outage location, overall system impact, and a temporary work around if applicable. Within 1 hour after arrival at the failure/outage site a restoration plan and time estimation shall be communicated to the affected areas, users and/or other service providers as necessary. Follow up notification on the progress with revised restoration time estimates shall be made every 4 hours. If the estimated restoration time frame exceeds 8 hours from arrival on site, a notification call with details of the failure/outage and the restoration plan including estimated time to repair shall be made to all affected parties and all service providers. Once service is restored the affected areas, the WSC, users and/or other service providers shall be notified to confirm system restoration prior the leaving the site or demobilization. Outage reporting and documentation shall be completed and submitted as required in Section F.

Impaired Non Service Affecting (Level 4) - Upon notification of a failure/outage by either automatic or manual means, the responsible agency within 4 hours shall begin investigation into the reasons, location and system/user impact. Additional notifications should be made as soon as practical to the WSC, affected areas, users and/or other service providers as necessary. Service personnel shall strive to have the location and failure/outage identified within 24 hours after the initial notification. Mobilization of the required resources necessary for service restoration should begin within 24 hours or the next business day after the location and failure is determined. If the estimated restoration time frame exceeds 72 hours from the initial notification, a notification call with details of the failure/outage and the restoration plan including estimated time to repair shall be made to affected areas, users and/or other service providers as appropriate. Once service is restored the affected areas, the WSC, users and/or other service providers shall be notified to confirm system restoration prior the leaving the site or demobilization. Outage reporting and documentation shall be completed and submitted as required in Section F.

E. Escalation Procedures

The initial failure/outage level shall be determined by the affected agency/user as described in Section C. Due to the complexity of the system, the initial determination may not be correct or the circumstances, current events or actual failure/outage may require the level to be changed.

User Escalation – At any time during the failure/outage, agencies may request that the level be escalated to a higher level. The escalation request shall include the information on what has changed since the initial level determination and how the request meets the criteria for the

requested level as defined in Table XI-A. The responsible service agency shall evaluate and discuss the escalation request with the requesting agency. If the request meets the criteria for the higher level as defined in Table XI-A, the level shall be escalated and the appropriate response and restoration plan implemented. If the request does not meet the criteria for the higher level as defined in Table XI-A, the level shall not be escalated. If an agreement cannot be reached between the affected agency and the service provider, the level shall be escalated and the appropriate response and restoration plan implemented. All escalations shall be documented and reported as required in Section F.

Service Provider Escalation/De-Escalation – After the actual failure/outage cause has been determined, a service provider may raise or lower the level as appropriate if failure/outage meets the criteria in Table XI-B for the new level. If the initial level is changed, a new notification should be made to the affected areas, users and/or other service providers as necessary and the appropriate response and restoration plan implemented.

Table XI-B

Timeframe	Event that Triggers Escalation	Escalation Response
Immediately on Receipt of Notification of WyoLink Maintenance Requirement	<ul style="list-style-type: none"> • No response from technician on duty 	<ul style="list-style-type: none"> • WyoLink’s Support Staff calls the first person in the escalation directory. If that person cannot be reached, the next person in the directory is called until a technician is reached.
2 Hours from open action request	<ul style="list-style-type: none"> • Technician has not arrived at the site • Non-conformance with WyoLink Standards of Maintenance Performance requirements stated in agreement 	<ul style="list-style-type: none"> • WyoLink calls the Member to inform them the technician has not arrived; advises the Member of the estimated time of arrival. • If original Technician cannot reach the site on time, another Technician will be dispatched. • WyoLink Support Staff will notify the Member of change in status.
4 Hours After Receipt of Action request	<ul style="list-style-type: none"> • Restoration has not been completed and resolution is still unknown • Non-conformance with WyoLink Standards of Maintenance Performance stated in agreement 	<ul style="list-style-type: none"> • WyoLink calls the Member to inform them the repair has not been completed. WyoLink advises Member of the estimated time of restoration and any conditions that affect restoration. • If restoration cannot be accomplished, WyoLink will notify the Member, and outline emergency procedures to be implemented. WyoLink will work with the Member to identify operational work

		options needed to continue system operations.
6 Hours After Receipt of Action request	• No restoration accomplished	<ul style="list-style-type: none"> • WyoLink Support Staff notifies Member. • WyoLink Help Desk Staff notifies appropriate project engineering staff personnel and the Program Administrator.
8 hours after receipt of action request	• No restoration accomplished	<ul style="list-style-type: none"> • WyoLink Support Staff requests specialized assistance from product service depot.

F. Maintenance History Reporting

Any agency that has a service disruption, outage or failure should report the problem to the **WyoLink Support Center (WSC) at 307-777-4885**. The WyoLink Support Center will enter the failure or outage in a Failure/Outage Log, assist with classifying the severity level of failure/outage and obtain other relevant information. Based on the location and type of failure/outage the WSC will then contact the appropriate agencies to initiate the response if necessary. All required follow up notifications should be communicated to the WSC so they can be entered into the Failure/Outage Log Action Plan. The WSC may assist with the notifications.

At a minimum the following information will be entered into the Failure/Outage Log:

- Reported failure, outage or trouble
- Date & time reported
- Reporting person, agency and contact information
- Affected Site or area
- Initial Severity Classification
- Responsible service provider
- Action plan for responding to or correcting the failure/outage (Action Plan)
- The maintenance provider will provide updates to the “Action Plan” as they are required according to the severity level of the failure/outage.
- Failure/Outage corrected date & time.

The Failure/Outage Log information may be shared among all service providers to establish a knowledge base for future issues.

G. Maintenance Safety

Regardless of the categorized condition, times can be delayed or given an alternate suspense time/date if the repair would jeopardize the safety of response personnel. i.e., if the repair would require the climbing of an icy tower, or taking a Sno-Cat across a snowfield that undercuts a

cornice - the response can be delayed until safe passage and work conditions can be achieved. Or, a risk analysis needs to be performed.

H. Wireline Dispatch Consoles

Members are responsible for coordination of their agency console maintenance. Members experiencing communication problems that they believe are console related should follow any agency operating procedures for maintenance. Member requested configuration changes to dispatch consoles will be forwarded to the WyoLink Support Center (WSC) at 307-777-4885. WyoLink support and member will develop an action plan for completing the requested changes. Loss of dispatch services will be attended to according to Section C

I. Windows Computer Maintenance

All Windows Based PCs connected to WyoLink must have the latest Motorola Approved Patches and Updates installed. Owing agencies are responsible for coordination of their agency Windows computer maintenance. This includes, but is not limited to:, MCC7500 consoles, Archiving Interface Servers, IP Loggers, Network Management clients and MOSCAD clients. Users experiencing communication problems that they believe are Windows PC-related should follow any agency operating procedures for maintenance. Windows operating system software updates are pushed to all Windows PCs monthly by the WyoLink System Administrator. User agencies are responsible for rebooting the computer for each console position after the 15th day of the month but no later than the 22nd day of the month to install the updates and ensure all patched vulnerabilities are installed. It is recommended that Windows PCs at a location be updated one PC at a time.

XII. ATTACHMENTS

1. Wyoming Public Safety Communications Commission Rules and Regulations

Attachment 1
Wyoming Public Safety Communications Commission
Rules and Regulations

Chapter 1

GENERAL PROVISIONS

Section 1. - Authority

(a) These rules are written in accordance with the authority provided in Wyoming Statute §9-2-1104(a)(v) and pursuant to the requirements of the Wyoming Administrative Procedure Act, Wyoming Statute §16-3-101 et seq.

Section 2 - Purpose

(a) The purpose of the Wyoming Public Safety Communications Commission is:

(i) Promote the development, improvement and efficiency of public safety communications systems in the state.

(ii) Promulgate necessary rules and establish policies and procedures to govern the operation, participation, and user fees of the WyoLink system.

(iii) Determine the participation requirements of public safety agencies and private entities in the wireless communications network.

Section 3. - Definitions

(a) These rules shall be known as the “Wyoming Public Safety Radio Communications Rules.”

(b) “Administrator” means the State of Wyoming employee that is tasked with the operation and management of the WyoLink system.

(c) “Commission” means the Wyoming Public Safety Communications Commission.

(d) “Director” means the Wyoming Public Safety Communications Commission Executive Director.

(e) “WyoLink” means Wyoming’s Public Safety Radio Communications System.

Chapter 2

ADMINISTRATIVE PROCEDURES

Section 1 – **Policies and Procedures**

(a) The Commission shall establish policies and procedures to provide administrative guidance and control over the management and operation of WyoLink and other State of Wyoming owned statewide radio communications system(s) used by participating agencies.

Section 2 – **Participation Determination**

(a) Agencies shall be allowed to participate on WyoLink upon completion of an application form supplied by the Commission and agreeing to follow and comply with all policies and procedures of the Commission.

Section 3 – **Rules and Regulations of the Federal Communications Commission**

(a) Citation to applicable federal law or regulation:

47 CFR 90 establishes the rules and regulations for the Federal Communications Commission, Part 90 Private Land Mobile Radio Services. The provisions of these rules and regulations govern WyoLink.

(b) The Federal Communications Commission Rules and Regulations may be viewed and downloaded from the Government Printing Office (GPO) website: http://www.access.gpo.gov/nara/cfr/waisidx_05/47cfr90_05.html

Section 4 – **Rules and Regulations of the National Telecommunications and Information Administration**

Section 305(a) of the Communications Act of 1934 provides for the regulation of interstate and foreign commerce in communications by wire or radio. The provisions of these rules and regulations govern federal radio frequency participation in WyoLink.

(a) The National Telecommunications and Information Administration Manual of Regulations and Procedures For Federal Frequency Management may be viewed and downloaded from the National Telecommunications and Information Administration website: <http://www.ntia.doc.gov/osmhome/redbook/redbook.html>

Section 5 – **Fees**

(a) Pursuant to Wyoming Statute § 9-2-1104(a)(iv) the commission shall review the operational and maintenance requirements and expenditures to determine fees, if any, for the fiscal year starting on July 1 and ending on June 30 of the following year at the first meeting of the commission after March 1 of each year.

Chapter 3

APPEAL PROCEDURES

Section 1 – **Purpose**

(a) These rules are established to provide a fair and efficient method for the commission to hear appeals of a determination of suspension or revocation of a participating agency's operating privileges for the non-compliance of the policies and procedures governing WyoLink system operation and participation.

Section 2 – **Commencement of Action**

(a) After continued or repeated non-compliance of the policies and procedures governing WyoLink system operation and participation by a participating agency the Commission Executive Director shall issue a final determination canceling the agency's participation from the WyoLink system. The agency's participation in the WyoLink system shall become effective on the 31st day after the final determination is issued.

(b) Any affected agency may request an appeal hearing on the Director's final determination canceling the agency's participation from the WyoLink system. Such requests for an appeal hearing shall be filed in writing with the Director within thirty (30) days of issuance of the final determination. If a request for an appeal hearing of the Director's final determination is filed within thirty (30) days of issuance, the effect of the final determination shall be stayed while the matter is before the Commission.

(c) An appeal request must contain the following information and:

- (i) Name and address of applicant;
- (ii) Telephone contact number for applicant;
- (iii) Name of attorney or person who will be representing applicant on the appeal before the Commission;
- (iv) A brief description of the issues to be heard at the appeal hearing;
- (v) Any relevant materials the applicant wishes to submit which will be presented at the appeal hearing.

(d) Five (5) copies, including supporting materials, of the appeal request must be submitted to the Director.

(e) Within ten (10) days of receiving request for an appeal hearing, the Director shall provide written notice of the request to all involved parties and set a date for an appeal hearing by the Commission within forty five (45) days.

(f) An appeal hearing request, along with the materials submitted with it, shall be presented to the Commission. The party requesting the appeal hearing may appear in person at the meeting and give oral testimony in support of their position regarding the appeal.

(g) The executive director shall present exhibits, testimony and/or evidence to the commission which explains the executive director's position on the issue or demonstrates the basis for the determination that has been appealed to the commission.

Section 3 – Decision

(a) The Commission, after a hearing on the matter, shall make a decision regarding the dispute within sixty (60) days and transmit an order to all parties involved.

(b) The action called for shall be implemented in accordance with the order.

(c) Copies of the order will be mailed to affected parties, the Commission Executive Director and the administrator of the WyoLink system.