



Conelrad alerts including tests may be broadcast in any or all of the 16 air defense zones of the United States

Conelrad—A Civil Defense Measure . . .

How Some Railroads are Participating

Civil defense procedure known as Conelrad, which permits civil defense broadcasting to continue during an air raid, requires cooperation of all radio broadcasting stations, including railroad radio stations, fixed and mobile. FCC regulations make railroad compliance mandatory by Jan. 2, 1957

TO PREVENT ENEMY AIRCRAFT from using radio stations for direction-finding in time of war, the government has established an alerting system designated as "Control of Electro-Magnetic Radiation," commonly known as Conelrad. The Federal Communications Commission has issued rules requiring standard broadcast stations to transmit special warning signals and also require all holders of radio station licenses to make provisions to receive these signals, and to

either cease operation or restrict their operation as set out below.

The Conelrad alert will normally be received over a special receiver operating in the standard broadcast band. This special receiver will be on continuously, but the speaker is silenced automatically except when a special Conelrad broadcast is being received. The speaker is turned on by a special code signal which will be transmitted by standard broadcast stations. Following the special signal, the standard broad-

cast station will transmit the following Conelrad radio alert:

"We interrupt our normal program to cooperate in security and Civil Defense measures as required by the United States Government. This is a Conelrad radio alert. Normal broadcasting will now be discontinued for an indefinite period. Civil Defense information will be broadcast in most areas at 640 and 1240 on your regular radio receiver."

The message will be repeated twice. When the Conelrad radio alert message is received, all licensees of radio stations must immediately comply with the the Conelrad operation procedure for their particular service. The precise Conelrad radio alert control message quoted above will be broadcast only in the event of an actual alert. In the event of a Conelrad test or drill broadcast, stations will

make an announcement that a test or drill is taking place. During a Conelrad alert, the following action must be taken:

- (1) No transmissions shall be made unless they are of extreme emergency affecting the national safety or the safety of people and property.
- (2) All transmissions shall be as short as possible and the stations' carrier shall be removed from the air during periods of no message transmission.
- (3) No station identification shall be given either by announcement of regularly assigned call signals or by announcement of geographical location. If identification is necessary to carry on a specially authorized service, the use of tactical calls or codes will be authorized.

After the alert is over, the standard broadcast stations will return to the air on their assigned frequencies and will broadcast the following message:

"Conelrad radio all clear. Resume normal operations. I repeat. Conelrad radio all clear. Resume normal operation." This information will release the radio stations for their normal operation.

The Conelrad radio alert may or may not be given over the whole country simultaneously. Instead, only certain zones may have the alert, there being 16 zones for the United States and 4 for Canada. Tests and drills may be conducted from time to time.

Here is what some railroads are doing to comply with FCC regulations.

Great Northern

We have already ordered a dozen Kaar Conalert radio receiving sets which we will place in all of our relay offices. They will be operated in the usual way, that is, being turned on all the time to the station from which we expect to get the best reception and who will be issuing the alarm.

So far we have not made any tests and do not know what the results will be, but do not expect to have any difficulty from an operating standpoint.

It is expected the relay offices will extend the alarm to the dispatchers who will contact all way stations with railroad radio to spread the alarm.

Illinois Central

Our program is to place suitable special radio broadcast type receivers in each of the offices of the chief dispatcher on whose divi-

sion radiotelephone equipment in railroad service is operated. The receiver we will use is the Conalert II manufactured by Kaar Engineering Corp., Palo Alto, Calif.

Our operational procedures have progressed only to draft form at the present date. However, it will provide for the chief dispatcher, through his dispatchers, to issue appropriate instructions to all employees in charge of base stations to take such action as has been prescribed in written instructions that will have been distributed prior to January 1, 1957.

Missouri Pacific

Certain offices (relay telegraph and major yard offices) have been designated as primary offices, at which points automatic "Conalert" receivers are located. Certain other offices (dispatchers' offices) have been designated as secondary offices. When a conelrad radio alert has been received, the primary offices will notify all secondary offices within their respective territories, who will, in turn, notify all offices with radio base stations within their respective territories. Base stations will then notify all mobile stations within range. If a secondary office also is a radio base station, it will also notify all mobile stations within range. Mobile units not within range of a base station will be notified by any available means: telegram, train order, etc. The same procedure will be followed when the "Radio all clear" is received.

A log must be maintained for all Conelrad tests, drills, and operations. One form, for primary and secondary offices, is used to log information pertaining to stations notification for the "alert" and the "all clear." Information logged on the alert form includes the date, time alert received, offices notified and the time of notification, and signature of the person sending the alert message. The all clear form is similar. All base radio stations keep a Conelrad record which includes the following information: date, time alert received, time mobiles notified, time all clear received, time mobiles notified, use of radio during alert period, and signature of person sending the notifications.

New York Central

We are handling this matter on the New York Central by purchasing the Conalert II automatic radio alert monitor from the Kaar Engi-

neering Corp. We are then installing these rack mounted units in our large relay offices which are located in an area which has one or more of our radio systems. Two channels of each monitor will be adjusted to receive Skywave key stations which are in the same air division as the railroad radio systems involved. The wire chief on duty in these telegraph relay offices will be responsible to take action when the monitor indicates an alert. The specific action to be taken will be for the wire chief to call the operator at the base station or stations in his area by telephone, advise them that an alert is taking place, and that they are to eliminate all but the most urgent of transmissions involving the safety of people or property on their radio system. The wire chief will also notify these locations to resume normal operations when the alert is over.

Pennsylvania

Our use of radio is confined in each instance to well-defined areas—principally yards. We are arranging to provide one receiver for each area involved, to be located at the control point of the base station in the area. In the few instances where several base stations are involved in a group, one of the base stations will be provided with the Conelrad receiver and will immediately advise all other stations in the group by radio, or telephone, when a Conelrad radio alert is received. We are obtaining Kaar Conalert II receivers.

We have prepared Conelrad instructions, composed from information in Subpart L of Part 16, FCC Rules and Regulations, which will be posted at all radio stations, explaining the action to be taken upon receipt of a Conelrad alert, and all personnel using radio will be instructed accordingly.

Rock Island

The Rock Island has added a brief statement on Conelrad to their railroad radio general and operating rules as follows:

During periods of imminent air attack enemy planes will try to use radio stations for navigational purposes. Accordingly the FCC has directed that radio stations, including those on railroads, be operated in a manner designed to prevent such use. When a Conelrad radio alert is received from the designated railroad official, all wayside

and yard radio stations will broadcast the word "Conelrad" three times at five second intervals. During time of such alert, radio will be used only when absolutely necessary and no station will give location by name but may use mile post numbers only. The Conelrad alert will not be acknowledged by mobile units when received but such units will acknowledge when cancellation of the alert is received.

Santa Fe

The alert warning will be received on special broadcast receivers which will be installed at key locations on the railroad. In order to comply with FCC rules dispatching, way station and yard forces will handle the alert as follows:

On receipt of the Conelrad radio alert the dispatcher will contact employees at all radio base stations on his territory by telephone, advising them of the alert. They are to broadcast that the Conelrad alert is in effect, advising mobile radio stations to cease operation except in extreme emergency, in which case transmission is to be short and use no identification. (See items (1), (2), (3) of the general discussion.)

On receipt of these instructions the employee at the radio base station will file a telegram acknowledging receipt of the instructions and stating the time the above message was transmitted. This message is to be addressed to the chief dispatcher and the radio service man who is in charge of the maintenance of the radio equipment. After the dispatcher has notified the base station employees of the alert, he will also transmit the following message to all trains in his territory, except those which are operating over districts where complete point-to-train communication has been established; for example, Winslow-Seligman, Amarillo-Wynoka and La Junta-Dodge City:

"To C & E — we have received a Conelrad radio alert which indicates that there is an imminent threat of air attack. (Rest of message is items (1), (2), (3)."

Mobile units in range of the radio base station or the train engine crews of the trains addressed at outlying points will not reply to the warning. When the alert is over and an "all clear" signal has been received over the Conelrad special receiver, the dispatcher will notify all radio base station employees in his territory, requesting that they

transmit the all clear.

The employees at all base stations will file a wire acknowledging receipt of the Conelrad "all clear" and stating the time that this information was transmitted. This message is to be addressed to the dispatcher and the radio service man who maintains the radio station.

In the case of Conelrad tests, the above procedure will be followed with the exception that the word "test" will be used instead of "alert" in the warning message and the word "test" will be used in the all clear message. Tests may be conducted periodically on this operation, and care should be taken to see that the full procedure is followed on tests, since a record must be made in the log of all stations for inspection by FCC field engineers.

Southern Pacific

We have purchased Kaar Conelrad alert receivers for installation in chief train dispatchers offices. We have also issued complete instructions to all chief dispatchers, radio station operators, and posted in all mobile units similar instructions covering procedures to be followed when Conelrad alert warnings are received on the above mentioned receivers. Briefly the procedure is as follows:

When Conelrad alert warning is received by the chief dispatcher information will be immediately relayed through the individual trick

dispatchers to all train to wayside radio stations via the dispatchers telephone circuit. The chief dispatcher will notify all yard and terminal fixed radio station operators in his immediate vicinity via company or commercial telephone. Each base station will broadcast radio alert notice to mobile units within range, this broadcast being made for a period of approximately 3 to 5 seconds without identification.

Those mobile units, out of range of fixed stations, will be notified by telephone or Teletype circuits as quickly as possible. The all-clear signal will be handled in a like manner. Necessary records will be kept by chief dispatchers and fixed station operators in accordance with rules.

Union Pacific

We have recently released purchase orders for 13 Kaar type Conelrad II Conelrad monitoring receivers. These units are to be installed in our major telegraph offices. When Conelrad alerts and clearances are received, it will be the responsibility of the wire chief to notify key personnel, who are concerned with operation of radio, at various points on his district.

Instructions are being prepared to set up procedures to be put in effect during alerts. Forms will be printed which will provide a log of all interruptions to radios account Conelrad alerts.

We Are Moving

The editorial office of *Railway Signaling & Communications* is to be moved from Chicago to New York, effective Jan. 1, 1957. After that date, please address all correspondence concerning editorial material to our new address: 30 Church Street, New York 7, N.Y.

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