

FIRElectronics.com  
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February 1<sup>st</sup>, 2012

TO: All Pike Regional System Users and radio technicians.

RE: Pike County Regional System Standards Revision "N" 2/1//2013 cumulative revision & update.

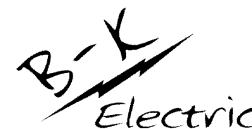
Based on user feedback and our own experience, the system standards have been changed to the following.

CH	TAG	RX / CTCSS	TX / CTCSS	ANI	ANI Format	Emission	TxTime Out	Scan
1	ALPHA	154.1000n / 114.8	158.9850n / 162.2	Log-IN	EIA 5/6	11K0F3E	60 sec	User
2	BRAVO	151.1300n / 114.8	158.9250n / 91.5	Log-IN				User
3	IREACH	155.0550n / CS or D156N	155.0550n / D156N	Log -Out				User
4	LAW ROAM	154.7850n / 114.8	See Note 1	Log-IN				User
5	ILLINI MERCI	See Note 2	155.3400n / 127.3	Log-Out				User
6	PAGING	155.1000n / 127.3	See Note 3	Log-Out				User
7	V-CALL	155.7525n / CS or 156.7	Same as RX	Log-Out				User
8	VTAC-1	151.1375n / CS or 156.7	Same as RX	Log-Out				User
9	VTAC-2	154.4525n / CS or 156.7	Same as RX	Log-Out				User
10	VTAC-3	158.7375n / CS or 156.7	Same as RX	Log-Out				User
11	VTAC-4	159.4725n / CS or 156.7	Same as RX	Log-Out				User
12	PEMA	158.7600n / 114.8	Same as RX	Log-Out				User
13	IFERN-1	154.2650n / CS or 210.7	154.2650n / 210.7	Log-Out				User
14	FG-WHITE	See Note 4	154.2800n / 74.4	Log-Out				User
15	FG-BLUE	154.2950n / 85.4	Same as RX	Log-Out				User
16	FG-RED	153.8300n / 69.3	Same as RX	Log-Out				User



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## B-K Electric, Inc. February 1<sup>st</sup>, 2012

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**Note 1:** TX only for law enforcement officers, in other agency owned apparatus, other agency Chief, or by written approval of the Pike County Sheriff's Dept. (System Mobile Tx freq: **159.1800n** / 123.0, ~~Legacy/Pittsfield Local Mobile Tx freq: 155.910 / 114.8~~, Scott / East Mobile Tx freq: **155.9100n** / 365N for special operations only)

**Note 2:** 155.3400n is required. RX CTCSS of 127.3 is optional to filter all but Illini / Pike traffic.

**Note 3:** TX on PAGING is authorized only to Dispatch, and fire base stations for paging only. Mobile portable TX is NOT authorized. Traffic is limited only to agency paging as traffic is repeated after a 15-second delay by the El Dara site. Dispatch has extremely limited RX capability on PAGING.

**Note 4:** FG-WHITE **154.2800n** is the same frequency as the Missouri Statewide Fire Mutual Aid channel. Use of RX CTCSS of 74.4 is optional depending on interoperability needs with Missouri Agencies.

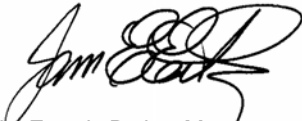
- 1) Channel standards and minimum programming shall conform to the above table and notes. Individuals/departments may modify the above layout and add/delete channels, however ALL technical standards must be observed as stated above.
- 2) Where supported, the initial "turn-on" screen of radios shall display the County-assigned ANI number of the radio and the current revision letter programmed.
- 3) Log-IN ANI shall disable voice transmission and produce an audible tone at the transmitter prior to 0.3 sec after initial PTT. Use has shown that this is an effective method to get excited users to slow down and make sure their entire message is repeated.
- 4) Maximum Squelch Setpoint: ~~0.20uV~~ **0.25uV** on CTCSS Rx Channels, ~~0.30uV~~ **0.40uV** only on ~~IREACH, MERCI and FG-WHITE~~ **channels where CS is used**. Many radios have been found to be programmed with squelch settings too tight to be reliable in fringe reception areas.
- 5) **Companding is a system of voice frequency filtering that in some radios sounds better to some users. Programming ALPHA/BRAVO receive with default companding is left to the individual, providing TX companding is not affected. Not all manufacturers' companding systems are compatible- use with caution.**
- 6) Scan Behavior:
  - a) User selectable scan add/delete will be enabled on all channel except for PAGING. Users should be educated to not delete vital channels or to try and scan too many channels.
  - b) TX channel during scan and RX priority during scan shall be the indicated channel when scan is activated, or the knob set channel wherever possible. This will eliminate the need for the user to manually rewrite priority. If available, 2<sup>nd</sup> priority during scan must be user selectable. "Last RX Channel Talkback" is strongly discouraged as per NFPA recommendation.
  - c) Power-on scan and automatic scan restart after TX shall be enabled by default unless the individual user orders otherwise. "Last State" scan status shall be programmed where supported.
  - d) **Priority look-back time shall not exceed 3 seconds while in normal user monitored modes.**
  - e) **Per PK-1, PKSD equipment shall be programmed with a 2.95 second priority look-back time.**
  - f) **In portable radios also used as paging receivers, care should be taken to ensure that the priority selection and/or 'look-back' timing do not interfere with reliable signaling decode. Many QC-II tone decode radios have been found to be programmed with priority look-back scan settings that cause tone decode to be unreliable. EIA 5/6 tone format receivers are more reliable in scanning applications.**
- 7) Individual Channels
  - a) ~~All System channels are 20K0F3E wide band except in ALPHA, BRAVO and CHARLEY which are standard narrow 11K0F3E. Wide band will be supported until 4/1/2013 - Sept, 2012. All channels now use 11K0F3E emissions.~~
  - b) The LAW PITS Mobile TX protocol of 155.910 / 114.8 **has been discontinued**. All users **must use** the LAW ROAM standard.
  - c) The LAW WIN Mobile TX protocol of **155.9100n** / D365N is supported only from the Scott County Site. All users should migrate their equipment to the LAW ROAM standard. **PSAP reception of this channel is unreliable.**
  - d) UHF Channel CHARLEY (453.3750n / 114.8 – 458.3750n / 114.8) may be programmed to allow access to the VHF tactical channels. The cross connect is fully operational but is only available in the Pittsfield vicinity. Authorization of the Pike County ETSB Executive is required. **(Jan. 2010; CHARLIE is presently cross-connected to Alpha)**
  - e) The BAYLIS REPEATER channel is to be deleted. BAYLIS SIMPLEX fireground (154.355 / 114.8) may be programmed as authorized by the Baylis Fire Chief but is not presently in use for tactical operations.
  - f) ISPERN and other Federal-owned or Illinois State-owned law enforcement channels shall not be TX enabled except as authorized by the agency chief.
  - g) Programming of VTAC 2 and VTAC 4 is optional, as IEMA ITEC 6 and Region 13 Incident Communications will take place only on VTAC 1 and VTAC 3. **VCALL 10 and VTAC11~14 are highly recommended. If portable radios have bank/zone capabilities, all VHF interoperable frequencies including the tactical repeater pairing as published in the January, 2011 NIFOG V1.4 is highly recommended.** Suggested replacement **alternate** channels are PAGING with muted-until-signaled-programming, ~~and IPERN 1 154.265 CS / 210.7. PEMA 158.7600n / 114.8~~

- h) ALPHA and BRAVO
  - i) Must be programmed exactly as indicated in this standard, including squelch sensitivity and CTCSS on both RX and TX. These are Narrow Band channels! Many radio problems have been traced to user radios being delivered or re-programmed in Wide-Band mode, or using companding when not necessary. **Technician note: Check ALL banks on multi-banked radios.**
  - ii) Simplex use of ALPHA or BRAVO is prohibited except when notified by Dispatch of system failure. The use of IREACH shall be the primary backup channel in case of system failure.
  - iii) Mobile ERP's greater than 25w shall only be used where absolutely necessary to maintain useable radio functionality. Users have reported portable receiver failure in fringe areas traced to nearby high power mobile transmitters. The ALPHA/BRAVO system was designed to work with 4-watt portables. Mobile transmitter ERP shall be lowered to the minimum reasonable level to reduce receiver desensing in adjacent receivers.**
- 8) Channel Layout
  - a) Channel layout is optional at the discretion of the agency or radio owner.
  - b) Banking of channels is allowed ONLY where each actual end user has extensive training on bank management. Alpha, Bravo, Paging and Tactical channels shall be in the same relative position in all programmed banks.
  - c) Both MABAS (*Source: MABAS Technician's Guidelines for Configuring Fire Radios, and, MABAS Standard C-01-01*) and NFPA (*Source: NFPA 1561, Ch. 6, and, NFPA 1221 Ch. 13*) strongly encourage portable channel layout to place the Dispatch Channels (ALPHA CH1 and BRAVO CH 2) on the leftmost knob positions and the Primary Incident Tactical Channels (FG-RED CH 16 and FG-BLUE CH 15) on the rightmost knob positions to allow for ease of channel selection by a gloved hand without having to look at the radio.
  - d) Both MABAS (*Source: MABAS Technician's Guidelines for Configuring Fire Radios, and, MABAS Standard C-01-01*) and NFPA (*Source: NFPA 1561, Ch. 6, and, NFPA 1221 Ch. 9*) strongly encourage use of a Dispatch/Command channel for OFF-incident-site communications, and a separate and distinct low-powered non-repeated simplex fireground channel for ON-incident-site tactical/safety operations.
- 9) EIA 5/6 Signaling
  - a) Support of EIA standard 5/6 tone signaling is strongly suggested. Radios must support the standard as published by EIA.
  - b) Where supported, the radio shall display the transmitter ANI of other units. Aliasing may be used but is discouraged as end-users frequently change radios, positions and agencies.
  - c) All radios are to be programmed to alert upon receipt of any Pike County tornado warning for any zone.
  - d) Individual page alerts shall be programmed to conform to the following: "XX"YY'1" where 'XX' is the agency number and 'YY' is the individual radio. This same code will be user for stun-revive.
  - e) Individual radio stun/kill shall be programmed to conform to the following: "XX"YY'2" where 'XX' is the agency number and 'YY' is the individual radio.
  - f) Individual "Open Mic" mode shall be programmed to conform to the following: "XX"YY'4" where 'XX' is the agency number and 'YY' is the individual radio.
  - g) Agency page alerts shall be programmed to conform to the following: "XX"007" where 'XX' is the agency number.
  - h) Individual transmit ANI shall be programmed to conform to the following: "XX"YY'0" where 'XX' is the agency number and 'YY' is the individual radio. This same mask will be user for ANI decode.
  - i) Individual EMERGENCY ANI shall be programmed to conform to the following: "XX"YY'9" where 'XX' is the agency number and 'YY' is the individual radio. This same mask will be used for EMERGENCY ANI decode. Where supported, the radio shall alert and/or open upon receipt of any signaling using a "????9" wildcard mask.
  - j) To reduce falsing, radios shall not be programmed to react to any signaling on NWS channels.
  - k) After page or alert signaling, the radio shall stay in 'Open" mode for no less than 60 seconds.
  - l) Where possible, a county-wide all-call "PANIC" code of "98799" should be included in all alerting masks.
- 10) MDC-1200 signaling:
  - a) Where supported, the same "XX"YY" numbering as above will be used.
  - b) Where supported, RX ANI Unit I.D. shall be enabled. Other functions are optional.
  - c) The deployment of MDC-1200 shall be limited to intra-agency uses. County-wide use is not supported.
- 11) Encryption (encode or decode)
  - a) Shall not be enabled on LAW except as authorized in writing by the Pike County Sheriff's Department.
  - b) Shall not be used on ALPHA or BRAVO except as authorized in writing by the Pike County ETSB Executive.
  - c) Simple inversion encryption may be employed on Incident Tactical Channels provided a fundamental frequency of 3,388Hz is used.

Revision History:

- A) Used for pre-construction engineering only
- B) Used for testing only
- C) 3/2008 Initial release
- D) 4/2008 Changed System mobile TX CTCSS tones (MAJOR CHANGE!)
- E) 5/2008 Modified "Log-in" ANI on ALPHA, BRAVO and LAW
- F) 7/2008 (MAJOR CHANGE!)
  - 1) Authorized "companding" on ALPHA and BRAVO
  - 2) Modified "Log-in" delay ANI on ALPHA, BRAVO and LAW
  - 3) Added minimum squelch sensitivity standard.
  - 4) Modified Scan Behavior
  - 5) Added ALPHA/BRAVO Mobile ERP Standards
  - 6) Amended mobile LAW Tx notes.
  - 7) Revision 'Fe', 7/2009 Changed default encryption to 'ON' for PKSD tactical channels. Units will be identified as Revision 'Fe'.
- G) 05/2010 (Cumulative Changes, Incorporated in Revision "G")
  - 1) Law Pittsfield protocol no longer supported.
  - 2) Revised Wideband // Narrowband conversion date to Sept. , 2012
  - 3) Added technician caution notes for ALPHA and BRAVO.
  - 4) Added References to MABAS and NFPA operational recommendations.
  - 5) Added county-wide all call paging standards.
- H) Minor changes for special use equipment
- I) Not used – jump to "N"
- J) Not used
- K) Not used
- L) Not used
- M) Not used
- N) 02/01/2012 (Major changes) ((Narrow-band emissions now required)**
  - 1) Changed all emissions to 11K3F3E narrow-band to comply with FCC mandates.
  - 2) Deleted proprietary old Pike fire due to dangerous harmful interference issues, replaced with IFERN-1
  - 3) Raised suggested minimum squelch setpoints.
  - 4) Changed companding recommendations.
  - 5) Emphasized and highlighted 7.h.iii maximum mobile ERP's.
  - 6) VTAC/VCALL requirements and alternates changed.
  - 7) Appended ICS-205 and ICS-217A forms.

Please feel free to contact me with any questions.



Jim Eatock, Project Manager  
Icom America Mega Dealer 28546

<b>ICS-217A COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET</b>						Frequency Band <b>VHF-High, UHF</b>	Description <b>Pike County, IL</b>			
	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users	RX Freq N or W	RX Tone/NAC	TX Freq N or W	Tx Tone/NAC	Mode A, D or M	Remarks	
OK	ANALOG DUPLEX	<b>ALPHA</b>	ANY	154.1000 N	114.8	158.9850 N	<b>162.2</b>	A	Any Incident, Voted System	
OK	ANALOG DUPLEX	<b>BRAVO</b>	ANY	151.1300 N	114.8	158.9250 N	<b>91.5</b>	A	Any Incident, Voted System	
OK	IDAS DUPLEX	<b>BRRY SCHOOL</b>	UNIT 12	464.2750 N	103.5	469.2750 N	103.5	D-IDAS	School Admin and Bus	
OK	ANALOG DUPLEX	<b>CHARLEY</b>	ANY	453.3750 N	114.8	458.3750 N	114.8	A	Gateway to ALPHA (BRAVO)	
OK	ANALOG SIMPLEX	<b>CITY GRGS</b>	PUB WKS	155.7150 N	114.8	155.7150 N	114.8	A		
OK	ANALOG SIMPLEX	<b>CITY PHLL</b>	PUB WKS	154.5150 N	203.5	160.1850 N	D365N	A	MULTI-USE; ALSO SCHOOL AND FIRE	
OK	ANALOG SIMPLEX	<b>CITY PITF</b>	PUB WKS	154.0250 N	97.4	154.0250 N	97.4	A		
OK	ANALOG DUPLEX	<b>GRGS SCHOOL</b>	FIRST STUDENT	152.4350 N	136.5	157.6950 N	136.5	A	BUSES AND SCHOOL/SIMPLEX	
OK	ANALOG SIMPLEX	<b>IFERN-1</b>	ANY	154.2650 N	CS	154.2650 N	210.7	A	Base Station at PSAP	
OK	ANALOG SIMPLEX	<b>IREACH</b>	ANY	155.0550 N	CS	155.0550 N	D156N	A	Base Station at PSAP	
OK	ANALOG SIMPLEX	<b>MERCI (ILLINI)</b>	MED	155.3400 N	127.3	155.3400 N	127.3	A		
OK	ANALOG DUPLEX	<b>PAGING</b>	PSAP ONLY, NO MOBILE	155.1000 N	127.3	N/A	N/A	A	Outbound Paging only.	
OK	ANALOG SIMPLEX	<b>PEMA</b>	ANY	158.7600 N	114.8	158.7600 N	114.8	A	FORMER ESDA, Base @ PSAP	

OK	ANALOG SIMPLEX	PIKE HWY	PCHWY	151.0850 N	103.5	151.0850 N	103.5	A	
OK	ANALOG DUPLEX	PIKE LAW	LAW ENFORCMENT	154.7850 N	114.8	159.1800 W	<b>123.0</b>	A	Voted System
OK	ANALOG DUPLEX	PITF SCHOOL	UNIT 10	463.7250 N	103.5	468.7250 N	103.5	A	School Admin and Bus
OK	ANALOG DUPLEX	POINT to POINT	Dispatch	155.3700 N	CS	155.3700 N	CS	A	Base Station at PSAP
OK	ANALOG DUPLEX	WESTERN IL FAIR	ANY	152.4350 N	141.3	157.6950 N	141.3	A	COVERAGE NE 2/3 COUNTY

NOTE: UTAC41 repeater is available at the 150' AGL El Dara tower site. This resource can operate either as a replacement for CHARLEY as a gateway to ALPHA (BRAVO), or as a stand alone repeater. One hour notice is required to obtain a STC and reconfigure the equipment.

The convention calls for frequency lists to show four digits after the decimal place, followed by either an "N" or a "W", depending on whether the frequency is narrow or wide band. Mode refers to either "A" or "D" indicating analog or digital (e.g. Project 25) or "M" indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

ICS-205 INCIDENT RADIO COMMUNICATIONS PLAN			Incident Name <b>GENERIC STANDARD – USE UNTIL 2<sup>ND</sup> OPERATIONAL PERIOD</b>				Date/Time Prepared Monday, January 16, 2012		Operational Period Date/Time		
0	SOR T	Function	Channel Name/Trunked Radio	Assignment	RX Freq N or W	RX Tone/NA C	TX Freq N or W	Tx Tone/NAC	Mode A, D or M	Remarks	
1	1.2	<b>COMMAND</b>	<b>ALPHA</b>	<b>INCIDENT CHIEFS AND LEADERS, OTHERS AS ASSIGNED</b>	<b>154.1000 N</b>	<b>114.8</b>	<b>158.9850 N</b>	<b>162.2</b>	<b>A</b>	<b>REGIONAL VOTED REPEATER - ENTIRE INCIDENT, OR C&amp;C WEST OF 390TH ST OR SOUTH OF 280TH AV DEPENDING ON SCOPE OF INCIDENT</b>	
2	1.1	<b>COMMAND</b>	<b>BRAVO</b>	<b>ROUTINE OPS, OR CHIEFS AND LEADERS, OTHERS AS ASSIGNED</b>	<b>151.1300 N</b>	<b>114.8</b>	<b>158.9250 N</b>	<b>91.5</b>	<b>A</b>	<b>REGIONAL VOTED REPEATER - ROUTINE OPS, OR C&amp;C EAST OF 330TH ST OR NORTH OF 220TH AV DEPENDING ON SCOPE OF INCIDENT</b>	
3	1.3	<b>COMMAND</b>	<b>PIKE LAW</b>	<b>LEO, ROUTINE OPS, INCIDENT SECURITY C&amp;C</b>	<b>154.7850 N</b>	<b>114.8</b>	<b>159.1800 N</b>	<b>123.0</b>	<b>A</b>	<b>REGIONAL VOTED REPEATER</b>	
4	1.4	<b>NOTIFICATION</b>	<b>PAGING</b>	<b>BASE TO ASSET</b>	<b>155.1000 N</b>	<b>127.3</b>	<b>BASE ONLY</b>	<b>E88.5 G94.8 P196.6 H141.3 B365N</b>	<b>A</b>	<b>ONE-WAY WIDE AREA PAGING AND ASSET NOTIFICATION. USE FOR ASSET CONTACT AND CHANNEL ASSIGNMENT</b>	
5	2	<b>STAGING/INTEROP</b>	<b>IREACH</b>	<b>ANY</b>	<b>155.0550 N</b>	<b>CS</b>	<b>SIMPLEX</b>	<b>D156N</b>	<b>A</b>	<b>STAGING - INITIAL CONTACT - INTEROP / SECONDARY TACTICAL</b>	
6	2.1	<b>INTEROP / COORD</b>	<b>REGION 6B</b>	<b>ANY</b>	<b>STARCOM21 TALKGROUP REGION 6B</b>				<b>DT</b>	<b>CONTACT W/ PSAP AND ICP</b>	
7	2.2	<b>STAGING ALT</b>	<b>IFERN-1</b>	<b>STAGING COORD</b>	<b>154.2650 N</b>	<b>CS</b>	<b>SIMPLEX</b>	<b>210.7</b>	<b>A</b>	<b>FIRE / MABAS STAGING COORD</b>	
8	3.1	<b>LOGISTICS</b>	<b>PIKE PEMA</b>	<b>LOGISTICS</b>	<b>158.7600 N</b>	<b>114.8</b>	<b>SIMPLEX</b>	<b>114.8</b>	<b>A</b>	<b>REGIONAL LOGISTICS</b>	
9	3.2	<b>CP STAFF</b>	<b>FRS CH 9</b>	<b>ICP / EOC STAFF</b>	<b>467.5625 N</b>	<b>CS</b>	<b>SIMPLEX</b>	<b>CS</b>	<b>A</b>	<b>ICP / EOC INTERNAL OPERATIONS</b>	

10	3.3	CP STAFF	FG-GOLD	ICP / EOC STAFF	153.8375 N	91.5	SIMPLEX	91.5	A	ICP / EOC INTERNAL OPERATIONS
11	4.1	LEO TACTICAL	ISPERN	LEO ONLY	155.4750 N	CS	SIMPLEX	D156N	A	LEO TACTICAL/SECURITY
12	4.2	RESCUE TAC	FG-BLUE	RESCUE TAC	154.2950 N	85.4	SIMPLEX	85.4	A	ANY TACTICAL, FIRE WATER SUPPLY
13	4.3	RESCUE TAC	FG-GRAY	S&R / TAC OPS	154.2875 N	136.5	SIMPLEX	136.5	A	ANY TACTICAL
14	4.4	RESCUE TAC	FG-BLACK	S&R / TAC OPS	154.2725 N	94.8	SIMPLEX	94.8	A	ANY TACTICAL
15	4.5	TACTICAL	VTAC12	ANY TACTICAL	154.4525 N	156.7	SIMPLEX	156.7	A	ANY TACTICAL
16	4.6	TACTICAL	VTAC13	ANY TACTICAL	158.7375 N	156.7	SIMPLEX	156.7	A	ANY TACTICAL
17	4.7	TACTICAL	VTAC14	ANY TACTICAL	159.4725 N	156.7	SIMPLEX	156.7	A	ANY TACTICAL
18	4.8	TACTICAL	VTAC11	ANY TACTICAL	151.1375 N	156.7	SIMPLEX	156.7	A	LAST CHOICE DUE TO BRAVO CO-CHANNEL INTERFERENCE
19	4.8	TACTICAL	REGION 6A	MATERIAL TRANSPORT	STARCOM21 TALKGROUP REGION 6A				DT	MATERIAL LOGISTICS AND TRANSPORTATION,
20	5.1	FIRE TAC	FG-RED	FIRE DEPTS	153.8300 N	69.3	SIMPLEX	69.3	A	RESERVED FOR ROUTINE FIRE OPS
21	5.2	MEDICAL	MERCI-340	MED COORDINATION	155.3400 N	CS	SIMPLEX	127.3	A	EMS / HOSP / AMB COORD.
22	5.3	AVIATION	S&R 123.1	AIR SEARCH	123.1 AM	-	SIMPLEX	-	AV AM	AIR TO ICP COORD.
23	5.4	ROAD MAINT	PK HWY	ROAD CLEARANCE	151.0850 N	103.5	SIMPLEX	103.5	A	ALL ROAD CLEARING AND ACCESS OPS
24	5.5	ROAD MAINT ALT	PITF CITY	ROAD CLEARANCE	154.0250 N	97.4	SIMPLEX	97.4	A	ALTERNATE ROAD CLEARING & ACCESS OPS
Prepared By (Communications Unit)						Incident Location				
JAMES E EATOCK, REGIONAL COML						County	State	Latitude	N Longitude	
						W				

