ETO DECEMBER 8TH 2022 WLT EXERCISE (v1.3)

"Combined EMP Event"

1.0. Objectives

In this *Winlink Thursday* exercise for December 8, 2022, you will:

- Read a brief scenario about an Electromagnetic Pulse (EMP) event.
- Send an ICS-213 and a Field Situation Report to your ETO Clearinghouse.
- Optionally, send a Field Situation Report via HF P2P to one or more Target Stations.

1.1. Reminders

Some reminders, especially for new arrivals to ETO:

- Read and follow the instructions PRECISELY. Details are sometimes missed in the reading, and some of our assignments can be tricky!
- Make sure you address the correct Clearinghouse for your geographic location (especially if you're temporarily in a different region):
    - Use "ETO-*nn*" if you are a USA participant, where *nn* is *always* a 2-digit number ("01", "03", …, "10").
    - Make sure you type a ZERO, not the letter "O", in the 2-digit number. If you do not know your Clearinghouse's Tactical Address, you can look it up in: https://emcomm-training.org/More_Info.html#Maps
    - Use "ETO-CAN" if you are a Canadian participant.
    - Use "ETO-DX" if you are a non-US or non-Canadian participant.
- IMPORTANT! Always restart *Winlink Express* to ensure you have the current version and the latest templates update. The *Winlink Development Team* (WDT) is constantly updating both.
- SUGGESTION: Put your own "normal" e-mail address in the CC box, so that you receive a copy in your non-*Winlink* e-mail. This serves as another confirmation that your *Winlink* message was sent out correctly.
- ETO exercises are designed to be completed using *Winlink Express*. If you choose to use another *Winlink* client program (non-Windows platform), "your mileage may vary" and your response may not be mapped or graded as "Correct".
- Avoid common errors as outlined on our website: https://emcomm-training.org/Winlink_Thursdays.html

Continue to the next pages for exercise instructions.

1.2. Scenario

“The United States—and modern civilization more generally—faces a present and continuing existential threat from naturally occurring and man-made electromagnetic pulse assault and related attacks on military and critical national infrastructures. A nationwide blackout of the electric power grid and grid-dependent critical infrastructures—communications, transportation, sanitation, food and water supply—could plausibly last a year or longer. Many of the systems designed to provide renewable, stand-alone power in case of an emergency, such as generators, uninterruptible power supplies (UPS), and renewable energy grid components, are also vulnerable to EMP attack.” Commission to assess the threat to the United States from electromagnetic pulse (EMP) attack, 2017, p. 4.

Talk of EMP

December 7, 2022

News outlets around the country have broken the news that an electromagnetic attack against the continental United States is imminent. Security forces in the United States are on high alert and an endless litany of security analysts hired by the major news outlets decry for hours the devastating effects an EMP attack can have on the infrastructure of the nation.

Before chaos

December 7, 2022 18:00 UTC

ETO HAM radio operators around the country, cognizant of the imminent attack, have hardened their stations against electromagnetic pulse attacks. At 18:00 UTC on December 7, the ETO issued a call to ETO field stations asking them to state their readiness to establish digital circuits using *Winlink* CMS gateways and Vara HF Peer-to-Peer. ETO also solicited Alpha group P2P Target Stations to activate and to state their readiness to receive VARA HF P2P digital traffic.

Pulse

December 8, 2022 00:00 UTC

Two satellites and one rocket equipped with electromagnetic devices were detonated at high altitudes. The explosions generated electromagnetic pulses that immediately affected military and civilian assets on the Eastern, Gulf, and Western coasts of the United States.

Outcomes

The EMP pulses knocked out electric power systems, telecommunications and space systems, and are having a cascading effect on other critical assets, including banking and finance services, petroleum and natural gas infrastructure, transportation services, food and water supply, and emergency services and government systems and services across the nation. After the EMP attack, landline, satellite and microwave internet pathways are down in the Eastern, Western and Gulf Coast areas of the country, and are spotty in the rest of the country. Broadcasting stations in the top ten media markets in the US are inoperative; cellular phone service, if operational, is overwhelmed. Federal authorities now have limited communication capabilities and have called upon point-to-point HF, VHF and UHF-based radio communications resources to provide alternate communication channels. ETO-trained field and target stations stand in readiness to help.

1.3. Exercise Assumptions

For the purpose of this exercise, it will be assumed that power, internet, and phone services are not available in the East, Gulf and West coast areas and sporadic throughout the rest of the US. In some areas they may be operable and in others they may not be functioning. Alaska, Hawaii, Puerto Rico and the USVI are not affected by the EMP attacks. You may assume that you are operating from home or from the field.

1.4. Exercise Components

The December 8, 2022 exercise will feature two primary components: the *Winlink* RMS gateway component and an optional *Winlink* VARA HF Peer-to-Peer (P2P) component.

- The *Winlink* RMS gateway component of the exercise is mandatory and requires sending **two messages** using a traditional *Winlink* RMS HF, VHF or UHF gateway station. (See section 2.0 of these instructions).
- The *Winlink* VARA HF Peer-to-Peer component of the exercise is optional and requires sending **one** message by HF *Winlink* Peer-to-Peer (see section 3.2). Although the P2P component is optional, you are strongly encouraged to participate in this activity if you have HF *Winlink* capability. Peer-to-Peer could be one of the last digital capabilities we have at our disposal in certain severe disasters that damage or destroy infrastructure.

1.5. Exercise responses and grading for the mandatory component

This section states the expected responses from participants and the grading scheme for responses to the ICS-213 and to the *Field Situation Report* forms of the mandatory (CMS gateway) component of the exercise.

Operators MUST send two messages to satisfy the requirements of the *Winlink* RMS gateway component of the exercise:

1. A General Message (ICS-213) form, and
2. A Field Situation Report form

1.5.1. Grading Criteria for the General message ICS-213 form:

- Fields 1 through 6 and 8 MUST be entered EXACTLY as requested below.
- Field 7: All the questions MUST be answered in the format requested below.

1.5.2. Grading Criteria for the Field Situation Report form:

- The header MUST be entered EXACTLY as shown.
- Box 1 answer MUST be “NO” (automatic FAIL if you answer “YES”).
- Your correct Location (lat/long in decimal degrees) MUST be entered.

Both messages MUST be sent to your Clearinghouse (you will be sending TWO separate messages in the same session).

1.6. Timeline: *Winlink* RMS and P2P portions of the exercise

The timeline for the *Winlink* RMS and P2P portions of the exercise are:

- ***Winlink* RMS**: Thursday, December 8, 2022, starting at 00:00 and ending at 23:59 local time.
- ***Winlink* VARA HF P2P**: Thursday, December 8, 2022, starting at 6:00 AM and ending at 6:00 PM local time at the P2P target station location.

2.0. Messaging Activity: *Winlink* RMS Gateway component

The main goals of the *Winlink* RMS gateway component are to send *two messages* to your ETO regional clearinghouse: one embedded with an **ICS-213** form and a second one embedded with a **Field Situation Report**. These two messages will be sent through a *Winlink* RMS Gateway Station using an HF or VHF/UHF connection.

NOTE: If your message is transferring very slowly (<40 bps), find a gateway station in a better location for you. Band conditions and propagation have a huge impact on message transfer speed.

2.1. Exercise Message Requirements: ICS-213

Participants will fill fields 1 through 8 of an ICS-213 form according to the following table:

FIELD NAME	ANSWER
Header	EmComm Training Organization 12/08 THIS IS AN EXERCISE
Field 1	ETO DECEMBER 8TH EXERCISE
Field 2	JOHN SMITH/ETO HEADQUARTERS
Field 3	[WRITE HERE YOUR NAME AND CALL SIGN]/EXERCISE PARTICIPANT
Field 4	OPERATIONAL READINESS REPORT
Field 5	12/08/2022
Field 6	UTC TIME
Field 7	**[ANSWER THE QUESTIONS BELOW]**
Field 8	[YOUR NAME][YOUR POSITION]

ICS-213 Field number 7 questions

Now fill the "7. Message:" field with the answers to the following questions.

Be mindful to write **only the answers to the questions** (do not write the questions themselves). Also make sure you answer only **one question per line** and that you **omit the numeral precedent.**

NOTE: **"DNA" stands for "Does not apply".**

Line	Question	Answer
1	What is the call sign, mode, band and location of the RMS gateway you are using to send this message to the clearinghouse?	[Write the RMS gateway information]
2	**Are you operating from your home?**	Yes/No/DNA
3	If at home, are you operational on VHF/UHF?	Yes/No/DNA
4	If at home, are you operational on HF?	Yes/No/DNA
5	If at home, are you operational on HF *Winlink*?	Yes/No/DNA
6	**Are you operating from the field?**	Yes/No/DNA
7	If portable, are you operational on VHF/UHF?	Yes/No/DNA
8	If portable, are you operational on HF?	Yes/No/DNA
9	If portable, are you operational on HF *Winlink*?	Yes/No/DNA
10	Do you require any support or supplies?	Yes/No/DNA

2.2 Exercise Message Requirements: Field Situation Report

You will use the **Field Situation Report** (SITREP) form to send an assessment of conditions in your area "before" the EMP event.

Fill the SITREP form according to the following table:

FIELD NAME	ANSWER
Header	EmComm Training Organization 12/08 THIS IS AN EXERCISE
Precedence	Priority
Date/Time	[Fill with the correct date and time]
Task #	ETO 12/08 EXERCISE
From	[Write your name]
To	JOHN SMITH/ETO HEADQUARTERS
Info (CC)	[Leave blank]
1	[Make sure "NO" remains selected]
2	[Fill with the appropriate information]
3	[Fill with the appropriate information]
4a-11b	[Responses can vary depending on your geographical location relative to the areas affected by the EMP pulse attack]
12	[Write additional comments if warranted]
13	[Write your name and call sign]

3.0 Peer-to-peer (P2P) *Winlink* operations

Before you proceed with the Peer-to-Peer component of the exercise, MAKE SURE YOU SET YOUR SYSTEM TO 500 Hz BANDWIDTH in TWO locations to help conserve bandwidth for our P2P messaging:

- In the **Vara HF Peer-to-Peer Session Window > Settings > Vara TNC Setup**
- In the **VARA HF TNC Window > Settings > VARA Setup**.
- Target Stations *will NOT* answer if you fail to make these two changes in the locations.

Tip: Check the ETO # 2102 Vara HF P2P 500 Hz Setup tutorial on YouTube (https://youtu.be/tNgncCVXrHM) for instructions (the link is also posted on the Tutorials page in the ETO website: https://emcomm-training.org/Tutorials.html).

3.1. ETO Peer-to-Peer (P2P) Exercise Instructions: Introduction

In preparation for the possibility that *Winlink* RMS stations become unavailable, or the main email system continues to degrade, ETO will periodically test P2P communications.

For this optional activity of the exercise, we will assume that the *Winlink* CMS servers are not operational and that the only viable option to send *Winlink* messages is through ETO P2P Target Stations.

3.2. Messaging Activity: *Winlink* HF Peer-to-Peer component

For this portion of the exercise, you will send *one message* with an attached **Field Situation Report** by HF to as many designated ETO P2P Target Stations as you like. For this Field Situation Report, follow the instructions in section 2.2, but assume now that the EMP pulse attack has already happened; therefore, please adjust your responses to the report to this new, post-EMP pulse scenario.

NOTES:

- By making the appropriate change(s) in your message(s) (the TO box), you can continue to use the same message(s) with multiple P2P Targets.
- Be sure to listen before calling. There should be little if any QRM.
- If your message is transferring very slowly (<40 bps), find a Target Station in a better location for you. Band conditions and propagation have a huge impact on message transfer speed.

3.3. ETO P2P Target Station List

Please refer to the attached ETO P2P Target Station List (Nov., 2022 v1.2) below to select appropriate Target(s) to send P2P messages. You only need to enter the Center Frequency and Call Sign; the app will insert the Dial Frequency automatically.

NOTE: Due to the nature of the incident, certain Target Stations may not be available. Please try alternate Target Stations as appropriate.

ETO P2P Target Station List Frequency and Location - Nov., 2022 (Final) v1.2

Mode/Bandwidth: Vara HF 500 Hz

Alpha Team

Channel	Band	Center Freq. (KHz)	Dial Freq. (KHz)	ETO Region	Station	Location
01	80m	3581.500	3580.000	01	AB1PH	East Walpole, MA
02		3583.500	3582.000	02	W2SKY	Penfield, NY
03		3585.500	3584.000	03	W4FLX	Rocky Mount, VA
04		3587.500	3586.000	04	AB4QQ	Buford, GA
05		3589.500	3588.000	05	KC9FXE	Menomonie, WI
06		3591.500	3590.000	06	KF5ZHW	Boerne, TX
07		3593.500	3592.000	07	W0JWT	Lees Summit, MO
08		3595.500	3594.000	08*	AC6DF	Lacey, WA
09		3597.500	3596.000	09	KB6CIO	San Miguel, CA
10		3599.500	3598.000	10	N2RSN	Keno, OR
11	40m	7071.500	7070.000	02*	N9DEK	Noblesville, IN
12		7073.500	7072.000	04	ND1J	Cartoogecheye, NC
13		7077.500	7076.000	06	K5RAW	Merkel, TX
14		7081.500	7080.000	08*	KC5QOC	Albuquerque, NM
15		7083.500	7082.000	10	K8MPW	Wendell, ID
16	30m	10131.500	10130.000	01	W1IZZ	East Falmouth, MA
17		10133.500	10132.000	03	W4RJG	South Boston, VA
18		10135.500	10134.000	05	W0LEN	St. Charles, IL
19		10143.500	10142.000	07*	N9JYJ	Ponca City. OK
20		10145.500	10144.000	09	AJ6MJ	Thousand Oaks, CA
21	20m	14085.500	14084.000	02*	KB1CAD	N Attleboro, MA
22		14087.500	14086.000	04	KD4IMA	Panama City, FL
23		14089.500	14088.000	06	WA5LEE	Tomball, TX
24		14091.500	14090.000	08*	VE3MXJ	Thunder Bay, ON
25		14093.500	14092.000	10	AE7LM	Hailey, ID
26	15m	21081.500	21080.000	01	N1RDN	Sandwich, MA
27		21083.500	21082.000	03	KV4JM	Norfolk, VA
28		21085.500	21084.000	05	W9EEU	Cory, IN
29		21087.500	21086.000	07	(unassigned)	
30		21089.500	21088.000	09	K7WZX	Gilbert, AZ
Hawaii, Puerto Rico, US Virgin Islands						
31	40	7119.500	7118.000	09	AH6T	Honolulu, HI
32		7121.500	7120.000	09	KK6SMD	(HI) Link to CA
33		7123.500	7122.000	02	NP4D	Carolina, PR
34	15	21121.500	21120.000	09	(unassigned)	(HI)
35		21123.500	21122.000	02	WP4QNQ	Añasco, PR

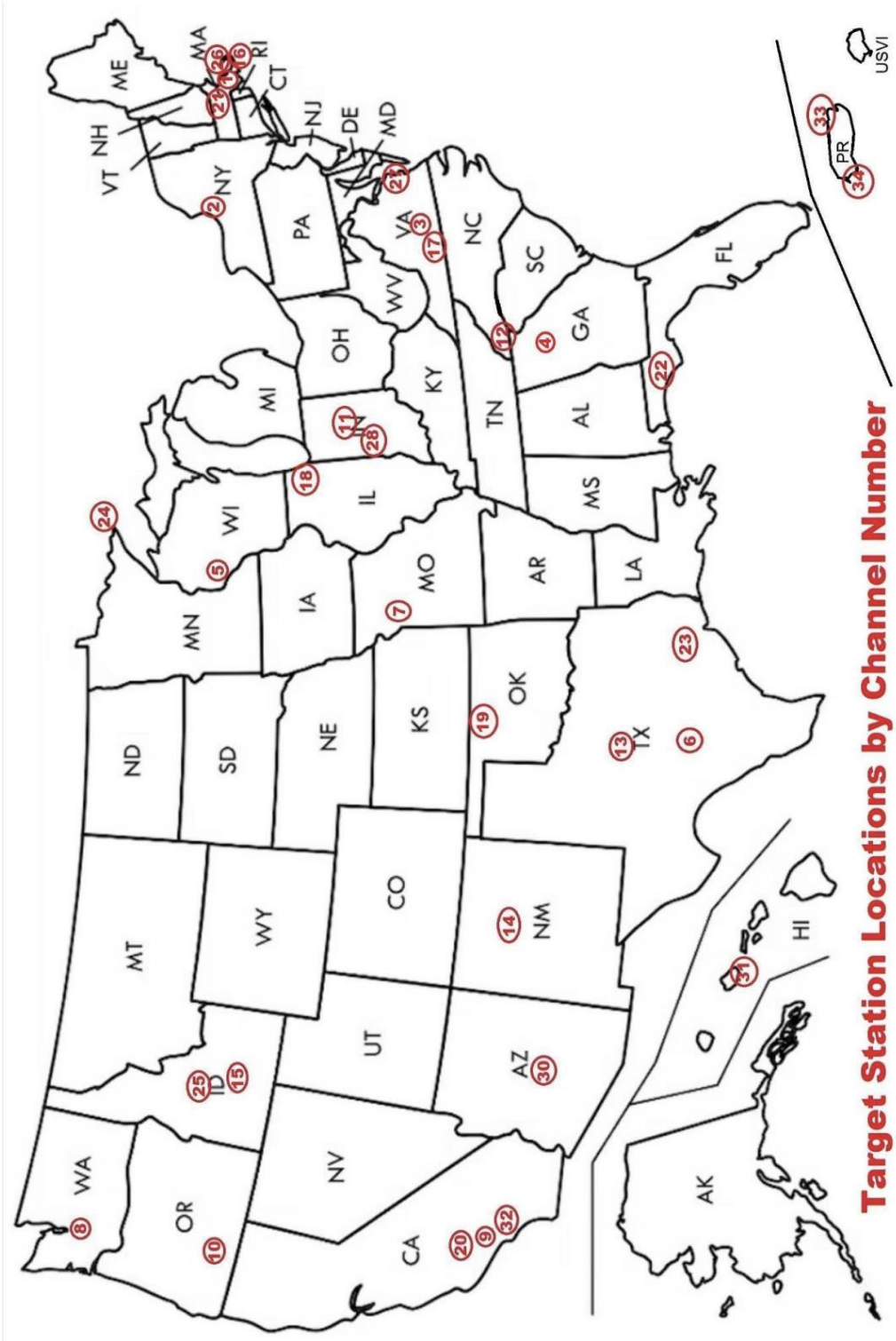
NOTES:

*** Covering unfilled slot from adjacent Region.**

BACKUP STATIONS:

NP4JN, Heber, Cayey, PR, FK68wd, 40 meters

WP4OH, Omar, Juana Díaz, PR, FK68sb, 15 meters


Target Station Locations by Channel Number
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
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WI
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IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
PA
VA
NY
NJ
DE
MD
VT
NH
ME
MA
RI
CT
PR
USVI
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4.0. ETO Target Station Instructions

Scenario: For this exercise, Field Stations will create and send one message as outlined under **Peer-to-peer (P2P) *Winlink* operations** (section 3.0.). *Please review those instructions so that you know what to expect.*

The entire P2P exercise will be using Vara HF P2P in v500 Hz mode. Field stations have been instructed to make that setting, and you also need to make sure you do the same. *If set properly, your station will automatically reject any calls at the wrong bandwidth.* If you are unsure of any aspect of the setup, do not hesitate to ask on the P2P-Target-Stations forum in Groups.io:

https://emcomm-training.groups.io/g/P2P-Target-Stations/messages

As a P2P Target Station, you will receive P2P transmissions from multiple Field Stations. Your specific channel assignment is listed in the enclosed ETO P2P Target Station List-Frequency/Location. Operation is from 6:00 AM to 6:00 PM *your local time unless noted otherwise*. At the end of the exercise (6:00 PM your time), you may cease operating (it's OK if you run a bit over).

All the received P2P messages should be in your *Winlink Express* Inbox. We suggest that you create a Personal Folder named "<year><month><date> (i.e.: 20221208) ETO P2P Exercise" and Move ONLY THE RECEIVED MESSAGES into that folder. Then open that folder, and…

1. Select all the messages (click on the first message, SHIFT-Click on the last -be sure to scroll down, if necessary).
2. Select Message⇝Export Messages and Browse to a folder that makes sense to you.
3. Name the file "<your call sign> P2P <year><month><date>.xml" and click EXPORT.
4. Back to selected messages (make sure they are ALL still selected), go to Message>Generate ICS-309 Communication Log. Select the Personal Folder you created, uncheck ALL other boxes and check 'Combine recipients into a single entry.'
5. Browse to the same path for the Output pdf file (suggest the same folder as the XML file) and name it "<your call sign> ICS309 <year><month><date>.pdf". Click on the "Generate ICS-309.PDF" box.
6. Repeat Step 4
7. Browse to the path for the Output pdf file (same folder as above) and name it "<your call sign> ICS309 <year><month><date>.csv". Click on the "Generate ICS-309.CSV" box, making sure that "Column Delimiter" is set to Comma.
8. Send all three files to: ETO@LNAINC.com by *regular email* and CC to Bob Tykulsker KM6SO (rtykulsker@gmail.com) for the mapping operation.

Please send it ASAP after the exercise. Do not send anything else.

5.0. ETO exercise mapping

Mapping will be available after the conclusion of the exercise and completion of the data analysis.

A link will be provided on the ETO website.

6.0. Frequently Asked Questions (FAQ)

1. Do I need to do all parts of this exercise?

   No. The first primary part of the exercise using an RMS gateway is required. You are free to do the optional activity and are encouraged to try the P2P part of the exercise if you are able.

2. What if I am new or have not worked with the form used in this exercise?

   You can look at all of the ETO *Winlink Thursday* exercises conducted this year on our website www.emcomm-training.org. There you can find the instructions for each one. ETO conducts basic training on an ongoing basis during the calendar year. You will have ample opportunities to participate in exercises almost identical to those you see listed on the webpage.

3. What if I am connected to an RMS gateway station or a P2P target station and my connection is very slow?

   You should consider changing to another gateway or target station. This can also be on another band, if necessary. This action provides two benefits. This first is that it will help facilitate your message in a more timely manner. It will also free up the original station or gateway for others that may get a better connection throughput.

4. If I have trouble reaching my regional Target Station, how shall I proceed?

   You may send your P2P message(s) to any Target Station of your choice. We recommend trying stations on different bands to gauge the current propagation situation.

5. Can I append both the Field Situation Report and the ICS-213 form onto one message?

   In this exercise, you may not. The reason is that only the first message will be “human readable” due to the way *Winlink* operates. So you must have each message as a separate item, but they will be sent with one connection as long as they are both in your Outbox, and properly addressed.

7.0. Further reading concerning electromagnetic pulse threats

1. Commission to assess the threat to the United States from electromagnetic pulse (EMP) attack (2017). *Assessing the threat from Electromagnetic Pulse (EMP) Executive Report*. http://www.firstempcommission.org/uploads/1/1/9/5/119571849/executive_report_on_assessing_the_threat_from_emp_-_final_april2018.pdf
2. Foster, Jr., J. S., Gjelde, E., Graham, W. R., Hermann, R. J., Kluepfel, H. M., Lawson, R. L., Soper, G. K., Wood, Jr., L. L. & Woodard, J. B. (2004). *Report of the Commission to Assess the threat to the United States from Electromagnetic Pulse (EMP) Attack: Volume 1 Executive Report*. http://www.firstempcommission.org/uploads/1/1/9/5/119571849/emp_commission_vol1_summary.pdf
3. Foster, Jr., J. S., Gjelde, E., Graham, W. R., Hermann, R. J., Kluepfel, H. M., Lawson, R. L., Soper, G. K., Wood, Jr., L. L. & Woodard, J. B. (2008). *Report of the Commission to Assess the threat to the United States from Electromagnetic Pulse (EMP) Attack: Critical National Infrastructures*. http://www.firstempcommission.org/uploads/1/1/9/5/119571849/emp_comm._rpt._crit._nat._infrastructures.pdf
4. Pry, P. V. (2017). *Nuclear EMP attack scenarios and combined-arms cyber warfare*. Report to the Commission to assess the threat to the United States from electromagnetic pulse (EMP) attack.