DOCKET NO. C-2018-3006116, et al.

Hearing Date: September 30, 2020

EXHIBITS

Flynn Complainants

Ex. 4 - 9/11/2020 DEP Administrative Order

St. 3 - Direct Testimony of Mehrooz Zamanazdeh, Ph.D., with Exhibits 1, 3, and 4 (Public)

St. 3A - Direct Testimony of Mehrooz Zamanzadeh, Ph.D., with Exhibits 2, and 5 - 11 **(Highly Confidential)**

St. SR3 - Surrebuttal Testimony of Mehrooz Zamanzadeh, Ph.D., with Exhibits 1 and 3 (Public)

St. SR3A - Surrebuttal Testimony of Mehrooz Zamanzadeh, Ph.D., with Exhibit 2 **(Highly Confidential)**

Chester County

St. 1 - Direct Testimony of William Turner

Ex. 1 - Curriculum Vitae of William Turner

Ex. 2 - Chester County Emergency Operations Plan

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of:

Sunoco Pipeline, L.P. 535 Fritztown Road Sinking Springs, PA 19608	: : :	Violations of The Clean Streams Law and DEP Chapters 93, 102, and 105 of Title 25 of the Pennsylvania Code.
	: : : : :	PA Pipeline Project—Mariner East II E&S Permit No. ESG0100015001 WO&E Permit No. E15-862

ADMINISTRATIVE ORDER

Now this 11th day of September, 2020, the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department"), has found and determined the following facts and findings and by this Administrative Order imposes the specified performance obligations upon Sunoco Pipeline, L.P. ("Sunoco").

Findings

Parties

A. The Department is the agency with the duty and authority to administer and enforce The Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§ 691.1-691.1001 ("Clean Streams Law"); the Dam Safety and Encroachment Act, the Act of November 26, 1978 P.L. 1375, as amended, 32 P.S. §§ 693.1 et seq. ("Dam Safety and Encroachment Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); and the rules and regulations promulgated thereunder ("rules and regulations").

B. Sunoco Pipeline, L.P. ("Sunoco") is a foreign limited partnership doing business in Pennsylvania and maintains a mailing address of 535 Fritztown Road, Sinking Springs, PA 19608.

Sunoco Logistics Partners Operations GP LLC is the general partner of Sunoco Pipeline, L.P. Joseph Colella is Executive Vice President for Sunoco Logistics Partners Operations GP LLC. Mr. Colella has been granted authority by Sunoco Logistics Partners Operations GP LLC to sign documents for Sunoco on behalf of the General Partner.

C. Sunoco owns and operates numerous pipelines in Pennsylvania used to transport petroleum and natural gas products. Sunoco has undertaken an effort to expand existing transportation systems for natural gas liquids in Pennsylvania, which is collectively referred to as the Pennsylvania Pipeline Project – Mariner East II ("PPP-ME2"). As part of PPP-ME2, Sunoco is conducting pipeline installation activities in seventeen counties in Pennsylvania, including Chester County.

Permits

D. To construct PPP-ME2 through Chester County, Sunoco obtained:

a. An Erosion and Sediment Control Permit under 25 Pa. Code Chapter 102, Permit Number ESG0100015001 ("Chapter 102 Permit") and;

b. A Water Obstructions and Encroachment ("WOE") Permit under 25 Pa. Code Chapter 105, Permit Number E15-862 ("Chapter 105 Permit").

E. For purposes of this Administrative Order, Horizontal Directional Drilling ("HDD") is defined to include any steerable trenchless technology that controls the direction and deviation to a predetermined underground target or location.

Site

F. The work area for PPP-ME2 in Chester County, Pennsylvania includes the horizontal directional drill ("HDD") installation of a 16-inch diameter pipeline and a 20-inch diameter pipeline that traverses Little Conestoga Road in Upper Uwchlan Township, Chester

County, Pennsylvania ("HDD S-3-0290"). The alignment of HDD S-3-0290 passes from the northwest to the southeast in the Marsh Creek Watershed with groundwater flow in the HDD bore alignment being towards Marsh Creek/Marsh Lake to the south and southwest.

G. The 16-inch pipeline was installed in 2017. During that installation, the HDD had an inadvertent return ("IR") of approximately 100 gallons of drilling fluids to wetland WL-17 and two unnamed tributaries, S-H 10 and S-H 11, to Marsh Creek Lake on June 24, 2017. S-H 10 and S-H 11 are listed as High Quality-Trout Stocked Fisheries. On August 29, 2017, another IR of approximately 40 to 50 gallons occurred in wetland WL-17 along Stream S-H 11 approximately 40 feet from the original IR location during drill ream operations on HDD S-3-0290.

H. In accordance with the Corrected Stipulated Order entered by the Environmental Hearing Board on August 10, 2017 at Docket No. 2017-009-L, Sunoco conducted a re-evaluation of HDD S-3-0290 for installation of the 20-inch pipeline. The HDD S-3-290 re-evaluation report was submitted to the Department on May 28, 2019 and approved by the Department on January 23, 2020 ("Re-evaluation Report").

I. As part of that re-evaluation, Sunoco reported that:

> **A 1.01 mile reroute to the north of the HDD is technically feasible**. This would entail adjusting the project route prior to this HDD's northwest entry/exit point to proceed north, cross under the Pennsylvania Turnpike, then proceed east for 0.7 miles parallel to the turnpike, cross Little Conestoga Road, then turn south, cross under the turnpike, and then re-intersect the existing project route just east of this HDDs southeast entry/exit point. There is no existing utility corridor here, however; therefore, this route would create a Greenfield utility corridor and would result in encumbering previously unaffected properties. The route would still cross two Waters of the Commonwealth and possible forested wetlands, and would pass in near proximity or immediately adjacent to five residential home sites. Both crossings of the turnpike would require "mini" HDD's or direct pipe bores to achieve the required depth of cover under the highway. Considered against the possibility of additional IR's occurring on the proposed HDD, **which are readily contained and cleaned up with minimal affect to natural resources**, the permanent taking of the new

> easement and likely need to use condemnation against previously unaffected landowners results in SPLP's opinion that managing the proposed HDD is the preferred option. (emphasis added). Re-evaluation Report at p. 6 "Re-Route Analysis".

J. The Re-evaluation Report also included an "HDD Hydrogeologic Reevaluation Report – HDD S3-0290 dated May 2019 ("Hydro Report"). It was noted as a conclusion in that report that "[t]he synthesis of regional and local geologic data together with past drilling performance during drilling for the 16-inch pipeline indicate that **installation of the 20-inch line at HDD S3-0290 has a moderate to high risk of drilling fluid loss and IRs**." (emphasis added) Hydro Report at p. 15.

K. In February 2020, Sunoco commenced drilling the pilot hole for the 20-inch pipeline at HDD S-3-0290.

L. In spite of Sunoco's assurances that it could readily contain and clean up any IRs that might occur on HDD S-3-0290 with minimal affect to natural resources, on August 10, 2020, the Department received notice from Sunoco of an IR at HDD Site S-3-0290, PA-CH-0100.0000-RD, in the vicinity of Green Valley Road in Upper Uwchlan Township, Chester County. Sunoco ultimately reported that approximately 8163 gallons of drilling fluids had surfaced in wetland WL-17 and two unnamed tributaries, S-H 10 and S-H 11, the same aquatic resources impacted by the 2017 IRs.

M. At the time of the Department's inspection on August 10, 2020, Sunoco had attempted to contain the IR by deploying various silt fences in wetland WL-17 and unnamed tributaries S-H 10 and S-H 11 and two sets of instream silt containment booms (weighted silt curtains) to reduce the amount of bentonite entering Marsh Creek Lake. There was no sandbag containment in wetland WL-17 to capture drilling fluids. An effort was being made to pump some of the drilling fluids from wetland WL-17. Representatives from Sunoco indicated that they were

still attempting to obtain landowner permission in order to gain access to areas to fully address the IR. Despite Sunoco's efforts to contain and clean up the IR, the IR discharged to wetland WL-17 and two unnamed tributaries, S-H 10 and S-H 11 and then flowed and discharged into Marsh Creek Lake, a water of the Commonwealth. Wetland WL-17 and two unnamed tributaries, S-H 10 and S-H 11 were coated with a thick layer of drilling mud. A plume of drilling mud filled a cove of Marsh Creek Lake.

N. Marsh Creek Lake is in Marsh Creek State Park, one of the most visited state parks in Pennsylvania. Marsh Creek State Park receives more than 1,000,000 visitors each year. Marsh Creek Lake is one of the primary recreational resources in the park. The 535-acre lake is used year-round for fishing and boating. It also provides important habitat for migrating waterfowl. Following the inadvertent return, 33 acres of Marsh Creek Lake had to be closed to the public.

O. On August 11, 2020, the Department received notice of a subsidence event in wetland WL-17 measuring 15 foot in diameter and 8 foot deep. The subsidence event allowed drilling fluids into the underground horizon and the wetland, adversely impacting the functions and values of the wetland, and constituting a discharge of industrial waste to groundwater, a water of the Commonwealth and wetlands, a water of the Commonwealth.

P. Immediately after the inadvertent return the Department conducted inspections of this area on August 10, 2020, August 11, 2020, August 12, 2020, and August 13, 2020.

Q. On August 17, 2020, Sunoco submitted a Restart Report for HDD S-3-290. In that report, Sunoco proposes to construct "unconventional pressure relief points" ("UPRPs"), which consist of sand-bag dams constructed at the location of the two IRs that occurred in 2017 and in wetland WL-17. Sunoco asserts, once again, that if a future IR were to occur at any of those locations, this time the drilling fluids will be collected and transported to either the entry or exit

pits for HDD S-3-0290 and recycled at the mud plant. Sunoco did recognize that placement of the sandbag dam within wetland WL-17 would require additional permitting. The Department has not approved the Restart Report for HDD S-3-0290.

R. On August 20, 2020, the Department issued a Notice of Violation to Sunoco, requesting that Sunoco provide plans to address the impacts of the inadvertent return and subsidence events to waters of the Commonwealth and information regarding various aspects of the HDD. To date the Department has not received all information requested by that Notice of Violation.

S. Sunoco's efforts to clean up the inadvertent return and assess its impacts to waters of the Commonwealth continues as of the date of this order. The Department continues to monitor conditions and cleanup efforts at this site. The 33-acre portion of Marsh Creek Lake referenced in Paragraph M, above, remains closed to recreational boating and fishing and all other public use due to the presence of drilling fluids on the lake bottom.

Violations

T. The drilling fluids described in Paragraphs L, M and O, above, constitute Industrial Waste. Sunoco's discharge of Industrial Waste to waters of the Commonwealth without a permit is a violation of 25 Pa. Code § 92a.1(b) and Section 301 of the Clean Streams Law, 35 P.S. § 691.301 and Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18.

U. The violations described in Paragraphs L, M and O, above, constitute unlawful conduct under Sections 401 and 611 of the Clean Streams Law, 35 P.S. §§ 691.401 and 691.611; and a statutory nuisance under Sections 401 and 601 of the Clean Streams Law, 35 P.S. §§ 691.401 and 691.601. The violation in Paragraph L constitutes unlawful conduct under Section 18 of the

Dam Safety and Encroachments Act, 32 P.S. § 693.18; and a statutory nuisance under Section 19 of the Dam Safety and Encroachments Act, 32 P.S. § 693.19.

NOW, THEREFORE, pursuant to Section 20 of the Dam Safety and Encroachments Act, 32 P.S. § 693.20; Sections 5, 402, and 610 of The Clean Streams Law, 35 P.S. § 691.5, 691.402, and 691.610; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17, the Department hereby ORDERS the following:

1. Except as specified herein, Sunoco shall immediately suspend all work authorized by the permits described in Paragraph D, above, for HDD S-3-0290 until the Department provides written authorization to resume work, except as is necessary to stabilize the site to prevent erosion and sedimentation in accordance with Paragraph 6, and to prevent additional pollutants from entering waters of the Commonwealth, including wetland WL-17, unnamed tributaries S-H 10 and S-H 11 of Marsh Creek Reservoir, and the Marsh Creek Reservoir, which is located in Marsh Creek State Park. In no event shall Sunoco undertake any pipeline installation activities at the site of HDD S-3-0290, including drilling or drilling-related preparation and drilling support activities, or the installation of casing, unless expressly authorized by the Department in writing.

2. Sunoco shall take all steps necessary, including the submission of appropriate applications and supporting materials for permit amendments, to implement the reroute of HDD S-3-290 that Sunoco previously found to be technically feasible in the Re-evaluation Report.

3. Within 30 days of the effective date of this Administrative Order, Sunoco shall submit a report to the Department that fully explains how the August 10, 2020 inadvertent return described in Paragraph L above, occurred and how the August 11, 2020 subsidence event described in Paragraph N above, occurred. Such report shall also detail the results of all geophysical testing

conducted by or on behalf of Sunoco from January 1, 2010 to the date of this Order for the 2000-foot-long by 50-foot-wide section of the HDD profile centered on the August 10, 2020 IR location areas of the HDD profile, as well as the results of all geophysical testing conducted on behalf of Sunoco from January 1, 2010 to the date of this Order in any other areas or resources that were impacted by the August 10, 2020 IR and subsidence event. The geophysical testing data shall include all results of microgravity, electrical resistivity, seismic refraction and any other geophysical testing. The report shall include analyses of each of the tests, verified by a qualified professional,

4. Sunoco shall address, to the Department's satisfaction, all impacts to waters of the Commonwealth that occurred as a result of the August 10, 2020 inadvertent return and the August 11, 2020 subsidence event by restoring and remediating impacted aquatic life, biota, and habitat, including the functions and values of the impacted wetlands resources, and all impacted recreational uses, to a condition equal to or better than that in place before the incidents occurred.

a. On or before October 1, 2020, unless the Department approves a later date in writing, Sunoco shall submit an impact assessment ("Impact Assessment") and a cleanup and restoration plan for HDD S-3-0290 Drill Site ("Restoration Plan") to the Department for review and approval to address all temporary and/or permanent impacts to waters of the Commonwealth that occurred as a result of the August 10, 2020 inadvertent return and August 11, 2020 subsidence event. The Impact Assessment and the Restoration Plan shall include a detailed resource delineation and function assessment for the wetland, stream, and reservoir in the areas impacted by the IR and subsidence event, as well as reference areas. The Restoration Plan shall provide for at least five (5) years of monitoring after the restoration activities are completed. For the first two (2) years, Sunoco shall submit

monitoring reports under the Restoration Plan to the Department on a quarterly basis with monitoring reports due on January 30th, April 30th, July 30th, and October 30th of each year for the preceding calendar quarter. After the initial two (2) year monitoring period, monitoring reports shall be submitted on an annual basis, with the first annual report due on January 30th following year three (3).

b. If the Department finds that Sunoco's implementation of the Restoration Plan has failed to eliminate impacts to waters of the Commonwealth, then Sunoco shall submit a mitigation plan for the HDD S-3-0290 Drill Site ("Mitigation Plan") to the Department for review and approval to address impacts to waters of the Commonwealth that occurred as a result of the August 10, 2020 inadvertent return and the August 11, 2020 subsidence event. The Mitigation Plan shall provide for replacement of the functions and values of all impacted wetlands at a minimum area of 0.25 acre or at a ratio of 2:1, whichever is greater, within the Marsh Creek watershed. In accordance with Permit No. E15-862, special condition EE, the Mitigation Plan shall provide for at least five (5) years of monitoring after the restoration activities are completed.

c. Sunoco shall conduct the Impact Assessment and implement the Restoration Plan at Paragraph 4.a., above, immediately upon receipt of written approval from the Department unless the Department extends that timeframe in writing. If the Department determines that a Mitigation Plan is needed pursuant to Paragraph 4.b., then Sunoco shall implement the Mitigation Plan at Paragraph 4.b., above, within 90 days of receiving written approval from the Department, unless the Department extends that timeframe in writing.

5. In the event the Department determines that additional information, revisions, modifications or amendments are necessary to any permit, plan, any other submission, or restoration and remediation work required by this Order, then within ten (10) days after receipt of written notice from the Department, Sunoco shall submit to the Department such information, revisions, amendments or modifications, and/or complete the modified work, unless an alternative timeframe is approved by the Department in writing.

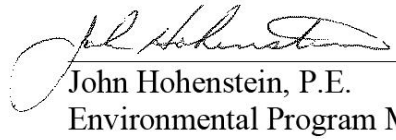
6. Effective immediately, Sunoco shall secure the partially constructed borehole with grouting or an equivalent method and stabilize all disturbed areas at HDD S-3-0290 in accordance with the approved E&S Plans and in compliance with 25 Pa. Code § 102.22(a) and/or (b), as appropriate. Sunoco shall continue routine monitoring of the installed BMPs and shall perform all necessary ongoing operation and maintenance activities to ensure the BMPs continue to perform as designed, in accordance with the approved E&S Plan and permit until the disturbed areas along the current alignment for HDD S-3-0290 are permanently stabilized.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:



John Hohenstein, P.E.
Environmental Program Manager

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

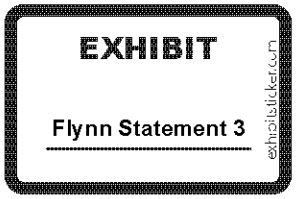
MEGHAN FLYNN	:	
ROSEMARY FULLER	:	
MICHAEL WALSH	:	
NANCY HARKINS	:	
GERALD MCMULLEN	:	DOCKET NOS. C-2018-3006116
CAROLINE HUGHES and	:	P-2018-3006117
MELISSA HAINES	:	
Complainants	:	
v.	:	
	:	
SUNOCO PIPELINE L.P.,	:	
Respondent	:	

DIRECT TESTIMONY OF

MEHROOZ ZAMANZADEH, Ph.D.

ON BEHALF OF

FLYNN COMPLAINANTS



Q. Please state your name, position and business address.

A. My name is Mehrooz Zamanzadeh, Ph.D. ("Dr. Zee") I am the founder, president, technical director and chief scientist at Matergenics Inc. in Pittsburgh, Pennsylvania. My business address is 100 Business Center Drive, Pittsburgh, PA 15205.

Q. Please describe Matergenics, Inc.

A. Matergenics Inc. is a state-of-the-art materials testing laboratory and corrosion engineering firm. We provide root cause failure analysis determinations, inspection and corrosion risk assessment of aging infrastructure and equipment, pipelines, metallurgical testing, coating testing, materials analysis, and cathodic protection analysis. We serve industries including the electric power utility, telecommunication, oil and gas, pipeline, aerospace, automotive, water and wastewater, medical, and manufacturing industries.

Q: Dr. Zee, is Exhibit Zee-1 a current version of your Curriculum Vitae?

A: Yes, it is.

EXHIBIT ZEE-1 IS OFFERED INTO EVIDENCE

Q. Please describe your educational and professional experience.

A. I hold a Bachelor of Science and Master of Science in Material Science and Engineering and a Ph.D. in Material Sciences from Pennsylvania State University. I joined the National Iranian Oil Company in 1980 upon completion of my doctoral work. In 1985, I joined Carnegie Mellon University in the capacity of Post-Doctoral Research Associate under a corrosion grant from IBM. From 1987 to 1994, I was employed at Professional Service Industries, Inc. (PSI), a consulting engineering and materials testing firm in Pittsburgh, Pennsylvania as a Technical Manager. In 1994, I established Matco Associates, an engineering and corrosion firm in downtown Pittsburgh, Pennsylvania. In 2008, Valmont Industries, a publicly traded company, acquired Matco Associates and later sold it to Exova Group PLC in 2015. In 2017, I was able to regain ownership of the engineering firm that I established and renamed it Matergenics, Inc., where I serve as the founder, president, technical director and chief scientist. I am a National Association of Corrosion Engineers ("NACE") Certified Corrosion Specialist with over 25 years of practical experience in the corrosion engineering management, materials selection and cathodic protection/coatings fields. NACE is the global leader in developing corrosion prevention and control standards, certification and education. Specifically, with respect to corrosion certifications, I am certified by NACE as a Materials Selection/Design Specialist, a Coatings Specialist, a Cathodic Protection Specialist, and as stated above, a Corrosion Specialist. I have worked in the oil and gas, and electric power utility industries throughout my career. I

have provided a wide range of materials and corrosion engineering solutions for these industries.

Q. Have you received any industry recognition or awards?

A. I have been the recipient of the Colonel Cox Award for the Appalachian Underground Corrosion Short Course (2010), the NACE International Fellow Award (2008), the American Society for Metals (ASM) International Fellow Award (2006), the ASM Entrepreneur of the Year (2004), and the NACE Outstanding Service Award (1996).

Q. Have you taught courses that are relevant to this matter?

A. Yes. I have lectured and taught frequently on materials selection, corrosion, coatings, cathodic protection, and failure analysis (fracture mechanics). I have lectured at Carnegie Mellon University and Pennsylvania State University. For technical societies, I have lectured at NACE, American Foundry Society (AFS), ASM, and American Society for Non-Destructive Testing (ASNT). I have also presented at the Electrical Power Research Industry's BC Hydro Corrosion and Degradation Conference, and West Virginia University's Appalachian Underground Short Course. I am a certified NACE Instructor for corrosion engineering, cathodic protection, and condition assessment courses. I am approved NACE instructor for Condition Assessment and Cathodic Protection

Q. Have you occupied any leadership positions in the corrosion prevention industry?

A. Yes. I have been the chairman and a trustee of the NACE Local Pittsburgh Section.

Q. Do you have experience working with pipeline corrosion assessment and evaluating the integrity of underground pipelines?

A. Yes. After getting my PhD in Material Sciences, I was employed by NIOC, PSI, Matco and Matergenics, all dealing with pipeline corrosion risk assessment and corrosion mitigation. In addition, I have been a consultant for Kern River Gas Transmission, Schlumberger Subsea Division, Dura-Bond Industries (including Dura-Bond Coating Duquesne, Dura-Bond Pipe Steelton, and Dura-Bond Pipe McKeesport), and many others.

Q. What is the scope of your current responsibilities?

A.

- Management of Capital Projects
- Setting Up Corrosion Risk Assessment/Corrosion Mitigation Programs,
- Coating Selection/Application, Cathodic Protection, Corrosion Inhibitors System Design and Selection

- Technical CP Audits and Troubleshooting in Corrosion Control Programs
- Failure Analysis Root Cause Determination
- Engineering Studies and Technical Consultation
- Writing Standards/Certification Programs for Corrosion Assessment and Corrosion Control
- Managing and setting up Big QA/QC Corrosion Risk Data Centers
- Setting up Corrosion Engineering Courses: NACE Approved Instructor

Q. Can you identify some of the standard practices that you have been active in developing?

A. **STG 05** Cathodic/Anodic Protection

STG 08 Corrosion Management

STG 41 Electric Utility Generation, Transmission, and Distribution

STG 35 Pipelines, Tanks, and Well Casings

TGC 527 Consensus-Corrosion Prevention and Control Planning Standard and

TEG 187X Microbiologically Influenced Corrosion

Q. How much writing have you done in your field?

A. I've published dozens and dozens of articles in professional journals, some of them having been professionally referred. Topics that are pertinent to this proceeding include (a) AC interference and corrosive soils; (b) corrosion risk assessment and mitigation strategies; (c) coating selection; (d) cathodic protection.

Q. Are you the holder of any patents?

A. Yes, I was the principal investigator and lead contributor for more than three dozen patents. Some of them have related to coatings and corrosion resistant materials.

Q. What are some examples of projects that Matergenics has worked on?

A. Project examples:

- Corrosion control and cathodic protection in oil and gas production: transmission and distribution.
- Corrosion Risk Assessment and Corrosion Mitigation in Electrical Utility and Oil/Gas Industries. His analysis and identification of serious corrosion and stress corrosion

cracking problem within a refinery after Hurricane Katrina saved the company approximately 1 million dollars in corrosion repair costs.

- Corrosion control in refining units, Atmospheric Unit Overhead, Hydrogen Units, Water/Waste Water Treatment systems in refinery applications for NIOC.
- Development of an innovative corrosion monitoring and investigative technique for high mass utility poles for Valmont Industries. This method enables the client to assess whether a structure should be repaired or replaced. He has also provided product and process improvements for enhanced corrosion protection for utility poles.
- Corrosion control of underground pipelines through application of coatings and cathodic protection
- Corrosion control: storage tanks/piping
- Corrosion monitoring: test coupons, electrochemical techniques and NDT

Q. Have you been qualified as an expert witness in corrosion prevention by courts and/or administrative tribunals?

A. Yes. I was qualified as an expert witness in corrosion prevention in the following matters:

- *Alcan International Limited and Solvay Fluorides, Inc. v The S.A. Day Manufacturing Co., Inc.,* No. 94–CV–286H, 1999 WL 605702, United States District Court, W.D. New York (July 14, 1999)
- *Barrett v. Renz TDBA et al.*, No. GD-00-011610, 2001 WL 3700087, Court of Common Pleas of Pennsylvania (November 12, 2001)
- *Sports & Exhibition, et al. v Johnstown Welding, et al.*, No. GD04007881, 2001 WL 36265390, Court of Common Pleas of Pennsylvania (November 30, 2001)
- *Michael Schmelzer v Hilton Hotels Corp.*, No. 05-cv-10307, 2007 WL 4247050, United States District Court, S.D. New York (October 3, 2007) and
- *McWane, Inc. d/b/a Clow Valve Company v Chevron U.S.A., Inc.; Diamond Oil Co. and Oskaloosa Gas & Oil, Inc.,* No. LALA074105, 2008 WL 6259643, District Court of Iowa, Mahaska County (August 11, 2008).

Q. Have you testified at trials and hearings as an expert witness on corrosion issues?

A. Yes. In addition to the cases listed above, I have testified in trials and hearings in the following matters: *William Paul, et al. v CDG Engineers & Associates et al.,* Circuit Court of Pike County, Alabama (July 22nd, 2007); *Panama City Beach Condos Limited Partnership v Axis Surplus Insurance Co.,* No. 5:06-cv-00198-RS-AK, 2007 WL 4659621, United States District Court, N.D. Florida, Panama City Division (October 18, 2007); *Steinberg v Hussey Cooper et al., San Diego Superior Court Case No.* GIC784469 (October 2007); *Kane County Public Building Commission v Wight and Company,* Kane County Judicial Center, St. Charles, IL; Gen. No. 03 LK 475 (October 2007).

Q. Do you have other relevant experience as a corrosion expert in legal matters?

A. Yes. I have provided deposition testimony in the following matters: *Lang v Progressive Exp. Ins. Co. No.* 11-C-0188, 2012 WL 1409936, United States District Court, E.D. Wisconsin (April 20, 2012); and *Elkins Constructors, Inc. v American Builders & Contractors Supply Co., Inc., et al.*, Nos. 312010CA085219, 312010CA075220, 2013 WL 12321353, Florida Circuit Court (October 30, 2013).

Q. Dr. Zee, are you generally familiar with the allegations of the Flynn defendants concerning the condition of the 8-inch ME1 pipeline and the 12-inch bypass pipeline?

A. Yes, I am.

Q. Dr. Zee, are you generally familiar with the allegations of the PUC's bureau of Investigation & Enforcement in its December, 2018 Complaint against Sunoco?

A. Yes, I am.

Q. Then, is it safe to say that issues have been raised in both cases that implicate cathodic protection, pipeline coatings, side drain measurements, close interval surveys, microbiological induced corrosion, ILI tools, integrity management and other aspects of evaluating and maintaining HVL pipelines?

A. Yes, those issues are all involved in this case.

Q. Are those all aspects of integrity management with which you are familiar?

A. Yes, they all are matters with which I am very familiar.

Q. Do you believe that based upon your education, training and experience you are capable of rendering an opinion to a reasonable professional certainty on the following matters:

(1) whether or not Sunoco's integrity management program complies with good engineering practices as well as its own internal integrity management plan document;

(2) whether or not Sunoco's operation of the ~~8-inch pipeline and the~~ 12-inch pipeline should be reviewed for corrosion risk both externally and internally;

(3) whether or not Sunoco's operation of the subject ~~8-inch pipeline and the~~ 12-inch pipeline should be reviewed for safety considerations from a corrosion risk point of view; and

the 12-inch pipeline

(4) whether or not Sunoco should continue operating ~~these pipelines~~ without a thorough investigation by an independent expert.

A. The answer to this question is definitely "yes."

FLYNN DEFENDANTS OFFER DR. ZEE AS AN EXPERT QUALIFIED TO TESTIFY AS TO THE MATTERS TO WHICH HE HAS STATED HE IS CAPABLE OF RENDERING AN OPINION TO A REASONABLE PROFESSIONAL CERTAINTY.

Q. What was your firm, Matergenics, retained to do in this case?

A. We were retained to (a) review certain public and highly confidential documents, and (b) review the condition of the 8-inch Mariner East 1 (ME1) and the 12-inch portion of the Mariner East 2 (ME2) workaround pipelines. Both of these pipelines date back to the 1930's. Finally, we were asked to make recommendations concerning their future maintenance and/or operation from corrosion point of view.

Q. Dr. Zee, how did Matergenics go about preparing your analysis?

A. At Matergenics my staff and I work collaboratively under my supervision.

Q. Can you provide an overview of the materials that you reviewed?

A. Documents were provided by Flynn attorney Michael Bomstein to Matergenics, Inc. as pdf files. These included both public documents and confidential and highly confidential documents. 31,521 pages of materials were supplied. Of these, 3390 were identified as "public." The balance were marked "Confidential/Highly Confidential."

On August 9, 2019, an *in camera* inspection took place on premises of Matergenics. Under supervision of a Sunoco attorney, Matergenics staff were permitted to examine additional documents stamped "Confidential Security Information" ("CSI"). Staff were not allowed to take notes or photocopy any of the CSI materials.

The initial *in camera* review has shown that the CSI materials consisted of a pipeline integrity management ("IM") manual and hazard assessments dated 2013, 2017 and 2018. Matergenics does not here comment on the hazard assessments.

On January 6, 2020, we were given the opportunity to examine the IM data as well as ancillary material referred to in the CSI documents. We were allowed to take notes on this occasion.

Matergenics further notes that it understands Flynn counsel has requested an opportunity for us to participate in the excavation and condition assessment of portions of the ME1 and ME2 pipeline. At the time of this report we have not yet been able to do so.

Pursuant to certain discovery orders in this case relative to production of documents, we also reviewed:

- Records confirming tests and upgrades in Chester and Delaware Counties since January 1, 2013
- Integrity Management Plans
- Documents summarizing maintenance and upgrades in Chester and Delaware Counties performed since January 1, 2015
- Documents reflecting leaks, punctures and ruptures on the 8-inch and 12-inch pipelines since January 1, 1986
- 1052 pages (39 pdf files) of Close Interval Surveys (CIS) furnished in late, December, 2019

We have examined the documents produced by Sunoco and find that there are 215 inspection and repair records covering 2013 to 2016 and one comprehensive inspection report from April 2014. We have seen three pipeline integrity summaries for ME1 covering 2016 to 2018. There also were ILI inspection anomaly reports for ME1 covering 2017 to 2018.

There also were right of way (ROW) reports for the period April 20, 2019 to June 16, 2019. There were documents reflecting leaks, punctures and ruptures going back to 2002.

Finally, there were numerous records extraneous to the purpose of our technical review, including legal documents, a first responders' manual, and so on.

Relative to the Morgantown accident of April, 2017, we have reviewed a summary report as well as the pleadings and the joint motion for settlement approval.

It is our understanding that Flynn counsel was unable to secure access to the Reliable searchable software platform in its review of the Sunoco documents. Matergenics was able to obtain the Foxit PhantomPDF software and that software was used to look for key words in the 31,521 pages of materials. As with any such software,

no one claims it has a 100% success rate and it is acknowledged, therefore, that relevant documents may not have been identified.

Q. Can you comment on aging pipelines and corrosion failure in general?

A. In general, aging underground pipelines are at risk of corrosion failure due to coating degradation, external corrosion and stress corrosion cracking. Corrosion failures in aging pipelines are either sudden catastrophic ruptures or gradual leaks due to localized corrosion and cracking. Many factors associated with these corrosion areas are coating failure, degradation, disbondment, blistering, delamination, mechanical pressure and stress concentration, galvanic action, corrosive ions, the presence of moisture, corrosive soils, stray current interference, AC interference, inadequate cathodic protection and shielding. These areas have a much higher statistical probability of catastrophic failure and rupture.

Most of the time initiation of stress corrosion cracking (SCC) and pitting corrosion are detected by coincidence in excavation and digs and is not targeted or predicted by analysis of corrosion performance parameters. Internal or ILI tools have limited capability for detecting or identifying stress corrosion cracking and pitting corrosion initiation.

It may be noted that aging, by itself, may not result in corrosion of a steel pipeline. In theory, it is possible that there will be constant/consistent soil conditions, coating conditions, absence of potential damage mechanisms/threats throughout the service life. But in reality, this just does not happen. Coating degrade and disbondment take place.

A pipeline will be exposed to various potential damage mechanisms/threats throughout its service life. If these damage mechanisms/threats are not identified, controlled and/or mitigated in time, it could result in pipeline failure. Typically, aging presents corrosion problems as well as corrosion induced cracking.

Cast iron, wrought iron and bare steel pose the highest risk compared to coated carbon steel. As the pipeline ages, coating on the pipeline could damage/disbond/delaminate and result in corrosion with age at the exposed areas in the aggressive soil conditions.

In our opinion, integrity assessment must be in place for aging pipelines. It is necessary that there be (a) External corrosion direct assessment (ECDA); (b) Internal corrosion direct assessment (ICDA); and (c) Stress Corrosion Cracking Direct assessment (SCCDA).

Q. What are the primary forms of corrosion attack in corrosive soils?

A. The two main forms of corrosion that have been observed are localized, (pitting) corrosion and stress corrosion cracking. Both pitting corrosion and stress corrosion cracking are localized in nature and occur when corrosive ions are exposed to the steel surface under disbonded/delaminated coating or at coating defects.

Pitting corrosion is a type of corrosion that is confined to small area. It usually is an autocatalytic process in the absence of AC/DC stray current corrosion. Active pitting corrosion is considered structural corrosion when the corrosion penetrates the steel. Pitting corrosion can be initiated due to presence of corrosive ions under a disbonding coating that acts as a shield to cathodic protection or in the presence of AC interference.

Stress corrosion cracking (SCC) is a form of corrosion cracking that is associated with near-neutral pH or high pH. For near neutral pH stress corrosion cracking, the electrolyte contains a dilute solution of carbon dioxide and bicarbonate ions with a pH between 6 and 7. This type of corrosion cracking is associated with limited branch transgranular cracking and the crack walls contain corrosion products. High pH SCC is caused by a solution of carbonate ions with pH between 9 and 10.5 exhibiting intergranular cracking with limited branching. Stress corrosion cracking can initiate under disbonded coatings that may shield cathodic protection.

Q. Can you explain the role of coatings in corrosion protection?

A. One of the oldest measures of corrosion protection is to coat the substrate with a polymeric material. An organic coating can protect a metal substrate by two mechanisms:

- Serving as a barrier for the reactants: water, oxygen, and various ions.
- Serving as a reservoir for corrosion inhibitors that may assist the surface in resisting corrosion attack.

Q. Are there different types of coatings?

A. There are a number of different types of coatings that have been used specifically to provide corrosion protection for buried or submerged metal structures including coal-tar based coatings, polyolefins, shrink sleeves, wax-based coatings, asphalt, urethanes and blends, epoxy phenolics, polyureas, esters, and fusion bonded epoxy coatings (FBEs).

Q. Have you prepared summaries that identify repair reports that show the coatings found on the 8-inch and 12-inch pipelines?

A. Yes as you can see from the two tables below. **Exhibit 2** shows the documents reviewed.

1
2
3

Summary of Sunoco Pipeline 12.750-Inch Pipe Repair Reports[1]

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

Summary of Sunoco Pipeline 8.625-Inch Pipe Repair Reports[2]

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

Q. For the 12-inch pipeline, what did you notice about corrosion associated with bare pipes?

A. For the seven months that we had information for, bare pipe had the greatest amount of corrosion.

Q. What is cathodic protection?

A. Cathodic protection ("CP") is a method for reducing corrosion by minimizing the potential difference between the anode and cathode. In this method, a current is applied from an outside source to the structure to be protected, such as a pipeline. When enough current is applied, the whole structure, (pipeline) will exhibit one potential and the anodic sites on a pipe will cease to exist.

In soil environments, cathodic protection is effective if the real potential of steel (without the ohmic drop) is more negative than –850 mV with respect to a copper/saturated copper sulphate reference electrode.

Q. Can you tell from the documents what CP criteria were used on the ME1 pipeline?

A. From the documents, it is not clear what CP criteria was used on ME1 pipeline. Sunoco's answer to the I&E complaint acknowledges not meeting the minimum -850mV CSE (Copper-Copper Sulphate reference Electrode) NACE SP0169 CP criterion. Lab analysis reported that the leak is due to microbiologically influenced corrosion, or MIC. In the case of MIC, the polarized potential of -950 mV CSE or more negative should be considered. No data or reference that shows that the potential is maintained at more negative than -950 mV CSE .

Q. Are there NACE standards that have a bearing on this issue?

A. Yes, for example:

NACE SP0169-2013 Extract:

6.2.1.4 Special Conditions Applicable to Steel and Gray or Ductile Cast-Iron Piping Systems

6.2.1.4.1 When active MIC has been identified or is probable, (e.g., caused by acid-producing or sulfate-reducing bacteria), the criteria listed in Paragraphs 6.2.1.2 and 6.2.1.3 might not be sufficient. Under some conditions, a polarized potential of –950 mV CSE or more negative[63-65] or as much as 300 mV of cathodic polarization might be required.[66]

6.2.1.4.2 At elevated temperatures (> 40 °C [104 °F]), the criteria listed in Paragraphs 6.2.1.2 and 6.2.1.3 may not be sufficient. At temperatures greater than 60 °C (140 °F), the polarized potential of –950 mV CSE or more negative might be required.[63,66-68]

6.2.1.4.3 On mill-scaled steel, cathodic polarization greater than 100 mV might be required.[66]

Q. What did you learn about Sunoco's cathodic protection from review of records in the I&E proceeding?

A. From Appendix C of the Joint Settlement motion, at page 8, it was reported that "At station 2459±00, which is approximately 1,030 feet from the leak, SPLP's records indicated cathodic protection readings of -628 mV in 2016 and -739 mV in 2015. Adequate cathodic protection is achieved at a negative cathodic potential of -850 mV or lower". From readings, it is evident that the potentials are maintained at more positive than -850 mV CSE. Moreover, ON potentials are recorded. There is no mention of OFF potentials."

From those documents, including Sunoco's Answer, it appears that Sunoco's position is that a negative potential of -850 mV need not be maintained because Sunoco has taken other approved steps to protect against corrosion. This alternative scheme is referred to below as the "100 mV criterion". Sunoco gives the impression that the 100 mV criterion was used as the pipe is 9 decades old, the coating might have degraded, and, could be due to economic reasons. However, this criterion is not valid in the presence of anaerobic bacteria or galvanic action.

Q. Can you explain the role of anaerobic bacteria in this process?

A. Yes, we can start with an NACE standard:

NACE Publication 35108-2008-SG, One Hundred Millivolt (mV) Cathodic Polarization Criterion Extract:

> Although most pipeline operators using the 100 mV cathodic polarization criterion follow a procedure similar to the above, they typically consider the applicability of the 100 mV criterion before undertaking these. As previously discussed, the effectiveness of the 100 mV cathodic polarization criterion is problematic on pipelines operating at elevated temperature or exposed to anaerobic bacteria because in either condition, 100 mV of polarization is not always sufficient to mitigate corrosion.

Effect of Anaerobic Bacteria

The presence of anaerobic bacteria, as demonstrated in one investigation,[18] suggests an increase in the minimum polarization value to the 200 to 300 mV range. A similar increase in the –850 mV_{CSE} potential criterion is also true in the presence of anaerobic bacteria.

Q. Can you explain the challenges with 100?

A. Moreover, the major disadvantage of this criterion is that polarized potentials could fall in the range of Stress Corrosion Cracking (SCC) on a pipeline. At room temperature of about 21°C, the potential range is from about –550 mV CSE to –700 mV CSE. For susceptible pipelines in ambient temperature conditions, polarized potentials within this range should be avoided.

Q. Are there any charts that help explain the difficulty of successfully maintaining the 100 mV criterion?

A. Yes, see below:

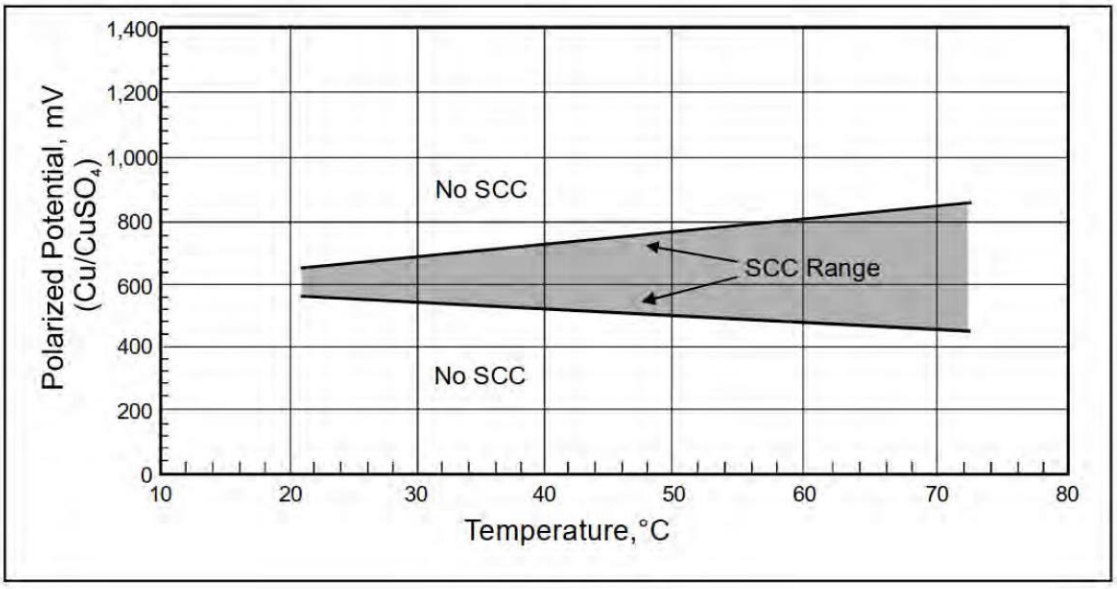
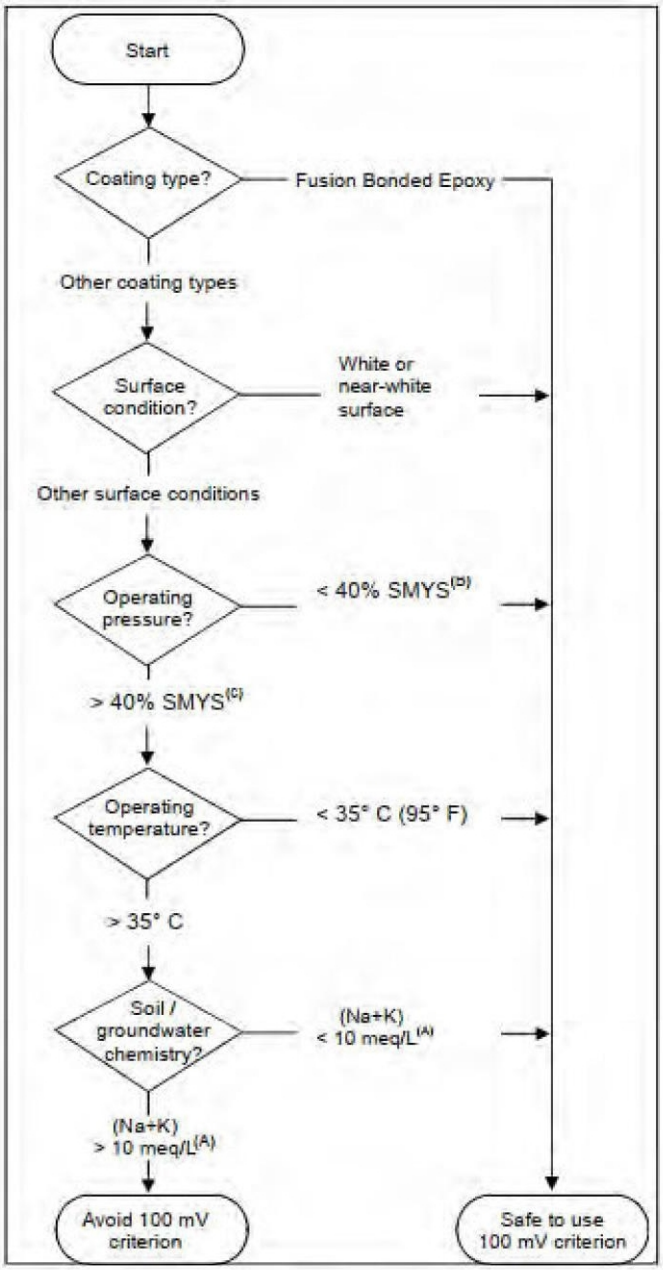


FIGURE – SCC Range in Carbonate/Bicarbonate Environments

Reference: NACE Publication 35108-2008-SG, One Hundred Millivolt (mV) Cathodic Polarization Criterion (Figure 23)



Flow diagram for decision-making with respect to the use of the 100 mV cathodic polarization criterion[A] to avoid the possibility of high-pH SCC.

[A] The safe use of the 100 mV cathodic polarization criterion in accordance with this chart does not guarantee that high pH SSC does not occur, only that it is extremely unlikely.
[B] SMYS = specified minimum yield strength.
[C] Based on laboratory analysis of limited field data.

FIGURE – Flow Diagram for Decision-making with Respect to the Use of the 100mV Cathodic Polarization Criterion to Avoid the Possibility of High-pH SCC

Reference: NACE Publication 35108-2008-SG, One Hundred Millivolt (mV) Cathodic Polarization Criterion (Figure 24)

Q. Then, can you summarize your view on the -850 mV criterion?

A. Yes. To summarize, just as the –850 mV CSE polarized potential criterion needs to be more electronegative in the presence of sulfate reducing bacteria, the same is the case for the 100 mV cathodic polarization criterion.

Q. What are the other conditions where -850 mV criterion should be carefully considered?

A. In the presence of Stray current and Alternate Current Interference conditions.

Q. What is stray current corrosion?

A. Stray current corrosion is due to currents following through paths other than the intended circuit. This type of corrosion is localized in coated pipes and takes place at discharge points (pinholes and mechanically damaged areas). Failure can occur in a rather short service time.

No information was provided to us regarding stray current surveys. Sunoco needs to disclose if any stray current survey was performed on this ME1 line. If performed, data should be submitted for review. Stray current corrosion is a major concern for accelerated corrosion.

Q. What is the role of alternating current interference in pipeline corrosion?

A. Typically, coated pipelines are located near electric transmission lines and run parallel to high voltage transmission lines (HVTL). AC interference can take place by conduction or an induction mechanism causing corrosion in the blistered areas of the coating. The presence of AC interference can cause serious pitting corrosion even on pipes under cathodic protection. This is even the case if the -850 mV CSE criterion is met. Uncertainties exist as to the reason for this.

No information was provided on AC interference surveying. Sunoco needs to disclose if any survey was performed on this ME1 line. If performed, data should be submitted for review.

Q. What is the role of microbiological induced corrosion (MIC) in pipelines?

A. Generally, underground pipelines are protected from corrosion by coating and CP. However, the protective measures are not always effective to protect the pipelines, especially when the coating is disbonded and the CP current is shielded from reaching the trapped water/liquid. As a result, bacteria growth occurs on pipelines under disbonded coating.

Since nearly all soils are naturally rich with microbiological activity, detecting presence of MIC on external side of the buried structures and pipelines is really challenging. CP and coating are the only mitigation options for MIC on direct buried pipe. Sunoco needs to disclose if any soil analysis was performed at the site of the Morgantown accident.

Q. Can you explain Cathodic Protection Shielding by Protective Coatings

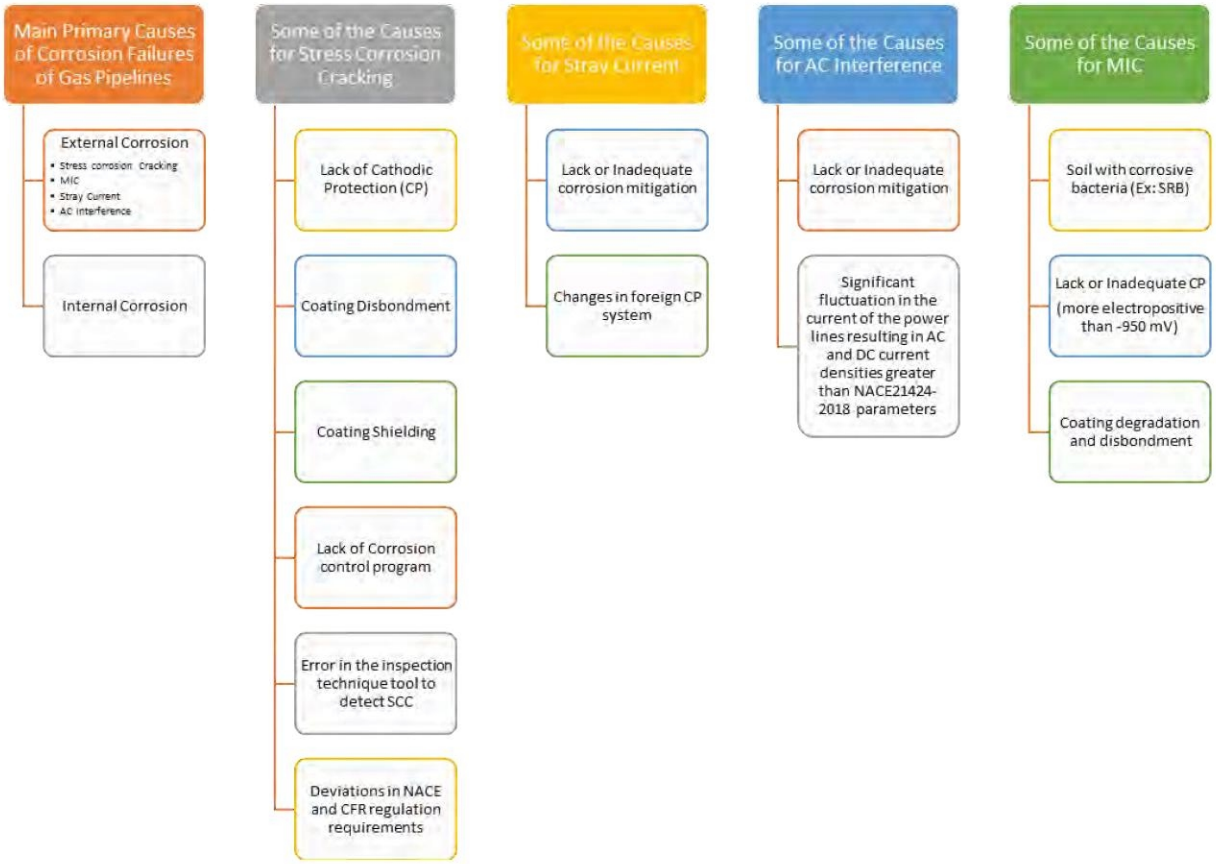
A. Cathodic protection shielding is defined as preventing or diverting the cathodic protection current from its intended path. Many companies are aware of the problems with CP shielding, yet some continue to use the same coating types and construction practices that have tendencies to cause CP shielding because of economics involved. Information relating to this problem in the case of ME1 is missing.

Several pipeline operators now list ***CP shielding disbonded coatings*** as their leading root cause of external corrosion. Coating systems like coal tar can cause increased demands on a CP system and often present difficulties in achieving adequate protection levels. If coatings disbond from the pipe and if electrolytes can enter into this area, a serious corrosion condition can result because the protective CP current may be shielded from reaching any active corrosion cells.

Depending on a coating resistivity, water absorption, pH and oxygen permeation, the risk of corrosion of the underlying metal can be light uniform to significant corrosion, SCC or bacterial corrosion.

Q. Have you prepared an overview of factors that may contribute to corrosion?

A. Yes, see the chart below: Presence of DC power source near the pipeline, and shielding coatings for MIC.



Q. You've done a technical review of the Flynn production documents furnished to you by counsel, is that correct?

A. Yes, we have.

Q. Let's start with your review of the public documents. What did you find from the Public 104 documents? (Exhibit Zee-3)

A. Public 104 Documents:

A total of 172 document files were identified in this folder. These documents all fall within the range of SPLP00002625 to SPLP00005708

The documents in this folder are primarily legal documents related to the original civil suit and ex parte emergency order of PA PUC BIE v. Sunoco Pipeline, and a few other related civil suits (Dinniman v. Sunoco Pipeline and Andover Homeowner's Association v. Sunoco Pipeline). Numerous parties filed petitions to intervene in this matter.

There are some more technical documents in this folder, including a Pennsylvania Coordinated Response Exercise for First Responders (CORE) Emergency Response

Manual (SPLP00004529), and Energy Transfer Standard Operating Procedure (SOP) documents related to the following

- Aboveground Components / Overhead Crossings – SPLP00003961
- Annual Corrosion Control Surveys – SPLP00004140
- Emergency Response Training Exercises – SPLP00004817
- Investigation of Pipeline Anomalies -SPLP00004244
- Hazardous Liquids Pipeline Shutdown and Startup – SPLP00003838
- Structure to Electrolyte Potential Measurement – SPLP00004042
- Pressure Protection and Relief Valve Capacity Verification – SPLP00004330
- Public Awareness Plan – SPLP00004447

Numerous other Energy Transfer SOPs are found in these 8 specific document files as well. These SOPs may be important in ascertaining the adequacy of the Sunoco Pipeline / Energy Transfer operating procedures.

Q. What did you find from the public 113 documents? (Exhibikt Zee-4)

A. Public 113 Documents:

A total of 7 document files were identified in this folder. These documents all fall within the range of SPLP00005715 to SPLP00005777.

A total of 6 documents are United States Department of Transportation Accident Reports – Hazardous Liquid Pipeline Systems for the Mariner East 1 (ME1) pipeline from 3-22-2002 to 4-26-2017. Failure causes include pinhole leaks, Viton O-ring leaks, improper plug installation, and "undetermined." These may be important. They are summarized as follows:

- SPLP00005715: Report dated 3-22-2002. Accident occurred at Tinicum, Delaware County, PA, on 2-21-2002. Summary follows.

"COMPLAINT OF ODORS BY PROPERTY OWNER LED TO INTEGRITY TESTING AND EXCAVATION ALONG A PARALLEL SECTION OF 8-INCH AND 12-INCH PETROLEUM PRODUCT LINES. THIS INVESTIGATION RESULTED IN DETERMINATION THAT 12-INCH LINE WAS LEAKING ADJACENT TO COMMERCIAL BUSINESS (HOTEL). NO EVACUATIONS WERE NECESSARY. RESPONSE WAS LIMITED TO LOCAL FIRE DEPARTMENT AND TOWNSHIP OFFICIALS. PA DEP, US COAST GUARD, US FISH & WILDLIFE AND OPS HAVE MADE ON-SITE INSPECTIONS OF THE LEAK LOCATION. NO IMPACT TO DARBY CREEK IS EVIDENT. **THE ROOT CAUSE OF THIS FAILURE CAN NOT CONCLUSIVELY BE DETERMINED SINCE THE FAILED SECTION OF PIPELINE CAN NOT BE RETRIEVED BECAUSE OF THE RISK OF DAMAGING AN ADJACENT BUILDING DUE TO ITS CLOSE PROXIMITY TO THE PIPELINE.** THE PIPELINE SECTION AT THE LEAK IS APPROXIMATELY 12 FEET DEEP FOR A CROSSING OF DARBY CREEK. THE PIPELINE HAD ILI BY A HIGH-RESOLUTION ULTRASONIC PIG DEVICE IN OCTOBER 2001 WITH REPORT BEING RECEIVED IN JANUARY 2002. THE SECTION OF LINE THAT LEAKED HAD A REPORTED FEATURE AND WAS SCHEDULED TO BE FIELD INVESTIGATED AFTER THE DISCOVERY OF THE LEAK. IN ORDER TO GATHER ADDITIONAL

INFORMATION ABOUT THE FAILED SECTION OF PIPE, A VIDEO CAMERA WAS RUN INSIDE THE FAILED PIPE SECTION TO LOCATE AND EXAMINE THE FAILURE LOCATION. THIS INTERNAL VIDEO INSPECTION CONFIRMED THE LOCATION OF THE LEAK AS BEING THE SAME LOCATION AS THAT REPORT BY THE ILI. BASED ON THE AVAILABLE INFORMATION, THE LEAK APPEARS TO BE CORROSION RELATED, EXACT CAUSE UNKNOWN."

- SPLP00005721: Report dated 12-23-2008. Accident occurred at Murrysville, Westmoreland County, PA, on 11-25-2008.

KIEFFNER FAILURE ANALYSIS REVEALED IMPROPER INSTALLATION OF THE PLUG AS THE PRIMARY CAUSE OF THE FAILURE AND DEFORMATION OF THE TOR FITTING AS A CONTRIBUTING FACTOR. OUR PROCEDURES WERE AMENDED PER PHMSA REQUEST AND EMPLOYEES WERE RE-QUALIFIED WITH THE NEW PROCEDURES.

- SPLP00005725: Report dated 5-6-2015. Accident occurred at Glen Mills, Delaware County, PA, on 4-10-2015. Summary follows.

"On 4/10/2015 at approximately 15:05 a landowner telephonically reported a petroleum odor to the SPLP Control Center. The line was shutdown and field personnel were dispatched to the area and detected a rainbow sheen on an intermittent drainage swale in a wooded area adjacent to the pipeline ROW. Emergency Response and Incident Command was initiated and the source of the odor was traced to the Point Breeze to Montello 12" refined products pipeline system. This area of the pipeline was excavated and a Plidco repair clamp was used to effect repair at the failure location. Permanent repair via cut out and replacement was planned however the area of the failure was located in a wetland area that is subject to PA DEP permitting. Permit approval process significantly delayed permanent repair. As of 7/10/2017 the failed section was cut out and replaced. **The failed section was sent to a laboratory for failure analysis. The failure analysis report confirmed that the cause of the failure was external corrosion. The most likely mechanism for the external corrosion was coating failure which caused localized shielding of the CP.** In 2016, Def/MFL/SMFL/LFM and UT Crack ILI tools were run and subsequent repairs and replacement of sections of this pipeline were affected including the cut out and replacement of this failed section of pipe. Subsequent to the repair program a hydrostatic pressure test was completed to requalify the MOP."

- SPLP00005738: Report dated 6-22-2016. Accident occurred at Aston, Delaware County, PA on 5-27-2016. Summary follows.

"On Friday, 5/27/2016 at 13:04, a High-High LEL Alarm Condition Triggered a Facility Lockout at Twin Oaks meter station and pipeline shut down. Event notification was sent to supervision and field personnel were dispatched to investigate. Leak was discovered at the receiving pig trap door. Response included isolation of the pig trap and flaring of the remaining product contained in the pig trap. **When purged and made safe to open, the pig trap door was assessed and it was determined that the O-Ring door seal had failed which caused the release.** A new O-Ring was installed, leak tested and the pipeline was returned to normal operation."

- SPLP00005751: Report dated 9-13-2016. Accident occurred at Allegheny Township, Blair County, PA, on 8-16-2016.

"On Tuesday, 8/16/2016, a High-High Alarm Condition triggered a Facility Lockout at Hollidaysburg Pump Station. Event notification was sent to supervision. Field personnel were dispatched to investigate. Leak was discovered at the receiving pig trap closure. Response included isolation of the pig trap and flaring of the remaining product contained in the pig trap. When purged and made safe to open, the pig trap closure assembly was assessed. **Investigation determined the pig trap closure O-Ring had failed which was the immediate cause of the release.** A new O-Ring was installed, leak tested and the pipeline was returned to normal operations."

- SPLP00005764: Report dated 4-26-2017. Accident occurred at Morgantown, Berks County, PA, on 4-1-2017. Summary follows.

"On April 1, 2017 at 15:57, a call was received by the Sunoco Pipeline LP (SPLP) Control Center via the company emergency number from a landowner reporting a possible leak along the pipeline ROW at 5530 Morgantown Rd, Morgantown, PA. Internal notifications were made and SPLP field personnel were immediately dispatched to the field to investigate. Field personnel arrived onsite at approximately 17:00 and confirmation of the release was made at approximately 17:04. NRC notification was made at 17:59 (Report 1174615) that same day. Required follow up report to NRC was made on April 3, 2017 at 15:46 (Report 1174748) updating the volume released to 20bbls and also providing updated coordinates of the release location."

"The pipeline was shut down and the affected area was isolated via upstream and downstream mainline valves. Product was displaced and the isolated segment was nitrogen purged. **Subsequent excavation revealed the source of the leak as an external corrosion pinhole. The affected section of piping was cut out and replaced and the failed section was sent to a 3rd party laboratory for failure analysis. Failure analysis indicated that the leak occurred at the bottom of the pipe at an area of external corrosion coincident with the heat affected zone of a girth weld. The failure analysis confirmed the cause as external corrosion and indicated that microbiologically induced corrosion (MIC) may have contributed to the observed external corrosion."**

Even though the performance of failure analyses were mentioned in some of the accident reports, the technical review of documents did not identify any such failure analyses. Failure analysis of an accident should be made available in the public domain. Two of the reports in particular, are important (SPLP00005725 and SPLP00005764) because they specifically state external corrosion as the root cause of failure.

1 file (SPLP00005777) is an unreadable (too small) spreadsheet which may be presumed to be a summary of ME1 accidents over time. Even under high magnification the text lacks sufficient resolution to be readable. **It would be very useful to obtain this spreadsheet, or at least a readable copy**.

Q. Please comment on the documents you found in Public 165, 166 and 169 from 6-17-19.

A. Public 165 166 169 Documents (6.17.19):

A total of 3 document files were identified in this folder (SPLP00005786, SPLP00005837, SPLP00005843).

All are incomplete segments of hearing testimony from the PUC and the PA Environmental Hearing Board ranging from 3-2-2017 to 5-10-2018. A search of the major keywords using the Foxit PhantomPDF software found only 1 document (SPLP00005843) with much discussion/comment related to the keywords.

- Pennsylvania Environmental Hearing Board meeting, March 2, 2017, pages 559, 567-568. Tree roots are attracted to pipe by the cathodic protection system; and can cause coating failure (p. 559). Coating over welded areas; and installation of pipe (pp. 567-568).

p. 559

Q. Why can't you replant trees in the right-of-way itself?

A. Trees in relationship to the pipeline right-of-way cause two issues. It obstructs visibility from an areal patrol inspection, we ' re required to inspect our right-of-way very often by the federal government. And from the sky is the most efficient way to perform that inspection. The other problem is trees for the most part can have invasive roots and they're attracted to the pipe by the cathodic protection system. Electrical current that we use to protect the pipeline. Those roots will wrap around the pipe and they can actually damage the coating that we use to protect the pipe and it will prematurely cause coating failure and failure that needs — cause to go repair the pipe.

pp. 567-568

Q. Can you tell me the purpose of the timber mats?

A. Timber mats is another means of dispersing the load of the equipment and prevent compaction. The equipment itself has low pressure design in both low pressure tires or tracks, depending on the type of equipment.

So definitely when you get to wetlands and soft areas, you put timber mats down so the equipment won't sink and/or compact the ground.

After the travel lane' s established, the surveyors come back through and they'll stake out a center of where the pipe is supposed to go for the ditch crew, and that's

basically a backhoe or another type of rotary excavator that will excavate the ditch, separate the topsoil and the subsoil. Behind them comes a crew with the truck crew, sometimes at the same time, sometimes ahead or behind, will string out the pipe along one side of the right-of-way.

Union welders come in. They weld up every joint of pipe. Every joint of pipe gets x-ray inspected to make sure the welds are solid and good. After the welds are complete, the coating crew comes through and they apply the protective coating over the welded areas because the pipe is coated but the weld areas have to be bare steel for the welding process.

So then they inspect the coating to make sure that it' s that there's no dents, gouges, scrapes, pock marks. They lower the pipe into the excavation. They once again inspect the coating to make sure it didn't get damaged during the lowering in process. Coating is very important to the pipe.

Q. Please comment on the documents you found in Public 165, 166 and 169 from 6-19-19.

A. Public 165 166 169 Documents (6.19.19):

A total of 3 document files were identified in this folder (SPLP00006922, SPLP00006941, SPLP00006952.

Two (SPLP00006922 and SPLP00006941) are Sunoco direct testimony before the PUC dated 3-1-2018; and one is an incomplete segment of hearing testimony from the PUC dated 7-18-2017 (SPLP00006952). A search of the major keywords using the Foxit PhantomPDF software found little of relevance.

Q. Now, let's switch to documents stamped "confidential/highly confidential." What did you find in No. 104, the ROW walking reports?

A. *Highly Conf 104 – ROW Walking Reports (6.17.19)* (Exhibit Zee-5)

A total of 56 document files were identified in this folder, ranging from SPLP00000047 to SPLP00000263.

Sunoco right-of way (ROW) patrol reports of ME1 to PUC covering the time period from 4-20-2019 to 6-16-2019, as one of the requirements of PUC to allow re-establishment of ME1 operation. The following four pdf documents provide in an abbreviated form the data included in all the daily reports for the Sunoco ME1 right-of-way (ROW) inspections as required by PUC; extending from 4-20-2019 to 6-16-2019.

- SPLP00000103 (ROW Inspection 4-20-2019 to 5-6-2019).

- SPLP00000167 (ROW Inspection 5-7-2019 to 5-22-2019).
- SPLP00000235 (ROW Inspection 5-24-2019 to 6-9-2019).
- SPLP00000235 (ROW Inspection 6-10-2019 to 6-16-2019).

What is important here is that the report forms were designed for both right-of-way patrols and leak surveys. No leak surveys were conducted by Sunoco.

Q. Now, let's switch to documents stamped "confidential/highly confidential." What did you find in No. 104, Strain Gauge Top of Pipe Reports dated 6-17-19?

A. Highly Conf 104 – Strain Gauge Top of Pipe Reports (6.17.19)

A total of 81 document files were identified in this folder, ranging from SPLP00000267 to SPLP00002583.

Sunoco ME1 subsidence inspection data reports to PUC covering the time period from 1-10-2019 to 4-11-2019, as one of the requirements of PUC to allow re-establishment of ME1 operation. The reports are mainly data tables; and include the following.

- Ground elevation monitoring – data tables provided in reports
- Top of pipe elevation monitoring – data tables provided in reports.
- Kiefner daily strain gauge report – only a link to a secure website is provided.

Nothing abnormal was found in the inspection data.

Q. Did you review other documents from the 6-19-19 folder?

A. Highly Conf Docs Folder; 104 and 175-177 Highly Confidential Subfolders (6.19.19)

The 104 sub-folder contained 30 documents (ranging from SPLP00005892 to SPLP00006910) and the 175-177 sub-folder contained 1 document (SPLP00007001). Documents in the 104 sub-folder included the following types of reports.

- ME 1 pipeline stress monitoring reports – data tables provided in reports.
- ME 2 alternative construction methods notifications.
- ME 1 top of pipe elevation monitoring reports – data tables provided in reports.
- ME 1 remediation grout program reports.
- ME 1 natural ground elevation monitoring reports – data tables provided in reports.

Nothing abnormal was reported in the monitoring reports.

The one document in the 175-177 sub-folder was a set of 33 aerial surveys of Mariner East 1.

Q. Did you review 6-26-19 document production 1, 10 and 13 (Exhibit Zee-6)

A. 6.26.19 SPLP Production – Highly Conf CSI Docs Highly Confidential 1, 10, 13

A total of 1647 document files were identified in this folder, ranging from SPLP00015477 to SPLP00028647.

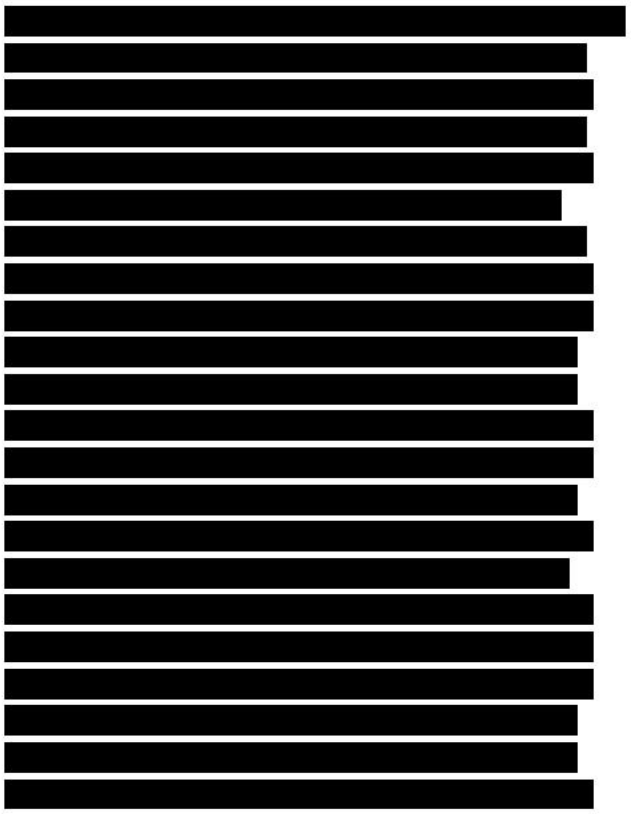
Of these, 1406 document files are judged to be irrelevant to the purposes of our litigation support. These documents fall into the following general categories.

- Unreadable test results.
- Test plans and requests.
- Discussion outlines.
- Mill test reports.
- ISNetworld OQ reports.
- Personnel lists and personnel qualifications of all types (including welding and NDT).
- Radiological inspections and qualifications.
- Line testing task reports.
- ILI inspection anomaly reports for anomalies such as deformation and other non-corrosion/coating types.
- Welding procedure specifications/
- Weld coupon test reports.
- Site inspections.
- Work permits.
- Work site safety and hazard analyses.
- Instrument calibration.

The remaining 241 documents may be relevant to litigation support. Relevant document types include:

- Integrity summaries. There are 3 integrity summaries (SPLP00008132, SPLP00008142, SPLP00008154) For Mariner East 1. All three summaries provide metal loss (corrosion) summaries in table form, post-repairs. [redacted]

- ILI inspection anomaly reports for Mariner East 1, specifically identifying external metal loss (corrosion). All of these reports were generated during the 2017-2018 time period. These reports also include pit depth measurements. There are 22 documents of this type, identified as the following.



We concur with the opinion of Richard B. Kuprewicz that "There are certain anomalies or imperfections in pipelines, including corrosion threats, that ILI assessments cannot reliably determine." The implication is that many cases of external metal loss (corrosion) may have been overlooked by ILI inspection, and this this list of anomaly reports does not reflect the extent of the probable external metal loss / corrosion problem along the Mariner East 1 pipeline. ILI cannot detect initiation of corrosion and certain type of coating disbondments.

- Pipeline Inspection. There is 1 comprehensive pipeline inspection report dated 4-3-14; SPLP00018052. (Exhibit Zee-7) Although corrosion data was not identified, it was decided to keep this document in the relevant category.

- Pipeline Inspection and Repair – Maintenance Record. There are 215 such reports (Exhibit Zee-2); and the SPLP numbers will not all be listed here These documents all fall within the range of SPLP00008166 to SPLP00030663. This classification is based on an inclusion of a pipeline inspection and repair maintenance form by itself;

or including other documentation. These reports cover the time period from 2013 to 2016.

[redacted]

Q. What did you find from the 12-11-19 document production relative to coating specs? (Exhibit Zee-8)

A. Flynn 12.11.19 SPLP Production – Highly Conf CSI Files \ Flynn Se 2, No. 19 - Coating Specs

A total of 10 document files were identified in this folder, ranging from SPLP00031735 to SPLP00031805. These are coating specification documents, with effective dates ranging from 2/6/15 to 11/1/18. They are titled as follows.

- SPLP00031735 – Coating Selection Criteria, Effective Date 2/6/15.
- SPLP00031737 – Coating for Above Ground Piping or Structures, Effective Date 11/1/18.
- SPLP00031744 – Coating of Transition Piping From Below to Above Ground; Effective Date 10/1/15.
- SPLP00031747 – Wax Coating for Buried or Submerged Fittings, Valves, Tie-Ins, & Repairs to Linepipe Coating; Effective Date 10/1/15.
- SPLP00031752 – Coating of Field Joints, Valves, Tie-Ins, Girth Welds, and Short Sections of Pipe Using Two Part Epoxy; Effective Date 11/1/16.
- SPLP00031756 – Plant Applied External Fusion Bonding Epoxy Pipe Coating; Effective Date 2/6/15.
- SPLP00031776 – External Coating of Girth Welds with Fusion Bonded Epoxy; Effective Date 10/1/15.
- SPLP00031783 – Concrete Over-Coating for Pipe Coated with Fusion Bonded Epoxy; Effective Date 2/6/15.
- SPLP00031798 – Concrete Overcoating for Pipe Form Method for Field Application; Effective Date 2/6/15.

- SPLP00031805 – Application of "Rapid Set" Concrete Over Pipeline Girth Welds; Effective Date 2/06/15.

As these are all relatively recently issued specifications, covering the period 2015 to 2018, it is our opinion that these specifications do not have an impact on our analysis, conclusions, and opinions concerning the current condition of the aging pipeline coatings.

[redacted]

Q. Did you review the recent document production stamped SPLP 32110 – 33161?

A. Yes, Flynn December 23, 2019 Production, SPLP 32110 – 33161. (Exhibit Zee-9)

Q. What are these documents?

A. These documents are close interval survey plots.

Q. What information is present in the plots?

A. The plots consists of ON potential survey data.

Q. Is the provided information sufficient or do you want more information?

A. Along with the plots, it would have been better if the following information was also provided:

- Type of CP System
- CP Design
- Date of CP system Installation
- If CP system is Impressed Current, Details of Rectifier settings/reads
- Procedure followed for CIS and additional measurements

Q. Does these plots contain any information on additional measurements?

A. Yes, lateral potentials or side-drain potential data is also recorded.

Q. What standard could be referenced for lateral potentials or side-drain potential survey?

A. NACE SP0207-2007

Q. Can you provide an overview of lateral potentials or side-drain potential survey?

A. Side-drain potential survey, additional measurements, must be performed at the same time and same locations along the pipeline as the close-interval survey (CIS) measurements. Side-drain potentials should be measured and recorded on both sides of the pipe at the start of each survey run or may also be measured and recorded at areas indicating possible problems i.e., at low-potential sites and at the sites where structure-to-soil potentials changes abruptly.

Side-Drain Potential Survey:

A cell-to-cell surface potential gradient survey consisting of a series of side-drain potentials measured along a pipeline.

It is recommended that side-drain potentials should be compared with potentials taken directly over the pipeline. More electronegative side-drain potentials compared to the potentials taken directly over the pipeline indicates that the flow of current in the soil is towards the pipeline; assuming steady soil conditions, current density and coating conditions.

Q. What are the challenges with lateral potentials and side-drain potential survey?

A.

- Minor measurement errors due to incorrect placement of the reference electrodes can result in misinterpretation of the data.
- Under certain conditions, a relatively strong localized anodic cell could exist on the bottom of the pipe with the top of the pipe serving as a cathode and negative side-drain readings could be measured while severe corrosion is actually occurring on the bottom of the pipe at this location.

Q. What are the findings from the review of CIS documents?

A. A summary of the newly produced documents is attached as Exhibit 10. Review of CIS data suggests that the electrode placed directly above the pipe is connected to the positive terminal of the voltmeter and the offset electrode to the negative terminal and side-drain potentials were measured on both sides of the pipe. Negative side-drain potential reads indicate that current is flowing towards the pipe.

- **Corrpro** measured and recorded depolarized potential (A) and ON potential (B). This data assists in determining the voltage shift (B – A). However, **Titan Corrosion Services (TSC)** and **CP Data manager** has measured and recorded only ON potentials, no baseline information is available.

- [redacted]
  - Potential reads show possible presence of anodic conditions on the pipeline at this location.
  - If direct assessment was performed, Matergenics expresses interest to know the results.
  - If direct assessment was not performed and no further steps were taken, Matergenics as an independent expert would like to perform CIS at this location.
- It was observed that potentials at some locations are more electropositive than -0.500V. Some of the locations are identified and reported in **Exhibit 10**.
- It was observed that some of the side drain reads were taken at more electronegative locations and not at less electronegative locations. Some of the locations are identified and reported in **Exhibit 10**.
- It was observed that ON potentials at some locations are in the range -3V to -15.5V. This is not normally observed and the reason for this must be investigated. Very high potentials could result in coating disbondment.
- Matergenics expresses interest to know the soil conditions at the low potential regions. If no soil data is available, Matergenics would like to perform soil resistivity measurements and collected soil samples for detailed lab analysis.

Q. From the CIS plots, can you comment that CIS survey was performed in accordance with IM?

A. During the review of appendix D (ECDA Plan) of IM manual, it was observed that CIS (SPLP00032017) could be performed in three conditions:

[redacted]

CIS performed by Corrpro clearly indicates that the CP system can be interrupted. In that case, either ON/OFF survey or depolarized survey should have been performed by (TSC) and CP Data manager instead of ON survey. Matergenics expresses interest to know the reason for choosing ON survey.

Q. You have mentioned that potentials at some locations are more electropositive than -0.500V. What does that mean?

A. [redacted] Observed potential reads indicate that the pipeline section is not

receiving adequate cathodic protection and the locations are highlighted in Exhibit 10. From the low potential reads it is evident that the goal mentioned in IM is not achieved. This means the pipe can be at high risk for corrosion.

Q. Can you classify the pipeline regions based on the potential survey data?

A. [redacted]

[redacted] Matergenics expresses interest to know the proactive measures taken at the locations where ON potentials are very low.

Q. At my request, Dr. Zee, have you delineated the proper scope of pipeline evaluation and assessment relative to the Mariner East 8-inch ME1 and 12-inch bypass pipelines?

A. Yes

Based on Matergenics' technical expertise and years of experience in pipeline corrosion risk assessment, the scope of work needed for proper evaluation and assessment of the 8-inch Mariner East 1 ("ME1") and 12-inch Mariner East ("ME2") workaround pipelines can be divided into two parts for better evaluation and assessment of the coating, cathodic protection (CP) system, CIS on the selected areas of the pipeline, and soil resistivity measurements.

Part 1 covers on-site testing on the live pipeline which is a non-destructive testing (NDT). The tests covered under NDT are soil resistivity/corrosivity measurements, collection of soil samples close to the pipeline and potential measurements. The recommended non-destructive testing will not have any adverse effects on the mechanical integrity of the live pipeline.

Part 2 covers lab testing of the ME1 pipe remnant samples from the independent lab that has performed the analysis. Also, part 2 covers testing of soil samples collected from site, corrosion products if present on the ME1 pipe remnant samples, liquid samples from coating blisters and coating samples collected from the ME1 pipe remnant samples. The testing described in part 2 is a destructive testing.

Q. Please provide an overview of the on-site testing protocol.

A. The following should be performed based on pre-assessment/In-Line Inspection (ILI) in selected areas:

A. CIS in selected areas based on the previous ILI data;
B. Soil Resistivity and Barnes Layer Testing and Analysis;
C. Soil Sampling and Field Testing for Corrosivity

A. Description of CIS Survey at Selected Areas

During CIS, there is not any disruption to the service of the pipeline and most importantly the CIS test does not result in any compromise to the pipeline. During CIS, a connection is made to the pipe test lead in a test station or the structure, and the pipe to soil potential is measured at 5-foot increments along the pipeline. Distance measuring is conducted using the survey wire in conjunction with an electronic distance counter to measure how much wire has been dispensed.

Pipe to soil potentials are measured as the reference electrodes are moved down the pipeline. These potentials are the basis of the CIS and provide a continuous pipe to soil profile of the pipeline in the form of graph.

Interruption: During CIS survey, both ON and OFF potentials are recorded. To record OFF potentials, all the line rectifiers that affect the line section being surveyed are interrupted using synchronized interrupters. Synchronized interrupters switch the rectifier current at various ratios of "on" time to "off" time mostly at 4:1.

Data Logger: The data loggers or computerized voltmeters Allegro QX is used for CIS to record all of the required data during a CIS. Apart from the data loggers or computerized voltmeters, a wire dispensing system should also be used. The survey wire, 1.5-mile spool of #32 awg or 3-mile spool of #34 awg coated copper wire, would be used for maintaining constant electrical contact with the pipeline through connections made at test stations.

Pipe Locator: In order to accurately record the pipeline pipe to soil potentials, pipe locator is used to place the reference electrodes over the pipeline. In this case, the

engineer recording the CIS data would follow the engineer locating the pipeline immediately ahead of him.

B. Soil Resistivity and Barnes Layer Testing and Analysis

In general, we consider two methods to measure soil resistivity, as follows:

1. Wenner four-pin method, recommended for in-situ soil resistivity measurement and soil layer analysis (Barnes analysis);
2. Soil box method, recommended for resistivity measurement of soil samples.

ASTM G57 - This standard covers the equipment and procedures for measurement of soil resistivity. The standard describes two sets of equipment and procedures. One for *in situ* measurement of soil resistivity in the field, and another for measurement of soil resistivity of collected soil samples from the field. The latter can be performed in the laboratory or in the field. Our soil resistivity field measurements involve the use of four metallic pins (1 ft length approximately) driven into the ground. The instrument supplies a current to soil through outer pins and the voltage difference is read between the inner pins. To measure the soil resistivity at different depths, measurements can be performed with different spacing between the pins.

C. Soil Sampling and Field Testing for Corrosivity

In accordance with ASTM D4220 / D4220M, the following procedure needs to be used to collect soil samples:

Soil samples will be collected from area (>8 ft) to the pipeline and 5 feet deep.

1. The collected soil samples will be placed in clean plastic container.
2. Soil samples will be identified with tags, labels, and markings prior to transporting them.
    1. Job name or number, or both,
    2. Sampling date,
    3. Sample/boring number and location,
    4. Depth or elevation, or both,
    5. Sample orientation,
    6. Collector name (minimum CP1 Technician)
    7. Special shipping laboratory handling instructions, or both including sampling orientation

500 grams of soil is the minimum amount needed to perform the basic protocol. Once the soil samples are received at Matergenics Pittsburgh Lab, the procedures described in Part 2, Laboratory Testing, will be used for corrosivity determination.

Q. What is the recommended on-site testing protocol for digs?

A. Three 500 ft segments of the pipe should be selected for close interval survey (provided the pipe segments in these areas are not replaced and are the original coated pipes). The dig location selections should be based on previous CIS data, soil resistivity and corrosion characteristics. Excavation would be the responsibility of SPLP.

At all dig sites (3), soil, corrosion products and disbonded coating samples should be collected, labeled, logged in chain of custody form, and submitted to an independent lab. If no disbondment or other feature of interest was identified, samples would be discarded in the field. If SCC, localized corrosion or another feature of interest was found, small pipe sections should be cut and the samples should be shipped overnight to the lab.

The following tests will be performed on the exposed pipe section:

1. Visual examination, photographic documentation and macro-examination by digital microscope (Non-Destructive testing).
2. Coating Thickness Measurement by Positector 6000 (Non-Destructive testing).
3. pH measurement under disbonded coating by pH paper (Non-Destructive testing).
4. Blister liquid sampling for laboratory analysis (Non-Destructive testing).
5. Delaminated coating sample collection for laboratory analysis.
6. Adhesion testing near delaminated areas (Destructive testing).
7. Collection of corrosion products if present.

Q. What is your recommended laboratory testing protocol?

A. The following laboratory testing of collected samples (soil, corrosion products, disbonded coating samples and cut pipe sections) should be performed: Metallurgical Failure Evaluation and Soil Corrosivity Determination.

A. Metallurgical Failure Evaluation

(1) The *failure analysis of cut pipe sections should include the following:*

(a) Photographic documentation throughout project work.
(b) Visual examination including close-up inspection for contamination, texture, defects, microstructure, and cross-sectional examination using a low magnification stereo microscope.
(c) Metallographic preparation and examination (cutting, mounting and etching with a 2% nital solution) of selected steel pipe areas.
(d) Metallurgical cross-sectional optical microscopy to evaluate coating and substrate characteristics including microstructure, defects, voids, porosity, number of coating layers, layer thickness, contamination, and general characteristics.
(e) Fourier transform infrared spectroscopy (FTIR) on both sides of coating sample to identify the coating system functional group chemistry and determine if degradation or contaminants are present.
(f) Scanning electron microscopy - energy dispersive x-ray spectroscopy (SEM-EDS) on fracture surface(s) of ruptured pipe at fracture initiation. If inorganic contaminants are identified on the coating surface, x-ray diffraction (XRD) may be performed.
(g) X-ray diffraction of corrosion products on fracture surface(s).
(h) Tensile, Charpy and Hardness testing to determine mechanical properties of steel pipe.
(i) Chemical analysis of steel pipe to determine properties.
(j) Adhesion testing of coating per ASTM D3359 and / or ASTM D4541 to determine adhesion.
(k) Soil testing (chlorides, sulfates, resistivity, corrosion rate, etc.) of collected soils. (Description of soil testing detailed separately below.
(l) Final technical report providing the results of the examination, including analysis of data, determination and conclusions as to the cause of failure.

(2) Examination of the coating chip and dollies with backside of the coating includes:

- Fourier Transform infrared spectroscopy (FTIR) on both sides of coating sample to identify the coating system functional group chemistry and determine if degradation or contaminants are present.
- Scanning electron microscopy - energy dispersive x-ray spectroscopy (SEM-EDS) on both sides of coating sample to perform elemental analysis of coating and possible contaminants. If inorganic contaminants are identified on the coating surface, x-ray diffraction (XRD) may be performed.

(3) Examination of the liquid sample includes:

- Test for chlorides, sulfates, resistivity, corrosion rate.
- MIC test.

(4) Examination of the corrosion products and calcareous deposits include:

- SEM/EDS of corrosion products and AC nodules, if AC corrosion is present.
- XRD analysis of corrosion products and AC nodules, if AC corrosion is present.

B. Laboratory Soil Testing to Determine Corrosivity

Soil corrosivity analysis is very important when coating shields CP.

A. Introduction

A soil from field should be representative of the area of interest, where the stratum of interest contains a variety of soil types. It is desirable to sample each type separately. It may also be necessary to prepare a mixed sample. The sample should be reasonably large and thoroughly mixed so that it will be representative. The soil should be well-compacted in layers in the soil box, with air spaces eliminated as far as practicable.

The measured resistivity will be dependent on the degree of compaction, moisture content, constituent solubility, and temperature. The effect of variations in compaction and moisture content can be reduced by fully saturating the sample before placing it in the soil box. The saturated measurement will provide an approaching minimum resistivity, and can be usefully compared with "as-received" resistivity measurements.

B. Soil pH Test Methods

The recommended standard test method for soil pH is ASTM G51, *Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing*. In ASTM G51, two apparatus are recommended for pH measurement: Calomel and glass electrodes and a portable, battery-powered pH meter

C. Sulfate Test Methods

Based on condition (soil, water, or combination) the following standard test methods for sulfate content are recommended: ASTM C1580, *Standard Test Method for Water-Soluble Sulfate in Soil* and ASTM D4327, *Standard Test Method for Anions in Water by Suppressed Ion Chromatography*

D. Sulfides Content

Sulfide ion, S^{-2}, is found in ground waters and wastewater, causing odor and serious corrosion problems. If acidified, these waters can release hydrogen sulfide (H_2S) which is extremely toxic even at low levels. There is no specific standard to measure soil sulfides; however, since sulfide ions play a critical role in internal corrosion of pipelines in water system, a specific standard test method for sulfide ions in water is developed in ASTM D4658.

E. Sulfides Test Methods

Recommended standard test method for water sulfides content is ASTM D4658, *Standard Test Method for Sulfide Ion in Water*. This test method uses an ion-selective electrode in conjunction with a double junction sleeve type reference electrode to potentiometrically detect Sulfide ions, S^{-2}, in water.

The potentials are read using a pH meter with proper resolution (0.1 mV). Alternatively, ion meters with direct concentration scale for sulfide ions can be used. This test method is applicable in the range from 0.04 to 4,000 milligrams per liter (mg/L) of sulfide.

F. Chloride Content

The presence of chloride ion, Cl^-, significantly aggravates the conditions for pitting corrosion of most metals. Chloride ions can attack and destroy the passive films (corrosion product layers) and expose the bare metal substrate to corrosive environment.

Like sulfides, there is no direct standard to measure soil chlorides; however, since chloride ion is under regulation in the water industry, and must be measured accurately, a specific standard test method for chloride ions in water is developed in ASTM D512 and ASTM D4327.

G. Chlorides Test Methods

Recommended standard test method for water chlorides content is ASTM D512, *Standard Test Methods for Chloride Ion in Water*. In this standard, the following three test methods are suggested: Test Method A: mercurimetric titration; Test Method B: silver nitrate titration: and Test Method C: ion-selective electrode method.

H. Soil Water Content

A dry soil, regardless of its type and texture, is a non-corrosive environment, and its

resistivity is usually very high—a very good insulator. It is the moisture in soil that turns it into a corrosive environment. In fact, for most soils resistivity values decreases rapidly until approximately 20% of a soil weight is water. Variations in soil water content is usually drastic due to seasonal variations in rainfall and temperature. Water content of soils also depends on soil drainage capability—a function of soil type and texture (ASTM D2487), particle size (ASTM D422), porosity, and mechanical pressure—which all change with lateral location and depth.

I. Water Content Test Method

Recommended standard test method for water (moisture) content of soil is ASTM D2216, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.* This test method is used to determine the water (moisture) content by mass of soil, rock, and aggregate where the reduction in mass by drying is due to loss of water. The recommended drying temperature in ASTM D2216 is 110°C; nonetheless, this temperature may result in decomposition of organic materials, and conversion of calcium sulfate dihydrate (gypsum) to calcium sulfate hemihydrate that is not normally present in natural materials except in some desert soils. In order to reduce the degree of dehydration of gypsum or to reduce decomposition in highly/fibrous organic soils, it may be desirable to dry the materials at 60°C or in a desiccator at room temperature.

Two test methods are provided in this standard. The methods differ in the significant digits reported and the size of the specimen (mass) required. In method A, the water content by mass is recorded to the nearest 1%. For cases of dispute, method A is the referee method. In method B, the water content by mass is recorded to the nearest 0.1%.

This standard requires the drying of soil in an oven, which takes several hours for proper drying. The following test methods provide less time-consuming processes for determining water content:

- ASTM D4643, *Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating;*
- ASTM D4944, *Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester;*
- ASTM D4959, *Standard Test Method for Determination of Water Content of Soil by Direct Heating*

J. Corrosion Rate Measurement

Recommended standard test method for evaluating the corrosion rate of test specimens is: ASTM G102, *Standard Practice for Calculation of Corrosion Rates and Related Information from Electrochemical Measurements.* This standard covers the conversion of electrochemical measurements to rates of uniform corrosion. The conversion of polarization resistance values to corrosion rates is reported as mass loss in mils per year for a variety of metals and alloys.

Q. In light of your review of documents, are you in a position to discuss your findings in this case?

A. The Flynn Complainants allege that the aging 8-inch and 12-inch Mariner East pipelines are in poor condition and must be evaluated by an independent expert. The Complaint seeks (a) appointment of an independent expert to conduct a "remaining life study," and (b) such other relief as may be appropriate.

Initially, Matergenics was retained to assess the condition of these pipelines and make recommendations concerning their future maintenance and/or operation as well as the need for an independent expert to conduct a remaining life study.

As noted more in detail above, we reviewed tens of thousands of pages of materials supplied by Sunoco to Flynn counsel. Among those was Sunoco's integrity management ("IM") manual.

The initial *in camera* review of Sunoco's integrity management ("IM") manual was notable in two respects. First, the material supplied did not include a great deal of ancillary material that was expressly referred to in the CSI documents: procedures, inspections, data collection processes and reports Second, we were not permitted the opportunity to copy or make notes on the material that was provided to us. On January 6, 2020 we were allowed a fuller review of the IM materials and were permitted to take notes.

We have now reviewed the entire Integrity Management Plan. The review of the planning document shows it to be reasonably comprehensive and detailed. The plan calls for root cause analyses, close interval surveys, and cathodic protection by maintenance of pipe-to-soil ON potential of greater than -850mV. These are all good engineering practices, as my testimony has otherwise indicated.

Unfortunately, Sunoco's IM practices have not followed good engineering standards or its own IM plan. For example, even though the Plan specifies the undertaking and completion of root cause analyses (RCAs) for any and all pipeline failures, we have not seen satisfactory documented evidence for these analyses. The close interval surveys that Sunoco recently furnished do not meet the IM plan standards.

We also have documented instances of failure to maintain the pipe-to-soil ON potential of greater than -850 mV, again falling below Sunoco's own written standards.

Failure Analysis Root Cause Determination

Matergenics further notes that it understands Flynn counsel has requested an opportunity for us to participate in condition assessment and the excavation of portions of the ancient pipeline. At the time of this report we have not yet been able to do so.

In the public documents, 8 documents were provided which included multiple Energy Transfer Standard Operating Procedures (SOPs). These SOPs may be important in ascertaining the adequacy of the Sunoco Pipeline / Energy Transfer operating procedures. A total of 6 documents are United States Department of Transportation Accident Reports – Hazardous Liquid Pipeline Systems for the ME1 pipeline from 3-22-2002 to 4-26-2017. Two of the reports in particular, are important (SPLP00005725 and SPLP00005764) because they specifically state external corrosion as the root cause of failure. However, accompanying failure analysis and root cause analysis reports were not included in the document production. One Pennsylvania Environmental Hearing Board meeting, March 2, 2017 (SPLP00005843) briefly touched the point that tree roots are attracted to pipe by the cathodic protection system; and can cause coating failure; and also discussed coating over welded areas; and installation of pipe.

In the highly confidential documents, a series of 56 Sunoco right-of way (ROW) patrol reports of ME1 to PUC covering the time period from 4-20-2019 to 6-16-2019, as one of the requirements of PUC to allow re-establishment of ME1 operation. What is important here is that the report forms were designed for both right-of-way patrols and leak surveys. No leak surveys were conducted by Sunoco, as they do not appear to have been required by PUC in order for Sunoco to reopen the pipeline.

A total of 3 integrity summaries were found in the highly confidential documents. [redacted] A total of 22 in-line inspection (ILI) anomaly reports obtained during the 2017-2018 time period were related to external metal loss; and include pit depth measurements. We concur with the opinion of Richard B. Kuprewicz that "There are certain anomalies or imperfections in pipelines, including corrosion threats, that ILI assessments cannot reliably determine." The implication is that many cases of external metal loss (corrosion) may have been overlooked by ILI inspection, and this list of anomaly reports does not reflect the extent of the probable external metal loss/corrosion problem along the Mariner East 1 pipeline.

A total of 215 Pipeline Inspection and Repair – Maintenance Records were found among the highly confidential documents. This classification is based on an inclusion of a pipeline inspection and repair maintenance form by itself; or including other documentation. These reports cover the time period from 2013 to 2016. [redacted]

[redacted]

Pipeline integrity is mostly managed by: (1) close interval surveys; (2) coating surveys; (3) internal corrosion monitoring; and (4) technical training of people in charge. Many pipeline operators don't know the extent of what they have in the ground, or the corrosion conditions that are critical for designing an effective corrosion monitoring/corrosion control strategy.

Our review of over two thousand Sunoco technical documents shows a pipeline integrity system that lacks a centralized source sufficient to document corrosion incidents, factual corrosion data, corrosion risk assessments/aspects of the aging pipeline and corrosion mitigation.

Corrosion failures, ruptures and explosions of aging pipelines are made more likely in corrosive soils and when there is a lack of an effective integrity management program that considers disbonded coatings, shielding, MIC and cathodic protection.

Based on PUC formal complaint dated December 13th 2018 (Appendix C) and the fact that (a) the 8-inch line and the 12-inch line date back to the 1930s, and the records we have been supplied reflect (b) coatings that shield (interfere with) cathodic protection (c) corrosive soils and (d) past incidents/accidents, it is more likely than not that accelerated corrosion is taking place that will cause serious damage to people and property in high consequence areas.

A remaining life study can only be performed by acquiring solid data regarding corrosion risks and corrosion performance parameters of the pipeline under review. These data should include internal and external corrosion data, AC/DC interference, evaluation of CP performance, evaluation of coating type and adhesion condition, soil corrosivity mapping and DA condition assessment particularly in areas that the protective coating is degrading and shield cathodic protection or corrosion protection is not adequate.

An appropriate expert will be guided by the well-settled standards set out in ASME B31.4-2002 (Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids) as well as ANSI/NACE SP0502-2010 (Pipeline External Corrosion Direct Assessment

Matergenics as an independent corrosion firm is well qualified to perform the remaining life study on the basis of its technical expertise, and years of experience in pipeline corrosion risk assessment, as well as its existing practice as an independent corrosion engineering consulting business.

In closing, for an expert to be able to form an opinion as to the present, likely condition of the 12-inch and 8-inch lines, a good deal more information would be

required than has been supplied to Matergenics to date. The information needed has been set out in detail above in Part III. The materials furnished, however, raise serious questions as to the condition of these aging pipelines as well as the fitness of Sunoco to operate them.

Q. Based upon Matergenics' review of the materials supplied to date, do you have an opinion, to a reasonable professional certainty, concerning the matters you were asked to review?

(1) Based upon the materials we have been permitted to review, Sunoco may be operating an inadequate integrity management program for the 8-inch pipeline and the 12-inch pipeline considering the leak incidents, age of pipeline and coatings that, if disbonded, shield cathodic protection.

(2) Based upon the materials we have been permitted to review, important information relative to corrosion data, corrosion risk and corrosion mitigation is lacking.

(3) Sunoco's operation of the 8-inch pipeline and the 12-inch pipeline should be reviewed for corrosion risk both externally and internally;

(4) Sunoco's operation of the subject 8-inch pipeline and the 12-inch pipeline should be reviewed for safety considerations from a corrosion risk point of view; and

(5) The question of whether or not Sunoco should be permitted to continue operating these pipelines cannot properly be decided without a thorough investigation by an independent expert.

Q. Dr. Zee, would you agree that if additional information becomes available it is conceivable you would have to review that information to determine whether it affects your opinion in this case.

A. Yes, of course.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MEGHAN FLYNN	:	
ROSEMARY FULLER	:	
MICHAEL WALSH	:	
NANCY HARKINS	:	
GERALD MCMULLEN	:	DOCKET NOS. C-2018-3006116
CAROLINE HUGHES and	:	P-2018-3006117
MELISSA HAINES,	:	
Complainants	:	
v.	:	
	:	
SUNOCO PIPELINE L.P.,	:	
Respondent	:	

SURREBUTTAL TESTIMONY OF MEHROOZ ZAMANZADEH, Ph.D. ON BEHALF OF FLYNN COMPLAINANTS

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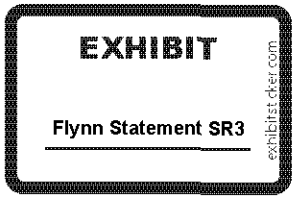


Q. Before proceeding with surrebuttal testimony, I would like you to state your certification related to corrosion

A. I'm a NACE certified Corrosion Specialist.

Q Is either Mr. Field of Mr. Garrity a Corrosion Specialist?

A. No. Mr. Garrity earned a BS in Electrical Engineering. He is a certified NACE CP Specialist. Mr. Field earned a BS in Mechanical Engineering. He is a certified NACE CP Specialist.

Q. What is the difference between a CP Specialist and a Corrosion Specialist?

A. A Corrosion Specialist has earned NACE Institute's highest level of certification. The Corrosion Specialist certification is geared towards very experienced corrosion control personnel, with broad and extensive expertise, in both the theory and practice of multiple areas of corrosion and corrosion control, and capable of performing work at a very advanced level. A CP Specialist has not taken the higher level examination that a Corrosion Specialist has.

I believe there are around seven (7) NACE certified Corrosion Specialists in Pennsylvania, 151 NACE certified Corrosion Specialists in the USA and 286 NACE certified Corrosion Specialists in the world.

Q. What are the steps to corrosion specialist certification?

A. The NACE requires you first to have qualified as one of several lower level specialists, including CP Specialist. You then appear to take the certification exam. I took it, passed it and was then certified as a Corrosion Specialist.

Q. Dr. Zee, have you had an opportunity to review the Rebuttal Testimony of John G. Field III and the Rebuttal Testimony of Kevin C. Garrity that have been submitted in this proceeding?

A. Yes, I have.

Q. Have you had an opportunity to review the exhibits that accompanied the testimony of Field and Garrity?

A. Yes, I have.

Q. Can you identify the Field exhibits?

A. Sure. The exhibits noted in Mr. Field's testimony were identified as JF-1 through JF-5.

Q. What were JF-1 and JF-2?

The first two were stated by Mr. Field to consist of the Energy Transfer Integrity Management Plan applicable to Mariner East pipelines in May 2018 (ETIM Plan) and the Sunoco IM Plan applicable prior to that date. I am assuming that Mr. Field examined the same documents that my team and I examined at Matergenics in 2019.

Q. How about JF-3 through JF-5?

A. JF-3 is identified by Mr. Field as a document reflecting 32 standard operating procedures and one engineering standard. JF-4 is spreadsheet purporting to show various MFL, deformation and UT in-line inspection tool runs for each pipeline. JF-5 is a metallurgical leak analysis prepared by DNV GL USA, Inc. (DNV Report).

Q. Until you received Mr. Field's testimony, had you ever seen exhibits JF-3 through JF-5?

A. The answer is definitely not. JF-3 appears to be a compilation that Mr. Field prepared for his June 15, 2020 testimony. It was not available to me at the time I submitted my direct testimony on January 15, 2020, six months earlier. JF-4 is a table of inspection dates. Again, it appears to be a compilation by Mr. Field for his rebuttal testimony. Some of the information underlying the document may have been produced previously. As for JF-5, the DNV report, the first time I saw it was in connection with Field's rebuttal testimony. I should note that Sunoco's PHMSA report in connection with the April 1, 2017 leak incident may have contained some information provided by DNV but I am uncertain of that.

Q. Can you identify the Garrity exhibits?

A. Mr. Garrity's testimony includes two tables he prepared that are identified as Figure 1 and Figure 2. It also includes his curriculum vitae, marked as Exhibit KG-1. He refers to the five Field

exhibits as well as information available on the PHMSA website. I'm not aware of any other Garrity exhibits.

Q. For the testimony that you are about to give, have you reached your own conclusions to a reasonable degree of professional and scientific certainty?

A. Yes, I have. All of my comments as well as conclusions in this surrebuttal testimony are given to a reasonable degree of professional and scientific certainty.

Q. Let's start then with Mr. Field's testimony. Regarding Exhibit JF-3, have you determined which of those operating procedures and one engineering standard went into effect after the Morgantown incident?

A. Yes, all of them. Every single one went into effect one year or longer after the ME1 April 1, 2017 leak in Morgantown. I have prepared a table that identifies all of these by procedure number, title, effective date, and code (49 CFR 195) reference for each. I have attached that table as Exhibit Zee-1.

Q. Mr. Field states in his rebuttal testimony that "SPLP has and follows robust integrity and corrosion control assessment and management practices…" Was that statement true at the time of the April 1, 2017 Morgan leak incident?

A. No, it was not. First, as to the integrity assessment and corrosion control assessment and management practices in the immediate vicinity of the leak incident, the practices newly *adopted* and shown in my table are good practices. Obviously, they were adopted in response to the absence of such practices leading up to the incident. Second, the fact that they were adopted does not by itself mean they were *implemented*. If there are data that reflect implementation of these practices in the Morgantown vicinity, those data have not been shared with Matergenics. Mr. Field does not identify any records that support the sweeping generality that on April 1, 2017 or later on "SPLP has and follows robust integrity and corrosion control assessment and management practices." This is true both respect to Morgantown in particular and the entire Mariner pipeline system as well. This also is obvious from the fact that many of Sunoco's sub-part practices are specifically identified in my initial direct testimony and not one of my comments identifying those practices is criticized by Mr. Field.

Q. Dr. Zee, have you reviewed Field Exhibit JF-4?

A. Yes, I have reviewed Exhibit JF-4. The two tables presented in the exhibit provide historical details concerning ILI segments, inspection dates, inspection tools, and inspection vendors for both the 8-inch ME1 pipeline and the 12-inch GRE pipeline. The inspection dates for the 8-inch ME1 pipeline range between 1990 and October 15, 2019. The inspection dates for the 12-inch GRE pipeline range between 1996 and August 31, 2018. This exhibit does

nothing to change my opinion, as it only provides very generalized information concerning the occurrence of the ILI inspections, and does not provide a record of the details or the results of any of the inspections. To be useful, a detailed inspection file containing the details and the results the individual inspections would be required.

Q. Regarding the DNV Report, Exhibit JF-5. do you agree that the report makes clear that the pipe segment that is the subject of the report ("the pipe segment") was removed from the pipeline by Sunoco, and not by DNV?

A. Yes. On page 1 of the DNV report the following statement was made, showing that DNV did not remove the pipe section, but that the pipe section was shipped to DNV. Figures 1 and 2 on page 25 of the DNV report are documentary photographs of the arrival of the pipe segment at DNV. The report specifically says, "The pipe section containing portions of the upstream (U/S) and downstream (D/S) joints and a chill ring was sent to DNV for analysis. The objectives of the analysis were to determine the likely metallurgical cause(s) of the leak and to identify any contributing factors."

Q. Do you agree that the pipe segment removed by Sunoco and delivered to DNV was approximately 8 feet long?

A. Yes. The photograph provided in Figure 4 on page 27 of the DNV report documents the length of the pipe segment at approximately 8 feet.

Q. Did you find any reference in the DNV Report to the existence or condition of ME1 pipe adjacent to the pipe segment?

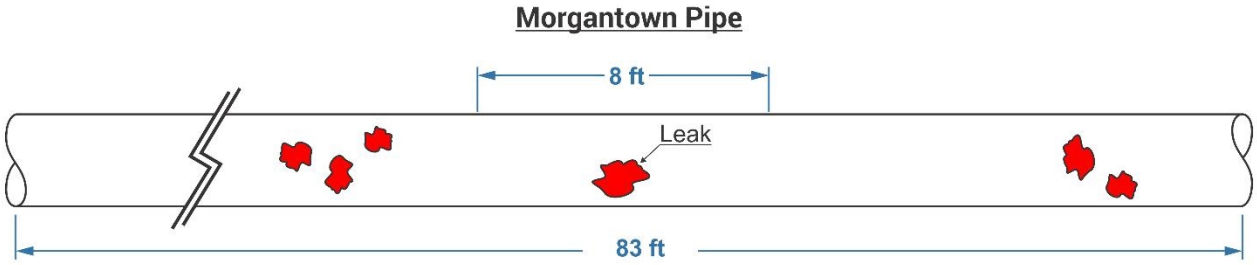
A. No, I did not. Nothing in the report suggests that DNV made an on-site investigation of the pipe. Nothing in the report comments on the existence or condition of the ME1 pipe adjacent to the pipe section they received for failure analysis.

Q. Is that concerning to you?

A. Yes, it is. Look, the area of the leak itself can be thought of as a small patch. Think of cancer surgery for a moment. The doctor removes more than just the tumor; there is a margin around the tumor that also is removed. So, it was reasonable to remove a length of pipe bigger than the leak site. But now go back to a cancer patient whose tumors may have metastasized. When you're doing the surgery, do you look around to see if there might be more tumors? Of course you

do. The two existing ancient Mariner pipelines were not coated and they did not have any cathodic protection for many decades. Mr. Field is a corrosion engineer. He knows that there was a reasonable suspicion after April 1st at least that there were other spots of corrosion adjacent to the leak. Indeed, in his testimony he states, "Many corrosion features on these pipelines were a result of corrosion occurring during the first 30-40 years of service life, before cathodic protection was applied to the entire pipeline." But Field was not at the site at the time the 8 foot section was taken out and neither were the authors of the DNV Report. I understand that ME1 is over 300 miles long and the 12-inch line may be 24 miles long.

Here is a simple graphic that makes this obvious point:



Given these concerns, it is puzzling that the DNV Report and Mr. Field simply fail to see an elephant in the room when Sunoco installs a new 83 foot, hydrostatically tested pipe segment into the 8 foot opening left by the removal of pipe to send to the DNV lab. This is not mentioned by DNV. It is not mentioned by Mr. Field either. Obviously, 83 feet (more or less) of ME1 pipe was removed by Sunoco after the leak incident. Where did the other 75 feet go? What was its condition? Why is Sunoco going out of the way not to address the absence and the condition of the missing pipe? Importantly, no records have been supplied to Matergenics that address this matter.

Q. Do you know definitively what caused the leak at Morgantown?

A. No. First, not based on the DNV report or on any records previously supplied. In fact, the DNV Report notes that the leak portion of the 8 foot pipe segment had been contaminated before it arrived at the DNV laboratory for examination. Again, people are familiar from television with the work that crime scene technicians do at the scene of crimes. Contamination of a crime scene often makes it impossible to obtain a definitive forensic result. Now look at the DNV Report. It states in part that [redacted] This is an example of tampering with or contaminating the evidence, so that a proper examination and analysis of the leak location could not be undertaken. In data

processing they have a saying, "Garbage in, garbage out." So, too, DNV was doomed from the start. It does seem possible and even probable that MIC was responsible. In order to get a clearer picture, however, an investigator would have needed an uncontaminated scene and also would have had to perform other tests that DNV apparently did not perform.

Q. You said "first." Is there a "second?"

A. [redacted] I cannot think of a better way to make it impossible to determine the cause of a leak on a corroded pipe. DNV must have been informed by a Sunoco agent or employee that this had occurred. Was the decision to do this made by someone in the field or by someone higher up? Once again, I have been given no records that explain how this was allowed to happen. In the context of a decision to remove 75 additional feet of possibly corroded pipe, this is something that needs to be addressed.

Q. Do you agree that the DNV Report concludes that MIC "may have contributed to the observed corrosion?"

A. In the Executive Summary of page iii, and in the Conclusions on page 12, both in the DNV report, the following statement was made. "Given the lack of corrosive species and neutral pH of the soil, microbiologically influenced corrosion (MIC) may have contributed to the observed corrosion."

I, personally, suspect that MIC is more likely than not as the culprit, but we can never know because of the site contamination and failure by DNV to conduct appropriate testing. In my previous testimony, based solely on the PHMSA report and on my own experience, I was more definitive. I did not know at the time about Sunoco having contaminated the site; if I had I would have been less definitive.

Q. What is "active" corrosion and why is this an issue?

A. Active corrosion in this case is defined as the degradation of metal by soil environment through electrochemical process. Active corrosion can be identified by direct and indirect assessments and thickness loss measurements in advance prior to perforation on a pipeline. Perforation of an underground pipeline by corrosion process is certainly an indication of active corrosion and inadequate corrosion control.

Q. **Field states in his rebuttal testimony, "Many corrosion features on these pipelines were a result of corrosion occurring during the first 30-40 years of service life, before cathodic protection was applied to the entire pipeline. The vast majority of the corrosion observed in these tables is not active." Do you have a comment on what Mr. Field is saying here?**

A. Mr. Field's statement is based on a number of assumptions and data that he has not shared with us. First, for both the 8-inch line and the 12-inch line, he offers no data, no facts based upon shared records concerning whether or not documented corrosion that occurred 40 – 50 years ago is active or not. Sunoco's records say nothing about whether documented corrosion is active, so his comment is nothing more than surmise. Second, and more troubling, he is making the unwarranted assumption that any corrosion that existed from inception of cathodic protection is now under control and, therefore, not active. It cannot be assumed that corrosion ceased entirely on the pipeline since the application of cathodic protection, and that all observed pipeline corrosion occurred during the first 30-40 years of service life. Along more than 324 miles of Mariner pipelines there may be sections where cathodic protection is quite good and there may be sections where it is quite bad. Without reference to real data, once again, there simply is no way to know. This assumption is not technically sound without proper and extensive field evaluation of effectiveness by measurements, such as pipe-to-soil potentials.

Q. Same quote from Mr. Field. Do you have any idea to which corrosion features he is referring?

A. No, I don't. Again, he makes reference to no records, no data, that support his statement.

Q. Mr. Field states in his rebuttal testimony, "SPLP has taken steps to either repair or replace the pipe where corrosion limits its integrity. Steps have also been taken to stop the corrosion from growing or to reduce its growth by increasing the cathodic protection current…" Do you have any idea at what locations Field believes that corrosion limited the integrity of either of the two old Mariner pipelines?

A. Mr. Field does not say. From our own review of the records, in particular the integrity management summary documents that we discuss on page 25 of my report, there is documentation [redacted] The twenty-two ILI inspection anomaly report documents discussed on page 26 of the Zee report [redacted]

Q. Did corrosion limit the integrity of the 8 foot Morgantown pipe segment?

A. Mr. Field does not comment on that. In Table 3 on page 14 of the DNV report, however, [redacted] at the location of the external corrosion of the 8 foot Morgantown pipe. This is considered significant as it would require repair if not removed from the main pipeline. Based on prior document review, [redacted]. Therefore, we can state that the integrity of the pipe was compromised at this location.

Q. Your table covers the changes made in IM that began in April, 2018, a year after the Morgantown incident. Does that table actually identify locations on ME1 and ME2 where Sunoco has documented it has increased the cathodic protection current?

A. No, not at all. You could state that Sunoco purports to have adopted new standards. That, by itself, does not mean they have implemented the standards or, if they have, whether cathodic protection has effectively been increased.

Q. What is the reason that Sunoco increased the cathodic protection current in the Morgantown area?

A. Sunoco has not shared any records with me so I cannot say for sure. It seems likely it was because of the failures at Morgantown.

Q. Do you agree that, prior to the Morgantown incident Sunoco's records indicated cathodic protection readings of -628 millivolts ("mV") in 2016 and -739 mV in 2015 at station 2459+00, which is approximately 1,030 feet from the leak,

A. This information came from the BI&E complaint. Sunoco has not shared any records concerning this with me so I cannot say for sure. These readings are not sufficiently negative to ensure adequate cathodic protection. At least -850 millivolts are required to ensure adequate cathodic protection if MIC is not present. As indications of possible MIC are mentioned in the DNV report, -950 millivolts or lower would be more appropriate.

I would like to highlight that during the review of IM within a limited time, our team has noticed the following statement in the document No. SPLP00032079: **"The goal is to have pipe-to-soil ON potential of greater than -0.85V".** Also, in the document No. SPLP00032019, under sub-section 10.6 of *indirect inspections* and sub-section 10.6 of *classification of survey indications* the following was mentioned:

Table 10-1: Severity Classification

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted] This was mentioned in my earlier testimony.

Q. Have you found any place in the Field testimony that comments on the presence or absence of records of side drain measurements in Sunoco's records?

A. It's not there. This is significant in a conversation about cathodic protection and corrosion. This may be because he agrees with my report but he did not say so.

Q. Mr. Field's rebuttal testimony notes the absence of documentation of stress corrosion cracking on the ME1 and ME2 pipelines. Can you identify the factors that contribute to stress corrosion and state whether or not any of those factors have been noted in ME1 and ME2 records?

A. Let me quote from my own direct testimony, from page 9:

"Stress corrosion cracking (SCC) is a form of corrosion cracking that is associated with near-neutral pH or high pH. For near neutral pH stress corrosion cracking, the electrolyte contains a dilute solution of carbon dioxide and bicarbonate ions with a pH between 6 and 7. This type of corrosion cracking is associated with limited branch transgranular cracking and the crack walls contain corrosion products. High pH SCC is caused by a solution of carbonate ions with pH between 9 and 10.5 exhibiting intergranular cracking with limited branching. Stress corrosion cracking can initiate under disbonded coatings that may shield cathodic protection."

Reviewing the tables of soil analysis data, Tables 11 and 12, on page 19 of the DNV report, [redacted]

The suggestion that stress corrosion cracking has not occurred yet means that it will never occur is unfounded. As part of cathodic protection one wants to make sure the conditions that lead to SCC do not take place. Mr. Field has not challenged my basic finding that this soil chemistry might be considered conducive to development of SCC.

Q. Mr. Field's rebuttal testimony discusses stray current and interference bonds. Do you have any comment on that discussion?

A. Yes, once again he makes sweeping generalizations without reference to records, data, facts. For instance, he says that "SPLP corrosion technicians are very active in the Eastern Pennsylvania and Western Pennsylvania Corrosion Control Committees." With all due respect, attending meetings is not the same as meeting engineering standards and implementing proper practices. Fields fails to identify anything in my direct testimony on this topic that is erroneous and he fails to identify any records that document the actual presence or absence of stray current or interference bonds on the ME1 and ME2 pipelines.

Q. Do you have any comment on what Mr. Field says about Kevin Garrity's testimony?

A. I reserve my comment on that to my testimony regarding Mr. Garrity. I will say, however, that for the most part Mr. Field's testimony is untethered from any discernible data.

Q. Do you have anything further to add relative to Mr. Field's conclusions?

A. Yes. First, Mr. Field's testimony does not state it is given to a reasonable degree of professional or scientific certainty. Second, there is no portion of the testimony identified as "Conclusions." Counsel asks him on page 4 to discuss issues that I raised in my earlier direct testimony. Perhaps those are his conclusions. There are 7 points he mentions, and I will now address those briefly:

(1) *Claim*: Zee identifies inspection techniques that ought to be followed. Part 195, however does not require those techniques. *Response*: Good engineering practices may call for more than meeting regulatory requirements.

(2) *Claim:* Zee fails to provide significant context regarding corrosion being active or not. *Response:* I have already addressed this in my surrebuttal testimony.

(3) *Claim:* Regarding MIC, Sunoco has changed its practices since Morgantown: *Response:* I have already addressed this in my surrebuttal testimony.

(4) *Claim:* Regarding stress cracking, it's never been a problem on the Mariner East pipes. *Response:* I have already addressed this in my surrebuttal testimony.

(5) *Claim:* Regarding stray current and interference bonds, Sunoco technicians attend meetings. *Response:* I have already addressed this in my surrebuttal testimony.

(6) *Claim:* Dr. Zee can find publicly available data on PHMSA's website to replace the poor copy of a previously produced document. *Response:* Since we cannot read the data in question we don't know what to look for on the PHMSA site.

(7) *Claim:* Dr. Zee says Sunoco does not do leak surveys. We are not required to do so. *Response:* Once again, good practice should trump minimum regulatory standards.

Q. Dr. Zee, having read Mr. Field's rebuttal testimony, what conclusions you have reached?

A. Nothing in Mr. Field's rebuttal testimony has caused me to change my mind. Except as noted above, the information and conclusions set out in my initial direct testimony stand.

Q. Now let's review Garrity's testimony. Mr. Garrity in his rebuttal testimony states that "Dr. Zee presumes that the presence of corrosion is a regulatory violation." Is Mr. Garrity correct?

A. The presence of accelerated corrosion and perforation is a regulatory violation. An inadequate or improper corrosion control program is a regulatory violation

Q. **Garrity refers to the DNV Report as a "Root Cause Failure Analysis Report". What is a Root Cause Failure Analysis Report?**

A. In general terms, a root cause failure analysis is a method of problem solving used for identifying the root causes of failures or problems. Root cause failure analysis generally serves as input to a remediation process whereby corrective actions are taken to prevent the failure or problem from occurring. The DNV report does not proceed to the final step to provide recommendations for remediation. They did not perform soil testing which is significant in corrosion failure analysis and determination of primary cause. The DNV report may more properly be called a metallurgical failure analysis report but not a root cause failure analysis report.

Q. Mr. Garrity refers to a review of "216 Dig Reports." He says that a review of the reports "did not reveal findings of MIC." Can you explain why these reports did not and would not reveal findings of MIC?

A. Dig reports consist of forms completed by Sunoco field technicians. I've provided a sample report, and it's been marked as Surrrebuttal Exhibit Zee-2. These reports were inspection and repair reports. They were not prepared to evaluate or classify the corrosion mechanism. A finding of MIC would require familiarity with MIC testing. It was not performed on site due to lack of knowledge. Non-certified corrosion technicians are not trained to evaluate MIC. Also, as you can easily see, the reports do not call for a root cause failure analysis and so there is none. Hence, you would not expect findings of the presence or absence of MIC in the 216 Dig Reports. The absence of such findings, therefore, does not mean that there was no MIC and the suggestion by Mr. Garrity to the contrary is entirely unfounded.

Q. How can reports that do not contain a root cause failure analysis be compared to the DNV Report that does have a root cause failure analysis?

A. It's a case of apples and oranges. The comparison is simply not valid. Apparently, Mr. Garrity does not understand the difference between primary cause and root cause determination.

Q. Mr. Garrity suggests that you have ignored the significance of ILI. Is it Garrity's position that ILI does not monitor internal corrosion?

A. I have not ignored the significance of ILI. It is my contention that other state-of-the-art technologies exist to complement ILI, and they should be employed as well. It is a mistake to say that ILI together with CP is the "best technology." They are important tools, when used properly. The report on the 2016 failed ILI suggests that ILI is not always successful. Furthermore Mr. Garrity does not recognize ILI cannot detect initiation of corrosion. ILI cannot detect the initiation of corrosion and obviously perforation was not detected.

Q. With all of Garrity's comment on the importance of root cause failure analyses, have you found any at all in your records review?

A. Except for the DNV Report that was just produced to us, we have found none. And the DNV report is incomplete and does not address the source for accelerated corrosion and perforation.

Q. Sunoco has insisted that it was not required to meet the -850 mv standard for cathodic protection. You've reviewed the company's IM plans. Do the IM plans call for the -850 mv standard or the alternative criteria standard?

A. Sunoco's IM plans explicitly call for the -850 mv standard. The company has not even followed its own manual. I believe that the suggestion that they actually followed the alternative standard is not supported by their own records. If there are records that demonstrate they did, let Sunoco produce them. It is noteworthy that after the incident they realized the problem and established -950 mv as the criterion.

Q. Mr. Garrity concludes that the Sunoco and Energy Transfers' IM plans are adequate. Have you found anything in his testimony that explicitly critiques your analysis of the deficiencies in those plans?

A. No, I have not. Furthermore, if Sunoco had plans that were adequate AND was following those plans, how do they explain what happened at Morgantown and why they devised new standards and procedures a year later?

Q. Garrity notes that the data presented in pages 11-12 of Dr. Zee's testimony "does not identify whether the observed corrosion was active or inactive." What is the significance of corrosion being active or inactive?

A. I have addressed this in my testimony in response to Mr. Field's testimony. Accelerated corrosion and perforation is considered an active corrosion. This is a very basic, fundamental concept in corrosion science.

Q. Have you found in Sunoco's records documentation that actually shows what CP criteria have been used on the 8-inch and 12-inch pipelines?

A. No, I have not, other than in the DNV Report, which was denied to us until recently.

Q. Is it your contention that the information gleaned from the Morgantown investigation is sufficient to draw the conclusion that there is a system-wide failure of integrity management?

A. Not at all. What we are saying, however, is that data provided by BI&E and by DNV and by Sunoco itself suggest that there may be a system-wide failure and that steps need to be taken to investigate further.

Q. What additional data would DNV have needed in order to determine more definitively whether or not MIC was the cause of the corrosion in the Morgantown incident?

A. Soil analysis, onsite spot analysis, collection of corrosion products, FTIR analysis of deposits. Direct microscopic examination of the leak pit was made and described on page 10 of the DNV report, with cross-section metallography, as being characteristic of MIC.

Q. From your examination of Sunoco's records and exhibits, are you aware of whether or not at station 2459+00 Sunoco performed side drain measurements on ME1prior to April 1, 2017?

A. It is possible that Sunoco shared that information with BI&E as well as DNV but my team did not find that information in the records supplied by counsel.

Q. If current is flowing away from the pipeline rather than towards the pipeline, is that a sign of corrosion?

A. Some conditions can establish anodes and cathodes on pipeline to allow the corrosion cells to exist. At the anodic area, current leaves the pipe to enter the surrounding earth, steel pipe will be corroded at this area as the current flow through earth from anodic area to cathodic area. There is a direct current flowing from anodic areas into the soil and onto the cathodic area, and back through the pipe itself to complete the circuit.

Q. Did Sunoco perform CIPS on ME1 prior to April 1, 2017?

A. It is possible that Sunoco shared that information with BI&E as well as DNV but my team did not find that information in the records supplied by counsel.

Q. Did the result of the 2017 ILI inspection on ME1 indicate any metal loss?

A. Yes. The twenty-two ILI inspection anomaly report documents discussed on page 26 of the Zee report document [redacted] This indicates presence of active corrosion which would result in perforation at a later time.

Q. What if any significance was there to a finding of metal loss?

A. Further corrosion risk assessment and repair may be required, depending on the depth of metal loss.

Q. What conclusions did you draw as to the cause of metal loss identified in the 2017 inspection?

A. From the report itself, none. Corrosion is one possible cause. The depth of metal loss observed in the ILI report means that one cannot rule out active corrosion as a possible cause. CP records should have been reviewed and soil investigation should have been performed.

Q. I will suggest to you that BI&E asserted in its complaint against Sunoco that the CIPS performed on ME1 prior to April 1, 2017 did not align with footages and test station points. If that were true, how you could Sunoco be sure that its assessment of ME1 cathodic protection was accurate and reliable?

A. In that situation Sunoco could not be sure.

Q. Do you have any reason to believe that the 12-inch pipeline is in any better condition or any worse condition than the 8-inch ME1 pipeline?

A. Based on the data summarized from the 216 Inspection and Repair - Maintenance Record reports in the two tables on page 11 of the Zee report, I would conjecture that the 12-inch pipeline is probably in worse condition than the 8-inch pipeline. But this is speculation and we must rely on facts. You could really only tell if there were a proper investigation, as I have recommended.

Q. Mr. Garrity says on page 9 of his testimony that "the age of a pipeline is not a key criterion for determining the safety of an operating pipeline." Is it your claim that age in fact is a "key criterion?"

A. For aging structures and pipelines, past is not indication of future. I would not use the phrase "key criterion." The factors that I believe are important in determining the safety of a pipeline are laid out in detail in my direct testimony. In general, aging underground pipelines are at risk of

corrosion failure due to coating degradation, external corrosion and stress corrosion cracking. Corrosion failures in aging pipelines are either sudden catastrophic ruptures or gradual leaks due to localized corrosion and cracking. Many factors associated with these corrosion areas are coating failure, degradation, disbondment, blistering, delamination, mechanical pressure and stress concentration, galvanic action, corrosive ions, the presence of moisture, corrosive soils, stray current interference, AC interference, inadequate cathodic protection and shielding. These areas have a much higher statistical probability of catastrophic failure and rupture.

Most of the time initiation of stress corrosion cracking (SCC) and pitting corrosion are detected by coincidence in excavation and digs and is not targeted or predicted by analysis of corrosion performance parameters. Internal or ILI tools have limited capability for detecting or identifying stress corrosion cracking and pitting corrosion initiation.

It may be noted that aging, by itself, may not result in corrosion of a steel pipeline. In theory, it is possible that there will be constant/consistent soil conditions, coating conditions, absence of potential damage mechanisms/threats throughout the service life. But in reality, this just does not happen. Coating degradation and disbondment take place.

A pipeline will be exposed to various potential damage mechanisms/threats throughout its service life. If these damage mechanisms/threats are not identified, controlled and/or mitigated in time, it could result in pipeline failure. Typically, aging presents corrosion problems as well as corrosion induced cracking.

Cast iron, wrought iron and bare steel pose the highest risk compared to coated carbon steel. As the pipeline ages, coating on the pipeline could damage/disbond/delaminate and result in corrosion with age at the exposed areas in the aggressive soil conditions.

In our opinion, integrity assessment must be in place for aging pipelines. It is necessary that there be (a) External corrosion direct assessment (ECDA); (b) Internal corrosion direct assessment (ICDA); and (c) stress corrosion cracking direct assessment (SCCDA).

Q. Mr. Garrity in his rebuttal testimony does not address the finding by DNV [redacted] Do you have a view as to whether this failure to comment is significant?

A. Yes, I do. There is a Greek myth about a man named Procrustes. When travelers came to spend the night at his house, they slept in a bed that was used either to stretch or cut off the traveler's limbs. That way the travelers could be made to fit the bed. So it is sometimes with expert

testimony. If you change enough facts, or ignore enough facts, you can reach any conclusion you like. The DNV Report was flawed by contamination; that is a fact that cannot be ignored. No firm scientific conclusions regarding the leak on April 1, 2017 are possible. At most, one may conclude that it is more likely than not that MIC was involved but that was never demonstrated.

Q. Mr. Garrity suggests that you have overstated the likelihood of the presence of MIC at the Morgantown leak site. Do you agree with that viewpoint?

A. Not at all. I have explained already in response to Mr. Field's comment that my previous view was based on limited data: Sunoco's PHMSA summary. I now have had a chance to look carefully at the DNV lab analysis and my view is even stronger. The suggestion that MIC is only a possibility is not borne out by Tables 9 and 10 or the additional data gleaned from Figures 26 and 27. MIC is more likely than not a cause of the corrosion in question.

Q. Why is it important to know whether or not MIC was involved at Morgantown?

A. The conclusion as to whether or not there was MIC is important because the presence of MIC suggests that cathodic protection is insufficient. If CP is not sufficient, then ultimately corrosion will take place, metal will be lost and leaks can develop.

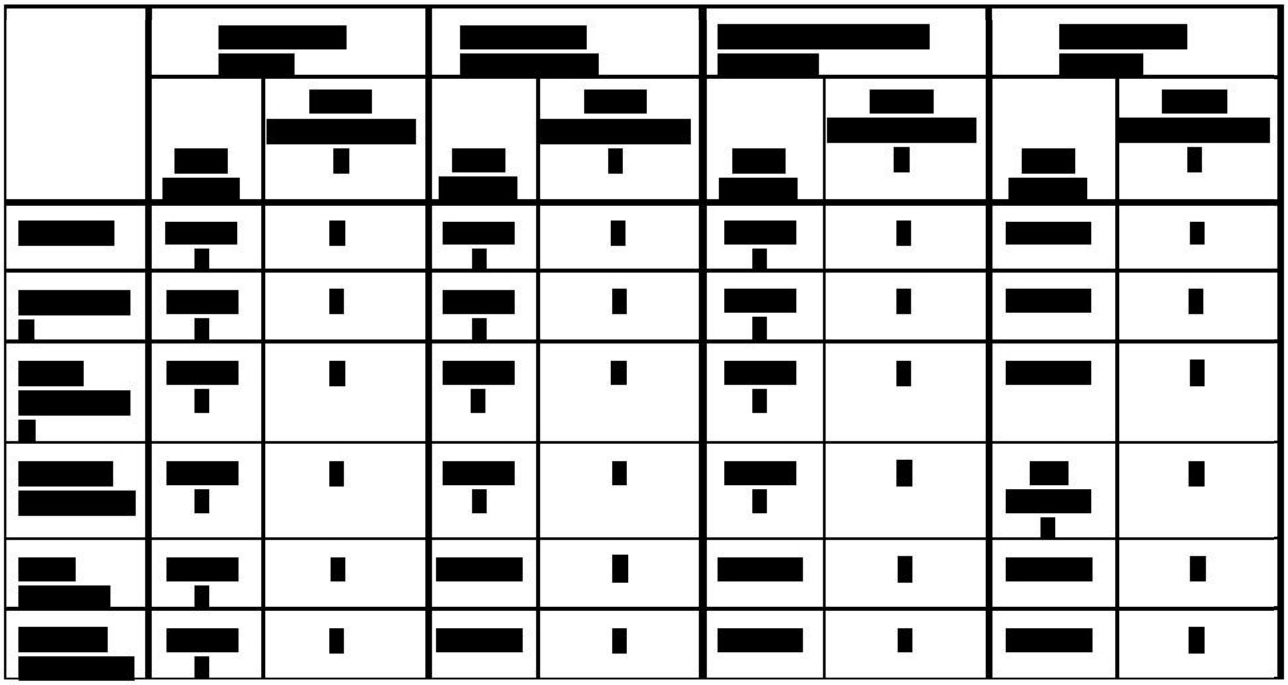
Q. Can you put the DNV report in better context?

A. Sure. To start with, DNV's analysis was constrained by the actions of Sunoco. Before DNV even saw the 8 foot segment, Sunoco had (a) disposed of 75 additional feet of adjacent pipe without adequate condition assessment and documentation that may have had similar conditions; (b) [redacted]

Q. With all those concerns, can you testify whether or not there were any meaningful results in the DNV analysis?

A. Yes, there were. We can start with tables 9 and 10. The results of bacteria culture tests on swab samples as well as optical microscopy examination are reflected in DNV Tables 9 and 10. Those tables can be seen here:

[redacted]



[redacted]

Table 9 refers to bacteria culture testing. Bacteria culture testing is designed to determine the quantity of a given bacterium in a fixed-size sample. The objective is to count how many there are in that sample.

It is often the case that there are too many bacteria in a sample to count. The principle of serial dilution is that if the sample is substantially diluted in a solution, it will make it easier to count the number of bacterial cells.

For example, if you dilute the sample in solution by 1000 times and you are able to count 100 cells, then you can readily project the actual number of cells in the original sample. In this case, it is 1000 times 100 cells for a total of 100,000 cells. Dilution is often done enough times by a factor of 10 until there are no cells that can be counted in the last sample.

When you do serial dilution of samples taken from four distinct locations, you can quantitatively compare the concentration of bacteria among four separate sites. Thus, if Sample A tests positive in only one vial (the original vial containing bacteria), but Sample B tests positive in three vials, that implies that even with two 10 to 1 dilutions (a factor of 100x), Sample B still tests positive – therefore it appears to have a higher number or concentration of bacteria by a factor of 100x as compared to Sample A. Note: A result showing zero indicates that no bacteria of a given type were detected at a given location, as even the original undiluted vials did not show the presence of the bacteria.

[redacted]

The connection between number of bacteria and MIC is this. In general, we may say that a low to moderate number of all bacteria types were detected at the sampling location on the pipe, and this suggests that MIC may exist on the pipe.

The major issue here is that corrosion products and bacteria colonies on pitted areas/soil were not analyzed, photographed or considered. This is a serious shortcoming in corrosion risk assessment and quantification of risks for a pipeline that exhibits perforation due to corrosion.

Q. What does Table 10 tell us?

A. Table 10 reflects a separate approach to bacteria identification. [redacted]

The overall picture is further completed by cross-section microscopy of corrosion pits at the leak site. [redacted]

Q. With these three separate sets of tests, can you draw any conclusions about the presence or absence of MIC at the leak site?

A. Yes, I can. In total, the DNV laboratory undertook three distinct approaches to explore the possibility of MIC at the leak site. Taken together, they constitute scientific proof of the existence of MIC at the leak site. The level of certainty is higher than simply "suggestive" or a "possibility." It is "more likely than not."

Further, the fact that Sunoco later on saw fit to adopt standards that required an increased CP potential clearly indicates that Sunoco believed either that (a) the Morgantown leak was the result of insufficient cathodic protection, or (b) the company saw MIC in other locations of the pipe, or (c) both (a) and (b).

Q. Do you have any concerns about Mr. Garrity's failure to discuss these three separate tests in his testimony?

A. Yes, of course. This goes back to the Greek story of Procrustes. Mr. Garrity has drawn conclusions about a report that he either never read or that he decided to ignore. Data from three separate sets of tests is completely ignored. The most polite way to describe what he has done is simply to say it is unscientific.

Q. How about the missing pipe?

A. Well, there is also missing testimony, is there not? Mr. Garrity has chosen to ignore DNV data and he also pointedly ignores the same elephant in the room ignored by Mr. Field: the missing 75 feet of ME1 pipe. For all he knows; that pipe was thoroughly corroded and his client, Sunoco, disposed of it so that there would be no evidence of corrosion. Mr. Garrity writes that Sunoco and Energy Transfer have robust corrosion control and integrity management programs and SOPS. He does not, however, critique any of our direct testimony detailing many examples where this is shown not to be true. Moreover, along with Mr. Field, he deliberately fails to distinguish Sunoco's practices leading up to April 1, 2017 from its practices after April 1, 2018. In fact, he talks about Sunoco's "program" but he does not pay any attention to actual data that would support or not support the claim that the program is actually operational.

Q. On page 15 of his testimony, Mr. Garrity says that prior to May 2018, SPLP used the net protective current criterion on bare or ineffectively coated segments of the pipeline. Have you found any place in the IM plans that says that?

A. If it's there, I haven't seen it. So far as I know, this is something that Sunoco came up with in response to the BI&E complaint proceeding.

Q. On page 15 of his testimony, Mr. Garrity says that SPLP uses a combination of CP criteria as listed in the applicable NACE standard RP (SP) 0169 Control of External Corrosion on Underground or Submerged Metallic Piping Systems as provided for under 49 C.F.R. § 195.571. Do you have any comments on his statement?

A. According to him, SPLP uses a combination of CP criteria: a) ON Pipe-to-Soil potential of -0.85 volt, or more negative, with respect to a copper-copper sulfate (CSE) reference electrode and b) net protective current criterion (special condition as per NACE SP0169-2007).

Garrity does not discuss the findings highlighted in Exhibit 13 – Summary of Sunoco CIS document review, where it is evident that at most of the locations ON potentials are more positive than -0.85 Volt. So, ON Pipe-to-Soil potential of -0.85 volt, or more negative, with respect to a copper-copper sulfate (CSE) reference electrode criterion is not satisfied.

Regarding net protective current criterion, he is hiding the fact that though net protective criterion is sufficient for bare or ineffectively coated pipelines, in some situations, such as the presence of sulfides, **bacteria**, elevated temperatures, acid environments, and dissimilar metals, this criterion may not be sufficient.

Earlier, we were not sure of the CP criteria used so we did not comment on the righteousness of the CIS data. However, from Garrity's testimony it is clear that SPLP is claiming that it used net protective current criterion. From the CIS data, however, it is evident that net protective current measurement techniques set out in NACE TM0497 were not actually followed. Mr. Garrity should have highlighted this but he did not.

Net protective current criterion is used as a last resort criterion. Moreover, it is used in situations where another criterion cannot be easily or economically met. Application of net protective current measurement technique as per NACE TM0497-2002 is as follows: a) Depolarize structure, b) Perform pipe-to-electrolyte survey or two-reference-electrode surface survey to locate anodic areas. c) Energize CP system and d) Use side drain method at anodic locations.

Exhibit 11 shows that CIS data was collected by a) CP Data Manager in 2009, b) TITAN TSC in 2013, 2016 and 2017 and c) Corrpro. Only Corrpro has followed NACE TM0497-2002 requirements. However, they did not collect side drain potential readings. CP Data Manager did not measure side drain potential readings at all anodic areas. CIS data collected by CP Data Manager in 2009 reveals that almost the entire length of the pipeline surveyed is more electropositive than -850mV. At some locations the side drain potentials were around -261mV.

Here is a good example that each contractor that performed CIS has followed different procedures which clearly indicates that SPLP has no standard procedure and no clarity on the CP criteria to be followed. If IM is technically sound as claimed by Garrity, all contractors would have followed same procedure for structure-to-soil potential survey.

I also would like to mention that some pipeline companies use the side drain method for the application of net protective current criterion. In response to BI&E, SPLP claimed that they used this method. No reference is found in 49 CFR 195 regarding the acceptability of this method. NACE SP0207 addresses the measurement survey technique. It is worth stating that the results of side drain method could be misleading if there are any outside sources of influence such as other pipelines or other gradient sources such as stray currents. The results might also be questionable in areas with **high resistivity surface soil**, for deeply buried pipelines, or where **local corrosion cell exists**.

We haven't seen any soil data to comment whether soil has high or low resistivity.

Moreover, we must bear in mind that side drain measurement technique should be used with caution. Under certain conditions such as presence of bacteria (SRB), a relatively strong localized anodic cell could exist on the bottom side of the pipe with the top of the pipe serving as a cathode and negative side-drain readings could be measured while severe corrosion is actually occurring on the bottom of the pipe at this location.

I would like to bring to your notice that net protective current criterion is specified in older versions (RP0169-2002, SP0169-2007) but is no longer specifically listed in SP0169-2013.

Q. Dr. Zee, in connection with Sunoco's experts testifying that the company has solid integrity management plans as well as robust practices, did you have occasion to review a PHMSA Notice of Probable Violation notice to Sunoco dated February 4, 2019, that relates to cathodic protection practices in Honeybrook, Pennsylvania?

A. Yes, this was brought to my attention recently.

Q. Do you recognize surrebuttal Ex. Zee-3 as that PHMSA notice?

A. Yes, I do.

Q. Do you know where Honeybrook, Pennsylvania is located?

A. Well, now I do. It's in Chester County.

Q. So this notice is not about Morgantown, but rather a separate area on the ME1 pipeline?

A. Yes, that's right.

Q Before we go into the details, can you just summarize what the notice says?

A. Sure. PHMSA say that their representatives performed inspections on the ME1 pipeline system at Honeybrook in Chester County during the period from March 19, 2018 to March 23, 2018. Sunoco is alleged by PHMSA to have failed to provide cathodic protection that complies with NACE criteria. PHMSA also says that Sunoco's records were not sufficient to demonstrate adequacy of its corrosion control measures. Finally, PHMSA talks about limitations on the utility of the ILI techniques.

Q. From the information in the PHMSA notice, can you tell if the inspectors confined their investigation to just one location on the MEI pipeline?

A. They did not. PHMSA identified nine (9) distinct locations at which they took readings.

Q. Would you quote from the third page of the notice in § 6.3 relative to ILI?

A. Yes. "The in-line inspection technique, however, may not be capable of detecting all types of external corrosion damage, has limitations in its accuracy, and may report as anomalies items that are not external corrosion."

Q. Do you have a belief as to whether this supports your view or Mr. Garrity's view?

A. I believe ILI is an important tool but it is just one of several. I think Mr. Garrity has over-emphasized its importance and under-emphasized other important tools.

Q. As you read the PHMSA notice, what are they saying about the cathodic protection measurements that they took?

A. Basically, they are saying that the -850 mv criterion has not been met and the alternative earth current technique criteria have not been demonstrated either.

Q. How many years' records were reviewed by PHMSA in connection with this violation notice?

A. 2015 – 2017. I'd like to point out that the inspectors noted that "no IR free readings were provided when utilizing the -850 mV SP 0169 criterion…Additionally, Sunoco did not provide a valid explanation for how IR drop was being considered when evaluating the adequacy of the readings that were taken."

Q. What are IR free readings and why is their absence a problem?

A. IR free readings are those reads that consider IR drop in soil. Their absence introduces extensive errors in the data and corrosion risk assessment.

Q. Do you have any idea if Sunoco responded to this notice or satisfied PHMSA that the notice was in error?

A. I do not know how this situation resolved. I can tell you, however, a number of things. First, PHMSA's explanation of NACE standards is correct. Second, the inspectors report that they did not find "records in sufficient details to demonstrate the adequacy of corrosion control measures." This is consistent with our findings during the review of tens of thousands of pages of Sunoco's records provided during this case. This supports our contention that the conclusions of Mr. Field and Mr. Garrity, that Sunoco's integrity management practices are robust and compliant with federal regulations, is unsupported by real-world data and has no foundation in Sunoco's own records.

Q. It has been suggested that you are calling for a massive program of laboratory sample testing. Dr. Zee, are you calling for a massive program of laboratory sample testing?

A. No, not at all. The soil testing is less than $500, Spot testing is less than $200. Miscellaneous tests at about $500; all less than $2,000. This provides fantastic results with other data if unacceptable risks at this site (pretty much like indications of cancer in blood). Massive cost? Apparently, they have never approached these types of problems with testing to have high confidence...or trying to scare the audience.

Q. Do you have anything further to add relative to Mr. Garrity's conclusions?

A. Yes. Mr. Garrity sets out 7 conclusions:

(1) *Claim*: There's no evidence the IM plans are inadequate. *Response:* That conclusion is not supported by the facts as set out in the initial Zee direct testimony. Nowhere in Garrity's testimony does he specifically attack any of Zee's factual findings as to the IM plans.

(2) *Claim:* ILI and CP surveys are the "best technology." *Response:* They are very good tools when properly used but insufficient. Further, the 2016 ILI proved ILI is not always the "best." ILI does not indicate the initiation of corrosion and acceleration rate...indirect assessment and direct assessment should be utilized to have high confidence.

(3) *Claim:* Pipeline age is not a "key criterion." There are other factors that are important. *Response:* This argument is a red herring. Zee direct testimony never implied that pipeline age by itself is a concern. For aging structures past is not indication of future.

(4) *Claim:* The Morgantown leak and investigation do not support conclusion MIC is a current threat. *Response:* We do not know how much of a threat it is. The Morgantown investigation was bungled and information regarding the 75 feet of missing pipe has not been disclosed. Records of dig reports are no basis to conclude MIC is not a threat. The examination in the DNV report do show sound evidence for MIC. More testing would have confirmed.

(5) *Claim:* A massive lab testing program is not warranted. *Response:* As noted above, soil corrosivity testing and microbiological (bacterial) testing are not expensive, and they are critically important in determining the corrosiveness of the local environment of a buried pipeline.

(6) *Claim:* A remaining life assessment is not necessary. No regulations require it. The facts don't justify it. *Response:* A remaining life study for a 70-year old pipe that is poorly maintained and has experienced perforation is warranted by the facts as set out in the Zee direct testimony. The fact regulations do not require it does not preclude a judge from ordering it. Counsel advises that state law permits imposition of standards higher than federal minimums. Our tasks as responsible corrosion engineers is not to follow the minimum requirement for regulations; rather it is to do all we can to keep pipelines safe for the public.

(7) *Claim:* Evidence of wall thickness is key in deciding safety and there is no evidence of wall thickness inadequacy in this case. *Response:* The statement is both false and misleading. What is the wall thickness at a through-pit, where a leak is occurring? The wall thickness was zero at the location of the leak in Morgantown. Is Mr. Garrity suggesting that so long as a pipe does not leak, its thickness is adequate? It sounds that way, even though he knows better. Wall thickness problems were identified in my direct testimony. Garrity has not pointed to any of that testimony on wall thickness where my statements on thickness were inaccurate.

Further, in connection with the Morgantown investigation, we did not have any data from the DNV analysis or direct assessments. That includes pipeline thickness data. It should be noted we also do not know anything about the wall thickness of the missing 75 feet of ME1. We should rely on field data and not speculation for high confidence corrosion risk assessment.

Q. Dr. Zee, having read Mr. Garrity's rebuttal testimony, what conclusions have you reached?

A. His approach to life limiting mechanisms for aging pipelines is not based on sound corrosion engineering fundamentals. Nothing in Mr. Garrity's rebuttal testimony has caused me to change my mind. Except as noted above, the information and conclusions set out in my initial direct testimony stand.

Q. Have all of your opinions and conclusions as stated in your surrebuttal testimony regarding Messers Field and Garrity's rebuttal testimony been given to a reasonable degree of professional and scientific certainty?

A. Yes, they have. In the event that Sunoco or aligned intervenors provide additional testimony or documents, however, I reserve the right to modify my opinion or furnish additional evidence.

COMPLAINANTS OFFER SURREBUTTAL EXHIBITS ZEE – 1 THROUGH ZEE – 3 INTO EVIDENCE.

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EDUCATION

Pennsylvania State University-Great Valley
Graduate Certificate; Business Continuity Planning, May 2012 (Certified Business Continuity Professional)

West Chester University, West Chester, PA
Bachelor of Science; Business Management, August 2010

WORK EXPERIENCE

Deputy Director for Emergency Management, County of Chester- Department of Emergency Services
West Chester, PA, December 2016- present
- Direct and supervise Emergency Management Division staff (12 full time staff) with annual budget of 3 million dollars to ensure that the Department of Emergency Services' goals and objectives are met
- Serve as Deputy Emergency Management Coordinator for Chester County and direct and supervise daily emergency management operations and activities.
- Provide leadership to ensure that all assigned initiatives are successfully planned and coordinated and that Commonwealth and Federal requirements and standards are met
- Maintain Chester County Emergency Management Accreditation Program (EMAP) accreditation
- Develop and implement Emergency Management plans, policies, and procedures
- Direct EOC operations during activations
- Oversee Emergency Management Performance Grant (EMPG), Hazard Mitigation Grant Program (HMGP), and Homeland Security Grant Program (HSGP)
- Establish and maintain public-private partnerships and oversee private sector liaisons

Assessor, Emergency Management Assessment Program (EMAP)-
Falls Church, VA, July 2011-Present
- Standards Subcommittee, Operational Planning and Procedures Workgroup Member
- Assessment Team Leader (ATL)
- EMAP Training Instructor

Program Manager (Homeland Security Grant Program), County of Chester- Department of Emergency Services
West Chester, PA, November 2013- December 2016
- Responsible for a range of preparedness resource planning, acquisition, and deployment activities
- Managed grant budgets, expenditures, balances and requests for re-allocations
- Financial liaison with State Administrative Agent (SAA) Grants Management Office and Task Force Fiduciary
- Southeastern Pennsylvania Regional Task Force Health and Human Services Workgroup Liaison
- Emergency Management Assessment Program (EMAP) Accreditation Manager

Emergency Planning Coordinator, County of Chester
West Chester, PA, July 2011-November 2013
- Developed and maintained county continuity of operations (COOP) and continuity of government (COG) plans
- Developed and maintained municipal emergency operation plans and critical infrastructure emergency action plans
- Developed and maintained County all hazard and hazard specific plans
- Provided training and direction to municipal emergency management coordinators
- Served as county watch officer and planning section chief during emergency operations center activations

Team Member, Team Rubicon- Region III November 2013- present
- Planning Section Chief-Wayne, NE- Operation Husker Do
- Chainsaw Operator-Chester County, Operation Valley Forge

Emergency Medical Technician, Avalon Rescue Squad
Avalon, NJ, May 2006 – Present
- Deployed on EMS Strike Team to assist with response efforts for Superstorm Sandy

VOLUNTEER ACTIVITIES AND MILITARY SERVICE

Councilman, South Coatesville Borough Council
July 2019 – September 2020

Volunteer Emergency Medical Technician/Firefighter, Media and Brookhaven Fire Companies
January 2000 – July 2011

Seamen Apprentice, United States Navy October 2004-August 2005

PROFESSIONAL ASSOCIATIONS MEMBERSHIP

- Chester County Chamber of Business and Industry
- Association of Contingency Planners-Liberty Valley Chapter
- Chester County FIRST
- FBI Infragard – Philadelphia Chapter
- International Association of Emergency Managers (IAEM)
- Keystone Emergency Management Association (KEMA)

Chester County Emergency Operations Plan

Section I – Basic Plan

February 2019

Chester County Department of Emergency Services
601 Westtown Road, Suite 012
West Chester, PA 19380-0990

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FOREWORD

The mission of the Department of Emergency Services is to promote and assist in providing safety and security to Chester County residents so they can work, live, and grow in a healthy and safe community. The *Chester County Emergency Operations Plan* (EOP) outlines how the Chester County government accomplishes this mission and complies with and implements the requirement of the *Pennsylvania Emergency Management Services Code* (Title 35) to protect the lives and property of the citizens of the county and its visitors. The county EOP serves as a bridge between the county's municipal EOPs and the *Pennsylvania State Emergency Operations Plan*. The county EOP is organized and published in three sections:

Section I: The **Basic Plan** presents the planning assumptions, policies, and concept of operations that guide the responsibilities for emergency coordination activities, including prevention, protection, response, recovery, and mitigation in Chester County. **Appendices** provide additional information such as authorities and references, terms and definitions, map of the county, etc.

Section II: The **Position Annexes** describe the mission, concept of operations, and responsibilities of each Emergency Operations Center (EOC) position. Each annex establishes position-specific roles, responsibilities, and tasks, ensuring a clear understanding of each position's purpose and duties. Each annex also includes position-specific job aids, including functional checklists for initial, continuing, and demobilization operational periods. The singular nature of each emergency does not allow these checklists to be fully encompassing; however, they provide baseline tasks based on the specific duties of each EOC position.

The annexes are organized according to the Chester County EOC organizational structure: Policy Group, Command, Emergency Services Coordination Section, Planning/Situational Awareness Section, Resource Support Section, and Human Services Coordination Section.

Section III: The **Notification and Resource Manual** (NARM) contains lists of resources, facilities, personnel, equipment, and supplies available to the county, along with contact information to procure each resource for use during an emergency. Due to the regular changes of resource and contact information, this information is maintained electronically and not in hard copy format.

The NARM is not subject to the Right-to-Know Law due to listing of personal contact information and resource locations; therefore, it is not for release to the public. The **Related Supporting Annexes** (published separately) are various functional, incident, hazard, or event-specific annexes. Not incorporating these annexes directly into the EOP allows flexibility to incorporate site-specific plans as required by federal and commonwealth regulations or the *Chester County Multi-Jurisdictional Hazard Mitigation Plan.*

RECORD OF CHANGES

All changes to the *Chester County Emergency Operations Plan: Section I – Basic Plan* are documented in the table below, noting date of the change, the change made, and the party responsible for making the change (e.g., deputy director of emergency management).

CHANGE NUMBER	DATE OF CHANGE	CHANGE MADE	CHANGE MADE BY

RECORD OF DISTRIBUTION

The *Chester County Emergency Operations Plan: Section I – Basic Plan* is distributed by the Department of Emergency Services to partner organizations and jurisdictions. Distribution is documented in the table below, noting a recipient's name, title, affiliated organization, and the date of distribution.

NAME	TITLE	ORGANIZATION	DATE

CERTIFICATION OF ANNUAL REVIEW

The Chester County Department of Emergency Services Director has reviewed this EOP and hereby certifies the review.

DATE	SIGNATURE

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COUNTY OF CHESTER
COMMONWEALTH OF PENNSYLVANIA
Resolution 08-19

RESOLUTION OF THE CHESTER COUNTY COMMISSIONERS ADOPTING THE EMERGENCY OPERATIONS PLAN OF THE COUNTY OF CHESTER

WHEREAS, Section 7503 of the Pennsylvania Emergency Management Services Code, 35 PA. C.S. Section 7101 et seq. mandates that counties prepare, maintain and keep current an Emergency Operations Plan for the prevention and minimization of injury and damage caused by a major emergency or disaster within this County; and

WHEREAS, the County of Chester has prepared an emergency operations plan to provide prompt and effective emergency response procedures to be followed in the event of a major emergency or disaster in order to reduce the potential effects of a major emergency or disaster and to protect the health, safety and welfare of the residents of the County of Chester

NOW, THEREFORE, we, the undersigned Commissioners of the County of Chester do hereby approve, adopt and place into immediate effect the Emergency Operations Plan of the County of Chester.

RESOLVED AND ADOPTED this 14th day of February, 2019 at a regular meeting of the Board of Commissioners of the County of Chester Pennsylvania.

COMMISSIONERS

Michelle Kichline, Chairman

Kathi Cozzone, Commissioner

Terence Farrell, Commissioner

(SEAL)

ATTEST:

By: _____
Kara C. Rahn, Chief Clerk

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Other Sections of this Emergency Operations Plan (not for public release):

Section II: Position Annexes

Section III: Notification and Resource Manual

Related Supporting Documents (Published Separately)

1. Chester County Active Threat Annex
2. Chester County Communications, Alert, and Warning Notification Annex
3. Chester County Continuity of Operations Plan
4. Chester County Damage Assessment Manual Annex
5. Chester County Debris Management Annex
6. Chester County Disaster Preparedness and Awareness Strategy Annex
7. Chester County Disaster Recovery Annex
8. Chester County Emergency Alert System Annex
9. Chester County Emergency Fuel Management Annex (*To Be Developed*)
10. Chester County Family Assistance Center Annex (*To Be Developed*)
11. Chester County Family Reunification Annex
12. Chester County Flooding Emergency Annex
13. Chester County Hazmat Worker Safety Annex
14. Chester County Joint Information System Annex
15. Chester County Mass Care Annex
16. Chester County Mass Causality Incident Annex
17. Chester County Mass Fatality Annex
18. Chester County Multi-Jurisdictional Hazard Mitigation Plan
19. Chester County Medical Countermeasures Annex
20. Chester County Resource Management and Logistics System Annex
21. Chester County Severe Heat Emergency Annex
22. Chester County Severe Wind Emergency Annex
23. Chester County Situational Awareness Annex (*To Be Developed*)
24. Chester County Volunteer and Donations Management Annex (*To Be Developed*)
25. Chester County Watch Officer Standard Operating Procedures
26. Chester County Winter Weather Emergency Annex
27. Chester County Radiological Emergency Response Annex

I. EXECUTIVE SUMMARY

The Chester County Emergency Operations Plan (EOP) describes emergency response coordination procedures for Chester County, Pennsylvania. It reflects the structure of emergency management throughout the Commonwealth of Pennsylvania and the United States. The structure is based on the National Incident Management System (NIMS), which includes prescribed incident command systems used by local emergency responders. The plan serves as an emergency management link between local municipalities and state government while incorporating the federal organizational concepts of the National Response Framework. Organizations and stakeholders representing individuals with disabilities and access and functional needs are engaged in emergency management planning efforts in Chester County by Department of Emergency Services (DES) staff and partner departments.

The plan employs a functional, all-hazards approach to define the assistance the county is likely to need or provide during emergencies and disaster incidents. The approach is aligned with 15 Emergency Support Functions (ESFs), which are used to define responsibilities and tasks. In turn, the associated responsibilities and tasks are assigned to specific positions in the Emergency Operations Center (EOC) but ESF positions are not used in the Chester County EOC. As a consequence, one EOC position may be responsible for functions and tasks from more than one ESF, allowing the EOC's flexible structure to match staffing levels with actual demands. The alignment of Chester County EOC positions by related ESFs is show in *Table 1 - EOC Functions and Responsibilities by Position and Related ESF* in this plan. The table serves as a quick reference for outside organizations that use ESFs to ensure a clear understanding of how positions function in the Chester County EOC.

The EOP includes three sections, as outlined below. All sections are published separately to ensure confidentiality of sections that contain personal or sensitive information.

Section I – Basic Plan

- The core of the basic plan describes procedures and principles for organizing emergency response coordination throughout the county. It contains overarching structures and assigns responsibilities to various organizations.
- The basic plan includes a list of related supporting plans and annexes that:
    - Depend on the plan for assignment of responsibilities and operational principles and may supplement the plan during specific emergencies.
    - Should stand alone due to regulatory requirements or the specific nature of the hazards or functional areas they address.
    - Are published separately and incorporated into this plan by reference.
    - Are exempted from the provision of the Right-to-Know Law and from release to the general public due to inclusion of personal or sensitive information (applies to some, but not all, supporting plans and annexes).
- The basic plan includes appendices that provide additional information (e.g., definitions, acronyms, a municipalities map, etc.) to support emergency response coordination.

Section II – Position Annexes

- The position annexes describe each EOC position and corresponding responsibilities and tasks. Additionally, each annex provides position-specific job aids, including functional checklists to outline suggested actions during an initial, continuing, and demobilization operational periods. The following provides a summary of each EOC position, including areas of responsibility:
    1. **EOC Director** – The EOC director oversees EOC operations, including the review and approval of incident objectives, situation reports, and public-facing messages (information releases) during a partial or full activation. The director also serves as the primary point of contact (POC) for the Pennsylvania Emergency Management Agency (PEMA) if a liaison is not activated in the EOC. The EOC director is responsible for oversight of direction, control, and coordination during an activation; and if requested by a local municipality, the director oversees evacuation or shelter-in-place orders on their behalf. The EOC director reports to the DES director. **DES is the coordinating agency** for this position.
    2. **Emergency Management (Watch Officer)** – The watch officer serves as the primary emergency management POC in the EOC, overseeing alert and notifications (internal communications) and warnings (public-facing). Additionally, the watch officer is responsible for monitoring inbound information from municipalities, including resource requests, and outside data sources regarding potential incidents and ongoing incidents (e.g., weather reports from National Weather Service). A watch officer is on call 24/7/365, ensuring the 9-1-1 Communication Center's staff can gain support for carrying out emergency management functions during emergencies. In some cases, more than one watch officer may be activated to ensure all duties are met. The watch officer reports to the deputy director of emergency management (steady state) or EOC director (partial or full activations). **DES is the coordinating agency** for this position.
    3. **Public Information Officer** – The public information officer (PIO) is responsible for emergency public information, including the development of public-facing products such as social media posts, media releases, and news releases. The PIO is responsible for gathering, verifying, validating, and disseminating information regarding emergencies and disaster incidents to internal and external stakeholders. The PIO is also responsible for overseeing rumor control, addressing public inquiries, and all engagements with the media on behalf of DES regarding an ongoing incident. **DES is the coordinating agency** for this position.
    4. **Receptionist** – The receptionist is in charge of administrative tasks in the EOC, including the oversight of sign-in/sign-out sheets, development of accurate EOC roster for each operational period, and answering the primary EOC phone line to manage inbound inquiries. **DES is the coordinating agency** for this position.
    5. **Emergency Services Coordination Section Chief** – The emergency services coordination section chief oversees the firefighting/fire protection, emergency medical services, search and rescue, hazardous materials, and law

enforcement coordination tasks in the EOC. The section chief oversees corresponding staff based on filled positions for the activation. The section chief reports to the EOC director. **DES is the coordinating agency** for this position.

6. **Fire/Emergency Medical Services (EMS) Position** – The fire/EMS position is responsible for coordinating support for the areas of firefighting, fire protection, and EMS, which may include the coordination of personnel, equipment, and supplies in support of local agencies involved in firefighting or EMS operations. The fire/EMS position reports to the emergency services coordination section chief. **DES is the coordinating agency** for this position.
7. **Urban Search and Rescue (USAR) Position** – The USAR position is responsible for coordinating support for search and rescue, which may include supporting collapsed structure, swift water, high angle and other specialized search and rescue operations. The USAR position coordinates with PEMA search and rescue personnel if a Chester County based situation requires the activation and deployment of PA Task Force One. The USAR position reports to the emergency services coordination section chief. **The Rescue Task Force is the coordinating agency** for this position.
8. **Hazardous Materials (HazMat) Position** – The HazMat position is responsible for coordinating resources and services necessary to support an emergency response or recovery effort essential to the remediation of conditions caused by toxic chemical or hazardous material release. The HazMat position reports to the emergency services coordination section chief. **DES is the coordinating agency** for this position.
9. **Law Enforcement Position** – The law enforcement position is responsible for coordinating support for law enforcement response, including the coordination and deployment of uniformed personnel to assist local field operations. The law enforcement position reports to the emergency services coordination section chief. **The District Attorney's Office is the coordinating agency** for this position.
10. **Human Services Coordination Section Chief** – The human services coordination section chief is responsible for overseeing the delivery of accessible services and resources to meet the basic needs of impacted and/or displaced populations. Coordination of services and resources may include those necessary for emergency assistance, housing assistance, human services, and mass care. The section chief is also in charge of coordinating donation and volunteer management, which involves directing resources to partner organizations that accept these resources during a disaster incident. The human services coordination section chief oversees the mass care, transportation, and medical/health positions. The section chief reports to the EOC Director. **DES is the coordinating agency** for this position.
11. **Mass Care Position** – The mass care position is responsible for monitoring and coordination of shelter services for survivors of a disaster. These can include, but not limit to, the following areas; vulnerable populations, homeless populations, impact of utility outages/service disruptions, etc. Additionally, the mass care position oversees the coordination of food, water, and

commodity distribution with support of the Resource Support Section. The mass care position reports to the human services coordination section chief. **American Red Cross of Eastern Pennsylvania is the coordinating agency** for this position.

12. **Medical/Health Position** – The medical/health position is responsible for coordinating public health and medical resources, capabilities, and capacities with all agencies and organizations that carry out public health or medical services through the coordination of services, equipment, and personnel needed to protect the health of the public, as well as management of those resources. Additionally, the medical/health position develops situational awareness of the overarching medical response and disseminates public health information. The medical/health position reports to the human services coordination section chief. **Chester County Health Department is the coordinating agency** for this position.
13. **Transportation Position** – The transportation position is responsible for assisting Chester County and municipal entities, as well as voluntary and partner organizations, requiring transportation capacity to perform response missions associated with major disasters or emergencies. The transportation position reports to the human services coordination section chief. **DES is the coordinating agency** for this position.
14. **Resource Support Section Chief** – The resource support section chief is responsible for overseeing the provision of operational assistance and coordination of supplemental resources. Resource support includes providing or obtaining goods or services, as well as coordinating the use of the resources. The section chief reports to the EOC Director. **DES is the coordinating agency** for this position.
15. **EOC Personnel Support Position** – The EOC personnel support position is responsible for ensuring the basic needs of EOC staff are met during extended activation periods. The EOC personnel support position is tasked with securing hotel rooms if staff (EOC and 9-1-1 Communication Center) cannot return home between shifts and ensuring food/water is provided on-site to avoid staff departures during an operational period. The EOC personnel support position reports to the resource support section chief. **DES is the coordinating agency** for this position.
16. **Technical Support Position** – The technical support position is responsible for ensuring the effective operation of EOC technologies (e.g., computers, printers, AV system, etc.). The technical support position reports to the resource support section chief. **DES is the coordinating agency** for this position.
17. **Finance/Administration Position** – The finance/administration position is responsible for coordinating all financial, administrative, and cost analysis aspects of an emergency or disaster response support, which can include the establishment of incident billing codes and oversight of resource purchasing to include establishment of a procurement approval/denial process. The finance and administration position reports to the resource support section chief. **DES is the coordinating agency** for this position.

18. **Planning/Situational Awareness (SA) Section Chief** – The planning/ situational awareness section chief is responsible for evaluating the situation through the collection, analysis, and packaging of data inputs to ensure decision makers and stakeholders remain informed. The main information products are situation reports. Additionally, the section chief may be tasked with forecasting requirements for additional personnel and equipment. The section chief oversees the areas of critical infrastructure/key resources, road closures, and geographic information systems. The section chief also maintains oversight of the Amateur Radio Emergency Service (ARES)/Radio Amateur Civil Emergency Service (RACES) liaison. The section chief reports to the EOC Director. **DES is the coordinating agency** for this position.
19. **Critical Infrastructure/Key Resources (CI/KR) Position** – The critical infrastructure/key resources position is responsible for evaluation of disaster impacts on CI/KR through oversight of damage assessment and debris management processes, including the collection of information regarding energy/utilities services and public works. The CI/KR position may also lead coordination for contracting construction management and inspection, emergency repair of water and wastewater facilities, potable water and ice, emergency power and real estate support to assist the county and municipalities. The CI/KR position reports to the planning/SA section chief. **DES is the coordinating agency** for this position
20. **Road Closure Position** – The road closure position is responsible for tracking road closures as information is reported and relayed via the 9-1-1 Communication Center or via the watch officer. The road closure position is responsible for documenting road closures in the EOC road closure database (displays data on the road closure map) and the incident management software's log. The road closure position reports to the planning/SA section chief. **DES is the coordinating agency** for this position.
21. **Geographic Information Systems (GIS) Position** – The GIS position is responsible for the development and display of geographic information products, including power outage and road closure maps with dynamic updates to ensure accurate projections of emergency or disaster impacts. The GIS position reports to the planning/SA section chief. **DES is the coordinating agency** for this position.
22. **ARES/RACES Liaison** – The ARES/RACES liaison provides a communication redundancy capability during emergencies or disasters. If primary communication technologies fail during an incident, the ARES/RACES liaison oversees the operation of the all-volunteer organization's operations to support communications, including between the EOC and incident commanders. The ARES/RACES liaison reports to the planning/SA section chief. **ARES/RACES is the coordinating agency** for this position.
23. **Coroner Liaison** – During mass casualty and mass fatality incidents, the coroner liaison provides a direct interface between the EOC and the Chester County Coroner's Office, which oversees services for handling fatalities and the conduct of surveillance to identify fatality trends. The liaison reports to the

EOC Director. The **Chester County Coroner's Office is the coordinating agency** for this position.

24. **PECO Liaison** – During disasters involving a significant loss of electrical power in Chester County, the PECO liaison coordinates the collection of outage information and communication regarding resumption of PECO services. The PECO liaison receives known outage information from the watch officer or other EOC staff, inputs information into PECO's repair tracking software, and coordinates directly with PECO's operations center to maintain situational awareness, establishing an information sharing relationship between the two operations centers. The liaison reports to the EOC Director. **PECO is the coordinating agency** for this position.
25. **Agriculture and Natural Resources Liaison** – The agriculture and natural resources liaison is responsible for identifying sources of food supplies, obtaining food resources, and arranging to transport food to designated staging sites in the affected area; providing nutrition assistance; ensuring the safety and security of the commercial food supply; protecting natural and culturally historic resources; and providing for the safety and well-being of household pets and farm animals. The **Penn State Agriculture Extension** is the coordinating agency for this position.
26. **Long-Term Community Recovery Liaison** – The long-term community recovery liaison is responsible for overseeing long-term community recovery and mitigation activities following the end of life-safety response operations. **DES is the coordinating agency** for this position.
27. **Private Sector Liaison(s)** – Beyond the regular inclusion of the PECO liaison, the private sector liaisons are determined on a case-by-case basis. Private sector liaisons serve as primary POCs to key industry partners for information and resource coordination during emergencies and disasters. Private sector liaisons report to the EOC Director. **DES is the coordinating agency** for this position.

Section III – Notification and Resource Manual

- *Notification and Resource Manual* that contains information on where to find electronically stored lists of resources, facilities, personnel, equipment, and supplies available to the county, along with contact information needed to procure each resource during an emergency

II. PURPOSE AND SCOPE

The following section outlines the purpose and scope of the EOP, including the underlying policy-driven priorities.

A. Purpose

The purpose of the Chester County EOP is to establish a comprehensive, countywide, all-hazards approach to incident management and coordination across a spectrum of activities including prevention, protection, response, recovery, and mitigation. The plan provides the framework for interaction with municipal governments, the private sector,

and nongovernmental organizations in the context of incident prevention, protection, response, recovery, and mitigation activities. It describes capabilities and resources to help protect from natural, human-caused, and technological hazards; saves lives, protects public health, safety, property, and the environment; and reduces adverse psychological consequences and disruptions. The plan satisfies the requirements of the *Pennsylvania Emergency Management Services Code (Title 35).* Finally, the plan serves as the foundation for the development of detailed supplemental plans, annexes, and procedures to effectively and efficiently implement incident management activities and assistance in the context of functional areas and specific types of incidents.

B. Scope

The Chester County EOP addresses incidents or events that threaten to, or actually cause, damage of sufficient severity and magnitude within the geographic boundaries of Chester County, Pennsylvania, that exceeds the capabilities of local municipalities. The plan applies to all county departments, responding agencies, and key partners. The plan also applies to responding agencies that provide requested mutual-aid assistance.

C. Policies

The Chester County Department of Emergency Services adheres to policies established by the Chester County Board of Commissioners. Supplemental policies and procedures are promulgated by the Director of Emergency Services as well as other county department Directors, as appropriate.

Top operational priorities for incident management and plan implementation are to:

- Save lives and protect the health and safety of the public, responders, and recovery workers.
- Protect property and the environment.
- Restore essential utilities.
- Restore essential program functions.
- Coordinate among appropriate stakeholders.
- Ensure security of the county.
- Prevent an imminent incident, including acts of terrorism, from occurring.
- Protect and restore critical infrastructure and key resources.
- Conduct law enforcement investigations to resolve the incident, apprehend the perpetrators, and collect and preserve evidence for prosecution and/or attribution.
- Mitigate the damage and impact to individuals, communities, the economy, and the environment.
- Facilitate recovery of individuals, families, businesses, governments, and the environment.

Hazard-specific annexes will be developed for the hazards that occur most frequently within the county or have the largest potential impact. An annex will not be developed for every hazard outlined in the *Chester County Multi-Jurisdictional Hazard Mitigation Plan.*

III. SITUATION AND ASSUMPTIONS

The following descriptions provide context regarding key elements that make Chester County unique in terms of its situation and assumptions that are applied in the planning process. Descriptions of the most prominent threats and hazards are defined as part of the situation section.

A. Situation

A clear understanding of Chester County's unique situation is essential for ensuring effective emergency management preparedness, including planning and response efforts. The following section defines essential information regarding Chester County's situation.

1) Location and Description

Chester County is located in the southeastern portion of Pennsylvania and encompasses a land area of 762 square miles. West Chester Borough, the county seat, is located in the southeast/central portion of the county. Approximately 209 square miles of the county is wooded, 297 square miles is agricultural, 131 square miles is residential, 96 square miles is non-residential, and 26 square miles is vacant/water. There are 1,022 miles of commonwealth and federal highways and 2,530 miles of secondary and municipal roads in the county. The county is comprised of 73 municipalities (one city, 57 townships, and 15 boroughs). Chester County includes, or is affected by, all of the critical infrastructure sectors as outlined in the Department of Homeland Security's *National Infrastructure Protection Plan 2013: Partnering for Critical Infrastructure Security and Resilience.*

The county contains hundreds of licensed day cares, 12 public school districts (110 buildings) and many non-public schools (~125 buildings), five colleges and universities, 23 nursing facilities, and eight hospitals (six providing acute care).

Demographics

An overview of the county's demographics, laid out below, are based on most recent U.S. Census data from 2017 utilizing: U.S. Census 2012 and 2017 American Community Survey 1-Year Estimates (published in 2013 and 2018). Additionally, two specific populations with geographic centers include a large Hispanic population in the southern half of the county and a large population of Pennsylvania Dutch along the western border of the county.

- Population is 519,293.
- 15.7% of the population is age 65 and older.
- There are 9,849 residents (1.9%) that identify as "two or more races".
- 51,818 residents (10%) were born outside of the US.
- 64,583 residents (13.2%) speak a language other than English at home.
- 7,236 workers take public transportation to work.
- Median household income is $96,656.
- In 2017, 4,816 Chester County families (3.6%) were below the poverty level.
- 6.4% of children under 18 years and 5.9% of residents age 65 and older live below the poverty level.

- The number of residents age 25 and over without a high school diploma is 23,651.
- Over half of residents (52.2%) age 25 and older have a bachelor's degree.
- The highest educational attainment for 30.9% of residents age 25 and over is a bachelor's degree.
- 21.3% age 25 and over have a graduate or professional degree
- There are 200,237 housing units in Chester County
- The median home value is $355,000 and the median rent is $1,250
- 75.4% of the housing units in Chester County are owner-occupied.
- 44.2% of renters pay 30% or more of household income toward housing costs

2) Capabilities and Resources

Chester County operates a 9-1-1 Communications Center and maintains its primary EOC at the Chester County Government Services Center (601 Westtown Rd., West Chester). The 9-1-1 Communications Center and the EOC have access to the lists of resources available from county assets as well as known resources available from the municipalities and private sector. Additionally, the county maintains an alternate 9-1-1 Communications Center and EOC at the Department of Emergency Services' Public Safety Training Campus (137 Modena Rd., Coatesville).

The county is a member of the Southeastern Pennsylvania (SEPA) Regional Task Force (RTF) which member counties may provide mutual aid and support when requested. Additionally, the county is a member of the Pennsylvania Intrastate Mutual Aid program, which allows access to mutual aid from all Pennsylvania counties that have not opted out of the program. A more extensive description of the Emergency Management Division's resource capabilities and management processes and mutual aid agreements is located in the *Chester County Resource Management and Logistics System Annex*.

3) Hazard Analysis Summary

Chester County is subject to a variety of hazards which are broken into two categories: natural hazards and human-caused hazards. The threats and hazards of greatest importance (based on risk levels) facing Chester County are outlined below. A more extensive list and detailed information on each hazard is located in the *Chester County Multi-Jurisdictional Hazard Mitigation Plan*. The risk of each hazard is informed by the Chester County Hazard Identification Risk Assessment process, which is updated every five years (last updated in 2015).

Natural Hazards

Nine natural hazards are considered high risk hazards in Chester County. The list is presented alphabetically:

Drought and Water Supply Deficiencies

There are 16 water purveyors, several homeowners associations, and numerous private wells supplying the residents of Chester County with water. Primary water sources include the Octorara and Schuylkill Rivers, the east and west branches of

the Brandywine Creek, and Pickering Creek. The entire county is susceptible to the impacts of drought.

Earthquake

Pennsylvania is located in a seismic risk zone whereby minor and/or moderate earthquake damage may be expected. The county lies in proximity to Philadelphia, where from 1980 to 1984, five minor earthquakes occurred, affecting the City of Philadelphia and the northern suburbs. Very little quake activity has occurred since 1984 with only four minor incidents in the SEPA region. Should the activity greatly intensify, Chester County may be affected by residual tremors.

Although earthquakes in the commonwealth are rare, historically causing no injury or severe property damage, the occurrence of an earthquake in the commonwealth and the possibility of impacts from an earthquake epicenter outside of the area remains. The majority of the larger earthquakes felt in Chester County have been residual tremors caused by earthquakes in the surrounding areas.

Extreme Temperatures

Extreme temperatures, which are temperatures that are 10 degrees or more above the average high temperature or temperatures below freezing for an extended period of time, impact the entire county at the same time. While there are minor fluctuations in climate within the county, those fluctuations are not severe enough for the extreme temperature to impact one portion of the county and not another portion.

Flooding

Approximately 80 percent of Chester County is located in the Lower Delaware River Basin. Flooding in this basin has been a result of extensive development in floodplain areas. The remainder of Chester County is located in the Susquehanna River Basin, and this basin is represented mainly by the Octorara Creek Watershed which has been subject to less developmental pressure.

Seventy-one of the 73 municipalities in Chester County are in floodplains; Honey Brook Borough and West Gove Borough are the only municipalities without a 100-year floodplain.

Hurricane and Tropical Storm

All of Chester County is impacted when a tropical event arrives. The low lying areas are more vulnerable to flooding caused by storms, and wooded areas are more vulnerable to high winds, causing tree damage. The majority of the commercial power network is above ground, which makes the entire county vulnerable to power outages due to falling trees and wires. The amount of damage sustained is directly related to the size and intensity of the storm when it reaches

the county. Historically, the intensity of tropical storms usually decreased due to the distance the storms travelled across land prior to impacting the county.

Radon

The underlying geologic unit that composes Chester County plays an important role in approximating how much radon will exist in different areas. The geological map of Chester County notes that schist rock, a metamorphic rock, accounts for roughly one third of the county's geological composition. Rocks such as schist normally contain higher amounts of uranium compared to other rocks such as limestone. Thus, it is inferred that buildings built over schist may have higher amounts of radon rising from below. The same applies when considering the amounts of radon in groundwater. Several factors affect the formation and movement of radon in groundwater, such as uranium content, grain size, permeability, and the nature and extent of fracturing in the host rock which are all functions of rock type. Thus, the groundwater associated with the schist rock formations may also have higher concentrations of radon.

Thunder Storms

The entire county is susceptible to thunderstorms. Thunderstorms historically move across the county from the southwest to the northeast and are more common in the spring and summer months.

Tornado and Wind Storms

Tornados and wind storms are common occurrences in the commonwealth, especially during the spring and summer months. According to the National Weather Service Storm Prediction Center, a total of 814 tornados have struck Pennsylvania from 1950 to late 2018 (number subject to change once 2018 numbers are finalized). The southeast portion of the state is one of the areas most prone to tornados and wind storms.

Winter Storms

The entire county is impacted when a winter storm enters the region. The amount of snow fall or ice accumulation can vary across the county. Due to the freeze line, determining where the precipitation will fall as snow versus rain, there have been times when some portion of the county received snow and the remaining portion received rain.

Winter storms typically occur in Chester County from late November through mid-April, with peak months from December through March. Nor'easters are one type of severe winter storm that typically bring high winds along with heavy precipitation to the county.

Human-Caused Hazards

Ten human-caused hazards are considered high-risk hazards in Chester County. The list is presented alphabetically

Armed Attack

The entire county is susceptible to armed attacks in a facility or at a public gathering. An armed attack is traditionally contained to one location so the potential to directly impact multiple municipalities is low. These types of events are typically localized to a few buildings at most. The exceptions would be one person carrying out a series of attacks on multiple locations prior to being caught or a complex coordinated attack, which involves multiple attackers completing coordinated attacks in the same general area and/or timeframe. Armed attacks can occur at any location, but locations with more people gathered together make more likely targets for an attack.

Civil Disturbance

Civil disturbances can occur anywhere in the county, but they are more likely in the more populated centers of the county. The more populated boroughs have a greater likelihood, but they also typically have a local police force, unlike some of the more rural areas of the county.

Conventional/Improvised Bombs

The entire county is susceptible to a bombing attack within a facility or at a public gathering. The potential to impact multiple municipalities is low in terms of direct impacts unless multiple bombs were used in multiple locations simultaneously, which would result in impacts directly affecting multiple municipalities. The exception would be one person carrying out a series of attacks on multiple locations prior to being caught or a complex coordinated attack, which involves multiple attackers completing coordinated attacks in the same general area and/or timeframe. Indirect impacts, such as allocation of resources and operations of emergency medical facilities, could impact multiple municipalities simultaneously. Bombings can occur at any location, but locations with more people gathered together are a more likely target for an attack.

Cyber Terrorism

Unlike other hazards associated with specific geographic locations, the internet is accessible remotely from any location. Attacks that affect Chester County can originate from anywhere adding an additional layer of complexity to protection. The targets of these attacks can be very large corporations, governments, or even individuals; in fact, anything that is digitally connected is technically vulnerable. Specific target sectors that might result in countywide effects include:

- Financial centers.
- Government buildings.
- Media outlets.
- Transportation authorities.
- Power/utility companies.
- Telecommunications networks.

Dam Breaches

Any dam has the potential for creating a major disaster. There are a number of potentially hazardous dams in the commonwealth. Rapid thaw in the spring, poor maintenance, severe thunderstorms, or rain are factors that may facilitate an actual dam break. In Chester County, there are 37 dams that meet the state's definition of a high-hazard dam. Of those, there are thirteen that meet the category 1 criteria, meaning there is a substantial population at risk (numerous homes or small businesses or a large business or school) in the inundation zone. In addition, two dams in neighboring Berks County present a potential for impacting Chester County if they fail.

Extended Utility, Data, or Telecomm Disruptions

The entire county is subject to impacts from an extended utility, data, or telecommunications outage. Unintentional acts usually impact one or two utilities in a small area. Intentional attacks have the potential to impact multiple systems simultaneously and cover a large geographical area.

Fires

Fire has been, and will continue to be, a problem of great concern to Chester County. Urban and suburban expansion continues to create multiple family dwellings and industrial complexes vulnerable to potential fire hazards; also, the threat of arson remains a hazard. Wildfires are not a major threat to Chester County due to the lower amount of large wooded areas in the county.

In the past 20 years, a number of fires were caused by two serial arsonists. In 1999/2000, there were multiple fires in the Kennett Square area caused by arson, and in 2008, there were multiple fires in the Coatesville area caused by arson. In addition to arson, there are a substantial number of unintentional fires in the county every year. From 2008 through 2013, 1,128 out of 1,519 fires (74%) were determined to be unintentional.

Hazardous Materials Incidents

Chester County is becoming increasingly vulnerable to the threat of hazardous materials incidents. New industrial complexes and housing developments increase the potential for natural gas or petroleum pipeline incidents. Increasing industrialization brings with it greater sources of hazardous material transportation, storage, use, and waste. Additionally, the activities of the Limerick Generating Station (LGS) and the Peach Bottom Atomic Power Station (PBAPS) pose a threat involving nuclear material and waste. Chester County currently has 18 hazardous materials waste Superfund sites; 11 of those 18 are listed on the National Priorities List for Superfund Cleanup.

Chester County has over 570 miles of liquid and gas pipelines. Ten companies operate 27 lines throughout Chester County. There are approximately 350 miles of pipelines that transport gas and 230 miles that transport liquid product. The pipelines traverse 59 of the 73 municipalities in the county.

Any facility using, storing, or manufacturing an Extremely Hazardous Substance must meet the reporting criteria under SARA Title III, and they are required to work with local officials to develop an Emergency Response Plan in preparation for a potential emergency. According to the *Chester County Annual Report on Hazardous Material Emergency Response Preparedness, Reporting Year 2016,* there were 107 SARA Title III planning facilities in Chester County. There are 466 different chemicals used at SARA planning facilities in Chester County. Additionally, there are 316 chemicals at 155 other reporting facilities. These chemicals pose various levels of concern due to their characteristics, quantity, and use within these facilities.

Nuclear Incidents

Portions of Chester County fall within a ten-mile radius Emergency Planning Zone (EPZ) of two nuclear facilities. Based on information from the 2010 U.S. Census, there are approximately 2,736 Chester County residents in the PBAPS EPZ and 84,028 Chester County residents in the LGS EPZ. Figure 16, located in the *Chester County Multi-Jurisdictional Hazard Mitigation Plan,* shows the area in Chester County that falls within an EPZ. Additionally, the county is located, all or in part, in the 50-mile radius "ingestion exposure pathway" of four facilities. Limerick and Salem include the entire county; Peach Bottom includes all but the far northeastern tip; Three Mile Island includes the entire western portion of the county. There are also a number of smaller radiological sources in medical buildings, academic centers, and some commercial businesses.

Transportation Accidents

Chester County has three public airports and nine private airfields. The county is located beneath the holding patterns of both Wilmington and Philadelphia International Airports. Chester County is also served by a sizeable rail line system, which includes Southeastern Pennsylvania Transportation Authority, Amtrak, Conrail, Octoraro Railroad, Canadian Pacific Rail, East Penn Railroad, and the Brandywine Valley Railroad.

The Chester County road system includes approximately 3,662 miles of roadway, including approximately 26 miles of turnpike, 1,160 miles of state and federal highways, and 2,476 miles of secondary and tertiary roads.

B. Planning Assumptions

1) An emergency or disaster may occur in Chester County at any time and pre-disaster warning time will vary from zero to several days.
2) All disasters start and end at the local level, starting at the level of municipalities in Chester County. Local jurisdictions should not plan on the arrival of state response assets until approximately 24 hours after the initial incident without prior notice. Similarly, federal response assets may not arrive until 48-72 hours after the incident without sufficient predictability prior to event.

3) Evacuation can only be mandated by the Pennsylvania governor. Extensive evacuation plans lend themselves only to events that are predictable and have adequate warning time. All other events are impromptu and situation-dependent, requiring optional evacuations that leverage local-level resources and/or shelter-in-place decisions based on at-risk population.
4) Incident management activities will be initiated and conducted using the principles contained in NIMS.
5) Initial response to emergencies, natural disasters, and human-caused disasters, including terrorism-related incidents, is normally handled by local responders and dispatched by the Chester County 9-1-1 Communications Center.
6) A major disaster, emergency, or event may cause numerous fatalities and injuries, property loss, disruption of normal life-support systems, and damage to the environment, and it may have an impact on the regional economic, physical, and social infrastructures.
7) A major disaster or emergency may overwhelm the capabilities of the local municipal governments along with their emergency response agencies.
8) The extent of damages and number of casualties may be affected by factors such as the time of occurrence, severity of impact, weather conditions, population density, building construction, and the possibility of secondary events such as fires, explosions, structural collapse, contamination issues, loss of critical infrastructure, and floods.
9) Chester County will coordinate and support the activities of multiple political subdivisions in accordance with the provisions of the *Pennsylvania Emergency Management Services Code* (Title 35). The county Department of Emergency Services may need to respond on short notice to provide timely and effective assistance.
10) Using a tiered response system, resources and capabilities from municipalities and other counties may be requested through established mutual aid agreements.
11) Upon a determination that resource requests exceed or may exceed resources that may be obtained through existing mutual aid agreements the county will request assistance from neighboring counties, members of the SEPA RTF, private sector, and/or PEMA.
12) The occurrence of a major disaster or emergency, as defined in the Robert T. Stafford Act, may result in the declaration of a disaster emergency by the Pennsylvania governor. Depending upon the severity of the event, the governor may request an emergency disaster or major disaster declaration from the president, or a declaration of economic emergency from the administrator of the Small Business Administration.
13) Pennsylvania Intrastate Mutual Aid System (PIMAS) will make aid available to the county and all of its political subdivisions from all counties and municipalities that have not opted out of the system. PIMAS will be utilized in response to emergencies and disasters that require actions beyond the capacity of the local

municipality or the county in which the incident occurs.

14) Each department or agency will develop internal operating procedures or implementing instructions to ensure responsibilities assigned in this plan are executed.

15) Intelligence gathering, coordination, and dissemination will be included in preparedness, prevention, response, recovery, and mitigation activities.

16) Chester County will provide information regarding accessible services and resources to support the diverse needs of individuals. Chester County will provide access to accessible services and resources to support the diverse needs of individuals.

IV. CONCEPT OF OPERATIONS

The concept of operations defines how Chester County approaches emergency management, how the EOP is activated, and how the EOC is designed to function at three operational levels based on the coordination and incident support needs.

A. General

All emergency response within the county will follow NIMS that has been specified by the U.S. Department of Homeland Security.

This includes:

1) The designation of an incident commander (IC) and, if necessary, an incident management structure.
2) The use of resource definitions specified by NIMS.
3) Communication and planning protocols used in NIMS.

When an incident grows beyond the local capabilities of a municipality or the event involves more than one municipality, the county Emergency Management Agency (EMA), the Department of Emergency Services, will assist with coordination and provide supplemental assistance. If county resources are not adequate, mutual aid will be used with other counties and the private sector. When resources are needed from PEMA an unmet needs request will be submitted.

B. Plan Activation

The Chester County EOP provides the framework for preparedness, response, recovery, and mitigation efforts for all-hazards incidents. The plan is designed to be flexible to meet the needs of every incident. Additional hazard specific annexes complement but do not override this plan.

The DES director is the single POC to serve as the coordinator for the county's incident management system. The director, or his/her designee, has the authority to implement this plan. The plan can be activated at any time as needed to support the actual or anticipated response and recovery efforts of a disaster. After plan activation, the personnel supporting the plan will work with municipal, county, regional, state, private

sector, and other emergency management partners to coordinate response and recovery efforts. The activation of this plan requires three primary resources: an EOC, trained personnel to staff the EOC, and communications equipment to ensure the effective operation of the EOC.

The county EOC is already operational 24 hours per day, seven days per week through the 9-1-1 Communications Center in the Government Services Center, West Chester. The EOC may be expanded beyond the 9-1-1 Communication Center during an emergency. Additionally, the county maintains an alternate 9-1-1 Communication Center and EOC at its Public Safety Training Campus, Coatesville.

C. Mission Areas

The National Preparedness Goal describes 32 core capabilities as activities that ensure addressing the greatest risks facing the United States. The core capabilities are organized within five mission areas. In line with the goal, Chester County's preparedness efforts align with the five mission areas, which are defined below:

Prevention
Prevention includes activities designed to stop, avoid, or reduce the risk of an act of terrorism (actual or threatened).

Protection
Protection includes activities focused on protecting citizens, visitors, residents, and assets from threats and hazards to reduce risk without infringing on the way of life or rights. Planning efforts help ensure the safety of citizens, CI/KRs, property, and the economy from the impacts of all hazards and threats.

Mitigation
Mitigation includes activities designed to reduce or eliminate risks to persons or property or to lessen the actual or potential effects or consequences of an incident. Mitigation measures implemented before, during, or after an incident are intended to prevent the occurrence of an emergency and reduce the county's vulnerability and/or minimize the adverse impact of disasters or emergencies. A preventable measure, for instance, is the enforcement of building codes to minimize impacts during such situations. More detailed information can be found in the *Chester County Multi-Jurisdictional Hazard Mitigation Plan.*

Response
Response includes activities that address short-term, direct effects of an incident. Response activities include immediate actions to preserve life, property, and the environment; meet basic human needs; and maintain the social, economic, and political structure of the affected community. Also included are direction and coordination, warning, evacuation, and similar operations that reduce casualties, damage, and help speed up recovery.

Recovery

Recovery includes activities that allow an impacted community to recoup from the impacts of an incident. Once an incident has begun, it is important to start planning for recovery efforts. The recovery period will last significantly longer than an event. The EOC command and general staff will initiate the planning of the recovery efforts and implementation of the Disaster Recovery Annex as soon as possible after the beginning of the event, though overarching recovery efforts will require support from numerous county departments and partner agencies with guidance and direction from the Chester County Commissioners. Depending on the scale of the event and the length of the recovery process, the recovery efforts may be led by the Emergency Management Division with the assistance of the Chester County Long Term Recovery Committee based on the strategy established with the direction of the Chester County Commissioners. The *Chester County Disaster Recovery Annex* provides additional detail on the framework for designating the agencies that will be involved in the recovery effort and how they will interact. While the annex is not all-inclusive, it is designed to be a framework upon which to build the recovery effort and supplement the EOP.

Once response activities are in progress, the focus will be shifted to damage assessment which drives the recovery efforts. The Emergency Management Division will coordinate the damage assessment report process and collect damage assessments from the municipal Emergency Management Coordinators (EMCs). The total of the damages sustained within the county will be provided to PEMA for state-wide damage assessment compilations.

D. Intergovernmental Assistance

Mutual aid agreements between municipalities are inherently in place through Title 35. Adjacent counties and other governments will render assistance in accordance with the provisions of intergovernmental support agreements in place at the time of the emergency. The county EMA and other agencies will establish regular communication with state agency offices supporting the county (Pennsylvania Departments of Agriculture, Transportation, Health, etc.). Requests for unmet needs will be forwarded to the Pennsylvania Commonwealth Response Coordination Center (CRCC).

E. Direction, Control, and Coordination

Elected officials play an important role in the protection of the lives and property of citizens and make policy decisions for the coordination of emergency activities within the county.

The Department of Emergency Services Director acts as the county Emergency Management Coordinator (EMC) and may act on behalf of Chester County Board of Commissioners. The county EOC is operational 24 hours per day, seven days per week through the 9-1-1 Communications Center in the Government Services Center, West Chester. The EOC may be expanded beyond the 9-1-1 Communication Center during an emergency by the Chester County Board of Commissioners, the EMC, or a designee. Additionally, the county maintains an alternate 9-1-1 Communication Center and EOC at

its Public Safety Training Campus, Coatesville. More information regarding continuity of operations can be located in the *Chester County Continuity of Operations Plan Annex*.

The initial IC at an incident site will be from the service having primary jurisdiction (fire, police, emergency medical services, etc.). If the line of jurisdiction becomes unclear, a Unified Command (UC) should be formed. The local IC/UC will coordinate with the respective municipal EMCs.

When local conditions exceed the local capabilities, the IC/UC or municipal EMC may contact Chester County Department of Emergency Services to request assistance via the 9-1-1 Communication Center or the EOC. Personnel in the Chester County EOC will not assume command of an event.

Other emergency plans or annexes may be applicable to a specific event and provide further detail to supplement the basic plan. For example, an incident involving hazardous substances, a nuclear power plant incident, or high hazard dam emergency may involve "incident specific" response activities outlined in the associated emergency plan or annex. If an incident involves implementation of response plans at various levels of government, the county and state EMAs shall strive to coordinate to the maximum extent practical.

For the integration of response, recovery, and mitigation actions, precedence is given to immediate response operations to save lives, protect property, and meet basic human needs over recovery and mitigation operations. Intelligence gathering and recovery actions will be coordinated and based upon availability of resources. Mitigation opportunities will be considered throughout disaster operations.

F. Organization and Assignment of Responsibilities

The EOC supports the efforts of the on-site IC/UC through the personnel assigned to the EOC executing the functions and resulting responsibilities outlined in Table 1 below. The complete list of position-specific responsibilities is detailed in the position annexes. These responsibilities are assigned to EOC positions based on job functions.

Each function has been assigned a coordinating agency and at least one support agency. The matrix for the functional assignments is located in APPENDIX D.

- Coordinating Agency: The agency providing expertise and management for the designated function, especially during pre-disaster phases and will coordinate the actions of all agencies assigned to the functional area.
- Support Agency: An agency providing assistance for the mission by providing resources and accomplishing tasks assigned by the coordinating agency.

Within the EOC, positions are based on areas of responsibility with each position placed under the appropriate EOC staffing structure to provide better coordination and control. As situations require, direct collaboration among sections will be conducted between assigned EOC positions. In cases where a position is not staffed, those responsibilities and activities of that position revert to the corresponding section chief and then EOC

director. The EOC organizational meets span of control expectations established in NIMS guidance (between three and seven). A full organizational chart of the Chester County EOC structure is located in APPENDIX F. The EOC is organized with command and four sections (see Figure 1 below) with oversight provided by the EMC and Chester County Board of Commissioners.

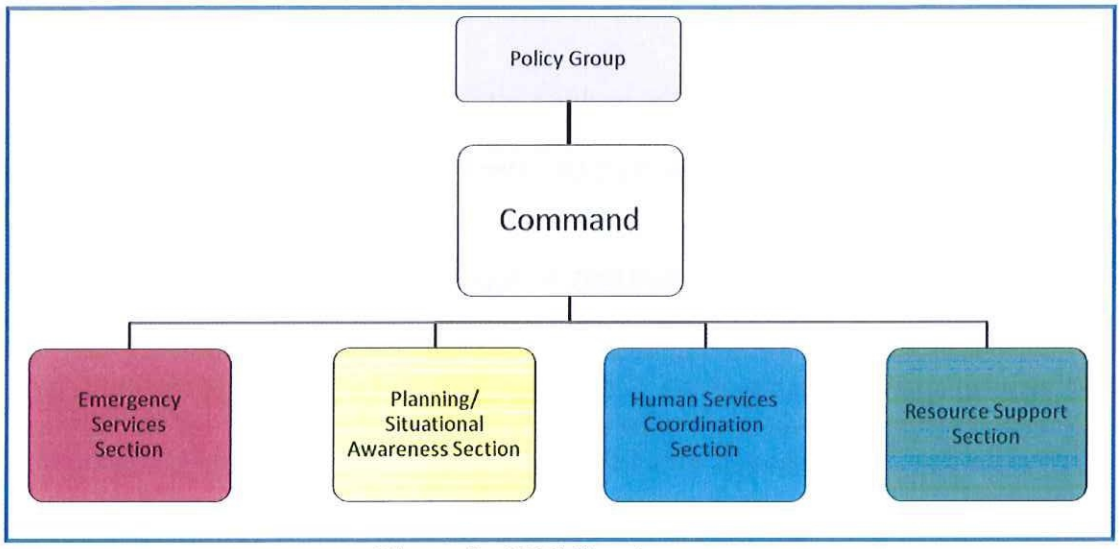

Figure 1 - EOC Structure

EOC POSITION (SECTION)	FUNCTION	ESF #	RESPONSIBILITIES
Watch Officer (*Command*)	Emergency Management	5	Coordinate countywide emergency response functions by collecting, sharing, analyzing, and disseminating information
Public Information Officer (PIO) (*Command*)	External Affairs	15	Provide information to the public through direct means (e.g., social media or alert/warning systems) and through the media; manage public inquires and community outreach
Watch Officer (*Command*) **CI/KR** (*Planning Situational Awareness (SA) Section*)	Public Works and Engineering	3	Coordinate engineering and heavy equipment support; oversee debris removal and management
CI/KR (*Planning SA Section*)	Energy	12	Monitor and coordinate the maintenance and restoration of the supply of energy and energy distribution infrastructure
CI/KR (*Planning SA Section*) **Transportation** (*Human Services Section*)	Transportation	1	Coordinate transportation resources and infrastructure
Technical Support (*Resources Section*) **CI/KR** (*Planning SA Section*)	Communications	2	Coordinate all forms of communication and IT resources
Resource Section Chief (*Resources Section*)	Logistics Management and Resource Support	7	Coordinate facilities, equipment, supplies, resources; track resources and arrange for the reception and distribution of goods
Fire/EMS (*Emergency Services Section*)	Firefighting	4	Coordinate and assist local firefighting efforts
Law Enforcement (*Emergency Services Section*)	Public Safety and Security	13	Coordinate physical security for citizens and property; suppress criminal activity

USAR (*Emergency Services Section*)	Search and Rescue	9	Coordinate search and rescue missions including technical, urban, wilderness, and underground
Hazmat (*Emergency Services Section*)	Oil and Hazardous Materials Response	10	Respond/assist in incidents involving the release of hazardous materials that may harm humans or the environment
Medical/Health (*Human Services Section*) **Fire/EMS** (*Emergency Services Section*) **Coroner Liaison**	Public Health and Medical Services	8	Coordinate medical care, crisis counseling, and mortuary services
Mass Care (*Human Services Section*)	Mass Care, Shelter, and Human Services	6	Coordinate shelter and feeding operations, emergency assistance, and other human services for survivors
Agriculture and Natural Resources Liaison	Agriculture and Natural Resources	11	Coordinate bulk food supplies; coordinate the monitoring of animal feed and food production facilities and the health of livestock and food crops; coordinate the protection of natural, cultural, and historic resources
Long-Term Community Recovery Liaison	Long Term Community Recovery and Mitigation	14	Coordinate the protection and restoration of human services, infrastructure, and commerce in disaster-impacted areas

Table 1 – EOC Functions and Responsibilities by Position and Related ESF

The Emergency Management Division within the Department of Emergency Services is responsible for staffing a watch officer to assist the 9-1-1 Communications Center in emergency management functions after an incident has started and before the escalation of the EOC. The watch officer will provide a recommendation on the need to escalate the EOC. Functional responsibilities are created and assigned to an EOC position to avoid duplication of services and to ensure that the most appropriate agency is assisting in supporting the different needs during an incident.

Chester County Commissioners

The Chester County Commissioners have the following responsibilities during the following emergency management phases:

Prevention and Preparedness Phases

- Responsible for establishing a county emergency management organization.
- Establish lines of succession for key positions.
- Prepare and maintain this EOP in consonance with the commonwealth EOP.
- Recommend an EMC for appointment by the Governor who may act on their behalf, if necessary.
- Support the intelligence community and prevention activities undertaken by appropriate organizations.

Response and Recovery Phases

- Provide protective actions recommendations (to evacuate or to shelter in place) as needed.
- If the situation warrants, issue a declaration of disaster emergency upon finding a disaster has occurred or is imminent.
- In coordination with agency/department heads, apply for federal post-disaster funds, as available.

Mitigation Phase

- Providing approval of mitigation activities overseen, and priorities set, at the county-level.

Chester County EMC

The Chester County EMC has the following responsibilities during the following emergency management phases:

Prevention and Preparedness Phases

- Prepare and maintain an EOP for Chester County subject to the direction of the county elected officials.
- Establish, equip, and staff an EOC.
- Maintain coordination with the municipal EMAs and PEMA.
- Collect, analyze, and disseminate information.
- Recruit, develop, and maintain qualified personnel to staff the EOC.
- Provide individual and organizational training programs to ensure prompt, efficient, and effective disaster emergency services.

- Identify resources within Chester County that can be used to respond to a major emergency or disaster situation.
- Coordinate prevention activities with appropriate organizations.
- Support and actively participate in the intelligence community.
- Develop and maintain current emergency response checklists appropriate for the emergency needs and resources of the community.
- Attend training and workshops to maintain proficiency in emergency management, response, planning, and procedures.

Response and Recovery Phases

- Elevate the EOC activation level and act as or designate the EOC director during an emergency.
- Provide prompt and accurate information of an emergency to the Chester County Board of Commissioners, PEMA, and key stakeholders.
- Organize, prepare, and coordinate all locally available staff, materials, supplies, equipment, facilities, and services necessary for disaster emergency readiness, response, and recovery.
- Compile cost figures for the conduct of emergency operations above normal operating costs.
- Request any needed resources from PEMA.
- Decide the need for and coordinate all damage assessment activities for the incident.
- During a proclamation of a disaster emergency by the governor of Pennsylvania, acquire sites required for installation of temporary housing for disaster victims as necessary.

Mitigation Phase

- Identify hazards and vulnerabilities that may affect the municipalities in coordination with municipal EMAs.
- Adopt and implement precautionary measures to mitigate the anticipated effects of a disaster.

Agency Directors/Chester County Department Directors

The Chester County agency directors and department directors have the following responsibilities during the following emergency management phases:

Prevention and Preparedness Phases

- All agencies designated as a coordinating agency for the emergency support positions shall work to fulfill the prevention and preparedness measures outlined in each emergency support function annex.
- Support training for staff that may be called upon to staff the Emergency Operations Center.
- Support MOUs with contracted agencies to be part of disaster plans, and maintain contractual language with vendors regarding goods and services during disasters.
- Participate in or designate staff to participate in plan writing, review, and development for plans where their agencies are the lead or supporting agencies.

- In coordination with the offices of the Chester County Commissioners, apply for federal post-disaster funds, as available.

Response and Recovery Phases

- Provide staff support and resources.
- Provide guidance, direction, and authority to agency/department personnel who support the EOC.

Mitigation Phase

- Identify potential disaster mitigation projects and relay that information to watch officer.
- Assist in supporting mitigation projects as needed.

EOC Staff

The responsibilities outlined below for all of the EOC staff are a general overview for all EOC positions. More detailed prevention, preparedness, response, recovery, and mitigation responsibilities are outlined in Section II – Position Annexes:

Prevention and Preparedness Phases

- Assist in the development and maintenance of the checklists for their respective positions.
- Attend training on the duties of their respective positions based upon the Position Specific Training Plan.
- Participate in drills/exercises as needed.
- Participate in prevention projects as needed.
- Support prevention activities undertaken by appropriate organizations.
- Support the intelligence community as needed.

Response and Recovery Phases

- Respond to the EOC or the field as assigned.
- Ensure that proper check in and time procedures are followed.
- Perform the duties of the position to the best of their abilities.
- Keep detailed logs, records, and documentation of all activities.
- Advise the EOC chain of command regarding the respective position activities and any unmet needs.

Mitigation Phase

- Identify potential disaster mitigation projects and relay that information to the watch officer and assist in supporting mitigation projects as needed.

G. Operational Levels

The county EOC steady state activation is Level III (normal operations) with staffing provided by the 9-1-1 Communications Center, which may be supplemented with an emergency management watch officer. The EOC will elevate to Level II or Level I operations based on the potential or actual events (see Table 2).

Table 2 outlines the phased levels of activation of the EOC. Ranging from normal operations (Level III) to full activation (Level I).

PHASE	EVENT	SCOPE	EXAMPLE
LEVEL III (Normal Operations)	Level III is the normal operations phase. The level of activation is used for localized events with relatively minor damages	9-1-1 Communication Center monitoring the situation, an emergency management watch officer on call or staffed in the 9-1-1 communication center	Day-to-day operations
LEVEL II (Partial Activation)	Level II is the partial activation phase, which focuses on monitoring and assessment phase. The level of activation is used to address moderate emergencies in which local resources are not adequate and mutual aid may be required on a regional or even statewide basis	EOC director, watch officer, PIO, section chiefs, GIS, receptionist, and liaisons (as required)	Active severe flooding, severe winter weather, 'alert' or 'site area emergency' at a nuclear power plant, direct hit from a tropical storm, major storm, long-term incident (24+ hours)
LEVEL I (Full Activation)	Level I is the full activation phase, which focuses on managing coordination during large-scale events. The activation level is used during major local, regional, or national disaster/emergency with catastrophic damages to one or more municipalities in the county, causing resources in or near the impacted area to be overwhelmed and extensive state and/or federal resources are required	Full EOC staff as defined in the EOP	'General emergency' at a nuclear power plant, wide spread civil unrest, terrorist attack, severe winter weather or hurricane stalls over the county

Table 2 – Levels of EOC Activation

Triggers

The decision to expand the county EOC above Level III operations is the responsibility of the Chester County Board of Commissioners, the county EMC, or designee based on actual or potential incidents. EOC staff comes from the Department of Emergency Services, other county departments, and non-county partners, as needed.

Level III to II
When an incident grows beyond the capability or capacity of normal operations (Level III), the transition to Level II activation will be enacted. Staffing levels will increase to the partial activation level.

Level II to I
When an incident grows beyond the capability or capacity of normal operations (Level II), the transition to a Level I activation will be enacted. Staffing levels will increase to the full activation level.

Upon deciding to activate at a Level I:

- All county department Directors are required to make staff available upon the request of the Director of Emergency Services or designee.
- Staff requested by the Director of Emergency Services or designee will operate under the operational control of the Department of Emergency Services and take direction from a Department of Emergency Services designated supervisor.
- A block of hotel rooms will be secured to accommodate an appropriate number of staff members to ensure they are rested, available, and ready to continue to mitigate the effects of the incident.

H. Communications

Effective communications are essential to facilitate adequate emergency response and coordination, including the development of actionable information for the decision-making process and the public. Chester County maintains a variety of technologies to ensure information is collected, analyzed, and disseminated to internal and external stakeholders, including the public.

Communication protocols and coordination procedures are described in the *Chester County Communications, Alert, and Warning Notification Annex*, which is supported by the *Chester County Joint Information System Annex* and *Chester County Emergency Alert System Annex*. These annexes provide key information on Chester County's approach to emergency communications and alert and warning processes, including the dissemination of emergency public information.

Information Collection, Analysis, and Dissemination

Chester County's approach to information collection, analysis, and coordination process during steady-state and activations operations is essential for the evaluation of multiple data streams and dissemination of accurate and actionable information in a timely fashion. The critical information required for operations, corresponding information sources, and information dissemination systems are laid out, along with an overview of the broader information flow process, in the *Chester County Communications, Alert, and Warning Notification Annex*.

I. Volunteer and Donation Management

Chester County's approach for managing volunteer and donations during emergency or disaster scenarios is guided by **DES policy #600-18 Donation Management of Post Disaster Volunteers** and **Policy #600-20 Management of Post Disaster Donations**. As defined in these policies, DES does not accept any unsolicited, spontaneous monetary donations or donated goods. Instead, as outlined by policy, DES will direct solicited and unsolicited donated resources, including volunteer hours, to pre-established voluntary organizations through direct coordination with the SEPA Voluntary Organizations Active in Disasters and 2-1-1, which in Chester County is overseen by the United Way of Greater Philadelphia and Southern New Jersey. Additional information on this process and pathways for connecting volunteers and donations to organizations in charge of accepting and managing those resources during a disaster or emergency is presented in the *Chester County Emergency Management and Logistics System Annex*.

J. Evacuation and Shelter-in-place

As noted in the planning assumptions, evacuations in Pennsylvania can only be mandated by the governor. Extensive evacuation plans lend themselves only to events that are predictable and have adequate warning time. All other events are impromptu and situation-dependent, requiring optional evacuations that leverage local-level funding and resources and/or shelter-in-place decisions based on at-risk population. In Chester County, the local municipalities have the authority to make the decision to put in place evacuation or shelter-in place orders, and if requested, or if a municipality is not able to, DES will assist with issuance of these orders via the county's public-facing notification and warning program, ReadyChesCo, for impacted area(s).

The one standing exception is the possibility of an evacuation resulting from a radiological event at the LGS or PBAPS, which provide discreet, known geographic implications that allow for more exact evacuation planning at the county level. For more information regarding evacuation orders in the context of a radiological event, see the *Chester County Radiological Emergency Response Annex*.

K. Detection and Monitoring

Emergencies and disasters can occur with our without warning. To ensure the largest amount of advanced warning and adequate response, DES uses a variety of partner information resources to detect and monitor potential hazards. The following table notes hazards, partners responsible for detection, the DES department/position that monitors for information from these partner agencies, and how DES receives information regarding the detection and development of incidents with potential or experienced impacts to Chester County.

HAZARD	DETECTION	MONITORING	INFORMATION PRODUCT/SOURCE
Adverse Weather (Extreme Temperatures, Flooding, Hurricane/Tropical Storm, Thunder Storms, Tornado/Wind Storms, Winter Storms)	• Climate Prediction Center • Federal Emergency Management Agency (FEMA) • National Hurricane Center • Storm Prediction Center • National Weather Service – Mt. Holly Forecast Office • PEMA – Commonwealth Watch and Warning Center (CWWC)	• 9-1-1 Communication Center • EOC – Watch Officer	• FEMA Daily Operations Briefing • National Warning System Alerts (NAWAS) • Pennsylvania Warning System Alerts (PAWAS) • NWS Products – Watches, Warnings, Advisories, iNWS alerts, etc. • PEMA – Daily Weather Briefing
Drought and Water Supply Deficiencies	• Chester County Water Resources Authority (CCWRA) • Pennsylvania Department of Environmental Protection (DEP) • FEMA	• 9-1-1 Communication Center • EOC – Watch Officer	• Information from CCWRA • DEP Knowledge Center Alerts via PEMA CWWC • FEMA Daily Operations Briefing
Earthquake	• United States Geological Survey (USGS)	• 9-1-1 Communication Center • EOC – Watch Officer	• FEMA Daily Operations Briefing • USGS via PEMA CWWC
Armed Attack, Conventional/Improved Bombs, Cyber Terrorism	• Delaware Valley Intelligence Center (DVIC) • Federal Bureau of Investigation (FBI) • Multi-State Information Sharing and Analysis Center (MS-ISAC) • National Counter Terrorism Center Counterterrorism • National Transportation Safety Board • Pennsylvania Criminal Intelligence Center (PACIC)	• 9-1-1 Communication Center • Department of Computing and Information Services • EOC – Watch Officer	• DVIC Situational Awareness Bulletin • DVIC Event-Specific Briefings • FBI/Department of Homeland Security Joint Intelligence Bulletin via DVIC • MS-ISAC products • National Counter Terrorism Center Counterterrorism Weekly Digest via DVIC • PACIC Reports via DVIC

HAZARD	DETECTION	MONITORING	INFORMATION PRODUCT/SOURCE
Civil Disturbance	• 9-1-1 Communication Center • DVIC • PACIC • PEMA	• 9-1-1 Communication Center • EOC – Watch Officer	• Citizen Telephone Call • DVIC Event-Specific Briefings • Knowledge Center Alert via PEMA CWWC • PACIC Reports via DVIC
Extended Utility, Data, or Telecomm Disruptions	• 9-1-1 Communication Center • CCWRA • DVIC • Utilities: AT&T, Comcast, MetED, PP&L, Sprint, T-Mobile, Verizon,	• 9-1-1 Communication Center • EOC – Watch Officer	• Citizen telephone calls • DVIC Event-Specific Briefings • Information from CCWRA • Information from utilities
Dam Breaches	• CCWRA • Dam Owners • DEP • Pennsylvania Department of Conservation and Natural Resources	• 9-1-1 Communication Center • EOC – Watch Officer	• Information from CCWRA • Information from DCNR • Information from Dam Owners • Information from DEP
Fires	• 9-1-1 Communication Center • National Forest Service (NFS)	• 9-1-1 Communication Center • EOC – Watch Officer	• Citizen telephone calls • Information from NFS
HazMat Releases	• 9-1-1 Communication Center • U.S. Coast Guard National Response Center (NRC) • Pipeline Operation Centers: o Buckeye Partners, L.P. o Colonial Pipeline Co. o Columbia Gas Transmission, LLC o Eastern Shore Natural Gas Co. o Enterprise Products Operating, LLC o Interstate Energy Co. o PECO Energy Co. o Sunoco Pipeline L.P. o Texas Eastern Transmission, L.P. (Spectra Energy Partners, L.P.) o Transcontinental Gas Pipe Line Co.	• 9-1-1 Communication Center	• Citizen telephone calls • Information from first responders • Information from pipeline Operation Centers • NRC via PEMA CWWC

HAZARD	DETECTION	MONITORING	INFORMATION PRODUCT/SOURCE
Nuclear Incidents	• Exelon Corporation: LGS and PBAPS	• 9-1-1 Communication Center • EOC – Watch Officer	• Limerick and Peach Bottom Siren Alerts
Transportation Accidents	• 9-1-1 Communication Center • Pennsylvania Department of Transportation • Pennsylvania Turnpike Commission • Transportation Management Association of Chester County (TMACC)	• 9-1-1 Communication Center • EOC – Watch Officer	• Citizen telephone calls • Information from TMACC • PennDOT or Turnpike Commission Knowledge Center Alert via PEMA CWWC

V. ADMINISTRATION, FINANCE, AND LOGISTICS

The following section defines administration and logistics regarding process for information sharing and resource requests. Greater detail of these processes is defined in associated annexes.

A. Administration

Local municipal governments will submit situation updates, requests for assistance, and damage assessment reports to the Chester County EOC. Based on guidance defined in EOP annexes, the Chester County EOC will forward appropriate reports/requests to the PEMA CRCC.

Local and county governments will utilize pre-established bookkeeping and accounting methods to track and maintain records of expenditures and obligations.

Chester County Department of Emergency Services and municipal emergency management will keep detailed records of response actions.

The Chester County Department of Emergency Services will request reports from other agencies, relief organizations, and nongovernmental organizations when deemed appropriate. The Chester County Department of Emergency Services will make reports to PEMA by the most practical means. Reports will be constructed in accordance with PEMA requirements.

B. Finance

The Chester County Department of Emergency Services conducts cost analysis and supports resource/service procurement during emergency or disaster response support, including oversight of resource purchasing and adherence to a standardized procurement approval and denial processes. The need to purchase resources/support services for municipalities and response/emergency management personnel remains essential for effective response efforts, and applicable procurement rules must be considered prior to purchasing. Consideration regarding pre-approved vendors and open contract vehicles can allow for on-demand access to resources and services in line with procurement requirements.

If the Chester County Board of Commissioners signs an Emergency Disaster Declaration, the rules regarding procurement allow for greater flexibility in purchasing resources outside of the normal procurement process.

C. Logistics

When municipal resources are overwhelmed, the Chester County Department of Emergency Services is available to coordinate assistance with unmet needs. If the county requires additional assistance, it will call on mutual aid from adjacent counties, the private sector, or PEMA. For a more detailed description of the Department of Emergency Services resource management and logistics processes, see the *Chester County Resource Management and Logistics System Annex*.

VI. TRAINING AND EXERCISES

Training and exercises are essential for maintaining emergency preparedness in Chester County. Training and exercises allow staff and partners to remain apprised of best practices; to stay engaged with plans, policies, and procedures; and to identify areas for improvement and necessary corrective actions. The following section defines the training and exercise requirements.

A. Policy

The county EMC is responsible for the overall preparedness of all personnel and agencies involved in the county's response to emergencies. As such, the county EMC shall ensure proper training and exercises are established to evaluate this plan and maintain the readiness posture of county resources.

B. Exercise Requirements

Exercises should be conducted following Homeland Security Exercise and Evaluation Program principles. At a minimum:

- The EMC will activate this plan at least once annually via a drill or during an actual event.
- An all-hazards functional exercise that involves the entire EOC staff, including volunteers and private sector representatives, will be conducted every two years.
- Annually, the county will prepare a three-year exercise plan and submit it to the PEMA area office.
- An After Action Report (AAR) will be prepared and an Improvement Plan (IP) administered for every exercise.

C. Training Requirements

All response personnel including elected and appointed officials will be trained to meet the minimum requirements specified in applicable legislation (Title 35, PA C.S.A.), federal NIMS requirements, and PEMA training and exercise directives.

The Emergency Management Division will keep records and ensure training is available through on-line sources, community colleges, or scheduled training sessions in the county. The county EMA staff will participate in state and federal training programs as prescribed internally and by PEMA.

The county EMA will conduct quarterly trainings for local EMCs and county staff to provide program updates and coordinate county-wide response and emergency management. Exercises will be used as a training vehicle for public officials, county EMA staff, and emergency services personnel who are assigned emergency responsibilities in this plan.

D. After Action Reports

An AAR, incorporating comments from all participants, will be prepared after every EOC activation and exercise of the EOC. All AARs must include corrective actions to be incorporated into the associated plans and the *After Action Report and Improvement Planning Matrix*, which helps the Emergency Management Division prioritize and track corrective actions.

VII. PLAN DEVELOPMENT, MAINTENANCE, AND DISTRIBUTION

A. Development and Maintenance Responsibilities

The Emergency Management Division coordinates development and maintenance of this plan. Writing, review, and update of specific portions of the plan will be accomplished by those staff members/agencies with the best knowledge of the subject matter.

2019 EOP Development
In the development of the 2019 EOP, the division requested input from key stakeholders (listed below):

- Chester County Department of Computing and Information Services.
- Chester County District Attorney's Office.
- Chester County Facilities Department.
- Chester County Health Department.
- Chester County Human Services Department.
- Chester County Planning Commission.
- Chester County Sherriff's Office.
- Southeastern Pennsylvania American Red Cross.

Key stakeholders were provided a digital copy of the basic plan and supporting annexes with the opportunity to submit feedback over a two-week period.

Additionally, leadership from secondary stakeholder groups with prominent roles in plan annexes was given the opportunity to review the basic plan over a two-week period (listed below):

- Chester County Emergency Medical Services Council Incorporated.
- Chester County Fire Chief's Association.
- Chester County Fire Police Association.
- Chester County Police Chief's Association.
- Municipal Emergency Management Coordinators.

After the integration of feedback from these stakeholders, the 2019 basic plan was reviewed and approved by the DES Director and Chester County Board of Commissioners.

Moving forward, the plan will be reviewed with stakeholders twice annually for winter weather (fall) and flood coordination (spring).

Review Timeline
Based upon legislation, regulation, or PEMA directive, incident-specific annexes require an annual review. All other plan components are also reviewed and updated at least annually. Whenever portions of this plan are implemented in an emergency event or exercise, a review will be conducted to determine any necessary changes.

Whether or not used in an actual event, a review of each section of the plan will be conducted at least annually. The EOP must be re-promulgated when a majority of the elected body, Chester County Board of Commissioners, changes, or when the elected body decides to make any substantive changes.

At the conclusion of each annual review, the EMC will take action based on the following parameters:

1) If the annual review indicates a need for significant changes to the plan, page changes will be published and approved by the Chester County Board of Commissioners and distributed as noted below. Minor changes to the plan do not require the review and approval by the Board of Commissioners.
2) If the annual review indicates so many changes that a revised plan should be published, it should be approved by the Chester County Board of Commissioners and distributed as below.
3) If the annual review indicates that no changes are necessary, document the review on the "Certification of Annual Review" (pg. vi) and forward a copy of the certificate to the PEMA area office. The original copy of the certification page will be maintained with the master copy of the plan.

B. Distribution

The EOP and its supporting material are controlled documents. While the basic plan and position annexes are open to the public, the NARM is not considered to be subject to the Right-to-Know Law and is unavailable to the general public. Distribution is based upon a regulatory or functional "need to know" basis. A copy of the plan will be distributed to all agencies and organizations that have a role in the plan.

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APPENDICES

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APPENDIX A: AUTHORITY AND REFERENCES

A. **Authority**

The authority for this plan and county emergency management programs comes from the Pennsylvania Emergency Management Services Code and the Counterterrorism Planning, Preparedness and Response Act of 2002.

B. **References**

1) Americans with Disabilities Act (1990)
2) Commonwealth of Pennsylvania, State Emergency Operations Plan (December, 2008)
3) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (2000)
4) Executive Order 13347, Individuals with Disabilities in Emergency Preparedness (2004)
5) Federal Disaster Mitigation Act—DMA 2000 (Public Law 106-390) (2000)
6) Homeland Security Exercise Evaluation Program (April, 2013)
7) Homeland Security Presidential Directive – 5 (2003)
8) National Incident Management System (2017)
9) Pennsylvania Emergency Management Agency, "Commonwealth of Pennsylvania Enhanced All-Hazard Mitigation Plan," Section 1.3 – Risk Assessment (October, 2007)
10) Pennsylvania Emergency Management Services Code (35 Pa CSA § 7101 et. seq.) (as amended through 2018)
11) Pennsylvania Emergency Management Agency Directive 2009-01(2009)
12) Pennsylvania Emergency Management Agency, "Pennsylvania Evacuation Planning and Implementation Guidebook," (April, 2006)
13) Pennsylvania Right-to-Know Law (65 P.S. § 67.101, et seq.)
14) Pets Evacuation and Transportation Standards Act (PL 109-308) (2006)
15) Post-Katrina Emergency Management Reform Act (6 U.S.C § 7101 et. seq.) (2006)
16) Presidential Policy Directive – 8 (PPD-8) (2011)
17) Robert T. Stafford Disaster Relief and Assistance Act (42 U.S.C. § 5121 et. seq.) (as amended through August, 2016)
18) Sandy Recovery Improvement Act (SRIA) and Disaster Relief Appropriations Act (113–2) (2013)
19) Title III, Superfund Amendments and Reauthorization Act (SARA), Sections 301-305, 311, and 312 (October, 1986)
20) U.S. Small Business Administration (Title 13 CFR Part 123) – Disaster Loan Program (as amended through October, 2016)

APPENDIX B: ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Full Term/Name
AAR	After Action Report
CI/KR	Critical Infrastructure and Key Resources
CRCC	Commonwealth Response Coordination Center
CWWC	Commonwealth Watch and Warning Center
EMA	Emergency Management Agency
EMC	Emergency Management Coordinator
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPZ	Emergency Planning Zone
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
HVA	Hazard Vulnerability Analysis
IC	Incident Commander
IP	Improvement Planning
GIS	Geographic Information System
HazMat	Hazardous Materials
LGS	Limerick Generating Station
NARM	Notification and Resource Manual
NIMS	National Incident Management System
PBAPS	Peach Bottom Atomic Power Station
PEMA	Pennsylvania Emergency Management Agency
PIMAS	Pennsylvania Intrastate Mutual Aid System
POC	Point of Contact
RTF	Regional Task Force
SA	Situational Awareness
SEPA	Southeastern Pennsylvania
UC	Unified Command
USAR	Urban Search and Rescue

APPENDIX C: TERMS AND DEFINITIONS

Though quotations are not used throughout the following list of terms and definitions, many of the following terms and definitions are quoted directly. Source attribution is noted with each term and definition to ensure credit for exact language and content, more generally, is attributed.

Access and Functional Needs
Access and functional needs refers to persons who may have additional needs before, during and after an incident in functional areas, including but not limited to: maintaining health, independence, communication, transportation, support, services, self-determination, and medical care. Individuals in need of additional response assistance may include those who have disabilities; live in institutionalized settings; are older adults; are children; are from diverse cultures; have limited English proficiency or are non-English speaking; or are transportation disadvantaged.
Source: Federal Emergency Management Agency (FEMA). 2016. *National Response Framework* (3rd ed.; pp. 4). Accessed on 16 Nov. 2018. https://www.fema.gov/media-library-data/1466014682982-9bcf8245ba4c60c120aa915abe74e15d/National_Response_Framework3rd.pdf.

All-Hazards
Any incident or event, natural or human caused, that requires an organized response by a public, private, and/or governmental entity in order to protect life, public health and safety, values to be protected, and to minimize any disruption of governmental, social, and economic services.
Source: United States Coast Guard (USCG). 2006. *Incident Management Handbook*. Glossary (pp. 25-1). Accessed on 16 Nov. 2018. https://www.atlanticarea.uscg.mil/Portals/7/Ninth%20District/Documents/USCG_IMH_2014_COMDTPUB_P3120.17B.pdf?ver=2017-06-14-122531-930.

Amateur Radio Emergency Services (ARES)
An American Radio Relay League sponsored emergency organization of amateur radio operators that provides communications resources.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 43). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Auxiliary Communications Service (ACS)
Any emergency communications unit, staffed by volunteer communications specialists, which provides public safety communications support to government or a governmental entity, such as a regional task force. An ACS unit will be organized as an "in-house" unit of the sponsoring entity or as an external unit, where the sponsoring entity utilizes a private organization such as ARES®, club, or other organization to provide auxiliary communications support
Source: Pennsylvania Auxiliary Communications Services. 2010. *ACS Strategic Plan*. Accessed on 19 Nov. 2018. https://www.pema.pa.gov/planningandpreparedness/communityandstateplanning/Documents/Auxiliary%20Communications/PA%20Auxiliary%20Communications%20Services%20Strategic%20Plan.pdf.

Coordination
Arranging in order, activities of equal importance to harmonize in a common effort. (For use in context of this document: authorizing and/or providing for coordination of activities relating to emergency disaster prevention, preparedness, response and recovery by State, local governments and Federal agencies.)
Source: PEMA. 2010. *Model EOP*. Accessed on 19 Nov. 2018. Retrieved from https://www.pema.pa.gov/planningandpreparedness/communityandstateplanning/Pages/Local-Emergency-Operations-Plan-Toolkit.aspx.

Disaster Emergency
Those conditions which upon investigation may be found, actually or likely to affect seriously the safety, health or welfare of a substantial number of citizens of the county or preclude the operation or use of essential public facilities. A disaster should be of such magnitude or severity as to render essential state supplementation of county efforts or resources.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 45). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Emergency Management
The judicious planning, assignment, and coordination of all available resources in an integrated program of prevention, mitigation, preparedness, response and recovery for emergencies of all kinds, whether from enemy attack, human-made or natural sources.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 46). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Emergency Services
Services provided for the protection or preservation of persons or property in circumstances of immediate and significant threat of injury or harm, including firefighting, law enforcement, ambulance, and medical.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 46). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf

Governor's Proclamation of "Disaster Emergency"
A proclamation by the Governor upon finding that a disaster has occurred or that the occurrence or the threat of a disaster is imminent. This proclamation authorizes municipalities (including counties) to exercise certain powers without regard to time-consuming procedures and formalities prescribed by law (except mandatory constitutional requirements).
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 44). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Hazardous Material (HazMat)
The Secretary, United States Department of Transportation, has determined that a hazardous material is a substance or material posing an unreasonable risk to health, safety and property

when transported in commerce. Hazardous materials include, but are not limited to, explosives, radiological materials, etiologic (disease carrying) agents, flammable liquids or solids, and combustible liquids or solids
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 48). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Hazards Vulnerability Analysis (HVA)
An HVA is a compilation of natural, human-caused, and technological hazards and their predictability, frequency, duration, intensity and risk to population and property. The state HVA can be found in the state mitigation plan.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 48). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Human-Caused Disaster
Any condition, including an attack on the United States by a hostile foreign state or by a domestic or foreign terrorist, or any industrial, nuclear or transportation accident, explosion, conflagration, power failure, natural resource shortage or other condition resulting from failure of industrial or transportation systems such as oil spills and other injurious environmental contamination, that threatens or causes substantial damage to property, human suffering, hardship or loss of life.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 45). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf,

Local Declaration of a Disaster Emergency
The condition declared by the local governing body when, in their judgment, the threat or actual occurrence of a disaster requires coordinated local government action to prevent or alleviate the damage, loss, hardship or suffering threatened or caused. A local emergency can be at the municipal or county level.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 44). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf

Long Term Recovery Committee
A group of volunteer organizations established to provide recovery assistance to victims of a disaster or emergency beyond those services available from government sources. The LTRC should work in coordination with county and local government in order to ensure maximum utility from all available resources.
Source: PEMA. 2010. *Model EOP*. Accessed on 19 Nov. 2018. Retrieved from https://www.pema.pa.gov/planningandpreparedness/communityandstateplanning/Pages/Local-Emergency-Operations-Plan-Toolkit.aspx.

Mass Care Centers
Fixed facilities suitable for providing emergency lodging for victims of disaster left temporarily homeless. Mass Care centers are capable of providing all essential social services. Feeding may be done within a mass care center (in suitable dining facilities) or nearby.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 49). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Municipality
As defined in the Pennsylvania Constitution, "…a county, city, borough, incorporated town, township or similar unit of government…" (Article IX, Section 14, the Constitution of Pennsylvania).
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 50). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Natural Disaster
Any hurricane, tornado, storm, flood, high water, wind driven water, tidal wave, earthquake, landslide, mudslide, snowstorm, drought, fire, explosion or other catastrophe which results in substantial damage to property, hardship, suffering or possible loss of life.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 45). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Preparedness
Preparedness includes actions taken to avoid an incident or to intervene to stop an incident from occurring. Preparedness involves actions taken prior to an emergency to protect lives and property and to support and enhance disaster response. Planning, training, exercises, community awareness, and education are among such activities.
Source: Haddow, George and Jane Bullock. 2006. *Introduction to Emergency Management* (2nd Ed.). *Chapter 2: Preparedness*. Accessed on 20 Nov. 2018. https://training.fema.gov/hiedu/downloads/casestudychapter2020405.doc.

Political Subdivision
Any county, city, borough, township or incorporated town or township.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 51). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Presidential Declaration of "Emergency"
"Emergency" means any occasion or instance for which, in the determination of the president, federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.

Source: FEMA. 2007. *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 2007* (pp. 56). Accessed on 19 Nov. 2018. https://www.fema.gov/media-library-data/1519395888776-af5f95a1a9237302af7e3fd5b0d07d71/StaffordAct.pdf.

Presidential Declaration of "Major Disaster"
"Major Disaster" means any natural catastrophe (including any hurricane, tornado, storm, high water, wind driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby. IMPORTANT NOTE - Before federal assistance can be rendered, the Governor must first determine that the situation is of such severity and magnitude that effective response is beyond the capabilities of the State and affected county and local governments and that Federal assistance is necessary.
Source: FEMA. 2007. *Robert T. Stafford Disaster Relief and Emergency Assistance Act of 2007* (pp. 25). Accessed on 19 Nov. 2018. https://www.fema.gov/media-library-data/1519395888776-af5f95a1a9237302af7e3fd5b0d07d71/StaffordAct.pdf.

Protective Action
Protective actions are those taken to avoid or reduce the effects of a hazard. The two major categories are evacuation and shelter.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 51). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Radio Amateur Civil Emergency Service (RACES)
RACES is an organization of licensed amateur radio operators that provide radio communications for federal, state and municipal governments in time of emergency.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 51). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

Urban Search and Rescue (SAR)
Urban search-and-rescue (USAR) involves the location, rescue (extrication), and initial medical stabilization of victims, which may include supporting collapsed structure, swift water, high angle and other specialized search and rescue operations.
Source: FEMA. 2018. *Urban Search and Rescue*. Accessed on 12 Dec. 2018. https://www.fema.gov/urban-search-rescue

Unmet Needs
Capabilities and/or resources required to support emergency operations but are either unavailable or provided for at the respective levels of government.
Source: PEMA. 2015. *Pennsylvania State Emergency Operations Plan* (pp. 54). Accessed on 16 Nov. 2018. https://www.pema.pa.gov/Documents/1/2015%20State%20Emergency%20Operations%20Plan(SEOP).pdf.

APPENDIX D: FUNCTIONAL ASSIGNMENT MATRIX

(See enclosed chart)

APPENDIX E: MAP OF CHESTER COUNTY

(See enclosed map)

APPENDIX F: EOC OPERATIONAL STRUCTURE

(See enclosed chart)

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Chester County Emergency Operations Plan

Section II – Position Annexes

June 2019

Chester County Department of Emergency Services
601 Westtown Road, Suite 012
West Chester, PA 19380-0990

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GENERAL EOC TRAINING REQUIREMENTS

The general emergency operations center (EOC) training requirements ensure alignment with the Department of Emergency Services (DES) Emergency Management Division **Policy #600-13: Emergency Operations Center Activities** and the requirements of the Pennsylvania Emergency Management Agency's basic county certification.

Chester County Training
Chester County EOC Orientation
Chester County EOC Position-Specific Training Session
Chester County WebEOC Basic Training

PEMA Training
PEMA Area Office Orientation
PEMA Initial Damage Reporting Courses (Modules 101, 201c, 201h, and 301)

FEMA Training
IS-3 – Radiological Emergency Management
IS-5.a – An Introduction to Hazardous Materials
IS-100.c – Introduction to the Incident Command System (ICS)
IS-130 – Exercise Evaluation and Improvement Planning or IS-139 Exercise Design and Evaluation
IS-200.b – ICS for Single Resources and Initial Action Incidents
IS-230.d – Fundamentals of Emergency Management
IS-235b – Emergency Planning
IS-240.b – Leadership and Influence
IS-241.b – Decision Making and Problem Solving
IS-242.b – Effective Communication
IS-244.b – Developing and Managing Volunteers
IS-700.b – An Introduction to the National Incident Management System
IS-706 – National Incident Management System Intrastate Mutual Aid, an Introduction
IS-800.c – National Response Framework, an Introduction
G-191 – ICS/EOC Interface
ICS-300 – Intermediate Incident Command System for Expanding Incidents

EOC DIRECTOR

Position Overview:
The Emergency Operations Center (EOC) director oversees EOC operations, including the review and approval of incident objectives, situation reports, and public-facing messages (information releases) during a partial (Level II) or full activation (Level I). The director also serves as the primary point of contact (POC) for the Pennsylvania Emergency Management Agency (PEMA) if a liaison is not activated in the EOC. The EOC director is responsible for oversight of EOC direction, control, and coordination during an activation; and if requested by a local municipality, the director oversees evacuation or shelter-in-place orders on their behalf. The EOC director reports to the DES director. **DES is the coordinating agency for this position.**

Primary Responsibilities:
- Oversee EOC and staff during Level II and Level I activations
- Monitor pre-established plan triggers and oversee implementation of all applicable annexes, plans, and procedures
- Review the current situation status and establish incident objectives
- Ensure there are adequate, qualified representatives available to provide EOC shift-relief at appropriate intervals
- Communicate directly with the DES director regarding situation updates
- Communicate directly with the policy group (if activated) regarding situation updates
- Make recommendation to DES director or County Commissioners on need to issue County Declaration of Disaster Emergency
- Ensure local, state, and federal agencies impacted by the incident are notified
- Review/approval all public-facing messages
- Review/approval all PEMA resource requests forms to fulfill identified unmet needs
- Act as the POC to PEMA, if no liaison is present
- If requested, oversee dissemination of municipalities' evacuation or shelter-in-place orders
- At a Level II or I, ensure any unfilled positions' functions and tasks are being completed by the next higher position, which may be the EOC director if staffing is limited
- Consider need to implement mass care and sheltering operations or open county comfort centers and approve all requests for activation of shelters
- Ensure staff consider financial management and reimbursement requirements during resource management processes
- Ensure deactivation (demobilization) policies and procedures are followed
- Monitor conditions that may require relocation to alternate EOC and implementation of Continuity of Operations (COOP) Plan as necessary
- Ensure EOC actions support recovery efforts

Organization Structure:
The EOC Director oversees the following EOC positions as direct reports: 911 communications position, liaisons (incident-specific), public information officer (PIO), watch officer, emergency services coordination section chief, planning/situational awareness (SA) section chief, human services coordination section chief, and resource support section chief.

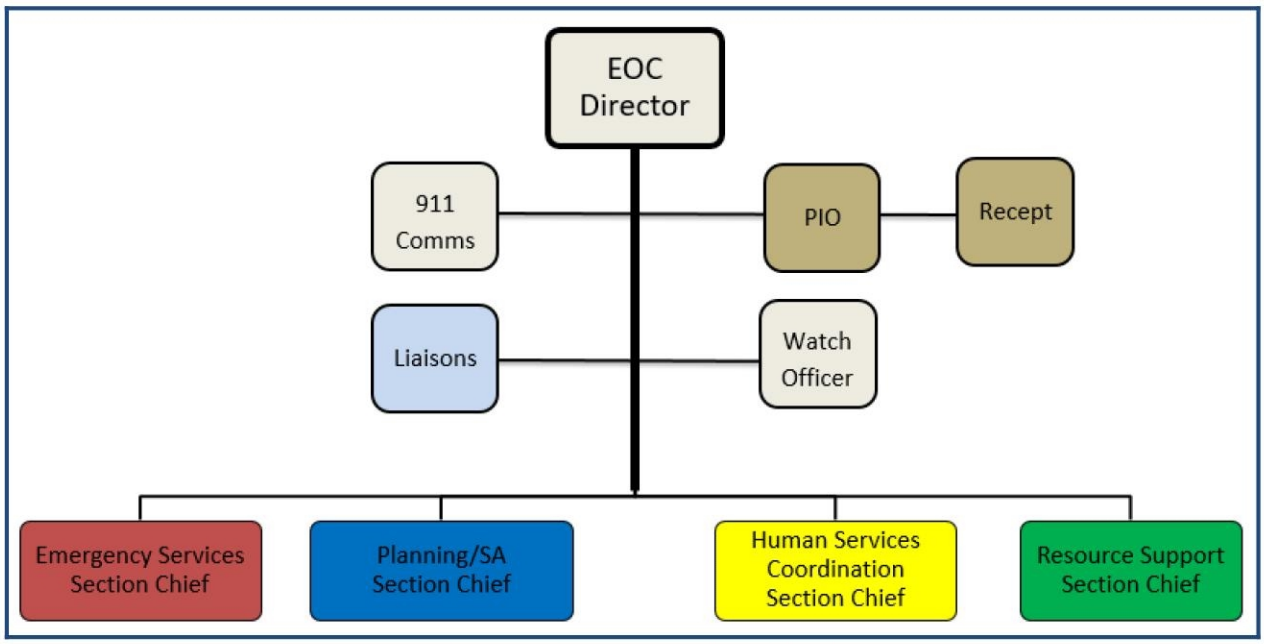

Figure 1: EOC Command Org. Chart

Supporting Agencies:
The following list of support agencies can be leveraged by the EOC director to complete the tasks associated with this position in the EOC. For example, these agencies may act as information resources. Additionally, the EOC director may leverage the defined support agencies of all other EOC positions that are not staffed.

Agency	Functions
Private Industry	• Provide industry-specific information during an incident, such as utility outage/restoration • Provide access to private-industry resources and assets; either as donated services or via contracts • Coordinate securing and delivery of expendable resources as donations to non-profit organizations requiring support

Position-Specific Required Training:
IS-547 – Introduction to Continuity of Operations
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents

G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0101 – Foundations of Emergency Management
E0103 – Emergency Operations
E0122 – Emergency Management Standard Training
E0451 – Advanced I – A Survey of Advanced Concepts in Emergency Management
E0452 – Advanced II – Assessment and Application of Professional Style in Emergency Management
E0453 – Advanced III – Advanced Concepts and Issues in the Emergency Management Organization
E0454 – Advanced IV – Advanced Concepts and Issues in the Emergency Management Community and Profession
E0680 – Examining Emergency Management Policy and Doctrine
MGT – EOC Operations for All-Hazards Events

Checklists
The following checklists are used by the EOC director based on the operational period (see next page).

ARRIVAL/TRANSITION	ONGOING
☐ **ACTIVATION: Coordinate activation of Emergency Operations Center (EOC) with on-duty watch officer, including notification of EOC personnel and establishing links with municipal emergency management coordinators and/or Incident Support Team (if deployed)**	☐ **Review WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board -Missions Board **Note:** If errors are identified in WebEOC, notify appropriate section chiefs and/or the watch officer
☐ **Upon Arrival:** -Sign EOC sign-in sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report	☐ **Fulfill tasks of un-activated command positions, ensuring appropriate checklist tasks are completed**
☐ **ACTIVATION: Receive initial briefing from 9-1-1 Communication Center staff and watch officer**	☐ **Ensure time-keeping, duty logs, and equipment use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐ **ACTIVATION: Together with watch officer establish an appropriate organization structure in accordance to activation level**	☐ **Notify the technical support position of communication issues**
☐ **ACTIVATION: Establish initial EOC incident objectives and establish operational tempo (e.g., frequency of EOC briefings), working with section chiefs and watch officer**	☐ **Run EOC briefings: provide status update on operations, resources, and anticipated challenges. The following positions can also be asked to providing briefings:** • Planning/SA section chief – Sitrep input reminders • Finance/Admin. position (or section chief) – timekeeping, charge codes, etc. • Human resources coordination section chief • Emergency services coordination section chief • EOC receptionist – safety/security information
☐ **ACTIVATION: Assist in determining information to be shared on EOC display walls (consider all WebEOC boards and available data feeds)**	☐ **Ensure all personnel provide updates on Essential Element of Information (EEIs) for SitReps and Spot Reports, providing guidance as necessary**
☐ **ACTIVATION: Assess need for additional specialized resources, knowledge or staffing. If required, request**	☐ **Review/Approve all SitReps (every four hours or based on incident-specific tempo) and Spot Reports prior to distribution**
☐ **ACTIVATION: Gather information to assess incident assignments and determine immediate needs and actions**	☐ **Review safety/security plan as posited by the EOC receptionist position and ensure they are adequate. Revise if required**
☐ **ACTIVATION: Determine and assign specific work tasks to command and general staff**	☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

☐ **ACTIVATION: Identify, review, and share any applicable existing agency or emergency management plans that will serve as reference resources, ensuring they are available via the WebEOC's File Library**	☐ **Participate in preparation and review of the EOC Action Plan (updated each shift)** - Advise on current capabilities and limitations - Determine additional resources needed - Discuss long-range plans and identify potential or future requirements
☐ **ACTIVATION: Ensure EOC receptionist position establishes processes and procedures to promote the health, safety, and welfare of EOC personnel (e.g., develops safety and security plan)**	☐ **Review, approve, and authorize the implementation of the EOC Action Plan**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC in the position Activity Log**	☐ **Monitor the conditions of the EOC in terms of operability (e.g., technology) and determine the need to move EOC operations to the alternate EOC location, if not in that location already**
☐ **TRANSITION: Coordinate with departing/ arriving position counterpart to ensure accurate situational awareness and conduct formal transfer of responsibilities, including open tasks. Review completed Shift Change Briefing Form**	☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐ **TRANSITION: Provide incoming EOC staff with status update briefing**	☐ **Review demobilization triggers (see list following demobilization checklist) throughout each operational period to determine when the EOC deactivation is expected**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	

DEMOBILIZATION

☐	**Establish estimated demobilization date/time in collaboration with command and general staff**
☐	**Proclaim termination of the emergency response and proceed with recovery operations. Deactivate the EOC at appropriate time**
☐	**Return unused supplies to watch officer**
☐	**With watch officer, coordinate transfer of outstanding tasks to the 9-1-1 Communication Center, as appropriate**
☐	**Determine the need to hold a hotwash, and if held, support watch officer's coordination of the EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Make work assignments to ensure all open tasks will be handled after EOC deactivation**
☐	**Ensure EOC staff remains in EOC until all missions are complete and outstanding tasks assigned for completion outside of the EOC**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

Demobilization Triggers

The following demobilization triggers are used to determine when the EOC can be deactivated. They should be reviewed by the EOC director each shift against the latest known data to establish a demobilization timeline or to enact demobilization through the deactivation of the EOC if a trigger is met during the current shift.

- Storm has ended and requests/call volume have returned to normal operating levels
- Less than 5% of the county is without power
- Majority of critical infrastructure has power (commercial or generator)
- All RC-1 and RC-2 roads have reopened
- All comfort centers and/or shelters have closed

WATCH OFFICER

Position Overview:
The watch officer serves as the primary emergency management point of contact in the EOC, overseeing alert and notifications (internal communications) and warnings (public-facing). Additionally, the watch officer is responsible for monitoring inbound information from municipalities, including resource requests, and outside data sources regarding potential incidents and ongoing incidents (e.g., weather reports from National Weather Service). A watch officer is on call 24/7/365, ensuring the 9-1-1 communication center staff can gain support for carrying out emergency management functions during emergencies. In some cases, more than one watch officer may be activated to ensure all duties are met. The watch officer reports to the deputy director of emergency management (steady state) or EOC director (partial or full activations). **DES is the coordinating agency** for this position.

Primary Responsibilities:
- Oversee alert and notifications (internal communications) and warnings (public-facing)
- Monitor inbound information sources via the Chester County EOC email account, phone (with support of the receptionist during Level II and I activations), and emergency management radio channels, including weather-related products and contact from local municipalities
- Route information to EOC staff based on areas of focus: resource requests to the resource support section, outages information to PECO liaison, road closures to road closure position, etc.
- Coordinate with the 9-1-1 communication center
- Coordinate partial (Level II) and full (Level I) activations with the deputy director of emergency management and/or EOC director

Organization Structure:
The watch officer reports directly to the EOC director during Level II and I EOC activations. During Level III, steady state, the watch officer reports directly to the deputy director of emergency management.

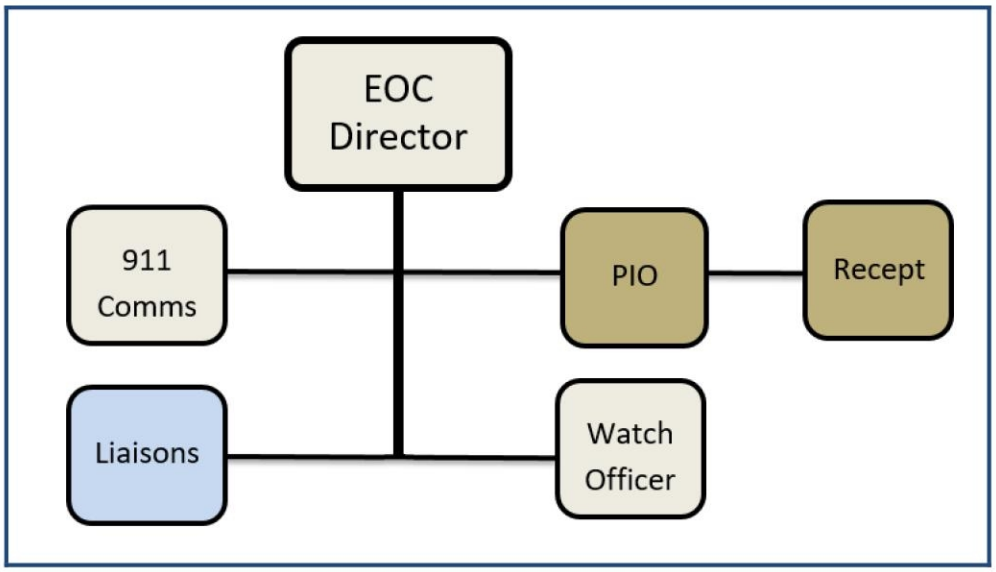

Figure 2: EOC Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these agencies may act as information resources.

Agency	Functions
Chester County Health Department	• Provide information regarding health implications based on incident-type (e.g., cold weather, hot weather, disease outbreaks) • Assistance with mass care response actions and coordination with health, specifically focused on medical shelters • Act as a point of contact during an incident requiring medical countermeasures
Chester County Solid Waste Authority	• Provide information regarding debris removal
Chester County Water Resources Authority	• Provide information regarding reservoir water supplies • Provide information regarding flood protection • Provide information regarding drought status • Provide information regarding water quality • Coordinate directly with the Pennsylvania Department of Environmental Protection
Municipal Public Works Departments	• Provide road closure and road condition information regarding municipal roads

	• Provide information regarding municipal public works systems (e.g., sanitation, storm water, traffic management, waste removal, etc.)
Pennsylvania Department of Transportation	• Provide road closure and road condition information regarding state roads • Provide information regarding weather impacts on roadways and pre-storm preparedness
Pennsylvania Emergency Management Agency	• Receive and process resource requests issued to the state • Provide state-wide information regarding incidents • Provide support regarding disaster declarations and damage assessment
Penn State Cooperative Extension, Chester County	• Provide information regarding livestock and horticulture issues • Provide information regarding food safety and quality
Private Industry	• Provide industry-specific information during an incident, such as utility outage/restoration • Provide access to private-industry resources and assets; either as donated services or via contracts • Coordinate securing and delivery of expendable resources as donations to non-profit organizations requiring support

Position-Specific Required Training:
IS-247.a – Integrated Public Alert and Warning System
IS-248 – Integrated Public Alert and Warning System (IPAWS) for the American Public
IS-251 – Integrated Public Alert and Warning System (IPAWS) for Alerting Authorities
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0101 – Foundations of Emergency Management
E0103 – Emergency Operations
E-105 – Public Information and Warning
E0122 – Emergency Management Standard Training
E0143 – Advanced Situational Awareness and Common Operating Picture
E0948 – Situational Awareness and Common Operating Picture
E0964 – NIMS ICS All-Hazards Situation Unit Leader

G-272 – Warning Coordination
L0814 – FEMA Situational Awareness Section Incident Support Course

Checklists:
The following checklists are used by the watch officer based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **ACTIVATION: Coordinate activation of Emergency Operations Center (EOC) with EOC director, including notification of EOC personnel (proper platoon) and establishing links with municipal emergency management coordinators and/or Incident Support Team (if deployed)**	☐ **Monitor and triage information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board -Missions Board **Note:** If errors are identified in WebEOC, notify appropriate section chiefs and/or the watch officer
☐ **Upon Arrival:** -Sign into EOC on sign-in/sign-out sheet -Sign into position computer -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current security guidance from EOC receptionist -Update Schedule Board in WebEOC (to establish operational tempo)	☐ **Monitor the following data inputs and route information to appropriate EOC personnel:** -Chester County EOC Email Account -Radio System Channels -Watch officer phone line **If necessary (due to volume of data inputs/tasking), assign the EOC receptionist the duty of answering inbound calls on the watch officer phone line and document tasking in Activity Log**
☐ **ACTIVATION: Receive initial briefing from 911 Communication Center, or provide briefing to EOC director**	☐ **Determine which EOCs and other facilities have been/should be activated. Ensure the WebEOC County Status Board is accurate. Update as necessary**
☐ **ACTIVATION: Complete the appropriate EOC activation checklist (Primary or Alternate EOC) as defined in the EOC Handbook**	☐ **Document all actions and activities in the WebEOC's watch officer Activity Log, including calls, assignment of tasking, and task completion**
☐ **ACTIVATION: With EOC director, and based on the initial briefing, establish initial EOC objectives and operational tempo (note times in Schedule Board)**	☐ **If the Planning/Situational Awareness Section is not activated, develop SitReps and spot reports**
☐ **ACTIVATION: With EOC director, establish an appropriate organization structure in accordance to activation level**	☐ **Attend and help run EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐ **ACTIVATION: Establish communication links with support agencies, field units, and incident command**	☐ **Route resource requests from data input sources to the resource support section for input via the Missions Board**
☐ **ACTIVATION: Distribute EOC supplies from the EOC supply cabinet. If necessary, set up mobile device charging station. (Cabinet key is in the EMA lock box.)**	☐ **Develop and issue public-facing warning messages through ReadyChesco, in coordination with public information officer, as required**
☐ **ACTIVATION: Assist in determining information to be shared on EOC display walls and bring up appropriate data feeds via the AV controls**	☐ **Develop and issue notifications to key stakeholders via ChescoAlert as required**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC in the position Activity Log**	☐ **Document local emergency incidents in the Watch Office Log (event reporting board)**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Coordinate the development and dissemination of public information with the public information officer**

☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Support the public information officer and the EOC director with development of media releases associated with inter-governmental cooperation issues**
	☐ **Issue EOC products to pre-established distribution groups in the Chester County EOC email account and via Everbridge based on established dissemination timeline:** -SitRep (via email) -Weather Briefing (if applicable) (via ReadyChesco)
	☐ **Consolidate inbound damage reporting from municipalities and input into Knowledge Center Damage Reporter. Document reports in WebEOC**
	☐ **Review all distributed SitReps and Spot Reports**
	☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
	☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
	☐ **Notify the technical support position of communication issues**
	☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
	☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
	☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**

DEMOBILIZATION

☐	**Support EOC director's effort to establish estimated demobilization date/time in collaboration with other command and general staff**
☐	**With EOC director, coordinate transfer of outstanding tasks to the 9-1-1 Communication Center, as appropriate**
☐	**If deemed necessary by EOC director, run EOC hotwash (supported by EOC director). Tell EOC staff the format for providing information and assign the role of documenting information to an EOC staff member**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Ensure staff remains in EOC until all missions are complete**
☐	**Ensure all WebEOC activity logs are up-to-date and mark the Chester County EOC as closed on the WebEOC County Status Board.**
☐	**Ensure all WebEOC tasks are completed/resolved, and the close the WebEOC incident**
☐	**Collect all unused EOC supplies and return to EOC supply cabinet. If set up, break down mobile device charging stations and return to EOC supply cabinet. Lock the cabinet (key is in the EMA lock box)**
☐	**Complete EOC-supply inventory form and submit to the Division of Emergency Management's operations coordinator (via email)**
☐	**Complete the appropriate EOC demobilization checklist (Primary or Alternate EOC) as defined in the EOC Handbook**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

PUBLIC INFORMATION OFFICER

Position Overview:
The public information officer (PIO) is responsible for emergency public information, including the development of public-facing products such as social media posts, media releases, and news releases. The PIO is responsible for gathering, verifying, validating, and disseminating information regarding emergencies and disaster incidents to internal and external stakeholders. The PIO is also responsible for overseeing the EOC receptionist, rumor control, addressing public inquiries, the Joint Information Center (JIC; if activated), and all engagements with the media on behalf of DES regarding an ongoing incident. The PIO, in coordination with the watch officer, issues warnings (public-facing) via ReadyChesco. There are sometimes two PIOs on staff during the majority of day-time hours. **DES is the coordinating agency** for this position.

Primary Responsibilities:
- Develop and disseminate emergency public information, including press and news releases
    - Use pre-established templates included in Joint Information System (JIS) Plan
    - Use pre-established media, government, and industry contact list in JIS Plan
- Coordinate the review of all emergency public information via established Emergency Operations Center (EOC) review process, including final approval by the EOC director
- Information collection, analysis, validation, and dissemination to the public via new outlets, DES website, and DES social media accounts
- Coordination and release of information with other involved agencies: municipalities, Pennsylvania Emergency Management Agency (PEMA), Federal Emergency Management Agency (FEMA), Volunteer Organizations Active in Disasters (VOAD), etc.
- At the direction of the DES director or EOC director, coordinate any requested news conferences
- Oversee rumor control element of the EOC, its activities, and requests for information, including development, review, and distribution of responses
- If needed, activate/operate JIC and media briefing areas
- If necessary, activate the Integrated Public Alert and Warning System (IPAWS)
- Coordinate with Finance/Administration and Human Services Coordination Sections to secure necessary language/accessibility expertise (e.g., American Sign Language interpreters for press conferences) to ensure accessible information products (e.g., messaging)

Organization Structure:
The public information officer reports directly to the EOC director during Level II and I EOC activations. During Level III, steady state, the public information officer reports directly to the DES director. The EOC receptionist reports to the PIO.

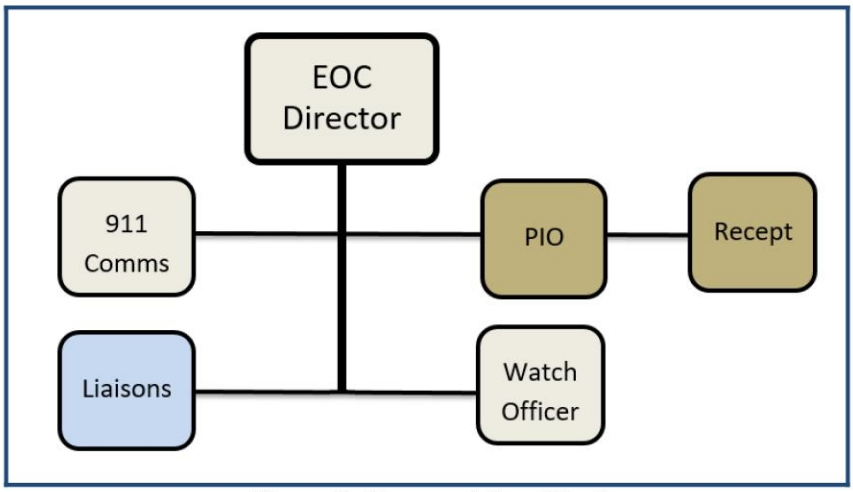

Figure 3: Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these agencies may act as information resources.

Agency	Functions
Pennsylvania Emergency Management Agency	• Provide support from the Commonwealth Response Coordination Center (CRCC) including information regarding the state's public-facing products regarding an incident
Media	• Provides information and questions from the public to the PIO at the EOC • Provide timely updates on press releases
All County Departments	• Leverages the PIO, and JIC, as the avenue to release all incident-related information • Redirects media to the PIO as the point of contact for all media inquiries
Private Industry	• Provide information on what they doing and assets available to support the public and first responders
Chester County Commissioners' Office	• Provides PIO support as needed, including additional PIO support if the JIC is activated • Approves press releases as required

Position-Specific Required Training:
IS-29 – Public Information Officer Awareness
IS-247.a – Integrated Public Alert and Warning System

IS-248 – Integrated Public Alert and Warning System (IPAWS) for the American Public
IS-251 – Integrated Public Alert and Warning System (IPAWS) for Alerting Authorities
IS-702.a – National Incident Management System (NIMS), Public Information Systems
IS-815 – National Response Framework, Emergency Support Function - 15 External Affairs
G-289 – Public Information Officer Awareness
G-290 – Basic Public Information Officer Course
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
E-105 – Public Information and Warning
E-388 – Advanced Public Information Officer
E-389 – Master Public Information Officer
E-393 – Master Public Information Officer – Part Two
E-394 – Master Public Information Officer – Part Three
E-952 – NIMS ICS All-Hazards Public Information Officer Course
G-272 – Warning Coordination
G-291 – JIS/JIC Planning for Tribal, State, and Local Public Information Officers
G-775 – EOC Management and Operations
MGT-318 – Public Information in an All-hazards Incident
MGT-902 – Managing Public Information for All-Hazards Incidents

Checklists
The following checklists are used by the PIO based on the operational period. Some PIO position tasks may be delegated to additional supporting PIOs, if the JIC is activated, and/or the EOC receptionist.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign EOC sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC. -Review most recent Situation Report (SitRep) or spot report -Review current safety/security guidance from EOC receptionist	☐ **Review WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board **Note:** If errors are identified in WebEOC, notify appropriate section chiefs and/or the watch officer
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**	☐ **Manage the receptionist and provide a standard statement for general inquiries received via the EOC's main phone line (5005) or watch officer's phone line (4335)**
☐ **ACTIVATION: Confirm with incident command there is adequate on-scene support to handle media requests. If additional PIOs are required, advise the EOC director and make a resource request via WebEOC**	☐ **Monitor published and broadcast information for accuracy. Document misinformation in WebEOC log and develop corrective information for release**
☐ **Establish communication links with support agencies (e.g., municipalities, PEMA, FEMA, VOAD, etc.)**	☐ **If deemed necessary, select appropriate times for news briefings, select/schedule locations, and setup briefing space**
☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**	☐ **If requested by the media, coordinate the scheduling and delivery of interviews with the DES director, EOC director, or other departmental/county designees (duty may be delegated to an additional PIO if the JIC is activated)**
☐ **ACTIVATION: If deemed necessary, set up JIC and a media briefing area near the EOC (unless one or both are already located on-scene).** **Note: The decision to activate the JIC may involve determining the need to activate the mobile JIC**	☐ **If a news briefing is needed, identify spokespeople and conduct speaker preparation prior to news briefing(s) (review key talking points)**
☐ **ACTIVATION: If activated, notify the media of the JIC activation and contact information by issuing a media release**	☐ **Review existing (pre-established) and incident-specific public-facing content that can be used in additional information products for the public**
☐ **ACTIVATION: Review existing news release templates (in JIS Plan) and develop initial key messages**	☐ **Develop and update existing key messages and talking as new information is available and the incident changes**
☐ **ACTIVATION/TRANSITION: Ensure all JIC staff have access to WebEOC and necessary monitoring tools (e.g., Hootsuite, PIO email)**	☐ **Develop and issue public-facing emergency warnings via ReadyChesco, and if deemed necessary via IPAWS, in coordination with the watch officer and with approval of the EOC director**
☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC in the position Activity Log**	☐ **Develop and issue news releases, social media content (via Hootsuite), and DES website content after review and approval by the EOC director and in coordination with other public information staff from outside impacted agencies and jurisdiction**

☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Prioritize information requests (including media inquiries), develop response releases, and gain review/approval by EOC director prior to release**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Record all interviews and information released to the media (e.g., news releases) in the DES shared folder for the incident and log each item in WebEOC in the Activity Log**
	☐ **Document all inbound requests for information in the WebEOC Inquiry Log and outbound information dissemination in the Public Information Log**
	☐ **Remove all sensitive information from SitReps for public dissemination and issue via ReadyChesco**
	☐ **Monitor the need to activate the rumor control station in coordination with the EOC receptionist. Activate if needed and log activation in Activity Log**
	☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
	☐ **Coordinate the development of additional, accessible message formats for all public-facing materials issued by contacting Language Line or Deaf and Hearing Communication Center (existing open Purchase Order). Coordinate the enactment of services by placing a resource request via WebEOC and coordinating directly with the Resource Support and Finance/Administration Sections.**
	☐ **Notify the technical support position of communication issues**
	☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
	☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
	☐ **Review all distributed SitReps and Spot Reports**
	☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
	☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
- Provides current capabilities and limitations
- Documents additional resources needed
- Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**Deactivate JIC (if activated) as authorized by EOC director**
☐	**Deactivate rumor control (if activated) as authorized by EOC director**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

EOC RECEPTIONIST

Position Overview:
The EOC receptionist is in charge of administrative tasks in the EOC, including the oversight of sign-in/sign-out sheets, development of accurate EOC roster for each operational period, and answering the primary EOC phone line to manage inbound inquiries. As directed by the PIO, the EOC receptionist is responsible for supporting public affairs duties, including those assigned to rumor control. Additionally, this position may support the watch officer by answering inbound calls on the watch officer's phone line. **DES is the coordinating agency** for this position.

Primary Responsibilities:
- Develop and distribute operational period rosters with accurate contact information for each activated EOC position
- Ensure accurate sign-in/sign-out process for all activated EOC personnel every operational period
- Answer the primary EOC phone line, managing and re-directing inbound calls as necessary
- If requested by the watch officer, assist with answering inbound calls on the watch officers phone line
- As directed by the PIO, develop emergency public information, including press and news releases for review and use by the PIO
    - Use pre-established templates included in the JIS Plan
    - Use pre-established media, government, and industry contact list in JIS Plan
- As directed by the PIO, support the following PIO duties: information collection, analysis, validation, and dissemination to the public via new outlets, DES website, and DES social media
- As directed by the PIO, oversee rumor control and requests for information, including distribution of talking points to address misinformation and public inquiries
    - Answer the rumor control phone line (610-344-6480) and oversee the rumor control element of the EOC, if activated
    - If activated, oversee rumor control telephone operators
    - Publish the rumor control phone number as the primary number for responding to questions from the general public (e.g., via social media, in media releases, on the DES website)
- As directed by the PIO, assist with the activation/operation of the JIC and media briefing areas
- Develop and maintain the EOC safety and security plan (using the EOC Safety and Security Plan template), including information regarding the provision of medical care to EOC personnel until EMS would arrive, if an issue requiring support takes place in the EOC

Organization Structure:
The EOC receptionist reports directly to the PIO.

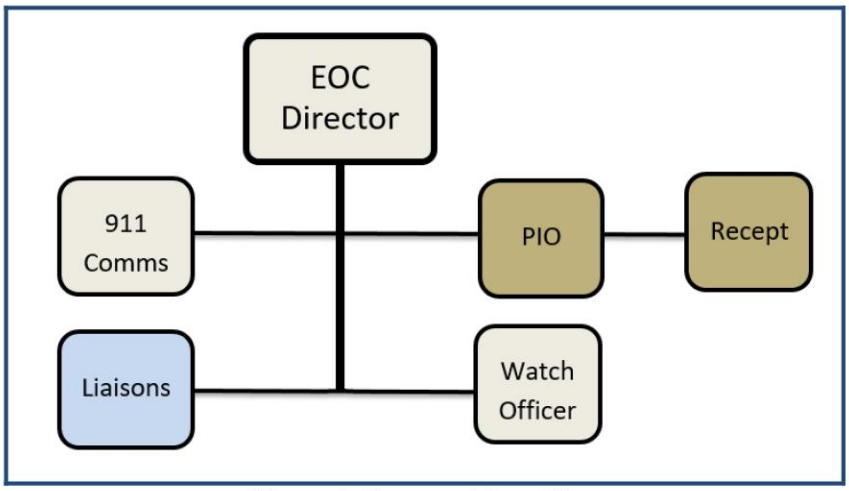

Figure 4: Command Org. Chart

Supporting Agencies:
The EOC receptionist leverages the support agencies of the PIO based on specific tasking (see the public information officer position annex).

Required Training:
IS-29 – Public Information Officer Awareness
IS-247.a – Integrated Public Alert and Warning System
IS-702.a – National Incident Management System (NIMS), Public Information Systems
IS-815 – National Response Framework, Emergency Support Function-15 External Affairs
G-289 – Public Information Officer Awareness
(See General EOC Training Requirements on page 1)

Suggested Training:
G-290 – Basic Public Information Officer Course
G-291 – JIS/JIC Planning for Tribal, State, and Local Public Information Officers
G-775 – EOC Management and Operations

Checklists
The following checklists are used by the EOC receptionist based on the operational period. Some PIO position tasks may be delegated to the EOC receptionist.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Distribute the EOC sign-in/sign-out sheet
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **ACTIVATION: Develop the initial EOC safety and security plan, submitting draft to the EOC director for review and approval. Save approved version in the EOC File Library**
- ☐ **ACTIVATION: If deemed necessary, support the PIO with JIC and a media briefing area set up near the EOC (unless one or both are already located on-scene)**
- ☐ **ACTIVATION/TRANSITION: As directed by the PIO, ensure all JIC staff have access to WebEOC and necessary monitoring tools (e.g., Hootsuite, PIO email)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC in the position Activity Log**
- ☐ **TRANSITION: Coordinate with departing/ arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Distribute the EOC sign-in/sign-out sheet
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board

  Note: If errors are identified in WebEOC, notify appropriate section chiefs and/or the watch officer
- ☐ **At the start of each operational period, develop and distribute the EOC roster with accurate contact information for each activated EOC position. Check with each position to ensure accuracy of phone extensions**
- ☐ **Update the EOC safety and security plan at the end of each operational period, submitting draft to the EOC director for review and approval. Save approved version in the EOC File Library**
- ☐ **Answer general inquiries received via the EOC general line (610-344-5005) using PIO-provided talking points or re-directing calls to appropriate EOC positions**
- ☐ **If requested by the watch officer, assist with answering the watch officer line (610-344-4335) using PIO-provided talking points or re-directing calls to appropriate EOC positions**
- ☐ **Answer the rumor control phone line (610-344-6480) and leverage PIO-provided talking points to address public inquires. If rumor control operators are activated, support those positions**
- ☐ **Based on call volume, advise the PIO of the need to staff all four rumor control telephone operator positions**
- ☐ **As directed by the PIO, monitor published and broadcast information for accuracy. Document misinformation in WebEOC log, and if directed by the PIO, assist with developing corrective information for release**
- ☐ **As provided by the PIO, review updates to key messages as new information is available and the incident develops**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Attend EOC briefings**

☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**Assist the PIO with deactivating JIC as authorized by EOC director (if activated)**
☐	**As directed by the PIO, deactivate the rumor control operators (if activated)**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information (to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the PIO or watch officer**
☐	**When Departing:** -Distribute the EOC sign-in/sign-out sheet -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

EMERGENCY SERVICES COORDINATION SECTION CHIEF

Position Overview:
The emergency services coordination section chief oversees the firefighting/fire protection, emergency medical services, search and rescue, hazardous materials, and law enforcement coordination tasks in the EOC. The section chief oversees corresponding staff based on filled positions for the activation. The section chief reports to the EOC director. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Oversee the emergency services coordination section during partial (Level II) and full (Level I) activations:
    - Determine/assign specific fire/EMS, law enforcement, urban search and rescue (USAR), and hazardous materials (HazMat) tasks
    - Ensure supporting positions are completing position-specific checklists and tasking
- Summarize current efforts/activities based on section essential elements of information (EEIs) for presentations during EOC briefings
- Assume the responsibilities, functions, and associated tasks for un-filled direct-report positions during an activation (i.e., fire/EMS, USAR, HazMat, and law enforcement positions)
- Work collaboratively with other section chiefs and command staff in support of EOC objectives for the operational period
- Forecast requirements for additional personnel and equipment (for EOC positions, and if known, for field response)

Organization Structure:
The emergency services coordination section chief reports directly to the EOC director during Level II and I EOC activations. The emergency services coordination section chief oversees the fire/EMS, USAR, HazMat, and law enforcement positions.

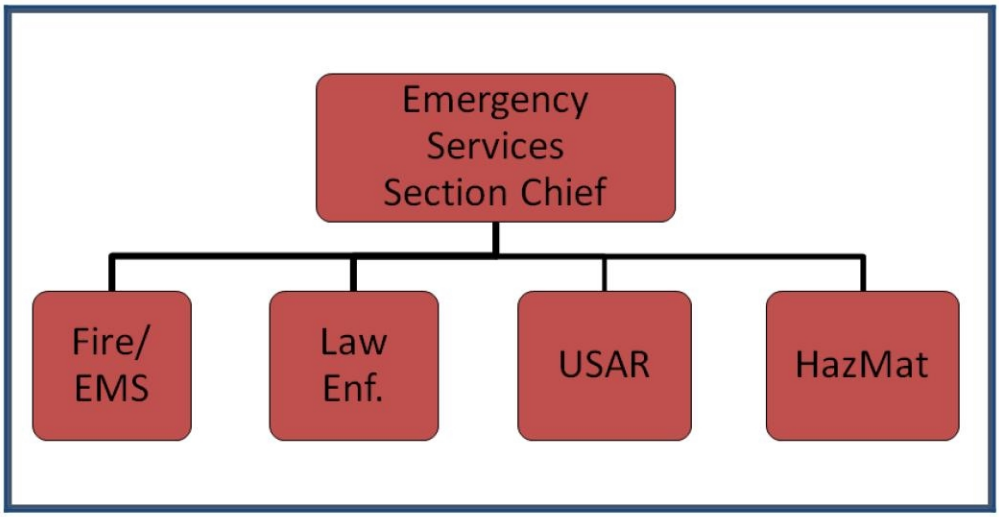

Figure 5: Emergency Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County ARES/RACES	• Provide support for information gathering purposes • Provide an avenue for the public without communications to report emergencies
Chester County Coroner's Office	• Provides support in handling incidents involving fatalities
Chester County Department of Mental Health and Intellectual and Developmental Disabilities	• Provides access to the Disaster Crisis Outreach and Referral Team (DCORT) • Provides a connection to individuals participating in the county's intellectual disability program that may be impacted during disasters • Provides a direct connection to local agencies providing mental health services and can assist in coordinating to meet mental health needs during an incident
Chester County EMS Departments	**EMS** • Support EMS task force and provide information regarding the task force • Actively provide EMS response during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Chester County Fire Departments	**Fire** • Support fire task force and provide information regarding the task force • Actively support SAR response operations during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Chester County Fire Police	**Law Enforcement** • Provide traffic control support to all response disciplines

Chester County Hazardous Materials (HazMat) Response Team	**HazMat** • Provides HazMat response and information regarding HazMat responses and resource gaps during an incident
Chester County Rescue Task Force	**USAR** • Provides SAR response and information regarding SAR responses and resource gaps during an incident
Chester County Sherriff's Office	• Provides assistance in securing an incident scene and enforcing road closures • Provides security at mass care facilities • Provides available personnel as needed for law enforcement tasks • Provide K-9 support
Chester County Solid Waste Authority	**HazMat** • Provides a means for disposal of hazardous materials/waste and contaminated debris
Chester County Water Resources Authority	**HazMat** • Provides support when water sources are affected by hazardous materials releases
American Red Cross	**Fire/EMS** • Provides support in setting up and running mass care facilities, requiring direct coordination with the fire/EMS position for the delivery of on-site EMS at these facilities • Provides information regarding medical needs at emergency shelters and other mass care facilities
Civil Air Patrol	**USAR** • Provides active SAR response support via aerial reconnaissance
Emergency Response Teams (ERTs)	**Law Enforcement** • Provides technical expertise in the response to situations needing tactical police actions
Hospital and Health System Association of Pennsylvania	• Providing information regarding available of bed space in local hospital and health care facilities via the HAP Coordination Desk • Provide information regular updates regarding • HAP activities via the HAP Coordination Desk
Local Emergency Planning Committee	**HazMat** • Provides guidance to the hazardous materials response organization • Provides guidance on pre-incident SARA planning, which may allow for incident-specific information and knowledge to be shared

Municipal Police Departments	**Law Enforcement** • Provide on-scene law enforcement response in coordination with state police response
National Weather Service	• Provides fire/weather forecasting as needed from Mount Holly National Weather Service Forecast Office • Provides forecasts on the dispersion of smoke in support of planning and response activities • Provides weather information to aid the plume modeling and dispersion patterns
Pennsylvania Department of Environmental Protection	**HazMat** • Provides guidance on the effect of hazardous materials on the environment and assist in the cleanup effort
Pennsylvania Department of Health	**HazMat** • Conducts laboratory testing for suspected biological agents • Coordinates directly with the Chester County Health Department
Pennsylvania State Police	**Law Enforcement** • Provide on-scene law enforcement response in coordination with local law enforcement response (if there is a local law enforcement force)
Pennsylvania Department of Transportation	**HazMat** • Provides expertise on all modes of transporting oil and hazardous materials • Issues special permits to facilitate movement of hazardous materials, hazardous waste and hazardous debris, which can be used to gain information regarding transportation incidents involving hazardous materials
Pennsylvania National Guard	**Law Enforcement** • Provided it is within an established mission, provides support to local responders for law enforcement tasks (e.g., crowd control, traffic control)

Southeastern Pennsylvania Surge Medial Assistance Response Team (SMART)	**Fire/EMS** • Provide response capabilities to support hospital/health care facility to augment existing staff • Provide deployment of temporary hospital unit • Provide information regarding emergency hospital surge support (may be provided via the Pennsylvania Emergency Management Agency or Department of Health)
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts, such as drone assessments or searches • Coordinate securing and delivery of expendable resources as donations to non-profit organizations requiring support
United States Environmental Protection Agency	**HazMat** • Provides guidance on the effect of hazardous materials on the environment and assist in the cleanup effort

Position-Specific Required Training:
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
Q0890 Introduction to Emergency Response to Terrorism (National Fire Academy)
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
Compressed Modular Emergency Response Radiological Transportation Training (CMERRTT)
Modular Emergency Response Radiological Transportation Training (MERRTT)
Radiological Officer Development in Emergency Operations (RODEO)
Pipeline Emergency Response Training (National Association of State Fire Marshals)
HazMat Safety Officer (offered in Bucks County)
HazMat Branch Officer (offered by various jurisdictions)
AWR-111-W – Basic Emergency Medical Services (EMS) Concepts for CBRNE Events
AWR-122 – Law Enforcement Prevention and Deterrence of Terrorist Acts
G-775 – EOC Management and Operations
G-320 – Fundamentals for Radiological Response
E101 – Foundations of Emergency Management
PER-212 – Operational Level Response to HazMat/WMD Incidents
PER-213 – Wide Area Search
PER-254 – Law Enforcement Protective Measures for CBRNE Incidents
PER-265 – Law Enforcement Response Actions for CBRNE Incidents
PER-267 – Emergency Medical Operations for CBRNE Incidents
PER-271 – Emergency Medical Response Awareness for CBRNE Incidents

PER-275 – Law Enforcement Active Shooter Emergency Response (LASER)
PER-334 – Search and Rescue in Community Disasters
PER-357 – Tactical Casualty Care for Law Enforcement Personnel
PER-358 – Tactical Casualty Care for Fire and EMS Personnel
PER-365 – Emergency Response to HazMat Incidents
R0243 – Hazardous Materials Incident Management

Checklists
The following checklists are used by the emergency services coordination section chief based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **ACTIVATION: Coordinate activation of Emergency Operations Center (EOC) with EOC director, including notification of EOC personnel (proper platoon) and establishing links with municipal emergency management coordinators and/or Incident Support Team (if deployed)**	☐ **Monitor information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board **Note:** If errors are identified in WebEOC, notify appropriate section chiefs and/or the watch officer
☐ **Upon Arrival:** -Sign EOC sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current security guidance from EOC personnel support position	☐ **Fulfill tasks of un-activated section positions (see fire/EMS, USAR, HazMat, and law enforcement position annexes), ensuring appropriate checklist tasks are completed**
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)** - Establishes initial EOC objectives - Establishes operational tempo and tasks	☐ **Direct section staff to address section-related tasks to meet incident objectives and reiterate the resource request process with section staff and support agencies**
☐ **ACTIVATION: Prioritize and direct section staff to address initial section-related tasks**	☐ **If necessary, assist section staff with processing resource requests regarding fire/EMS, USAR, HazMat, and law enforcement resources, or direct section staff to do so. Use the WebEOC resource request process**
☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**	☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐ **ACTIVATION: In coordination with the watch officer and other section positions, establish communication links with support agencies**	☐ **Participate in preparation and review of the EOC Action Plan, submitting the following to the watch officer and Planning/Situational Awareness Section Chief** - Advise on current capabilities and limitations - Determine additional resources needed - Discuss long-range plans and identify potential or future requirements
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC under your position. Document all open assignments for each section position to ensure continuity of tasks across shift change**	☐ **Summarize current efforts/activities based on section Essential Elements of Information (EEIs) for the EOC director and watch officer every hour in advance of the EOC briefing**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Review all distributed SitReps and Spot Reports**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**

☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and spot reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log, including calls, assignment of tasking, and task completion**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to the watch officer**
☐	**Support EOC director's effort to establish estimated demobilization date/time in collaboration with other command and general staff**
☐	**Support the EOC director and watch officer to coordinate transfer of outstanding tasks to the 9-1-1 Communication Center, as appropriate**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Ensure section staff remains in EOC until all missions are complete**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

FIRE/EMERGENCY MEDICAL SERVICES POSITION

Position Overview:
The fire/emergency medical services (EMS) position is responsible for coordinating support for the areas of firefighting, fire protection, and EMS, which may include the coordination of personnel, equipment, and supplies in support of local agencies involved in firefighting or EMS operations. Firefighting coordination activities includes the detection and suppression of fires on county property. The fire/EMS position reports to the emergency services coordination section chief. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Assist local municipality fire/EMS organizations in coordinate personnel, equipment, and supplies to support life safety, incident stabilization, and protection of property and the environment
- Maintains situational awareness of firefighting/EMS activities, communicating updates to the Planning/SA Section, watch officer, and public information officer (PIO)
    - Monitor the level of response (number of resources deployed, active emergencies, etc.)
    - Identify resource gaps and determine the need for additional fire/EMS capabilities to meet response needs
- Direct inbound resource requests to the resource support section and/or 9-1-1 Communication Center (based on immediacy/scope of need)
- Coordinate route alerting (evacuation messaging/shelter-in place orders) to the public with the watch officer and PIO via ReadyChesco
- Coordinate evacuation and medical transportation needs of affected citizens with the transportation position, and more broadly, the human services coordination section and local municipality
- Analyze all requests to ensure they are realistic and match needs before issuing the request
- Assist the resource support section with resource requests requiring the enactment of mutual aid and development of resource requests to the state via the Pennsylvania Emergency Management Agency (PEMA)
- Coordinate emergency medical services for shelters with the human services coordination section via the mass care position and the American Red Cross

Organization Structure:
The fire/EMS position reports to the emergency services coordination section chief.

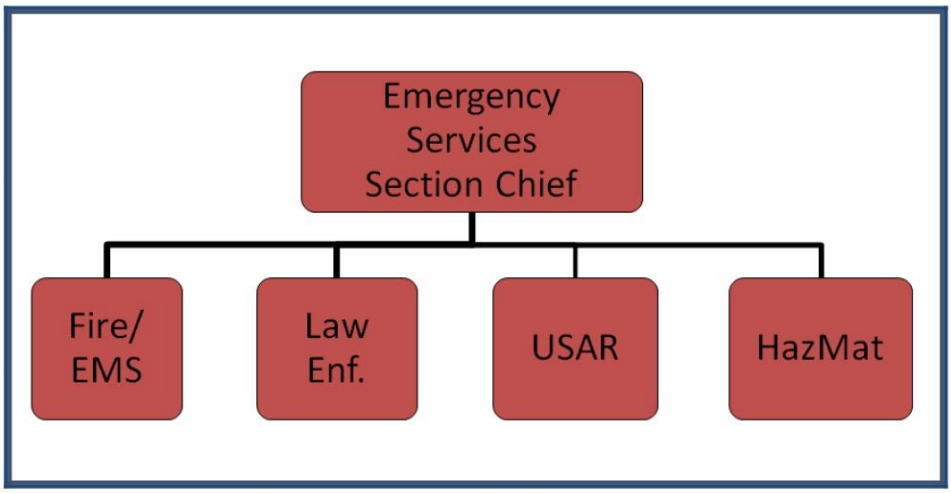

Figure 6: Emergency Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Coroner's Office	• Provides support in handling incidents involving fatalities
Chester County Department of Mental Health and Intellectual and Developmental Disabilities	• Provides access to the Disaster Crisis Outreach and Referral Team (DCORT) • Provides a connection to individuals participating in the county's intellectual disability program that may be impacted during disasters • Provides a direct connection to local agencies providing mental health services and can assist in coordinating to meet mental health needs during an incident
Sherriff's Office	• Provides assistance in securing an incident scene and enforcing road closures • Provides security at mass care facilities
American Red Cross	• Provides support in setting up and running mass care facilities, requiring direct coordination with the fire/EMS position for the delivery of on-site EMS at these facilities • Provides information regarding medical needs at emergency shelters and other mass care facilities

Chester County EMS Departments	• Actively provide EMS response during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Chester County Fire Departments	• Actively provide firefighting response during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Chester County Hazardous Materials (HazMat) Response Team	• Provides HazMat response and information regarding HazMat responses and resource gaps during an incident
National Weather Service	• Provides fire/weather forecasting as needed from Mount Holly National Weather Service Forecast Office • Provides forecasts on the dispersion of smoke in support of planning and response activities
Hospital and Health System Association of Pennsylvania	• Providing information regarding available of bed space in local hospital and health care facilities via the HAP Coordination Desk • Provide information regular updates regarding HAP activities via the HAP Coordination Desk
Southeastern Pennsylvania Surge Medial Assistance Response Team (SMART)	• Provide response capabilities to support hospital/health care facility to augment existing staff • Provide deployment of temporary hospital unit • Provide information regarding emergency hospital surge support (may be provided via the Pennsylvania Emergency Management Agency or Department of Health)
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts • Coordinate securing and delivery of expendable resources as donations to non-profit organizations requiring support

Position-Specific Required Training:
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
Firefighter I (Certified)
Firefighter II – Advanced Fighter (Certified)

Hazardous Materials Operation Level
24+ Hours of Officer Deployment
Decision Making for Initial Company Operations (DMICO)
Preparation for Initial Company Operations (PICO)
Strategy and Tactics for Initial Company Operations (STICO)
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
AWR-111-W – Basic Emergency Medical Services (EMS) Concepts for CBRNE Events
Principles of Building Construction - Noncombustible
G-775 – EOC Management and Operations
E101 – Foundations of Emergency Management
E954 – NIMS ICS All-Hazards Safety Officer
PER-267 – Emergency Medical Operations for CBRNE Incidents
PER-271 – Emergency Medical Response Awareness for CBRNE Incidents
PER-358 – Tactical Casualty Care for Fire and EMS Personnel
PER-365 – Emergency Response to HazMat Incidents
Technical Rescue

Checklists:
The following checklists are used by the fire/EMS position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign EOC sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current security guidance from EOC personnel support position	☐ **Monitor information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**	☐ **If errors are identified in WebEOC, notify appropriate section chiefs**
☐ **Attend emergency services coordination section briefing**	☐ **Log incident information in WebEOC**
☐ **ACTIVATION: Obtain an initial fire/EMS situation and damage assessment (CAD Netviewer, 9-1-1 Communication Center supervisor, and zone dispatchers) through established intelligence procedures and determine the appropriate management response to meet the request for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**	☐ **Monitor CAD Netviewer and radio (all three zones) for status of firefighting resources. Request information from 9-1-1 Supervisor if unavailable via CAD Netviewer. Log information in WebEOC log** https://cad.chesco.org/NetViewer **Login: EOC_FIRE** **Password: EOC_CAD**
☐ **ACTIVATION: In coordination with the watch officer and other section positions, establish communication links with support agencies, field units, and incident command**	☐ **Develop/maintain situational awareness of fire/EMS agencies status and damage assessment through established intelligence procedures and the appropriate management response to meet requests for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC in Activity Log**	☐ **Coordinate the needs of fire services/emergency medical services within the county**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Monitor and track staffing levels of fire and ambulance stations throughout the county to identify staffing shortfalls and provide information, as necessary, to the 9-1-1 Communication Center supervisor. Requires reaching out to each station's leadership to identify short falls (use pre-populated groups in MS Outlook). Log information in WebEOC log**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **As needed, assist local EOCs and emergency management coordinators with evacuation of affected assistance by coordinating with the human series coordination section through the transportation position**
	☐ **Coordinate the dissemination of route alerting to the public with the watch officer and PIO, who will issue information via ReadyChesco**
	☐ **Support fire investigations, as required**

☐	**Coordinate emergency medical services for emergency shelters with the human services coordination section via the mass care position**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Coordinate the development and distribution of fire/EMS-related information, including any known protective actions, with the PIO for dissemination to the public**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer, and 9-1-1 Communication Center supervisor if appropriate, of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

URBAN SEARCH AND RESCUE POSITION

Position Overview:
The USAR position is responsible for coordinating support for search and rescue, which may include supporting collapsed structure, swift water, high angle, and other specialized search and rescue operations. The USAR position coordinates with PEMA search and rescue personnel if a Chester County based situation requires the activation and deployment of PA Task Force One. The USAR position reports to the emergency services coordination section chief. **The Rescue Task Force is the coordinating agency** for this position.

Primary Responsibilities:

- Coordinate support for search and rescue for collapsed-structure, swift-water, high-angle, and other specialized search and rescue (SAR) operations, including SAR teams and taskforces deployed in the county
- Coordinate with municipalities emergency operations centers and emergency management coordinators on SAR activities
- Maintain situational awareness of SAR activities, communicating updates to the planning/SA section, watch officer, and public information officer (PIO)
    - Monitor the level of response (number of resources deployed, active emergencies, etc.)
    - Identify resource gaps and determine the need for additional SAR resources to meet response needs
- Direct inbound resource requests for SAR assets to the resource support section and/or 9-1-1 Communication Center (based on immediacy/scope of need)
- Analyze all requests to ensure they are realistic and match needs before issuing the request
- Ensure any commitment of employees involves proper vaccinations, credentials, and proper personal protective equipment based on the incident and response role
- Assist the resource support section with resource requests requiring the enactment of mutual aid and development of resource requests for SAR resources to the state via the Pennsylvania Emergency Management Agency (PEMA)
- Coordinate resources for SAR operations for collapsed structures
- Coordinate the response of SAR assets throughout the county
- Coordinate body recovery with the Coroner's Office via the EOC coroner liaison position
- Coordinate with PEMA regarding state-level search and rescue resources as needed (e.g., Pennsylvania Urban Search & Rescue System, PA-CO2 [regional element])

Organization Structure:
The USAR position reports to the emergency services coordination section chief.

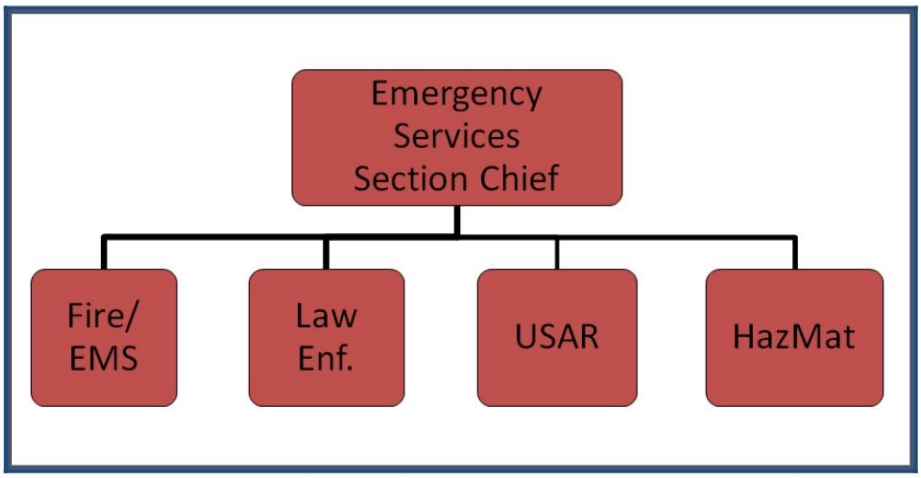

Figure 7: Emergency Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Coroner's Office	• Provides support in handling incidents involving fatalities and body recovery
Chester County EMS Departments	• Actively provide EMS response during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Chester County Fire Departments	• Actively provide firefighting response during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public
Sherriff's Office	• Provides assistance in securing an incident scene and enforcing road closures
Chester County Fire Departments	• Actively support SAR response operations during an incident • Provide information regarding on-going incidents and incident needs • Provide information regarding protective actions to communicate to the public

Chester County Rescue Task Force	• Provides SAR response and information regarding SAR responses and resource gaps during an incident
Civil Air Patrol	• Provides active SAR response support via aerial reconnaissance
National Weather Service	• Provides fire/weather forecasting as needed from Mount Holly National Weather Service Forecast Office • Provides forecasts on the dispersion of smoke in support of planning and response activities
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts, such as drone search assessments

Position-Specific Required Training:
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E101 – Foundations of Emergency Management
PER-213 – Wide Area Search
PER-334 – Search and Rescue in Community Disasters
Texas A&M Engineering (TEEX) – US&R Rescue Specialist Certificate

Checklists
The following checklists are used by the USAR position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign into EOC on sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current safety and security guidance from EOC receptionist	☐ **Monitor information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**	☐ **If errors are identified in WebEOC, notify appropriate section chiefs**
☐ **ACTIVATION: Determine availability of SAR teams throughout the county and in neighboring counties**	☐ **Log incident information in WebEOC**
☐ **Attend emergency services coordination section briefing**	☐ **Develop/maintain situational awareness of SAR assets statuses and determine the appropriate management response to meet requests for assistance, including an inventory of SAR facilities, equipment, and personnel in the county. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**
☐ **ACTIVATION: In coordination with the watch officer and other section positions, establish communication links with SAR teams and taskforces**	☐ **Coordinate the needs of local municipalities needs for SAR assistance within the county**
☐ **ACTIVATION: Develop initial situational awareness of SAR assets statuses and determine the appropriate management response to meet requests for assistance including an inventory of SAR facilities, equipment, and personnel in the county. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**	☐ **As needed, assist local EOCs and emergency management coordinators with SAR requests by coordinating with the resource support section**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC under your position**	☐ **Coordinate the development and distribution of SAR-related information, including any known protective actions, with the PIO for dissemination to the public**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Review all distributed SitReps and Spot Reports**
	☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**

☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer, and 9-1-1 Communication Center supervisor if appropriate, of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

HAZARDOUS MATERIALS POSITION

Position Overview:
The hazardous materials (HazMat) position is responsible for coordinating resources and services necessary to support an emergency response or recovery effort essential to the remediation of conditions caused by toxic chemical or hazardous material release. The HazMat position reports to the emergency services coordination section chief. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Coordinate HazMat activities in the county and interface with the County Hazardous Materials Team
- Serve as an information resource regarding hazardous materials incidents
- Coordinate establishment of decontamination and monitoring of affected citizens and emergency workers after exposure to chemical or radiological hazards
- Coordinate with municipalities emergency operations centers and emergency management coordinators on HazMat activities
- Maintain situational awareness of HazMat activities, communicating updates to the Planning/SA Section, watch officer, and public information officer (PIO)
    - Monitor the level of response (number of resources deployed, active emergencies, etc.)
    - Identify resource gaps and determine the need for additional HazMat resources to meet response needs
- Direct inbound resource requests for HazMat resources to the resource support section and/or 9-1-1 Communication Center (based on immediacy/scope of need)
- Analyze all requests to ensure they are realistic and match needs before issuing the request
- Ensure any commitment of employees involves proper vaccinations, credentials, and proper personal protective equipment based on the incident and response role
- Assist the resource support section with resource requests requiring the enactment of mutual aid and development of resource requests for HazMat resources to the state via the Pennsylvania Emergency Management Agency (PEMA)
- Coordinate with PEMA regarding state-level HazMat response resources

Organization Structure:
The HazMat position reports to the emergency services coordination section chief.

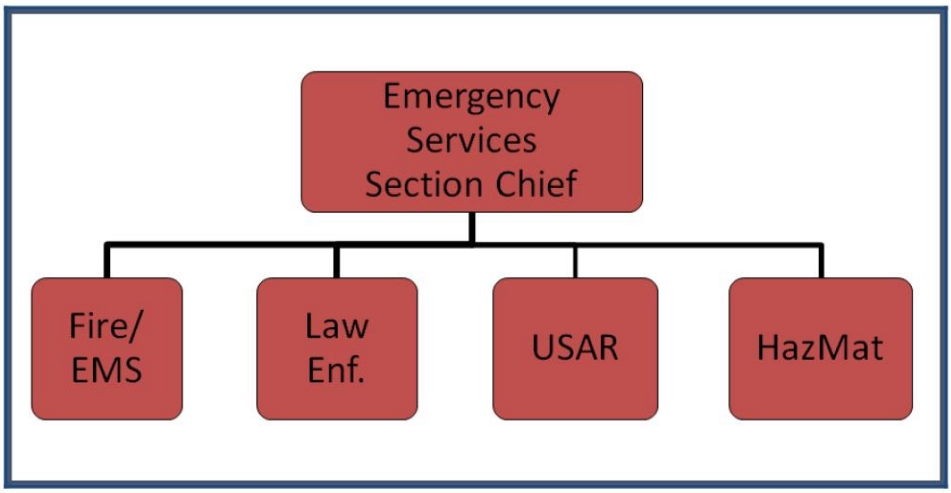

Figure 8: Emergency Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Solid Waste Authority	• Provides a means for disposal of hazardous materials/waste and contaminated debris
Chester County Water Resources Authority	• Provides support for water sources affected by hazardous materials releases
Local Emergency Planning Committee	• Provides guidance to the hazardous materials response organization • Provides guidance on pre-incident SARA planning, which may allow for incident-specific information and knowledge to be shared
Pennsylvania Department of Environmental Protection	• Provides guidance on the effect of hazardous materials on the environment and assist in the cleanup effort
Pennsylvania Department of Health	• Conducts laboratory testing for suspected biological agents • Coordinates directly with the Chester County Health Department
Pennsylvania Department of Transportation	• Provides expertise on all modes of transporting oil and hazardous materials • Issues special permits to facilitate movement of hazardous materials, hazardous waste and hazardous debris, which can be used to gain information regarding transportation incidents involving hazardous materials

National Weather Service	• Provides forecasting as needed from Mount Holly National Weather Service Forecast Office • Provides weather information to aid the plume modeling and dispersion patterns
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts (e.g., Lewis Environmental) to facilitate clean-up and remediation activities
United States Environmental Protection Agency	• Provides guidance on the effect of hazardous materials on the environment and assist in the cleanup effort

Position-Specific Required Training:
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
G-320 – Fundamentals for Radiological Response
Q0890 Introduction to Emergency Response to Terrorism (National Fire Academy)
R0243 – Hazardous Materials Incident Command
Compressed Modular Emergency Response Radiological Transportation Training (CMERRTT)
Modular Emergency Response Radiological Transportation Training (MERRTT)
Radiological Officer Development in Emergency Operations (RODEO)
Pipeline Emergency Response Training (National Association of State Fire Marshals)
HazMat Safety Officer (offered in Bucks County)
HazMat Branch Officer (offered by various jurisdictions)
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E101 – Foundations of Emergency Management
PER-212 – Operational Level Response to HazMat/WMD Incidents
PER-365 – Emergency Response to HazMat Incidents

Checklists
The following checklists are used by the HazMat position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign into EOC on sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current safety and security guidance from EOC receptionist	☐ **Monitor information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**	☐ **If errors are identified in WebEOC, notify appropriate section chiefs**
☐ **ACTIVATION: Determine status of HazMat resources throughout the county and in neighboring counties (HazMat teams, fire department resources, and private resources)**	☐ **Log incident information in WebEOC**
☐ **Attend emergency services coordination section briefing**	☐ **Develop/maintain situational awareness of HazMat resources' statuses, current damage assessments, and determine the appropriate management response to meet requests for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**
☐ **ACTIVATION: In coordination with the watch officer and other section positions, establish communication links with HazMat teams and taskforces**	☐ **Interface/communicate with the County Hazardous Materials Team over the radio using the HazMat talk group**
☐ **ACTIVATION: Develop initial situational awareness of HazMat issues and damage assessment, and determine the appropriate management response to meet requests for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**	☐ **Monitor incidents and operating status of Superfund Amendments And Reauthorization Act (SARA) facilities throughout the county using contact information in SARA site response plans and off-site community response plan accessed using hazconnect (http://www.hazconnect.com)** **Login:** **Password**
☐ **ACTIVATION: Provide planning/SA section with current inventories of hazardous materials facilities, equipment, and personnel throughout the county and log on WebEOC**	☐ **Coordinate HazMat responses activities in the county, including resource needs identified by local municipalities. Issue resource requests to the resource support section via WebEOC and log each request in position Activity Log**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC under your position**	☐ **Coordinate operations with Fire/EMS, urban search and rescue, and law enforcement as needed**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Plan for and coordinate relief resources to replace or rotate with committed resources for extended operations**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **As needed, assist local EOCs and emergency management coordinators with HazMat requests by coordinating with the resource support section**

☐	**Coordinate decontamination and monitoring of affected citizens and emergency workers after exposure to chemical or radiological hazards**
☐	**Assist debris operations with technical information, operations, and monitoring of contaminated debris**
☐	**Coordinate the development and distribution of HazMat-related information, including any known protective actions, with the PIO for dissemination to the public**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer, and 9-1-1 Communication Center supervisor if appropriate, of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

LAW ENFORCEMENT POSITION

Position Overview:
The law enforcement position is responsible for coordinating support for law enforcement response, including the coordination and deployment of uniformed personnel to assist local field operations. The law enforcement position reports to the emergency services coordination section chief. **The District Attorney's Office is the coordinating agency** for this position.

Primary Responsibilities:

- Assist local municipality law enforcement organizations coordinate personnel, equipment, and supplies to support life safety, incident stabilization, and protection of property and the environment
- Maintains situational awareness of law enforcement activities, communicating updates to the Planning/SA Section, watch officer, and public information officer (PIO)
    - Monitor the level of response (number of resources deployed, active emergencies, etc.)
    - Identify resource gaps and determine the need for additional law enforcement resources to meet response needs
- Establish security and protection of critical facilities, including the EOC, and mass care facilities
- Coordinate access, traffic, and crowd control in and around affected areas
- Coordinate force protection for emergency responders
- Coordinate the security patrol of evacuated areas if feasible
- Coordinate the installation of emergency signs and other traffic devices as needed
- Direct resource requests to the resource support section and/or 9-1-1 Communication Center (based on immediacy/scope of need)
- Analyze all requests to ensure they are realistic and match needs before issuing the request
- Ensure any commitment of employees involves proper vaccinations, credentials, and proper personal protective equipment based on the incident and response role
- Assist the resource support section with resource requests requiring the enactment of mutual aid and development of resource requests to the state via the Pennsylvania Emergency Management Agency (PEMA)

Organization Structure:
The law enforcement position reports to the emergency services coordination section chief.

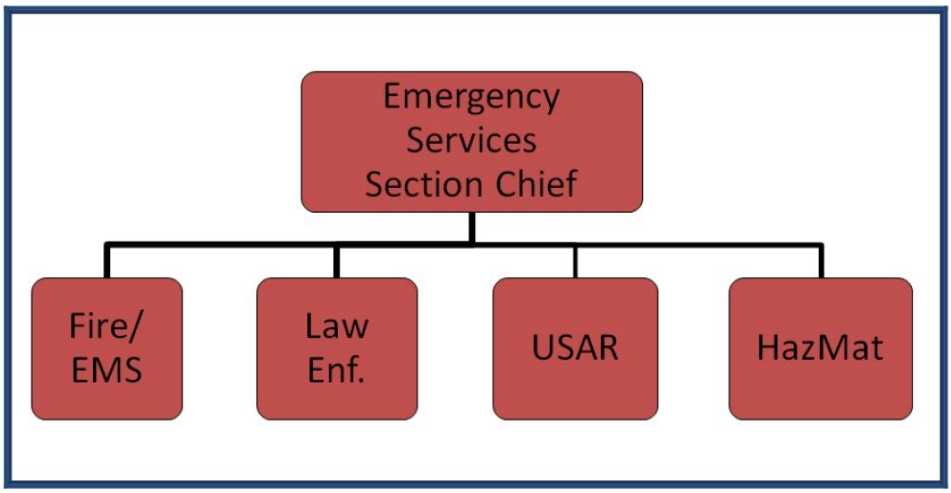

Figure 9: Emergency Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Municipal Police Departments	• Provide on-scene law enforcement response in coordination with state police response
Chester County Prison	• Provides available personnel as needed for law enforcement tasks
Chester County Sheriff's Office	• Provides available personnel as needed for law enforcement tasks
Emergency Response Teams (ERTs)	• Provides technical expertise in the response to situations needing tactical police actions
Chester County Facilities Department	• Provides available law enforcement personnel as needed (park rangers) for law enforcement tasks
Chester County Fire Police	• Provide traffic control support to law enforcement
Pennsylvania State Police	• Provide on-scene law enforcement response in coordination with local law enforcement response
Pennsylvania National Guard	• Provides law enforcement support to local responders for law enforcement tasks

Position-Specific Required Training:
CLE00731 – Active Shooter Level I (or equivalent course)
CLE00112 – Incident Command (or equivalent course)

G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
AWR-122 – Law Enforcement Prevention and Deterrence of Terrorist Acts
CLE00730 – Active Shooter Level II (or equivalent course)
CLE00836 – Active Attack Integrated Response Course (AAIR) (or equivalent course)
CLE0874 – Police Response to Critical Incidents (or equivalent course)
CLE01180 – Active Shooter Incident Management – Basic (or equivalent course)
CLE01181 – Active Shooter Incident Management – Intermediate (or equivalent course)
CLE01182 – Activate Shooter Incident Management – Advanced (or equivalent course)
G-775 – EOC Management and Operations
E101 – Foundations of Emergency Management
PER-254 – Law Enforcement Protective Measures for CBRNE Incidents
PER-265 – Law Enforcement Response Actions for CBRNE Incidents
PER-275 – Law Enforcement Active Shooter Emergency Response (LASER)
PER-357 – Tactical Casualty Care for Law Enforcement Personnel

Checklists
The following checklists are used by the law enforcement position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign into EOC on sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current safety and security guidance from EOC receptionist	☐ **Monitor information from WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board Note: If errors are identified in WebEOC, notify appropriate section chiefs
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**	☐ **Log incident information in WebEOC Activity Log (only viewable in position login) and elevate important information to Significant Events Board (viewable by all EOC staff)**
☐ **Attend emergency services coordination section briefing**	☐ **Coordinate with the DVIC regarding law enforcement threats/hazards, if appropriate (use email address provided in Outlook contacts)**
☐ **ACTIVATION: Obtain an initial law enforcement situation assessment through established intelligence procedures and determine the appropriate management response to meet the request for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**	☐ **Monitor CAD Netviewer and radio (all three zones)** https://cad.chesco.org/NetViewer **Login: EOC_LAW** **Password: EOC_CAD**
☐ **ACTIVATION: In coordination with the watch officer and other section positions, establish communication links with support agencies, field units, and incident command**	☐ **Obtain and distribute, through appropriate channels, incident contact information to emergency responders mobilized through Law Enforcement. Log information in WebEOC log**
☐ **TRANSITION: An hour prior to departure, complete the Shift Change Briefing Form and save to WebEOC under your position**	☐ **Develop/maintain situational awareness of law enforcement agencies' statuses (e.g., facilities, equipment, personnel, etc.) through established intelligence procedures and the appropriate management response to meet requests for assistance. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Coordinate security and law enforcement support services**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Coordinate security for critical facilities, as needed, including for mass care facilities and the EOC by working with support agencies**
	☐ **Coordinate access control/re-entry to the affected area(s)**
	☐ **Coordinate route alerting and notification, via the public information officer, to threatened populations based on information provided by law enforcement agencies**
	☐ **Assist the human services section, as appropriate, with the evacuation of affected citizens**

☐	**Coordinate requested support for deceased identification and mortuary services with the coroner liaison**
☐	**Provide expertise and coordination for security planning efforts**
	Coordinate incident scene security: -Coordinate access, traffic and crowd control in and around affected areas -Coordinate force protections for emergency responders -Coordinate the security patrol of evacuated areas if feasible
☐	**Monitor and track staffing levels of law enforcement agencies throughout the county and provide information, as necessary, to the 9-1-1 Communication Center supervisor. Log information in WebEOC log**
☐	**As needed, assist local EOCs and emergency management coordinators with evacuation of affected assistance by coordinating with the human series coordination section through the transportation position**
☐	**Coordinate the dissemination of route alerting to the public with the watch officer and PIO, who will issue information via ReadyChesco.**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Coordinate the development and distribution of law enforcement-related information, including any known protective actions, with the PIO for dissemination to the public**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
- Provides current capabilities and limitations
- Documents additional resources needed
- Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer, and 9-1-1 Communication Center supervisor if appropriate, of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

HUMAN SERVICES COORDINATION SECTION CHIEF

Position Overview:
The human services coordination section chief is responsible for overseeing the delivery of accessible services and resources to meet the basic needs of impacted and/or displaced populations. Coordination of services and resources may include those necessary for emergency assistance, housing assistance, human services, and mass care. The section chief is also in charge of coordinating donation and volunteer management, which involves directing resources to partner organizations that accept these resources during a disaster incident. The human services coordination section chief oversees the mass care, transportation, and medical/health positions. The section chief reports to the EOC director. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Oversee the human services coordination section during Level II and Level I activations:
    - Determine/assign specific medical/health, mass care, and transportation tasks
    - Ensure supporting positions are completing position-specific checklists and tasking
- Analyzes the need to activate mass care facilities during response and recovery operations, including selection of locations and capacity of mass care centers (based on level of need and pre-selected shelter locations) and provides recommendations to EOC director, deputy director of emergency management, and/or DES director
    - Oversees the mass care position's support to the American Red Cross and municipalities for the activation and operation of mass care facilities and fills this duty if the mass care position is not filled
- Summarize current efforts/activities based on section essential elements of information (EEIs) for presentations during EOC briefings and inclusion in SitReps
- Assume the responsibilities, functions, and associated tasks for un-filled direct-report positions during an activation (i.e., medical/health, mass care, and transportation positions)
- Work collaboratively with other section chiefs and command staff in support of EOC objectives for the operational period
- Forecast requirements for additional personnel and equipment (for EOC positions, and if known, for field response), including the determination to request expanded support for medical/health positions in coordination with the Chester County Health Department

Organization Structure:
During Level III, steady state, the human services coordination section chief reports directly to the deputy director of emergency management. The human services coordination section chief reports directly to the EOC director during Level II and I EOC activations. The human services coordination section chief oversees the medical/health, mass care, and transportation positions.

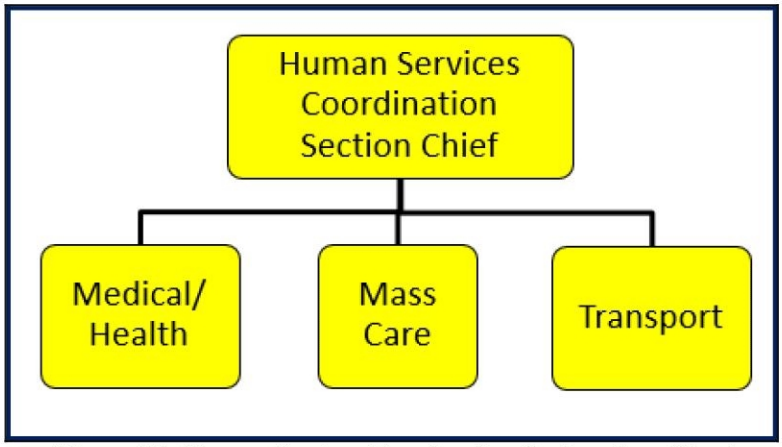

Figure 10: Human Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
American Red Cross	**Mass Care and Medical/Health** • Manage mass care facilities (e.g., shelters) • Provide medical personnel as available to assist in public health needs • Acquaint families with available health resources and services within mass care facilities operated by ARC • Support reunification efforts
Brandywine Valley SPCA	**Mass Care** • Provide support for the sheltering of household pets and service animals
Chester County Animal Response Team	**Mass Care** • Establish pet shelter co-located with general shelters to provide for the sheltering and care of household and service animals
Chester County ARES/RACES	**Mass Care** • Provide radio communications capabilities at mass care locations

Chester County Department of Community Development	**Mass Care** • Coordinate with emergency shelter partners to extend hours for continued safe shelter of individuals and families experiencing homelessness • Provide assistance in locating long-term housing for displaced residents • Work with Pennsylvania CareerLink to provide jobs assistance during disaster response and recovery operations
Chester County Department of Human Services	
Overall Department	**Mass Care** • Coordinate the activities of member departments to support the delivery of human services in coordination with mass care priorities
Aging	**Mass Care** • Provide information regarding available resources for seniors at mass care facilities, and assist with accessing these resources
Children, Youth, and Families	**Mass Care** • Provide support for the provision of necessary services that cannot be provided by families
Drug and Alcohol Services	**Mass Care** • Provide drug/alcohol counseling for displaced residents
Managed Behavioral Healthcare	**Mass Care and Medical/Health** • Provide connections to behavioral health organizations in the community
Mental Health and Intellectual and Developmental Disabilities	**Mass Care** • Provide access to the Disaster Counseling Outreach Referral Team (DCORT) • Provide disaster psychological support • Provide subject-matter expertise on working with access and functional needs populations with mental health needs
Chester County Facilities Department	**Transportation** • Provide transportation assets
Chester County Food Bank	**Mass Care** • Provide initial meals at mass care facilities

Chester County Health Department	**Medical/Health and Mass Care** • Establish and operate special medical sheltering units as needed • Establish and operate points of distribution (PODs) for bulk commodity distribution • Coordinate the provision of medical countermeasures to residents, responders, and disaster-affiliated volunteers as needed • Provide medical equipment/material to support shelter operations • Provide information regarding the provision of functional needs services at mass care facilities • Provide information regarding the establishment and operation of PODs for bulk commodity distribution • Provide information regarding the provision of medical countermeasures to residents, responders, and disaster-affiliated volunteers • Provide information regarding forecasted resource shortfalls for mass care facilities and PODs
Chester County Sheriff's Office	**Mass Care** • Provide security at mass care facilities
Chester County Planning Commission	**Mass Care** • Leverage GIS data to assist with finding sites suitable for temporary housing
Civil Air Patrol	**Mass Care and Transportation** • Provide aerial imagery and reconnaissance, which can be leveraged in considering mass care facility activations based on damage assessment reviews and access to facilities
Penn State Cooperative Extension, Chester County	**Medical/Health** • Provide subject matter expertise pertaining to agriculture food sources and outbreaks among livestock
Pennsylvania Department of Health and Human Services	**Mass Care and Medical/Health** • Provide Disaster Supplemental Nutrition Assistance Program (DSNAP) • Provide support to the Chester County Health Department and Chester County Human Services Department
Pennsylvania National Guard	**Transportation** • Provide four-wheel drive and other transportation assets as available

Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts to assist with mass care, medical/health, or transportation needs **Mass Care** • Veterinarians in Chester County – Provide housing for displaced animals **Medical/Health** • Provide access to private-industry resources and assets; either as donated services or via contracts to assist with medical/health, or needs: dialysis providers, home health agencies, hospice providers, durable medical equipment providers, pharmacies: o Provide out-patient medical services o Ensure clients receive medical services and providers can reach clients o Monitor client status and reports urgent needs through proper channels **Transportation** • Krapf Group – Provide transportation support and coordinate securing additional resources if beyond existing, on-site resources
Salvation Army	**Mass Care** • Provide volunteer and resource support for the operations of mass care facilities
Southeastern Pennsylvania Transportation Authority	**Transportation** • Provide transportation resources as available to support to support response and recovery operations
Southeastern Pennsylvania Volunteers Active in Disasters	**Mass Care** • Provide list of non-profit organizations currently accepting monetary and material donations
United States Department of Agriculture	**Medical/Health** • Provide guidance on agriculture issues that affect public health
United Way	**Mass Care** • Run the Southeastern Pennsylvania 2-1-1 to provide pathways for connecting volunteers/donations to non-profit organizations accepting donations of time and materials and individuals in need of assistance

Position-Specific Required Training:
IS-775 – EOC Management and Operations

ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-108 – Community Mass Care and Emergency Assistance
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
AWR-314-W – Mass Prophylaxis Awareness for Public Health Emergencies
AWR-900 – Framework for Healthcare Emergency Management
G-775 – EOC Management and Operations
E0069 – LSCMS Transportation Planning
E0070 – LSCMS Transportation Execution
E0289 – State Volunteer and Donations Management
E0410 – Mass Care/Emergency Assistance Task Force Leaders
E0415 – Mass Care Group Supervisor
E0418 – Mass Care – Emergency Assistance Planning and Operations
MGT-341 – Disaster Preparedness for Hospitals and Healthcare Organizations within the Community Infrastructure
MGT-409 – Community Healthcare Planning and Response to Disasters
MGT-454 – Healthcare Coalition Response Leadership Course
MGT-439 - Pediatric Disaster Response and Emergency Preparedness
MGT-901 – Healthcare Leadership for Mass Casualty Incidents
PER-292 – Leadership and Management of Surface Transportation Incidents
PER-324 – Healthcare Emergency Response Operations for CBRNE Incidents

Checklists
The following checklists are used by the human services coordination section chief based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current safety and security guidance from EOC receptionist
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Prioritize and direct section staff to address initial section-related tasks**
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form. Document all open assignments for each section position to ensure continuity of tasks across shift change**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
- ☐ **If errors are identified in WebEOC, make corrections**
- ☐ **Direct section staff to address section-related tasks to meet incident objectives and reiterate the resource request process with section staff and support agencies**
- ☐ **Review open assignments for positions in the human services coordination section and modify based on effectiveness of current operations**
- ☐ **Fulfill tasks of un-activated section positions (see technical support and finance/administration position annexes), ensuring appropriate checklist tasks are completed**
- ☐ **Participate in preparation and review of the EOC Action Plan, submitting the following to the watch officer and Planning/Situational Awareness Section Chief**
  - Advise on current capabilities and limitations
  - Determine additional resources needed
  - Discuss long-range plans and identify potential or future requirements
- ☐ **Summarize current efforts/activities based on section Essential Elements of Information (EEIs) for the EOC director and watch officer every hour in advance of the EOC briefing**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Address logistical problems reported by section staff and support agencies**
- ☐ **If necessary, assist section staff with processing resource requests regarding mass care, medical/health, and/or transportation resources, or direct section staff to do so. Use the WebEOC resource request process**

☐	**Lead the development of an initial housing strategy in coordination with the mass care position and appropriate support agencies (e.g., American Red Cross), if necessary**
☐	**Work with the United Way to establish the plan for the handling of spontaneous volunteers and donations, if necessary**
☐	**Determine the need for mass care facilities with the mass care position, providing recommendations to the EOC director**
☐	**If deemed necessary, coordinate the establishment of mass care facilities with corresponding municipalities, school district representatives, the American Red Cross, the full human services coordination section, and other applicable sections of the EOC**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and spot reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to the watch officer**
☐	**Support the EOC director and watch officer to coordinate transfer of outstanding tasks to the 9-1-1 Communication Center, as appropriate**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Ensure section staff remain in EOC until all missions are complete**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

MASS CARE POSITION

Position Overview:
The mass care position is responsible for monitoring and coordination of shelter services for survivors of a disaster. These can include, but not limit to, the following areas; vulnerable populations, homeless populations, impact of utility outages/service disruptions, etc. Additionally, the mass care position oversees the coordination of food, water, and commodity distribution with support of the Resource Support Section. The mass care position reports to the human services coordination section chief**. DES is the coordinating agency** for this position.

Primary Responsibilities:

- Coordinate the establishment and support of mass care facilities during response and recovery operations, as supported by the section chief, municipalities, EOC staff, and support agencies to include the following facility types:
    - Mass Care Shelters
        - Including pet shelters
    - Comfort Centers
- Monitoring and coordination of shelter services for survivors of a disaster
- Coordination of food, water, and commodity distribution for mass care facilities through direct coordination with the resource support section and mass care partners (e.g., support agencies)

Organization Structure:
The mass care position reports directly to the human services coordination section chief.

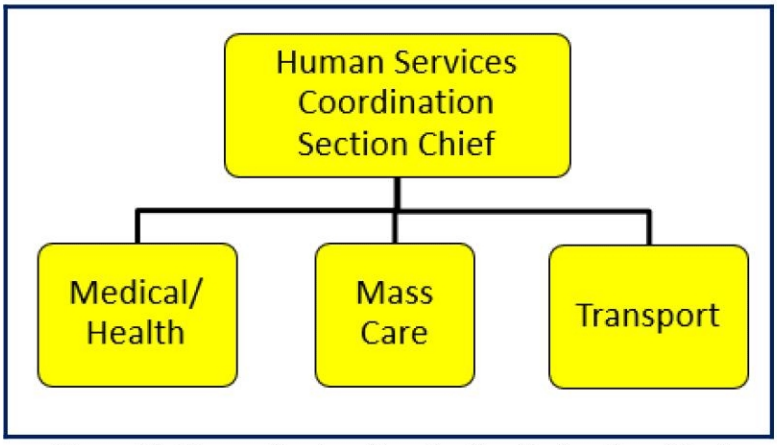

Figure 11: Human Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
American Red Cross	• Provides medical personnel as available to assist in public health needs • Acquaints families with available health resources and services • Supports reunification efforts
Brandywine Valley SPCA	• Provides support for the sheltering of household pets and service animals
Chester County Animal Response Team	• Establish pet shelter co-located with general shelters to provide for the sheltering and care of household and service animals
Chester County ARES/RACES	• Provides radio communications capabilities at mass care facilities, establishing link back to EOC
Chester County Department of Community Development	• Coordinates with emergency shelter partners to extend hours for continued safe shelter of individuals and families experiencing homelessness • Provides assistance in locating long-term housing for displaced residents • Works with Pennsylvania CareerLink to provide jobs assistance during disaster response and recovery operations
Chester County Food Bank	• Provide initial meals at mass care facilities
Chester County Health Department	• Assists in the provision of functional needs support services at general congregate care facilities • Establish and operate special medical needs shelters as requested
Chester County Department of Human Services	
Overarching Department	• Coordinates the activities of member departments to support the delivery of human services in coordination with mass care priorities
Aging	• Provide information regarding available resources for seniors at mass care facilities, and assist with accessing these resources
Children, Youth, and Families	• Provides support for the provision of necessary services that cannot be provided by families
Drug and Alcohol Services	• Provides drug/alcohol counseling for displaced residents

Managed Behavioral Healthcare	• Provides connections to behavioral health organizations in the community, including individuals displaced during an incident
Mental Health and Intellectual and Developmental Disabilities	• Provides access to the Disaster Counseling Outreach Referral Team (DCORT) • Provides disaster psychological support • Provides subject-matter expertise on working with access and functional needs populations with mental health needs
Aging	• Provide information regarding available resources for seniors at mass care facilities, and assist with accessing these resources
Chester County – Municipal Emergency Management Coordinators	• Coordinate the establishment and operation of comfort centers
Chester County Planning Commission	• Leverages GIS data to assist with finding sites suitable for temporary housing
Chester County Sheriff's Office	• Provides security at mass care facilities
Civil Air Patrol	• Provides aerial imagery and reconnaissance, which can be leveraged in considering mass care facility activations based on damage assessment reviews and access to facilities
Pennsylvania Department of Health and Human Services	• Provide Disaster Supplemental Nutrition Assistance Program (DSNAP) • Provides support to the Chester County Health Department and Chester County Human Services Department
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts to assist with mass care • Veterinarians in Chester County – Provide housing for displaced animals
Salvation Army	• Provide volunteer and resource support for the operations of mass care facilities
Southeastern Pennsylvania Volunteers Active in Disasters	• Provide list of non-profit organizations currently accepting monetary and material donations
United Way	• Run the Southeastern Pennsylvania 2-1-1 to provide pathways for connecting volunteers/donations to non-profit organizations accepting donations of time and materials and individuals in need of assistance

Position-Specific Required Training:
IS-0368 – Including People with Disabilities and Others with Access and Functional Needs in Disaster Operations

IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-108 – Community Mass Care and Emergency Assistance
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0410 – Mass Care/Emergency Assistance Task Force Leaders
E0415 – Mass Care Group Supervisor
E0418 – Mass Care – Emergency Assistance Planning and Operations
MGT-403 – Response Planning for People with Access and Functional Needs in Rural America

Checklists
The following checklists are used by the mass care position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current safety and security guidance from EOC receptionist
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form.**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Mass Care Facilities Board
- ☐ **If errors are identified in WebEOC, make corrections. Maintain accurate information on the Mass Care Facilities Board**
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Assist the section chief to develop the initial housing strategy in coordination with the mass care position and appropriate support agencies (e.g., American Red Cross), if necessary**
- ☐ **Determine the need to open/close mass care facilities with the mass care position, providing recommendations to the EOC director**
- ☐ **If deemed necessary, coordinate the establishment of mass care facilities with corresponding municipalities, school district representatives, the American Red Cross, the full human services coordination section, and other applicable sections of the EOC**
- ☐ **Develop/maintain situational awareness of mass care facilities. Provide information to Planning/SA Section via WebEOC and inform emergency services coordination section chief**
- ☐ **Coordinate family reunification efforts with support from the section chief**
- ☐ **Work with the United Way to establish the plan for the handling of spontaneous volunteers and donations, if necessary**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**

☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**Participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in sheet -Forward phone to voicemail

MEDICAL/HEALTH POSITION

Position Overview:
The medical/health position is responsible for coordinating public health and medical resources, capabilities, and capacities with all agencies and organizations that carry out public health or medical services through the coordination of services, equipment, and personnel needed to protect the health of the public, as well as management of those resources. Additionally, the medical/health position develops situational awareness of the overarching medical response and disseminates public health information. The medical/health position reports to the human services coordination section chief. **Chester County Health Department (Health Department) is the coordinating agency** for this position.

Primary Responsibilities:

- Support local assessment and identification of public health and medical needs and implement plans to address those needs
- Establish and maintain situational awareness regarding the status of health care facilities and their capabilities and capacities; coordinate and support stabilization of the public health and medical system as needed
- Support monitoring, investigating, and controlling of potential or known threats and impacts to human health through surveillance and delivery of medical countermeasures and non-medical interventions
- Support monitoring, investigating, and controlling of potential or know threats to human health of environmental origin
- Monitor need for and coordinate resources to support fatality management services, as necessary, in coordination with the Chester County Coroner's Office
- Monitor need for and coordinate resources to support disaster behavioral health services
- Support responder safety and health needs
- Provide public health and medical technical assistance and support
- Monitor and coordinate the establishment and management (include the support of resource requests) of alternate care sites, such as triage and treatment sites, medical sheltering units, and mass dispensing of prophylactics or vaccines, to ensure adequate staffing and supplies
- Monitor and coordinate resources to support care and movement of people with disabilities and others with access and functional needs with support of the transportation position
- Coordinate Chester County Medical Reserve Corps (MRC) volunteer deployment and management of medical support personnel
- Monitor the need to coordinate with the Health Department to establish an expanded medical branch as defined by the Health Department (e.g., for medical/health-focused incidents)
- Serve as a liaison between the EOC and Health Department Operation Center during public health and medical incidents and inform alignment of county response efforts during large scale public health and medical incidents

- Develop and coordinate accurate and timely public health and medical information in coordination with the public information officer (PIO) or Joint Information Center (JIC), if activated. Dissemination of information will be coordinated by the PIO or JIC
- Provide clinical guidelines within the context of scarce resources [Crisis Standards of Care (CSC)] see PA MEMS vol. iv Modified Delivery of Care

Organization Structure:
The medical/health position reports directly to the human services coordination section chief.

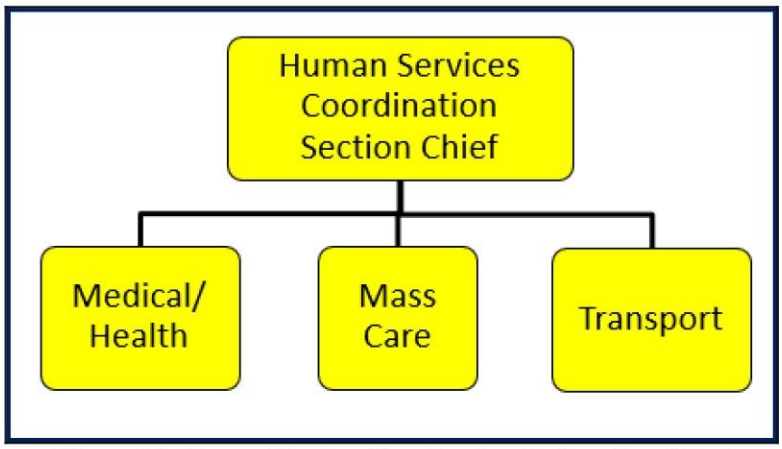

Figure 12: Human Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
American Red Cross	• Provides medical personnel as available to assist in public health needs • Acquaints families with available health resources and services in mass care facilities under organizational operation • Supports reunification efforts
Chester County Department of Mental Health and Intellectual and Developmental Disabilities (part of the Department of Human Services)	• Coordinate with the Disaster Counseling Outreach Referral Team (DCORT) • Provides disaster psychological support • Provides subject-matter expertise on working with access and functional needs populations who have mental health needs

Chester County Health Department	• Establish and operate special medical sheltering units as needed • Establish and operate points of distribution for bulk commodity distribution • Coordinate the provision of medical countermeasures to residents, responders, and disaster-affiliated volunteers as needed • Provide medical equipment/material to support shelter operations • Provide information regarding the provision of functional needs services at mass care facilities • Provide information regarding the establishment and operation of PODs for bulk commodity distribution • Provide information regarding the provision of medical countermeasures to residents, responders, and disaster-affiliated volunteers • Provide information regarding forecasted resource shortfalls for mass care facilities and PODs
Chester County Solid Waste Authority	• Provide information regarding the means for disposal of waste
Hospital and Health System Association of Pennsylvania	• Provide information regarding available of bed space in local hospital and health care facilities via the HAP Coordination Desk • Provide information regular updates regarding HAP activities via the HAP Coordination Desk
Penn State Cooperative Extension, Chester County	• Provide subject matter expertise pertaining to agriculture food sources and outbreaks among livestock
Pennsylvania Department of Health and Human Services	• Provide Disaster Supplemental Nutrition Assistance Program (DSNAP) • Provides support to the Chester County Health Department
Private Industry	• Provide access to private-industry resources and assets; either as donated services or via contracts to assist with medical/health, or needs: dialysis providers, home health agencies, hospice providers, durable medical equipment providers, pharmacies: o Provide out-patient medical services o Ensure clients receive medical services and providers can reach clients o Monitor client status and reports urgent needs through proper channels

United States Department of Agriculture	• Provide guidance on agriculture issues that affect public health

Position-Specific Required Training:
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-108 – Community Mass Care and Emergency Assistance
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
AWR-314-W – Mass Prophylaxis Awareness for Public Health Emergencies
AWR-900 – Framework for Healthcare Emergency Management
G-775 – EOC Management and Operations
E0410 – Mass Care/Emergency Assistance Task Force Leaders
E0418 – Mass Care – Emergency Assistance Planning and Operations
MGT-341 – Disaster Preparedness for Hospitals and Healthcare Organizations within the Community Infrastructure
MGT-409 – Community Healthcare Planning and Response to Disasters
MGT-454 – Healthcare Coalition Response Leadership Course
MGT-439 – Pediatric Disaster Response and Emergency Preparedness
MGT-901 – Healthcare Leadership for Mass Casualty Incidents
PER-324 – Healthcare Emergency Response Operations for CBRNE Incidents

Checklists
The following checklists are used by the medical/health position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current safety and security guidance from EOC receptionist
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Mass Care Facilities Board

  Note: If errors are identified in WebEOC, make corrections
- ☐ **Monitor Knowledge Center Health Incident Management System (KC-HIMS) and document high-level (in compliance with HIPPA) information in WebEOC Activity Log**
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Establish communication links with support agencies and healthcare units/organizations**
- ☐ **Monitor census of hospitals and emergency departments throughout the county. Report information via the WebEOC (may be included in assigned EEIs)**
- ☐ **Monitor for potential or known threats and impacts to human health through surveillance and delivery of medical countermeasures and non-medical interventions**
- ☐ **Monitor for potential or known environmental threats and impacts to human health**
- ☐ **Coordinate information sharing between the EOC and Health Department Operation Center during public health and medical incidents and inform alignment of county response efforts during large-scale public health and medical incidents**
- ☐ **Monitor and coordinate the establishment and management of alternate care sites, such as triage and treatment sites, medical sheltering units, and mass dispensing of prophylactics or vaccines, to ensure adequate staffing and supplies. Coordinating with the mass care position as appropriate**
- ☐ **Monitor need for resources to support fatality management services, as necessary, in support coordination of these resources with the Chester County Coroner's Office via the EOC Coroner liaison (if activated) or directly with the department**

☐	**Monitor the need to support care and movement of people with disabilities and others with access and functional needs**
☐	**If deemed necessary, in coordination with the EOC transportation position, coordinate the support care and movement of people with disabilities and others with access and functional needs**
☐	**Monitor the need to coordinate with the Health Department to establish an expanded medical branch as defined by the Health Department (e.g., for medical/health-focused incidents)**
☐	**Identify any incident specific safety and health information relevant to first responders and relay information in coordination with the Emergency Services Coordination Section**
	Determine the status of the Chester County Medical Reserve Corps (MRC) and evaluate the need for their deployment
☐	**If deemed necessary, coordinate MRC volunteer deployment and management of medical support personnel**
☐	**Coordinate the medical services needed for shelter operations with the mass care position**
☐	**Obtain an initial medical situation assessment through established intelligence gathering procedures; determine the appropriate management response to meet the request for assistance**
☐	**Obtain and distribute, through appropriate channels, incident contact information to emergency responders mobilized through Medical/Health**
☐	**Monitor need for and coordinate resources to support disaster behavioral health services for victims, families, first responders, and the overall community**
☐	**In cooperation with agriculture and natural resources liaison, ensure the safety and security of regulated foods by working with the United States Department of Agriculture**
☐	**Coordinate the development and distribution of medical/health and associated life safety information with the public information officer or JIC (if activated)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements

☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to the watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

TRANSPORTATION POSITION

Position Overview:
The transportation position is responsible for assisting Chester County and municipal entities, as well as voluntary and partner organizations, requiring transportation capacity to perform response missions associated with major disasters or emergencies. The transportation position reports to the human services coordination section chief**. DES is the coordinating agency** for this position.

Primary Responsibilities:

- Coordinate transportation resources to support Chester County and municipal entities in completing response missions to include the following:
  - Transportation of disaster survivors to/from mass care facilities
  - Transportation of response personnel to complete response activities

  Note: The transportation position does not focus on road closures or the restoration of transportation infrastructure, though this position may need to coordinate with the road closure position to ensure the safe transportation of personnel or survivors

Organization Structure:
The transportation position reports directly to the human services coordination section chief.

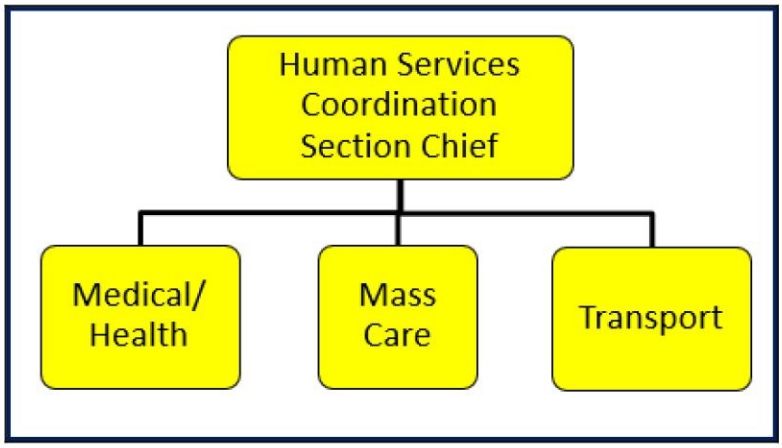

Figure 13: Human Services Coordination Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Facilities Department	• Provides transportation assets when the Parks and Recreations (when most effective) can be utilized to support • Provides contracting services for transportation operations to obtain heavy equipment and/or demolition services as needed

Civil Air Patrol	• Provides air transportation for key personnel and may be leveraged for damage assessments
Pennsylvania National Guard	• Provides four-wheel drive and other transportation assets and other assets as available from the 1067th Transportation Company
Southeastern Pennsylvania Transportation Authority	• Provides transportation resources as available to support to support response and recovery operations
Private Industry	• Provides access to private-industry resources and assets; either as donated services or via contracts to assist with transportation needs: ○ Krapf Group – Provides transportation support

Position-Specific Required Training:
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0069 – LSCMS Transportation Planning
E0070 – LSCMS Transportation Execution

Checklists
The following checklists are used by the transportation position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current safety and security guidance from EOC receptionist
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Road Closure Board
- ☐ **If errors are identified in WebEOC, make corrections**
- ☐ **Establish communication links with support agencies and private industry**
- ☐ **Obtain an initial assessment of transportation assets currently in use and transportation needs through established intelligence procedures (check past Activity Log entries, if applicable, and contact transportation vendors); determines the appropriate management response to meet the request for assistance**
- ☐ **Monitor and track operational status and staffing levels of transportation assets throughout the county, including but not limited to school transportation, mass transit (rail and bus) and airports. Log this information and share to the Significant Events board**
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Establish a transportation plan to coordinate relief resources to replace or rotate with committed transportation resources for extended operations**
- ☐ **Track and support voluntary and mandatory evacuation orders issued by the governor or local municipalities (via Chester County EOC email account). Log information in the Significant Events board of the WebEOC and ensure the planning/SA section is made aware**
- ☐ **Coordinate the provision of transportation support for county and municipality entities**

☐	**Identify temporary alternative transportation solutions implemented by others when infrastructure is damaged, unavailable, or overwhelmed**
☐	**Monitor and report status of and damage to transportation systems and infrastructure as a result of the incident**
☐	**Coordinate resource needs, and determines and resolves, as necessary, issues regarding resource shortages and resource ordering issues**
☐	**Maintain close coordination with local EOCs and support agencies regarding their transportation needs**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

RESOURCE SUPPORT SECTION CHIEF

Position Overview:
The resource support section chief provides operational assistance and coordination of supplemental resources and performs logistical operations necessary to support an emergency response or recovery effort or other disaster assistance initiative. The section chief oversees the areas of finance/administration and technical support. The section chief reports to the EOC Director. **DES is the coordinating agency for this position.**

Primary Responsibilities:
This position includes providing or obtaining goods or services and executing logistical or administrative activities for emergency response operations, as well as coordinating the use of the resources to facilitate an effective, efficient, and appropriate result.

- Implement the Chester County Resource Request and Logistics System using the associated annex to drive the resource request process (see Concept of Operations to guide the resource request process, including fulfillment)
    - May include coordination to secure/purchase any of the following:
        - Equipment or supplies
        - Temporary office space or mobile office units
- Monitor and manage the resource request process using the WebEOC resource request process
    - Review the Missions Board and make tasking assignments
    - Review/maintain the Chester County Resource Board (lists all task-force purchased assets and status)
- Coordinate the use of existing and emergency contracting agreements to support EOC and response operations
- Oversee the coordination of securing, payment for, and delivery of food for EOC workers, which should be completed by the EOC receptionist and finance/administration position
- Oversee the coordination of securing and payment of lodging for EOC workers, which should be completed by the EOC receptionist and finance/administration position

Organization Structure:
The resource support section chief reports directly to the EOC director during Level II and I EOC activations. The resource support section chief oversees the finance/administration, EOC personnel support, and technical support positions.

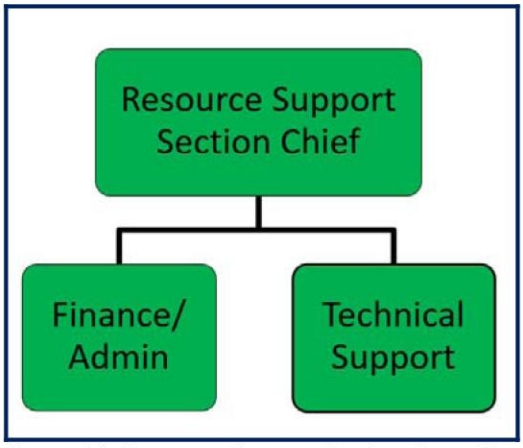

Figure 14: Resource Support Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Department of Procurement and General Services	• Provide assistance in emergency procurement of supplies • Provide assistance in drafting and reviewing contracts associated with the acquisition of materials and supplies
Chester County DCIS	• Provide support regarding computer, network, server, telephonic, and internet issues
Chester County Municipalities	• Provide fuel depots • Provide staging areas and/or points of distribution
Pennsylvania Emergency Management Agency	• Provide support in the form of filling unmet needs when local, county, mutual aid, and private sector resources are expended
Pennsylvania National Guard	• Provide personnel, equipment and supplies to support response and recovery efforts (mission assignment is required from PEMA before they can be mobilized or utilized)

Private Industry (Potential partners include Chester County First, UPS, FedEx, hotels, rental companies, stores/shops, etc.)	• Provide resources to fill unmet needs • Private-sector resources are mobilized through standard contract procedures

Position-Specific Required Training:
IS027 – Orientation to FEMA Logistics
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page iii)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0101 – Foundations of Emergency Management
E0663 – Managing Logistics Fiscal Responsibilities
E0695 – FEMA Resources Unit Leader
E0965 – NIMS ICS All-Hazards Resource Unit Leader Course
E0967 – NIMS ICS All-Hazards Logistics Section Chief Course
E0970 – NIMS ICS All-Hazards Supply Unit Leader Course
E0973 – NIMS ICS All-Hazards Finance/Administration Section Chief Course
E0975 – NIMS ICS All-Hazards Finance/Administration Unit Leader Course
L0811 – FEMA Resource Support Section Incident Support Course
L8541 – Basic Interagency Logistics Seminar

Checklists
The following checklists are used by the resource support section chief based on the operational period.

ARRIVAL/TRANSITION

☐ **Upon Arrival:**
-Sign EOC sign-in sheet
-Sign into position computer
-Unforward the phone
-Sign into the WebEOC
-Review most recent Situation Report (SitRep) or spot report
-Review current safety and security guidance from EOC receptionist

☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
- Establishes initial EOC objectives
- Establishes operational tempo and tasks

☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**

☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log. Document all open assignments for each section position to ensure continuity of tasks across shift change**

☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**

☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure**
☐ **common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities

☐ **When Departing:**
-Sign out of computer programs and computer (Do not shut down the computer)
-Sign-out on EOC sign-in/sign-out sheet

ONGOING

☐ **Review WebEOC boards throughout shift:**
-Significant Events Board
-County Status Board
-Schedule Board
-Missions Board
-SEPA RTF Chester County Resource Inventory Board

Note: If errors are identified in WebEOC, make corrections or notify watch officer

☐ **Monitor status of the Missions Board and SEPA RTF Chester County Resource Inventory Board, and initiate the resource request process as requests are received**

☐ **Fulfill tasks of un-activated section positions (see technical support and finance/administration position annexes), ensuring appropriate checklist tasks are completed**

☐ **Direct section staff to address section-related tasks to meet incident objectives and reiterate the resource request process with section staff and support agencies**

☐ **Review open assignments for positions in the resource support section and modify based on effectiveness of current operations**

Resource Request Process

☐ **<u>Receive Requests:</u> Document all resource requests from municipalities or partners (e.g., SEPA RTF) in the Activity Log in the WebEOC**

Note: Some municipalities may submit resource requests via the Chester County EOC email or via the EOC fax, and these emails/faxes will be forwarded to the resource support section for processing.

☐ **<u>Needs Assessment:</u> Help municipal representatives complete the Chester County Resource Request Form via the WebEOC unless already completed in the SEPA RTF Chester County Resource Inventory Board.**

Note: Determine the need and ensure the requested resource matches actual need before moving to fulfillment

☐	**Fulfillment 1: Follow the established fulfillment process in the Resource Management and Logistics System Annex**
☐	**Fulfillment 2: For SEPA RTF resources in Chester County, the availability of resources should be checked via the Chester County SEPA RTF Inventory Board**
☐	**Fulfillment 3: Task the finance/administration position with determining and tracking costs associated with each resource request**
☐	**Fulfillment 34 Communicate costs to requesting municipalities (preferably via email)**
☐	**Dispatch/Mobilization: Coordinate directly with the organization fulfilling the resource request to document expected delivery timeline and confirm delivery location**
☐	**Tracking: Track the location and status of resources that are deployed in the field by updating the Missions Board from Dispatch/Mobilization through Demobilization and return of all non-consumable resources in the Missions Board and Activity Log**
☐	**Demobilization 1: For non-consumable resources, work with the municipality representatives or other resource requesters to ensure a timely return of resources to avoid incurring costs for equipment that is not being actively used**
☐	**Demobilization 2: Assist municipalities or other resource requesters to ensure return of non-consumable resources**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations

	- Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

TECHNICAL SUPPORT POSITION

Position Overview:
The technical support position is responsible for ensuring the effective operation of EOC technologies (e.g., computers, printers, AV system, etc.). The technical support position reports to the resource support section chief. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Address all technology issues and requests for troubleshooting support throughout the EOC activation, including the following:
  - Computers and printers
  - Cisco voice-over-Internet-protocol (VoIP), plain-old-telephones (POTS), and Centrex
  - AV system
  - 800 MHz radio system (coordinating with DES Technology Division as necessary)
  - Keyboard-video-mouse (KVM) system in server room
  - Software installations or trouble-shooting (as applicable)
- Coordinate directly with the Department of Computing and Information Services (DCIS) to address issued beyond purview, including network, server, and Internet issues
- Determine the need purchase additional hard-ware/software to meet the needs of the EOC, coordinating pricing and procurement with the finance/administration position
- If activated, coordinate set up of computer and phone systems at the alternate EOC site, including Cisco switches

Organization Structure:
The technical support position reports directly to the resource support section chief.

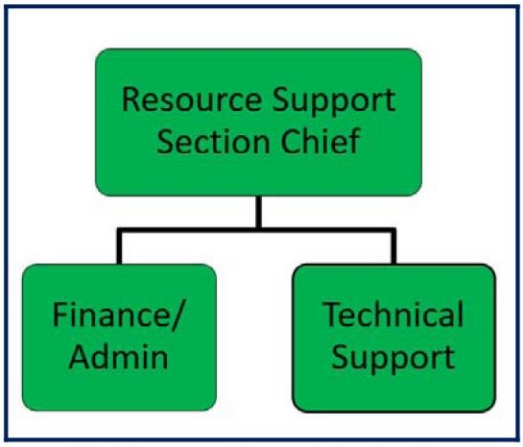

Figure 15: Resources Support Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Department of Procurement and General Services	• Provides assistance in routine and emergency procurement of technology supplies • Provides assistance in drafting and reviewing contracts associated with the acquisition of materials and supplies
Chester County DCIS	• When an issue cannot be handled by the EOC technical support position, provide remote support regarding computer, network, server, telephonic, and internet issues
Private Industry	• Provide resources to fill unmet technological needs and/or trouble-shoot service issues with existing DES accounts • Private-sector resources are mobilized through standard contract procedures

Position-Specific Required Training:
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-775 – EOC Management and Operations
E0101 – Foundations of Emergency Management

Checklists
The following checklists are used by the technical support position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign EOC sign-in sheet -Sign into position computer -Unforward the phone -Sign into the WebEOC. -Review most recent Situation Report (SitRep) or spot report -Review current security guidance from EOC personnel support position	☐ **Review WebEOC boards throughout shift:** -Significant Events Board -County Status Board **Note:** If errors are identified in WebEOC, make corrections or notify watch officer
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)** - Establishes initial EOC objectives - Establishes operational tempo and tasks	☐ **Address assigned tasks from the section chief to meet incident objectives**
☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**	☐ **Troubleshoot computer, VoIP, and network issues as the arise in the EOC, including recurring computer/software issues**
☐ **ACTIVATION: Assist in determining information to be shared on EOC display walls and bring up appropriate data feeds via the AV controls**	☐ **Create/Modify/Unlock/Delete accounts for the WebEOC, ReadyChesco, ChescoAlert, and e-mail/network user accounts**
☐ **ACTIVATON: Assist EOC personnel with computer and WebEOC login issues**	☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log. Document all open assignments for each section position to ensure continuity of tasks across shift change**	☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Review all distributed SitReps and Spot Reports**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities**	☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
	☐ **Determine the need for additional telephones and/or lines to support the EOC. If deemed necessary, set up additional phone systems in the EOC or Room 042 (back-up phone locations are documented in the EOC Handbook)**

☐	**Determine the need to rely on back-up technologies (see EOC Handbook for a full list of redundant technologies)**
☐	**Make the EOC Director aware of any network issues that would interrupt the functioning of the 9-1-1 center or the EOC**
☐	**Assess the need to move to alternate EOC based on the status of EOC technologies. If major technology issues arise that cannot be addressed in less than one hour with significant impacts to EOC operations, recommend to the EOC director the need to activate alternate EOC and transfer operations**
☐	**Determine DCIS on-call to ensure we have a connection for support**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

FINANCE/ADMINISTRATION POSITION

Position Overview:
The finance/administration position is responsible for coordinating all financial, administrative, and cost analysis aspects of an emergency or disaster response support, which can include the establishment of incident billing codes and oversight of resource purchasing to include establishment of a procurement approval/denial process. The finance and administration position reports to the resource support section chief. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Track all incident costs
- Evaluate financial considerations of the incident
- Perform needed administrative functions
- Help restore financial stability after the incident
- Work with vendors to procure supplies and emergency equipment and determine payment methods

Organization Structure:
The finance/administration position reports directly to the resource support section chief.

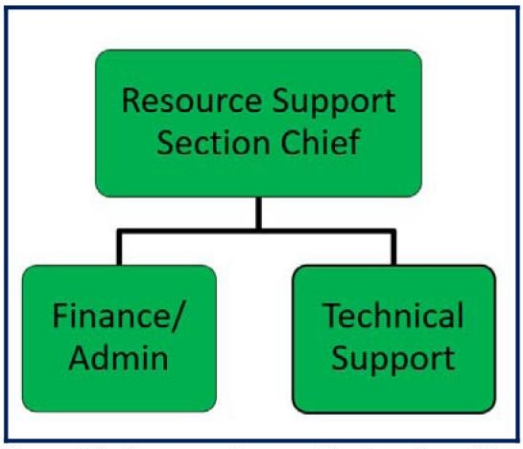

Figure 16: Resource Support Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Department of Procurement and General Services	• Provide assistance in emergency procurement of supplies • Provide assistance in drafting and reviewing contracts associated with the acquisition of materials and supplies
Human Resources Department	• Provide assistance securing temporary staff
Pennsylvania Emergency Management	• Provide support in the form of filling unmet

Agency	needs when local, county, mutual aid, and private sector resources are expended
Private Industry (Potential partners include UPS, FedEx, hotels, rental companies, stores/shops, etc.)	• Provides resources to fill unmet needs • Private-sector resources are mobilized through standard contract procedures.

Position-Specific Required Training:
IS027 – Orientation to FEMA Logistics
IS-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page iii)

Suggested Training:
G-775 – EOC Management and Operations
E0101 – Foundations of Emergency Management
E0663 – Managing Logistics Fiscal Responsibilities
E0973 – NIMS ICS All-Hazards Finance/Administration Section Chief Course
E0975 – NIMS ICS All-Hazards Finance/Administration Unit Leader Course

Checklists
The following checklists are used by the finance/administration position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign EOC sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into the WebEOC -Review most recent Situation Report (SitRep) or spot report -Review current security guidance from EOC personnel support position	☐ **Review WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Schedule Board -Missions Board -SEPA RTF Chester County Resource Inventory Board **Note:** If errors are identified in WebEOC, make corrections or notify watch officer
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)** - Establishes initial EOC objectives - Establishes operational tempo and tasks	☐ **Address assigned tasks from the section chief to meet incident objectives**
☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**	☐ **Providing clear guidance on guidelines, work with EOC director and section chiefs to ensure work/rest guidelines are met**
☐ **ACTIVATION: Review existing mutual aid agreements, memorandums of understanding, and contractual agreements and save copies to the File Library Board**	☐ **Identify financial requirements for incident operations, ensuring proper documentation of all financial expenditures are being processed and tracked properly using the EOC Activation project code (96000115)**
☐ **ACTIVATION: Relay pertinent charge code information, time-keeping, and procurement information to the resource support section chief and EOC director for inclusion in EOC briefings** **Note:** The finance/administration position may provide this information during the briefing	☐ **Work with the EOC receptionist to secure food and lodging (if necessary) for EOC staff, using pre-existing food/lodging contracts/MOUs, if available, or other vendors**
☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log. Document all open assignments for each section position to ensure continuity of tasks across shift change**	☐ **Obtain copies of all incident-related agreements, activated or not, and save digital copies on the shared drive and in the WebEOC**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form.**	☐ **Assist the resource support section chief with the resource request process by determining costs and securing resources using agreements (mutual aid/memorandum of understanding) and contracts to meet unmet needs as directed**
☐ **When Departing:** --Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **Work with EOC liaisons from outside agencies and departments to determine if existing county contracts that can be used to secure resources**
	☐ **Coordinate with command staff and section chiefs to determine the need for temporary employees. If deemed necessary, coordinate with the Chester County Human Resources Department**
	☐ **Initiate, maintain, and ensure completeness of documentation needed to support claims for emergency funds, including auditing and**

	documenting labor, equipment, and services.
☐	**Develop Procurement Plan to address/include spending caps, necessary forms, which positions have purchasing authority, process for obtaining approval to exceed caps, and coordination process**
☐	**Maintain comprehensive audit trail for all procurement documents using normal procurement procedures**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

PLANNING/SITUATIONAL AWARENESS SECTION CHIEF

Position Overview:
The planning/situational awareness section chief is responsible for evaluating the situation through the collection, analysis, and packaging of data inputs to ensure decision makers and stakeholders remain informed. The main information products are situation reports. Additionally, the section chief may be tasked with forecasting requirements for additional personnel and equipment. The section chief oversees the areas of critical infrastructure/key resources, road closures, and geographic information systems. The section chief also maintains oversight of the Amateur Radio Emergency Service (ARES)/Radio Amateur Civil Emergency Service (RACES) liaison. The section chief reports to the EOC Director. **DES is the coordinating agency for this position.**

Primary Responsibilities:

- Develop and maintain situational awareness through the collection, analysis, and reporting on key incident information, including the development of situation reports
    - Review data inputs from other EOC staff's essential elements of information (EEIs) as received via the WebEOC
    - Leverage information from section staff in the areas of critical infrastructure/key resources, road closures, and geographic information systems
    - Gain information from other facilities in terms of status via WebEOC boards and from ARES/RACES position
    - Review incident management boards to gather current data
- Forecast requirements for additional personnel and equipment and coordinate fulfillment with the resource support section via the resource request process
- Oversee the development of the EOC Action Plan (EAP) in coordination with the EOC director
- Oversee the ongoing After Action Report (AAR) process
- Overseeing damage assessment and debris management processes; coordination of process is handled by CI/KR position

Organization Structure:
The planning/situational awareness section chief reports directly to the EOC director during Level II and I EOC activations. The planning/situational awareness section chief oversees the CI/KR, road closure, GIS, and ARES/RACES liaison positions.

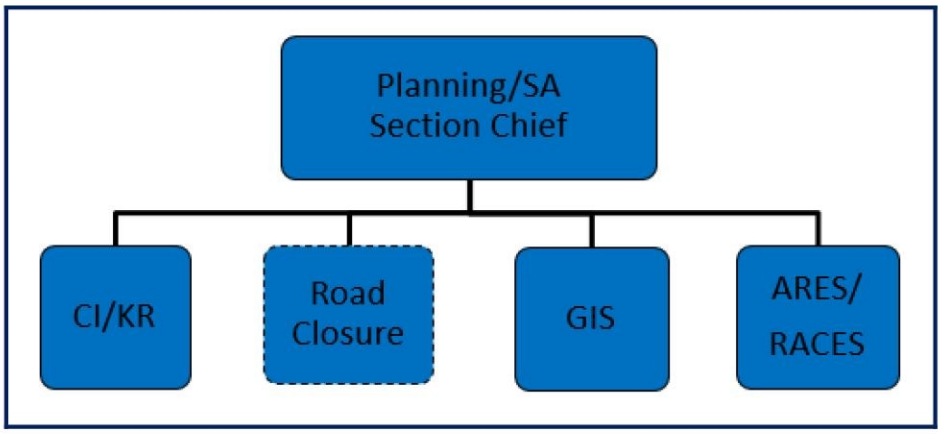

Figure 17: Planning/Situational Awareness Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Airport Authority	• Provide information regarding the status of airport
Chester County Assessment Office	• Assists in the damage assessment process (which is coordinated by CI/KR position in EOC)
Chester County Facilities Department	• Report the status of county-owned bridges • Provide the use of county-owned facilities, (space) as required to support operations • Coordinate repairs to county-owned facilities
Chester County Health Department	• Provide expertise on matters related to public health, as it relates to infrastructure • Identify structures and conditions that pose a threat to public health
Chester County Municipalities	• Provide information regarding the use of disaster emergency and snow declarations per municipality • Provide information on road closures
Chester County Municipalities' Public Works Facilities/Departments	• Provide equipment and personnel in the support of public works missions • Provide assistance in debris management • Provide information regarding the status of municipal public works facilities and systems

Chester County Planning Commission	• Provide GIS data and analysis to support damage assessment and debris removal processes • Provide GIS-driven expertise and to provide guidance on rebuilding the community after disaster
Chester County Solid Waste Authority	• Provide information regarding the provision of assistance in the management of solid waste/debris • Provide information regarding the means for disposal of medical waste
Chester County Water Resources Authority	• Provide information related to dams, reservoirs, and water supply intakes in the county. • Provide technical experience to evaluate damage to water control facilities. • Provide guidance on the levels of potable water sources • Assist in providing information regarding the process of identifying alternate water supplies and wastewater collection and treatment for critical health care facilities
Chester County ARES/RACES	• Provide redundant and backup communication support for operational communication and information gathering purposes
Civil Air Patrol	• Provide aerial imagery and reconnaissance
Hospital and Health System Association of Pennsylvania	• Provide information regarding status of hospital infrastructure, including availability of bed space in local hospital and health care facilities via the HAP Coordination Desk
Local Utility Companies	• Provide information and resources to assist in the assessment and repair of damages or destroyed communications infrastructure.
National Weather Service	• Provide weather support for forecasted road conditions and ongoing incident weather conditions
Pennsylvania Department of Transportation (PennDOT)	• Provide information regarding the status of state-maintained roads, including highways • Provide information regarding driving restrictions across the state • Provide live-video feeds from 511 traffic cameras via Genetec system
Pennsylvania Turnpike Commission	• Provide information regarding the status of the Pennsylvania turnpikes • Provide information regarding driving restrictions on Pennsylvania turnpikes

Pennsylvania Utility Commission	• Provide support in regulating and interfacing with the local utility companies
Penn State Cooperative Extension; Chester County	• Provide information regarding the effects of damaged infrastructure on agricultural operations within the county
Private Industry	• Private-sector resources provide information on CI/KR status and may be leveraged for additional data points to build situational awareness • Private-sector resources are mobilized through standard contract procedures • Provides information and resources to assist in the assessment and repair of damages or destroyed communications infrastructure. • Provides assistance in matter relating to water infrastructure • Assists in identifying critical infrastructure/key resources requiring priority power restoration
Southeastern Pennsylvania Transportation Authority	• Provide information regarding transportation resources as available to support the operation • Provide information regarding SEPTA infrastructure and operations status
United States Army Corps of Engineers	• Provide structural analysis of critical transportation infrastructure to determine its stability/safety • Provide information regarding Arm Corps support in the emergency restoration of critical transportation infrastructure

Position-Specific Required Training:
Chester County Road Closure Software Training
IS-235.c – Emergency Planning
IS-775 – EOC Management and Operations
IS-821.a – Critical Infrastructure and Key Resources Support Annex
IS-922 – Applications of GIS for Emergency Managers
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1; PEMA Initial Damage Reporting Courses must be completed prior to filling this position)

Position-Specific Suggested Training:
IS-453 – Introduction to Homeland Security Planning
AWR-213 – Critical Infrastructure Security and Resilience Awareness
E0101 – Foundations of Emergency Management

E0143 – Advanced Situational Awareness and Common Operating Picture
E0190 – ArcGIS for Emergency Managers
E0697 – Planning Section Chief
E0754 – Planning Section Specialist
E0799 – Situation Unit Leader
E0825 – FEMA Incident Action Planning
E0948 – Situational Awareness and Common Operating Picture
E0962 – NIMS ICS All-Hazards Planning Section Chief Course
E0964 – NIMS ICS All-Hazards Situation Unit Leader
E2002 – FEMA Operational Planning Manual
L0814 – FEMA Situational Awareness Section Incident Support Course

Checklists
The following checklists are used by the planning/SA section chief based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log. Document all open assignments for each section position to ensure continuity of tasks across shift change**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities**
- ☐ **When Departing:**
  --Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in sheet.

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Power Outage Board
  -Road Closure Board
  -Mass Care Facility Board
  -CI/KR Board
  -Missions Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Fulfill tasks of un-activated section positions (see critical infrastructure/key resources, road closures, and geographic information systems position annexes), ensuring appropriate checklist tasks are completed**
- ☐ **Direct section staff to address section-related tasks to meet incident objectives**
- ☐ **Review open assignments for positions in the resource support section and modify based on effectiveness of current operations**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Review and edit Essential Element of Information (EEIs) submitted by EOC staff for use in SitReps**
- ☐ **During each EOC briefing, remind EOC staff of deadlines for updating and submitting EEIs for each SitRep**
- ☐ **Develop a SitRep based on the timing established by the EOC director (usually every four hours) and submit to the EOC director an hour prior to planned release time for review. The following are possible data sources:**
  - Incident management boards
  - EEIs from EOC staff submissions
  - Data gathered directly from EOC staff or via ARES/RACES positions
- ☐ **Oversee the development of the EOC Action Plan (EAP) in coordination of the EOC director**
- ☐ **Remind EOC staff at each briefing to document items in the AAR Board in the WebEOC**

☐	**Monitor the potential future need for additional personnel or equipment based on analysis of situational data and coordinate fulfillment with the resource support section chief**
☐	**Notify the watch officer and public information officer of any information requiring distribution prior to the next SitRep and advise them to issue a spot report**
☐	**Notify the technical support position of communication issues**
☐	**Attend EOC briefings: provide status update on operations, resources, and anticipated challenges**
☐	**Collect time-keeping, duty logs, and equipment-use logs submitted by EOC staff**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Collect/collate all requested after-action information submitted via the WebEOC and during hotwash, submitting this information to the training and exercise office for development of the incident AAR**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

CRITICAL INFRASTRUCTURE AND KEY RESOURCES POSITION

Position Overview:
The critical infrastructure/key resources position is responsible for evaluation of disaster impacts on CI/KR through oversight of damage assessment and debris management processes, including the collection of information regarding energy/utilities services and public works. The CI/KR position may also lead coordination for contracting construction management and inspection, emergency repair of water and wastewater facilities, potable water and ice, emergency power and real estate support to assist the county and municipalities. The CI/KR position reports to the planning/SA section chief. **DES is the coordinating agency for this position.**

Primary Responsibilities:

- Collection of data inputs regarding CI/KR status, including status of energy/utilities, public works, healthcare facilities (in coordination with medical/health position), and telecommunication systems (i.e., telephone, cellular, and internet) throughout response and recovery operations
- Overseeing damage assessment and debris management processes
    - Coordination of requests for any specialized resources to complete damage assessment processes (e.g., drones/civil air patrol for damage assessment)
    - Coordination of inspection/data collection of damage to CI/KRs maintained by local municipalities (e.g., dams, bridges, roadways)
    - Coordination for contracting construction management with the resource support section chief for debris removal and emergency repairs to CI/KRs
- Coordination of emergency repair of water and wastewater facilities, power, real estate, and the provision of potable water and ice
- Unless the optional road closure position has been activated, tracking road closures through direct coordination with the 9-1-1 Communication Center
- Unless the optional road closure position has been activated, responsible for collecting and documenting road closures information

Organization Structure:
The CI/KR position reports directly to the planning/situational awareness section chief.

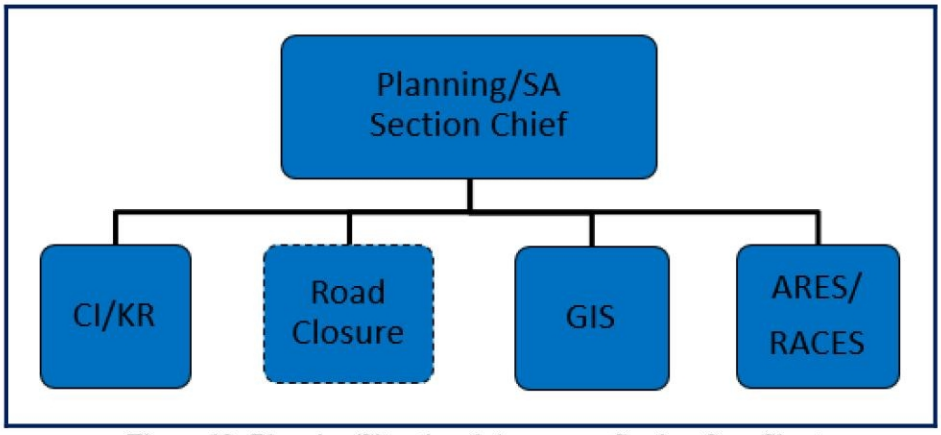

Figure 18: Planning/Situational Awareness Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Airport Authority	• Provide information regarding the status of airport
Chester County Assessment Office	• Assists in the damage assessment process
Chester County Facilities Department	• Report the status of county-owned bridges • Provide the use of county-owned facilities, (space) as required to support operations • Coordinate repairs to county-owned facilities
Chester County Health Department	• Provide expertise on matters related to public health, as it relates to infrastructure • Identify structures and conditions that pose a threat to public health
Chester County Municipalities	• Provide information on road closures
Chester County Municipalities' Public Works Facilities/Departments	• Provide equipment and personnel in the support of public works missions • Provide assistance in debris management • Provide information regarding the status of municipal public works facilities and systems
Chester County Planning Commission	• Provide GIS data to support damage assessment and debris removal process • Provide GIS-driven expertise and to provide guidance on rebuilding the community after disaster
Chester County Solid Waste Authority	• Provide information regarding the provision of assistance in the management of solid waste/debris • Provide information regarding the means for disposal of medical waste
Chester County Water Resources Authority	• Provide information related to dams, reservoirs, and water supply intakes in the county • Provide technical experience to evaluate damage to water control facilities • Provide guidance on the levels of potable water sources • Assist in providing information regarding the process of identifying alternate water supplies and wastewater collection and treatment for critical health care facilities

Chester County ARES/RACES	• Provide redundant and backup communication support for operational communication and information gathering purposes
Civil Air Patrol	• Provide aerial imagery and reconnaissance in support of damage assessment and debris removal
Hospital and Health System Association of Pennsylvania	• Providing information regarding status of hospital infrastructure, including availability of bed space in local hospital and health care facilities via the HAP Coordination Desk
Local Utility Companies	• Provide information and resources to assist in the assessment and repair of damaged or destroyed power and communications infrastructure
National Weather Service	• Provide weather support for forecasted road conditions and ongoing incident weather conditions that may impact CI/KRs
Pennsylvania National Guard	• Provide personnel, equipment and supplies to support response and recovery efforts for debris management
Pennsylvania State Police	• Provide information regarding law enforcement activities and levels of available law enforcement personnel at CI/KR facilities
Pennsylvania Utility Commission	• Provide support in regulating and interfacing with the local utility companies
Penn State Cooperative Extension; Chester County	• Provide information regarding the effects of damaged infrastructure on agricultural operations within the county
Private Industry	• Private-sector resources provide information on CI/KR status and may be leveraged for additional data points to build situational awareness • Private-sector resources are mobilized through standard contract procedures to support damage assessment and debris removal processes • Provides information and resources to assist in the assessment and repair of damages or destroyed communications infrastructure. • Provides assistance in matter relating to water infrastructure • Assists in identifying critical infrastructure/key resources requiring priority power restoration
Southeastern Pennsylvania Transportation Authority	• Provide information regarding SEPTA infrastructure and operations status

United States Army Corps of Engineers	• Provide structural analysis of critical transportation infrastructure to determine its stability/safety • Provide information regarding Army Corps support in the emergency restoration of critical transportation infrastructure

Position-Specific Required Training:
IS-235.c – Emergency Planning
IS-775 – EOC Management and Operations
IS-821.a – Critical Infrastructure and Key Resources Support Annex
G-271 – Hazardous Weather and Flooding Preparedness
(See General EOC Training Requirements on page 1; PEMA Initial Damage Reporting Courses must be completed prior to filling this position)

Position-Specific Suggested Training:
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
AWR-213 – Critical Infrastructure Security and Resilience Awareness

Checklists
The following checklists are used by the CIKR position based on the operational period.

ARRIVAL/TRANSITION	ONGOING
☐ **Upon Arrival:** -Sign EOC sign-in/sign-out sheet -Sign into position computer -Unforward the phone -Sign into WebEOC. -Review most recent Situation Report (SitRep) or spot report -Review current safety and security guidance from EOC receptionist position	☐ **Review WebEOC boards throughout shift:** -Significant Events Board -County Status Board -Power Outage Board -Road Closure Board -Mass Care Facility Board -CI/KR Board -Missions Board **Note:** If errors are identified in WebEOC, make corrections or notify watch officer
☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)** - Establishes initial EOC objectives - Establishes operational tempo and tasks	☐ **Address assigned tasks from the section chief to meet incident objectives**
☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**	☐ **Collect data inputs from facilities and municipalities and update CI/KR Board in WebEOC**
☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**	☐ **Coordinate the damage assessment process based on the *Chester County Damage Assessment Annex*, coordinating with municipalities and pre-designated county departments for field data collection using Knowledge Center Damage Reporter**
☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**	☐ **Provide just-in-time training on Knowledge Center Damage Reporter mobile application to municipal and county representatives, as necessary**
☐ **When Departing:** -Sign out of computer programs (Do not sign-out of computer account or shut down the computer) -Sign-out on EOC sign-in/sign-out sheet	☐ **If road closure position is not activated, coordinate with the 9-1-1 Communication Center to document all road closures using the road closure database (see Road Closure Guide) and document RC-1 closures in the WebEOC Road Closure Board**
	☐ **If road closure position is not activated, review applicable PennDOT 511 live camera feeds to identify changes in traffic patterns on major roads (R1 and R2). See R1 and R2 list in position book as a reference**
	☐ **Collect information regarding the status of power utilities (see Power Outage Board) and telecommunication systems to keep section chief and EOC director informed of status of any major issues**
	☐ **Collect and maintain information regarding the status of hospital/health care facilities in terms infrastructure status, keeping the section chief and EOC director informed of any major issues**
	☐ **Coordinate debris removal process with municipalities and contracted support as defined in the *Chester County Debris Management Plan***

☐	**Coordinate enactment of existing damage assessment or debris removal contracts with the finance/administration position and make requests for resources using the Missions Board in the WebEOC**
☐	**If necessary, coordinate securing potable water and ice through the Missions Board and in coordination with the resource support section**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
☐	**Review all distributed SitReps and Spot Reports**
☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

ROAD CLOSURE POSITION

Position Overview:
The road closure position is an optional position that can be activated based on needed support for tracking road closures as information is reported and relayed via the 9-1-1 Communication Center or via the watch officer. The road closure position is responsible for documenting road closures in the EOC road closure database (displays data on the road closure map) and the WebEOC's log. The road closure position reports to the planning/SA section chief. The road closure position can be split into multiple positions based on incident-specific demands to keep information up-to-date and accurate. **DES is the coordinating agency for this position.**

Primary Responsibilities:
- Tracking road closures through direct coordination with the 9-1-1 Communication Center
- Responsible for collecting and documenting road closures information throughout Level II (partial) and Level I activations (full)

Organization Structure:
The road closure position reports directly to the planning/situational awareness section chief.

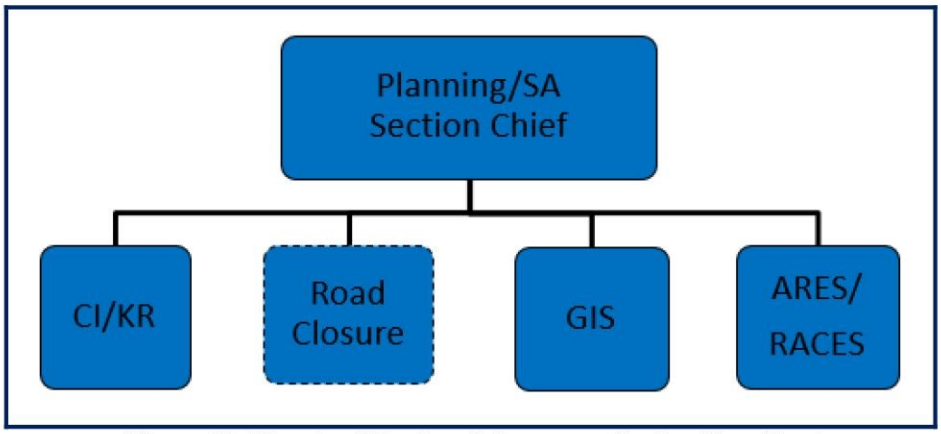

Figure 19: Planning/Situational Awareness Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Municipalities	• Provide information regarding the use of disaster emergency and snow declarations per municipality • Provide information on road closures
Chester County Municipalities' Public Works Facilities/Departments	• Provide assistance in debris management, including removal of debris from roads

Pennsylvania Department of Transportation (PennDOT)	• Provide information regarding the status of state-maintained roads, including highways • Provide information regarding driving restrictions across the state • Provide live-video feeds from 511 traffic cameras via Genetec system
Pennsylvania Turnpike Commission	• Provide information regarding the status of the Pennsylvania turnpikes • Provide information regarding driving restrictions on Pennsylvania turnpikes
Southeastern Pennsylvania Transportation Authority	• Provide information regarding transportation resources as available to support the operation • Provide information regarding SEPTA infrastructure and operations status

Position-Specific Required Training:
Chester County Road Closure Software Training
IS-235.c – Emergency Planning
IS-775 – EOC Management and Operations
IS-821.a – Critical Infrastructure and Key Resources Support Annex

(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-271 – Hazardous Weather and Flooding Preparedness
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents

Checklists
The following checklists are used by the road closure position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Check with 9-1-1 Communication Center supervisor to gain initial set of road closure information and determine if any entries have been made in the WebEOC**
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Road Closure Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Coordinate with the 9-1-1 Communication Center to document all road closures using the road closure database (see Road Closure Guide) and document RC-1 closures in the WebEOC Road Closure Board**
- ☐ **Review applicable PennDOT live 511 camera feeds to identify changes in traffic patterns on major roads (R1 and R2). See R1 and R2 list in position book as a reference**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

GEOGRAPHIC INFORMATION SYSTEM (GIS) POSITION

Position Overview:
The GIS position is responsible for the development and display of geographic information products, including power outage and road closure maps with dynamic updates to ensure accurate projections of emergency or disaster impacts. The GIS position reports to the planning/SA section chief. **DES is the coordinating agency** for this position.

Primary Responsibilities:

- Responsible for the development and display of geographic information products, including maps for display
- Responsible for overseeing the power outage map (viewable on Power Outage Board in WebEOC) and assisting the road closure position with any issues that arise with the road closure map (viewable on Road Closure Board in WebEOC)

Organization Structure:
The GIS position reports directly to the planning/situational awareness section chief.

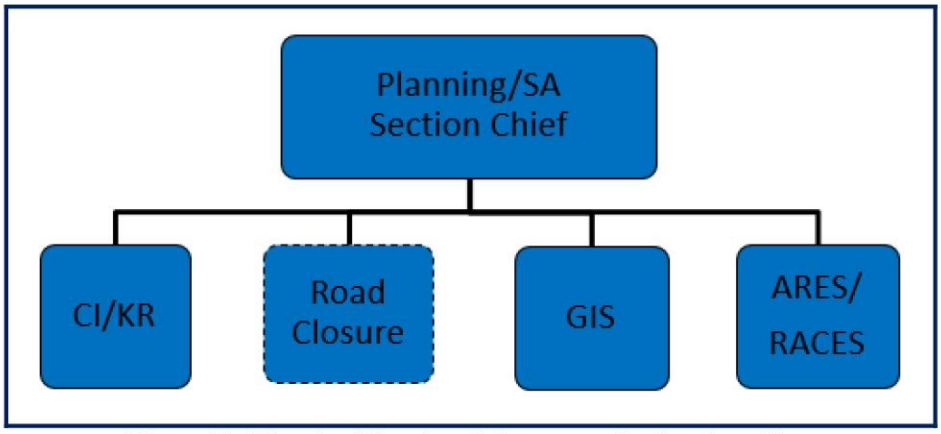

Figure 20: Planning/Situational Awareness Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Chester County Planning Commission	• Provide GIS data analysis to assist in finding sites that are suitable for temporary housing • Provide GIS-driven expertise and to provide guidance on rebuilding the community after disaster
Chester County Department of Computing and Information Services	• Provide GIS data analysis support and potentially staffing in the EOC
Pennsylvania GIS County Professionals (GIS Pros)	• Provide GIS support via mutual aid requests (e.g., PIMAS)

Private Industry	• Private-sector GIS support, including assistance from Esri
GIS Subcommittee – Southeastern Pennsylvania Regional Task Force	• Provide GIS support via mutual aid requests

Position-Specific Required Training:
Chester County Road Closure Software Training
Esri Academy – Getting Started with GIS
Esri Academy – Getting Started with ArcGIS Online
Esri Academy – Get Stared with ArcMap
IS-235.c – Emergency Planning
IS-775 – EOC Management and Operations
IS-922 – Applications of GIS for Emergency Managers
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness

Position-Specific Suggested Training:
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents
E0190 – ArcGIS for Emergency Managers

Checklists
The following checklists are used by the GIS position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Check with 9-1-1 Communication Center supervisor to gain initial set of road closure information and determine if any entries have been made in the WebEOC**
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Power Outage Board
  -Road Closure Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Develop GIS maps for display or analysis purposes**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Maintain the Power Outage Board in the WebEOC**
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

ARES/RACES LIAISON

Position Overview:
The amateur radio emergency services (ARES)/radio amateur civil emergency service (RACES) liaison provides a communication redundancy capability during emergencies or disasters. If primary communication technologies fail during an incident, the ARES/RACES liaison oversees the operation of the all-volunteer organization's operations to support communications, including between the EOC and incident commanders. The ARES/RACES liaison reports to the planning/SA section chief. **ARES/RACES is the coordinating agency for this position.**

Primary Responsibilities:
- Provides a communication redundancy capability during emergencies or disasters
- Oversees the operation of the all-volunteer organization's operations to support communications
- Staff designated shelters (when open) to provide redundant communications

Organization Structure:
The ARES/RACES liaison reports directly to the planning/situational awareness section chief.

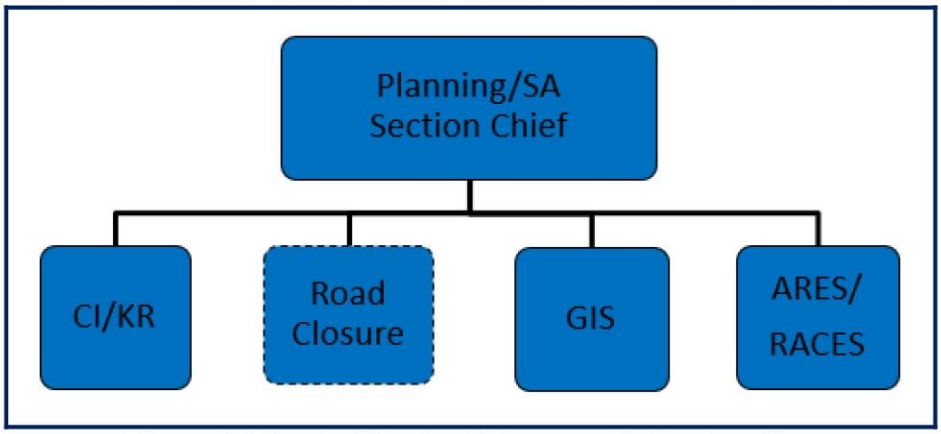

Figure 21: Planning/Situational Awareness Section Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Private Industry	• Provides information and resources to assist in the assessment and repair of damages or destroyed communications infrastructure. • Private-sector resources are mobilized through standard contract procedures.

Position-Specific Required Training:
ARRL Amateur Radio Communications Course (ARECC), Level 1 (or equivalent)
ICS-100 Introduction to the Incident Management System
ICS-700 Introduction to the National Incident Management System (NIMS)
ICS-800 National Response Framework, An Introduction
(Note: The ARES/RACES Liaison position does not require completion of the general EOC training; instead, all training requirements are defined here.)

Position-Specific Suggested Training:
ARRL ARECC, Level 2
ARRL ARECC, Level 3
National Weather Service SKYWARN Storm Spotter Program

ARES/RACES Leadership Required Training:
ICS-200.c – ICS for Single Resources and Initial Action Incidents
ICS-300 – Intermediate ICS for Expanding Incidents
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents

Checklists
The following checklists are used by the ARES/RACES liaison based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer.
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form.**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Facilitate site-to-site communications in support EOC operations, assisting EOC staff with gathering information and communicating with field operations**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

CORONER LIAISON

Position Overview:
During mass casualty and mass fatality incidents, the coroner liaison provides a direct interface between the EOC and the Chester County Coroner's Office, which oversees services for handling fatalities and the conduct of surveillance to identify fatality trends. The liaison reports to the EOC director. The **Chester County Coroner's Office is the coordinating agency** for this position.

Primary Responsibilities:
- Provide direct interface between the EOC and the Chester County Coroner's Office
- Coordinate mortuary services during mass fatality incidents
- Follow potential fatality trends

Organization Structure:
The coroner liaison reports directly to the EOC director.

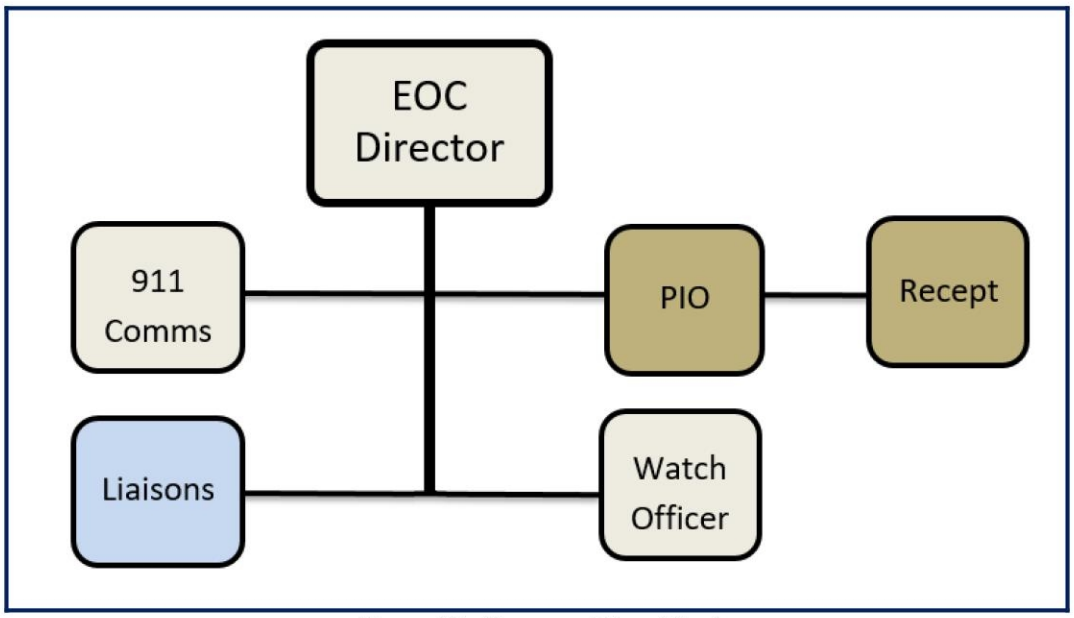

Figure 22: Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Private Industry	• Private-sector resources are mobilized through standard contract procedures.

Position-Specific Required Training:
IS-547 Introduction to Continuity of Operations
IS-775 – EOC Management and Operations

(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
G-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents

Checklists
The following checklists are used by the coroner liaison based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer.
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the EOC director to meet incident objectives**
- ☐ **Coordinate mass fatality operations in line with the *Chester County Mass Fatality Emergency Plan***
- ☐ **Coordinate the use of pre-staged flat-pack coffins stored at the Bacton Hill warehouse facility through the Missions Board in the WebEOC**
- ☐ **Make requests for additional resources to support mass fatality operations via the Missions Board in the WebEOC**
- ☐ **Coordinate the triage and storage of deceased**
- ☐ **Monitor the need for establishing and additional, temporary morgue, and if necessary coordinate between the EOC and Corner's Office to establish the facility, requesting resources via the Missions Board in the WebEOC**
- ☐ **Assess the need for mortuary assistance via mutual aid or other resource request processes, such as the national Disaster Mortuary Operational Response Team (DMORT)**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**

☐	**Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
☐	**Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
☐	**Notify the technical support position of communication issues**
☐	**Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**
☐	**Review the current EOC Action Plan (updated once each shift to help drive the next shift)** - Provides current capabilities and limitations - Documents additional resources needed - Notes long-range plans and identify potential or future requirements
☐	**Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

PECO LIAISON

Position Overview:
During disasters involving a significant loss of electrical power in Chester County, the PECO liaison coordinates the collection of outage information and communication regarding resumption of PECO services. The PECO liaison receives known outage information from the watch officer or other EOC staff, inputs information into PECO's repair tracking software, and coordinates directly with PECO's operations center to maintain situational awareness, establishing an information sharing relationship between the two operations centers. The liaison reports to the EOC Director. **PECO is the coordinating agency for this position.**

Primary Responsibilities:
- Coordinates the collection of outage information and communication regarding resumption of PECO services
- Coordinates directly with PECO's operations center to maintain situational awareness and communicate updates to the EOC staff

Organization Structure:
The PECO liaison reports directly to the EOC director.

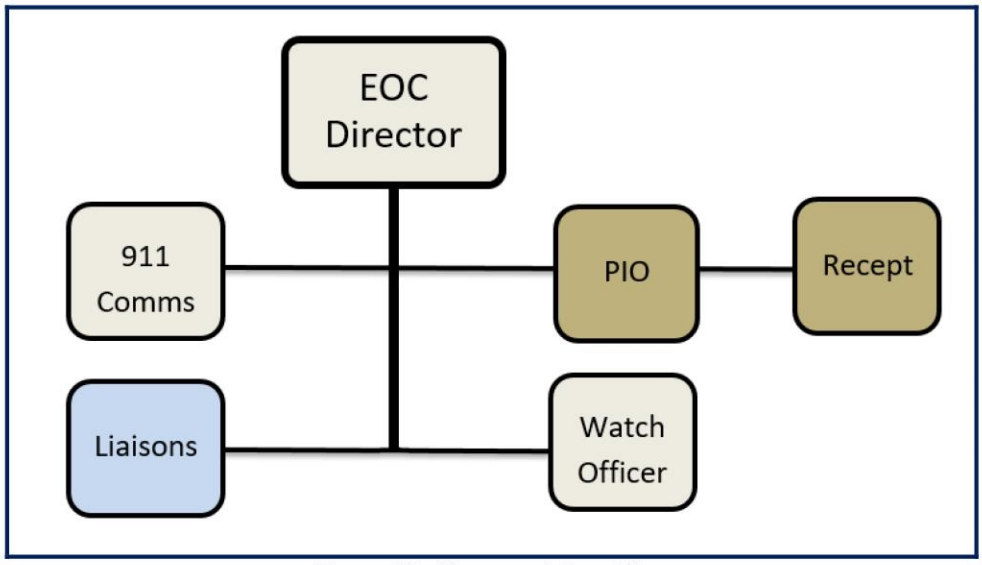

Figure 23: Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
Private Industry	• Provide industry-specific information during an incident, including utility outage/restoration timelines

Position-Specific Required Training:
IS-775 – EOC Management and Operations
(See General EOC Training Requirements on page 1)

Suggested Training:
IS-547 Introduction to Continuity of Operations G-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness

Checklists
The following checklists are used by the PECO liaison position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form.**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Power Outage Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the EOC director to meet incident objectives**
- ☐ **Coordinates directly with PECO's operations center to maintain situational awareness and communicate updates to the EOC staff**
- ☐ **Coordinates the collection of outage information and communication regarding resumption of PECO services**
- ☐ **Coordinate with the road closure and CI/KR positions regarding road closures and power resumption timelines**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sing-out sheet -Forward phone to voicemail

AGRICULTURE AND NATURAL RESOURCES LIAISON

Position Overview:
The agriculture and natural resources liaison is responsible for identifying sources of food supplies, obtaining food resources, and arranging to transport food to designated staging sites in the affected area; providing nutrition assistance; ensuring the safety and security of the commercial food supply; protecting natural and culturally historic resources; and providing for the safety and well-being of household pets and farm animals. The **Penn State Agriculture Extension is the coordinating agency** for this position.

Primary Responsibilities:
- Identifying sources of food supplies, obtaining food resources, and arranging to transport food
- Ensuring the safety and security of the commercial food supply
- Protecting natural and culturally historic resources
- Providing for the safety and well-being of household pets and farm animals

Organization Structure:
The agriculture and natural resources liaison reports directly to the EOC director.

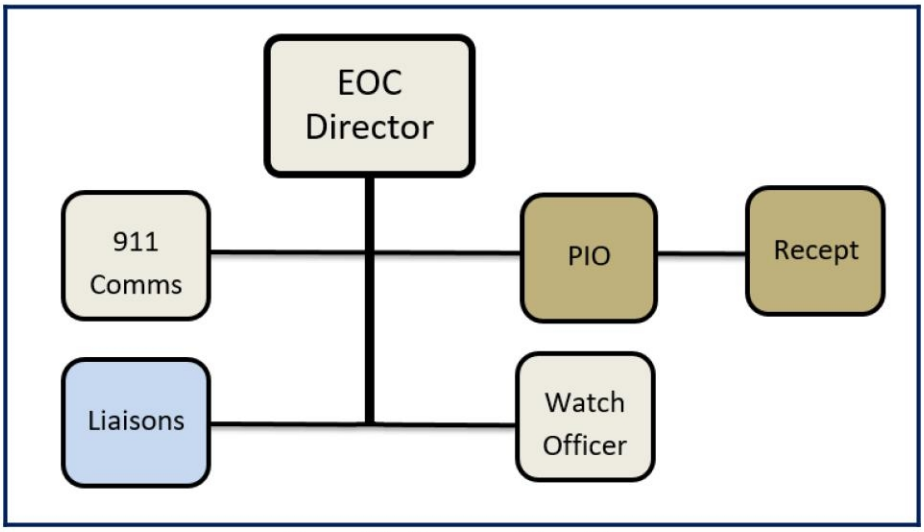

Figure 24: Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
American Red Cross	• Coordinate with other voluntary organizations in the distribution of food
Brandywine Valley Society for the Prevention of Cruelty to Animals (SPCA)	• Provides support for the sheltering of household pets and service animals

Chester County Animal Response Team	• Coordinate sheltering for animals in coordination with Brandywine Valley SPCA • Provide connection to animal and animal-agriculture resources in Chester County
Chester County Conservation District	• Provide assistance with reaching community contacts/organizations focused on natural and cultural resources
Chester County Facilities Department	• Provide personnel, resources, and equipment to assist in large animal rescue and evacuation
Chester County Health Department	• Provide support to determine if food and water courses pose a threat to public health. • Inspect and license food distribution facilities and restaurants • Provide information and guidance on determining nutrition assistance needs
Penn State Cooperative Extension; Chester County	• Provides subject matter expertise in the recovery efforts as it related to the agricultural industry
Pennsylvania Department of Health and Human Services	• Provides Disaster Supplemental Nutrition Assistance Programs
Private Industry	•
United States Park Service	• Provide information and expertise on historic resources

Position-Specific Required Training:
IS-10.a – Animals in Disasters: Awareness and Preparedness
IS-775 – EOC Management and Operations
(See General EOC Training Requirements on page 1)

Position-Specific Suggested Training:
AWR-328 – All Hazards Preparedness for Animals in Disasters
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex
IS-11.1 – Animals in Disasters: Community Planning
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
MGT-228 – All Hazards Planning for Animal, Agricultural, and Food Related Disasters
PER-273 – A Coordinated Response to Food Emergencies: Practice and Execution
PER-200 – Team Approach to Foodborne Outbreak Response

Checklists
The following checklists are used by the agriculture and natural resources liaison position based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet
  -Forward phone to voicemail

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the section chief to meet incident objectives**
- ☐ **Gather/monitor information regarding the status of impacts to animals, including livestock, and agricultural crops**
- ☐ **Coordinate with emergency services regarding the need to rescue pets and other animals. If necessary, request assistance from the 9-1-1 supervisor to activate the County Animal Response Team (CART)**
- ☐ **Coordinate with the mass care position regarding the need to shelter pets and to request resources to open a pet shelter if necessary**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**In coordination with the mass care position, ensure any activated pet shelter facilities have been closed and resources demobilized**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

LONG-TERM COMMUNITY RECOVERY LIAISON

Position Overview:
The long-term community recovery liaison is responsible for overseeing long-term community recovery and mitigation activities following the end of life-safety response operations. **DES is the coordinating agency** for this position.

Primary Responsibilities:
- Overseeing long-term community recovery and mitigation activities following the end of life-safety response operations.
- Coordinate with EOC public affairs staff to disseminate recovery-related public information
- Capture and communicate economic impacts and implications, including unmet community needs, to state, local, and federal leadership

Organization Structure:
The long-term community recovery liaison reports directly to the EOC director.

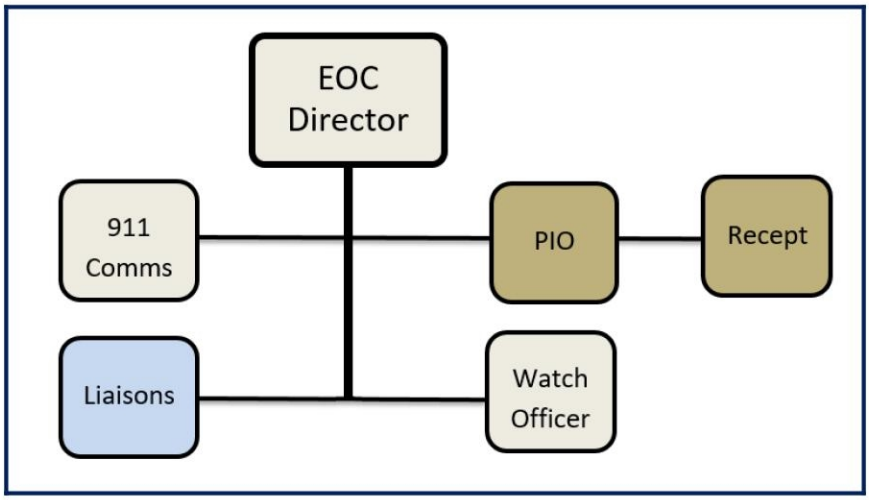

Figure 25: Command Org. Chart

Supporting Agencies:
The following list of agencies can be leveraged to complete the tasks associated with this position in the EOC. For example, these organizations may act as information resources.

Agency	Functions
American Red Cross	• Coordinate and lead county and non-governmental organization (NGO) resources, as required, to support local governments and agencies in the performance of mass care, emergency assistance, housing, and human services missions
Chester County Assessment Office	• Assist in the damage assessment process

Chester County Department of Community Development	• Provide assistance in the support of long term housing of displaced residents • Provide assistance in funding through the Workforce Investment Board for jobs • Provide funding to help rebuild communities
Chester County Long Term Recovery Committee	• Provide assistance with all ongoing disaster assistance and loan applications.
Chester County Municipalities	• Provide assistance, information, guidance, input, and approval on recovery in their municipality
Chester County Planning Commission	• Provide expertise and guidance on rebuilding the community after disaster
Penn State Cooperative Extension; Chester County	• Provide subject matter expertise in the recovery efforts as it related to the agricultural industry
Private Industry	• Provide access to private-sector resources via standard contract procedures to facilitate long-term recovery
Salvation Army	• Provides services related to long term sheltering and support of affected populations
Southeastern PA Voluntary Organizations Active in Disasters	• Provides access to volunteers, resources and equipment to assist in rebuilding and meeting citizens' needs
United Way	• Run the Southeastern Pennsylvania 2-1-1 to provide pathways for connecting volunteers/donations to non-profit organizations accepting donations of time and materials and individuals in need of assistance

Required Training:
IS-775 – EOC Management and Operations
(See General EOC Training Requirements on page 1)

Suggested Training:
IS-558 – Public Works and Disaster Recovery
IS2900.a – National Disaster Recovery Framework (NDRF) Overview
AWR-0356 – Community Planning for Disaster Recovery
G205 or E0210 – Recovery from Disaster: The Local Community Role
G-235 – Emergency Planning
G-271 – Hazardous Weather and Flooding Preparedness
G-775 – EOC Management and Operations
ICS-400 – Advanced Incident Command System for Command and General Staff – Complex Incidents

Checklists
The following checklists are used by liaisons based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet
  -Forward phone to voicemail

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Power Outage Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the EOC director to meet incident objectives**
- ☐ **Coordinate with EOC public affairs staff to disseminate recovery-related public information**
- ☐ **Capture and communicate economic impacts and implications, including unmet community needs, to state, local, and federal leadership**
- ☐ **Overseeing long-term community recovery and mitigation activities following the end of life-safety response operations**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail

GENERIC LIAISON

Position Overview:
Since the type and diversity of liaisons serving in the Chester County Emergency Operations Center (EOC) varies by activation and disaster type, the following position annex established general parameters to help liaisons operate in the EOC that do not have pre-established roles or a position annex. Liaisons, in general terms, provide support EOC operations by serving as a mutual link between each liaison's primary organization and the EOC, promoting an increased awareness for coordination between the organization and emergency operations.

Primary Responsibilities:
- Provide operational status updates from primary organization or act a subject-matter expert as a representative of a specific organization
- If appropriate, coordinate with EOC public affairs staff regarding areas of expertise regarding information that should be disseminated to the public
- Coordinate with primary organization to increase operational coordination between the organization and the EOC

Organization Structure:
All liaisons report directly to the EOC director.

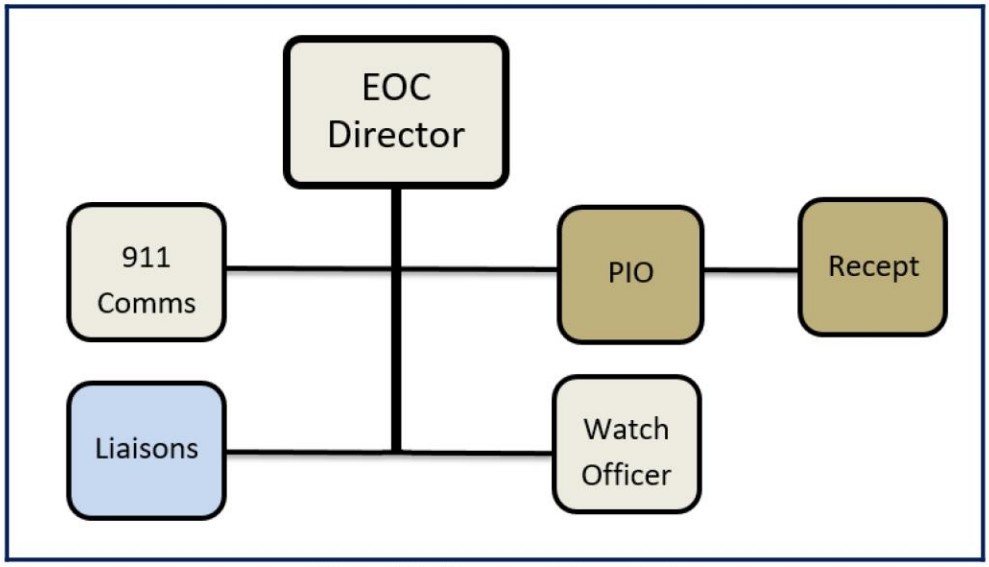

Figure 26: Command Org. Chart

Supporting Agencies:
There are no defined support agencies for the generic position annex for liaisons because the type and role of each liaison will differ.

Just-in Time Training
Chester County EOC Orientation
Chester County EOC Position-Specific Training Session
Chester County WebEOC Basic Training

Checklists
The following checklists are used by liaisons based on the operational period.

ARRIVAL/TRANSITION

- ☐ **Upon Arrival:**
  -Sign EOC sign-in/sign-out sheet
  -Sign into position computer
  -Unforward the phone
  -Sign into WebEOC.
  -Review most recent Situation Report (SitRep) or spot report
  -Review current security guidance from EOC personnel support position
- ☐ **ACTIVATION: Attend initial briefing from watch officer and/or EOC director (may be supported by 9-1-1 Communication Center staff)**
  - Establishes initial EOC objectives
  - Establishes operational tempo and tasks
- ☐ **ACTIVATION: Review and share any applicable existing agency or emergency management plans that will serve as reference resources (may be provided by EOC director or watch officer)**
- ☐ **TRANSITION: An hour prior to departure, fill out the Shift Change Briefing Form and save to WebEOC log**
- ☐ **TRANSITION: Coordinate with departing/arriving position counterpart to ensure common operating picture and conduct formal transfer of responsibilities. Review completed Shift Change Briefing Form**
- ☐ **When Departing:**
  -Sign out of computer programs
  (Do not sign-out of computer account or shut down the computer)
  -Sign-out on EOC sign-in/sign-out sheet
  -Forward phone to voicemail

ONGOING

- ☐ **Review WebEOC boards throughout shift:**
  -Significant Events Board
  -County Status Board
  -Schedule Board
  -Power Outage Board

  Note: If errors are identified in WebEOC, make corrections or notify watch officer
- ☐ **Address assigned tasks from the EOC director to meet incident objectives**
- ☐ **Provide coordination with primary organization and the EOC to support emergency response and recovery operations**
- ☐ **Provide operational status updates from primary organization and act a subject-matter expert in area of expertise**
- ☐ **Coordinate with EOC public affairs staff to support the development of public information**
- ☐ **Review the current EOC Action Plan (updated once each shift to help drive the next shift)**
  - Provides current capabilities and limitations
  - Documents additional resources needed
  - Notes long-range plans and identify potential or future requirements
- ☐ **Complete updates on assigned Essential Element of Information (EEIs) for SitReps and Spot Reports. Provide additional information requested by the Planning/Situational Awareness Section to develop these products**
- ☐ **Review all distributed SitReps and Spot Reports**
- ☐ **Attend EOC briefings: provides status update on operations, resources, and anticipated challenges**
- ☐ **Ensure time-keeping, duty logs, and equipment-use logs are passed to the Resource Support and Planning/SA Sections, as appropriate**
- ☐ **Notify the technical support position of communication issues**
- ☐ **Document After Action Review comments throughout shift on the After Action Review Board in the WebEOC**
- ☐ **Document all actions and activities in the WebEOC's Activity Log (viewable only in position view), including calls, assignment of tasking, and task completion. Elevate important information to Significant Events Board (viewable by all EOC staff)**

DEMOBILIZATION

☐	**Return unused supplies to watch officer**
☐	**Inform watch officer of all outstanding tasks via WebEOC/email**
☐	**If held, participate in EOC hotwash**
☐	**Provide requested after-action meeting information to the planning/SA section chief**
☐	**Remain in EOC until all missions are complete and you are dismissed by the EOC director or watch officer**
☐	**When Departing:** -Sign out of computer programs and computer (Do not shut down the computer) -Sign-out on EOC sign-in/sign-out sheet -Forward phone to voicemail