

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Office of Oil and Gas Management

DOCUMENT NUMBER: XXX-XXXX-XXX

TITLE: Guidelines for the Development and Implementation of Oil and Gas Well Site Integrated Contingency Plans for Unconventional Well Sites

EFFECTIVE DATE: Upon publication of notice as final in the *Pennsylvania Bulletin*

AUTHORITY:

POLICY:

PURPOSE:

APPLICABILITY:

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures will affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department to give these rules that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 41 pages

The Pennsylvania Department of Environmental Protection (DEP or Department) in conjunction with the Pennsylvania Emergency Management Agency (PEMA) has provided this “one-plan” guidance for integrated contingency planning for the Oil and Gas Industry. The intent of its development is to provide Commonwealth unconventional gas operators a common-sense option for meeting multiple emergency/contingency planning requirements under eight different state regulations and guidance documents. This guidance document covers multiple factors as related to regulated substances, accident prevention, mitigation, and response at well sites. To meet the varying needs of a range of public and private sector stakeholders, the plan template herein contains critical information for first responders, a site-specific plan, and a core emergency response plan as well as regulatory references and forms for emergency response field use. Plans prepared in accordance with this guidance document will satisfy requirements of the nine DEP regulations and guidance documents and will be the preferred method of such planning.

This one-plan approach is intended to minimize duplication of effort and standardize the format of emergency response information and DEP’s multiple preparedness, prevention and contingency plans. It is divided into six sections to streamline field use. The structure also streamlines the review process for the DEP and plan maintenance for the Oil and Gas Industry. Following a brief introduction, the second section provides critical information and maps for on-site personnel and first responders, referred to as “Quick Sheets”. The next section is divided into two parts containing a site-specific Emergency Response Plan which can easily be updated for each new location or as the type of activity changes on a site, and an emergency response base plan that may contain companywide or regionally based standard policies and procedures. The remaining sections focus on Prevention Planning as required across multiple DEP regulations and is structured with the intent to reduce redundant information already incorporated into other sections of the plan.

A Regulatory Matrix is provided as a reference to the eight different regulations and guidance documents, as well as the federal SPCC requirements. To generate an integrated contingency plan that includes federal SPCC/FRP regulations, please review the appropriate 40 CFR Part 112 regulations listed in the regulation matrix as the focus of this guidance document is to address state requirements.

The nine state regulations and guidance documents, as well as the federal SPCC, are listed below and are active links to the appropriate government websites.

- [Guidelines for the Development and Implementation of Environmental Emergency Response Plans; PADEP 400-2200-001; Rev. 8/05](#)
- [Oil and Gas Operators Manual; PADEP Bureau of Oil and Gas Management; PADEP 550-0300-001; Chapter 4, Section I.A; Rev. 10/01](#)
- [25 Pa Code § 91.33 \(relating to incidents causing or threatening pollution\)](#)
- [25 Pa Code § 91.34 \(relating to activities utilizing pollutants\)](#)
- [25 Pa Code § 78a.55 \(relating to control and disposal planning; emergency response for unconventional wells\)](#)
- [Pennsylvania’s Oil & Gas Act – Title 58. Chapter 32, Subchapter B: Development §§ 3211--3227](#)
- [Act 13 Frequently Asked Questions](#)
- [Addressing Spills and Releases at Oil & Gas Well Sites or Access Roads, PADEP 800-5000-001, Rev. 09/13](#)
- [40 CFR Part 112 – EPA’s Oil Pollution Prevention Regulation](#)

Section I – Plan Introduction

Section I - Plan Introduction

1. Executive Summary

Briefly describe the oil and gas activity (primary, secondary, tertiary, production or exploratory, conventional, unconventional, etc.) that occurs at the well site. Identify and briefly summarize the type of operations, whether oil, gas or both. Describe the method of drilling the wells (air rotary, fluid rotary, cable tool, etc.).

2. Plan Contact Information

a. Operator

Provide company name. Identify physical and mailing addresses and phone number for corporate office and/or field offices.

b. Key Contact(s) for Plan Development and Maintenance

Provide the name and/or the position in the operator's organization responsible for providing the plan information. Include phone numbers.

3. Plan Review and Record of Revision

The plan must be reviewed and revised prior to implementing a change to the practices identified, and updated with revisions and history after an incident occurs.

The preparedness response organizational structure should have the overall responsibility for periodically reviewing and evaluating the plan and instituting appropriate changes at regular intervals. The organizational structure should also be responsible for the review of new construction and process changes at an installation relative to the plan. The organizational structure should also evaluate the effectiveness of the overall plan and make recommendations to management on related matters.

The operator shall review the emergency response plan (Sections IIA and IIB) and submit an update annually on or before March 1 each year. If updates are not made to the plan for that review period, the operator shall submit a statement indicating the review was completed and updates to the plan were not necessary. The emergency response plan (Sections IIA and IIB) and subsequent updates shall be submitted to: PEMA, the Department, the county emergency management agency, and the Public Safety Answering Point with jurisdiction over the well site.

This section should document the date of the initial development of the plan, as well as every subsequent update made to the plan. This section should be formatted as a table and contain the change number, the date the change was made, and a summary of the changes made to the plan. Any relevant information may be included as well.

4. **Certification of Annual Review**

This page should be updated annually by the unconventional well site operator to certify that they have reviewed the plan and affirm that the Emergency Response plan remains effective to respond to an emergency at the site.

5. **Plan Availability**

A copy of the Preparedness, Prevention and Contingency plan and any subsequent revisions must be maintained on-site during drilling and completions. A copy of the Emergency Response plan shall be available at the well site during all phases of operation. Describe where to find the integrated plan.

6. **Promulgation Page**

The promulgation page is a certification and official declaration that the operator endorses the ERP. The page should be signed by a representative of the company with the authority to make such a declaration.

7. **Table of Contents**

8. **First Responder and On-site Personnel QUICK SHEETS.**

The following Quick Sheets section (pages _ to _ herein) is intended to serve as a standardized reference for first responders and on-site personnel to provide initial critical information without accessing the full integrated Plan. **Once the plan is complete and the Promulgation Page is signed, relocate the Quick Sheet section (pgs _ to _) to the beginning of the emergency response plan section of the completed document in order to facilitate their immediate access.**

Section I.8 – Quick Sheets

Name of Owner/Operator

Site Name- EMERGENCY RESPONSE PLAN

Uncon Well – County, Municipality – Operator – Site Name.
API/Permit # API/Permit #.

Revised Click here to enter a date.

24- HOUR EMERGENCY NUMBER - Phone Number

Site 911 Address	Address 1, City , PA Zip Code	Directions to Site: Enter Directions to Site.
Site Municipality/County	Municipality, County	
Site Coordinate Location	Latitude, Longitude	
Site Access Road Entrance Coordinate Location	Latitude, Longitude	
Helipad Location (approved off-site)	Latitude, Longitude	

Owner/Operator/Contractor Contacts			Local Emergency Responder Contacts –911		
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Title	Name	Phone	County EMA	Address 1, City , PA Zip Code	Phone
Title	Name	Phone	PA State Police	Address 1, City , PA Zip Code	Phone
Title	Name	Phone	Local Fire Department	Address 1, City , PA Zip Code	Phone
Title	Name	Phone	Local EMS	Address 1, City , PA Zip Code	Phone
Title	Name	Phone	Local Hospital	Address 1, City , PA Zip Code	Phone
Title	Name	Phone			
Title	Name	Phone			

Emergency Response Procedures for Site Personnel (Quick Reference)

Fire

Medical

Explosions

Spills

Security

NOTES:

Site Location Map

(To include as applicable, but not limited to, the following features)

Aerial base map
Road name labels
Topographic Contours

Structures
Well Pad
Building
Residential
School
Hospital
Fire Department
Nursing Home
Day Care
Airport
Livestock

Water Resources (PADEP)
Discharge
Groundwater Withdrawal
Interconnection
Storage
Surface Water Withdrawal
Stream/River
Swamp/Marsh
Lake/Pond

Oil and Gas Well Location
Abandoned
Active
Inactive

Access Roads

Half-Mile Buffer

Tax Parcel boundary and Id

Scale, Legend, and North Arrow

Site Detail Map

(To include, as applicable but not limited to, the following features)

Restricted and open-access areas
Entrance and exit routes
Guard Shack
Alarm Horn
SDS
Flare Stack
Spill Kit
Spill Trailer
Gas Cylinder Storage
ESD (Emergency Shutdown Device)
Wind Sock
Fire Extinguisher
Muster Point
Eyewash
First Aid Kits
AED
Fuel Tank
Methanol Tank
Trailers
Well Heads
Brine Tanks
GPUs (Gas Production Unit)
Storage areas for regulated substances

Or

Construction Site Plan

Scale, Legend, and North Arrow

*** Note:**

For both Site Location and Site Detail Maps, industry standard symbology, such as ESRI petroleum style set, is recommended. For emergency response related components, the following guides are recommended;

- Federal Geographic Data Committee Homeland Security Working Group (FGDC HSWG) – ANSI INCITS 415-2006
- National Alliance for Public Safety GIS Incident Symbology Workgroup Symbols (NAPSG)
- National Wildfire Coordinating Group (NWCG) GSTOP

A legend is required for both Site Location and Site Detail Maps.

**Section IIA – Emergency Response Plan
Site-Specific Information**

Section IIA - Emergency Response Plan Site-Specific Information

Oil and Gas activities may create the potential for many types of incidents for which response may be necessary such as: fires, well blowouts, chemical and fuel spills, and traffic accidents. If an emergency situation develops at an oil and gas location, local first responders must secure the site and take appropriate action until emergency specialists retained by the operator arrive on site. Preparations for and response to natural gas incidents requires additional emergency management planning at the local, county and regional levels and appropriate equipment and training, particularly with respect to natural gas well operations.

Oil and gas well pads and related facilities should be assigned a 9-1-1 address for emergency response purposes. Oil and gas operators should provide GPS coordinates for access roads and well pad sites, and post this information, along with appropriate emergency response contact information, in a conspicuous manner at the well pad site according to applicable signage requirements.

Emergency response planning is a central part of ensuring that the impacts of incidents are minimized. The emergency response plan must utilize the concepts of the National Incident Management System (NIMS) to the maximum extent practicable. The emergency response plan must contain a description of the procedure used to provide current information to emergency responders in the event of an emergency, including current Safety Data Sheets for materials located at the well site. Therefore, the site-specific emergency response plan must accurately address the current conditions found at the well site for the following stages: Preparation of the access road and well site; Drilling of the well; Hydraulic fracturing/Stimulation of the well, Production, Well site restoration, and Plugging of the well. Emergency response plans shall consist of a site-specific plan (Section IIA) for each well site with information relevant to that site along with a statewide plan (Section IIB) common to all of an operator's well sites.

1. Site Identification

- a. Site Name
- b. Physical Address
- c. County, 911 address, latitude/longitude for site entrance and site location, and directions from public road.

2. Site Maps and Drawings

Include a 7½ minute USGS map, as well as, other maps and drawings as needed to show the following in sufficient detail:

- Site Name
- Site location
- Name of the 7 ½ minute USGS quadrangle
- County and township
- Location of site and site boundaries
- ½ mile radius with vulnerable receptors (e.g. human populations, both workers and the general public, environmentally sensitive areas, and other site-specific concerns)
- General layout of the site

- Areas occupied by oil and gas activities
- Location of storage areas for regulated substances with ranges of quantity stored
- Describe valving and manifolding
- Location of surface drainage courses leading away from the site, and major surface streams and tributaries
- Predicted direction of flow of spilled materials due to equipment failure, accident or human error
- Location of any known public (permitted and docketed) surface water intakes downstream
- Waste handling, storage, processing and treatment facilities
- Drains, pipes, and channels which lead away from potential leak or spill areas
- Outfall pipes which discharge to surface streams or drainage channels
- Restricted and open-access areas
- Entrance and exit routes
- Placement of containment systems

3. **Hazards**

Provide a summary of the risks and hazards to the public within ½ mile of the well site and the associated planning assumptions.

a. Material and Waste Inventory

Identify and list by common chemical name and trade name, the locations, sources and quantities of chemicals and wastes (residual waste and drill cuttings, including tophole water, brines, drilling fluids, additives, drilling muds, stimulation fluids, well servicing fluids, oil, production fluids and drill cuttings from the drilling, alteration, production, plugging) managed at the site. Note the on-site SDS binder location. Requests for confidentiality of this information will be handled in accordance with Department regulations. Detailed descriptions must be available for materials that have a high potential for spills, discharges, explosions, or fires (such as those stored in bulk storage). Materials that have a low potential for spills, discharges, explosions, or fires should be minimally detailed. This information should be used to evaluate the prevention, containment, mitigation, cleanup, and disposal measures which would be used in the event of a spill, discharge, explosion, or fire. As new materials are brought onsite their pollution potential should be evaluated. The approximate quantities of each material and the method of storage (sack, barrels, tanks, etc.) should be specified.

b. Material Compatibility

Summarize the engineering practices followed regarding material compatibility such as materials of construction, corrosion, etc. Engineering practices regarding material compatibility normally consist of an appraisal of the compatibility of construction materials of tanks, pipelines, secondary containment, etc., with their contents; the reaction of materials or wastes when intentionally or inadvertently mixed or combined; and, the compatibility of a container such as a storage tank or pipeline with its environment. Specific consideration should be given to the procedures and practices delineating the mixing of materials and prohibiting mixing of incompatible materials

which may result in fire, explosion, or unusual corrosion. Thorough cleaning of storage vessels and equipment before reuse should be standard practice to ensure that there is no residual incompatible with the next or later materials used. Coatings or cathodic protection should be considered for protecting buried pipelines or storage tanks from corrosion.

c. Potential Spill Sources

Describe the sources and areas where potential spills and leaks may occur. Include fluids, residual waste and drill cuttings, tophole water, brines, drilling fluids, additives, drilling muds, stimulation fluids, well servicing fluids, oil, production fluids and drill cuttings from the drilling, alteration, production, plugging or other activity.

d. First Responder HAZMAT Briefing Procedures

Because of the dangers and hazards associated with these types of materials when responding to an emergency, the operator must have clear procedures developed on how it will notify and inform first responders of these materials. This section shall describe the procedures the well site operator will follow to ensure first responders are informed of these materials and quantities when responding to an emergency. The names of individuals Title/Position that is responsible with for providing this information to responders during an emergency must be identified.

4. Method of Transportation of Natural Gas

This section of the plan shall address how the natural gas extracted from the well is transported from the well site to the pipeline. If vehicular transportation is used, the area of loading must be clearly identified. If gathering lines are used to connect the well site to the pipeline, these lines must be identified. Any compressor stations monitoring/metering stations, pigging stations or other potential hazardous areas should be clearly identified as well. This section must include a map or drawing of the well site, with the loading area and or gathering lines clearly marked and identified.

5. Emergency Equipment and Deployment Procedures

Equipment suppliers should be contacted to determine the availability and means of delivery of equipment needed for removing pollution or hazards to public health and safety. Describe arrangements with these contractors and the time frame in which they can respond with required equipment. Also, include outside cleanup contractors, backup wastewater hauling firms and companies contracted to assist with spill responses, containment and remediation.

a. On-Site Emergency Equipment

The ERP must identify all major emergency response equipment located at the well site, where it can be found, and describe how it will be utilized in response to an emergency. Small scale items such as fire extinguishers do not have to be identified in the plan. A chart including Type of Equipment, Quantity, Location, Responsible Party, and Primary Contact is recommended.

b. Off-Site Emergency Equipment and Deployment Procedures

This section of the plan should also outline the emergency equipment either owned by or contracted by the operator which is available off-site to respond to an emergency. This equipment should be listed, along with its location, and the operator's procedures for deploying it in a prompt manner. For off-site equipment, the operator should provide an estimated timeframe for arrival of off-site equipment, as well as a time estimate of the equipment becoming operational once it arrives. A chart including Type of Equipment, Quantity, Location, Responsible Department, Primary Contact, Time to Arrival, and Time to Operational is recommended.

c. Maintenance and Decontamination of Equipment

Describe the procedures for maintenance and decontamination of emergency equipment. All active sites should have equipment available to allow personnel to respond safely and quickly to emergency situations. Some examples of emergency equipment are portable fire extinguishers, fire control equipment (including special extinguishing equipment such as that using foam, inert gas, or dry chemicals), spill control equipment, decontamination equipment, self-contained breathing apparatus, gas masks, and emergency tool and patching kits. All equipment must be tested and maintained as necessary to assure its proper operation in time of emergency. After an emergency, equipment should be decontaminated (if necessary), cleaned, and made fit for its intended use before normal operations resume.

6. Internal and External Notifications

This section shall also outline the emergency notification procedures the operator will utilize during an emergency. The plan shall outline and show the operator's ability to provide prompt notification and alert to personnel, municipal, county and State Agency stakeholders, and include back-up methods for alert and notification. It is critically important for this section of the plan to be reviewed and updated during the operators' annual plan review.

a. Alarm Systems

Describe the internal communications or alarm used to provide immediate emergency instruction (voice or signal) to personnel. Describe the external communications or alarm system used to summon emergency assistance from local police or fire departments. Examples of communications or alarm systems are: hand held two way radios; CB radios; telephones; fire or police alarms; PA systems; beeper or voice pagers, etc.

b. Local Emergency Response Agencies and Hospitals

Provide a list of local emergency response agencies and hospitals. Include the phone numbers and describe arrangements concerning the emergency services they will provide. Arrangements should be made, as appropriate, to inform local emergency response agencies, and hospitals concerning the type of materials or wastes handled at the installation and the potential need for services. Arrangements should be made which will designate who will be the primary emergency response agency and who will provide support services during emergencies. Efforts should be made to familiarize police, fire

departments, emergency response teams, and the County Emergency Management Coordinator with the layout of the site, the properties and dangers associated with the hazardous materials handled, places where personnel would normally be working, entrances to roads inside the site, and the possible evacuation routes.

c. Agency Notification Lists

Provide a list of agencies and phone numbers that must be contacted in the event of an emergency or spill. List must be prominently displayed at the well site during drilling, completion or alteration activities. Emergency contact information must be consistent with signage. A list must be developed for notifying state, local, and federal regulatory agencies of reportable spills. Such a list should include, as applicable: PA DEP; County Health Department; County EMA; PA Fish and Boat Commission; the National Response Center (U.S. EPA and U.S. Coast Guard); and local police and fire departments.

d. Emergency Response Contractors List

Provide a list of emergency response contractors, phone numbers, addresses and the services they will provide. The services of contractors should be investigated and arrangements made for the prompt performance of contractual services on short notice. Provide the name, address and contact information of the companies contracted by the operator that may assist with spill responses, containment and remediation.

e. Downstream Notification

If an accident, incident or other activity endangers downstream water users or results in pollution or a danger of pollution to waters of the Commonwealth, the operator, if reasonably possible to do so, is responsible to notify known downstream users of the surface waters. List of downstream users may be developed from information provided by the county Emergency Management Agency. Other laws and regulations may also contain notification requirements depending on the nature of the incident or activity.

7. Evacuation Plan

Describe the evacuation plan for personnel. The plan must describe signals to be used to begin evacuation, primary evacuation route, and alternate evacuation routes (in cases where primary routes could be blocked by releases of hazardous materials, wastes, gases, or fires). Periodic drills should be conducted to evaluate the effectiveness of the plan.

8. Public Alert Notifications and Procedure

a. Summary of Procedure

b. Alert Notice

Example Content:

This is _____ with (Company). I am contacting you because we are experiencing some problems at the nearby _____ (well site, pipeline, facility). The situation does not pose any immediate treat, but we want you to be aware of the situation in the event it gets worse.

We have dispatched personnel to investigate the situation. If for any reason we believe you to be at risk, we will ask you to evacuate. You will be directed to an evacuation route and requested to report to the _____ OR requested to provide us with a telephone number for further notification and updates.

Please stay indoors if possible with the doors and windows closed. (H2S related incident)

How many people are currently at your location? Would you require transportation?

We do not anticipate this to last for a long period of time. I will be back to you by _____ with an update.

If you require further information, please call me at _____. Thank you for your cooperation.

c. Evacuation Notice

Example Content:

This is _____ with (Company). I am contacting you because we are experiencing some problems at the nearby _____ (well site, pipeline, facility).

You are in no immediate danger now and control operations are underway. However, as a safety precaution, we request that you leave your home and proceed promptly to the _____ via (Describe appropriate route).

How many people are currently at your location?

Do you have adequate transportation? (In H2S related incident request that the residents stay indoors and close all windows and doors and dispatch personnel to the site to assist)

Do you need assistance in evacuating?

We will be sending a representative to the _____ to address your questions or concerns related to the evacuation OR where you can be reached for further information and updates?

If you require further information, please call me at _____. Thank you for your cooperation.

9. Media Relations Procedures and Statement

- a. Summary of Procedures
- b. Statements

Section IIB – Emergency Response Plan - Base

Section IIB - Emergency Response Plan - Base

1. Purpose and Scope

This section of the plan should outline the purpose of the ERP and what it is meant to do. In general, the plan should outline the procedures and actions the operator, his agents, and responders will utilize to respond to an emergency at an unconventional well site. The scope of the plan should outline the general geographic area in which the plan has authority, as well as specifying the entities (private and governmental) the plan will draw upon to respond to an incident at the well site.

Example Content:

- To safeguard the lives, reduce property damage, and protect the environment to the overarching benefit of the Commonwealth of Pennsylvania and its citizens.
- To provide for effective Gas Well and site surveillance, prompt notification to first responders and local emergency management agencies, citizen warning and evacuation response, and information exchange when required.
- To identify emergency actions to be taken by the Well owner/operator, public officials, emergency personnel, and to outline response actions in the event of a potential or imminent threat, malfunction, or failure at the well site.

2. Discovery and Preliminary Assessment

This section should address the initial action the person(s) discovering an incident will take to assess the problem and activate the response system. Include an identification of incident type, hazards involved, magnitude of the problem, and resources threatened. The use of checklists or flowcharts is highly recommended. Cover fires, medical emergencies, explosions, spills and security breaches.

The emergency response plan must address response actions for the following stages: preparation of the access road and well site, drilling of the well, hydraulic fracturing and stimulation of the well, production, well site restoration, and plugging of the well.

3. Initial Response

This Section should provide for activation of the response system following discovery of the incident. It should include an established 24-hour point of contact (i.e., that person and alternate who is called to set the response in motion) and instructions for that person on who to call and what critical information to provide. Mitigating actions must be tailored to the type of hazard present, such as fires, medical emergencies, explosions, spills and security breaches. Relevant considerations to ask in developing such materials include: type of emergency, areas/resources affected, exclusion zone, source control and response resources.

4. Concept of Operations

The Concept of Operations outlines and explains the response to an incident that may occur at an unconventional well site. It should clearly explain how the operator and the response community will respond to an incident.

Example Content:

- The local fire department will mobilize the resources and personnel required to provide first response to an incident at a well site.
- The resources of any particular department or agency remain under the administrative, policy procedures, and control of their home agency, but will be under the operational control of the incident commander (IC) or unified command.
- The local EOC will assist with well site response coordination at the County level as requested by the IC or as the incident dictates. These situations may include hazardous material releases, fires, explosions, or criminal activities.
- Resources may be obtained from County departments and agencies, other supporting Emergency Support Functions (ESFs), municipalities, state agencies, and private entities.

5. Organization

This section outlines how the response to an incident will be organized. This includes what agencies and entities will respond to the incident, how these agencies will be organizationally structured and shall also include an organizational chart outlining the response structure. It is in this section that the operator shall certify its use of the Incident Command System.

6. Direction, Control, Coordination, and Support

This portion of the plan outlines and describes the structure for direction, control, and coordination of the response to an incident at a well site. It should clearly explain who has tactical and operational control of response assets and organizations, and should describe how conflicts between agencies will be avoided or mitigated.

7. Governmental Assistance and Notification

In this section of the plan, the operator should clearly identify areas in which it requires support from government agencies in order to successfully respond to an incident at a well site, as well as outline and specify the components of Medical, Fire, Hazardous Materials Responses, Security, and any other areas in which the operator requires assistance from local (and state and federal, if necessary) government agencies. This section shall also outline the process by which the operator would notify and request such assistance.

8. Communication Protocol and Systems

The operator shall describe the communications protocols, procedures, and systems it will utilize during the response to an incident. It should also describe the operator's ability and procedures planned to integrate governmental communications into its communications to respond to an incident.

9. Non-Emergency Responsibilities

The purpose of this section is to outline operators' procedures in performing non-emergency work at the unconventional well site that, if not conducted, could cause an emergency at the well site. At a minimum, this section should specifically discuss spill or leak prevention, preventative

maintenance, and discharge and drainage control at the site. This operator shall also identify and discuss any other areas of non-emergency work that must be conducted on-site to prevent an emergency incident.

- a. Spill or Leak Prevention and Response
- b. Preventative Maintenance
- c. Discharge and Drainage Control
- d. Other

10. **Emergency Response**

This section of the ERP shall outline the actions to be taken and the procedures to follow in responding to an emergency action at an unconventional well site. In addition, it shall also identify the primary (and any secondary) entities responsible for conducting these actions/procedures. The operator shall also include any other areas not already identified that are required by the unique characteristics of the well site. These include site-specific hazards that may be unique to that site. (Examples include increased potential of wildfires due to nearby forests, locations near major human population areas or critical infrastructure, etc.).

- a. Medical Emergency
- b. Fire/Explosion
- c. Release of Natural Gas
- d. Material Spill
- e. Security Breach
- f. Other incidents that necessitate the presence of emergency responders

11. **Countermeasures for Pollution Prevention and Control**

Provide specific countermeasures which will be undertaken in the event of fire, medical emergency, explosion, spill, and security breach. Persons engaged in an activity which includes the impoundment, production, processing, transportation, storage, use, application or disposal of pollutants shall take necessary measures to prevent the substances from directly or indirectly reaching waters of this Commonwealth, through accident, carelessness, maliciousness, hazards of weather or from another cause. Countermeasures should cease the spill or release, prevent migration and prevent the pollution substance from reaching or impacting surface water or groundwater.

a. Countermeasures to be Undertaken by Site Personnel

Provide specific countermeasures that will be undertaken by site personnel in the event of fire, medical emergency, explosion or similar event, spill, and security breach.

b. Countermeasures to be Undertaken by Contractors

Provide specific countermeasures that will be undertaken by contractors in the event of fire, medical emergency, explosion or similar event, spill, and security breach.

12. Sustained Actions and Termination for Pollution Prevention and Control

This section should address the transition of a response from the initial emergency stage to the sustained action stage where more prolonged mitigation and recovery actions progress under a response management structure. This includes protection of water supplies and remediation. It should also address the development of a mechanism to ensure that the person in charge of mitigating the incident can terminate the response.

Section III – Prevention Planning

Section III --Prevention Planning

1. Hazard Assessment

Provide a detailed assessment of potential hazards present at the well site, an analysis of vulnerable receptors (e.g., human populations, both workers and the general public, environmentally sensitive areas, and other site-specific concerns) within ½ mile and a discussion of which risks deserve primary consideration during an incident. Incidents may occur via accident, carelessness, maliciousness, or weather and affect impoundment, production, processing, transportation, storage, use, and application or disposal of pollutants.

Take necessary measures to prevent the potential for substances from directly or indirectly reaching waters of this Commonwealth.

2. Secondary Containment Systems and Practices

All regulated substances, including solid wastes and other regulated substances in equipment or vehicles, shall be managed within secondary containment. Describe the secondary containment systems and practices to be utilized and the area of the well site where secondary containment systems will be employed. Secondary containment systems must be sufficiently impervious and chemically compatible to contain spilled material or waste until it can be removed or treated. Unconventional well sites shall be designed and constructed to prevent spills of regulated substances to the ground surface or spills off the well site, including drilling mud, hydraulic oil, diesel fuel, drilling mud additive, hydraulic fracturing additives, and hydraulic fracturing flowback. Areas where any additives, chemicals, oils or fuels are to be stored should have sufficient containment capacity to hold the volume of the largest container stored in the area plus 10% to allow for precipitation, unless the container is equipped with individual secondary containment.

If impoundments are utilized for containment of these materials, all information submitted for the construction or use of impoundments for oil and gas activities should be cross-referenced here.

Pollution incident prevention practices to eliminate contaminated runoff, leaching, or wind-blowing should be implemented in non-liquid storage areas. Provisions should be made to contain or manage contaminated run-off or leachate from these areas. Truck and rail car loading and unloading areas should have sufficient containment capacity to hold the volume of the largest tank truck or rail car loaded or unloaded at the installation, plus a reasonable allowance for precipitation. Any overhead piping must have adequate clearance over roadways.

3. Pressure Barrier Policy

Include a pressure barrier policy that identifies barriers to be used during identified operations.

4. Inspection and Monitoring Program

Describe the type and frequency of inspections and monitoring for leaks or other conditions that could lead to spills or emergency situations. Areas that should be inspected include the following: secondary containment, storage, loading and unloading, transfer pipelines, waste

treatment facilities, and disposal sites. The use of an inspection checklist may be useful in an inspection and monitoring program. Typical inspections include the following: pipes, pumps, valves, and fittings for leaks; tanks for corrosion; tank supports and foundations for deterioration; chemical material piles for wind-blowing; evidence of spilled materials along drainage ditches; effectiveness of housekeeping practices; damage to containers; leaks, seeps, or overflows at waste treatment, storage, or disposal sites; etc. Routine monitoring should be performed to determine the physical conditions and liquid levels in tanks, the quality of site runoff in diked areas, etc., either by manual testing or in-situ instrumentation. Monitoring should be used to initiate a warning of the need for immediate corrective action to prevent a spill or other emergency condition. Monitoring systems should be used in conjunction with a communications or alarm system to immediately notify personnel of abnormal conditions. An inventory system should also be considered for keeping track of those materials having the greatest potential for causing problems due to leaks, spills, or mishandling. As a minimum, the frequency of inspection and monitoring must be in accordance with the applicable Department regulations and permits.

5. Preventative Maintenance

Describe the aspects of the preventative maintenance program for equipment and systems relating to conditions that could cause environmental degradation or endangerment of public health and safety. Describe the procedures for the correction of those conditions by adjustment, repair, or replacement before the equipment or system fails. A good preventive maintenance program includes the following: (1) identification of equipment and systems to which the program should apply (e.g. pressure barrier); (2) periodic inspections of identified equipment and systems; (3) periodic testing of equipment and systems (such as routine calibration of environmental monitoring equipment); (4) appropriate adjustment, repair, or replacement of parts (such as collection lines); and (5) recordkeeping of the preventive maintenance activities, inspection and test results, calibration dates, repairs, replacement, and adjustments to the applicable equipment and systems.

6. Housekeeping Program

Identify the areas and the type of housekeeping practices that should apply to reduce the possibility of accidental spills and safety hazards to personnel. Examples of good housekeeping include the following: neat and orderly storage of chemicals; prompt removal of small spillage; regular refuse pickup and disposal; maintenance of walkways and stairs; and, provisions for the storage of containers or drums to keep them from protruding into open walkways, pathways, or roads. Dry chemicals should be swept or cleaned up to prevent possible runoff and wind-blowing.

7. Security

Describe the security procedures employed at the well site to prevent accidental or intentional entry that could result in a violation of Departmental regulations, or injury to persons or animals. Security systems described in the plan should address, as necessary: fencing; lighting; vehicular traffic control; access control; visitors registration; locked entrances; vandalism; locks on valves and television monitoring. Security procedures must be in accordance with applicable Department regulations.

8. External Factor Planning

Evaluate the impact on operations, public health and safety, and the environment from the unauthorized acts of third parties, strikes, floods, power failures, snowstorms, and similar problems. Locking valves, special wrenches, fences, and other security measures are examples of measures which could be taken.

9. Waste Control and Disposal Methods

The Department will encourage the use of pollution prevention measures that minimize or eliminate the generation of the pollutant over measures which involve pollutant handling or treatment. The Department will encourage consideration of the following pollution prevention measures, in descending order of preference, for environmental management of wastes: reuse, recycling, treatment and disposal.

This section should address procedures for the control and disposal of fluids, residual waste drill cuttings and regulated substances, including tophole water, brines, drilling fluids, additives, drilling muds, stimulation fluids, well servicing fluids, oil, production fluids and drill cuttings from the drilling, alteration, production, plugging or other activity associated with oil and gas wells. All wastes generated should be characterized to determine proper disposal methods. Permitted facilities to be used or the need for separate approvals should be incorporated or referenced. If a disposal facility not at the well site is used, the name and address of the facility should be identified along with the hauler and types of wastes that can be disposed of at the facility.

Section IV – Training, Exercise, and Plan Development

Section IV - Training, Exercise, and Plan Development

This section shall outline the training and exercise the operator will conduct in order to ensure that if an emergency were to occur at an unconventional well site, the responding agencies are familiar with the plan and properly trained and can effectively respond to the emergency.

1. Employee Training and Exercise Program

Summarize training programs given to employees and contractors which will enable them to understand the processes and materials with which they are working, the safety and health hazards, the practices for preventing, and the procedures for responding properly and rapidly to spills. The training program should be designed to ensure that personnel can respond effectively to emergencies by familiarizing them with emergency procedures and emergency equipment systems including, where applicable: procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; key parameters for automatic cut-off systems; communications and alarm systems; response to fires and explosions; site evacuation procedures; and shut down of operations. In addition, the employee training program should address other aspects of the preparedness-response program such as preventive maintenance, inspection and monitoring, housekeeping practices, etc. The training program must be designed and conducted in accordance with applicable Department regulations. Records of the employees' attendance in the training program should be included in personnel files and/or site logs or files.

2. Policy

The well owner should advise and cooperate with the County EMA(s) of any exercises scheduled, and coordinate with the County EMA(s) to exercise all or portions of this EAP as part of the county's all-hazard exercise program schedule.

- a. Exercise Requirements
- b. Training Requirements
- c. After Action Reports

3. Incident History

List previous reportable pollution or reportable safety related incidents, the date, the material or waste spilled, approximate amount spilled environmental damage, and action taken to prevent a recurrence. An important criterion in determining the effectiveness of the plan and its implementation is the history of incidents. A history of no incidents suggests that the practices and procedures at the well site are effective. For a site or company with a history of incidents, it is important to investigate the reasons for the spills and the response of the company in minimizing the potential for their recurrence. This section should provide the option for a site log, a company master file, and/or an electronic file for the most recent version. Spill Policy will provide the regulated substance list and reportable volumes.

4. **Plan Development, Maintenance, and Distribution**

a. Development

This section discusses and explains the approach used by the operator in developing the ERP and outlines the review and update process the operator will use to meet its annual review requirements. It shall also outline the methods of distribution for the initial version of the plan and all subsequent revisions of the plan. The Operator shall review the ERP and submit an update annually on or before March 1 each year. If updates are not made to the plan for that review period, the operator shall submit a statement indicating the review was completed and updates to the plan were not necessary. Greenport has a button to renew an existing plan with no changes. By renewing the Emergency Response Plans online, an operator is certifying that the plan was reviewed and no changes are necessary. The renewal cycle begins January 1st through March 1st. Any plan submitted to DEP in the prior year, regardless of when it was submitted, will need to be renewed during that time period.

b. Distribution

DEP requires all operators of unconventional wells in Pennsylvania to electronically submit ERPs through the Oil and Gas Reporting Electronic (OGRE) system via the DEP Greenport web portal. Operators must upload PDF copies of unconventional well sites EPRs in OGRE. Operators have two options for submitting these plans:

Option 1: Operators may submit a separate comprehensive site-specific ERP for each well site that contains all of the required elements.

Option 2: Operators may submit a single ERP common to all of the operator's well sites statewide that contains some of the required Section elements. In addition, operators must submit site-specific ERPs for each well site that contain the remaining required elements.

To further streamline the overall ERP submittal process and to comply with Act 9 requirements, a submission through DEP's OGRE will now also be considered a submission to PEMA, the county EMA, and the PSAP.

Section V – Appendices

Section V - Appendices

1. **Glossary/Reference Section (operator specified)**
2. **Checklists (operator specified)**
3. **ICS Definitions and Forms (provided)**
 - a. ICS Glossary
 - b. ICS Forms
4. **Authority, References, and Regulation Matrix (provided)**

Section V.3a - b

What is an Incident Command System? (https://www.osha.gov/SLTC/etools/ics/what_is_ics.html)

ICS is a standardized on-scene incident management concept designed specifically to allow responders to adopt an integrated organizational structure equal to the complexity and demands of any single incident or multiple incidents without being hindered by jurisdictional boundaries.

In the early 1970s, ICS was developed to manage rapidly moving wildfires and to address the following problems:

- Too many people reporting to one supervisor;
- Different emergency response organizational structures;
- Lack of reliable incident information;
- Inadequate and incompatible communications;
- Lack of structure for coordinated planning among agencies;
- Unclear lines of authority;
- Terminology differences among agencies; and Unclear or unspecified incident objectives.

In 1980, federal officials transitioned ICS into a national program called the National Interagency Incident Management System (NIIMS), which became the basis of a response management system for all federal agencies with wildfire management responsibilities. Since then, many federal agencies have endorsed the use of ICS, and several have mandated its use.

An ICS enables integrated communication and planning by establishing a manageable span of control. An ICS divides an emergency response into five manageable functions essential for emergency response operations: Command, Operations, Planning, Logistics, and Finance and Administration. Figure 1 shows a typical ICS structure.

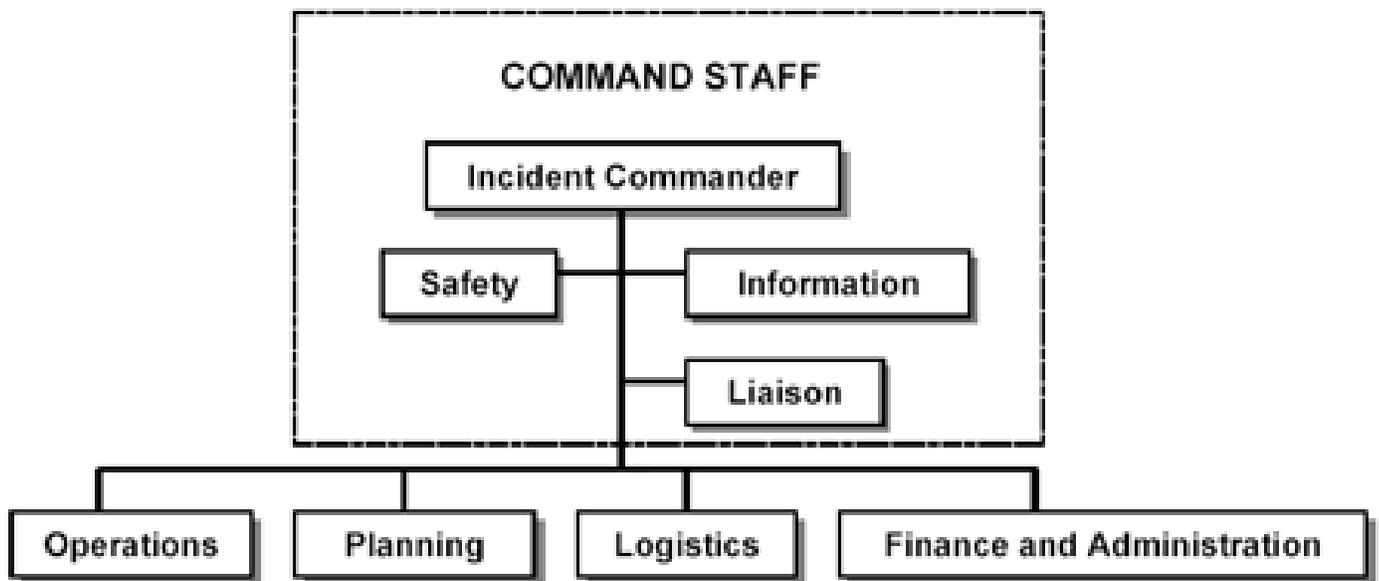


Figure 1 - Incident Command System Structure

The following is a list of the duties generally associated with each ICS function:

Incident Commander/Unified Command

The **Incident Commander** (IC) or the **Unified Command** (UC) is responsible for all aspects of the response, including developing incident objectives and managing all incident operations.

The IC is faced with many responsibilities when he/she arrives on scene. Unless specifically assigned to another member of the Command or General Staffs, these responsibilities remain with the IC. Some of the more complex responsibilities include:

- Establish immediate priorities especially the safety of responders, other emergency workers, bystanders, and people involved in the incident.
- Stabilize the incident by ensuring life safety and managing resources efficiently and cost effectively.
- Determine incident objectives and strategy to achieve the objectives.
- Establish and monitor incident organization.
- Approve the implementation of the written or oral Incident Action Plan.
- Ensure adequate health and safety measures are in place.

The Command Staff is responsible for public affairs, health and safety, and liaison activities within the incident command structure. The IC/UC remains responsible for these activities or may assign individuals to carry out these responsibilities and report directly to the IC/UC.

- The **Information Officer's** role is to develop and release information about the incident to the news media, incident personnel, and other appropriate agencies and organizations.
- The **Liaison Officer's** role is to serve as the point of contact for assisting and coordinating activities between the IC/UC and various agencies and groups. This may include Congressional personnel, local government officials, and criminal investigating organizations and investigators arriving on the scene.
- The **Safety Officer's** role is to develop and recommend measures to the IC/UC for assuring personnel health and safety and to assess and/or anticipate hazardous and unsafe situations. The Safety Officer also develops the Site Safety Plan, reviews the Incident Action Plan for safety implications, and provides timely, complete, specific, and accurate assessment of hazards and required controls.

General Staff

The **General Staff** includes Operations, Planning, Logistics, and Finance/Administrative responsibilities. These responsibilities remain with the IC until they are assigned to another individual. When the Operations, Planning, Logistics or Finance/Administrative responsibilities are established as separate functions under the IC, they are managed by a section chief and can be supported by other functional units.

- The **Operations** Staff is responsible for all operations directly applicable to the primary mission of the response.
- The **Planning** Staff is responsible for collecting, evaluating, and disseminating the tactical information related to the incident, and for preparing and documenting Incident Action Plans (IAPs).
- The **Logistics** Staff is responsible for providing facilities, services, and materials for the incident response.
- The **Finance and Administrative** Staff is responsible for all financial, administrative, and cost analysis aspects of the incident.

The following is a list of Command Staff and General Staff responsibilities that either the IC or UC of any response should perform or assign to appropriate members of the Command or General Staffs:

- Provide response direction;
- Coordinate effective communication;
- Coordinate resources;
- Establish incident priorities;
- Develop mutually agreed-upon incident objectives and approve response strategies;
- Assign objectives to the response structure;
- Review and approve IAPs;
- Ensure integration of response organizations into the ICS/UC;
- Establish protocols;
- Ensure worker and public health and safety; and
- Inform the media.

The modular organization of the ICS allows responders to scale their efforts and apply the parts of the ICS structure that best meet the demands of the incident. In other words, there are no hard and fast rules for when or how to expand the ICS organization. Many incidents will never require the activation of Planning, Logistics, or Finance/Administration Sections, while others will require some or all of them to be established. A major advantage of the ICS organization is the ability to fill only those parts of the organization that are required. For some incidents, and in some applications, only a few of the organization's functional elements may be required. However, if there is a need to expand the organization, additional positions exist within the ICS framework to meet virtually any need.

For example, in responses involving responders from a single jurisdiction, the ICS establishes an organization for comprehensive response management. However, when an incident involves more than one agency or jurisdiction, responders can expand the ICS framework to address a multi-jurisdictional incident.

The roles of the ICS participants will also vary depending on the incident and may even vary during the same incident. Staffing considerations are based on the needs of the incident. The number of personnel and the organization structure are dependent on the size and complexity of the incident. There is no absolute standard to follow. However, large-scale incidents will usually require that each component, or section, is set up separately with different staff members managing each section. A basic operating guideline is that the Incident Commander is responsible for all activities until command authority is transferred to another person.

Another key aspect of an ICS that warrants mention is the development of an IAP. A planning cycle is typically established by the Incident Commander and Planning Section Chief, and an IAP is then developed by the Planning Section for the next operational period (usually 12- or 24-hours in length) and submitted to the Incident Commander for approval. Creation of a planning cycle and development of an IAP for a particular operational period help focus available resources on the highest priorities/incident objectives. The planning cycle, if properly practiced, brings together everyone's input and identifies critical shortfalls that need to be addressed to carry out the Incident Commander's objectives for that period.

Standard Form Title	Description
Incident Action Plan Cover Page ICS 200	Indicates the incident name, plan operational period, date prepared, approvals, and attachments (resources, organization, Communications Plan, Medical Plan, and other appropriate information).
Incident Briefing ICS 201	Provides the Incident Command/Unified Command and General Staffs with basic information regarding the incident situation and the resources allocated to the incident. This form also serves as a permanent record of the initial response to the incident.
Incident Objectives ICS 202	Describes the basic strategy and objectives for use during each operational period.
Organization Assignment List ICS 203	Provides information on the response organization and personnel staffing.
Field Assignment ICS 204	Used to inform personnel of assignments. After Incident Command/Unified Command approves the objectives, staff members receive the assignment information contained in this form.
Incident Communications Plan ICS 205	Provides, in one location, information on the assignments for all communications equipment for each operational period. The plan is a summary of information. Information from the Incident Communications Plan on frequency assignments can be placed on the appropriate Assignment form (ICS Form 204).

Medical Plan ICS 206	Provides information on incident medical aid stations, transportation services, hospitals, and medical emergency procedures.
Incident Status Summary ICS 209	Summarizes incident information for staff members and external parties, and provides information to the Public Information Officer for preparation of media releases.
Check-In/Out List ICS 211	Used to check in personnel and equipment arriving at or departing from the incident. Check-in/out consists of reporting specific information that is recorded on the form.
General Message ICS 213	Used by: <ul style="list-style-type: none"> • Incident dispatchers to record incoming messages that cannot be orally transmitted to the intended recipients. • EOC and other incident personnel to transmit messages via radio or telephone to the addressee. • Incident personnel to send any message or notification that requires hard-copy delivery to other incident personnel.

Section VI - Regulation Matrix

	EERP	OGOM Sec I.A.	25 Pa. Code § 78a.55	25 Pa. Code § 91.33 § 91.34	Act 13 §§ 3215-3222	SPCC 40 CFR 112
I. Plan Introduction						
1. Plan Description	II.A.1	1.c&d				
2. Plan Contact Information						
a. Operator		1.a				20(h)(2)
b. Key Contacts		1.a	(i)(5)(i)(D)(III)			
3. Plan Review & Modification Process	II.A.5	6	(e) (i)(5)(iv-vii)		3218.2(b) FAQ 9 (CUW) FAQ 10 (CUW)	5
4. Plan Availability	I.C.7 I.D		(d) (i)(5)(vi)			3(e)
5. Table of Contents						
IIA. Emergency Response Plan						
1. Discovery & Preliminary Assessment			(i)(5)(i)(C)			20(h)(6)
2. Initial Response			(a-d) (i)(5)(i)(C)	34(a) 34(b)		20(h)(1)(iii) 20(h)(3)(iv) 20(h)(3)(ix) 20(h)(2) 20(h)(5)
a. Organizational Structure	II.B.1		(i)(5)(B)			
b. Emergency Coordinators	II.B.2 II.B.3 II.B.4	1.a	(i)(5)(i)(A)			20(h)(1)(i,v) 20(h)(3)(i,v) 20(h)(3)(ix)
c. Internal & External Notifications	II.D.3 II.E.1 II.E.2 II.E.3	1.a 4.c	(h) (i)(4) (i)(5)(i)(B)	33(a)	FAQ 9 (CUW)	7(a)(3)(vi) 20(h)(1)(ii) 20(h)(3)(iii,iv)
d. Counter-measures			(i)(5)(i)(C)	34(a) 34(b)		7(a)(3)(iv) 7(a)(4) 20(h)(1)(iv,vii) 20(h)(3)(i,ii) 20(h)(7)
1) Actions by Site Personnel	II.D.1					
2) Actions by Contractors	II.D.2	4.b			FAQ 9 (CUW)	
3) Evacuation Plan	II.D.4					
4) Available Equipment	II.D.5	4.a	(i)(5)(i)(F)		3218.2(b) FAQ 9 (CUW)	20(h)(3)(vi) 20(h)(7)(ii,iv)
3. Sustained Actions and Termination				33(b)	3218 (a-f) FAQ 7 (EPS)	
IIB. Site-Specific Information						
1. Site Identification			(i)(3)			
a. Site Name		1.a	(i)(3)(iii)(A)			

	EERP	OGOM Sec I.A.	25 Pa. Code § 78a.55	25 Pa. Code § 91.33 § 91.34	Act 13 §§ 3215-3222	SPCC 40 CFR 112
b. Physical Address		1.a	(i)(3)(i)			7(a)(4) 20(h)(2)
2. Site Maps & Drawings	II.A.1 II.C.1	1.b	(i)(5)(i)(G)		FAQ 9 (CUW)	7(a)(3) 20(h)(1)(viii) 20(h)(9)
3. Hazards						
a. Material and Waste Inventory	II.A.3	1.b 2.a	(a) (b) (i)(5)(i)(D)(I,II) (i)(5)(i)(G)		3222.1(b)(2) and (3) FAQ 2 (EPS)	7(a)(3)(i)
b. Material Compatibility	II.C.2				3218.2(a)(3) FAQ 8 (CUW) 3218.4 FAQ 8 (EPS)	7(c)(1) 8(c)(1) 9(c)(1)
c. Potential Spill Sources	II.C.1		(a) (b)			7(a)(3)(ii) 7(a)(5)(b) 8 9 10
III. Prevention Planning						
1. Hazard Assessment		2.b	(i)(5)(i)(G)	34(a) 34(b)	3215 FAQ 3 (EPS) FAQ 4 (EPS) 3217	112.20(h)(4)
2. Containment Systems & Practices	II.C.1	2.c		34(a) 34(b)	3218.2 FAQ 1 (CUW) FAQ 7 (CUW) FAQ 9 (CUW) FAQ 11 (CUW) FAQ 12 (CUW) FAQ 13 (CUW) FAQ 14 (CUW) FAQ 15 (CUW) FAQ 16 (CUW)	7(a)(3)(iii) 7(c) 8(b) 8(c) 9(b) 9(c) 10 20(h)(7)(iv)
3. Pressure Barrier Policy			(d)			
4. Inspection & Monitoring Program	II.C.3				FAQ 9 (CUW) FAQ 14 (CUW)	7(e) 8(c)(6) 8(d)(4) 9(b)(2) 9(c)(3) 9(c)(5)(i,ii) 9(c)(6)(ii,iii) 9(d)(1,2) 20(h)(8)(i)
5. Preventative Maintenance	II.C.4	2.e				9(d)(4)
6. Housekeeping Program	II.C.5					
7. Security	II.C.6		(i)(5)(i)(C)(V)			7(g) 20(h)(10)
8. External Factor Planning	II.C.7					

	EERP	OGOM Sec I.A.	25 Pa. Code § 78a.55	25 Pa. Code § 91.33 § 91.34	Act 13 §§ 3215-3222	SPCC 40 CFR 112
9. Waste Control & Disposal Methods		3	(a) (b)	(a) (b)		7(a)(3)(v) 20(h)(7)(iii)
10. Employee Training Program	II.C.8	2.f	(i)(5)(i)(H)			7(f) (20)(h)(8)(ii-iv)
11. Incident History	II.A.4	5				4(a)

Acronyms:

EERP - Environmental Emergency Response Plans

OGOM - Oil and Gas Operators Manual

Act 13 - 2012 Oil and Gas Act

SPCC - Spill Prevention, Control, and Countermeasure

EPS - Environmental Protections and Setbacks

CUW - Containment for Unconventional Wells