COTERRA

Integrated Contingency Plan

Marcellus Business Unit (MBU)

1. Site Specific Information
2. Emergency Response Plan
3. Preparedness, Prevention and Contingency (PPC) Plan
4. Spill Prevention, Control and Countermeasure (SPCC) Plan (if applicable)

COTERRA

Coterra Energy Inc. Marcellus Business Unit (MBU) Integrated Contingency Plan

Part 1 – Site Specific Information

- Facility Name and Location Information
- Site Maps and Drawings
- Risks and Hazards within ½ Mile of Site

Part 2 – Coterra MBU Emergency Response Plan

- Emergency Contacts
- Maintenance and Review
- Incident Levels
- Response Procedures
- Notifications & Contact Information
- Incident Management System (ICS)
- Media Relations
- Training & Exercise Procedures
- Forms
- Well Control Emergencies

Part 3 – Coterra MBU Preparedness, Prevention and Contingency (PPC) Plan

- Descriptions of Facility and Activities
- Material and Waste Inventory
- Spill Leak Prevention & Response
- Containment Methods & Potential Release Scenarios
- Material Compatibility
- Inspection & Monitoring Program
- Preventative Maintenance & Housekeeping
- Recycling & Waste Disposal Methods

Part 4 – Coterra MBU Spill Prevention, Control and Countermeasure (SPCC) Plan

- Additional Information Related to Oil Storage
- Related Response Measures

COTERRA

Site Specific Emergency Response Plan (ERP)

Jeffers Farms Pad 1

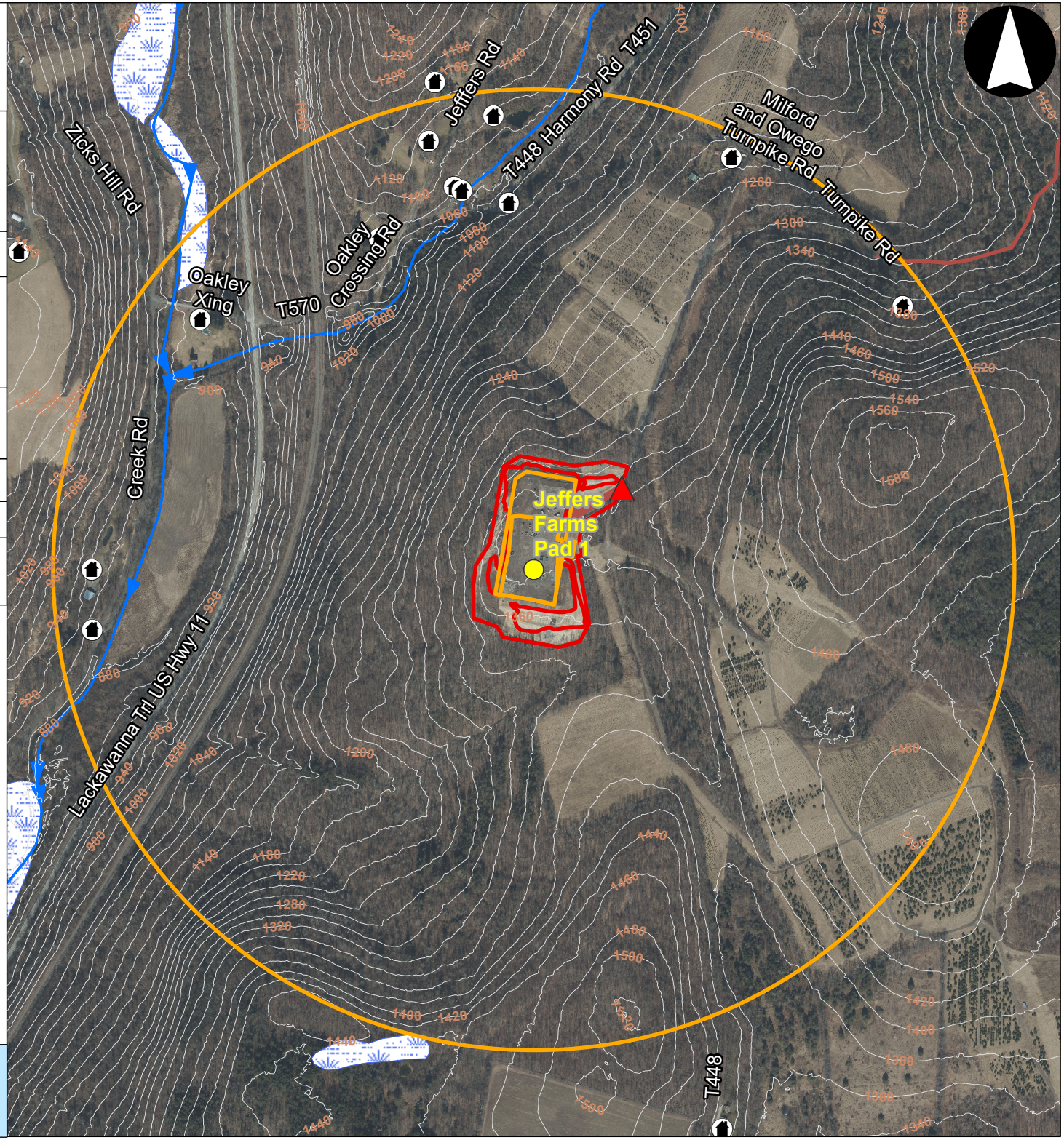
24 Hour Company Contact Number
1-855-641-0300
Marcellus-BU EHS On-Call Number
570-737-4260

Address: 446 Stockinger Road, Kingsley, PA 18826

Harford Township

Susquehanna County

Access Road Entrance
Lat:41.733843 Long:-75.745766



Residential

Facility Type

LOD

Service Road

Well Pad

Well Pad

Half-Mile Buffer

911 Access Road

Water Resources (NHD)

Swamp/Marsh

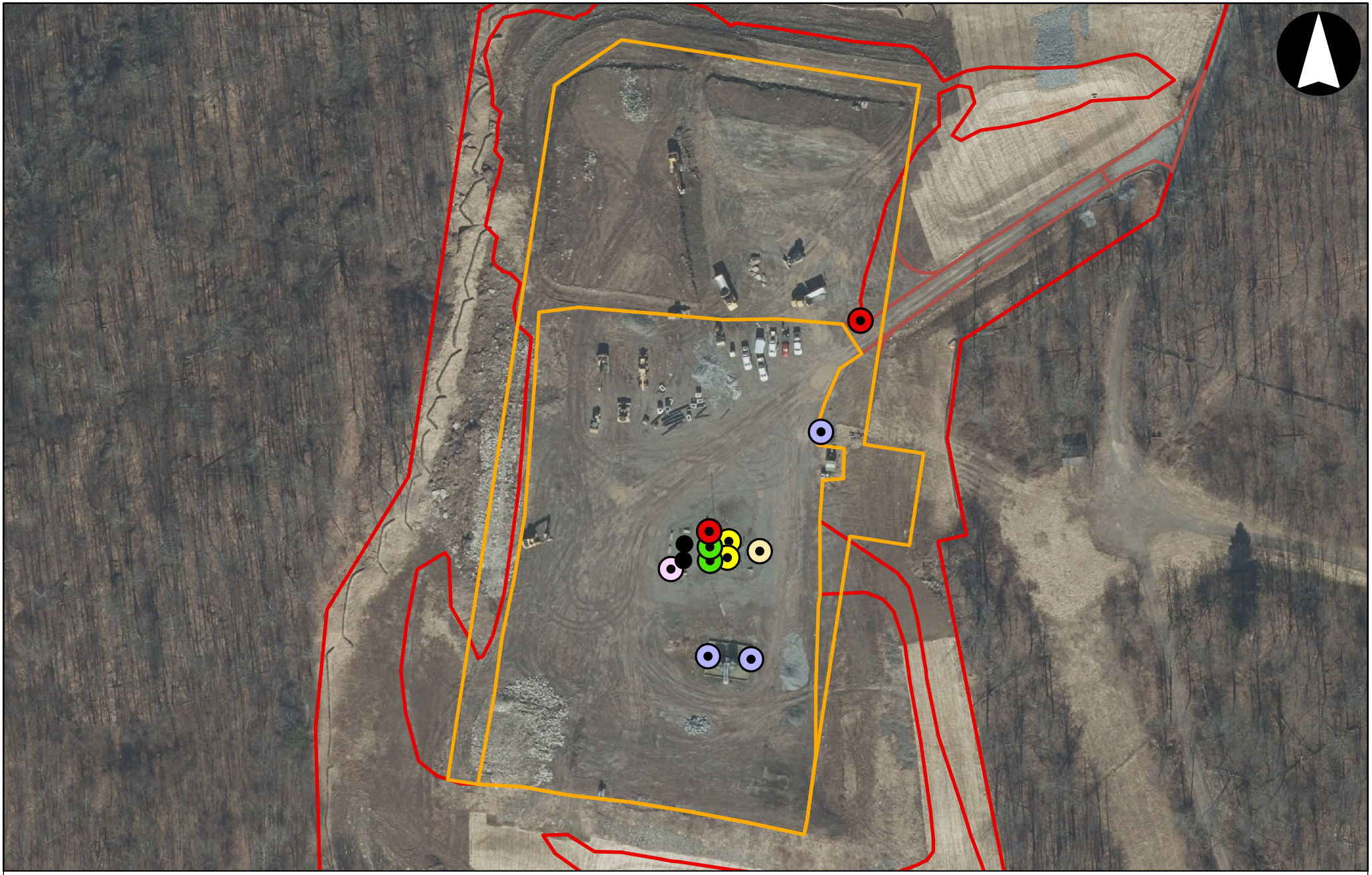
Stream/River

Wetlands (NWI)

Wetlands

0 500 1,000 1,500 2,000 Feet

Information depicted on this map is the sole property of Coterra Energy. Reproduction or reuse of any portion of this map is strictly prohibited absent the written consent of Coterra Energy. This information is for reference purposes only. Coterra Energy assumes the data sources utilized to create this map are accurate and correct but does not warrant the accuracy thereof. Coterra Energy is not responsible for any misuse or misrepresentation of this information.



Jeffers Farms Pad 1

COTERRA

0 80 160 240 Feet

Asset

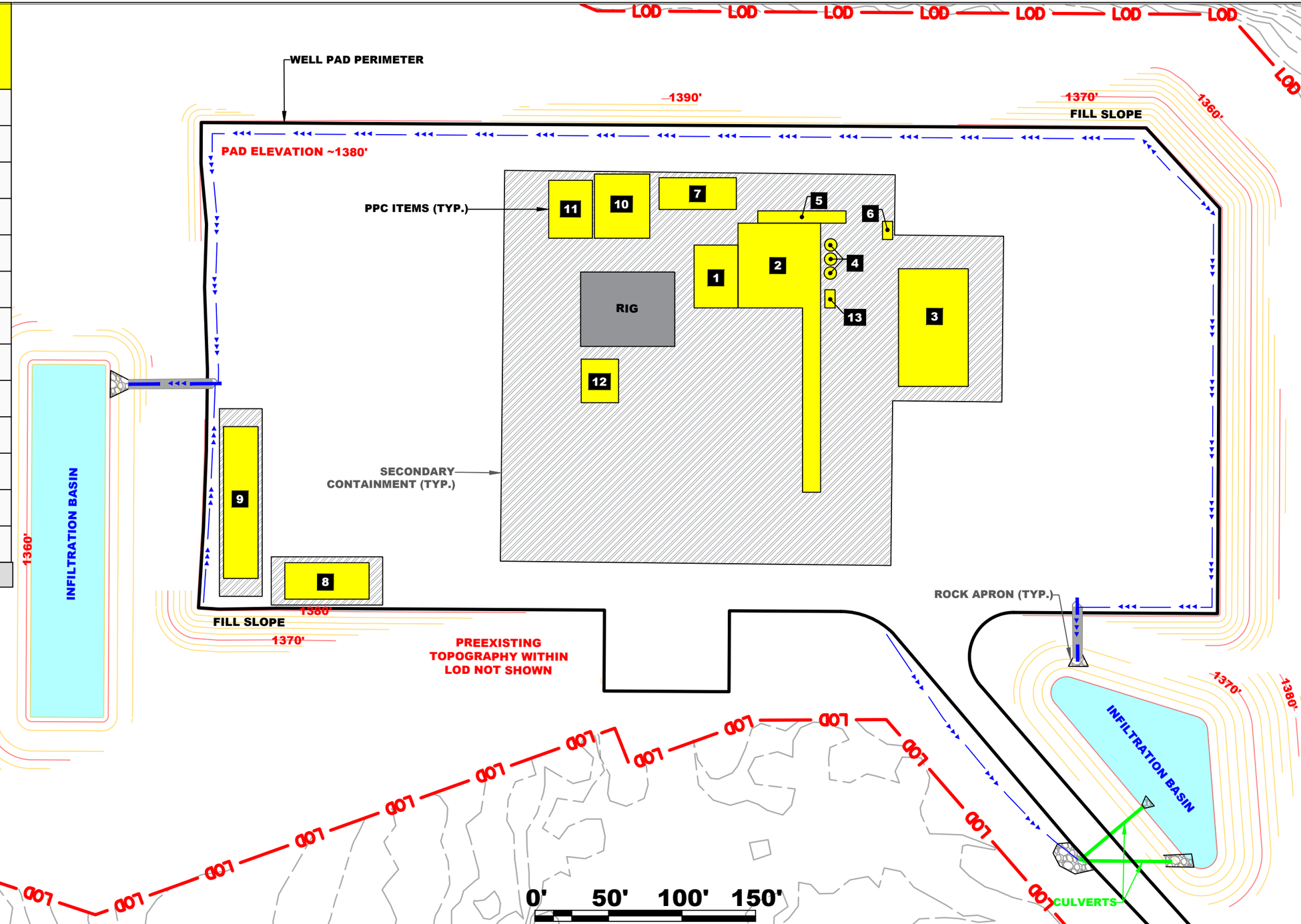
- Glycol Tank
- Methonal Tank
- Production Tank
- Vent Tank
- GPU
- Emergency Shutdown Device
- Well Head

JEFFERS FARMS PAD 1 - SITE DRILLING PPC MAP (ACTUAL OPERATIONAL LAYOUT AND/OR PAD CONSTRUCTION DESIGN SUBJECT TO CHANGE)

DRILLING PPC ITEMS (TYPICAL)

1	GENERATORS (DIESEL)
2	MUD PUMPS
3	DRILLING FLUID
4	BARITE
5	CHEMICAL STORAGE
6	GREASE STORAGE
7	DIESEL
8	*PRODUCED WATER
9	*GAS PRODUCTION UNITS
10	FRESHWATER
11	CEMENT
12	SAWDUST
13	OIL STORAGE

*ONLY PRESENT AT LOCATIONS WITH EXISTING WELLS



RESOURCE ENVIRONMENTAL MANAGEMENT
50 Maple St.
Montrose, PA 18801
570-278-8392

LEGEND:

- EXISTING/PLANNED INFILTRATION BASIN EXTENT
- EXISTING/PLANNED LIMIT OF DISTURBANCE
- EXISTING/PLANNED DRAINAGE DIRECTIONS
- EXISTING/PLANNED PAD CONSTRUCTION CONTOUR (10' MAJOR)
- EXISTING/PLANNED PAD CONSTRUCTION CONTOUR (2' MINOR)
- PREEXISTING TOPOGRAPHY (10' MAJOR)
- PREEXISTING TOPOGRAPHY (2' MINOR)

DRAWN BY:	CPM
DATE:	9/17/2025
REVISED BY:	
REVISION DATE:	

PPC Map
Site Drilling Activities
Coterra Energy, Inc. - Jeffers Farms Pad 1
Well Pad Center: 41.732619°, -75.747550
Harford Township, Susquehanna County

DRAWING ID: N/A

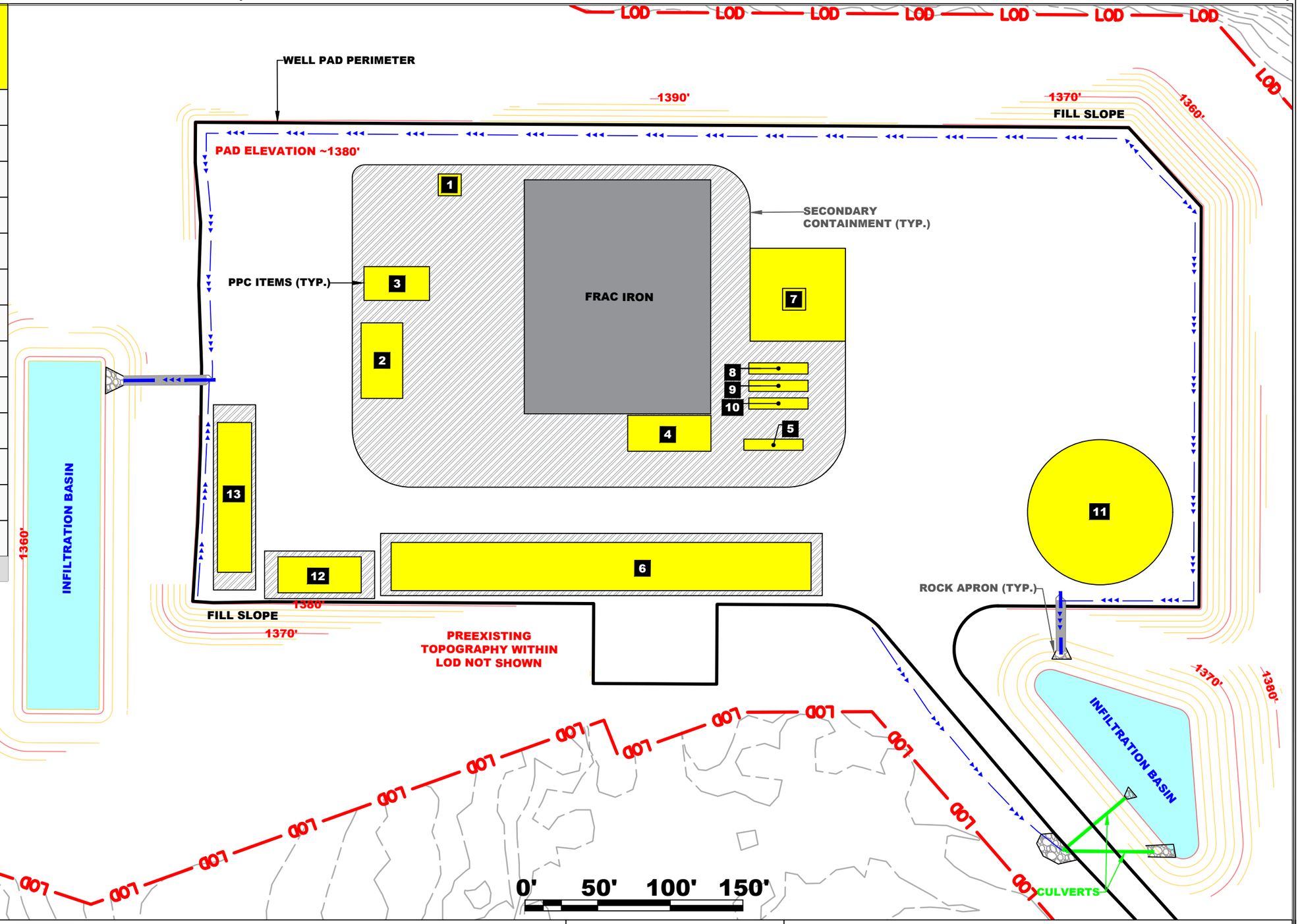
FIGURE: 1

JEFFERS FARMS PAD 1 - SITE COMPLETIONS PPC MAP (ACTUAL OPERATIONAL LAYOUT AND/OR PAD CONSTRUCTION DESIGN SUBJECT TO CHANGE)

COMPLETIONS PPC ITEMS (TYPICAL)

1	GREASE STORAGE
2	CHEMICAL STORAGE
3	DIESEL
4	WORKING TANKS
5	HYDROCHLORIC ACID
6	PRODUCED WATER
7	SAND STORAGE
8	BIOCIDE
9	SCALE INHIBITOR
10	FRICTION REDUCER
11	FRESHWATER TANK
12	PRODUCED WATER*
13	GAS PRODUCTION UNITS*

*ONLY PRESENT AT LOCATIONS WITH EXISTING WELLS



RESOURCE ENVIRONMENTAL MANAGEMENT
50 Maple St.
Montrose, PA 18801
570-278-8392

LEGEND:

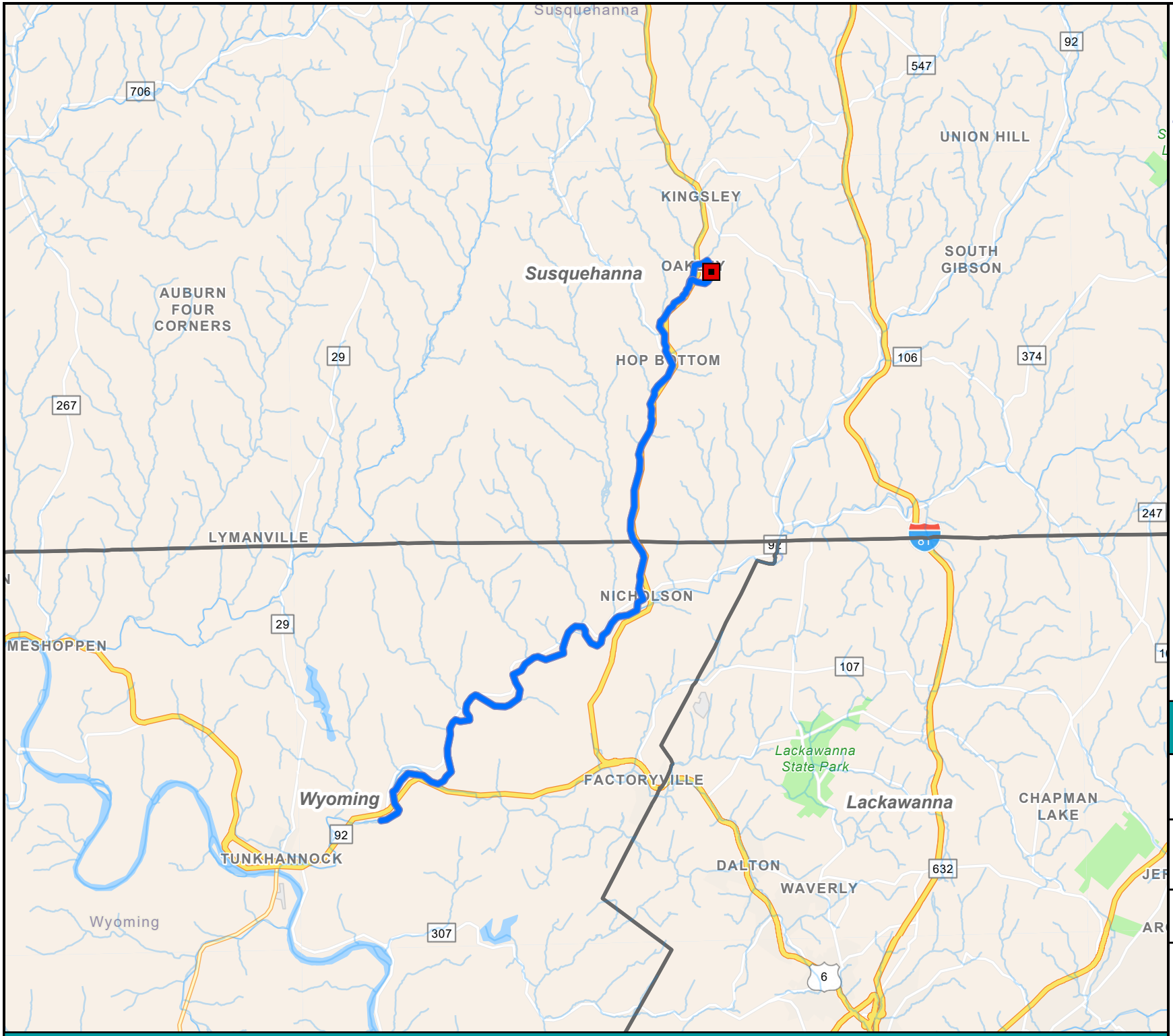
- EXISTING/PLANNED INFILTRATION BASIN EXTENT
- EXISTING/PLANNED LIMIT OF DISTURBANCE
- EXISTING/PLANNED DRAINAGE DIRECTIONS
- EXISTING/PLANNED PAD CONSTRUCTION CONTOUR (10' MAJOR)
- EXISTING/PLANNED PAD CONSTRUCTION CONTOUR (2' MINOR)
- PREEXISTING TOPOGRAPHY (10' MAJOR)
- PREEXISTING TOPOGRAPHY (2' MINOR)

DRAWN BY:	CPM
DATE:	9/17/2025
REVISED BY:	
REVISION DATE:	

PPC Map
Site Completions Activities
Coterra Energy, Inc. - Jeffers Farms Pad 1
Well Pad Center: 41.732619°, -75.747550
Harford Township, Susquehanna County

DRAWING ID: N/A

FIGURE: 2



Site Point
NHD Waterway
County Boundary
20 Mile Downstream Waterway

CONFIDENTIAL

COTERRA

Jeffers Farms Pad 1
Susquehanna County, PA

Pittsburgh Office:
501 Marketplace Avenue
Suite 500
Coraopolis, PA 15108

0 1 2 4 Miles

1:190,000

Units: Foot US
Projection: Lambert Conformal Conic
Datum: North American 1983
Coordinate System: NAD 1983 StatePlane Pennsylvania North FIPS 3701 Feet

Cartographer: GISMBU | Date: 9/25/2025

DISCLAIMER: Information depicted on this map is the sole property of Coterra Energy. Reproduction or reuse of any portion of this map is strictly prohibited absent the written consent of Coterra Energy.
This information is for reference purposes only. Coterra Energy assumes the data sources utilized to create this map are accurate and correct but does not warrant the accuracy thereof. Coterra Energy is not responsible for any misuse or misrepresentation of this information.
Document Path: \\houna02cifs04.coterra.com\gis\share\MBU\Regulatory\PPC\Flow_Direction_Site_Maps\MAPS\Flow_Direction_Jeffers_Farms_P1.aprx

Jeffers Farms Pad 1					
Site-Specific - Release Incident Summary Table (past 5-years)					
Incident Date	**Well Pad Name**	**Incident Description**	**Material Released**	**Estimated Volume Released (gallons)**	**Response and Corrective Actions**
8/1/2023	Jeffers Farms Pad 1	On 8/1/23 Coterra reported spill incident of an an estimated (5) gallons of production fluid to the pad surface from 1427 to 1521 hours. Coterra informed the Department the spill volume is twenty (20) gallons, with (15) gallons of production fluid spilling in containment for tanks storing storm water and production fluid, and (5) gallons of the fluid spilling onto the ground surface of the well pad just outside of the tanks containment structure. A truck driver pulled (1600) gallons of the fluid from the tank storing production fluid and noticed after a few minutes that fluid was leaking out of the PCC box, which the truck fluid hose connects to, due to a gasket missing on the suction line plumbed to the production fluid storage tank.	Produced Fluid	20	Impacted areas were immediately remediated - generated wastes were placed it in a roll-off container for off-site disposal. Gasket on PCC box was repaired.
4/14/2025	Jeffers Farms Pad 1	Elevated conductivity identified off-containment by DEP.During a routine visit, DEP identified elevated conductivity water inside and outside of containment at the northern portion of the well pad (frac ops containment). Upon further investigation, a tear was identified in containment in the general location of the elevated EC.	Produced Fluid	Unknown	Impacted areas were immediately remediated - generated wastes were placed it in a roll-off container for off-site disposal. Tear in containment was repaired.
5/8/2025	Jeffers Farms Pad 1	Five Gallon Aphron Fluid SpillAmpro Flow hands were flowing back Aphron fluid into the CP tank from the separator. During this process, excess fluid in the separator caused the fluid to release into the flare line and spraying fluid out of the flare stack. An estimated 5 gallons of Aphron fluid was released off containment.	Produced Fluid	5	Impacted areas were immediately remediated - generated wastes were placed it in a roll-off container for off-site disposal. Further investigation revealed the dump valves on the separator were functioning correctly. However, the flowback hands claimed they were unaware to manually dump the Aphron fluid into the CP tank once the increased fluid reaches a certain level in the separator.

COTERRA

Marcellus Business Unit (MBU) Emergency Response Plan

Coterra Energy Notification Quick List			
Type*	Notifications	Contact Number	Action
Internal Notifications			
R	Immediate Supervisor		
R	EHS Department, Marcellus-BU EHS On-Call	570-737-4260	Continue Notification Process
Spill Response Organizations (SRO)			
A	Cat Iron	610-944-2739	Call, as incident need dictates, to activate SROs
A	JP Reilly	607-343-0960	Call, as incident need dictates, to activate SROs
A	Resource Environmental Management	570-406-1459 570-278-8392	Call, as incident need dictates, to activate SROs
A	RLE Enterprises	570-842-4051 570-840-2709	Call, as incident need dictates, to activate SROs
Well Control			
A	Cudd Well Control	713-849-2769 800-990-2833	Call, as incident need dictates, to activate SROs
A	Wild Well Control - Pennsylvania	281-784-4700	Call, as incident need dictates, to activate SROs
Oil Spill Response Organizations (OSRO)			
A	EnviroServe	800-488-0910	Call, as incident need dictates, to activate OSRO
External Notifications			
A	National Response Center (NRC)	(800) 424-8802 (202) 267-2675	- Oil Discharge - Release over RQ of Hazardous Substance - Sheen on surface of water or shoreline - Notify as soon as practical

© The Response Group

C	Environmental Protection Agency - EPA Region 3	800-438-2474 215-814-3255	Initial Notification made with call to NRC
A	Occupational Safety & Health Administration (OSHA) - HQ	800-321-6742	Any accident involving an employee in which a serious injury, illness, or death occurs
C	DOT Pipeline and Hazardous Material Safety Administration	202-366-4433	Initial Notification made with call to NRC
C	Chemical Safety and Hazard Investigation Board	202-261-7600	Initial notification made with call to NRC
A	Pennsylvania Department of Environmental Protection-Bureau of Oil & Gas Management	570-826-2511	Notify within 2 hours for a). A release causing or threatening pollution of the waters of the Commonwealth or b). A release of 5 gallons or more not completely contained by secondary containment.
A	Pennsylvania Department of Environmental Protection-Bureau of Waste Management	800-541-2050	In the event of a discharge or any spill of waste generated or processed in a quantity capable of reaching surface water, the owner/operator shall immediately notify the PADEP.
A	Pennsylvania Fish and Boat Commission	570-477-5717	Release that causes or is imminent to cause pollution of waters of the Commonwealth and/or Waters of the United States
C	Pennsylvania Emergency Management Agency	800-424-7362 717-651-2001	Any hazardous materials release which is above the Reportable Quantity (RQ) established by the EPA's List of Lists

*R – Required Notification
C – Courtesy Notification
A – As needed for type of incident

© The Response Group

Table of Contents

Section 1 Introduction 1
1.1 Owner & Operator 1
1.2 Purpose 1
1.3 Scope 2
1.4 Objectives 2
1.5 Plan Availability 2
1.6 Summary of the Risks & Hazards to the Public within a Half-Mile of the Well Site 3
Section 2 ERP Maintenance & Review 1
2.1 Management of Change 1
2.2 Plan Administration 1
2.3 Plan Review 2
2.4 Record of Revisions 3
2.5 Distribution 4
Section 3 Incident Levels 1
3.1 Level 1 Incidents 1
3.2 Level 2 Incidents 2
3.3 Level 3 Incidents 2
Section 4 Response Procedures 1
4.1 Response Procedures 1
4.2 Incident Detection 2
4.3 General Employee Response to an Emergency Situation / Incident 3
4.4 Fire and Explosion 6
4.5 Injury / Medical / Rescue 9
4.6 Spill or Release 10
4.7 Security Incidents 16
4.8 Traffic Control 18
4.9 Severe Weather 19
4.10 Response Termination 22
4.11 Sustained Actions and Follow-up 24
4.12 Emergency Response Equipment 25
Section 5 Notifications & Contact Information 1
5.1 Notification Quick List Notifications 1

© *The Response Group*

5.2 Notification Flowcharts 3
5.2.2 Spill Notification Flowchart 4
5.3 Emergency Management Contacts 5
5.4 Incident Management Team 7
5.5 Coterra Offices 11
5.6 Response Contractors 18
5.7 Notifications 20
Section 6 Incident Management System 1
6.1 Incident Command System Structure 1
6.2 ICS Planning Cycle 5
6.3 Coterra Incident Management Team Organization 8
6.4 Common Responsibilities 10
6.5 Roles and Responsibilities Checklist 11
Section 7 Media Relations 1
7.1 Media Contacts 1
7.2 Media Policy 1
7.3 Example - Emergency Communication – For External Affairs Department Only 3
Section 8 Operational Maps 1
8.1 Marcellus BU Locations 1
8.2 Marcellus BU NEPA Locations 2
8.3 Marcellus BU NEPA - Facility Locations 3
Section 9 Training & Exercise 1
9.1 Training 1
9.2 Exercise/Drills 3
Section 10 Forms 1
10.1 Bomb Threat Checklist 1
10.2 Initial ICS Forms – Reactive Phase 2
Appendix A Well Control 1
A.1 Well Control Notifications 1
A.2 Response Team Responsibilities 3
A.3 Responsibilities of Others 5
A.4 General Well Control Procedures 9
Appendix B - Glossary / Acronyms 10

Section 1 Introduction

1.1 Owner & Operator

This Emergency Response Plan (ERP) is developed for:

Owner/Operator & Address	Coterra Energy - Marcellus Business Unit 2000 Park Lane Suite 300

Coterra Energy (Coterra) - Marcellus Business Unit (MBU) is an independent oil and gas exploration and production company performing exploration and production activities for natural gas in the Northeast region of Pennsylvania.

1.2 Purpose

This ERP is designed to provide Coterra employees, contractors, and designated Incident Management Team (IMT) members with the information necessary to respond to incidents in a safe, rapid, effective, and efficient manner. For purposes of this ERP, incidents are defined as events that happen within a facility or outside the facility (including well sites) that create unacceptable impacts on people, the environment or property, and require emergency response operations. The ERP's primary goal is to help Coterra prevent, as far as practical, any injury or loss of life, damage to property, wildlife, or the environment. The health and safety of the public, Coterra employees, and its contractors will always be the primary objective of this ERP.

This ERP has been developed pursuant to the Act of February 2, 2012, P.L. 67, Act 9 (Act 9) and to satisfy the requirements of 25 Pa. Code § 78a.55 subsection (f). This plan has been developed utilizing the concepts of the National Incident Management System (NIMS) and the Integrated Contingency Plan (ICP) to the maximum extent practicable, addressing the key elements described in Section 78a.55(f)(5). For purposes of this plan, the term "well site" refers to any site associated with oil and gas exploration, production, or support operations.

This plan includes emergency response actions for the following stages of operations at the well sites:

Well Site Operations	
✓	Preparation of the access road and well site
✓	Drilling of the well
✓	Hydraulic fracturing and stimulation of the well
✓	Production
✓	Fluid Storage
✓	Workover activities
✓	Well site restoration
✓	Plugging of the well

© The Response Group

Detailed information for each well site will be included on the Emergency Response Plan - Site Specific Information Sheet (Site Specific Plan) identifying the potential risks and hazards to the public and other receptors within ½-mile of the well site. Both the Site-Specific Plan and the Master Emergency Response Plan (Master Plan) and will be maintained at each well site during site development, gas well drilling, completions (hydraulic fracturing) operations, production of the well, fluid storage operations, workover activities, well site restoration and plugging of the well.

1.3 Scope

This ERP applies to emergency response operations carried out by Coterra and contractors at Coterra facilities. This ERP applies to all incidents that result from Coterra operations.

IMT personnel require a variety of 'tools' to carry out their responsibilities. Some of these tools are included in this ERP. However, most tools reside outside this ERP and may have to be accessed, along with this ERP, at the time of an incident.

Although this ERP contains procedures applicable to most foreseeable incidents, actual conditions will dictate whether deviations from the ERP are appropriate. If operating conditions do not identify an alternative location, the muster point will be located at the 911 access road entrance as indicated on the site map.

1.4 Objectives

Plan Objectives	
✓	Serve as the basis for an organized action plan in dealing with emergencies.
✓	Spell out responsibility, priority, and importance in responding to an emergency.
✓	Provide information regarding the handling of incidents and identify the organizations that are involved.
✓	Identify personnel and agencies that must be notified.

1.5 Plan Availability

The Master Plan as well as Site Specific Plans will be available at the well sites during site development, gas well drilling, completions operations, production of the well, site restoration and plugging of the well. The Site-Specific Plan and a copy of the Master Plan will be made available at the well site electronically and/or will be maintained in the mailbox, drawing tube, or other storage device in the vicinity of the 911 sign and other signage identifying the well site. Electronic copies of the Master and Site-Specific plans are maintained at response.coterra.com.

The Master Plan and Site-Specific Plans will be submitted to the following external parties (note that submittal of the plans via the Pennsylvania Department of Environmental Protection [PADEP] Oil & Gas Electronic Reporting [OGRE] web interface satisfies all the below agencies):

External Agencies Included in OGRE Submission	
✓	Pennsylvania Emergency Management Agency (PEMA)
✓	PADEP Regional Office
✓	County Emergency Management
✓	The Public Safety Answering Point (County 911)

1.6 Summary of the Risks & Hazards to the Public within a Half-Mile of the Well Site

Coterra well sites are generally located in rural/remote locations therefore the risks and hazards to the public are reduced. If a well site is in an area where risks and hazards may have an increased potential to exist, this will be addressed in the Site-Specific Plan.

For natural gas well sites, the possibility of loss of well control represents the greatest emergency risk. In the event of a large uncontrolled release of natural gas into the atmosphere, it may be necessary to evacuate downwind for at least a ½ mile. As well as being extremely flammable, high concentrations of natural gas can displace available oxygen from the air which may cause dizziness or asphyxiation without warning.

© The Response Group

Section 2 ERP Maintenance & Review

2.1 Management of Change

This section describes the Management of Change (MOC) procedure that is followed to make changes to this ERP.

The MOC Coordinator is the Coterra MBU EHS Department.

Individuals suggesting changes must submit requested changes in writing to the MOC Coordinator and include the following information:

Recommended Change Required Information	
✓	Name of person submitting the change(s) and position
✓	The recommended change(s)
✓	The reason for the change(s)

Strategic changes are defined as those that result in a change in:

Strategic Changes	
✓	Organizational Changes
✓	Procedure Modifications
✓	Change in Commodities Transported
✓	Regulatory Mandates
✓	Asset Acquisitions

Revisions are documented in **Section 2.4** Record of Revisions in this ERP.

2.2 Plan Administration

The EHS Department is responsible for the overall administration of the Coterra ERP and shall include ensuring that this ERP contains the necessary information to effectively support a Coterra response.

© *The Response Group*

2.3 Plan Review

This ERP will be reviewed annually by the EHS Department. Any revisions made to the ERP will be listed on the Record of Revisions table in Section 2.4.

Annually, Coterra will submit updates or indicate that no updates are required for the plan within the review period to required agencies in **Section 1.5** via OGRE, no later than March 1st of each year.

Primary Contacts	John Smelko	412-249-3854 412-613-7642
ERP Review	This ERP will be reviewed at a minimum of once per year, and follow the MOC procedure listed in **Section 2.1**, to ensure that it is current regarding personnel changes, contact information, contractor and available equipment changes, and other relevant information as required.	
Significant Updates	ERP revisions should be made if: A. Changes occur which will impact response capabilities; B. Any change occurs with regard to primary response personnel listed on the response team; or C. Any change occurs with regard to the name or capabilities of the primary response contractors; D. Regulatory changes/updates; E. If the plan fails in the event of an emergency/incident.	
Documentation	All revisions will be recorded on the Record of Revisions table in **Section 2.4**.	
ERP Submittal to Agencies	Coterra will electronically submit annual updates or indicate that no updates are required for the plan within the review period to the required agencies, no later than March 1st of each year.	

© *The Response Group*

2.4 Record of Revisions

Date	Section	Revision Made by	Description
1/4/2022	Section 1	Pam Fernley-Granoien	New Plan Implementation for all Sections/Appendices
3/1/2022	Section 1	Pam Fernley-Granoien	Updates per client's comments.
3/26/2024	Section 2	Nickey Smith	Updates per client's comments
5/1/2024	Section 5	Angie Harakal	Updated for personnel changes
9/26/2025	Section 1	Angie Harakal	2025 Various Plan Updates

© The Response Group

2.5 Distribution

The controlled and most recent version of this ERP shall be maintained by adherence to the current version number.

Electronic copies of this ERP are maintained on the Coterra server and at response.coterra.com. These plans may also be made available at the well site via QR code.

The Master Plan and Site Specific Plans will be submitted to the following external parties (note that submittal of the plans via the PADEP Oil & Gas Electronic Reporting (OGRE) web interface satisfies all of the below agencies):

- Pennsylvania Emergency Management Agency (PEMA)
- PADEP Regional Office
- County Emergency Management
- The Public Safety Answering Point (Susquehanna County 911)

© The Response Group

Section 3 Incident Levels

To properly respond to any emergency, incidents should be classified into one of three levels. The incident level is determined by the complexity of the incident, the risks to Coterra personnel and the public, and the impact on the environment. These level classifications will be used only to communicate to Coterra personnel, they are not meant for external communication.

The focus of this guidance presented in this section is on the organization, functions, roles, and responsibilities associated with IMT's developed to respond to emergencies.

Response Levels	
Level	**Ranking**
1	**Lowest**
2	**Intermediate**
3	**Highest**

3.1 Level 1 Incidents

These incidents are those that can be effectively managed within the District without activating the Incident Management Team.

LEVEL 1	✓	An incident without recordable injuries (employee or contractor), public involvement or media attention.
	✓	Spills that are not agency recordable.
	✓	Minor vehicle incident
	✓	Release/Spill that is that is not reportable to the local, state, or federal government agencies and cause no environmental impact.
	✓	Property damage less than $100,000.

© *The Response Group*

3.2 Level 2 Incidents

These incidents are those that require notification to the regional level management. Additional corporate notification will be determined by the nature of the incident. Activate Incident Management Teams as appropriate.

LEVEL 2	✓	Recordable or serious injury to any person. (employee and/or contractor)
	✓	Vehicle or other type of incident that may expose Coterra to substantial liability, including fines and penalties.
	✓	Spills that are agency reportable, or releases, explosions, fires, or other incidents that are required to be reported to any government agency.
	✓	Property damage from $100,000 to $250,000.
	✓	Event that involves media attention and impacts the public.
	✓	Incident caused by a Severe Weather Event.

3.3 Level 3 Incidents

These incidents are those which require notification to Corporate level management. Incident Management Teams may be activated depending on the nature of the incident.

LEVEL 3	✓	Death or injury to any person which has a substantial risk of permanent disability or impairment.
	✓	Major spills, toxic gas releases, or other significant environmental damage.
	✓	Loss of Well Control.
	✓	Fires not immediately controlled and extinguished.
	✓	Natural Disasters / Emergency Declarations.
	✓	Property damage greater than $250,000.
	✓	Incidents that have potential for local, national, and international media coverage.
	✓	Incidents that could significantly impact the company's cash flow and/or financial performance.

© The Response Group

Section 4 Response Procedures

4.1 Response Procedures

The purpose of this section is to identify necessary response checklist/procedures to follow based on the type of incident that could occur at Coterra locations. The checklists below are developed to allow the IMT the ability to make sound decisions during the initial response of an incident.

In the event that external emergency responders are required, Coterra personnel shall immediately contact 911. Under the ICS, external emergency responders will assume the role of Incident Commander upon arrival.

In all cases, Coterra personnel shall not perform duties/functions in which they have not been trained to perform. Coterra personnel shall not perform response efforts that may put themselves or others in a situation that threatens human health and safety.

Response Procedures	
Subsection	Incident Type
4.2	Incident Detection
4.3	General Employee Response to an Emergency Situation / Incident • **All Personnel and Contractors** • **First On-Scene** • **Field Supervisor / Foreman / Well Site Consultant** • **EHS Department**
4.4	Fire and Explosion • **General Firefighting** • **Natural Gas Fire** • **Flammable Liquid Fire** • **Explosions**
4.5	Injury / Medical / Rescue

© *The Response Group*

Response Procedures	
Subsection	Incident Type
4.6	Spill or Release • **Spill Detection** • **Initial Response** • **H_2S Release** • **Carbon Dioxide Release** • **Hazardous / Flammable Chemicals**
4.7	Security Incidents • **Bomb Threats** • **Suspicious Package** • **Public Disturbance / Protest**
4.8	Traffic Control
4.9	Severe Weather • **Severe Flooding** • **Tornado** • **Winter Storm Warning** • **Hurricanes**
4.10	Response Termination • **Debriefing the Incident** • **Post-Incident Analysis** • **Critiquing the Incident**
4.11	Sustained Actions and Follow-up
4.12	Emergency Response Equipment Fire Suppression Equipment Spill Control Equipment

4.2 Incident Detection

In the event of an incident at a facility, immediate response and reporting is required by both Coterra personnel and contractors. Applicable incident reporting thresholds are included in **Section 5** of this ERP.

© *The Response Group*

4.3 General Employee Response to an Emergency Situation / Incident

4.3.1 All Personnel and Contractors

All Personnel and Contractors	
Safety is of the utmost priority.	
✓	Always think before responding.
✓	Never rush into the scene of an incident.
✓	Always assess the situation first and know the hazards.
✓	Never perform any actions that may put your safety at risk or the safety of others. Personnel should not perform response efforts in which they have not been trained to perform.

© The Response Group

4.3.2 First On-Scene

Initial Response to an Emergency Situation / Incident Checklist	
The first person who responds to the scene of an emergency should take the following action:	
✓	Move to a safe location if your personal safety may be in jeopardy.
✓	Never jeopardize your safety or that of another individual.
✓	Survey the scene, stay calm, park your vehicle away from the scene of the emergency, and turn off the engine.
✓	If there is a reasonable belief that a person needs emergency medical treatment, dial 911 immediately.
✓	Contact the appropriate Coterra personnel included in **Section 5.3** of this ERP. Make sure that you speak to a person and never just leave a message.
✓	If flammable or explosive material has been released, secure all ignition sources including cellular phones and other communication devices.
✓	If safe, take prompt action to eliminate any dangers.
✓	If safe, and properly trained, provide medical aid for any injured personnel.
✓	If necessary, evacuate everyone from the danger area to a safe location or to an upwind location.
✓	Conduct head count of all site personnel. Identify the names and last known locations of anyone not accounted for and provide that information to the official in charge.
✓	Secure the location, if safe to do so, block the road leading to the site to control access. Once emergency responders arrive, they can assist in monitoring the entrance and securing the location.
✓	Promptly decide: • Whether or not the incident can be readily brought under control and if immediate action can be taken. **Always use the correct PPE.** • If there is a spill and you are qualified to do so, deploy boom and absorbent material if available. Build containment areas to prevent contamination and potential pollution of the environment.
✓	Contact an approved/qualified spill response contractor if product has been released or discharged.
✓	For media inquiries, refer to **Section 7** of this ERP.

© *The Response Group*

4.3.3 Field Supervisor / Foreman / Well Site Consultant

Field Supervisor / Foreman / Well Site Consultant	
✓	Upon learning of the emergency, determine the seriousness of the emergency and which backup personnel and/or equipment may be required.
✓	Ensure entrance to the site has been secured.
✓	Establish direct contact with site personnel and emergency responders.
✓	Inform emergency responders of any potentially dangerous situations (e.g., H2S, toxic chemicals, SDS, etc.). Do not interfere with the work of any government emergency responders or law enforcement personnel.
✓	Contact your Supervisor/Manager and EHS Department and relay pertinent information.
✓	Assist the EHS Department with the investigation of the incident.
✓	Ensure that you always speak to a responsible person and never just leave a message.

4.3.4 EHS Department

Superintendent	
✓	Coordinate response efforts with Coterra personnel and approved/qualified spill response contractor.
✓	Notify the appropriate Federal, State and Local agencies. Refer to Federal and State reporting requirements located in **Section 5** of this ERP.
✓	For media inquiries, refer to **Section 7** of this ERP.
✓	Relay information between management and/or governmental agencies on actions taken.
✓	Cooperate with the government agencies on site and, if safe to do so, assign tasks to available Coterra personnel and/or contractors.

© *The Response Group*

4.4 Fire and Explosion

4.4.1 General Firefighting Procedures

Product specific fire and explosion information can be obtained from the Safety Data Sheets (SDS).

General Firefighting Procedures	
No Employees are Expected to Fight a Major Fire.	
✓	If fire is not able to be immediately extinguished, Call 911.
✓	Appropriate personal protective equipment must be used.
✓	All personnel must first consider their safety and the safety of others.
✓	If a small incidental fire away from the wellhead, such as one involving combustibles, should occur, an attempt should be made to extinguish the fire with a fire extinguisher. This should be attempted only if the fire is minor in nature and does not involve natural gas. Only properly trained personnel shall attempt to extinguish a fire.
✓	Avoid getting trapped by the fire.
✓	Always fight a fire upwind (wind at your back).
✓	Never attempt to fight a fire around vessels containing flammable liquids or gases.

© The Response Group

4.4.2 Natural Gas Fire Procedures

Natural Gas Fire Procedures	
In the event of an uncontrolled natural gas release, caution should be exercised due to the possibility of nearby ignition sources.	
✓	Assess the scene.
✓	Call 911.
✓	Notify the Coterra Chain-of Command and activate ICS, if necessary.
✓	Turn off vehicles when arriving on scene.
✓	Use extreme caution to avoid the possibility of introducing any ignition sources (e.g., cell phone and handheld radios).
✓	Do not attempt to put out fire while gas is still escaping.
✓	Only if it is safe to do so, shut off the source of the gas release.
✓	Once the source has been shut off, observe the area from a safe distance to ensure that all potential hazards have been addressed.
✓	Set-up communications.
If the source of the gas release cannot be safely shut off:	
✓	The area should be isolated (restrict access to the site until incident has been resolved).
✓	The on-scene commander will determine the best plan to eliminate the gas release and the appropriate radius of exposure.
✓	Notify nearby private residents and/or commercial/public properties as necessary.
✓	The on-scene commander will determine if area residents should evacuate the area.

4.4.3 Flammable Liquid Fire Procedures

Flammable Liquid Fire Procedures	
✓	If not able to be immediately extinguished, Call 911.
✓	Notify the Coterra Chain-of Command and activate ICS, if necessary.
✓	Use caution when approaching due to the possibility of intense heat.
✓	Stop the source before extinguishing any fire, if safe to do so.
✓	Do not attempt to fight any fire that may endanger your personal safety or the safety of others.
✓	Only if it is safe to do so, locate and shut off the source of the fire.
✓	Only attempt to extinguish if the fuel source has been shut off and adjacent equipment is cool, to prevent re-ignition.

© The Response Group

4.4.4 Explosions

Explosions	
✓	Call 911.
✓	Notify the Coterra Chain-of Command and activate ICS, if necessary.
✓	An explosion on a lease or at a facility, may likely result in a fire.
✓	If the explosion results in a sustained natural gas leak and fire, review the Natural Gas Fire Procedures in Section **4.4.2.**
✓	Be aware that multiple gas leaks and/or fires may result in an explosion. Caution should be used, and a complete containment plan established before proceeding to eliminate the possibility of secondary explosions.

© *The Response Group*

4.5 Injury / Medical / Rescue

Injury / Medical / Rescue Checklist	
The following checklist can assist in preparing for and responding to workplace injuries.	
✓	Properly respond to any injured personnel by first making sure that the area is safe for others to properly respond.
✓	Keep Calm – Get Help – Call 911, if there is a reasonable belief that a person needs emergency medical treatment.
✓	Always use the proper PPE when responding, avoid contact with blood or other bodily fluids.
✓	Only move an injured person to a safe location if an immediate threat to their life exists. If you need to move a person you suspect has a neck injury, keep their head, neck immobile, and attempt to move them as one unit. Do the same if an injured person must be rolled over.
✓	If treatment is required, only administer to the level of your training.
✓	Notify the appropriate level of supervision and Coterra Chain-of-Command as soon as practical.
✓	Report to Coterra EHS as soon as practical.
✓	Follow-up on any actions identified by the incident or investigation.

Determining Hospitals	
Note that 911 Emergency Services will determine the hospital most appropriate for the incident. One of the best ways to be prepared for a workplace injury or illness is to pre-identify hospitals that are properly equipped to deal with an injury that may result from the types of hazards involved with Coterra operations. See **Section 5** for list of hospitals for each area of operations.	
The following may assist in determining any additional hospitals:	
✓	Types of special care units.
✓	Air ambulances service.
✓	Knowledge of hazards associated with oil and gas operations.
✓	Location.

© *The Response Group*

4.6 Spill or Release

4.6.1 Spill Detection

In the event of a spill or release at a facility, prompt response and reporting are required. Refer to the Notification Flowchart in Section 5. Failure to immediately report and respond to a spill or release may increase the environmental impact.

PADEP Bureau of Oil & Gas Management Permitted Activities:

According to Chapter 78a.66 an operator shall report the following spills and releases of regulated substances at well sites to the Pennsylvania Department of Environmental Protection (PADEP):

- A spill or release of a regulated substance causing or threatening pollution of the waters of the Commonwealth.
- A spill or release of 5 gallons or more of a regulated substance over a 24-hour period that is not completely contained by secondary containment.

If a reportable release on or into the ground occurs at the facility, Coterra EHS shall notify the appropriate regional office of the PADEP within 2-hours of being made aware of the release. If a spill or release causes or is imminent to cause pollution of the waters of the commonwealth it shall be reported to the National Response Center (NRC) and the Pennsylvania Fish and Boat Commission (PFBC).

PADEP Bureau of Waste Management Permitted Activities:

In the event of a discharge or any spill of waste generated or processed in a quantity capable of reaching surface water, the owner/operator shall immediately notify the PADEP Emergency Hotline and the appropriate PADEP Regional Office. The owner/operator shall also take immediate action to protect the health and safety of the public and environment. If a spill or release causes or is imminent to cause pollution of the waters of the commonwealth it shall be reported to the National Response Center (NRC) and the Pennsylvania Fish and Boat Commission (PFBC).

© The Response Group

4.6.2 Initial Response

Take the following actions, as appropriate:

Initial Response	
Notifications	
✓	Refer to the Notification Flowchart in **Section 5** for reporting level.
✓	Note that PADEP notifications may be required within 2-hours of the incident. These notifications will be made by designated Coterra personnel identified in the Notification Flowchart in **Section 5.**
✓	Gather information - according to the requirements in PA Code 25 Chapter 78a.66; information regarding the type of material released, approximate volume released, potential environmental impacts, etc. must be provided to the PADEP within 2 hours.
Ensure Safety of Citizens & Response Personnel	
✓	Evaluate personal safety first.
✓	Identify hazard(s) of the spill or release by referencing the Safety Data Sheet (SDS).
✓	If Flammable products are present, evaluate and if safe, eliminate potential ignition sources.
✓	Establish site control (hot zone, warm zone, cold zone, and security), as appropriate.
✓	Consider evacuations, as appropriate.
✓	Establish transportation restrictions, as appropriate.
✓	If necessary, monitor air in impacted areas.
✓	Develop site safety and health plan for response personnel once the Incident Management Team is activated. Identify the spill control measures and other pertinent information contained in the PPC and SPCC Plans at the site.
✓	Ensure JSA and/or safety briefings are conducted.
Notify Spill Response Contractors	
✓	If necessary, notify response company for equipment and manpower.
Stop and Contain the Spill (If Possible & Safe)	
✓	Attempt to cease the spill or release to the extent possible without risking human health and safety.
✓	Prevent migration of the substance from the site of the spill or release.
✓	If the release occurs on containment and does not migrate off containment it should be immediately cleaned-up and all impacted media shall be collected. Containment should be inspected to confirm competence and that the spill did not migrate from containment.
✓	If the release occurs off containment or migrates from containment the use of construction equipment (normally present during construction, drilling and hydraulic fracturing operations) may be required to construct emergency containment berms

© The Response Group

Initial Response	
	down gradient of the containment breach/release in addition to the use of commonly available spill absorbent materials. The soil media containing the release will be excavated, removed, and disposed in accordance with applicable regulations and the Coterra Control and Disposal Plan.
✓	Contact Coterra MBU EHS to arrange for proper disposal.
Estimate Spill Volume	
✓	Retrieve available detailed information on the release (daily production, duration of release, etc.)
✓	Estimate volume of release. A spill or release of 5-gallons or greater, of a regulated substance, not completely contained must be reported to PADEP within 2 hours (Bureau of Oil & Gas)
✓	Survey spill site for dimensions of spill.

© The Response Group

4.6.3 H_2S Release

Hydrogen Sulfide (H_2S) Release	
✓	If a fixed or personal monitor alarms, the employee must assume that H_2S is present.
✓	The employee shall immediately leave the area by the safest route possible.
✓	Windsocks, if present, will help the employee determine the wind direction.
✓	The employee should proceed upwind or move crosswind and then upwind.
✓	H_2S will collect in low lying areas. Employees should also move uphill, where applicable.
✓	Notify your Supervisor.
✓	All employees will follow the Coterra H_2S Policy & Procedures located in the Coterra EHS Manual Policy # EHS-2.35.
Employee Responsibility	
✓	Evacuation routes.
✓	Location of facility alarms, if applicable.
✓	Designated assembly areas.
✓	Windsocks.
✓	Appropriate PPE & breathing apparatus.
Hazard Information	
Physical Description	H_2S is a colorless gas with an odor resembling rotten eggs at low concentrations. At high concentrations (150 to 500ppm), loss of the sense of smell can occur. Most people can smell H_2S at concentrations ranging from 0.1 ppm to 2 ppm. H_2S can deaden the sense of smell in a few minutes. At higher concentrations, respiratory paralysis and death may occur quickly.
Primary hazards	Toxic, flammable gas. Respiratory hazard. Moderately irritating to eyes, mucous membranes. A potentially hazardous volume of hydrogen sulfide is defined as one which could result in a ground level concentration of 100 ppm or higher where people are known or expected to be located. Concentrations of 100 ppm are immediately dangerous to life and health (IDLH).
Fire hazards/special firefighting considerations	H_2S concentration will be lethal at lower explosive limit, as 4% = 40,000 ppm. Gives off sulfur dioxide when burning.
Spill/release considerations	H_2S is heavier than air and can accumulate in low-lying areas. H_2S is corrosive to many materials in the presence of water or water vapor and is reactive with oxidizing agents.

© The Response Group

4.6.4 Carbon Dioxide Release

Carbon Dioxide Release Response	
✓	A release of CO_2 will be indicated by a white vapor cloud. There may be a loud noise associated with the release as the product may be pressurized as high as approximately 2000 psi.
✓	During upset conditions it is possible the H_2S concentration may increase.
✓	If entry into the vapor cloud is necessary to control the release; positive pressure breathing apparatus and personal protection from frostbite is required. This may include coats and gloves.
✓	Obtain a combination O_2/LEL/H_2S monitor to measure concentrations while performing work within a CO_2 vapor cloud. Concentrations of 100 ppm H_2S and/or ≤19.5% and ≥23.5% O_2 will require positive pressure breathing apparatus.
✓	It is extremely important not to confine CO_2. It may be better to let the CO_2 vent. Consult with your supervisor.
✓	Personnel noticing a CO_2 release shall notify their supervisor.
✓	Field office personnel should notify potentially affected personnel or contractors of the location and nature of the emergency and if additional assistance is required.
✓	Operator will: If possible and safe to do so, block in the source of the release. If this is not possible, the release will be blocked in at the closest source. Do not attempt to close valves in the area of the release without full protective clothing and SCBA.
✓	A release of CO_2 could require notification to State and Federal agencies (**see Section 5**).
Hazard Information	
Primary Hazard	Respiratory hazard due to oxygen displacement. Frostbite or freeze burn may result from skin contact. Sour CO_2 may contain hazardous levels of hydrogen sulfide.
Exposure Limit	5,000 ppm
IDLH Level	50,000 ppm
Fire hazards/special firefighting considerations	Not Applicable
Spill/release considerations	Utilize hand-held gas detection to monitor oxygen levels

© The Response Group

4.6.5 Hazardous / Flammable Chemicals

Hazardous Chemicals Release	
Leak or Spill from a Chemical Storage Vessel	
✓	Immediately contact the supervisor in accordance with the Notification Flowchart in **Section 5** and review the SDS for the chemical spilled. Pay particular attention to acute and chronic hazards the chemical may present, and the PPE required handling the material.
✓	The supervisor will contact the EHS Department, and he/she will provide guidance on spill control, containment, cleanup, regulatory required notification, and activation of chemical specific response plan.
✓	Contact 911, if necessary.
✓	Immediately evacuate the area affected by the chemical spill. Be alert for respiratory hazards. Stay upwind if possible. Wear respiratory protection equipment for protection from hazardous materials.
✓	Eliminate ignition sources if vapors could reach fired vessels, running vehicles, welding activity, cell phone, etc. The tank or vessel should be isolated.
✓	If the spill migrates outside secondary containment, use hand tools and available earth moving equipment to construct HDPE containment capable of holding 110% of the largest tank capacity.
✓	Recoverable liquids may be collected by vacuum truck and may be pumped into another storage tank or vessel for storage prior to disposal.
✓	Chemical contaminated soil and debris will be cleaned up and disposed of in compliance with applicable state and federal regulations.
✓	A release of a flammable liquid could require notification to state and federal agencies (See **Section 5** for Notification and Contact Information).
Hazard Information	
Primary Flammable Liquid Inventory	• Crude Oil • Natural Gas/Natural Gas Liquids • Gasoline/Diesel Fuel • Methanol • Various Well Treatment Fluids (see SDS at site)
Primary Hazard	Fire/explosion. Respiratory hazard due to oxygen displacement.
Exposure Limit	Varies with each product. Consult SDS.
Fire Hazards/Special Firefighting Considerations	Coterra shall provide adequate information regarding the chemicals on location and SDS so that the emergency responders can be prepared.
Spill/release considerations	Possible skin irritation. Do not enter liquid spill area. No cell phone or non-intrinsically safe devices use. Utilize hand-held gas detection equipment to monitor LEL/O_2 levels.
Disposal procedures	Consult with the EHS Department prior to disposing of any chemical waste.

© The Response Group

4.7 Security Incidents

4.7.1 Bomb Threats

Bomb Threats Via Telephone	
The person receiving the call should:	
✓	Write down observations immediately.
✓	If available, record the observations on the Bomb Threat Checklist (Refer to **Section 10.2** of this ERP.)
✓	Attempt to keep the person on the line as long as possible.
✓	Call 911
✓	Try to determine the location of the bomb, what it looks like and when it is scheduled to detonate.
✓	Notify immediate supervisor without delay and provide them with the Bomb Threat Checklist (Refer to **Section 10.2** of this ERP.) or conversation notes.
Facility Supervisor	
✓	Based on available information, determine whether or not to evacuate the facility or area.
✓	If an evacuation is declared, specify evacuation routes.

4.7.2 Suspicious Package

Suspicious Package at Facility/Location	
Personnel seeing a suspicious package should:	
✓	Notify Immediate Supervisor.
✓	Do not touch or move any suspicious package.
Immediate Supervisor	
✓	Notify appropriate Coterra personnel and/or building/landlord/security.
✓	Contact local law enforcement (911) immediately.
✓	Promptly evacuate everyone in the immediate vicinity.

4.7.3 Public Disturbance / Protest

Picketing, demonstrations and protests may develop and affect operations. In such cases, personnel should notify local police and/or security. Suppliers and customers with vehicles scheduled inbound to the facility's vicinity should be notified of their possible encounter with picketers.

© The Response Group

Activist Threat

Activists who demonstrate outside company property may impede normal operations and/or interfere with personnel access to the Coterra areas of operations. Activists intend to maximize media interest/coverage.

Protest activities may include, but are not limited to any or all of the following:

- Pre-arranged, lawful assemblage, vigils, or rallies.
- Unlawful, but non-violent, acts of civil disobedience (e.g., symbolic trespassers and traffic blockages).
- Covert entry into facilities to conduct protest acts (e.g., post banners and paint slogans).
- Attempts to penetrate facilities.
- Rioting and destruction of property.

Proactive steps should be taken to assess security risk for demonstrator activities and to define critical areas. Focus should be on preventing access to facilities. In the event entry into a Coterra facility does occur, safety of personnel and operations is the highest priority. Because of this, demonstrators should be removed from the facility safely and quickly by local law enforcement officials, in accordance with local regulations and practices. In no event should demonstrators be allowed to remain in critical areas. The following guidelines have been identified as security best practice and should be incorporated in response planning.

Response Guidelines

Response Guidelines for Activist Threats	
Access Control / Physical Security	
✓	Attempt to restrict access to the site without confronting the demonstrators (i.e., lock lease road gate, block lease road, inform security personnel to restrict access to the facility, etc.)
Protecting Critical Areas	
✓	Areas surrounding the Facility are considered critical areas.
✓	Local Police Departments will be used to remove "non-peaceful" demonstrators from any critical areas and to assist in channeling or moving "peaceful" activists to non-critical areas.
Response Planning and Execution	
✓	Maintain liaison with the Local Police.
✓	Work with Local Police Department to ensure safety and security risks involving unauthorized personnel are promptly and appropriately dealt with.
✓	Notify your supervisor regarding any form of lawful demonstrations or trespassing. Notify facility security personnel if present.
✓	Instruct personnel to respond to unauthorized access using non-confrontational techniques.

© The Response Group

Response Guidelines for Activist Threats	
✓	Instruct personnel to refer all questions from the media or activists to Coterra Public Relations.
✓	Facility Manger shall evaluate whether to "shutdown" to ensure safe operations.
✓	Training may be provided to personnel to respond to activist threat scenarios.
✓	Operational readiness/safety reviews will be conducted prior to restart of activities in occupied areas.
Public Affairs Planning and Response	
✓	Public Relations shall discuss potential scenarios that could be encountered and the appropriate steps to take for each scenario.
✓	Facility Manager shall ensure proper notification of Public Relations.

4.8 Traffic Control

Refer to the Coterra EHS Manual Policy Number EHS – 2.67.

The purpose of traffic control in an emergency is to keep people off the location.

- Restrict Access
- Protect the public.
- Protect the employees and responders.
- Control media access.
- Ensure safe entries/exit routes.

Traffic Control Procedures	
✓	Establish control at the entrance to keep unauthorized personnel from entering the area.
✓	In cooperation with law enforcement agencies, the supervisor in charge will assist in directing the setting up of applicable traffic controls in accordance with local, state, and federal regulations.
✓	If a private road is involved, the facility or lease road may be closed.
✓	Employees performing work along a roadway will wear high visibility vests, hard-hats and safety glasses.
If an emergency occurs away from the lease and endangers a public highway, such as a pipeline break at a road crossing:	
✓	The proper law enforcement agency shall be notified as soon as possible.
✓	If there is a real danger to the traveling public, adequate traffic controls should be implemented, and all traffic warned of the danger.

© The Response Group

4.9 Severe Weather

The Severe Weather Checklist below should be used during all severe weather situations.

Weather Monitoring	
✓	Radios and scanners can be used to monitor severe weather reports provided by local emergency response frequencies and radio stations.
✓	National weather service provides public notices.
✓	All personnel should be notified of severe storms in the area. All personnel can then assist in the weather watch as they go about their regular duties.

4.9.1 Severe Flooding

Flooding Checklist	
✓	Evacuate immediately, if advised to do so.
✓	Avoid areas that are prone to flooding (e.g., dips, low spots, canyons, and washes).
✓	Avoid areas that are already flooded.
✓	Never walk through a flooded area. As little as six inches of flowing water can sweep a person off their feet.
✓	Do not drive through a flooded area. Only two feet of water can lift and wash away a vehicle.
✓	If a vehicle stalls in a flooded area, abandon the vehicle and move to higher ground.
✓	Do not park vehicles near streams, especially during severe storm warnings.

© The Response Group

4.9.2 Tornado

Tornado Checklist	
Tornado Watch indicates that conditions are favorable for development of a tornado.	
✓	Be on alert.
✓	If funnel-shaped clouds are sighted, contact your supervisor and/or Coterra Chain-of-Command and follow procedures below.
Tornado Warning indicates that a tornado has been spotted in the area. Take protective action. If a tornado strike is imminent, personnel should take shelter immediately.	
✓	Unless an actual tornado is spotted, notification will probably come from the National Weather Service
✓	The on-site supervisor or contractor in charge will make the decision to initiate an emergency shut-in.
✓	**If seeking shelter inside a building**, move to the interior, away from windows. Seek protection from falling or flying objects by sheltering in a closet, bathroom, under a table or desk, etc.
✓	**If seeking shelter outside**, move away from process areas, product storage, or other areas where release of hazardous materials or hazardous energy may be possible due to storm damage. If in open areas, move to a low-lying area, such as a road ditch, culvert, etc. Lie face down and cover your head to protect yourself from flying debris.
✓	**If driving in open country,** move away from the approaching tornado at right angles if possible. If there is not time to find shelter, abandon your vehicle and lie flat in a ditch or depression. Avoid areas with large trees and power lines.
✓	If the area is hit by a tornado, be aware of escaping gas, and possibly a fire.

© The Response Group

4.9.3 Winter Storm Warning / Weather Related State of Emergency Declaration

A winter storm warning may be issued by the National Weather Service and/or a Weather-Related State of Emergency may be Declared by the State. Additionally, governmental agencies may issue road closures due to adverse weather conditions.

Winter Storm Warning / Weather-Related State of Emergency Checklist	
This checklist identifies actions to be taken when company offices or facilities are threatened by a winter storm.	
✓	If a winter storm strikes and storm severity warrants field evacuation, all personnel will report their status to their supervisor.
✓	In the event an individual becomes stranded in the field or on the road, stay with the vehicle and follow winter survival rules until help arrives. Do not attempt to travel on foot until it is safe to do so.
✓	After the storm, facilities will be checked with the aid of four-wheel drive vehicles. All personnel shall maintain 2-way radio or cell phone communication with the office when in the field during or immediately after a storm.

4.9.4 Hurricanes

Hurricane Season is June 1st to November 30th.

Hurricanes	
If a hurricane warning is issued, the following steps need to be taken:	
✓	Review evacuation plans.
✓	Notify all employees of the hurricane condition.
✓	Secure all outside equipment that can be blown away.
✓	Fuel up all vehicles.
✓	Check all first aid kits and emergency supplies.
✓	Check batteries in radios and flashlights.
✓	Move all trucks and/or equipment from flood prone areas.
✓	Review and implement hurricane plan/procedures.
After the hurricane has passed:	
✓	Do not start damage assessment until the National Weather Service declares the storm is over.

© The Response Group

4.10 Response Termination

Termination activities are divided into three phases: debriefing the incident, post-incident analysis, and critiquing the incident. The extent to which these phases are undertaken depends on the nature and magnitude of the incident. An incident could trigger the formal termination procedures outlined in this section.

4.10.1 Debriefing the Incident

Debriefing the Incident	
✓	Debriefings should begin as soon as the "emergency" phase of the operation is completed. Ideally, this should be before first responders leave the scene, and it should include the hazmat response team, sector officers, and other key players such as public information officers and agency representatives who the IC determines would benefit from being involved.
✓	Inform responders exactly what hazardous materials they were (possibly) exposed to and the signs and symptoms.
✓	Identify equipment damage and unsafe conditions requiring immediate attention or isolation for further evaluation.
✓	Assign information-gathering responsibilities for a Post-Incident Analysis (PIA) and critique.
✓	Summarize the activities performed by each sector, including topics for follow-up.
Safety meeting attendance forms and or memoranda may be utilized to document the debriefing.	

© The Response Group

4.10.2 Post-Incident Analysis

Post-Incident Analysis	
✓	PIA is the detailed, step-by-step review of the incident to establish a clear picture of the events that took place during the incident. It is conducted to establish a clear picture of the emergency response for further study.
✓	The PIA is not the same as investigations conducted to establish the probable cause of the accident for administrative, civil, or criminal proceedings. Those are usually conducted utilizing root cause or hazard and operability methodologies. One person or (or office) should be designated to collect information about the response during the debriefing. Additional data may be obtained from Command post logs, incident reports and eyewitness interpretations.
✓	Once all available data has been assembled and a rough draft report developed, the entire package should be reviewed by key responders to verify the available facts are arranged properly and verified. The PIA should focus on four key topics: *Command and Control, Tactical Operations, Resources and Support Services*.
✓	***Command and Control*** – Was command established and sectors organized? Did information flow from operations personnel through Sector Officers to the Incident Commander? Were response objectives communicated to the personnel expected to carry them out?
✓	***Tactical Operations*** – Were the tactical options ordered by the IC and implemented by emergency response personnel effective? What worked? What did not?
✓	***Resources*** – Were the resources adequate for the job? Are improvements needed to apparatus and/or equipment? Were personnel trained to do the job effectively?
✓	***Support Services*** – Were the support services received from other organizations adequate? What is required to bring support to the desired level?

© The Response Group

4.10.3 Critiquing the Incident

A commitment to critique all hazardous material responses will improve IMT performance by improving efficiency. Use the tool as a valuable learning experience (everyone came to the incident with good intentions). A good critique promotes:

- Trust in the response system as being self-correcting.
- Willingness to cooperate through teamwork.
- Continuing training of skills and techniques.
- Pre-planning for significant incidents.
- Sharing information between response agencies.

Critique Format	
A critique leader is assigned. This can be anyone who is comfortable and effective working in front of a group. The critique leader should:	
✓	Control the critique. Introduce the players and procedures. Keep it moving and end on schedule.
✓	Ensure that specific questions receive detailed answers.
✓	Ensure that all participants follow the critique rules.
✓	Ensure that each operational group presents their observations.
✓	Keep notes of important points.
✓	Sum up the lessons learned.
✓	Follow up.
✓	Following the critique, forward the written comments to management. They should highlight suggestions for improving response capabilities and alternative solutions.
✓	When larger incidents are involved or injuries have occurred, formal reports shall be circulated so that everyone in the response system can understand the “lessons learned.”

4.11 Sustained Actions and Follow-up

A spill or release may transition from an emergency response into a sustained remedial action that requires prolonged mitigation activities. Depending on the material, size, and location of the incident, a Coterra EHS Representative may engage an environmental consultant, to oversee a site investigation to determine the horizontal and vertical extent of media (i.e., soil, groundwater, and/or surface water) affected. The impacted area will be evaluated to determine appropriate remedial options and the most appropriate option will be implemented according to applicable regulations.

© The Response Group

4.12 Emergency Response Equipment

4.12.1 Fire Suppression Equipment Maintained by Operator

Fire extinguishers are located in each Coterra building. All Coterra vehicles carry fire extinguishers.

4.12.2 Spill Control Equipment

In addition to the containment structures engineered at the site, Coterra, through strategic partnerships with local third-party contractors/vendors, can provide immediate response and mitigation of an uncontrolled release. The third-party contractors/vendors operate and have facilities/laydown yards proximate to Coterra's operating areas and can provide immediate spill response support.

These contractors/vendors maintain and have access to spill response equipment such as but not limited to:

- Vacuum trucks
- Backhoe/excavation equipment
- Absorbent booms, pads, and other media
- Drums and waste storage containers
- Pumps, mobile power generator, hoses/piping
- Characterization meters/monitors and sample collection equipment

© The Response Group

Section 5 Notifications & Contact Information

5.1 Notification Quick List Notifications

Coterra Energy Notification Quick List			
Type*	Notifications	Contact Number	Action
Internal Notifications			
R	Immediate Supervisor		
R	EHS Department, Marcellus-BU EHS On-Call	570-737-4260	Continue Notification Process
Spill Response Organizations (SRO)			
A	Cat Iron	610-944-2739	Call, as incident need dictates, to activate SROs
A	JP Reilly	607-343-0960	Call, as incident need dictates, to activate SROs
A	Resource Environmental Management	570-406-1459 570-278-8392	Call, as incident need dictates, to activate SROs
A	RLE Enterprises	570-842-4051 570-840-2709	Call, as incident need dictates, to activate SROs
Well Control			
A	Cudd Well Control	713-849-2769 800-990-2833	Call, as incident need dictates, to activate SROs
A	Wild Well Control - Pennsylvania	281-784-4700	Call, as incident need dictates, to activate SROs
Oil Spill Response Organizations (OSRO)			
A	EnviroServe	800-488-0910	Call, as incident need dictates, to activate OSRO
External Notifications			
A	National Response Center (NRC)	(800) 424-8802 (202) 267-2675	- Oil Discharge - Release over RQ of Hazardous Substance

© The Response Group

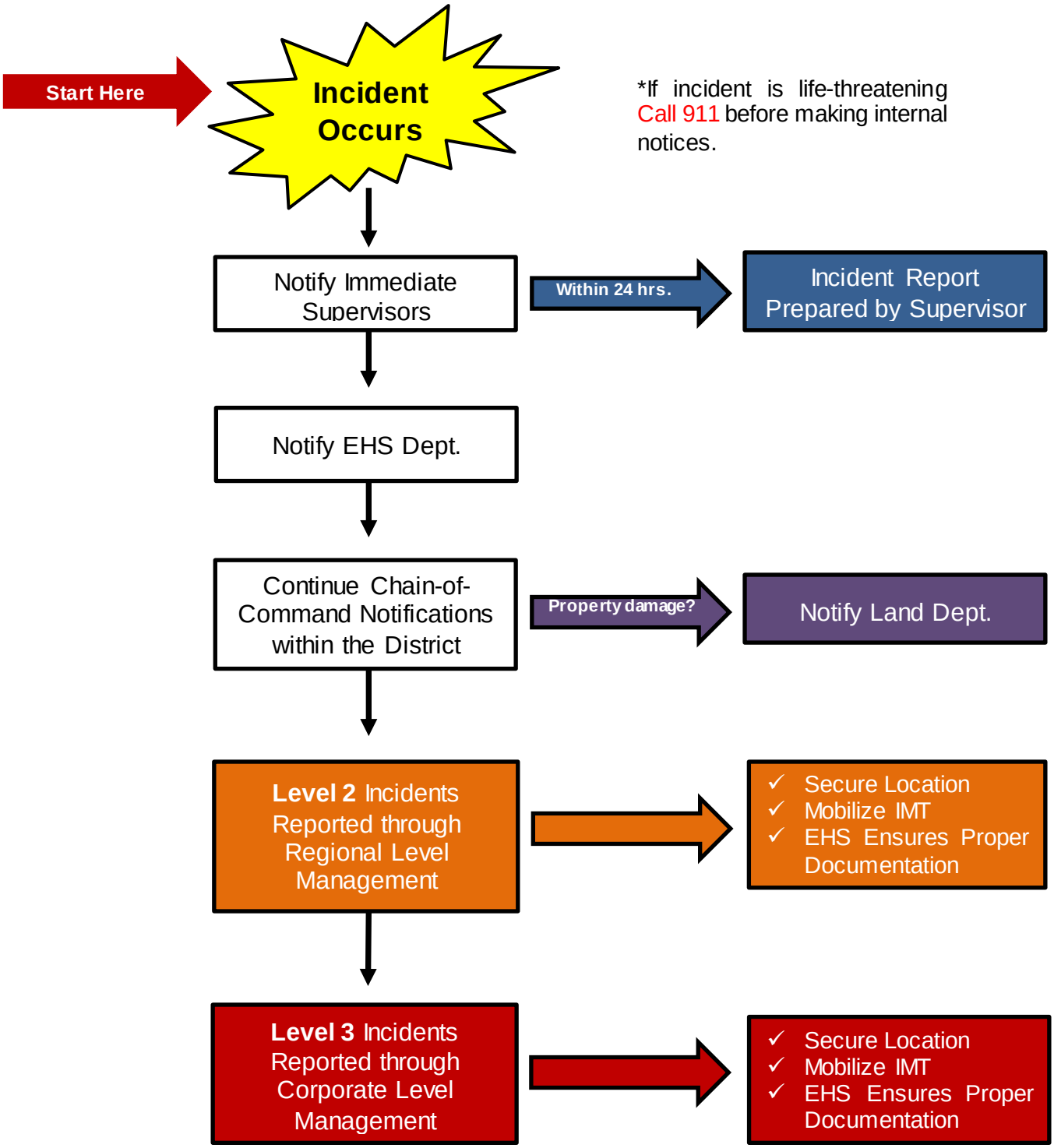
			- Sheen on surface of water or shoreline - Notify as soon as practical
C	Environmental Protection Agency - EPA Region 3	800-438-2474 215-814-3255	Initial Notification made with call to NRC
A	Occupational Safety & Health Administration (OSHA) - HQ	800-321-6742	Any accident involving an employee in which a serious injury, illness, or death occurs
C	DOT Pipeline and Hazardous Material Safety Administration	202-366-4433	Initial Notification made with call to NRC
C	Chemical Safety and Hazard Investigation Board	202-261-7600	Initial notification made with call to NRC
A	Pennsylvania Department of Environmental Protection-Bureau of Oil & Gas Management	570-826-2511	Notify within 2 hours for a). A release causing or threatening pollution of the waters of the Commonwealth or b). A release of 5 gallons or more not completely contained by secondary containment.
A	Pennsylvania Department of Environmental Protection-Bureau of Waste Management	800-541-2050	In the event of a discharge or any spill of waste generated or processed in a quantity capable of reaching surface water, the owner/operator shall immediately notify the PADEP.
A	Pennsylvania Fish and Boat Commission	570-477-5717	Release that causes or is imminent to cause pollution of waters of the Commonwealth and/or Waters of the United States
C	Pennsylvania Emergency Management Agency	800-424-7362 717-651-2001	Any hazardous materials release which is above the Reportable Quantity (RQ) established by the EPA's List of Lists

*R – Required Notification
C – Courtesy Notification
A – As needed for type of incident

© The Response Group

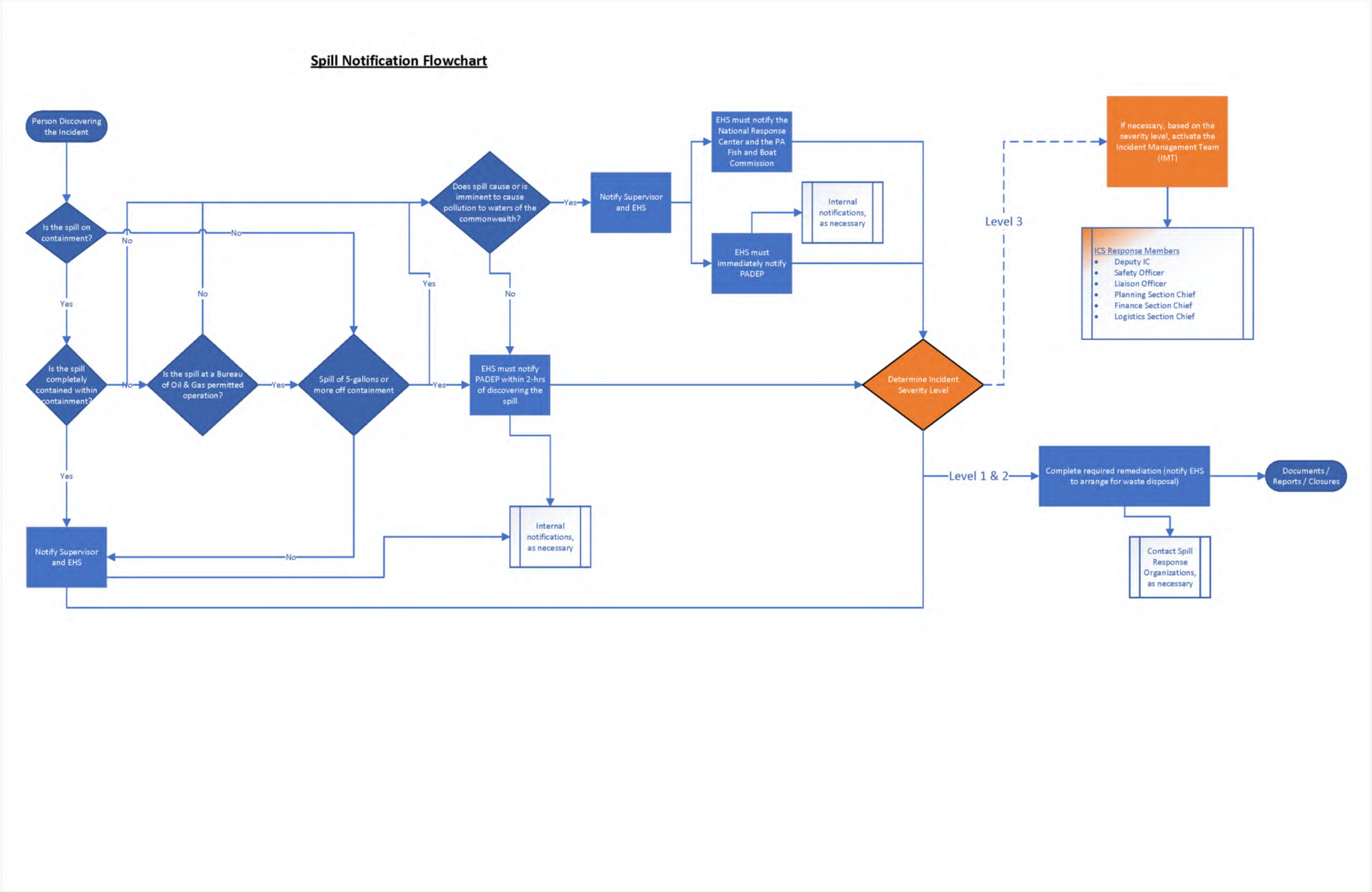
5.2 Notification Flowcharts

5.2.1 Coterra Internal Notification Flowchart



© The Response Group

5.2.2 Spill Notification Flowchart



© The Response Group

5.3 Emergency Management Contacts

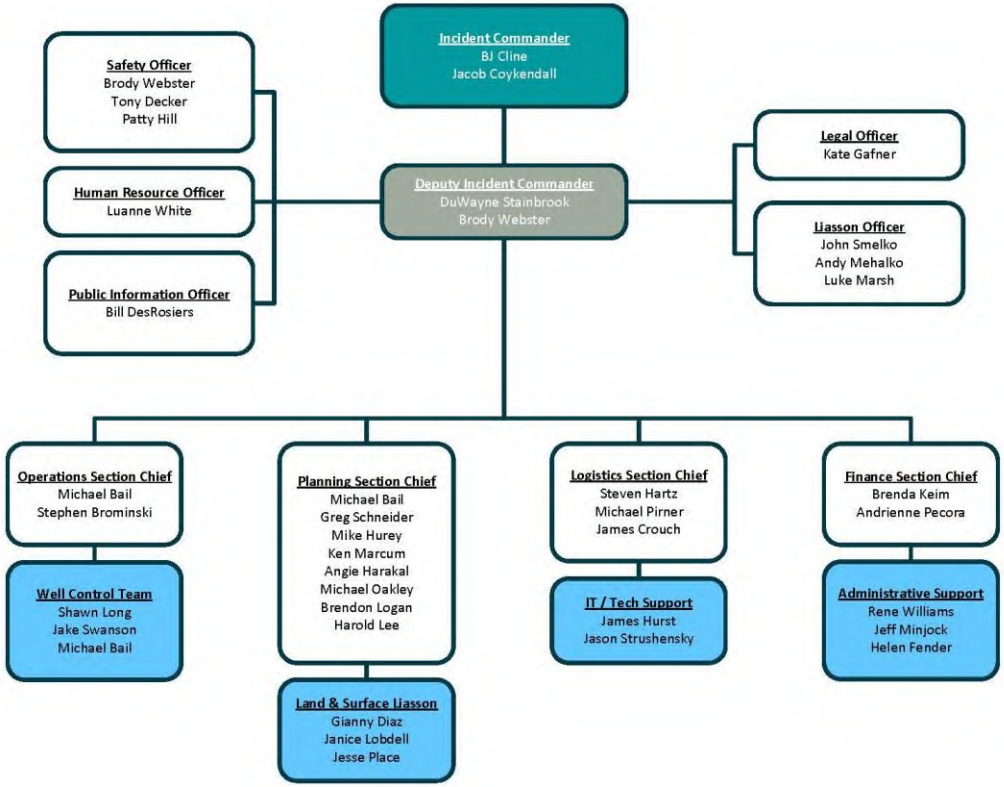
Emergency Management Contacts	
Name	Primary Phone Number
Drilling Operations	
Shawn Long	432-227-3380
Greg Schneider	412-298-3411
Jacob Coykendall	432-241-2184
Completions Operations	
Stephen Brominski	412-298-1428
Zach Conrad	570-767-0075
Jacob Coykendall	432-241-2184
Production Operations	
Steven Hartz	814-730-8948
Michael Bail	412-605-8862
DuWayne Stainbrook	716-239-1875
BJ Cline	304-923-9930
Construction	
Mike Pirner	570-280-0362
Mike Murnin	570-280-9029
Dan Kenia	570-240-3393
Environmental Safety and Health Representative	
On-Call EHS Department	570-737-4260

© The Response Group

Individuals Responsible for Incident Reporting		
Name/Position	Office	Cell
Emergency 24-Hr Contact Number		
Emergency 24-Hr Contact Number	(855) 641-0300	
Primary		
Steve Watson Sr. EHS Specialist	570-278-8621	570-267-4953
Michael Oakley EHS Specialist		570-767-2267
Brendon Logan EHS Specialist	570-278-3519	570-767-2392
Brody Webster EHS Manager	570-278-6945	580-916-0952
Secondary		
Luke Marsh Manager - Environmental	412-249-4202	724-814-0439
Andy Mehalko Engineering Advisor - Environmental	412-249-3852	412-759-4829
John Smelko Environmental & Regulatory Compliance Manager	412-249-3854	412-613-7642
Spencer Bryant Drilling & Completions Manager	412-493-3922	580-768-9995
Michael Bail Divisional Superintendent	570-278-8618	412-605-8862
DuWayne Stainbrook Facilities Manager	412-249-3877	716-239-1875
BJ Cline Production Manager		304-923-9930

© The Response Group

5.4 Incident Management Team



© The Response Group

Incident Management Team Contact Information		
Name	Office Location	Cell
Incident Commander		
BJ Cline	Pittsburgh	304-923-9930
Jacob Coykendall	Pittsburgh	432-241-2184
Deputy Incident Commander		
DuWayne Stainbrook	Pittsburgh	716-239-1875
Brody Webster	Susquehanna	580-916-0952
Safety Officer		
Brody Webster	Susquehanna	580-916-0952
Tony Decker	Susquehanna	570-767-5006
Patti Hill	Susquehanna	570-536-3380
Human Resource Officer		
Luanne White	Pittsburgh	570-840-8669
Public Information Officer		
Bill DesRosiers	Susquehanna	412-956-5742
Liaison Officer		
John Smelko	Pittsburgh	412-613-7642
Andy Mehalko	Pittsburgh	412-759-4829
Luke Marsh	Pittsburgh	724-814-0439
Legal Officer		
Kate Gafner	Pittsburgh	412-996-4780
Land & Surface Liaison		
Gianny Diaz	Pittsburgh	412-551-4597
Janice Lobdell	Susquehanna	570-280-0839
Jesse Place	Susquehanna	832-846-4469

© The Response Group

Operations Section Chief		
Michael Bail	Susquehanna	412-605-8862
Stephen Brominski	Susquehanna	412-298-1428
Michael Bail	Susquehanna	412-605-8862
Well Control Team		
Shawn Long	Susquehanna	432-227-3380
Jake Swanson	Susquehanna	607-742-5984
Michael Bail	Susquehanna	412-605-8862
Planning Section Chief		
Michael Bail	Susquehanna	412-605-8862
Greg Schneider	Pittsburgh	412-298-3411
Mike Hurey	Pittsburgh	412-303-3603
Ken Marcum	Pittsburgh	412-551-2967
Angie Harakal	Pittsburgh	614-446-2992
Michael Oakley	Susquehanna	570-767-2267
Brendon Logan	Susquehanna	570-767-2392
Harold Lee	Pittsburgh	412-277-5532
Administrative Support Team		
Jeff Minjock	Pittsburgh	412-249-3864
Rene Williams	Pittsburgh	412-249-1936
Helen Fender	Pittsburgh	412-249-3931
Logistics Section Chief		
Steven Hartz	Susquehanna	814-730-8948
Mike Pirner	Susquehanna	570-280-0362
James Crouch	Susquehanna	570-766-5170
IT / Tech Support Team		
James Hurst	Susquehanna	570-767-1649

© The Response Group

IT / Tech Support Team		
Jason Strushensky	Pittsburgh	412-439-6508
Finance Section Chief		
Brenda Keim	Pittsburgh	610-360-9962
Adrienne Pecora	Pittsburgh	412-249-3880

© The Response Group

5.5 Coterra Offices

5.5.1 Houston

Houston Office		
Organization	Location	Primary
Coterra Corporate Office	Three Memorial City Plaza 840 Gessner Road, Suite 1400 Houston, TX 77024	281-589-4600

For emergencies call 911.

Houston County Emergency Management Agencies		
Organization	Location	Primary
City of Houston Office of Emergency Management	Houston, TX	713-884-4500

The primary contact for emergency fire services is 911.

Houston Fire Departments		
Organization	Location	Primary
Houston Fire	500 Jefferson, Suite 1700 Houston, TX 77002	832-394-6700
Houston Fire Marshal's Office	500 Jefferson, Suite 1700 Houston, TX 77002	832-394-6900

The primary contact for emergency law enforcement services is 911.

Houston Law Enforcement		
Organization	Location	Primary
Houston Police Department	1200 Travis St. Houston, TX 77002	713-884-3131

Houston LEPC		
Organization	Location	Primary
Greater Houston LEPC	1801 Smith St. 7th Floor Houston, TX 77002	713-249-9687

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

© The Response Group

Houston Hospitals		
Organization	Location	Primary
enTrust Immediate Care	9778 Katy Freeway, Suite 100 Houston, TX 77055	713-468-7845
Memorial Hermann Memorial City Medical Center	921 Gessner Houston, TX 77024	713-242-2256

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

Houston Ambulance Services		
Organization	Location	Primary
Houston Fire / EMS	500 Jefferson, Suite 1700 Houston, TX 77002	832-394-6700

© The Response Group

5.5.2 Pittsburgh

Pittsburgh Office		
Organization	Location	Primary
Coterra Pittsburgh Office	501 Marketplace Avenue, Suite 500 Coraopolis, PA 15108	412-249-3850

For emergencies call 911.

Pittsburgh County Emergency Management Agencies		
Organization	Location	Primary
Allegheny County Emergency Services	150 Hookstown Grade Rd. Moon Twp, PA 15108	412-473-1000

The primary contact for emergency fire services is 911.

Pittsburgh Fire Departments		
Organization	Location	Primary
North Fayette Volunteer Fire Department	7678 Steubenville Pike Oakdale, PA 15071	412-787-2883
Moon Township Volunteer Fire Company	1900 Beaver Grade Road Coraopolis, PA 15108	412-292-5006

Pittsburgh Law Enforcement		
Organization	Location	Primary
Moon Township Police Department	1000 Beaver Grade Road Moon Township, PA 15108	412-262-5000
Robinson Township Police Department	1000 Church Hill Rd. Pittsburgh, PA 15205	412-788-8115

Pittsburgh LEPC		
Organization	Location	Primary
Allegheny County EMA	150 Hookstown Grade Rd. Coraopolis, PA 15108	412-473-2500
Moon Township	1000 Beaver Grade Road Moon Township, PA 15108	412-260-1700

© The Response Group

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

Pittsburgh Hospitals		
Organization	Location	Primary
Heritage Valley Kennedy	25 Heckel Road McKees Rocks, PA 15136	877-771-4547
UPMC Mercy	1400 Locust Street Pittsburgh, PA 15219	412-232-8111
Allegheny General Hospital	320 East North Avenue Pittsburgh, PA 15219	412-359-3131

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

Pittsburgh Ambulance Services		
Organization	Location	Primary
Valley Ambulance Authority	3550 University Blvd. Moon Township, PA 15108	412-262-2620
Southbridge EMS	178 Hickory Grade Road Bridgeville, PA 15017	412-221-5115
Robinson EMS	998 Church Hill Road Pittsburg, PA 15205	412-787-5044

© The Response Group

5.5.3 Susquehanna

Susquehanna Office			
Organization	Location	Primary	Emergency
Coterra Susquehanna Office	8207 State Route 29 , PA	570-278-3518	855-641-0300

For emergencies call 911.

Susquehanna County Emergency Management Agencies	
Organization	Primary Phone Number
Susquehanna County 911 (EMA Coordinator)	570-278-3841

Primary contact for emergency fire services is 911.

Susquehanna Fire Departments		
Organization	Location	Primary
Hallstead Fire Company	133 Lackawanna Ave Hallstead, PA 18822	570-879-2832
Columbia Hose Co. (New Milford VFD)	22 Spring Street New Milford, PA 18834	570-465-3238
Thompson Hose Company	53 Water Street Thompson, PA 18465	570-442-1107
Nicholson Fire Department	44 Main Street Nicholson, PA 18446	570-942-6891
Le Raysville Fire Department	School Street Le Raysville, PA 18829	570-744-1329
Susquehanna Fire Department	43 Erie Blvd. Susquehanna, PA 18847	570-853-3197
Union Dale Volunteer Fire Company	880 South Main St. Union Dale, PA 18470	570-679-2221
Meshoppen VFD	SR 267 and Mowry Street Meshoppen, PA 18630	570-833-2293
Hop Bottom VFD	16 South Center Street Hop Bottom, PA 18824	570-289-4427
Clifford Township Fire Company	1035 State Route 106 Clifford, PA 18413	570-222-3741
Harford Volunteer Fire Company	142 Fair Hill Rd. Harford, PA 18823	570-434-2839
Elk Lake VFW	11550 State Route 3001 Montrose, PA 18001	570-278-2771

© The Response Group

United Fire Company	72 Monument Square Montrose, PA 18801	570-278-2879
Forest Lake VFD	12255 Forest Lake Road Montrose, PA 18801	570-553-2467
Great Bend Hose Company	54 Tannery Street Great Bend, PA 18821	570-879-2854
Rush VFD	11084 State Route 267 Montrose, PA 18801	570-934-2175
Springville VFD	3866 State Route 29 Springville, PA 18844	570-965-2341

Primary contact for emergency law enforcement services is 911.

Susquehanna Law Enforcement		
Organization	Location	Primary
Susquehanna County Sheriff's Office	31 Lake Avenue Montrose, PA 18801	570-278-4600
PA State Police Gibson Station	2856 State Rte. 848 New Milford, PA 18834	570-465-3154
Montrose Boro Police Department	115 Cherry Street Montrose, PA 18801	570-278-1312

Susquehanna LEPC		
Organization	Location	Primary
Susquehanna County LEPC (911)	81 Public Avenue Montrose, PA 18801	570-278-4600, Ext. 257

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

Susquehanna Hospitals		
Organization	Location	Primary
Barnes-Kasson County Hospital	2872 Turnpike Street Susquehanna, PA 18847	570-853-3135
Endless Mountains Health Systems	100 Hospital Drive Montrose, PA 18801	570-278-3801
Commonwealth Health	5950 State Route 6 Tunkhannock, PA 18657	570-836-2161

Primary contact for medical services is 911. Emergency first responders will determine the appropriate care center.

© The Response Group

Susquehanna Ambulance Services		
Organization	Location	Primary
Harford Volunteer Fire Company	142 Fair Hill Rd. Harford, PA 18823	570-434-2839
Susquehanna Fire Department	43 Erie Blvd. Susquehanna, PA 18847	570-853-3197
Montrose Minute Men (EMS)	23 Hollister Drive Montrose, PA 18801	570-278-9188
Thompson Hose Company	53 Water Street Thompson, PA 18465	570-442-1107

© The Response Group

5.6 Response Contractors

Response Contractors		
Contact	Location	Phone
General Response Contractors		
Diaz Disposal	7686 State Route 167 Kingsley, PA 18826	570-289-8760
Wild Well Control - Pennsylvania	259 McCracken Rd. Roaring Branch, PA 17765	281-784-4700
Environmental Engineering / Consulting		
Civil and Environmental Consultants, Inc	333 Baldwin Road Pittsburgh, PA 15205	(800) 365-2324
Folsom Engineering	4361 PA-87 Mehoopany, PA 18629	570-406-9950
Moody and Associates, Inc.	685 Broad Street Ext. Waverly, NY 14892	607-565-8800
Resource Environmental Management	36 Taylor Lane Montrose, PA 18801	570-406-1459
Fluid Recycle and/or Disposal Locations		
A&M Hibbard Centralized Treatment Facility	7111 S.R. 29 Springville, PA 18844	570-737-4260
C2G Energy Solution, LLC	120 Hart Road Montrose, PA 18801	570-945-5458
Solids Disposal Locations		
Alliance Landfill (Waste Management)	398 S. Keyser Ave. Taylor, PA 18517	800-869-5566
Covanta	343 King St. Myerstown, PA 17067	717-866-9955
Keystone Sanitary Landfill	249 Dunham Drive Dunmore, PA 18512	570-343-5782
Susquehanna Transfer, LLC	294 Ellsworth Drive Montrose, PA 18801	570-432-0109
Waste Control Specialists LLC	9998 West State Hwy 176 Andrews, TX 79714	432-525-8612
Transportation of Wastes		
Diaz Disposal	7686 State Route 167 Kingsley, PA 18826	570-289-8760
GasSearch Drilling Services Corporation	8283 State Route 29 Montrose 18801	570-278-7118
Holcomb Energy	185 Henry Holod Rd. Factoryville, PA 18419	570-836-8050
Resource Environmental Management	36 Taylor Lane Montrose, PA 18801	570-406-1459

© The Response Group

Transportation of Wastes		
RLE Enterprises	457 N. Main St. Moscow, PA 18444	570-842-4051
Susquehanna Gas Field Services LLC	Frantz Road Meshoppen, PA 18630	570-833-0106
Midosa LTD	3238 Springfield Road Columbia Cross Roads, PA 16914	570-529-2262
Costy's Energy Services	244 Grey Fox Road Muncy, PA 17754	570-662-2752
Mountain Energy Services	205 W. Tioga Street Tunkhannock, PA 18657	570-878-2891
Incident Management/IAP Support		
The Response Group	13939 Telge Road Cypress, TX 77429	281-880-5000

© The Response Group

5.7 Notifications

5.7.1 Pennsylvania Department of Environmental Protection (PADEP) Bureau of Oil and Gas Management, Bureau of Waste Management, and Bureau of Air Quality

Pennsylvania Department Of Environmental Protection - Bureau Of Oil & Gas Management
570-826-2511

Department of Environmental Protection Northeast Regional Office **2 Public Square** **Wilkes-Barre, PA 18701** **Phone: (570) 826-2511**	**Department of Environmental Protection Scranton District Office** **321 Spruce Street, Suite 300** **Scranton, PA 18503** **Phone: (570) 963-4521** **24 Hour Hotline :(570)825-2511** **Department of Environmental Protection Central Office (Harrisburg)** **(800) 541-2050 (24-hour)**

Reporting Requirements (Bureau of Oil & Gas Permitted Facilities)

In accordance with Chapter 78a.66(b)(1)(ii), an operator or other responsible party is required to report a spill or release of 5 gallons or more of a regulated substance over a 24-hour period that is not completely contained by secondary containment. In the event of a reportable release, the following information is to be supplied to PADEP within **two** hours of discovery of the release:

- Company name
- Location of the release (Well Pad, Address, County, Township, Coordinates)
- Date and time of release
- The type of fluid or material released
- The volume of the material released
- Contact person and phone number
- A brief description of the incident
- Remedial action planned or initiated

If the District Office is closed, use the 24-Hour Hotline number to report to incident.https://www.osha.gov/pls/ser/serform.redoform

© The Response Group

Pennsylvania Department of Environmental Protection - Bureau of Waste Management 570-826-2511	
Department of Environmental Protection Northeast Regional Office **2 Public Square** **Wilkes-Barre, PA 18701** **Phone: (570) 826-2511**	**Department of Environmental Protection Central Office (Harrisburg)** **(800) 541-2050 (24-hour Hotline)**
Reporting Requirements (Bureau of Waste Management Permitted Facilities)	
In the event of a discharge or any spill of waste generated or processed in a quantity capable of reaching surface water, the owner/operator shall immediately notify the PADEP Emergency Hotline and the appropriate PADEP Regional Office. The owner/operator shall also take immediate action to protect the health and safety of the public and environment. https://www.osha.gov/pls/ser/serform.redoform	

© The Response Group

Pennsylvania Department Of Environmental Protection - Bureau Of Air Quality
570-826-2511

Department of Environmental Protection Northeast Regional Office **2 Public Square** **Wilkes-Barre, PA 18701** **Phone: (570) 826-2511**	**Department of Environmental Protection Central Office (Harrisburg)** **(800) 541-2050 (24-hour Hotline)**

Reporting Requirements (Bureau of Air Quality Permitted Facilities)

GP-5, GP-5A Malfunction Reporting Instructions

Section A.11(c) Malfunctions.

(i) Any malfunction that poses an imminent danger to the public health, safety, or welfare or to the environment shall be reported by telephone to the County Emergency Management Agency and to the 24 hour Emergency Hotline at 1-800-541-2050 no later than one hour after the discovery of an incident. Following the telephone or email notification, a written notice as specified in (iv) below shall be submitted to DEP within three business days.

(ii) Any malfunction that does not pose an imminent danger to the public health, safety, or welfare or to the environment shall follow the guidance provided in the **GP-5 and GP-5A Malfunction Reporting Instructions** and, if required to report, shall notify the Air Program Manager of the appropriate DEP Regional Office by telephone or email within 24 hours of discovery. Following the telephone or email notification, a written notice as specified in (iv) below shall be submitted to DEP within five business days.

(iii) If the owner or operator is unable to provide notification by telephone to the Air Program Manager of the appropriate DEP Regional Office within 24 hours of the discovery of a malfunction due to a weekend or holiday, the notification shall be made to the Department no later than 4:00 pm on the first business day following the weekend or holiday.

(iv) Written notification shall include:

(A) The name, GP-5A authorization number, and location of the facility;
(B) The nature and cause of the malfunction or incident;
(C) The date and time when the malfunction, incident, or breakdown was first discovered;
(D) The expected duration of increased emissions;
(E) The estimated rate of emissions for all criteria, hazardous, and greenhouse gas pollutants; and
(F) Any changes to the equipment or modification of the procedures that will prevent future reoccurrences of the malfunction.

(v) The owner or operator shall notify the Air Program Manager of the appropriate DEP Regional Office by telephone or email within 24 hours of when corrective measures have been implemented.

(vi) Any emissions due to a malfunction are to be reported in the annual emissions inventory report required in Condition 13(d).

If the District Office is closed, use the 24-Hour Hotline number to report to incident.https://www.osha.gov/pls/ser/serform.redoform

© The Response Group

5.7.2 Pennsylvania Emergency Management Agency (PEMA)

Pennsylvania Emergency Management Agency (PEMA-Commonwealth Watch and Warning Center) 717-651-2001	
PEMA Headquarters **1310 Elmerton Avenue, Harrisburg, PA 17110**	**Emergency 24-Hr:** 717-651-2001

Reporting Requirements	
Who Must Provide Notification?	
The owner, operator, or person in charge where a discharge has occurred must provide notification of a release of a hazardous material which is above the Reportable Quantity (RQ) to Commonwealth Watch and Warning Center.	
What Kinds of Discharges Must be Reported?	
Federal and state law requires that the Local Emergency Planning Committee via 911 (LEPC), the State Emergency Planning Committee (SERC), and National Response Center (NRC)-be notified immediately following a hazardous materials release which is above the Reportable Quantity (RQ) established by the EPA's List of Lists (contacting the PEMA - Commonwealth Watch and Warning Center meets the SERC notification requirements)	
When Must Notification Be Provided?	
Oral notification must be provided to Commonwealth Watch and Warning Center as soon as possible after learning of a discharge. A follow-up report is also required within 14 days for fixed facilities and within 30 days for transportations related incidents.	
What Information Must Be Provided?	
When reporting a hazardous materials spill or release which meets the criteria listed above, please include the following in the initial report:	
✓	Your name, location, organization, and telephone number
✓	Name and address of the party responsible for the incident; or name of the carrier or vessel, the railcar/truck number, or other identifying information
✓	Date and time of the incident
✓	Location of the incident
✓	Source and cause of the release or spill
✓	Types of material(s) released or spilled
✓	Quantity of materials released or spilled
✓	Medium (e.g., land, water-affected by release or spill
✓	Danger or threat posed by the release or spill
✓	Number and types of injuries or fatalities (if any)
✓	Weather conditions at the incident location
✓	Whether an evacuation has occurred
✓	Other agencies notified or about to be notified
✓	Any other information that may help emergency personnel respond to the incident

© The Response Group

5.7.3 Local Emergency Planning Committees

Local Emergency Planning Committees

Area of Operation	Contact
Susquehanna County LEPC	911; See Section 5.6.5
Wyoming County EMA	911; See Section 5.7.5

5.7.4 National Response Center (NRC)

NRC
800-424-8802

National Response Center (NRC) **c/o United States Coast Guard (CG-MER-3)** **2703 Martin Luther King Jr. Ave SE Washington, D.C. 20593-7000**	**Additional Information:** **Web Site** https://nrc.uscg.mil/

If you have a spill/release to report, contact the NRC via the toll-free number or visit the NRC Web Site (https://nrc.uscg.mil/) for additional information on reporting requirements and procedures. For those without 800 access, please contact the NRC at 202-267-2675.

Reporting Requirements	
Type:	If a spill or release causes or is imminent to cause pollution of the waters of the commonwealth it shall be reported to the National Response Center (NRC) and the Pennsylvania Fish and Boat Commission (PFBC).
Verbal:	Immediately
Written:	As requested by the agency
Be prepared to give the following information when reporting an incident:	
✓	Your name, location, organization, and telephone number
✓	Name and address of the party responsible for the incident
✓	Date and time of the incident
✓	Location of the incident
✓	Source and cause of the release or spill
✓	The number of fatalities and personal injuries if any
✓	All other significant facts that are known by the operator that are relevant to the cause of the incident or the extent of damages.

© The Response Group

5.7.5 Pennsylvania Fish & Boat Commission

Pennsylvania Fish & Boat Commission – Northeast Region (570) 477-5717	
PA Fish & Boat Commission – Northeast Region **5566 Main Road, PO Box 88** **Sweet Valley, PA 18656** **Phone: (570) 477-5717**	**PA Fish & Boat Commission Pollution Hotline** **(888) 723-4741**

Reporting Requirements	
Type:	If a spill or release causes or is imminent to cause pollution of the waters of the commonwealth it shall be reported to the National Response Center (NRC) and the Pennsylvania Fish and Boat Commission (PFBC).
Verbal:	Immediately
Written:	As requested by the agency
Be prepared to give the following information when reporting an incident:	
Your name, location, organization, and telephone number	
Name and address of the party responsible for the incident	
Date and time of the incident	
Location of the incident	
Source and cause of the release or spill	
All other significant facts that are known by the operator that are relevant to the cause of the incident or the extent of damages.	

© The Response Group

5.7.6 Environmental Protection Agency (EPA)

EPA Region 3 (Mid-Atlantic) **800-438-2474**	
Environmental Protection Agency Region 3 **1650 Arch Street** **Philadelphia, PA 19103**	**General Information** **Contacting the NRC meets the EPA reporting requirements** Phone: 215-814-5000 215-814-9016 Emergency Response & Oil Spills (Reporting) 215-814-3255 (Emergency Response, Oil & Chemical Spills 24-hour Reporting) https://www.epa.gov/aboutepa/epa-region-3-mid-atlantic

Reporting Requirements	
Type:	Any amount of oil that has entered or threatened to enter any navigable waters;
	A release of a hazardous substance above the RQ according to CERCLA requirements
Verbal:	At the earliest possible convenience
Written:	Not required
States:	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia and 7 federally recognized tribes
Note: Always request fax confirmation of the report	

If the facility discharges more than 1,000 gallons (23.8 barrels-of oil into waters of the U.S. in a single discharge event, or more than 42 gallons in each of two discharges within a twelve month period) the information required in 40 CFR 112.4(a) must be submitted to the EPA within 60 days.

© The Response Group

5.7.7 Occupational Safety and Health Administration

Occupational Safety & Health Administration Region 3
800-321-OSHA (6742)

Occupational Safety and Health Administration (OSHA) **Region 3 (PA, WV, VA, DE, MD, DC)** **(215) 861-4900** **1835 Market Street Mailstop OSHA-RO/19** **Philadelphia, PA 19103**	**24-Hour Hotline:** **800-321-OSHA-6742** **Wilkes-Barre Area Office** **570-826-6538** https://www.osha.gov/alliances/regional/Region-3

Reporting Requirements

Basic requirement. Within eight (8)-hours after the death of any employee from a work- related incident. Any work-related in-patient hospitalization, as well as amputations and losses of any eye must be reported to OSHA within 24-hours.**

In accordance with 29 CFR 1904.39 the following information is to be supplied to OSHA when reporting an incident:

- Company name
- Location of the Incident
- Time of Incident
- Number of fatalities or hospitalized employees
- Names of any injured employees
- Contact person and phone number
- A brief description of the incident

If the Regional Office is closed, use the 24-Hour Hotline number to make verbal report. The following link will also take you to the on-line OSHA Form that can be submitted electronically:
https://www.osha.gov/pls/ser/serform.redoform

****The reporting time frames above are when the company learns of the accident and not when the accident actually occurred.**

© The Response Group

5.7.8 Chemical Safety and Hazardous Investigation Board

Chemical Safety & Hazard Investigation Board
202-261-7600

Reporting Requirements

The CSB requires an owner or operator of a stationary source to submit an accidental release report to the CSB any accidental release of a regulated substance resulting in a fatality, serious injury or substantial property damages.

If notification to the National Response Center (NRC) has been made, the CSB reporting requirement may be satisfied by submitting the NRC identification number to the CSB immediately following submission of the report to the NRC.

If notification has not been made to the NRC, a report must be submitted directly to the CSB within eight (8) hours of the accidental release and must include the following information, as applicable:

☐	The name of, and contact information for, the owner/operator;
☐	The name of, and contact information for, the person making the report;
☐	The location information and facility identifier;
☐	The approximate time of the accidental release;
☐	A brief description of the accidental release;
☐	An indication whether one or more of the following has occurred: • Fire; • Explosion; • Death; • Serious injury; or • Property damage;
☐	The name of the material(s) involved in the accidental release, the Chemical Abstract Service (CAS-number(s), or other appropriate identifiers
☐	If known, the amount of the release:
☐	If known, the number of fatalities;
☐	If known, the number of serious injuries;
☐	Estimated property damage at or outside the stationary source; and
☐	Whether the accidental release has resulted in an evacuation order impacting members of the general public and others, and, if known: • The number of persons evacuated; • Approximate radius of the evacuation zone; and • (The type of person subject to the evacuation order (i.e., employees, members of the general public, or both).

The report may be made by email to: report@csb.gov, or by telephone at 202-261-7600.

© The Response Group

5.7.9 Department of Transportation (DOT/PHMSA)

5.7.9.1 Hazardous Liquid and Gas Operation Notifications

PHMSA
202-366-4433

Reporting Requirements	
PHMSA expects notification to the NRC at the earliest possible moment after discovery of the following events.	
☐	A natural gas leak or hazardous liquid leak where the repair cost, including property damage, could exceed $50,000 or the release could meet or exceed 3 MMCF of gas or 5 gallons of hazardous liquid.
☐	Any injuries or fatalities that occur as a result of an event to which a company facility may have contributed. This is not dependent on a natural gas or hazardous liquid release.
☐	A natural gas release of unknown quantity through the ESD system or a relief valve that could meet or exceed 3 MMCF. A hazardous liquid release of 5 gallons or more, except that no report is required for release of less than 5 barrels if associated with maintenance work, unless other reporting criteria are met. If the volume of gas or hazardous liquid released is not immediately known, contact Operational Compliance as soon as practical but no later than 1 hour following discovery of the event.
☐	An emergency shutdown of an LNG facility or underground natural gas storage facility.
☐	A release of any quantity of natural gas from company facilities that results in an evacuation.
☐	An observation of surface bubbles or sheen in waters in offshore water where company facilities are present.
☐	A release of any quantity of hazardous liquid that resulted in pollution of any stream, river, lake, reservoir, or other similar body of water.
☐	A circumstance where natural gas or hazardous liquids is not released but the event results in emergency responders arriving at the facility or garners attention from the public or media.
Follow-up Report	In addition to the reporting of accidents to the NRC, ***a written/electronic accident report*** (DOT/PHMSA F 7000-1 rev 7/2014, which can be found at http://www.phmsa.dot.gov, must be submitted as soon as practicable, but ***no later than 30 days*** after the incident for releases resulting in the following: • Natural Gas of Hazardous Liquid Pipeline Facility

© The Response Group

5.7.9.2 Hazardous Material Transportation Notifications

PHMSA
202-366-4433

Reporting Requirements	
PHMSA expects notification to the NRC at the earliest possible moment whenever any of the following occurs during the course of transportation in commerce (including loading, unloading, and temporary storage):	
☐	As a direct result of a hazardous material - • A person is killed; • A person receives an injury requiring admittance to a hospital; • The general public is evacuated for one hour or more; • A major transportation artery or facility is closed or shut down for one hour or more; or • The operational flight pattern or routine of an aircraft is altered
☐	Fire, breakage, spillage, or suspected radioactive contamination occurs involving a radioactive material
☐	Fire, breakage, spillage, or suspected contamination occurs involving an infectious substance other than a regulated medical waste
☐	A release of a marine pollutant occurs in a quantity exceeding 450 L (119 gallons) for a liquid or 400 kg (882 pounds) for a solid
☐	A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the person in possession of the hazardous material, it should be reported to the NRC
☐	During transportation by aircraft, a fire, violent rupture, explosion or dangerous evolution of heat (i.e., an amount of heat sufficient to be dangerous to packaging or personal safety to include charring of packaging, melting of packaging, scorching of packaging, or other evidence) occurs as a direct result of a battery or battery-powered device.
Follow-up Report	In addition to the reporting of accidents to the NRC above, a detailed report must be submitted on DOT Form F5800.1 within 30 days of discovery of the incident. See 49 CFR Part 172.16 for greater detail.

© The Response Group

5.7.10 Additional Agency Contacts

Additional Agency Contacts		
Agency	Primary	Alternate
Federal Agencies		
Federal Aviation Administration	817-222-5006	--
National Transportation Safety Board	800-682-9369	--
Dept. of Homeland Security - Hotline	800-323-8603	--
National Transportation Safety Board Communications Center	202-314-6290	--

© The Response Group

Section 6 Incident Management System

6.1 Incident Command System Structure

Coterra has adopted the National Incident Management System (NIMS) ICS organization as outlined in:
Homeland Security Presidential Directive Five (HSPD-5)
National Response Framework

All Federal, State, tribal, and local levels of government, as well as many private sector and non-governmental organizations use ICS for a broad spectrum of emergencies. These range from small to complex incidents, both natural and manmade, and include acts of catastrophic terrorism. The Company has adopted the NIMS ICS to allow the partnership of Unified Command to be developed when required in training, exercises or responses.

Note: The document, FEMA 501, National Incident Management System was referenced in the development of this document.

ICS Organization	
The ICS is applicable across a spectrum of incidents that may differ in terms of size, scope, and complexity because of its:	
✓	A modular organizational structure that is extendable to incorporate all necessary elements. Responsibility and performance begin with the incident command element, the IC, and build from the top down.
✓	Functional unit management structure.

Functional Areas	
ICS is usually organized around five major functional areas:	
✓	Command.
✓	Operations.
✓	Planning.
✓	Logistics.
✓	Finance/Administration.
The IC will establish the sixth functional area, Intelligence/Security, based on the requirement of the situation at hand.	

© The Response Group

Transitional Steps	
Some of the more important transitional steps that are necessary to apply ICS in a field incident environment include the following:	
✓	Establish incident facilities as needed, strategically located, to support facility operations.
✓	Establish the use of common terminology for organizational functional elements, position titles, facilities, and resources.
✓	Rapidly evolve from providing oral direction to the development of a written Incident Action Plan (IAP).
✓	Recognize and anticipate the requirement that organizational elements will be activated and take the necessary steps to delegate authority as appropriate.

Modular Extension	
The modular concept is based on the following considerations:	
✓	Deactivate organizational elements no longer required.
✓	Develop the form of the organization to match the function or task to be performed.
✓	Observe recommended span-of-control guidelines.
✓	Perform the function of any non-activated organizational element at the next highest level.
✓	Staff only those functional elements that are required to perform the task.

Management Assignments	
The IC's initial management assignments will normally be one or more section chiefs to manage the major ICS functional areas.	
✓	Section chiefs will further delegate management authority for their areas as required.
✓	If needed, section chiefs may establish branches or units as appropriate for the section.
✓	Each functional unit leader will further assign individual tasks within the unit as needed.
✓	Section chiefs serve as the general staff for the IC.

© *The Response Group*

Staffing	
Use the separate sections to organize staff as the need arises.	
✓	Section chiefs will further delegate management authority for their areas as required.
✓	If needed, section chiefs may establish branches or units as appropriate for the section.

Leadership Titles	
✓	Incident Command; Incident Commander
✓	Command Staff; Officer
✓	Section; Section Chief
✓	Branch; Branch Director
✓	Divisions/Groups; and Supervisors (Supervisor is only used within the operations section).
✓	Unit; and Unit Leader (Applies to the subunits of the planning, logistics, and finance / administration sections).

Partners	
Several types of agencies could be in the Operations Section and work together or in combinations depending on the situation.	
✓	Fire
✓	Law enforcement
✓	Public health
✓	Public works
✓	Emergency services
✓	Etc.
Other participants may include private individuals, companies, or nongovernmental organizations, some of which may be fully trained and qualified to participate as partners in the operations section.	

© The Response Group

Tactical Operations	
The specific method selected for organizing and executing incident operations will depend on the:	
✓	Type of incident.
✓	Agencies involved.
✓	Objectives and strategies of the incident management effort.

Organization	
The organizational structure for incident tactical operations can vary and may be based on:	
✓	A method to accommodate jurisdictional boundaries.
✓	An approach that is strictly functional in nature.
✓	A mix of functional and geographical approaches.

Branches	
Establish branches for reasons such as:	
✓	The numbers of divisions and/or groups exceed the recommended span of control for the operations section chief.
✓	The nature of the incident calls for a functional branch structure.
✓	The incident is multi-jurisdictional.

Span of Control
The section chief shall set up branches and allocate divisions and groups within them to stay within the recommended span of control. (1 Supervisor per 7 people)

© *The Response Group*

6.2 ICS Planning Cycle

The ICS planning Cycle is an ordered sequence of actions used to accomplish incident objectives.

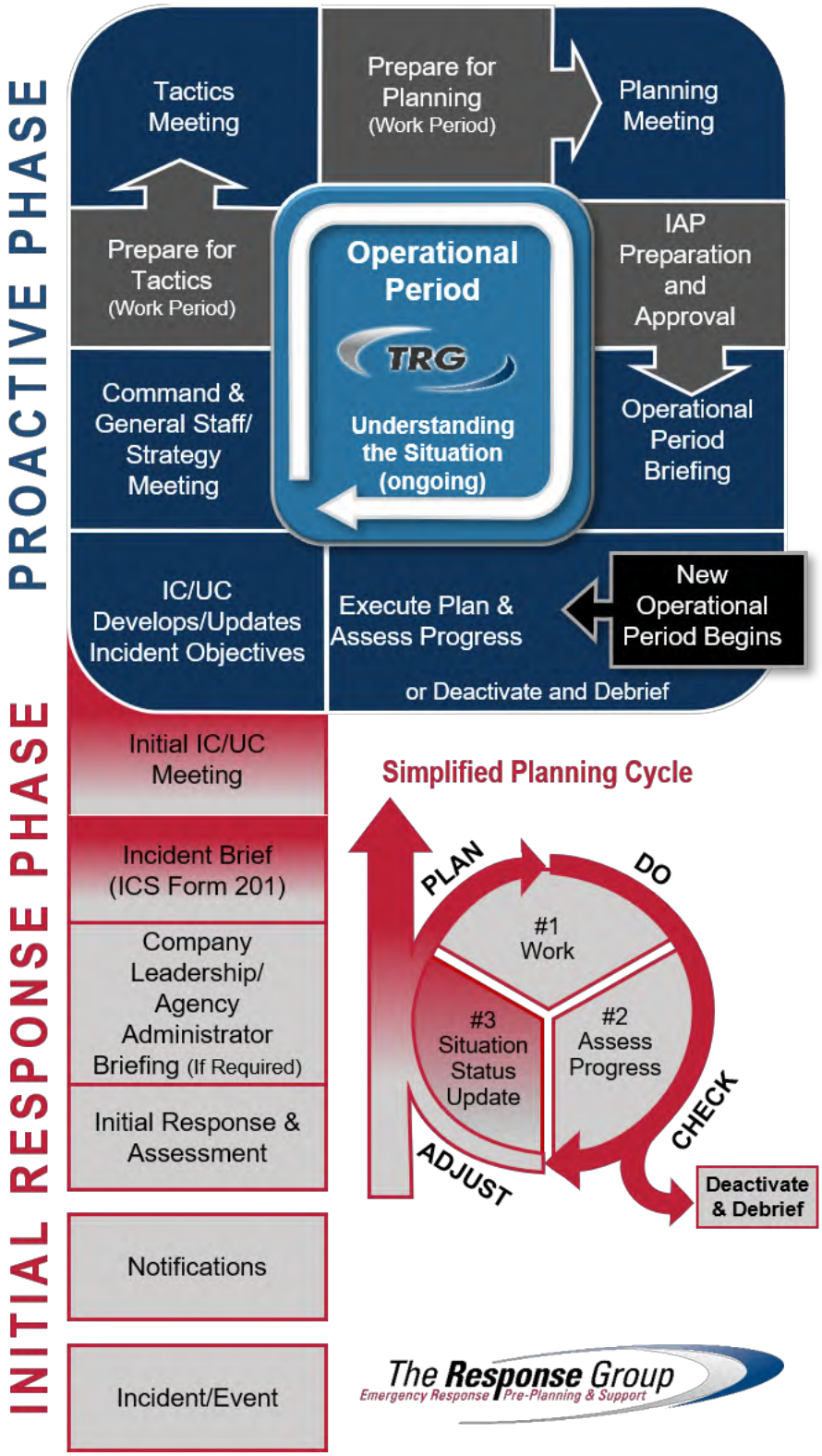
Purpose of the ICS Planning Cycle	
✓	Activating a defined and scalable response management of each incident's unique characteristics.
✓	Define operational periods for planning and operations purposes to develop measurable strategies that contribute to the mitigation as the incident evolves.
✓	Dissemination response information including: Response Objectives, Resource status, Situation Updates, Safety requirements and advisories, Evaluation of current response strategies; and Revision of the above as the incident evolves.
✓	Establish incident objectives guiding the efforts of the IMT.

As depicted on the ICS "Planning P" the ICS planning cycle is divided into two phases; Initial Response, and Operational Planning.

In a more complex Tier II or III emergency, planning for the next operational period will take place in the proactive phase. To manage the emergency a meeting schedule will be set by the IC. A detailed Incident Action Plan (IAP) will be developed through the meetings outlined in the Operational Planning description below. A more detailed description of the ICS Planning Cycle and its phases can be found in the Incident Management Handbook (IMH).

© The Response Group

ICS Planning "P"



© The Response Group

The Initial Response phase of an incident is typically the most likely phase of concern because of the dangers associated with the initial approach and assessment of a release.

Initial Response Phase	
✓	Incident Occurrence/ Discovery
✓	Notification
✓	Initial Response and Assessment
✓	Initial Incident Briefing ICS 201 form
✓	Assessment Meetings
✓	Initial Objectives Meeting

The primary document developed during the Initial Response phase is the ICS 201 Incident Brief, with other ICS forms supplementing as they are developed and information is gathered. When management of an incident transitions from reactive to proactive response methods, the planning cycle moves to Operational Planning.

The transition from reactive to proactive incident management. If the Unified Command determines formal incident planning is needed the Unified Command presents the Command and General Staff of the IMT with initial incident objectives to move the planning cycle forward.

The Operational Planning phase of an incident allows further refinement of planning processes and alignment with day-to-day operations. Control objectives are refined for each operational period and are defined by specific strategies and tactics for response operations. Because an incident response is dynamic and evolves over time, objectives, tactics, resources needs, etc. are re-evaluated for each Operational Period.

Proactive / Operational Planning Phase	
✓	Objectives Meeting
✓	Command and General Staff Meeting
✓	Tactics Meeting
✓	Planning Meeting
✓	Operations Briefing

The primary document developed during operational planning is the Incident Action Plan (IAP).

© The Response Group

The planning cycle is timed so the operations briefing occurs just before the start of a new Operational Period, guided by the most recent developed IAP.

6.3 Coterra Incident Management Team Organization

The information in this section is an overview of the Command and General Staff positions of the Incident Management Team. For information on subordinate positions or in-depth role and responsibility checklists refer to the Incident Management Handbook (IMH).

All assigned personnel should review common responsibilities in addition to position-specific responsibilities when assigned a position on the IMT.

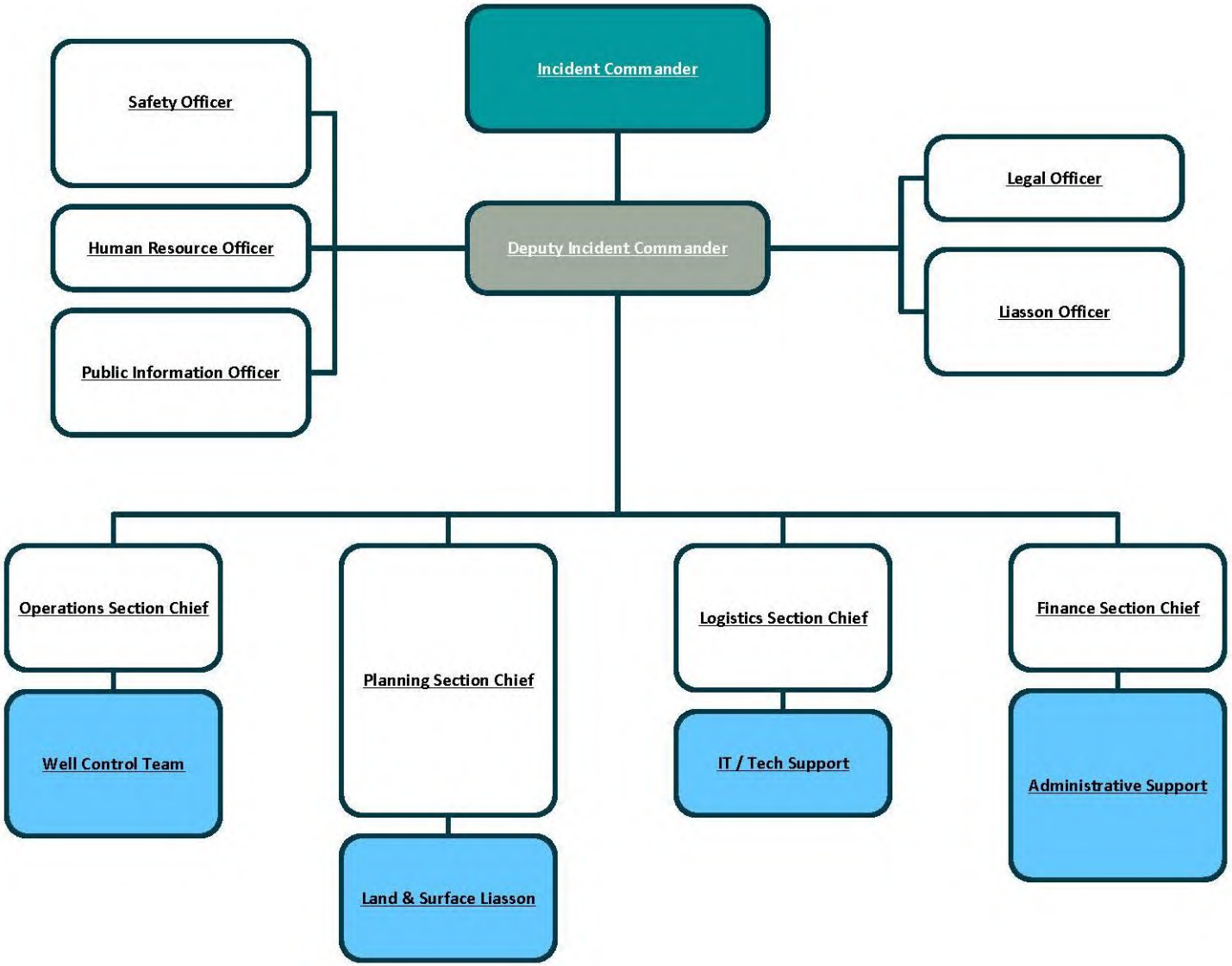
In addition to the position required ICS forms and response specific documentation, every member of the IMT should maintain an ICS 214a Individual Activity Log.

It is recommended to initiate a large response effort during initial response when exact resource and personnel requirements are unknown and/or fluid, and then scaling back when resources are no longer necessary for the response.

IMT Roster and contact information is in Section 5.

© The Response Group

Coterra Incident Management Team Organization



© The Response Group

6.4 Common Responsibilities

Common Responsibilities Checklist	
Receive assignment, including:	
✓	Job assignment (e.g., Strike Team designation, position, etc.).
✓	Brief overview of type and magnitude of incident.
✓	Resource order number and request number.
✓	Reporting location & time.
✓	Travel instructions.
✓	Any special communications instructions (e.g., travel, radio frequency).
✓	Monitor incident related information from media, internet, etc., if available
✓	Assess personal equipment readiness for specific incident and climate (e.g., medications, money, computer, medical record, etc.). Maintain a checklist of items and possibly a personal Go-Kit.
✓	Inform others as to where you are going and how to contact you.
✓	Review Incident Management Handbook.
✓	Take advantage of available travel to rest prior to arrival.
Upon arrival at the incident, check-in at the designated check-in location. Check-in may be found at any of the following locations:	
✓	Incident Command Post (ICP), Base/Camps, Staging Areas, Helibases
✓	If you are instructed to report directly to a line assignment, check-in with the Division/Group Supervisor.
✓	Receive briefing from immediate supervisor.
✓	Agency Representatives from assisting or cooperating agencies report to the Liaison Officer (LNO) at the ICP after check-in.
✓	Acquire work materials.
✓	Abide by organizational code of ethics.
✓	Participate in IMT meetings and briefings as appropriate.
✓	Ensure compliance with all safety practices and procedures. Report unsafe conditions to the Safety Officer.
✓	Supervisors shall maintain accountability for their assigned personnel with regard as to exact location(s) and personal safety and welfare at all times, especially when working in or around incident operations.
✓	Organize and brief subordinates.
✓	Know your assigned communication methods and procedures for your area of responsibility and ensure that communication equipment is operating properly.
✓	Use clear text and ICS terminology (no codes) in all radio communications.
✓	Complete forms and reports required of the assigned position and ensure proper disposition of incident documentation as directed by the Documentation Unit.
✓	Ensure all equipment is operational prior to each work period.

© The Response Group

Common Responsibilities Checklist	
✓	Report any signs/symptoms of extended incident stress, injury, fatigue or illness for yourself or coworkers to your supervisor.
✓	Respond to demobilization orders and brief subordinates regarding Demobilization.
✓	Prepare personal belongings for demobilization.
✓	Return all assigned equipment to appropriate location.
✓	Complete Demobilization Check-out process before returning to home base.
✓	Participate in After-Action activities as directed.
✓	Carry out all assignments as directed.

6.5 Roles and Responsibilities Checklist

Listed below is a list of common roles that fall within the Coterra IMT structure. In addition to the list below, Coterra maintains an Incident Management Handbook which contains a complete list of all positions, roles, and responsibilities within the companies IMT structure.

6.5.1 Incident Commander

Incident Commander and Deputy IC Checklist	
✓	Review Common Responsibilities.
✓	Obtain a briefing from the prior IC (201 Briefing).
✓	Determine Incident Objectives & general direction for managing the incident.
✓	Establish the immediate priorities.
✓	Establish an ICP.
✓	Brief Command Staff and General Staff.
✓	Establish an appropriate organization.
✓	Ensure planning meetings are scheduled as required.
✓	Approve and authorize the implementation of an IAP.
✓	Ensure that adequate safety measures are in place.
✓	Coordinate activity for all Command and General Staff.
✓	Coordinate with key people and officials.
✓	Approve requests for additional resources or for the release of resources.
✓	Keep agency administrator informed of incident status.
✓	Approve the use of trainees, volunteers, and auxiliary personnel.
✓	Authorize release of information to the news media.
✓	Ensure ICS 209 is completed and forwarded to appropriate higher authority.
✓	Order the demobilization of the incident when appropriate.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.2 ICS Technical Specialist

ICS Technical Specialist Checklist	
✓	Review Common Responsibilities.
✓	Determine site specific training requirements and need for a training program.
✓	Develop site specific training program and implement as necessary.
✓	Determine the feasibility of using trainees in the response.
✓	Review trainee assignments and modify if appropriate.
✓	Coordinate the assignments of trainees to incident positions with the Resources Unit.
✓	Keep the Safety Officer apprised of status of compliance with training requirements.
✓	Make follow-up contacts in the field to provide assistance and advice for trainees to meet training objectives, as appropriate, and with approval of Unit Leaders to ensure trainees receive performance evaluation.
✓	Monitor operational procedures and evaluate training needs.
✓	Respond to requests for information concerning training activities.
✓	Give the Training Specialist records and logs to the Documentation Unit at the end of each operational period.
✓	Maintain Individual/Activity Log (ICS 214a).

6.5.3 Safety Officer

Safety Officer Checklist	
✓	Review Common Responsibilities.
✓	Participate in tactics and planning meetings, and other meetings and briefings as required.
✓	Identify hazardous situations associated with the incident.
✓	Review the IAP for safety implications.
✓	Provide safety advice in the IAP for assigned responders.
✓	Exercise emergency authority to stop and prevent unsafe acts.
✓	Investigate accidents that have occurred within the incident area.
✓	Assign assistants, as needed.
✓	Review and approve the medical plan (ICS Form 206).
✓	Develop the Site Safety Plan and publish Site Safety Plan summary (ICS Form 208) as required.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.4 Public Information Officer

Public Information Officer Checklist	
✓	Review Common Responsibilities.
✓	Determine from the IC if there are any limits on information release.
✓	Develop material for use in media briefings.
✓	Obtain IC approval of media releases.
✓	Inform media and conduct media briefings.
✓	Arrange for tours and other interviews or briefings that may be required.
✓	Manage a Joint Information Center (JIC) if established.
✓	Obtain media information that may be useful to incident planning.
✓	Maintain current information summaries and/or displays on the incident and provide information on the status of the incident to assigned personnel.
✓	Maintain Individual/Activity Log (ICS 214a).

6.5.5 Liaison Officer

Liaison Officer Checklist	
✓	Review Common Responsibilities.
✓	Be a contact point for Agency Representatives.
✓	Maintain a list of assisting and cooperating agencies and Agency Representatives, including name and contact information. Monitor check-in sheets daily to ensure that all Agency Representatives are identified.
✓	Assist in establishing and coordinating interagency contacts.
✓	Keep agencies supporting the incident aware of incident status.
✓	Monitor incident operations to identify current or potential inter-organizational problems.
✓	Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.
✓	Coordinate response resource needs for Natural Resource Damage Assessment and Restoration (NRDAR) activities with the On-Scene Coordinator (OSC) during oil and HAZMAT responses.
✓	Coordinate response resource needs for incident investigation activities with the OSC.
✓	Ensure that all required agency forms, reports and documents are completed prior to demobilization.
✓	Brief Command on agency issues and concerns.
✓	Have debriefing session with the IC prior to departure.
✓	Coordinate activities of visiting dignitaries.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.6 Legal Officer

Legal Officer Checklist	
✓	Review Common Responsibilities.
✓	Obtain briefing from the Incident Commander.
✓	Advise the Incident Commander (IC) and the Unified Command, as appropriate, on all legal issues associated with response operations.
✓	Establish documentation guidelines for and provide advice regarding response activity documentation to the response team.
✓	Provide legal input to the Documentation Unit, the Compensation/Claims Unit, and other appropriate Units as requested.
✓	Review press releases, documentation, contracts, and other matters that may have legal implications for the Company.
✓	Participate in ICS planning cycle meetings and other meetings, as requested.
✓	Participate in incident investigations and the assessment of damages (including natural resource damage assessments).
✓	Maintain Individual/Activity Log (ICS Form 214a).

Intelligence/Security Officer Checklist (assigned as needed)	
✓	Collect and analyze incoming intelligence information from all sources.
✓	Determine the applicability, significance, and reliability of incoming intelligence information.
✓	As requested, provide intelligence briefings to the IC/UC.
✓	Provide intelligence briefings in support of the ICS Planning Cycle.
✓	Provide Situation Unit with periodic updates of intelligence issues that impact consequence management operations.
✓	Answer intelligence questions and advise Command and General Staff as appropriate.
✓	Supervise, coordinate, and participate in the collection, analysis, processing, and dissemination of intelligence.
✓	Assist in establishing and maintaining systematic, cross-referenced intelligence records and files.
✓	Establish liaison with all participating law enforcement agencies including Federal, State and Local agencies.
✓	Conduct first order analysis on all incoming intelligence and fuse all applicable incoming intelligence with current intelligence holdings in preparation for briefings.
✓	Prepare all required intelligence reports and plans.
✓	As the incident dictates, determine need to implant Intelligence Specialists in the Planning and Operations Sections.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.5 Operations Section Chief

Operations Section Chief Checklist	
✓	Review Common Responsibilities.
✓	Obtain briefing from IC.
✓	Request sufficient Section supervisory staffing for both ops & planning activities.
✓	Convert operational incident objectives into strategic and tactical options through a work analysis matrix.
✓	Coordinate and consult with the PSC, SOFR technical specialists, modeling scenarios, trajectories, etc., on selection of appropriate strategies and tactics to accomplish objectives.
✓	Identify kind and number of resources required to support selected strategies.
✓	Subdivide work areas into manageable units.
✓	Develop work assignments and allocate tactical resources based on strategy requirements.
✓	Coordinate planned activities with the SOFR to ensure compliance with safety practices.
✓	Prepare ICS 234 Work Analysis Matrix with PSC to ensure Strategies & Tactics and task are in line with ICS 202 Response Objectives to develop ICS 215.
✓	Participate in the planning process and the development of the tactical portions (ICS 204 and ICS 220) of the IAP.
✓	Assist with development of long-range strategic, contingency, and demobilization plans.
✓	Supervise Operations Section personnel.
✓	Monitor need for and request additional resources to support operations as necessary.
✓	Coordinate with the LOFR and AREP's to ensure compliance with approved safety practices.
✓	Evaluate and monitor current situation for use in next operational period planning.
✓	Interact and coordinate with Command on achievements, issues, problems, significant changes special activities, events, and occurrences.
✓	Troubleshoot operational problems with other IMT members.
✓	Supervise and adjust operations organization and tactics as necessary.
✓	Participate in operational briefings to IMT members as well as briefings to media, and visiting dignitaries.
✓	Develop recommended list of Section resources to be demobilized and initiate recommendation for release when appropriate.
✓	Receive and implement applicable portions of the incident Demobilization Plan.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.6 Planning Section Chief

Planning Section Chief Checklist	
✓	Review Common Responsibilities.
✓	Collect, process, and display incident information.
✓	Assist OSC in the development of response strategies.
✓	Supervise preparation of the IAP.
✓	Facilitate planning meetings and briefings.
✓	Assign personnel already on-site to ICS organizational positions as appropriate.
✓	Establish information requirements and reporting schedules for Planning Section Units (e.g., Resources, Situation).
✓	Determine the need for any specialized resources in support of the incident.
✓	Establish special information collection activities as necessary (e.g., weather, environmental, toxics, etc.).
✓	Assemble information on alternative strategies.
✓	Provide periodic predictions on incident potential.
✓	Keep IMT apprised of any significant changes in incident status.
✓	Compile and display incident status information.
✓	Oversee preparation and implementation of the Incident Demobilization Plan.
✓	Incorporate plans (e.g., Traffic, Medical, Communications, and Site Safety) into the IAP.
✓	Develop other incident supporting plans (e.g., salvage, transition, security).
✓	Assist Operations with development of the ICS 234 Work Analysis Matrix.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.7 Logistics Section Chief

Logistics Section Chief Checklist	
✓	Review Common Responsibilities.
✓	Plan the organization of the Logistics Section.
✓	Assign work locations and preliminary work tasks to Section personnel.
✓	Notify the Resources Unit of the Logistics Section Units activated, including names and locations of assigned personnel.
✓	Assemble and brief Logistics Branch Directors and Unit Leaders.
✓	Determine and supply immediate incident resource and facility needs.
✓	In conjunction with Command, develop and advise all Sections of the IMT resource approval and requesting process.
✓	Review proposed tactics for upcoming operational period for ability to provide resources and logistical support.
✓	Identify long-term service and support requirements for planned and expected operations.
✓	Advise Command and other Section Chiefs on resource availability to support incident needs.
✓	Provide input to and review the Communications Plan, Medical Plan and Traffic Plan.
✓	Identify resource needs for incident contingencies.
✓	Coordinate and process requests for additional resources.
✓	Track resource effectiveness and make necessary adjustments.
✓	Advise on current service and support capabilities.
✓	Develop recommended list of Section resources to be demobilized and initiate recommendation for release when appropriate.
✓	Receive and implement applicable portions of the incident Demobilization Plan.
✓	Ensure the general welfare and safety of Logistics Section personnel.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

6.5.8 Finance Section Chief

Finance Section Chief Checklist	
✓	Review Common Responsibilities.
✓	Participate in incident planning meetings and briefings as required.
✓	Review operational plans and provide alternatives where financially appropriate.
✓	Manage all financial aspects of an incident.
✓	Provide financial and cost analysis information as requested.
✓	Gather pertinent information from briefings with responsible agencies.
✓	Develop an operating plan for the Finance/Admin Section; fill supply and support needs.
✓	Determine the need to set up and operate an incident commissary.
✓	Meet with Assisting and Cooperating Agency Representatives, as needed.
✓	Maintain daily contact with agency(s) administrative headquarters on Finance/Admin matters.
✓	Ensure that all personnel time records are accurately completed and transmitted to home agencies, according to policy.
✓	Provide financial input to demobilization planning.
✓	Ensure that all obligation documents initiated at the incident are properly prepared and completed.
✓	Brief agency administrative personnel on all incident-related financial issues needing attention or follow-up prior to leaving incident.
✓	Develop recommended list of Section resources to be demobilized and initial recommendation for release when appropriate.
✓	Receive and implement applicable portions of the incident Demobilization Plan.
✓	Maintain Individual/Activity Log (ICS 214a).

© The Response Group

Section 7 Media Relations

Interaction with the media is an important part of Coterra Energy Inc. (Coterra) response to any incident and should not be taken lightly. Communication and public affairs are best suited by those persons trained in dealing with the media. There will be times when it is not practical to refer all questions from the media and public to the External Affairs Department. In the event a response is needed, a short and factual response may be provided in accordance with the Media Interaction-Primary Advanced Holding Statement and Updated Advanced Holding Statement in Section 3.13 and 3.14 of the Coterra EHS Manual.

7.1 Media Contacts

Notifications regarding an incident and associated media inquiry should follow the following process.

If the press or media arrive on scene, please follow the procedures below:		
Immediately contact:		
Name	Office	Cell
Bill DesRosiers	Susquehanna	412-956-5742
On-Call EHS Department	Susquehanna	570-737-4260

If you cannot reach any of the individuals above, contact your foreman or supervisor for further assistance.

7.2 Media Policy

It is the policy of Coterra that the External Affairs Department coordinates interaction with the media. Employees should be mindful of their signed nondisclosure agreements and use discretion in all media interactions (e.g., social media, etc.). In certain situations, it may be necessary for employees to interact with the media. Employees outside of the External Affairs Department should refer to Coterra Policy EHS-2.43 and should follow the below guidelines.

7.2.1 General Guidelines for Media Interaction

General Guidelines for Media Interaction	
✓	Do not ignore the media if they approach you.
✓	Always treat the media with respect and courtesy.
✓	Refer media to the proper Coterra spokesperson.
✓	Do not make any comments about the incident without approval from Coterra spokesperson.
✓	Individuals assigned to guard duty should be courteous, as they will generally be the first Coterra representatives with whom reporters and photographers will have contact. When press representatives ask guards at the facility or lease gates for permission to enter, the guards will tell them, as politely as possible, that they do not have the authority to grant such permission and will suggest that, for official information, they talk to the Public Relations representative who will be at the scene of the emergency.
✓	Reporters, photographers, and other unauthorized personnel are not to be permitted to be on the lease or near the facility during an emergency.
✓	There is to be no Company interference with reporters and photographers who are not on Company property. Photographers have rights to take photographs from public highways, and railroad property.
✓	Unless designated by management, questions or inquiries by the media should be directed to the External Affairs Department.
✓	If approved to provide a statement to the media, always provide accurate information and never speculate.

7.2.2 General Guidelines for Release of Information to Media

All information released will be handled in accordance with the following policy:	
✓	Formal statements to the media will always be made by the Director of External Affairs, Executive Management, their designee, or by a Corporate Officer.
✓	In the event of injuries or loss of life, the names will be withheld until the next of kin is notified.
✓	**IF APPROVED TO PROVIDE A STATEMENT TO THE MEDIA, OUR REPRESENTATIVES MUST NOT DO ANY GUESSING OR SPECULATING**. They must state only established facts. Say no more than what is needed. Whenever it is evident that the reporter is trying to make a sensation out of the incident to represent the danger or loss as being greater than it is, our representatives are to state the facts as they are.

© *The Response Group*

7.3 Example - Emergency Communication – For External Affairs Department Only

Initial Verbal Media Response

(see Coterra Policy EHS-2.43 and Advanced Holding Statement in Policy 3.13)

My name is _____ (name)

and I serve as _____ (title)

for Coterra Energy Inc.

At approximately _____ (time) on _____ (date)

an incident occurred at the
company facility located at _____ (location)

Emergency responders have been contacted and response efforts are underway.

These are the details currently available about the incident:

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Our efforts are aimed at responding to the incident, ensuring the safety of those currently at the incident site, and safeguarding persons and property near or around the incident site.

Coterra Energy takes every issue involving people and the environment very seriously.

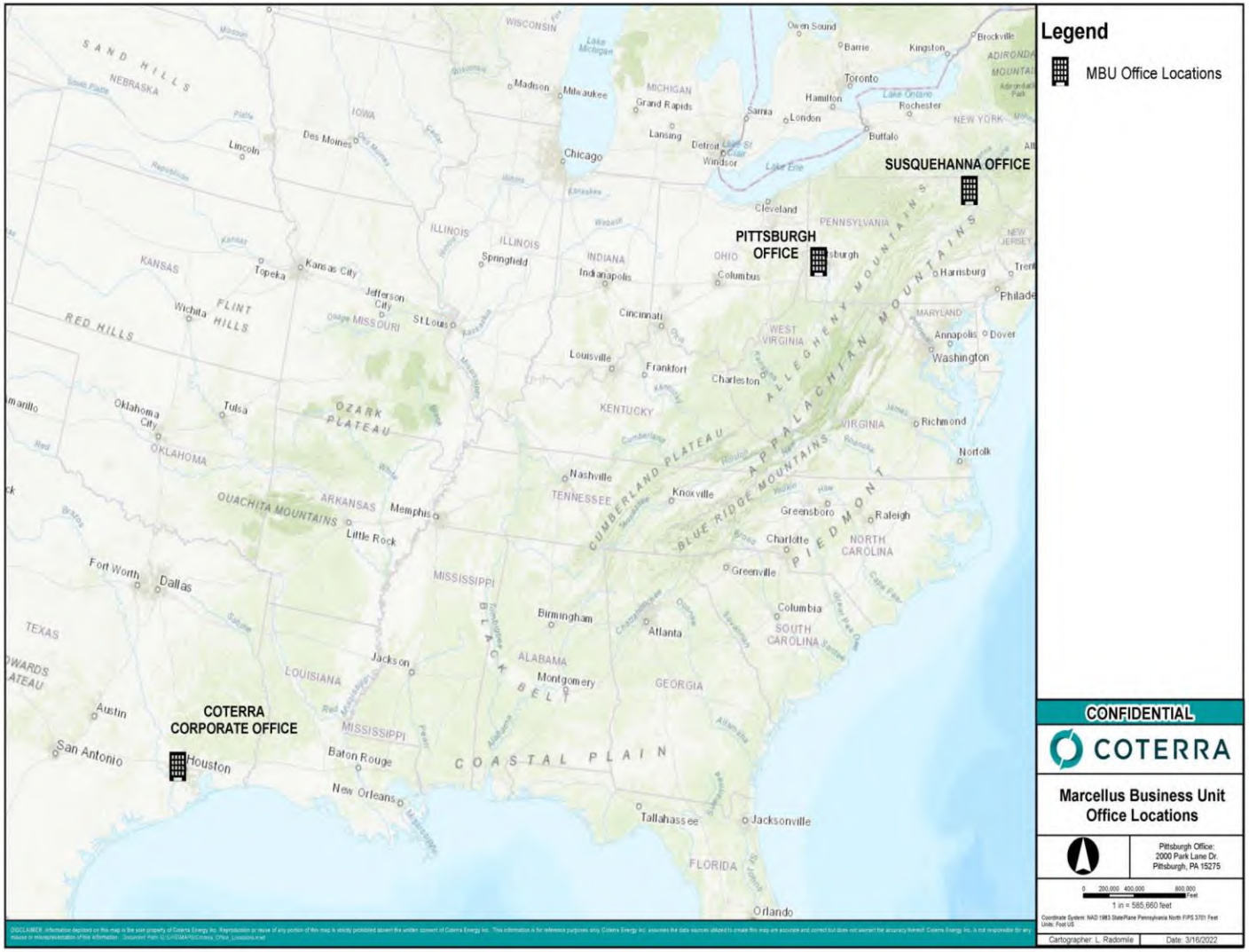
Any questions about the cause or causes of the incident are premature at this time.

We plan to provide an update to you as more information becomes available.

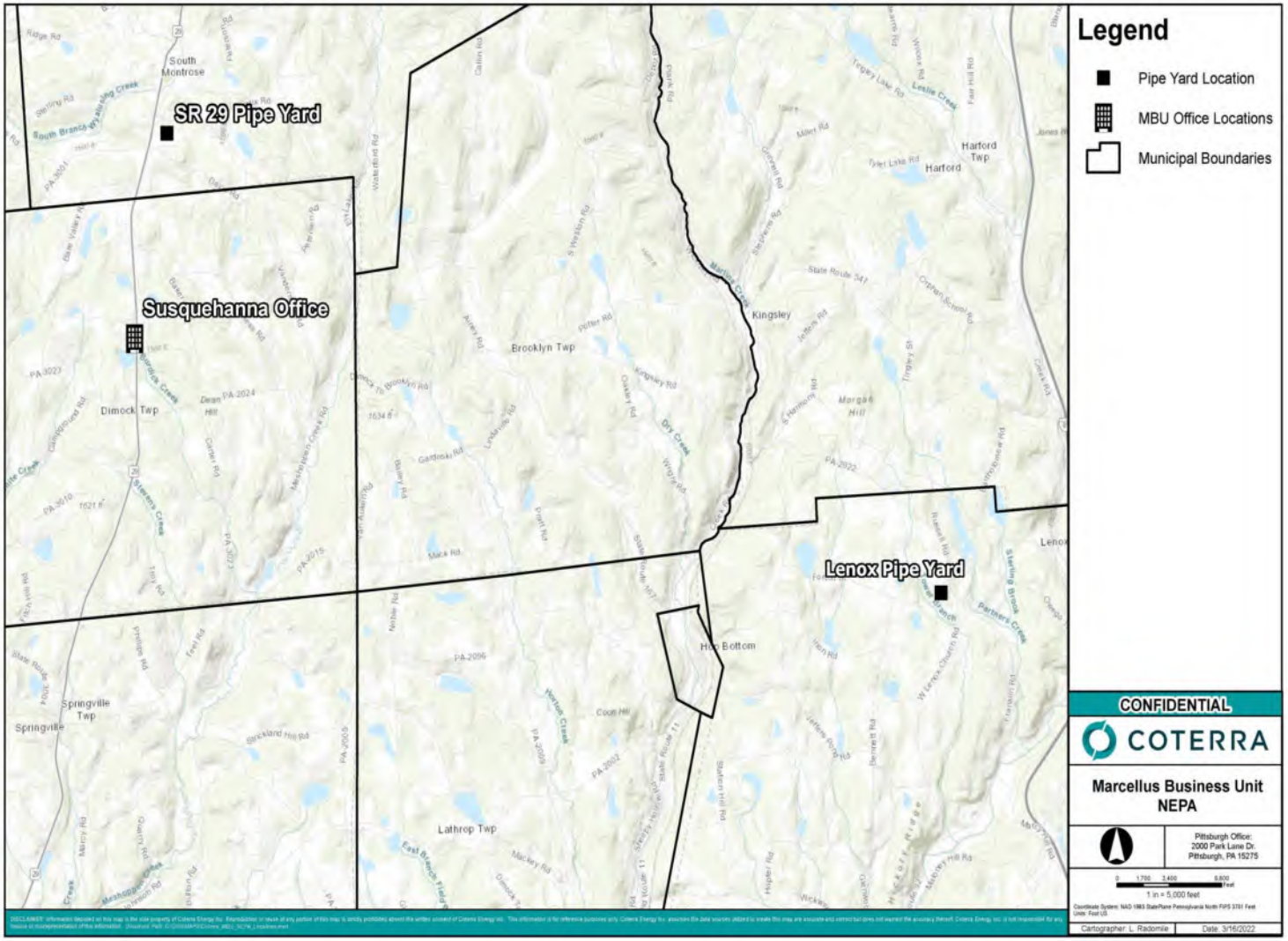
© The Response Group

Section 8 Operational Maps

8.1 Marcellus BU Locations



8.2 Marcellus BU NEPA Locations



© The Response Group

8.3 Marcellus BU NEPA - Facility Locations

Facility locations can be accessed by utilizing the Coterra MBU GIS Portal Maps on a Coterra employees' computer or the response.coterra.com website via QR code or link. In the event of an emergency, it is recommended that users utilize the Emergency Response Web App on the Coterra MBU GIS Portal.

The Site-Specific Emergency Response Plan is available at the well site electronically and/or will be located in the document storage device (i.e., mailbox) at each well site, include an Emergency Response Plan - Site Specific Information Sheet/Figure. These figures identify the facility location as well as potential risks and hazards to the public and other receptors within ½-mile of the facility.

© The Response Group

Section 9 Training & Exercise

9.1 Training

9.1.1 Training Criteria

Training for all Incident Management Team Members is recommended to be performed on an annual basis.

New personnel will be trained on the contents of this Plan prior to initiation of the activities identified in this Plan.

At least once a year, personnel are given a refresher training to discuss spill prevention procedures. The refresher training highlights and describes any known discharges or failures, malfunctioning components, and recently developed precautionary measures.

9.1.2 Incident Management Team Training

The following table provides information that should be incorporated into the training modules for the Incident Management Team (IMT). The material should not be considered all-inclusive. Team members receiving this training will have an educational foundation to help them play a proactive role in the incident. It is recommended that this training be performed on an annual basis.

Incident Management Team Members	
✓	Notification procedures/requirements for facility operations, internal response organization, national and regional authorities, contractors, and the information required for those organizations.
✓	Communication system used for the notifications and response.
✓	IMT Roles and Responsibilities.
✓	IMT Incident Command Post (ICP) Facility.
✓	Information on the products stored, used, or transferred by the facility/site including familiarity with the material safety data sheets, special handling procedures, health and safety hazards, spill, and firefighting procedures.
✓	Potential incident scenarios and response procedures.
✓	The operational capabilities of the contractors to respond to different types of incidents and how to manage them.
✓	Know and be able to implement the Incident Command System.
✓	Know how to implement the emergency response plan.

© The Response Group

9.1.3 Training and Awareness – Coterra Employees

Coterra provides the necessary resources to its employees and contractors to perform their job safely, effectively, and efficiently. Through formal training and on-the-job mentoring, Coterra educates employees about potential hazards associated with the job, equips them with the tools to assess and mitigate those hazards, and empowers them to make the best decisions that will keep themselves and their coworkers safe.

Coterra holds monthly safety meetings and provides required Occupational Safety and Health Administration (OSHA) training and refresher courses. In addition, Coterra promotes industry best management practices and addresses local needs. For example, Coterra subscribes to the American Petroleum Institute (API) Compass online platform which provides employees with access to API consensus standards and recommended practices. These documents are shared across the enterprise to ensure all employees have the most up to date standards and practices. Monthly field safety meetings also cover pertinent issues such as fatigue, control of hazardous energy, hazard communication, hot work, confined spaces, distracted driving, among other topics.

9.1.4 Training and Awareness – Contractors

Coterra contractors must execute a Master Service Agreement (MSA), which contractually obligates them to review and comply with Coterra's Contractor Responsibilities section of the EHS Manual. The MSA also requires contractors to immediately report to Coterra all details of any near miss, injury, illness, property damage and/or environmental impact and to fully cooperate in all remedial activities in order to restore and protect the environment.

All contractors are required to participate in the ISNetworld contractor verification program. This industry leading safety verification process allows us to screen contractors based on their safety performance in relation to their peers. Our master service agreements with our contractors include language requiring contractors to provide their employees with appropriate safety equipment and training, as well as to adhere to all applicable environmental and safety regulations.

As part of Coterra's commitment to providing a safe operation, contractors are required to complete a verification and review process. This process consists of contractor employee interviews and contractor management interviews which are designed to identify gaps in the contractor's EHS program. Based on these reviews, action items are developed and verification of completed action items are required.

Coterra also holds quarterly contractor meetings to discuss EHS performance metrics and trends, risk mitigation and lessons learned. Subject matter experts and local regulatory agencies may present on EHS related topics at these meetings. The sharing of these lessons learned with our contractors provides knowledge to prevent similar incidents from reoccurring, thus creating a safer work environment for all.

© The Response Group

9.1.5 Training Documentation

All Coterra training shall be documented and training files for each affected employee will be maintained on file in accordance with Coterra Records Retention and Disposal Policy (Legal-001).

9.2 Exercise/Drills

Coterra requires exercises to ensure effectiveness of the written emergency response / support plan(s) and the capability of the response team(s). As a result, the company IMT will develop and maintain a multi-year program.

Exercises will simulate scenarios and risks identified in the company's Emergency Response Plan. Exercises should include all activated elements of the IMT and should present a variety of problems that should challenge all segments of the IMT.

9.2.1 Tabletop Exercise

A Tabletop Exercise is an informal gathering of appropriate incident response team personnel to discuss incident response/management issues. The intent of a tabletop exercise is to allow the participants to evaluate plans, procedures, policies and resolve issues of coordination, assignment of responsibilities, interaction between departments and organizations, etc. in a non-threatening environment and under a minimum of stress.

9.2.2 Functional Exercise

A Functional Exercise is designed to focus on testing and evaluating centralized emergency operations capabilities and the response of the various units of government, private industry, and volunteer organizations in a simulated, real-time environment. This level of exercise involves (1) EOC personnel who carry out actions and coordination as though the incident were real; (2) a team of controllers and simulators who track exercise events and related objective assessment and represent the incident, responding field units, levels of government not active in the exercise; (3) a team of evaluators who assess operational capabilities based on required criteria for successful performance based on the emergency response plan.

9.2.3 Full Scale Exercise

The Full-Scale Exercise is designed to test and evaluate the operational capability of emergency management systems in an inter-active manner. The full-scale exercise includes all the components of the functional exercise with the addition of the actual responding field units and personnel. This level of exercise activity should test all components of the emergency management system that would be involved in the response given the scenario selected for the exercise.

The impact on a community from an incident can be greatly reduced by having good communication between the company and all the stakeholders (neighbors, emergency response personnel and local officials).

© The Response Group

Exercises should be designed to:	
✓	Test the IMT's ability to act as expected and required to emergencies that could occur within the District.
✓	Provide response personnel with an opportunity to apply their training and exercise/get comfortable with their roles & responsibilities and the Incident Management System.
✓	Identify gaps, limitations, and areas of concern to address with the response team, plans, equipment, and response tools.
✓	Build on lessons learned from previous experience from previous drills or actual spill response events.

9.2.4 Documentation

Following any exercise or actual incident, the company IMT will conduct a critique to determine how the response went, how the ERP was used and followed, and if any improvements could be made. All improvements should be and provided to the primary contact for the ERP listed in **Section 2.3**, Plan Review.

Exercise documentation should include the following:	
✓	Type of exercise/response
✓	Date and time of exercise/response
✓	Description of exercise/response
✓	Objectives met
✓	Lessons learned

© *The Response Group*

Section 10 Forms

10.1 Bomb Threat Checklist

Look for caller ID number on phone and write down.

Bomb Threat Checklist	
Incident:	**Prepared By:**
Period:	**Version Name:**
Time and Date Reported:	
Who Reported:	
Caller Name:	
Exact Words of Caller:	
Time Call Ended:	

Questions to Ask	
When is the bomb going to explode?	
Where is the bomb right now?	
What kind of bomb is it?	
What does it look like?	
Why did you place the bomb?	
Where are you calling from?	

Description of Callers Voice

❑ Male ❑ Female ❑ Young ❑ Middle Aged ❑ Old ❑ Accent

Voice	Speech	Language	Accent	Manner	Background Noises
❑ Loud ❑ High Pitch ❑ Raspy ❑ Intoxicated ❑ Clearing Throat ❑ Soft ❑ Deep ❑ Pleasant ❑ Deep Breathing	❑ Fast ❑ Distinct ❑ Stutter ❑ Slurred ❑ Slow ❑ Distorted ❑ Nasal ❑ Other:	❑ Excellent ❑ Fair ❑ Foul ❑ Educated ❑ Good ❑ Poor ❑ Other:	❑ Local ❑ Foreign ❑ Not Local ❑ Regional Explain:	❑ Calm ❑ Rational ❑ Coherent ❑ Deliberate ❑ Righteous ❑ Angry ❑ Irrational ❑ Incoherent ❑ Emotional ❑ Coughing	❑ Office Machinery ❑ Factory Machinery ❑ Bedlam ❑ Animals ❑ Quiet ❑ Mixed ❑ Music ❑ Street Traffic ❑ Airplanes ❑ Trains ❑ Voices ❑ Party ❑ Atmosphere ❑ Shopping Mall

Call Recipient Information

Call Recipient(s):	

Notes:

© *The Response Group*

10.2 Initial ICS Forms – Reactive Phase

10.2.1 Weather Report

Weather Report		Version Name:	
Incident Name:		Period: / / : to / / :	
Present Conditions			
Weather Conditions as of (Date/Time):			
Wind Speed:		***Wind Direction:***	
Temperature:		***Feels Like:***	
Dew Point		***Pressure***	
Visibility:		***UV Index:***	
Ceiling:		***Humidity:***	
Nautical Data			
Current Speed:		***Current Direction***	
Wave Height		***Wave Direction:***	
Swell Height:		***Swell Interval:***	
Water Temperature:			
Notes:			

Forecast Date	***Wind***	***Temp Hi/Lo***	***% Precip***	***Sunrise/ Sunset***	***Notes:***

Tides		
High/Low Tide	Date & Time of Tide	Height

Weather Report	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group © 1997-2025

10.2.2 Notification Status Report

Notification Status Report	Version Name:
Incident Name:	Period: / / : to / / :

External

Organization Notified	*Phone*	*Date/Time Notified*	*Person Contacted/Email*	*Notified By*	*Case No.*	*Notes*

Internal

Name	*Phone*	*Date/Time Notified*	*Email*	*Notified By*	*Notes*

Notification Status Report	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group © 1997-2025

ICS 201-1 - Incident Briefing Map/Sketch	Version Name:
Incident Name:	Period: / / : to / / :

Incident Map/Sketch

Current Situation

Approved By

Incident Commander: Date:

Date:

ICS 201-1 - Incident Briefing Map/Sketch	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group © 1997-2025

ICS 201-2 - Summary of Current Actions	Version Name:
Incident Name:	Period: / / : to / / :

Initial Response Objectives

Current and Planned Actions

Date/Time	*Action/Event/Notes*

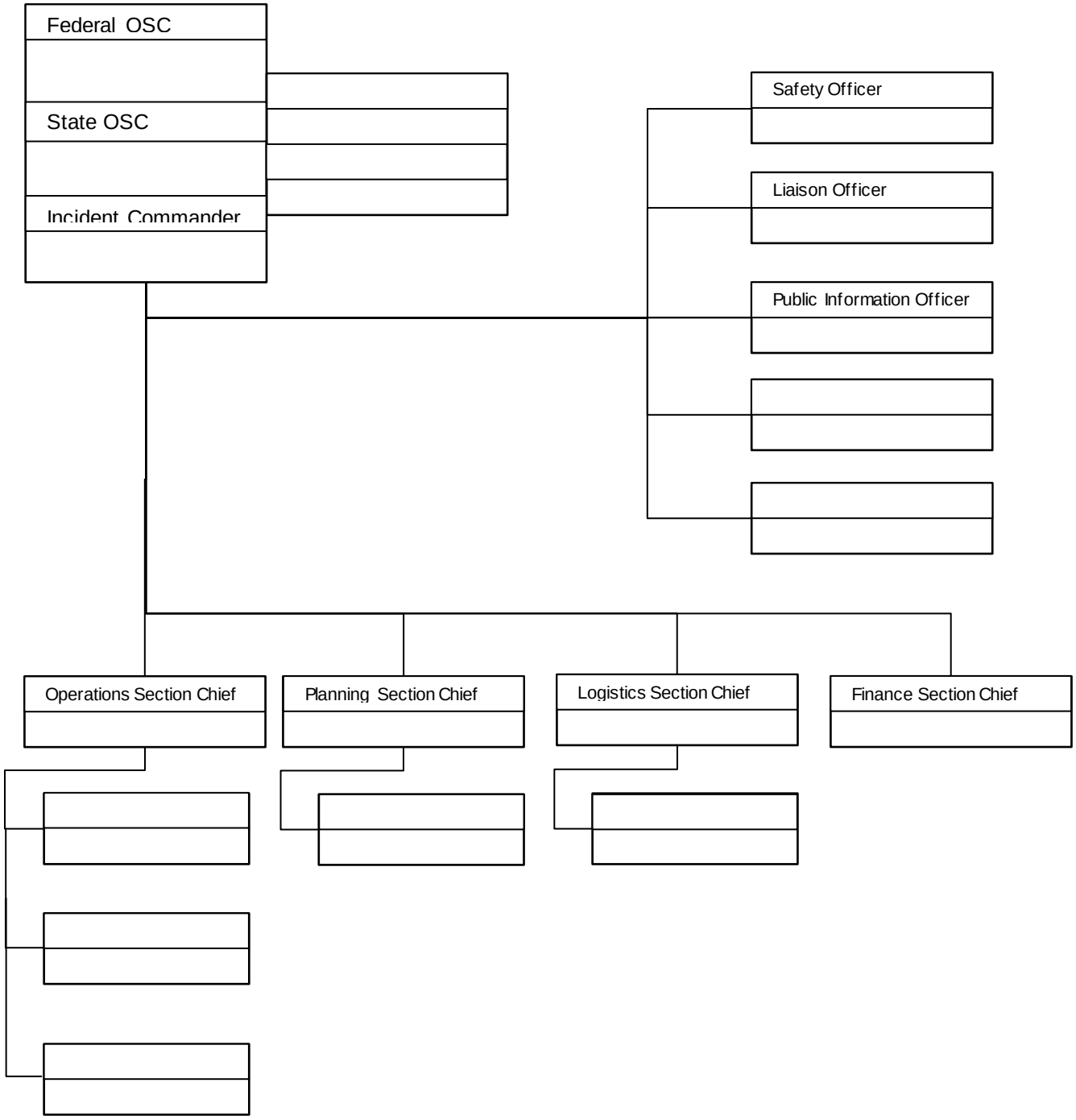
Approved By

Incident Commander: Date:

Date:

ICS 201-2 - Summary of Current Actions	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group © 1997-2025

Incident Name:	Period: / / : to / / :



ICS 201-3 - Current Organization	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	© 1997-2025

ICS 201-4 – Resource Summary				Version Name:			
Incident Name:				Period: / / : to / / :			
ID	Resource			Ordered	ETA	Arrived	Area Of Operation
	Quantity	Kind/ Description	Supplier				
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
						☐	
ICS 201-4 – Resource Summary				Prepared By: At: / / :			
INCIDENT ACTION PLAN SOFTWARE™				Page of	The Response Group	© 1997-2025	

ICS 208 – Site Safety Plan	Version Name:
Incident Name:	Period: / / : to / / :
Facility:	

Site Characterization

Water:	Land:	Weather:
Wave Height:	Land Use:	Air Temp:
Speed:		Wind Speed:
Direction:		Direction:

Site Hazards

Yes	No	Hazards	Yes	No	Hazards	Yes	No	Hazards
☐	☐	Boat Safety	☐	☐	Fire, Explosion, In-situ Burning	☐	☐	Pump Hose
☐	☐	Chemical Hazards	☐	☐	Heat Stress	☐	☐	Slips, Trips, and Falls
☐	☐	Cold Stress	☐	☐	Helicopter Operations	☐	☐	Steam and Hot Water
☐	☐	Confined Spaces	☐	☐	Lifting	☐	☐	Trenching/Excavation
☐	☐	Drum Handling	☐	☐	Motor Vehicles	☐	☐	UV Radiation
☐	☐	Equipment Operations	☐	☐	Noise	☐	☐	Visibility
☐	☐	Electrical Operations	☐	☐	Overhead/Buried Utilities	☐	☐	Weather
☐	☐	Fatigue	☐	☐	Plants/Wildlife	☐	☐	Work Near Water
☐	☐		☐	☐		☐	☐	

Air Monitoring Limits

Oxygen Level		Hydrogen Sulfide		Total Hydrocarbons	
LEL		Benzene			

Engineering Controls

☐	Source of release secured	☐	Valve(s) closed	☐	Energy sources locked/tagged out
☐	Site secured	☐	Facility shut down	☐	

Personal Protective Equipment Required

☐	Impervious suit	☐	Flame resistant clothing	☐	Eye protection
☐	Inner gloves	☐	Hard hats	☐	Personal flotation
☐	Outer gloves	☐	Respirators	☐	Boots

Additional Control Measures Established

☐	Decontamination	☐	Illumination	☐	Additional stations established
☐	Sanitation	☐	Medical surveillance	☐	Facilities provided

Work Plan

☐	Booming	☐	Excavation	☐	Hot work
☐	Skimming	☐	Heavy equipment	☐	Appropriate permits used
☐	Vac trucks	☐	Sorbent pads	☐	
☐	Pumping	☐	Patching	☐	

Training

☐	Verified site workers trained per local/federal regulatory requirements	***Training Requirements:***	

ICS 208 – Site Safety Plan	Prepared By:	At: / / :	
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group	**© 1997-2025**

ICS 208 – Site Safety Plan	Version Name:
Incident Name:	Period: / / : to / / :

Organization

Position	Name	Telephone/Radio	Position	Name	Telephone/Radio
Incident Commander			Safety Officer		
Deputy Incident Commander			Operations Section Chief		

Emergency Plan

☐	Fire Prevention Plan	☐	Evacuation Plan	☐	
☐	Alarm System	☐	First Aid Location	☐	

Notifications

Facility			Phone	Facility			Phone
☐	Hospital			☐	Fire		
☐	Ambulance			☐	Law Enforcement		
☐	Air Ambulance			☐	Emergency Response/Rescue		

Initial Briefing

☐	***Initial safety briefing prepared for each site.***

Attachments/Appendices

Attachments		Appendices	
☐	Site Map	☐	Site Safety Program Evaluation Checklist
☐	Hazardous Substance Information Sheets	☐	Confined Space Entry Checklist
☐	Site Hazards	☐	Heat Stress Consideration
☐	Monitoring Program	☐	Cold Stress and Hypothermia Consideration
☐	Training Program	☐	First Aid for Bites, Stings, and Poisonous Plant Contact
☐	Confined Space Entry Procedure	☐	Safe Work Practice for Oily Bird Rehabilitation
☐	Safe Work Practices for Boats	☐	SIPI Site Pre-Entry Briefing
☐	PPE Description	☐	Personnel Tracking System
☐	Decontamination	☐	
☐	Communication and Organization	☐	
☐	Site Emergency Response	☐	

Approved By

Safety Officer Date:

Planning Section Chief: Date:

ICS 208 – Site Safety Plan	Prepared By:	At: / / :
INCIDENT ACTION PLAN SOFTWARE™	Page of	The Response Group © 1997-2025

ICS 214a - Individual Log	Individual Name:
Incident Name:	

Activity Log		
Date/Time	*Events/Notes*	*Critical*
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐
		☐

ICS 214a - Individual Log	Prepared By: at / / :	
INCIDENT ACTION PLAN SOFTWARE™ Printed /21/2012 08:57	Page of	The Response Group © 1997-2025

NOTES

© *The Response Group*

NOTES

© The Response Group

NOTES

© The Response Group

Appendix A Well Control

A.1 Well Control Notifications

In the event, or the potential event, of a well control emergency, the Drilling Manager, the Completions Manager, or the Facilities/Production Manager will immediately contact the Coterra Manager responsible for the operation or the first available member of the well control emergency response team listed below: **See Section 5 for the Notifications Flowchart and Coterra contact numbers.**

A.1.1 Internal Notifications – Well Control Emergency Response Team

Immediate Notifications		
Team Member	Office	Cell
Shawn Long	Susquehanna	432-227-3380
Jake Swanson	Susquehanna	607-742-5984
Michael Bail	Susquehanna	412-605-8862

A.1.2 Emergency Response Contractor

Cudd Well Control	
Address	2828 Technology Forest Blvd Woodlands, TX
Office Number	713-849-2769
Fax Number	713-849-3861
Website	http://www.cuddwellcontrol.com

Wild Well Control - Pennsylvania			
Address	259 McCracken Rd. Roaring Branch, PA 17765		
Office Number	281-784-4700		
Fax Number	281-784-4750		
Website			
Name	Title	Office	Mobile
Bryan Ellis	President	281-784-4700	
Joe Dean Thompson	Chief Operations Office	281-784-4700	
Chris Stover	V.P. Well Control	281-784-4700	

© The Response Group

Jace Larrison	V.P. Well Control	281-784-4700	

For contact information regarding the Coterra Incident Management Team, Federal/State Local Authorities, and Emergency Services, refer to **Section 5** of this ERP.

© *The Response Group*

A.2 Response Team Responsibilities

At the time the well can no longer be controlled, the foreman shall carry out the following:

A.2.1 Foreman

Foreman	
✓	Remove everyone from location. The safety of personnel is always the number one priority.
✓	Secure the location by: 1. Making the initial contact with local authorities, highway patrol and other law enforcement personnel, as appropriate. 2. Appointing member(s) of rig crew to keep unauthorized people, including the media, away from the site. 3. Accounting for all personnel on location.
✓	Notify the Well Control Superintendent of the emergency and blowout conditions (i.e., H_2S, fire, water, gas.)
✓	Facilitate the evacuation of nearby residents and seek assistance from local authorities.
✓	The foreman is directly responsible for supervising and preparing: • Weighted kill fluids • Set up of all pumping equipment for kill fluids. Ensuring that sufficient horsepower is available • Set up for any special or heavy equipment needed
✓	Prepare sketches of Blowout Prevention Equipment with notation on placement of pipe and blind rams, choke manifolds and wellhead equipment. BOP nomenclature is listed from the wellhead up. The proper designations are: A = Annular Type Blowout Preventer G = Rotating Head R = Single ram type bop R_d = Double ram type preventer with two sets of rams installed R_t = Triple ram type preventer with three sets of rams installed C_H = Remotely operated connector attaching wellhead or preventers to each other C_L = Low pressure remotely operated connector attaching marine riser to BP stack. S = Spool with side outlets for kill or choke lines M = 1000 psi. working pressure
✓	Help develop well control plan.
✓	Informs the local fire department of plans.
✓	Maintain a list of all rental items (and rental companies) used during the well control operation.

© The Response Group

A.2.2 Drilling or Completions Engineer

Drilling Superintendent	
✓	Notifies the Well Control Manager that an emergency exists and recommends the Well Control Emergency Response Team be mobilized.
✓	Coordinates activities of Emergency Response Team as follows: 1. Contacts Division Production Manager for use of production personnel as support staff. 2. Contacts Contractor Superintendent and Coterra Manager of Environmental, Health & Safety. 3. Help prepare the well control plan.
✓	Establishes ground communication network.
✓	Locates an off-site staging area with Construction Foreman.
✓	Coordinates activities with Contractor with regard to moving equipment.
✓	Establishes long term security program with law enforcement agencies.
✓	Directs relief well drilling activities as needed.
✓	Maintains accurate list of available and approved contractors who can provide materials and service during an emergency.

A.2.3 Drilling, Completions or Facilities/Production Manager

Drilling, Completions or Facilities/Production Manager	
✓	Mobilizes Well Control Emergency Response Team in the event of an emergency.
✓	Calls Well Control Specialists.
✓	Notifies IMA.
✓	Prepares well control plan with Cudd or Great White specialist, Well Control Superintendent, Drilling Engineer, Drilling Foreman, Field Superintendent, and Contractor Representative.
✓	Coordinates efforts with Production and Gas Sales Departments. 1. Will advise Vice President of Marketing when operation support group is needed and in what capacity. 2. Will advise Contractor Superintendent where support from their staff is needed.
✓	Will manage efforts of all directly affected operations personnel.
✓	Keeps VP of Drilling informed of all activities.
✓	Keeps Insurance adjusters informed when they are on-site.

A.2.4 Vice President – Marcellus Business Unit

Vice President – Drilling	
✓	Notify Corporate Management
✓	Makes decision to declare an emergency situation exists.
✓	Coordinates press releases with Corporate and Govt. & External Affairs.
✓	Keeps Executive Management informed.
✓	Has final authority over well control plan and other operations.
✓	Coordinates meetings with working interest partners to keep them informed of operations.
✓	Coordinates providing Insurance adjuster and IMA with the following: 1. All drilling/completion/workover reports. 2. Operating agreement. 3. Drilling contact. 4. Invoices from date of incident to controlled or plugged well. 5. Rental agreements, MSA's with vendors, etc.

A.3 Responsibilities of Others

A.3.1 Drilling, Completions, or Facilities/Production Contractor and/or Well Site Consultant

Drilling, Completions, or Facilities/Production Contractor and/or Well Site Consultant	
✓	Supervises activities at the site (i.e. removing equipment, equipment limitations, pressure ratings, etc.).
✓	Provides support personnel (if needed) to help as security guards, relief Rig Managers or other jobs.
✓	Assists in obtaining special permits to haul heavy and oversized equipment.
✓	Assists in mobilization of a rig to drill a relief well.
✓	Assists in the preparation of a well control plan.

A.3.2 Contractor Representative

Contractor's Representative	
✓	Reports to Well Control Superintendent and works with Foreman and Field Superintendent.
✓	Provides photographs and drawings of the rig and details of the rig's equipment and limitations.
✓	Works with Rig Manager to be sure rig equipment is not used beyond capacity.

© The Response Group

A.3.3 Drilling Engineer

Drilling Engineer	
✓	Provides well engineering data, wellhead, casing design, etc.; and engineering and staff backup.
✓	Provides drawings showing the physical structure involved.
✓	Provides plan view of surface and bottom hole location.
✓	Maintains schematic drawing of the well bore including casing, drill string, tubing packers, and any other down hole equipment while operations are in progress. This sketch will contain pressure limitations and frac gradients.
✓	Provides electric logs of the well bore showing formations.
✓	Provides geologic cross section of the area of field, including surrounding well locations.
✓	If directional wells are used for well control, prepare a plan view of the proposed kill well(s) and current directional plots of each kill well.

A.3.4 Well Control Specialists

Well Control Specialists	
✓	Prepares Well Control Plan with MBU Management Team, Well Control Manager, Well Control Superintendent, Engineer, Foreman, Field Superintendent, and Construction Foreman.
✓	Directs on-site implementation of Well Control Plan.
✓	Communicates with Well Control Superintendent to plan equipment needs and schedules events and delivers.

A.3.5 Construction Foreman

Construction Foreman	
✓	Works under supervision of Well Control Superintendent and closely with Foreman and Field Superintendent to locate off-site staging area.
✓	Supervises building of off-site work area or location for relief well.
✓	Line up dirt moving equipment such as dozers, and other heavy equipment to build pits for mud and water as required.
✓	Finds water sources for as much water as possible for mud mixing, well control and cooling.
✓	Negotiates and settles damages with landowners on staging area. Uses land department to obtain names and phone numbers.
✓	Provides map of general area, including distances to nearest town. The map will include problem bridges or roads with load restrictions.

© The Response Group

Construction Foreman	
✓	Provide detailed list of residents within a 1- to 2-mile radius of the emergency in case further evacuation is necessary.
✓	If possible, provide a series of photographs showing the facilities before the emergency and then sequential photos of the same view, if possible, one photo from each of the four sides taken as day-to-day operations proceed.
✓	Works with Well Control Superintendent to establish a ground communication network (i.e., walkie-talkies, telephones, radio).
✓	Supervises site security personnel and establishes a check in/out procedure.
✓	Supervises emergency reclamation of any land damaged during the operation.

A.3.6 Manager of Environmental, Health & Safety

Manager of Environmental, Health & Safety	
✓	Works under supervision of the Well Control Superintendent.
✓	Contact OSHA if any injuries have occurred.
✓	If toxic gas is involved, all on-site personnel will use proper respiratory protection.
✓	In charge of ensuring that proper first aid equipment is on location.
✓	Will work with Land Department to prepare emergency evacuation plan for nearby residents.
✓	Works with the V.P. of the MBU, Corporate, and Govt. & External Affairs in making public disclosures of injuries or deaths.
✓	Reviews kill plans and gives input from a safety viewpoint.
✓	Provides Well Control Emergency Response Team with list of chemicals on-site.
✓	Coordinates with Well Control Superintendent to provide containment of an oil or saltwater spill. Will work with Construction Foreman to build “catch” pits or dikes as needed.
✓	Works with operations and contractors to control fluids released. Provides E&S plans in effort to prevent impacts to waters of the commonwealth.
✓	Assists in air monitoring (contact appropriate consultants/contractors).
✓	Acts as liaison with government agencies to provide necessary notifications.

© The Response Group

A.3.7 Operations Manager and District Superintendent

Division Operations Manager and District Superintendent	
✓	Supervises installation of emergency production equipment.
✓	Supervises disposal of any non-saleable fluids contaminated at the surface.
✓	Coordinates with operations support group to obtain Emergency Sales Orders from regulatory authorities.

A.3.8 Gas & Oil Sales/Marketing Group

Gas & Oil Sales Group	
✓	Obtains markets for emergency sale of gas or oil.
✓	Ensures regulatory compliance on the sale of gas or oil with appropriate state and federal agencies.

A.3.9 Materials Coordinator

Materials Coordinator	
✓	Coordinates transportation of tubing, casing valves, wellheads, and other small equipment.
✓	Coordinates food, lodging and drinks for members and work crews on location and office team personnel.

A.3.10 Press Relations

Press Relations	
All press releases are to be approved by the Legal Department and Executive Management. Inquiries from the press should be directed to the on-site ranking Coterra Energy representative. In the event the press is near the location you should:	
✓	Be sure press representatives are a safe distance away and not in the way of efforts to control the well.
✓	Be polite and courteous. If a confrontation arises, ask for their names and phone numbers and indicate that we will get back to them once we have more facts. If they persist, instruct them not to trespass on the site, excuse yourself and walk away. Do not attempt to answer provocative questions, speculate as to cause or liability or make a reply to any question dealing with company activity or policy.
✓	Do not release any information on the well.

NOTE: For additional information regarding Press Relations, refer to **Section 7** of this ERP.

© *The Response Group*

A.4 General Well Control Procedures

A.4.1 Blowout Contingency Procedures

Blowout Contingency Procedures	
If, at any time, a well blowout occurs:	
✓	The primary concern shall be directed towards the safety of Coterra and contract personnel as well as the public.
✓	After the safety of all personnel is assured, the foreman shall contact the Well Control Superintendent or his alternate and report the situation.
✓	If a blowout has resulted in loss of life or injury to company or contractor personnel, the Medical Emergency Plan shall be implemented (See **Subsection 4.4**).
After contacting Management, the Well Control Superintendent may commence operations to control the blowout. These actions may include:	
✓	Eliminate all sources of ignition (shut down rig, all motors, etc.).
✓	Contact service companies to provide heavy kill fluids and pumping services.
✓	Obtain a backhoe or dozer to construct earthen dams to prevent escape of fluids, and vacuum trucks to collect and dispose of fluids.
✓	Blowout control specialists shall be contacted to organize and supervise the necessary specialty contractor services needed to regain control of the well.

A.4.2 Prevention of Well Control Problems

Prevention of Well Control Problems
In all cases where tubing flanges or wellheads are removed, a hydraulic blowout preventer equipped with proper pipe and blind rams shall be installed. The blowout preventer will be tested for proper operation prior to starting well work.

© The Response Group

Appendix B - Glossary / Acronyms

Term	Definition
A	
Access/Staging Areas	Designated areas offering access to spill sites for the gathering and deployment of spill response equipment and personnel.
Activate	The process of mobilizing personnel and/or equipment within the response organization to engage in response operations.
Adverse Weather	The weather conditions that will be considered when identifying response systems and equipment in a response plan for the applicable operation environment. Factors to consider include significant wave height, ice conditions, temperatures, weather-related visibility, and currents within the area in which the systems or equipment are intended to function.
Agency	A division of government with a specific function offering a particular kind of assistance. In ICS, agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance).
Agency Representative	Individual assigned to an incident from an assisting or cooperating agency that has been delegated full authority to make decisions on all matters affecting his/her agency's participation at the incident.
Allocated Resources	Resources dispatched to an incident.
API	American Petroleum Institute
Area Contingency Plan (ACP)	As defined by Sections 311(a)(18) and (j)(4) of CWA, as amended by OPA, means the entity appointed by the President consisting of members from Federal, State, and local agencies with responsibilities that include preparing an Area Contingency Plan for the area designated by the President. The Area Committee may include ex-officio (i.e., non-voting) members (e.g., industry and local interest groups).
Assessment	The evaluation and interpretation of measurements and other information to provide a basis for decision-making.
Assigned Resources	Resources checked-in and assigned work tasks on an incident.
Assignments	Tasks given to resources to perform within a given operational period, based upon tactical objectives in the Incident Action Plan.

© The Response Group

Term	Definition
Assistant	Title for subordinates of the Command Staff positions. The title indicates a level of technical capability, qualifications and responsibility subordinate to the primary positions. Assistants may also be used to supervise activities at camps.
AST	Aboveground Storage Tank
Available Resources	Resources assigned to an incident, checked in, and available for a mission assignment, normally located in a Staging Area.
B	
Barrel	Measure of space occupied by 42 U.S. gallons at 60 degrees Fahrenheit.
Base	The location as which the primary logistics functions are coordinated and administered. The Incident Command Post may be collocated with the base. There will only be one base per incident.
BBL	Barrel (Unit of Volume Equal to 42 Gallons)
BLM	Bureau of Land Management (USDOI)
Blowout	A sudden release of oil and/or gas from a well.
BPD	Barrels Per Day
BPH	Barrels Per Hour
Branch	The organizational level having functional/geographic responsibility for major incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section.
C	
ºC	Degrees Centigrade
Certification	The act of confirming that an exercise: 1) was completed, 2) met the required objectives, and 3) was evaluated to determine effectiveness of the response plan based on exercise performance.
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
Chain of Command	A series of command, control, executive, or management positions in hierarchical order of authority.

© *The Response Group*

Term	Definition
CHEMTREC	Chemical Transportation Emergency Center which provides information and/or assistance to emergency responders. Can be reached 24 hours a day by calling 800-424-9300.
Chief	The ICS title of individuals responsible for command of functional sections: Operations, Planning, Logistics and Finance/Administration.
Command Post	A site located in the cold zone where response decisions and activities can be planned, coordinated, and managed. The Incident Commander and regulatory On-Scene Coordinator(s) may operate from this location.
Command Staff	It consists of the Information Officer, Safety Officer and Liaison Officer, who report directly to the Incident Commander. They may have an assistant or assistants, as needed.
Communications Equipment	Equipment that will be utilized during response operations to maintain communication between the Company employees, contractors, Federal/State/Local agencies. (Radio/telephone equipment and links)
Communications Unit	An organizational unit in the Logistics Section responsible for providing communication services at an incident or an EOC. A Communications Unit may also be a facility (e.g., a trailer or mobile van) used to support an Incident Communications Center.
Contamination Reduction Zone	The area between the contaminated zone and the clean zone. This area is designed to reduce the probability that can clean zone will become contaminated. Also known as the warm zone.
Contingency Plan	A document used by (1) federal, state, and local agencies to guide their planning and response procedures regarding spills of oil, hazardous substances, or other emergencies; (2) a document used by industry as a response plan to spills of oil, hazardous substances, or other emergencies occurring upon their vessels or at their facilities.
Convergence Line	A line on the water surface where floating objects and oil collect. A convergence can be in the interface between two different types of bodies of water, or it can be caused by a significant depth change, tidal changes or other common phenomena. Convergences are common in the marine environment.
Coordinate	To advance systematically an analysis and exchange of information among principals who have or may have a need to know certain information to carry out specific incident management responsibilities.

© *The Response Group*

Term	Definition
Cost Unit	Functional unit within the Finance/Administration Section responsible for tracking costs, analyzing cost data, making cost estimates and recommending cost-saving measures.
Critical Areas	Areas which, if impacted by a spill, may result in threats to public health and/or safety.
CRZ	Contamination Reduction Zone
CWA	Clean Water Act of 1977
D	
Damage Assessment	The process of determining and measuring damages and injury to the human environment and natural resources, including cultural resources. Damages include differences between the conditions and use of natural resources and the human environment that would have occurred without the incident, and the conditions and use that ensued following the incident. Damage assessment includes planning for restoration and determining the costs of restoration.
DECON	Decontamination
Decontamination	The removal of hazardous substances from personnel and equipment necessary to prevent adverse health effects.
Demobilization Unit	Functional unit within the Planning Section responsible for assuring orderly, safe and efficient demobilization of incident resources.
Deputy	A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operations or perform a specific task. In some cases, a Deputy could act as relief for a superior, and, therefore, must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff and Branch Directors.
Director	The ICS title for individuals responsible for supervising a Branch.
Discharge (Spill)	Any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil, condensate or other material that may pose a hazard, but excludes discharges in compliance with a permit.
Dispatch	The ordered movement of a resource or resources to an assigned operational mission or an administrative move from one location to another.
Dispatch Center	A facility from which resources are directly assigned to an incident.

© The Response Group

Term	Definition
Dispersion	The breaking up of an oil slick.
Division	The organization level having responsibility for operation within a defined geographic area or with functional responsibility. The Division level is organizationally between the Task Force/Strike Team and the Branch.
Documentation Unit	Functional unit within the Planning Section responsible for collecting, recording and safeguarding all documents relevant to the incident.
DOT	Department of Transportation
DPS	Department of Public Safety
E	
EBS	Emergency Broadcast System
Economically Sensitive Areas	Areas of explicit economic importance to the public that due to their proximity to potential spill sources may require special protection and include, but are not limited to; potable and industrial water intakes; locks and dams; and public and private marinas
EHS	Environmental Health and Safety
EMA	Emergency Management Agency
Emergency	Absent a Presidential declared emergency, any incidents(s), human-caused or natural, that requires responsive action to protect life or property. Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, an 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.
Emergency Medical Technician (EMT)	A health-care specialist with particular skills and knowledge in pre-hospital emergency medicine.
Emergency Response	The response to any occurrence that results, or is likely to result in a release of a hazardous substance due to an event.
Emergency Service	Those activities provided by the state and local government to prepare for and carry out any activity to prevent, minimize, respond to, or recover from an emergency.
EMS	Emergency Medical Service

© *The Response Group*

Term	Definition
EMT	Emergency Medical Technician
EPA	Environmental Protection Agency (United States)
ERT	Emergency Response Team
ESD	Emergency Shutdown
ETA	Estimated Time of Arrival
Evacuation	Organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas.
Event	A planned, non-emergency activity. ICS can be used as the management system for a wide range of events, e.g., parades, concerts, or sporting events.
Exclusion Zone	The area where contamination does or may occur.
Explosion	An explosion is a rapid increase in volume and release of energy in an extreme manner, usually with the generation of high temperatures and the release of gases.
F	
FAA	Federal Aviation Administration
Facilities Unit	Functional unit within the Support Branch of the Logistics Section that provides fixed facilities for the incident. These facilities may include the Incident Base, feeding areas, sleeping areas, sanitary facilities, etc.
Facility	Any pipeline, structure, equipment, or device used for handling oil including, but not limited to, underground and aboveground storage tanks, well heads, impoundments, mobile or portable drilling or workover rigs.
Facility Operator	The person who owns, operates, or is responsible for the operation of the facility.
FAX	Facsimile Machine
Federal	Of or pertaining to the Federal Government of the United States of America.
Federal On-Scene Coordinator (FOSC)	The pre-designated Federal On-Scene Coordinator operating under the authority of the National Contingency Plan (NCP).

© *The Response Group*

Term	Definition
Federal Regional Response Team	The federal response organization (consisting of representatives from selected federal and state agencies) which acts as a regional body responsible for planning and preparedness before and oil spill occurs and providing advice to the FOSC in the event of a major or substantial spill.
FEMA	Federal Emergency Management Administration
Field Operations Guide (FOG)	A pocketsize manual of guidelines regarding application of the Incident Command System.
Finance / Administration Section	The Section responsible for all incident costs and financial considerations. Includes the Time Unit, Procurement Unit, Compensation/Claims Unit and Cost Unit.
Fire	Fire is the rapid oxidation of a material in the chemical process of combustion, releasing heat, light, and various reaction products. Slower oxidative processes like rusting or digestion are not included by this definition.
First Responders / First Response Agency	A public health or safety agency (e.g., fire service or police department) charged with responding to an incident during the emergency phase and alleviating immediate danger to human life, health, safety, or property.
Food Unit	Functional unit within the Service Branch of the Logistics Section responsible for providing meals for incident personnel.
FOSC	Federal On-Scene Coordinator
Function	In ICS, function refers to the five major activities in the ICS, i.e., Command, Operations, Planning, Logistics, and Finance/Administration. The term function is also used when describing the activity involved, e.g., “the planning function.”
FWPCA	Federal Water Pollution Control Act
G	
GAL	Gallons
General Staff	The group of incident management personnel comprised of: Incident Commander, Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief.
Geographic Information Systems (GIS)	An electronic information system that provides a geo-referenced data base to support management decision-making.
GPM	Gallons per Minute

© *The Response Group*

Term	Definition
Ground Support Unit	Functional unit within the Support Branch of the Logistics Section responsible for fueling, maintaining and repairing vehicles, and the ground transportation of personnel and supplies.
Groundwater	Subsurface water that fills available opening in rock or soil materials such that they may be considered water saturated under hydrostatic pressure.
Group	Groups are established to divide the incident into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. Groups are located between Branches (when activated) and Single Resources in the Operations Section.
GT	Gross Tons
H	
H_2S	Hydrogen Sulfide
Handle	To transfer, transport, pump, treat, process, store, dispose of, drill for, or produce.
Harmful Quantity of Oil	The presence of oil from an unauthorized discharge in a quantity sufficient either to create a visible film or sheen or discoloration upon water, land, shoreline, tidal flat, beach, or marsh, or to cause a sludge or emulsion to be deposited beneath the surface of the water or on a shoreline, tidal flat, beach, or marsh.
Hazardous Chemicals	All chemicals that constitute a physical hazard or a health hazard as defined by 29 CFR 1910.1200, with the exceptions listed in section 311(e). This term comprises approximately 90 percent of all chemicals.
Hazardous Material (HAZMAT)	Any non-radioactive solid, liquid, or gaseous substance which, when uncontrolled, may be harmful to humans, animals, or the environment. Including but not limited to substances otherwise defined as hazardous wastes, dangerous wastes, extremely hazardous wastes, oil, or pollutants.
Hazardous Substance	Any substance designed as such by the Administrator of the EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, regulated pursuant to Section 311 of the Federal Water Pollution Control Act, or discharged by the TWC.

© *The Response Group*

Term	Definition
Hazardous Waste	Any solid waste identified or listed as a hazardous waste by the Administrator of the EPA pursuant to the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C., Section 6901, et seq as amended. The EPA Administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in Title 40 of the Code of Federal Regulations, Part 261, Subparts C and D respectively.
HAZCOM	Hazard Communication
HAZWOPER	Hazardous Waste Operations and Emergency Response Regulations published by OSHA to cover worker safety and health aspects of response operations.
Health Hazard	A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.
Heat Stress	Dangerous physical condition caused by over exposure to extremely high temperatures.
Helibase	A location within the general incident area for parking, fueling, maintaining and loading helicopters.
Helispot	A location where a helicopter can take off and land. Some helispots may be used for temporary loading.
HQ	Headquarters
HR	Human Resources
Hypothermia	Dangerous physical condition caused by over exposure to freezing temperatures.
I	
IDLH	Immediate Danger to Life or Health
IH	Industrial Hygienist
Incident	Any event that results in the spill or release of oil or hazardous materials, or fire / explosion.
Incident Action Plan (IAP)	The Incident Action Plan, which is initially prepared at the first meeting, contains general control objectives reflecting the overall incident strategy, and specific action plans for the next operational period. When complete, the Incident Action Plans will include a number of attachments.

© *The Response Group*

Term	Definition
Incident Area	Legal geographical area of the incident including affected area(s) and traffic route(s) to corresponding storage and disposal sites.
Incident Briefing Meeting	Held to develop a comprehensive, accurate, and up-to-date understanding of the incident, nature of status of control operations, and nature and status of response operations; ensure the adequacy of control and response operations; begin to organize control and response operations; and prepare for interactions with outside world.
Incident Command Post (ICP)	The location at which the primary command functions are executed; may be collocated with the incident base.
Incident Command System (ICS)	A response system or organization by which the response to a spill is categorized into functional components and responsibility for each component assigned to the appropriate individual or agency.
Incident Commander (IC)	The one individual in charge at any given time of an incident. The IC will be responsible for establishing a unified command with all on-scene coordinators.
Incident Management Team (IMT)	The IC and appropriate Command and General Staff personnel assigned to an incident.
Incident Objectives	Statements of guidance and direction necessary for the selection of appropriate strategies, and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives.
Incident Situation Display	The Situation Unit is responsible for maintaining a display of status boards that communicate critical incident information vital to establishing and maintaining an effective command and control environment.
Industry	For the purpose of these guidelines, industry means the oil, natural gas, and hazardous substance industry required to submit response plans and comply with exercise requirements, as specified in appropriate vessel, facility, pipeline and Outer Continental Shelf platform regulations. The USCG, EPA, PHMSA and BOEMRE administer these regulations.
Initial Action	The actions taken by those responders first to arrive at an incident site.

© *The Response Group*

Term	Definition
Information Officer (IO)	A member of the Command Staff responsible for providing incident information to the public and news media or other agencies or organizations. There is only one Information Officer per incident. The Information Officer may have assistants.
Initial Notification	The process of notifying necessary company personnel and Federal/State/Local agencies that a spill has occurred, including all pertinent available information surrounding the incident.
Initial Response Actions	The immediate actions that are to be taken by the spill observer after detection of a spill.
Injury	an abnormal condition or disorder which ranges from minor cuts to amputations.
Inland Area	The area shoreward of the boundary lines defined in 46 CFR Part 7, except in the Gulf of Mexico. In the Gulf of Mexico, it means the area shoreward of the lines of demarcation (COLREG lines) defined in 80.740 – 80.850 of Title 33 of the CFR. The inland area does not include the Great Lakes.
Inland Waters	State waters not considered coastal waters; lakes, rivers, ponds, streams, underground water, et. al.
Inland Zone	The environment inland of the coastal zone excluding the Great Lakes, and specified ports and harbors on inland rivers. The term inland zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.
Interim Storage Site	A site used to temporarily store recovered oil or oily waste until the recovered oil or oily waste is disposed of at a permanent disposal site. Interim storage sites include trucks, barges and other vehicles used to store waste until transport begins.
IRT	Initial Response Team
J	
Joint Information Center (JIC)	A facility established within, or near, the Incident Command Post where the Information Officer and staff can coordinate and provide incident information to the public, news media, and other agencies or organizations. The JIC is normally staffed with representatives from the FOSC, SOSC and RP.

© The Response Group

Term	Definition
Joint Information System (JIS)	Integrates incident information and public affairs into a cohesive organization designed to provide consistent, coordinated, timely information during crisis or incident operations. The mission of the JIS is to provide a structure and system for developing and delivering coordinated interagency messages; developing, recommending, and executing public information plans and strategies on behalf of the IC; advising the IC concerning public affairs issues that could affect a response effort; and controlling rumors and inaccurate information that could undermine public confidence in the emergency response effort.
Jurisdiction	A range or sphere of authority. At an incident, public agencies have jurisdiction related to their legal responsibilities and authority for incident mitigation. Jurisdictional authority at an incident can be political/geographical (e.g., city, country, state, or Federal boundary lines), or functional (e.g., police department, health department, etc.).
JOC	Joint Operations Center
JRT	Joint Response Team
K	
Kw	Kilowatt
L	
Lead Agency	The government agency that assumes the lead for directing response.
Lead Federal Agency	The agency that coordinates the federal response to incidents on navigable waters. The lead Federal agencies are: • U.S. Coast Guard (USCG): Oil and chemically hazardous materials incidents on navigable waters. • U.S. Environmental Protection Agency (EPA): Oil and chemically hazardous materials incidents on inland waters.
Lead State Agency	The agency that coordinates state support to Federal and/or Local governments or assumes the lead in the absence of Federal response.
Leader	The ICS title for an individual responsible for a Task Force/Strike Team or functional Unit.
LEL	Lower Explosive Limit
LEPC	Local Emergency Planning Committee

© *The Response Group*

Term	Definition
Liaison	A form of communication for establishing and maintaining mutual understanding and cooperation.
Liaison Officer (LO)	A member of the Command Staff responsible for coordinating with stakeholder groups and representatives from assisting and cooperating agencies.
Local Emergency Planning Committees (LEPC)	Provide input regarding a state's implementation of federal law. LEPC's provide local emergency planning, representing a variety of disciplines interested in hazardous materials management designed to help the State Chemical Emergency Planning and Response Commission (CEPRC) fit the needs of a particular region. CEPRC's are usually established by an Executive Order to fill the requirement in Title III, the Federal Superfund Amendments and Reauthorization Act of 1986. The act requires that each governor establish a state emergency response commission to address a variety of hazardous materials planning and community right-to-know issues.
Local Government	A county, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; an Indian tribe or authorized tribal organization, or in Alaska a Native village or Alaska Regional Native Corporation; a rural community, unincorporated town or village, or other public entity. See Section 2 (10), Homeland Security Act of 2002, Pub. L. 107-296, 116 Stat. 2135 (2002).
Local Response Team	Designated Facility individuals who will fulfill the roles determined in the oil spill response plan in the event of an oil or hazardous substance spill. They will supervise and control all response and cleanup operations.
Logistics	Providing resources and other services to support incident management.
Logistics Section	The Section responsible for providing facilities, services and materials for the incident.
LOSC	Local On-Scene Coordinator
LPG	Liquefied Petroleum Gas
LRT	Local Response Team
M	

© *The Response Group*

Term	Definition
Management by Objective	A management approach that involves a four-step process for achieving the incident goal. The Management by Objectives approach includes the following: establishing overarching objectives; developing an issuing assignments, plans, procedures, and protocols: establishing specific, measurable objectives for various incident management functional activities; and documenting results to measure performance and facilitate corrective action.
Managers	Individuals within ICS organizational units who are assigned specific managerial responsibilities (e.g., Staging Area Manager or Camp Manager).
Maximum Extent Practicable	The limitations used to determine oil spill planning resources and response times for on-water recovery, shoreline protection, and cleanup for worst-case discharges from onshore non-transportation-related facilities in adverse weather. It considers the planned capability to respond to a worst case discharge in adverse weather, as contained in a response plan that meets the requirements in 112.20 or in a specific plan approved by the Regional Administrator.
MBU	Marcellus Business Unit
Medical Unit	Functional unit within the Service Branch of the Logistics Section responsible for developing the Medical Plan, and for providing emergency medical treatment for incident response personnel.
Message Center	The message center is part of the Communications Center and collocated with or adjacent to it. It receives, records, and routes information about resources reporting to the incident, resource status, and handles administration and tactical traffic.

© *The Response Group*

Term	Definition
Mitigation	The 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 may be implemented prior to, during, or after an incident. Mitigation measures are often informed be lessons learned from prior incidents. Mitigation involves ongoing actions to reduce exposure to, probability of, or potential loss from hazards. Measures may include zoning and building codes, floodplain buyouts, and analysis of hazard-related data to determine where it is safe to build or locate temporary facilities. Mitigation can include efforts to educate governments, business, and the public on measures they can take to reduce loss and injury.
Mobilization	The process and procedures used by all organizations: Federal, State, Local, and Tribal for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.
MOU	Memorandum of Understanding
Mutual-Aid Agreement	Written agreement between agencies and/or jurisdictions that they will assist one another on request, by furnishing personnel, equipment, and/or expertise in a specified manner.
N	
National	Of a nationwide character, including the Federal, State, local, and tribal aspects of governance and polity.
National Contingency Plan	The plan prepared under the Federal Water Pollution Control Act (33 United State Code SS1321 et seq) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 United State Code SS9601 et seq), as revised from time to time.
Natural Gas	Natural gas is a gas consisting primarily of methane, typically with 0-20% higher hydrocarbons (primarily ethane).

© *The Response Group*

Term	Definition
National Incident Management System (NIMS)	A system mandated by HSPD-5 that provides a consistent nationwide approach for Federal, State, local and tribal governments; the private-sector, and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among Federal, State, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multi-agency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources.
National Response Plan	A plan mandated by HSPD-5 that integrates Federal domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan.
National Response System (NRS)	Is the mechanism for coordinating response actions by all levels of government in support of the OSC. The NRS is composed of the NRT, RRTs, OSC, Ara Committees, and Special Teams and related support entities.
Natural Resource	Land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other resources belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the state, federal government, private parties, or a municipality.
Navigable Waters	As defined in section 502(7) of the FWPCA, and includes: (1) all navigable waters of the United States, as defined in judicial decisions prior to passage of the 1972 Amendments to the FWPCA (Pub. L 92-500), and tributaries of such waters; (2) interstate waters; (3) intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes; and (4) intrastate lakes, rivers, and streams from which fish or shellfish.
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NM	Nautical Miles
NOAA	National Oceanic and Atmospheric Administration
Non-Crude Oil	Any oil other than crude oil.

© *The Response Group*

Term	Definition
Non-Persistent or Group I Oil	A petroleum-based oil that, at the time of shipment, consists of hydrocarbon fractions: 1. At least 50 percent of which by volume distill at a temperature of 340°C (645°F); and 2. At least 95 percent of which by volume distill at a temperature of 370°C (700°F).
Non-Petroleum Oil	Oil of any kind that is not petroleum-based. It includes, but is not limited to, animal and vegetable oils.
NRC	National Response Center
NRT	National Response Team
O	
OGRE	Oil and Gas Reporting – Electronic (PADEP)
Oil or Oils	Naturally occurring liquid hydrocarbons at atmospheric temperature and pressure coming from the earth, including condensate and natural gasoline, and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil, diesel oil, oil sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table 302.4 of 40 CFR 302 under Section 101(14) of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by P.L. 99-499.
Oil Spill Cooperative	Multi-company cooperative organization developed by industry to assist with oil spill response and clean up. Typically, manpower and equipment are identified by a company on a voluntary basis.
Oil Spill Removal Organization (OSRO)	An entity that provides oil spill response resources, and includes any for-profit or not-for-profit contractor, cooperative, or in-house response resources that have been established in a geographic area to provided required response resources.
Oily Waste	Oil-contaminated waste resulting from an oil spill or spill response operations.
On Scene Coordinator (OSC)	The federal official pre-designated by EPA or the USCG to coordinate and direct federal responses under subpart D, or the official designated by the lead agency to coordinate and direct removal actions under subpart E of the National Contingency Plan.

© *The Response Group*

Term	Definition
On-site	The area extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a response action.
OPA 90	Federal Oil Pollution Act of 1990
Operating Area	The rivers and canals, inland, near shore, Great Lakes, or offshore geographic location(s) in which a facility is handling, storing, or transporting oil.
Operating Environment	Refers to Rivers and Canals, Inland, Great Lakes, or Ocean. These terms are used to define the condition in which response equipment is designed to function.
Operational Period	The period of time scheduled for execution of a given set of operational actions specified in the Incident Action Plan. Operational Periods can be various lengths, usually not over 24 hours.
Operations Section	Responsible for all operations directly applicable to the primary mission. Directs unit operational plans preparation, requests or releases resources, makes expedient changes to the Incident Action Plan (as necessary) and reports such to the Incident Commander. Includes the Recovery and Protection Branch, Emergency Response Branch, Air Operations Branch, and Wildlife Branch.
ORT	On-Site Response Team
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration (USDL)
OSIC	On-Scene Incident Commander
OSLTF	Oil Spill Liability Trust Fund
OSRO	Oil Spill Removal Organization
Out of Service Resources	Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.
Owner or Operator	Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.
P	
PADEP	Pennsylvania Department of Environmental Protection
PEL	Permissible Exposure Limit

© *The Response Group*

Term	Definition
PEMA	Pennsylvania Emergency Management Agency
Persistent Oil	Under OPA 90, persistent oils are petroleum-based oils that do not meet the distillation criteria for a non-persistent oil. Persistent oils are classified based on specific gravity as follows: • Group II – specific gravity less than .85; • Group III – specific gravity between .85 and less than .95; • Group IV – specific gravity .95 to and including 1.0.; and • Group V – specific gravity greater than 1.0.
PFBC	Pennsylvania Fish and Boat Commission
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIA	Post Incident Analysis
Plan	Spill response, clean-up, and disposal contingency plan.
Planning Meeting	A meeting, held as needed throughout the duration of an incident, to select specific strategies and tactics for incident control operations and for service and support planning.
Planning Section	Responsible for collecting, evaluating, and disseminating tactical information related to the incident, and for preparing and documenting Incident Action Plans. The section also maintains information on the current and forecast situation, and on the status of resources assigned to the incident. Includes the Situation, Resource, Environmental, Documentation, and Demobilization Units, and Technical Specialists.
Post Incident Analysis	Detailed review of an incident to establish a clear picture of events that took place during an incident.
Post-Emergency Response	The portion of a response performed after the immediate threat of a release has been stabilized or eliminated and cleanup of the sites has begun.
PPE	Personal Protection Equipment
PPM	Parts Per Million
PREP	(National) Preparedness for Response Exercise Program

© *The Response Group*

Term	Definition
Preparedness	The range of deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from domestic incidents. Preparedness is a continuous process. Preparedness involves efforts at all levels of governmental and between government and private-sector and nongovernmental organizations to identify threats, determine vulnerabilities, and identify required resources. Within the NIMS, preparedness is operationally focused on establishing guidelines, protocols, and standards for planning, training and exercises, personnel qualification and certification, equipment certification, and publication management.
Prevention	Actions to avoid an incident or to intervene to stop an incident from occurring. Prevention involves actions to protect lives and property. It involves applying intelligence and other information to a range of activities that may include such countermeasures as deterrence operations; heightened inspections; improved surveillance and security operations; investigations to determine the full nature and source of the threat; public health and agricultural surveillance and testing processes; immunizations, isolation, or quarantine; and, as appropriate, specific law enforcement operations aimed at deterring, preempting, interdicting, or disrupting illegal activity and apprehending potential perpetrators and bringing them to justice.
Primary Response Contractor(s)	An individual, company, or cooperative that has contracted directly with the plan holder to provide equipment and/or personnel for the containment or cleanup of spilled oil.
Private Sector	Organizations and entities that are not part of any governmental structure. It includes for-profit and not-for-profit organizations, formal and informal structures, commerce and industry, and private voluntary organizations (PVO).
Processes	Systems of operations that incorporate standardized procedures, methodologies, and functions necessary to provide resources effectively and efficiently. These include resource typing, resource ordering and tracking, and coordination.
Procurement Unit	Functional unit within the Finance/Administration Section responsible for financial matters involving vendor contracts.
PSI	Pounds Per Square Inch

© *The Response Group*

Term	Definition
Public Information Officer (PIO)	A member of the Command Staff responsible for interfacing with the public and media or with other agencies with incident-related information requirements.
Q	
Qualification and Certification	This subsystem provides recommended qualification and certification standards for emergency responder and incident management personnel. It also allows the development of minimum standards for resources expected to have an interstate application. Standards typically include training, currency, experience, and physical and medical fitness.
Qualified Individual(QI)	An English-speaking representative(s) of the facility identified in the plan, located in the United States, available on a 24-hour basis, able to arrive at the facility in a reasonable time, familiar with implementation of the facility response plan, and trained in the responsibilities of the Qualified Individual under the response plan. This person must have a document from the owner or operator designating them as a Qualified Individual and specifying their full authority to: • Activate and engage in contracting with oil spill removal organization(s); • Act as a liaison with the pre-designated Federal On-Scene coordinator (OSC); and • Obligate funds required to carry out all necessary or directed response activities.
R	
RA	Regional Administrator
RCP	Regional Contingency Plan
Reception Area	This refers to a location separate from staging areas, where resources report in for processing and out-processing. Reception Areas provide accountability, security, situational awareness briefings, safety awareness, distribution of IAPs, supplies and equipment, feeding, and bed down.
Recorders	Individuals within ICS organizational units who are responsible for recording information. Recorders may be found in Planning, Logistics and Finance/Administration.

© The Response Group

Term	Definition
Recoverable Oil	Oil in a thick enough layer on the water, or land to be recovered by conventional techniques and equipment. Only black or dark brown oil, mousse and heavy sheens (which are dull brown in color) are generally considered to be thick enough to be effectively recovered by skimmers.
Recovery	The development, coordination, and execution of service-and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.
Recreation Area	Publicly accessible area where social/sporting events take place.
Regulated Substance(s)	1. Hazardous substances defined in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The CERCLA list consists of individual compounds and large groups of compounds. If a chemical is a member of one of the groups, it is regulated in the same manner as one of the individually listed compounds. 2. Liquid petroleum products. 3. Other substances the department added by regulation including biodiesel, synthetic fuels and oils, tung oils, wood-derivative oils, inedible seed oils from plants and pure ethanol intended for blending with motor fuels.
Residual Waste	Residual waste is nonhazardous industrial waste. It includes waste material (solid, liquid or gas) produced by industrial, mining, and agricultural operations. It excludes certain coal mining wastes and wastes from normal farming activities.
Resource Management	Efficient incident management requires a system for identifying available resources at all jurisdictional levels to enable timely and unimpeded access to resources needed to prepare for, respond to, or recover from an incident. Resource management under the NIMS includes mutual-aid agreements; the use of special Federal, State, local, and tribal teams; and resource mobilization protocols.

© *The Response Group*

Term	Definition
Resource Unit	Functional unit within the Planning Section responsible for recording the status of resources committed to the incident. The Unit also evaluates resources currently committed to the incident, the impact that additional responding resources will have on the incident, and anticipated resources needs.
Resources	All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained.
Response Contractors	Persons/companies contracted to undertake a response action to contain and/or clean up a spill.
Response Plan	A practical plan used by industry for responding to a spill. Its features include (1) identifying the notification sequence, responsibilities, response techniques, etc. in an easy to use format; (2) using decision trees, flowcharts, and checklists to insure the proper response for spills with varying characteristics; and (3) segregating information needed during the response from that required by regulatory agencies to prevent confusion during a spill incident.
Response Resources	The personnel, equipment, supplies, and other capabilities necessary to perform the response activities identified in a response plan.
Responsible Party (RP)	Any person, owner/operator, or facility that has control over an oil or hazardous substance immediately before entry of the oil or hazardous substance into the atmosphere or in or upon the water, surface, or subsurface land of the state.
Responsible Party Incident Commander (RPIC)	Responsible Party's designated incident commander.
Restoration	The actions involved in returning a site to its former condition.
Rivers and Canals	A body of water confined within the inland area that has a projected depth of 12 feet or less, including the Intracoastal Waterway and other waterways artificially created for navigation.
ROW	Right of Way
RQ	Reportable Quantity
RRT	Regional Response Team
S	

© *The Response Group*

Term	Definition
Safety Officer (SO)	A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations, and for developing measures for ensuring personnel safety. The Safety Officer may have assistants.
SCBA	Self-Contained Breathing Apparatus
SDS	Safety Data Sheet
Section	The organization level having functional responsibility for primary segments of incident operation such as: Operations, Planning, Logistics, Finance/Administration. The Section level is organizationally between Branch and Incident Commander.
Service Branch	A Branch within the Logistics Section responsible for service activities at the incident. Includes the Communications, Medical and Food Units.
Sheen	A very thin layer of oil (less than 0.0001 inches or 0.003 millimeters in thickness) floating on the water surface. Sheen is the most commonly observed form of oil during the later stages of a spill. Depending on thickness, sheens range in color from dull brown for the thickest sheens to rainbows, grays, silvers, and near-transparency in the case of the thinnest sheens.
SOP	Standard Operating Procedure
Ship	Any boat, ship, vessel, barge or other floating craft of any kind.
SI	Surface Impoundment
Single Resource	An individual, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified work supervisor that can be used on an incident.
Site Conditions	Details of the area surrounding the facility, including shoreline descriptions, typical weather conditions, socioeconomic breakdowns, etc.

© *The Response Group*

Term	Definition
Site Safety and Health Plan (SSHP)	Site-specific document required by state and Federal OSHA regulations, in the event of an incident and specified in the Area Contingency Plan. The SSHP, at minimum, addresses, includes, or contains the following elements: health and safety hazard analysis for each site task or operation, comprehensive operations work plan, personnel training requirements, PPE selection criteria, site-specific occupational medical monitoring requirements, air monitoring plan, site control measures, confined space entry procedures (if needed), pre-entry briefing (tailgate meetings, initial and as needed), pre-operations commencement health and safety briefing for all incident participants, and quality assurance of SSHP effectiveness.
Site Security and Control	Steps that must be taken to provide safeguards needed to protect personnel and property, as well as the general public, to ensure an efficient clean-up operation.
SITREP	Situation Report Message
Situation Unit	Functional unit within the Planning Section responsible for collecting, organizing and analyzing incident status information, and for analyzing the situation as it progresses. Reports to the Planning Section Chief.
Source Control	Actions necessary to control the spill source and prevent the continued release of oil or hazardous substance(s) into the environment.
Span of Control	On how many organizational elements may be directly managed by one person. Span of Control may vary from three to seven, and a ratio of one to five reporting elements is recommended.
Spill	In PA, any oil or petroleum product, regulated substance, chemical or waste that is released in any unauthorized manner.
Spill Management Team (SMT)	The personnel required to staff the organization structure identified in a response plan to manage response plan implementation.
Spill Response	All actions taken in responding to spills of oil and hazardous materials including: receiving and making notifications; information gathering and technical advisory phone calls; preparation for and travel to and from spill sites; direction of clean-up activities; damage assessments; report writing, enforcement investigations and actions; cost recovery; and program development.

© *The Response Group*

Term	Definition
Spill Response Personnel	Federal, State, and Local agency, and industry personnel responsible for participating in or otherwise involved in spill response. All spill response personnel will be pre-approved on a list maintained in each region.
SSHP	Site Safety and Health Plan
Staging Area	The location where incident personnel and equipment are staged awaiting tactical assignment.
State On-Scene Coordinator (SOSC)	The pre-designated State On-Scene Coordinator.
STEL	Short-term Exposure Level
Strategic	Strategic elements of incident management are characterized by continuous long-term, high-level planning by organizations headed by elected or other senior officials. These elements involve the adoption of long-range goals and objectives, the setting of priorities; the establishment of budgets and other fiscal decisions, policy development, and the application of measures of performance or effectiveness.
Strategy	The general plan or direction selected to accomplish incident objectives.
Strike Team	A set number of resources of the same kind and type that have an established minimum number of personnel.
Supervisor	The ICS title for individuals responsible for directing the activities of a Division or Group.
Supply Unit	Functional unit within the Support Branch of the Logistics Section responsible for ordering equipment and supplies required for incident operations.
Support Branch	A Branch within the Logistics Section responsible for providing personnel, equipment and supplies to support incident operations. Includes the Supply, Facilities, Ground Support and Vessel Support Units.
T	

© *The Response Group*

Term	Definition
Tabletop Exercise (TTX)	A tabletop exercise is an activity in which key members of the plan holder's staff with emergency management responsibilities are gathered together informally, usually in conference room, to discuss actions to be taken during an oil or hazardous substance spill, based upon the response plan and their standard operating procedures. The primary characteristic is a verbal "walk through" of a response. The tabletop exercise is designed to elicit constructive discussion by the participants, usually without time constraints, as they examine and resolve problems based on the response plan. A tabletop exercise has participants practice problem solving and resolve questions of coordination and assignment of responsibilities in a non-threatening format, under minimum stress.
Tactics	Deploying and directing resources during an incident to accomplish the desired objective.
Task Force	A group of resources with common communications and a leader assembled for a specific mission.
Technical Specialist	Personnel with special skills who can be used anywhere within the ICS organization.
Threat	An indication of possible violence, harm, or danger.
Time Unit	Functional unit within the Finance/Administration Section responsible for recording time for incident personnel and hired equipment.
Tools	Those instruments and capabilities that allow for the professional performance of tasks, such as information systems, agreements, doctrine, capabilities, and legislative authorities.
Toxic Substances	Any substances that have the capacity to produce personal injury or illness to man through ingestion, inhalation or absorption through any body surface.
Transfer	Any movement of oil to, from, or within a vessel by means of pumping, gravitation, or displacement.
TRG/TRP	Tactical Response Guide/ Tactical Response Plan
U	
UEL	Upper Explosive Limit

© *The Response Group*

Term	Definition
Unified Command	The method by which local, state, and federal agencies, on-scene coordinator(s), and the responsible party will work within the Incident Command System to collectively: • Determine their roles and responsibilities for the incident. • Determine their overall objectives for management of an incident. • Select a strategy to achieve agreed-upon objectives. • Deploy resources to achieve agreed-upon objectives.
Unit	The organizational element having functional responsibility for a specific incident planning, logistics, or finance/administration activity.
Unity of Command	The concept by which each person within an organization reports to one and only one designated person. The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective.
UST	Underground Storage Tank
V	
Vessel	Every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, other than a public vessel.
VHF	Very High Frequency
W	
Waste	Oil or contaminated soil, debris, and other substances removed from coastal waters, adjacent water, shorelines, estuaries, tidal flats, beaches, or marshes in response to an unauthorized spill. Waste is any solid, liquid, or other material intended to be discarded or disposed of and generated as a result of an unauthorized spill of oil. Waste does not include substances intended to be recycled if they are in fact recycled within 90 days of generation or are brought to a recycling facility within that time.
Watercourse or Waters	Any lakebed (playa), gully, draw, streambed, wash, arroyo, or natural or man-made channel through which water flows or has flowed.
Waters of the Commonwealth	Any and all rivers, streams, creeks, rivulets, impoundments, ditches, water courses, storm sewers, lakes, dammed water, ponds, springs and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of the Commonwealth of Pennsylvania.

© *The Response Group*

Term	Definition
Waters of the U.S.	Groundwater and surface water including all perennial, intermittent, and ephemeral defined drainages with flowing water present, NPDES discharge water after the Point of Compliance, lakes, reservoirs and wetlands which are not manmade retention ponds used for the treatment of municipal, agricultural or industrial wasters; and all other bodies of surface water, either public or private which are wholly or partially within the boundaries of the state.
Worst Case Discharge	Means in the case of an onshore facility, the largest foreseeable discharge in adverse weather conditions.

© *The Response Group*

COTERRA

Preparedness, Prevention and Contingency (PPC) Plan

PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN

(Control & Disposal and Master Containment plans are incorporated into this Plan)

Version – MBU PPC-004

November 2025

Coterra's 24-Hour Emergency Contact Number: **1-(855)-641-0300** Coterra's Emergency Contact List is included in **Coterra's Emergency Response Plan Portion of the Integrated Contingency Plan**.

Marcellus Business Unit - Susquehanna Office
8207 State Route 29
Montrose, PA 18801
(570) 278-3518

Marcellus Business Unit – Pittsburgh Office
501 Marketplace Avenue, Suite 500
Coraopolis, PA 15108
(412) 249-3850

Table of Contents

1.0 DESCRIPTION OF FACILITY 2
1.1 Description of the Industrial or Commercial Activity 2
1.2 Description of Existing Plans 2
1.3 Material and Waste Inventory 3
1.3.1 Site Development/Construction 3
1.3.2 Drilling 3
1.3.3 Completions (Hydraulic Fracturing) 4
1.3.4 Operations and Fluid Storage 5
1.4 Pollution Incident History 11
2.0 DESCRIPTION OF HOW PLAN IS IMPLEMENTED BY ORGANIZATION 12
3.0 SPILL LEAK PREVENTION AND RESPONSE 13
3.1 Containment Methods (Master Containment Plan) 13
3.1.1 Drilling Containment Systems 13
3.1.2 Hydraulic Fracturing and Fluid Storage Containment Systems 15
3.1.3 Other Typical Site Operations (i.e., drill-out, workovers, well work, plugging) 16
3.1.4 Permanent Production/Facility Operations 17
3.2 Potential Release Scenarios 18
3.2.1 Fluid and chemical releases from fluid transfer lines/hoses/valves/manifolds 18
3.2.2 Fluid and chemical releases from storage tanks 19
3.2.3 Fluid and chemical releases from disconnected fittings 19
3.2.4 Production fluid releases from storage tanks and fluid transfer lines/fittings/manifolds/valves 19
3.2.5 Releases as a result of a Well Control Event (e.g., Fire, Explosion, or Blowout) 20
3.3 Material Compatibility 20
3.4 Inspection and Monitoring Program 20
3.4.1 Drilling, Hydraulic fracturing and Temporary Fluid Storage Operations 20
3.4.2 Production 20
3.4.3 Pressure Barrier Policy 21
3.4.4 Bulk Product Deliveries, Transfers, and Wastewater Removal 21
3.4.5 Erosion and Sedimentation (E&S) Controls 21
3.5 Preventive Maintenance 21
3.6 Housekeeping Program 21
3.7 Security/External Factor Protection 22
3.8 Training Program 22
3.8.1 Contractor Personnel 22
3.8.2 Coterra Operations Personnel 23
4.0 COUNTERMEASURES 24
5.0 EMERGENCY SPILL CONTROL NETWORK 25
6.0 Recycling and Waste Disposal Methods 26
6.1 Typical Wastes and Generated Materials Management 26
6.2 Typical Volumes of Generated Materials 26
6.3 Fluid Recycle/Reuse and Disposal Locations 27
6.4 Disposal and Recycling/Reuse Frequency 27
6.5 Solids Disposal Locations 28
6.6 Transportation of Wastes 28

1.0 DESCRIPTION OF FACILITY

1.1 Description of the Industrial or Commercial Activity

Coterra Energy Inc. (Coterra) intends to install and operate natural gas wells in Northeast Pennsylvania. Coterra is the result of the merger of Cimarex Energy Co. and Cabot Oil & Gas Corporation on October 1, 2021. This Preparedness, Prevention, and Contingency (PPC) Plan addresses processes during site development, gas well drilling, hydraulic fracturing, production, fluid storage, work-over, well plugging and site restoration activities.

1.2 Description of Existing Plans

Coterra's Marcellus Business Unit (MBU) submitted their original PPC and Control and Disposal Plan (C&D Plan) to the Pennsylvania Department of Environmental Protection (PADEP) on September 4, 2008. The plans were approved by PADEP on October 31, 2008. The PPC Plan was updated per PADEP's request on September 24, 2009, and June 29, 2010. A revision to the C&D Plan was completed in February 2011. Pursuant to section 3218.2 of PA House Bill 1950 (Act 13 of 2012), Coterra developed and submitted a Master Containment Plan to the PADEP on October 12, 2012; revised October 18, 2012. Revised in April 2015 to include PPC Plan, the C&D Plan and Master Containment Plan. The 2015 version of the plan was revised incorporating operational updates and required updates per the PADEP Chapter 78a regulatory revisions. The January 2023 version of the plan was updated to include PADEP suggested updates, company name change, operational updates, contact information updates, updates to the format of the plan and the inclusion of the Master Containment Plan and Control & Disposal Plan into the PPC Plan. This 2024 version of the plan incorporates minor updates to include fluid storage associated with PADEP Bureau of Waste Management Permits. The November 2025 version was updated to include PADEP suggested updates, an updated Pressure Barrier Policy, personnel changes and the new Coterra Pittsburgh Office location. The previous version of the plans will remain in effect until updated plans are distributed.

Coterra will require that contractors have PPC and Spill Prevention, Containment, and Countermeasures (SPCC) Plans prior to commencement of work activities at Coterra facilities. Contractor and Coterra SPCC Plans address onsite oil capacities greater than 1,320 gallons and are developed to comply with USEPA regulations (40 CFR 112). SPCC Plans are not incorporated into this plan, however they would be included in Part 4 of the Integrated Contingency Plan (ICP).

The PPC Plan is a portion of the Site-Specific ICP for each site. The ICP consists of the following parts:

- Part 1 – Site Specific Information
- Part 2 – Coterra MBU Emergency Response Plan
- Part 3 – Coterra MBU Preparedness, Prevention and Contingency Plan
- Part 4 – Coterra MBU SPCC Plan (if applicable)

The PPC Plan will be available at the well site during site development, gas well drilling, hydraulic fracturing, production, work-over, well plugging and site restoration activities. Additionally, site specific information is included in the Site-Specific Information part of Coterra's Integrated Contingency Plans as well as within applicable Erosion & Sediment Control Plans; these plans are available electronically at response.coterra.com, at each site and can be provided upon request.

1.3 Material and Waste Inventory (Typical)

Product Safety Data Sheets (SDS) for site development, gas well drilling, hydraulic fracturing, production, work-over, well plugging and site restoration activities are maintained electronically at response.coterra.com, on-site by the Contractor, and/or at the Coterra Company Man's office. Individual contractors will maintain SDS files at the site for applicable materials related to their activities at the well site. SDS files related to Coterra specific activities will be stored electronically at Response.Coterra.com and may be made available at the well site (e.g. mailbox).

The following section summarizes typical materials, chemicals and wastes generated during drilling, hydraulic fracturing, and production/operations. Table 1 identifies, but is not an inclusive list, of the typical materials/chemicals utilized and wastes generated.

1.3.1 Site Development/Construction

***Fuels and Lubricants*:**

During the site development phase of the well installation and site development; fuels and lubricants are utilized by the construction equipment and for power generation. Typical fuels and lubricants onsite include, but are not limited to:

- diesel fuel
- hydraulic oil
- motor oils

Diesel fuel is primarily stored in an aboveground storage tank (AST), typically ranging from 500 to 17,500 gallons in capacity. Used lubricants are temporarily stored onsite before being shipped offsite for disposal/reuse. These lubricants are stored above ground typically in 300-gallon totes or 55-gallon drums.

1.3.2 Drilling

Conductor Hole:

No drilling mud or fluid is used during this drilling process with the rig being a single self-contained piece of mobile equipment. During this phase of drilling, no fluids (other than fresh water) are brought on-site except fuel, via approved refueling service vehicles with automatic shutoff equipment, and neat cement grout used for cementing the annular space of the casing string and/or well plug. The cement grout is either mixed on location or delivered to each site via

Federal DOT approved cement mix transport trucks. Fuel tanks for the drill rig and support vehicles are intrinsic to each vehicle and meet Federal DOT regulations.

***Drill Cuttings*:**
The volume of drill cuttings will be determined on a per well basis (i.e., depth, diameter, etc.). The drill cuttings generated on site are temporarily staged in lined containers on the well site prior to off-site disposal at an approved disposal facility.

***Drilling Muds*:**
The vertical portion of the well is typically drilled using water-based drilling muds (if drilled on fluid) and the horizontal portion of the well is typically drilled using either synthetic oil-based, salt-based or diesel-based drilling mud. These muds are stored on location in tanks during drilling. Drilling Muds are typically reused and mobilized and demobilized with the drilling rig. Once the drilling muds are no longer able to be reused on-site, they are typically disposed off-site at an approved disposal location. There may be some instances where drilling muds are returned to the provider to be reconditioned.

***Fuels and Lubricants*:**
During the drilling phase of the well installation, fuels and lubricants are utilized by the drilling equipment and for power generation. Typical fuels and lubricants onsite include, but are not limited to:

- diesel fuel
- hydraulic oil
- motor oils

Diesel fuel is typically stored in an aboveground storage tank (AST), typically ranging from 500 to 17,500 gallons in capacity. In addition to diesel fuel compressed natural gas (CNG) may be utilized onsite for power generation. CNG will be containerized in DOT approved vessels. Used lubricants are temporarily stored onsite before being shipped offsite for disposal/reuse. These lubricants are stored above ground typically in 300-gallon totes or 55-gallon drums.

1.3.3 Completions (Hydraulic Fracturing)

***Stimulation Fluids*:**
Approximately 350,000 to 550,000 gallons of stimulation fluids (fresh water, stormwater collected from secondary containment and reuse fluids) will be utilized to stimulate each stage during the completion of a well. A typical well may consist of 30 to 110 stages.

***Proppants in Stimulation Fluid*:**
The volume of proppants in frac fluids will be determined on a per well basis. Typical frac fluids may include up to approximately 500,000 pounds of sand per stage during well completions. A typical well may consist of 30 to 110 stages.

***Stimulation Fluid Additives*:**
Frac fluid is anticipated to contain several additives including, but not limited to friction reducer, gel, scale control, hydrochloric acid, biocide, and surfactant. SDS for these materials will be maintained by the individual contractor responsible for the material, at response.coterra.com and will be readily available at the well site. Additional information on stimulation fluid additives used is also posted at www.fracfocus.org.

***Fuels and Lubricants*:**
During the hydraulic fracturing phase of the well installation, fuels and lubricants are utilized by the on-site equipment and for power generation. Typical fuels and lubricants onsite include, but are not limited to:

- diesel fuel
- hydraulic oil
- motor oils

Diesel fuel may be stored in an aboveground storage tank (AST), typically ranging from 500 to 17,500 gallons in capacity. In addition to diesel fuel compressed natural gas (CNG) may be utilized onsite for power generation. CNG will be containerized in DOT approved vessels. Used lubricants are temporarily stored onsite before being shipped offsite for disposal/reuse. These lubricants are stored above ground typically in 300-gallon totes or 55-gallon drums.

Produced (Flowback) Fluids and Wet Sediment/Sludge:
Well flowback operations are typically conducted immediately following well stimulation activities but may be conducted at a later date depending on various well site considerations. The flowback fluids returned from the well bore are comprised of spent stimulation fluids and formation fluid which includes brine and formation materials. Flowback fluids recovered vary from well to well but typically equal approximately 10 percent of stimulation fluid volume used. These fluids are temporarily stored within aboveground tanks on the well pad prior to transport for direct re-use in well development activities at a Coterra or other operator well site, prior to partial evaporation at the generating location, or prior to transport to an off-site facility for beneficial reuse or disposal.

1.3.4 Operations and Fluid Storage

***Production Fluid and Other Waste Fluid*:**
The volume of production fluids and other waste fluids generated per month varies from well to well throughout northeast PA. Fluids will be typically stored in adequately sized produced fluid tanks at the well site prior to either reuse at Coterra or other operator well sites or disposal. The produced fluid tanks are equipped with various types of secondary containment structures. Fluid storage may be permitted via a PADEP Bureau of Waste Management permit to allow centralized storage of fluids at a facility prior to beneficial reuse.

Centralized fluid storage, permitted under the auspices of a Waste Management permit issued by PADEP, may be located at a well site. Specifics regarding volumes and containment structures will be specified within each approved permit.

***Glycol and Methanol*:**
The volumes of glycol and methanol stored at the well site vary depending on the number of gas wells located at the site. Methanol is typically stored in small containers (typically 330-gallons) at each gas well. Glycol is typically located within the gas processing unit (GPU) at each gas well or in separate containers. Glycol may also be stored on location associated with heat trace applications; at which time it will be stored within the heating unit.

***Foamer and Defoamer*:**
The volumes of foamer (a.k.a. soap) and defoamer stored at the well site vary depending on the number of gas wells located at the site and the production status of each well at the site. Foamer and defoamer are typically stored in small containers (typically 330-gallons) at each gas well.

***Well Servicing Fluids (workover fluids)*:**
The volumes of well servicing fluids stored at the well site vary depending on the specific workover activities being conducted. These fluids are typically stored in frac tanks or smaller working tanks prior to use, solidification and/or disposal.

Table 1 – Typical Materials/Chemicals/Waste

Material/ Common Name	Source	Storage Location	Typical Quantity	Management
Diesel Fuel	Site Development, Drilling/Hydraulic fracturing Contractors	Well Site, within individual chemically compatible tanks (primary containment) and impermeable secondary containment (inclusive of approved double walled tanks)	To be determined on a per well basis. Typically, 500-17,500 gallon ASTs.	Stored within individual chemically compatible tanks or the suppliers transport vehicle (primary containment) and impermeable secondary containment (inclusive of approved double walled tanks)
Hydraulic Oil	Site Development, Drilling/Hydraulic fracturing Contractors	Well Site, within individual chemically compatible containers (primary containment) and impermeable secondary containment	To be determined on a per well basis. Typically, 300-gallon totes or 55-gallon drums.	Stored within individual chemically compatible containers (primary containment) and impermeable secondary containment

Table 1 – Typical Materials/Chemicals/Waste

Material/ Common Name	Source	Storage Location	Typical Quantity	Management
Biocide	Drilling/Hydraulic fracturing Contractors	Well Site within chemically compatible containers (primary containment) on impermeable secondary containment	To be determined on a per well basis. Typically stored in ISO tankers.	Stored in chemically compatible containers (primary containment) on impermeable secondary containment
Corrosion Inhibitor				
Iron Control				
Friction Reducer				
Hydrochloric Acid				
Sand (proppant)	Drilling/Hydraulic fracturing Contractors	Well site	Sand boxes/Silo	Stored in containers
Drilling Muds	Used during both vertical and horizontal drilling.	Well Site, within individual chemically compatible tanks (primary containment) and impermeable secondary containment	To be determined on a per well basis. Typical range of 2,000 to 2,800 bbls.	Stored within individual chemically compatible tanks (primary containment) and impermeable secondary containment. Spent drilling muds are typically disposed of at an approved disposal facility.

Table 1 – Typical Materials/Chemicals/Waste

Material/ Common Name	Source	Storage Location	Typical Quantity	Management
Drill Cuttings	Generated during well drilling and installation.	Temporally stored in lined containers on the well site prior to off-site disposal at an approved disposal facility.	To be determined on a per well basis. 1,000 to 3,000 tons per well (dependent of well depth/length)	Containers utilized for transportation and staging are lined to prevent leakage from containers. Stored within secondary containment.
Stimulation Fluids	Approved freshwater withdrawals, containment stormwater and produced fluid	Well Site, within individual chemically compatible tanks (primary containment) and impermeable secondary containment	Typically, 350,000 to 550,000 gallons per stage. Approx. 230-110 stages per well.	Reused to stimulate subsequent wells or removed for off-site management at an approved facility. Stored within secondary containment.
Produced (Flowback) Fluids and Wet Sediment / Sludge	Flowback of wells following stimulation	Well Site, within individual chemically compatible tanks (primary containment) and impermeable chemically compatible secondary containment	Dependent on well – typically 10% of stimulation fluid used.	Stored onsite prior to reuse at Coterra or other operator well sites, off-site treatment for reuse or disposal at an approved disposal facility. Stored within secondary containment.
Production Fluid	Production activities.	To be determined on a per well basis. Minimally, will be stored in chemically compatible tanks (primary containment) with either double walled construction or chemically compatible secondary containment.	Varies on a per well basis. Typically stored in 100-500 barrel ASTs/frac tanks.	Typically stored onsite prior to off-site treatment for reuse or disposal at an approved disposal facility. Stored within secondary containment. May be stored in accordance with Waste Management Permit.

Table 1 – Typical Materials/Chemicals/Waste

Material/ Common Name	Source	Storage Location	Typical Quantity	Management
Methanol	Production activities.	To be determined on a per well basis.	Typically stored in 330-gallon containers at each well.	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Glycol	Production activities.	Typically contained within the Gas Processing Units or heating devices on the well site or in storage containers.	Varies on a per well basis (based on size and number of GPUs).	Stored within the gas processing units or AST according to the manufacturer's specifications.
Well Servicing Fluids	Well maintenance.	Products are not anticipated to be stored on-site; products to be temporarily utilized by contractors and immediately removed. If stored onsite they will be on the Well Site, within individual chemical containers (primary containment) and impermeable secondary containment.	To be determined on a per well basis.	To be determined on a per well basis. Stored within secondary containment.
Foamer	Production Activities	Typically stored in 330-gallon containers at each well.	To be determined on a per well basis.	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Defoamer	Production Activities	Typically stored in 330-gallon containers at each well.	To be determined on a per well basis.	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Compressor engine oil (if compressor is present)	Production Activities	Inside of or near the compressor building	Typically stored in 500 gallon container	Stored within individual chemically compatible drums or tanks and impermeable secondary containment

Table 1 – Typical Materials/Chemicals/Waste

Material/ Common Name	Source	Storage Location	Typical Quantity	Management
Compressor glycol (if compressor is present)	Production Activities	Inside of or near the compressor building	Typically stored in 500 gallon container	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Compressor lube oil (if compressor is present)	Production Activities	Inside of or near the compressor building	Typically stored in 500 gallon container	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Compressor waste/used lube oil (if compressor is present)	Production Activities	Inside of or near the compressor building	Typically stored in 500 gallon container	Stored within individual chemically compatible drums or tanks and impermeable secondary containment
Used Oil	Site Development, Drilling/Hydraulic fracturing Contractors	Well Site, in compatible containers (primary containment) within individual secondary containment	To be determined on a per well basis. Typically, 300-gallon totes or 55-gallon drums.	Removed for off-site management and disposal at an approved disposal facility. Stored within secondary containment.
General Trash (Plant Trash)	Site Development, Drilling/Hydraulic fracturing and Operations Contractors	55-gallon drums or cubic yard dumpsters.	Several 55 gallon drums or cubic yard dumpsters at any one time	Removed for off-site disposal at an approved disposal facility.
Clearing and Grubbing Waste	Site Development Contractors	In any open area off the well site	Varies by site	May be chipped and used as mulch or removed for off-site disposal at an approved disposal facility.
Clean-up materials	Unauthorized release (e.g., spills, leaks)	Well Site, within secondary containment	To be determined based on size of release	Removed for off-site management and disposal at an approved disposal facility. Stored within secondary containment.

Note that on-site mobile fueling is conducted by separate subcontractors of the Site Development, Drilling, and Hydraulic fracturing Contractor.

1.4 Pollution Incident History

Releases are reported and remediated in accordance with applicable federal and state requirements.

In the event of an incident, Coterra will review the events leading to the incident and the incident responses to identify areas for pollution prevention procedure improvements. Following the review, the Plan and employee training will be updated if necessary.

Coterra maintains a pollution history log that is regularly submitted to the department with permit packages, this pollution history log can be provided to the department upon request. If applicable, a listing of historical site-specific releases (*Site-Specific Release Incident Summary Table)* is included in Part 1 of Coterra's ICP.

2.0 DESCRIPTION OF HOW PLAN IS IMPLEMENTED BY ORGANIZATION

Coterra MBU's Environmental Health and Safety (EHS) group is responsible for the development, implementation and maintenance of this Plan.

Refer to Coterra's Master Emergency Response Plan for specific details.

3.0 SPILL LEAK PREVENTION AND RESPONSE

3.1 Containment Methods (Master Containment Plan)

3.1.1 Drilling Containment Systems

At each unconventional well site, multiple layers of containment will be implemented to prevent the uncontrolled discharge of pollutional substances. These may include all or a combination of the following:

- Earthen Berms
- Secondary containment liner(s)
- Double walled tanks
- Portable secondary containment structures
- Tertiary containment structures

Depending on the well pad design, an earthen berm may be constructed minimally around the three hydraulically downgradient sides of the well pad. In these cases, the berm will be constructed to limit the discharge of any material off the well pad surface and prevent the uncontrolled discharge to the surrounding area or nearby water features.

Drilling activities are conducted in two stages, consisting of initially installing a shallow conductor pipe to provide wellbore stability followed by the actual gas wellbore (inclusive of necessary surface and intermediate bores). These are conducted by different techniques, requiring differing levels of containment protection. These are described in the following sections.

Refer to Attachment 1 – Secondary Containment Typical Minimum Requirements for specifics regarding Coterra's minimum best practices/procedures related to secondary containment installations. Note that additional measures may be implemented from time to time on a site specific basis.

<u>Conductor Hole</u>

The shallow conductor pipe is typically installed using traditional air rotary or auger type rigs (spud rig). No drilling mud or fluid is used during this drilling process with the rig being a single self-contained piece of mobile equipment. Support equipment to carry auger flights and bits are likewise self-contained mobile equipment. During this phase of drilling, no fluids (other than fresh water) are brought on-site except fuel, via approved refueling service vehicles with automatic shutoff equipment, and neat cement grout used for cementing the annular space of the casing string and/or well plug. The cement grout is either mixed on location or delivered to each site via Federal DOT approved cement mix transport trucks. Fuel tanks for the drill rig and support vehicles are intrinsic to each vehicle and meet Federal DOT regulations. As such, no secondary containment measures beyond the well pad itself are necessary to prevent uncontrolled releases. While no additional fluids are brought to the site during this phase of

operation, as an additional measure, impermeable liner may be placed beneath the equipment to contain any incidental leaks that may occur. Conductor cuttings material generated are either beneficially reused at the site via OG0071 approval from PADEP (OG0071A approval number 1288116) or in the event they cannot be reused are disposed off-site at an approved disposal facility.

Gas Well Drilling Operations

Drilling of the subsequent casing runs and production well bore is performed using a drilling platform type rig. At each well location, prior to moving any equipment or materials related to this phase of drilling, a secondary containment structure, meeting the requirements set forth in PA Code 25 Chapter 78a, will be constructed on the well pad surface to form an impermeable barrier (secondary containment may consist of multiple layers of high-density polyethylene (HDPE)/reinforced polyethylene (RPE) in combination with felt). Refer to the site-specific typical drilling site layout figure in Part 1 of the ICP for the locations of primary and secondary containment structures. Installers of secondary containment will be knowledgeable of and trained in the proper installation of these materials. For all chemicals and additives used for the drilling process, containment will be compatible and sufficient to prevent uncontrolled releases from reaching ground surface. When properly installed, the permeability of the containment will be less than 1×10^{-10} cm/sec. The edges of the containment will be bermed to contain 110 percent of the largest vessel contained on the pad. All well drilling additives and chemicals necessary to perform the well drilling activities will be placed within the secondary containment on the well pad. Additionally, fluid transfer piping, pumps and equipment in use to support the well drilling, will be contained within secondary containment.

For wells where non-fresh water-based mud is used, the mud tanks will be placed within a secondary containment system. This containment structure will similarly consist of containment within a bermed enclosure. The enclosure will be capable of containing 110 percent of the largest tank within containment.

Fuel tanks not attached to, or part of mobile equipment will have integral secondary containment consisting of double walled construction. The tanks will have a means to access the interstitial space to evaluate if the internal tank has been compromised.

Portable equipment staged outside the secondary containment liner (e.g., light towers) will be placed in portable secondary containment structures. The secondary containment will be able to contain 110 percent of any liquid tank on the respective equipment.

Refer to Attachment 1 – Secondary Containment Typical Minimum Requirements for specifics regarding Coterra's minimum best practices/procedures related to secondary containment installations. Note that additional measures may be implemented from time to time on a site specific basis.

3.1.2 Hydraulic Fracturing and Fluid Storage Containment Systems

At each well site, multiple layers of containment will be implemented to prevent the uncontrolled discharge of pollutional substances. These may include all or a combination of the following:

- Earthen Berms
- Secondary containment liner(s)
- Double walled tanks
- Portable secondary containment structures
- Tertiary containment structures

Depending on the well pad design, an earthen berm may be constructed minimally around the three hydraulically downgradient sides of the well pad. In these cases, the berm will be constructed to limit the discharge of any material off the well pad surface and prevent the uncontrolled discharge to the surrounding area or nearby water features. At each well location, prior to moving any equipment or materials, a secondary containment structure comprised of containment will be constructed on the well pad surface and fused together to form an impermeable barrier.

For all chemicals and additives used for the stimulation process, containment is chemically compatible and sufficient to prevent uncontrolled releases from reaching ground surface. The edges of the containment will be bermed to contain 110 percent of the largest vessel contained on the pad. All well stimulation additives and chemicals necessary to perform the well stimulation activities will be placed within the secondary containment on the well pad. Additionally, fluid transfer lines off containment (i.e. well development pipelines - fused HDPE water lines) will pressure tested to 125% of the line's operating pressure. The contractor performing the fluid transfer will be required to perform daily inspections of the line to ensure the line remains in satisfactory condition. All pumps and equipment used for well stimulation, excluding those restricted to containing fresh water, will be placed within a secondary containment structure. Following the well stimulation, vessels and tanks may be used to contain produced fluids will be located within secondary containment.

Fuel tanks not attached to, or part of mobile equipment will have integral secondary containment consisting of double walled construction. The tanks will have a means to access the interstitial space to evaluate if the internal tank has been compromised.

Portable equipment staged outside the secondary containment liner (e.g., light towers) will be placed in portable secondary containment structures. The secondary containment will be able to contain 110 percent of any liquid tank on the respective equipment.

For acid tubes and chemical blender tanks, tertiary containment in the form of portable containment structures (i.e., duck ponds) will be placed under these vehicles and/or vessels in addition to the secondary containment structures described above.

For the hydraulic fracturing activities, reuse or recycled water (i.e., produced fluid, stormwater water from other well sites or fluids from treatment facilities) may be used with fresh water to make up the stimulation fluid. Tanks containing reuse water will be labeled and will typically be placed together such that secondary containment can be constructed under these tanks consistent with the procedure described in the preceding section for well site activities. Secondary containment underneath the tanks will be capable of holding 110 percent of the volume of the largest vessel used. Secondary containment will not be necessary for freshwater tanks. Non-freshwater fluids (i.e., produced fluid, impacted stormwater) are typically stored in 500-bbl frac tanks, in the event that non-freshwater is stored in tanks with capacity exceeding 20,000-gallons Coterra will acquire PADEP approval according to 25 Pa. Code Section 78.a.56(a)(2) via submittal of a Request For Approval of Alternative Waste Management Practices.

Refer to Attachment 1 – Secondary Containment Typical Minimum Requirements for specifics regarding Coterra's minimum best practices/procedures related to secondary containment installations. Note that additional measures may be implemented from time to time on a site specific basis.

Additional information on stimulation fluid additives used is also posted at www.fracfocus.org.

3.1.3 Other Typical Site Operations (i.e., drill-out, workovers, well work, plugging)

At each well site, multiple layers of containment will be implemented to prevent the uncontrolled discharge of pollutional substances. These may include all or a combination of the following:

- Earthen Berms
- Secondary containment liner(s)
- Double walled tanks
- Portable secondary containment structures
- Tertiary containment structures

Depending on the well pad design, an earthen berm may be constructed minimally around the three hydraulically downgradient sides of the well pad. In these cases, the berm will be constructed to limit the discharge of any material off the well pad surface and prevent the uncontrolled discharge to the surrounding area or nearby water features. At each well location, prior to moving any equipment or materials, a secondary containment structure comprised of containment will be constructed on the well pad surface and fused together to form an impermeable barrier.

For all chemicals and fluids, containment is chemically compatible and sufficient to prevent uncontrolled releases from reaching ground surface. The edges of the containment will be bermed to contain 110 percent of the largest vessel contained on the pad. All additives and chemicals necessary to perform activities will be placed within the secondary containment on the well pad. Additionally, fluid transfer lines off containment (i.e. well development pipelines - fused HDPE water lines) will pressure tested to 125% of the line's operating pressure. The contractor performing the fluid transfer will be required to perform daily inspections of the line to ensure the line remains in satisfactory condition. All pumps and equipment used, excluding those restricted to containing fresh water, will be placed within a secondary containment structure.

Fuel tanks not attached to, or part of mobile equipment will have integral secondary containment consisting of double walled construction. The tanks will have a means to access the interstitial space to evaluate if the internal tank has been compromised.

Portable equipment staged outside the secondary containment liner (e.g., light towers) will be placed in portable secondary containment structures. The secondary containment will be able to contain 110 percent of any liquid tank on the respective equipment.

Refer to Attachment 1 – Secondary Containment Typical Minimum Requirements for specifics regarding Coterra's minimum best practices/procedures related to secondary containment installations. Note that additional measures may be implemented from time to time on a site specific basis.

3.1.4 Permanent Production/Facility Operations

At each well site, multiple layers of containment will be implemented to prevent the uncontrolled discharge of pollutional substances. These may include all or a combination of the following:

- Earthen Berms
- Secondary containment liner(s)
- Double walled tanks
- Portable secondary containment structures
- Tertiary containment structures

Depending on the well pad design, an earthen berm may be constructed minimally around the three hydraulically downgradient sides of the well pad. In these cases, the berm will be constructed to limit the discharge of any material off the well pad surface and prevent the uncontrolled discharge to the surrounding area or nearby water features.

All permanent production/facility related equipment (i.e., produced fluid storage vessels, wellhead compression units) will have chemically compatible secondary containment capable of containing 110 percent of any liquid/regulated material on the respective equipment.

Fuel tanks not attached to, or part of mobile equipment will have integral secondary containment consisting of double walled construction. The tanks will have a means to access the interstitial space to evaluate if the internal tank has been compromised.

Portable equipment staged outside the secondary containment liner (e.g., light towers) will be placed in portable secondary containment structures. The secondary containment will be able to contain 110 percent of any liquid tank on the respective equipment.

Additional pollution prevention practices typically include:

- Continuous drilling to eliminate the need to remove (i.e., blowout) water accumulated in the well bore during downtime in the drilling process
- Closed-loop drilling system
- Use of efficient drilling and stimulation fluids to reduce fluid requirements
- Installation of automated controls and level alarms on fluid storage tanks
- See SPCC Plans for additional spill prevention and control measures for site with wellhead compression units

3.2 Potential Release Scenarios

Potential release scenarios and release response details at Coterra well sites could occur from equipment failure, accident, or human error and are outlined below.

3.2.1 Fluid and chemical releases from fluid transfer lines/hoses/valves/manifolds

- Hoses/valves/manifolds will be inspected prior to each use for obvious defects. They will be kept in good condition and will be removed from service and replaced if leakage is identified.
- Equipment will be maintained according to manufacturer's specifications in effort to minimize the potential for releases.
- The person managing the fluid transfer will stay within the immediate vicinity of the transfer equipment and controls during the transfer.
- If a release occurs, the person managing the fluid transfer will immediately stop the transfer of additional fluid and initiate the procedures detailed in the Coterra Emergency Response Plan.

3.2.2 Fluid and chemical releases from storage tanks

- Containment of releases is provided by containment surrounding storage tanks. Any release will be cleaned immediately after locating the source of the release and taking steps to stop the flow. Depending on the volume of the release, appropriate remediation equipment will be utilized to recover the liquid. Efforts will be made to minimize the extent of the release, thereby reducing the amount of impacted soil.
- The use of equipment (normally present during drilling and hydraulic fracturing operations) to create emergency containment berms down gradient of the containment breach/release may be required in addition to the use of commonly available spill absorbent materials in an effort to eliminate migration off the site or to surface waters. The media impacted by the release will be evaluated and remediated in accordance with applicable regulations or as approved by the PADEP. Any contaminated media that requires offsite disposal will be adequately disposed.

3.2.3 Fluid and chemical releases from disconnected fittings

To reduce the likelihood of a release from a disconnected fitting, fluids will be transferred as follows:

- Transport trucks will load directly from the storage tanks.
- Hoses/manifolds/valves will be inspected prior to each use for obvious defects. The hoses will be kept in good condition and will be removed from service and replaced if leakage is identified.
- The person managing the fluid transfer will stay within the immediate vicinity of the transfer equipment and controls during the transfer.
- Following fluid transfer, all hoses and connections will be drained.
- In the event, a release does occur; the release will be immediately contained by the person managing the transfer. In the unlikely event a release from a disconnected fitting exceeds the ability of the person managing the transfer will follow procedures detailed in the Coterra Emergency Response Plan.

3.2.4 Production fluid releases from storage tanks and fluid transfer lines/fittings/manifolds/valves

- In the event a release occurs, the release will be immediately contained by the person managing the transfer. In the unlikely event a release from a disconnected fitting exceeds the ability of the person managing the transfer will follow procedures detailed in the Coterra Emergency Response Plan.
- The release will be reported to the department in accordance with the current spill policy.

3.2.5 Releases as a result of a Well Control Event (e.g., Fire, Explosion, or Blowout)

- In the event of a fire, explosion, or blowout; an emergency well control contractor may be required to assist with emergency response activities. Refer to the Coterra Emergency Response Plan for details regarding response to a well control incident.
- Blow-Out Preventers are in place, tested and operational whenever drilling into oil and gas bearing zones at depths below the surface casing.

3.3 Material Compatibility

All storage tanks and flow through process equipment are constructed of materials that are, according to manufacturer's specifications, compatible with the material they contain and the temperature and pressure conditions of storage/flow. For all chemicals and additives containment shall be compatible and sufficient to prevent uncontrolled releases from reaching ground surface. Management practices associated with typical materials, chemicals and wastes generated during drilling, hydraulic fracturing, and production/operations are included in Table 1.

Refer to Attachment 1 – Secondary Containment Typical Minimum Requirements for specifics regarding Coterra's minimum best practices/procedures related to secondary containment installations. Note that additional measures may be implemented from time to time on a site specific basis.

3.4 Inspection and Monitoring Program

3.4.1 Drilling, Hydraulic fracturing and Temporary Fluid Storage Operations

Typical inspections, conducted by a Coterra representative prior to or during each shift during drilling and hydraulic fracturing, will assess the conditions of tanks, all chemical storage areas, waste oil storage, and storm water controls at the well location, as well as transfer lines/hoses/valves/manifolds and collection/gathering lines. At minimum, secondary containment structures will be inspected weekly and well development pipelines will be inspected daily, when in-use. The records will be maintained by Coterra with the facility's usual and customary business records, including electronic format. Observed deficiencies will be documented and remedied in a timely manner.

3.4.2 Production

Inspections will be conducted periodically to ensure the proper operation of the equipment and to minimize the potential of a release. Produced fluid storage tanks and the containment associated with those tanks will be inspected, at minimum, monthly. Annual inspections will be documented, and the records will be maintained for, at minimum, three (3) years. The records will be maintained by Coterra with the facility's usual and customary business records, including electronic format.

3.4.3 Pressure Barrier Policy

Coterra's Pressure Barrier Policy has been prepared per the Chapter 78a regulations and the PADEP technical guidance document titled "*Guidelines for Development of Operator Pressure Barrier Policy for Unconventional Wells*" (Document Number: 800-0810-003). A copy of the Pressure Barrier Policy is included in Attachment 2 of this Plan.

The Pressure Barrier Policy provides details regarding the types of activities requiring pressure barriers encountered during drilling, completion, alteration, plugging, workover, and maintenance/repair activities within Coterra's Marcellus Business Unit in Pennsylvania. The policy further identifies the types of Pressure Barriers required for each activity.

3.4.4 Bulk Product Deliveries, Transfers, and Wastewater Removal

All bulk product deliveries, transfers, and wastewater removal will be monitored by Coterra or designated contractor to ensure proper transfers and that accidental releases, if any, have an immediate and appropriate response.

3.4.5 Erosion and Sedimentation (E&S) Controls

A Coterra representative or designated contractor will inspect all E&S devices weekly at a minimum and after each stormwater event, noting when maintenance (e.g., cleanout, repair, replacement, regarding, stabilization, etc.) is required and/or specific deficiencies exist. Any device found to be clogged, damaged, half-full of silt or not fully operational will be cleaned of all debris. Best Management Practices (BMPs) will be repaired or replaced (as necessary) to ensure effective and efficient operation. Wherever possible, re-useable materials will be segregated from waste material and stored separately for recycling/reuse. Material designated as waste will be disposed of at an approved facility. Stormwater event inspections and weekly inspections will be documented in a report summarizing each inspection and all BMP repair, or replacement and maintenance activities.

3.5 Preventive Maintenance

During drilling and hydraulic fracturing activities, daily inspections are conducted by Coterra or its designated contractors. During production, the wells and associated equipment are inspected on a regular basis.

3.6 Housekeeping Program

Chemicals, equipment, and supplies on site will be kept neat and orderly. Coterra requires Contractors to keep chemical handling and storage activities on the well site, where feasible. Contractors are required to provide additional secondary containment for any chemical/petroleum handling activity that occurs on or off the well site. All pumps and equipment utilized, excluding those restricted to containing fresh water only, will be contained within a secondary containment structure.

Secondary containment structures at the well site are designed to contain stormwater rather than allowing it to discharge with any potential pollutants. Stormwater which accumulates in secondary containment may be discharged to the environment if it is determined to be unimpacted according to Coterra's "***Standard Operating Procedure Secondary Containment Dewatering***" (Attachment 3). Stormwater (impacted or unimpacted) which accumulates in secondary containment may also be reused in Coterra's operations. If unable to be reused, impacted stormwater may be sent to a permitted facility.

As mentioned above, secondary containment will be inspected and adequately repaired as soon as practical.

Efforts will be made to maintain the well site free of residual waste. Residual waste (including plant trash and debris) will be collected and removed from the well site in a timely manner. When required, all residual waste will be disposed off-site at an approved disposal facility.

Small spills, both on and off containment, will be promptly cleaned up and the recovered materials will be properly disposed at a permitted disposal facility.

Equipment utilized during spill clean-ups will be adequately decontaminated at the site. The extent of decontamination will depend on the type of material released and the degree to which it is impacted.

3.7 Security/External Factor Protection

Twenty-four-hour staffing during well drilling and hydraulic fracturing activities will be employed to prevent accidental or intentional entry to the well site. During the production phase, well sites contain signage, locked gates, and engineered devices on production equipment to provide protection from unauthorized access in accordance with Chapter 78a.57.

Power outages, floods, snowstorms may temporarily impact operations but should not result in an incident that could have an adverse effect on public health, safety or the environment nor do they affect the spill prevention measures detailed in this plan.

Through Coterra's network of local 3rd-party contractors, Coterra has access to portable power solutions that can be strategically deployed during power outages to maintain operation of essential equipment.

Additional details regarding responses to natural disasters are included in Coterra's Emergency Response Plan.

3.8 Training Program

3.8.1 Contractor Personnel

Coterra requires that contractors have necessary PPC and SPCC Plans, including training requirements, in place before work begins. Coterra will require that, at minimum, all contractor personnel be trained and will comply with the requirements in this PPC Plan and the Emergency Response Plan.

3.8.2 Coterra Operations Personnel

At least once a year, personnel are given refresher training to review spill prevention procedures. The refresher training also highlights and describes relevant discharges/failures, malfunctioning components, and updated precautionary measures.

All new personnel will be trained on the contents of this Plan and the Emergency Response Plan prior to the initiation of any activity covered by the plans.

4.0 COUNTERMEASURES

Refer to Coterra's Master Emergency Response Plan for specific response procedures.

5.0 EMERGENCY SPILL CONTROL NETWORK

Refer to Coterra's Master Emergency Response Plan for specific response procedures.

Part 1 of Coterra's Incident Contingency Plan (ICP) includes a figure depicting surface waters located 20 miles downstream of the well site. Specific locations of these sources are not provided in the figure, as such information is not publicly available and/or considered "sensitive" information. Coterra maintains, as part of its internal records, a contact list of surface water users situated 20 miles downstream of each well site. In the event of an incident, this information is readily accessible to ensure timely notification of affected surface water users, as appropriate.

6.0 Recycling and Waste Disposal Methods

6.1 Typical Wastes and Generated Materials Management

During drilling activities Coterra employs a "closed-loop" drilling system to manage the drilling mud and cuttings. The closed loop system uses mechanical (shakers and screens) to separate liquids from solids. In the closed-loop system, drill cuttings are stored in a compatible container onsite until disposed at an approved waste disposal facility. During drilling operations, the drilling fluid/mud may be re-circulated, cleaned, and re-used from well site to well site prior to eventual disposal. Coterra receives approval via a *Request for Approval of Approved Alternative Waste Management Practices* (5500-PM-OOGM007) for the following activities for each drilling site:

1. Management of conductor cuttings (OG0071A approval number 1288116)
2. Drill cuttings solidification (OG0071A approval number 1382990)

Hydraulic fracturing activities utilize stimulation fluids (typically 350,000 to 500,000 gallons per stage) stored in tanks at the well site. Following hydraulic fracturing of the wells, produced water will be collected in tanks for reuse in Coterra or other operators well development activities or it will be sent to a permitted beneficial reuse facility or disposal facility. Typically, only 10 percent of the stimulation fluids are initially recovered following hydraulic fracturing of a well. Recycling, reuse and/or disposal of production fluids are anticipated to be on-going over the life of the well. Note that Coterra may manage fluids via alternative methods at the generation location or reuse location under the auspices of an approved Request For Approval of Alternative Waste Management Practices from the PADEP.

If an unintended release of regulated materials occurs at a well site, all material and waste will be recovered/containerized, characterized, labeled and transported off-site for disposal at an approved disposal facility.

The disposal of any waste material generated on site by contractors (i.e., preventative maintenance waste) is the responsibility of the contractor generating the waste. Contractor is responsible to manage and dispose such waste material per applicable regulations.

6.2 Typical Volumes of Generated Materials

The current volume of drill cuttings generated per well is typically 1,000 to 3,000 tons.

Coterra anticipates that initially fluids recovered vary from well to well but typically equal approximately 10 percent of stimulation fluid volume used.

During the production phase typically 100 to 500 barrels of production fluids may be stored on-site prior to removal for off-site beneficial reuse or disposal.

6.3 Fluid Recycle/Reuse and Disposal Locations

Coterra will either directly reuse recovered fluids (i.e., produced fluids, workover fluids, storm water) in Coterra or other operators well development activities, send fluids to a permitted centralized treatment facility for beneficial reuse or send fluids to a permitted disposal location. Coterra utilizes the following approved facilities; however other facilities/contractors may be utilized upon approval by Coterra:

Recycle/Reuse Facilities:

Coterra - A&M Hibbard Centralized Treatment Facility (including the beneficial reuse pug mill system for high solids material)
7111 S.R. 29
Springville, PA 18844
Contact: Luke Marsh
Phone: (412) 249-4202

C2G Shaskas Facility
120 Hart Road
Montrose, PA 18801
Contact: Jesse Bonnice
Phone: (570) 954-5458

Disposal Facilities:

Deep Rock - UIC Well Facility
20225 State Route 7
Marietta, OH
Contact: Dean Grosse
Phone: (740) 885-2111

Kendra - Zelman 1 UIC Well Facility
1105 Tower Lane
Dubois, PA 15801
Contact: John McCollums
Phone: (724) 971-0788

6.4 Disposal and Recycling/Reuse Frequency

Disposal and recycling/reuse options are variable depending on Coterra's well development activities at the time of waste generation.

6.5 Solids Disposal Locations

Coterra has identified the following approved solid waste disposal facilities; however other facilities/contractors may be utilized upon approval by Coterra:

Keystone Sanitary Landfill
249 Dunham Drive
Dunmore, PA 18512
Contact: Jim Eiden
Phone: (570) 343-5782

Alliance Landfill (Waste Management)
398 S. Keyser Ave.
Taylor, PA 18517
Contact: Bruce Whetstone
Phone: (800) 869-5566

Susquehanna Transfer, LLC
294 Ellsworth Drive
Montrose, PA 18801
Contact: Adam Diaz
Phone: (570) 432-0109

Waste Control Specialists LLC
9998 West State Hwy 176
Andrews, Texas 79714
Contact: Jay Britten
Phone: (432) 525-8612

Waste Recovery Solutions (Covanta)
343 King St
Myerstown, PA 17067
Contact: Jimmy Fulk
Phone: (717) 866-9955

6.6 Transportation of Wastes

The following transporters may be retained to haul waste material; however other contractors may be utilized upon approval by Coterra:

Coterra Trucking
8283 State Route 29
Montrose, PA 18801
Contact: Rob Wagner

(570) 278-7118 (24 Hour)

Diaz Disposal
7686 State Route 167
Kingsley, PA 18826
Contact: Randy St. Clair
Phone: (570) 396-1918

RLE Enterprises
457 N Main St.
Moscow, PA 18444
Contact: Johnny Gentile
Phone: 570-836-5496

Susquehanna Gas Field Services LLC (SGFS)
Frantz Road
PO Box 127
Meshoppen, PA 18630
Contact: Chris McGavin
Phone: (570) 833-0106

Holcombe Energy
185 Henry Holod Rd
Factoryville, PA 18419
Phone: 570-836-8050

Mountain Energy Services
205 W. Tioga Street
Tunkhannock, PA 18657
Contact: Mandy Wilmot
Phone: (570) 878-2891

Resource Environmental Management, Inc.
36 Taylor Lane
Montrose, PA 18801
Contact: Cole Mensch
Phone: (570) 278-8392

Midosa LTD.
3238 Springfield Road
Columbia Cross Roads, PA 16914
Phone: (570) 529-2262

Costy's Energy Services
244 Grey Fox Road
Muncy, PA 17754
Phone: (570) 662-2752

All waste materials will be transported in accordance with all applicable state and federal Department of Transportation (DOT) regulations.

Waste transporters will maintain required records during transport. These records will be available to the PADEP upon request and are maintained for a minimum of five years.

COTERRA

ATTACHMENT 1 –

Secondary Containment Typical Minimum Requirements

COTERRA

Typical Minimum Requirements

Secondary Containment – Installation

Marcellus Business Unit (MBU)

September 2025

Typical Minimum Requirements

Secondary Containment – Installation

Drilling, Completions, Production, Workover, Plugging Operations

Table of Contents

1.0 About this Document 2

2.0 Regulatory Overview 2

3.0 Installation & Testing - Minimum Standards 4

4.0 Equipment & Tank Setting 8

5.0 Documentation 9

Attachment A – AQUAMASTER Installation Guide 9

Note the attached Installation Guide is provided by Aquamaster and may contain manufacturer specific information. Please refer to the manufacturer's specific installation guide for product specific information.

1.0 About this Document

Purpose

This Typical Minimum Requirements document provides general guidance for Coterra's typical minimum best practices/procedures related to secondary containment installations associated with drilling, completion, alteration, plugging, workover, and maintenance/repair activities within Coterra's Marcellus Business Unit (MBU) in Pennsylvania. Secondary containment associated with equipment related to permanent facilities (i.e. produced fluid storage tanks, GPUs, wellhead compressors, etc.) may utilize alternative practices, not included in this document, that meet and/or exceed that regulatory standards in 25 Pa. Code Chapter 78a.

The document identifies the minimum requirements related to the installation of secondary containment, deviations from this document should be discussed and approved by the following team.

- D&C
- EHS
- Production/Facilities

Scope

This document is intended for all Coterra staff and/or contractors responsible for installing secondary containment in the MBU associated with drilling, completion, alteration, plugging, workover, and maintenance/repair activities. Note that portions of this document are only applicable to temporary produced/reuse fluid storage and may not be necessary for all secondary containment installations (e.g., workover operations and other short-term operations with minimal fluid storage volumes).

Secondary Containment (25 Pa Code 78a definition)

A physical barrier specifically designed to minimize releases into the environment of regulated substances from primary containment or well development pipelines, to prevent comingling of incompatible released regulated substances and to minimize the area of potential contamination, to the extent practicable.

2.0 Regulatory Overview

Overview

The document has been prepared in accordance with the requirements in 25 Pa. Code Chapter 78a, manufacturer installation guidelines and industry best practices.

Regulatory Requirement	In accordance with 25 Pa. Code § 78a.55, 78a.56, 78a.57, 78a.64, and 78a.64a related to secondary containment requirements. All regulated substances including solid wastes (e.g., produced fluid, petroleum products, chemicals, drill cuttings, etc.) must have secondary containment. This does not include fuel stored in equipment or vehicle fuel tanks unless equipment or vehicle is being refueled at site. Secondary containment must meet all the following: (1) Secondary containment must be used on the well site when any equipment that will be used for any phase of drilling, casing, cementing, hydraulic fracturing or flowback operations is brought onto a well site and when regulated substances including drilling mud, drilling mud additives, hydraulic oil, diesel fuel, hydraulic fracturing additives or flowback are brought onto or generated at the well site. (2) Secondary containment must have a coefficient of permeability no greater than 1 x 10-10 cm/sec. (3) The physical and chemical characteristics of all liners, coatings or other materials used as part of the secondary containment, that could potentially come into direct contact with regulated substances being stored, must be compatible with the regulated substance and be resistant to physical, chemical and other failure during handling, installation and use. Liner compatibility must satisfy compatibility test methods as approved by the Department. Methods of secondary containment open to the atmosphere must have storage capacity sufficient to hold the volume of the largest single aboveground primary containment, plus an additional 10% of volume for precipitation. Using double walled tanks capable of detecting a leak in the primary containment fulfills the requirements in this subsection. Tanks that are manifolded together shall be designed in a manner to prevent the uncontrolled discharge of multiple manifolded tanks. All secondary containment shall be inspected weekly to ensure integrity. If the secondary containment is damaged or compromised, the well operator shall repair the secondary containment as soon as practicable. The well operator shall maintain records of any repairs until the well site is restored. Stormwater shall be removed as soon as possible and prior to the capacity of secondary containment being reduced by 10% or more. Regulated substances that escape from primary containment or are otherwise spilled onto secondary containment shall be removed as soon as possible. After removal of the regulated substances the operator shall inspect the secondary containment. If the secondary containment did not completely contain the material, the operator shall notify the Department and remediate the affected area in accordance with § 78a.66 (relating to reporting and remediating spills and releases).

Stormwater that encounters regulated substances stored within the secondary containment shall be managed as residual waste.

Inspection reports and maintenance records shall be available at the well site for review by the Department.

Documentation of chemical compatibility of secondary containment with material stored within the system can be provided to the Department upon request.

3.0 Installation & Testing – Typical Minimum Standards

Subgrade and Ground Surface Preparation

1. The ground surface area located directly below the secondary containment should at minimum consist of:
    a. A level area capable of supporting the primary containment located above the secondary containment system.
    b. Surface should be smooth and stable.
    c. Be free of sharps, sticks, rocks and angular materials larger than 2A Modified aggregate.
    d. Consists of crusher run gravel on-top of 2A modified or similar (fluid storage only)
2. A pre-installation installation meeting/site visit should be completed by the installer to ensure above conditions exist prior to installation.
3. Prior to installing the secondary containment system, the ground surface should be inspected and documentation including photos should be collected to document proper material usage.

Secondary Containment - Material Selection

1. Fluid Storage secondary Containment System should, at minimum, consist of:
    a. Base layer – 16oz. Geo Fabric (or similar)
    b. Liner – 40 Mil RPE (or similar)
    c. Top cushioning layer – 8oz. Geo Fabric (or similar)
2. Berms should be constructed to contain 110% of largest container. Berms associated with fluid storage should, at minimum, be 18' corrugated pipe.

Secondary Containment - Deployment

1. Typically, Liner products are supplied as panels for most projects. However, the same process is usually used for rolled goods. Factory fabricated panels are the optimum choice and greatly reduce the installation time and amount of field seaming and testing which need to be completed.
2. Fabricated geomembrane panels are normally placed at a starting point on one corner of the area to be lined. The deployment markings on the packaging or label indicate which direction the panel will unfold.
3. While unrolling and/or unfolding the geomembrane, inspect the fabricated panel for proper material type and thickness, damage, and/or defects. Repair any damage found. Provide suitable wind uplift protection with sandbags, dirt or other ballast
4. Only material that is to be immediately welded, i.e., during that workday, should be deployed. Once the geomembrane is properly placed, the material should be seamed as soon as practical.
5. It is important to deploy the liner material in a manner to try and reduce the amount of field-seaming that will need to be completed.

Secondary Containment - Installation

1. Panels should be constructed off site by the Manufacturer or Licensed Supplier to minimize field seaming. This may not be applicable to all operations.
2. If factory seaming is maximized, field seaming can be reduced by 80 to 95%.
3. This reduction in field seaming improves seam quality, accelerates construction, minimizes or eliminates destructive field seam tests, reduces weather exposure issues, allows modular construction, and reduces project costs.
4. It is important to try and protect the welding edges during installation. A minimum overlap of 4 to 6 inches (10 to 15 cm) of wrinkle free and “fish-mouth” free area, must be cleaned of all dirt, dust, water and any foreign debris.
5. All seaming should be completed with manufacturer recommended thermal heat-sealing equipment.
6. Heat sealing with automated wedge welding equipment is the preferred method whenever possible. Wedge welders for field seaming should be qualified before field seaming of panels begins.

Secondary Containment – Field Seaming	1. A test section should be completed to determine the proper operating temperature and speed of the welder. A minimum 6 foot (2 meter) sample field seam is recommended. 2. Wedge welding is typically performed with a hot wedge welding machine, which uses a heated element to melt the geomembranes to be welded and then presses the two melted sheets together to form the bond. When performed properly, wedge welders produce high quality and consistent seams. 3. The single (or solid) wedge arrangement should produce a continuous bonded weld not less than 1 inch (25.4 mm) wide.
Secondary Containment –Trial Seams & Weld Testing (fluid storage only)	1. Test seams should be prepared and tested by the Geomembrane Installer to verify that the seaming parameters meet acceptable seam values at the start of each welding session or at the beginning of each working day. 2. Test seams also may be made whenever personnel or equipment are changed, and when climatic conditions reflect wide changes in geomembrane temperature, or other conditions that could affect seam quality. 3. A weld test should be performed on the “X” axis, the “Y” axis and a randomly selected location for the field seams. 4. The test should be conducted utilizing a Tensiometer machine. The welds should be tested for Shear and Peel strength. The passing parameters can be provided by the liner installer per the manufacturers’ specifications for the liner being used. 5. A minimum of one test strip per seaming apparatus should be conducted at the start of each welding session during a day and at least every 4 hours or 3,000 lineal feet (914 meters) of field seam per machine, whichever is more frequent. 6. Each test seam should be labeled with date, geomembrane temperature, weather conditions, number of seaming unit, panel identification, seam number or test location, technician performing the test seam, and a pass or fail description.

7. Air lance Method (ASTM D4437)

    a. Air lance testing can be accomplished to provide a good source of nondestructive testing. The Geomembrane Installer should provide an air compressor, air hose, and air lance wand with a pressure gauge capable of measuring air flow to a recommended 50 psi to the tip.
    b. The testing should be performed by experienced technicians familiar with this testing procedure. This non-destructive test involves placing the air lance wand approximately ¼ to ½ inch (6 mm to 12 mm) from the edge of a completed seam (not more than 2 inches (51 mm)) and closely monitoring the backside of the sheet for any air penetration through the seam, loose edges, riffles, and/or noise.
    c. If air penetrates the seam area, the technician will either see this visibly or hear it audibly and the area should be marked for repair.
    d. All field seams that are welded should be tested utilizing an air lance.

8. Seam Patching

    a. The seam that is removed should be patched with liner that should extend 4” past the edge that was removed.
    b. The patch should be heat welded with a hot air gun to the area requiring the repair.
    c. An extrusion gun should be used to place a bead or polyethylene on the edges of the patch.
        i. The manufacturer does not recommend extrusion welding. The film layer is very thin and can be damaged. Utilizing the wedge and hot air weld for repairs is recommended.
    d. Test the patch using a vacuum box. The tester should create a leak tight seal between the gasket and geomembrane interface by wetting a strip of geomembrane approximately 0.3m (12 in) by 1.2m (48 in) (length and width of box) with a soapy solution, placing the box over the wetted area, and then compressing the box against the geomembrane. The Geomembrane Installer should then close the bleed valve, open the vacuum valve, maintain initial pressure of approximately 35 kPa (5 psig) for approximately 5 seconds.
    e. The geomembrane should be continuously examined through the viewing window for the presence of soap bubbles, indicating a leak. If no bubbles appear after 5

seconds, the area can be considered leak free. The box should be depressurized and moved over the next adjoining area with an appropriate overlap and the process repeated.

f. All areas where soap bubbles appear should be marked, repaired and then retested. All seams that are vacuum tested should be marked with the date tested, the name of the technician performing the test and the results of the test.
    i. Caution that vacuum boxes for RPE liner can give false test results due to the texture of the liner. Document any issues.

4.0 Equipment & Tank Setting

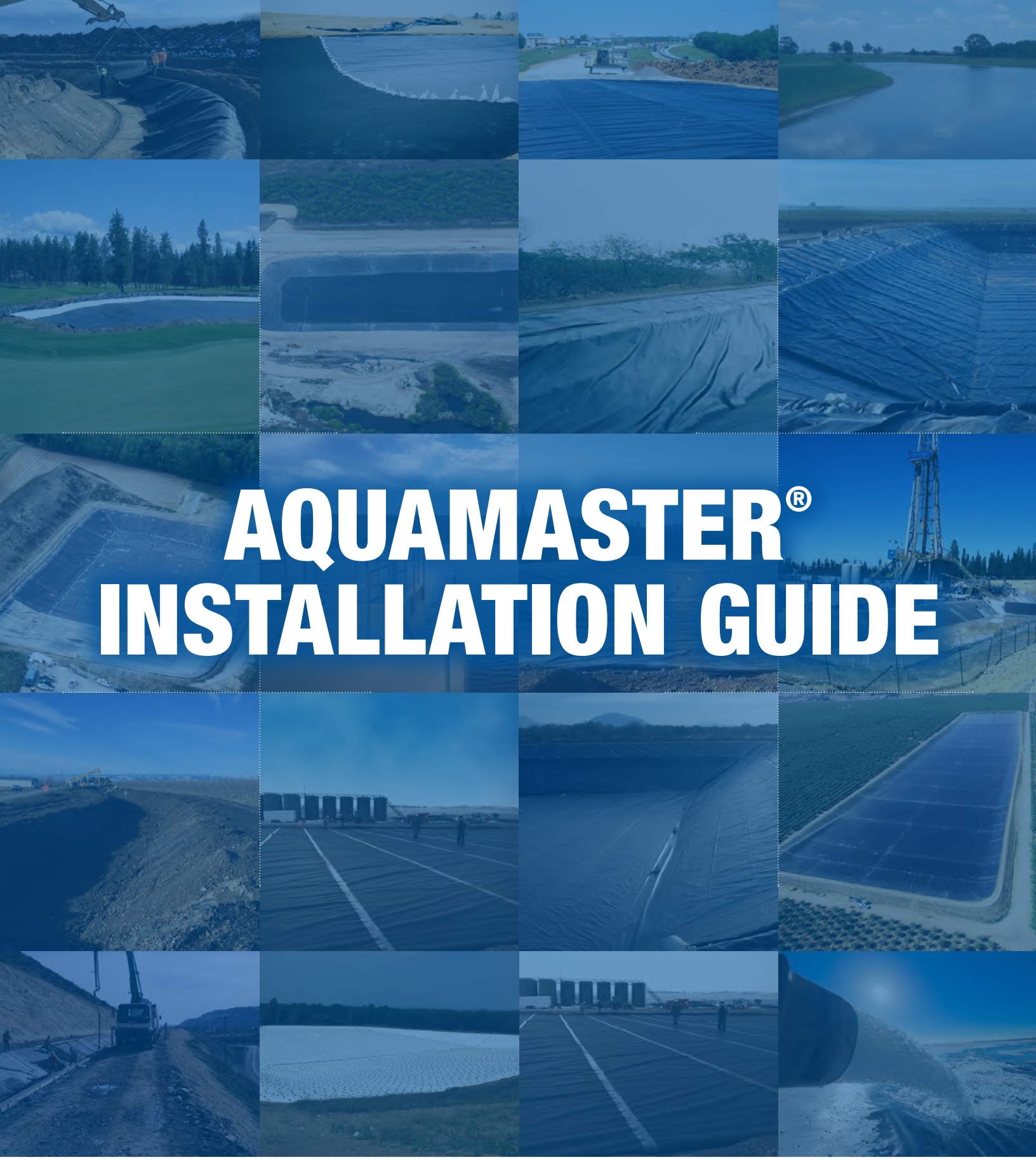
Equipment and Tank Setting

1. Placement of equipment/tanks using an all-terrain forklift:
    a. Set equipment/tanks straight back minimizing strain on welded panels
    b. Spotter should be present
    c. The location of the tanks farm should be selected to allow the tanks to be set without having to be turned once on the liner.
    d. Forklifts should maintain a straight approach to avoid lateral movement which can cause strain on welds of the liner.
    e. A competent Coterra person should be onsite for setting of all the tanks to ensure the liner is not compromised.
    f. Perform visual checks for ensuring Best Management Practices while setting the tanks:
        i. The top layer of the geofabric should not bunch up.
        ii. Tire tracks from the forklift and tanks should be in straight line.
        iii. The leading edge of the fabric can be rolled back periodically to ensure the welds are not compromised.
2. Manifolds and pumps should be placed on rubber runners, rig mats or similar.
3. Visual inspections should be conducted during all equipment and tank setting and any damage to the liner system must be repaired.

5.0 Documentation

Secondary Containment Installation	Necessary site personnel and designated contractors will have access to a copy of this document as well as project/job specific plans not included in this plan. All secondary containment installation standards/procedures above should be documented for each installation, including but not limited to: • Secondary containment subbase/ground surface improvements and visual inspections • Liner manufacture specifications and CQA testing data including testing of off-site manufacturer seam testing (fluid storage only) • Manufacture liner specifications (thickness, chemical compatibility, permeability, etc.) • Seam testing completed by liner installer on-site (fluid storage only) • On-site testing locations and panel layout drawings (fluid storage only) • Liner patching test results, if applicable • Photos

Attachment A – AQUAMASTER Installation Guide (example)



AQUAMASTER® INSTALLATION GUIDE

AquaMaster® STRONGER LIGHTER FASTER

PROUD MEMBER
IFAI Geosynthetic Materials Association

PROUD MEMBER
IFAI Industrial Fabrics Association International

NSF

INTERNATIONAL CERTIFICATION ISO 9001

FGI Fabricated Geomembrane Institute

TABLE OF CONTENTS

1. **GENERAL**.....1
   1.1. Scope.....1
   1.2. Applications.....1
   1.3. References.....2
2. **PRODUCTS AND WARRANTIES**.....3
3. **QUALITY CONTROL AND QUALIFICATIONS**.....3
   3.1. IPG Goal.....3
   3.2. Qualification Minimums.....3
4. **SUBMITTALS**.....4
   4.1. Documentation.....4
5. **STORAGE AND HANDLING OF PRODUCTS**.....4
   5.1. Storage.....4
   5.2. Handling.....5
6. **INSTALLATION**.....5
   6.1. Subgrade Preparation.....5
   6.2. Unfolding and Deploying Aquamaster® Products.....6
   6.3. Field Seaming.....7
   6.4. Field Seam Testing.....9
   6.5. Evaluation of Defects.....11
   6.6. Anchoring and Concrete Attachments.....12
   6.7. Pipe Penetrations.....13
   6.8. Inspection and Installation Approval.....14
   6.9. Covering the Geomembrane.....14
7. **ARMORPAD®**.....18
   7.1. Hot Melt Adhesive.....18
   7.2. Placement of Concrete.....18
   7.3. Placement in a Channel of Canal.....18
8. **FIELD ACCEPTANCE**.....19

1. General

1.1. SCOPE

The following information is a general installation guideline for Intertape Polymer Group's (IPG) AquaMaster® geomembranes. This guideline is consistent with industry accepted standards. This manual will help AquaMaster® geomembrane installers achieve a durable liner installation. Whenever a geomembrane installation is conducted under detailed engineering specifications, those specifications should take precedence over this installation guideline and the project should be performed in strict accordance with those specifications. For information related to a specific project, please contact our technical department at the number below:

Intertape Polymer Group
50 Abbey Avenue
TRURO, NS, B2N 6W4, CANADA
Tel: 800-565-2000

1.2. Applications

Typical applications for AquaMaster® products include, but are not limited to:

- Irrigation and canal liners
- Water reservoir liners
- Golf course and decorative pond liners
- Stormwater management pond liners
- Athletic field and golf course green covers
- Oil & Gas liners for pads, frack tanks, and temporary containment measures
- Tailings ponds
- Mining pad and various containment applications
- Subgrade protection
- Temporary erosion control
- Barriers, blankets, and curtains
- Rain sheets for mining applications
- Under-slab vapor mitigation

1.3. References

ASTM – American Society for Testing and Materials

1.3.1 ASTM D1238-13 Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

1.3.2 ASTM D3218-07, Standard Specification for Polyolefin Monofilaments

1.3.3 ASTM D2646-11, Standard Test Methods for Backing Fabric Characteristics of Pile Yarn Floor Coverings

1.3.4 ASTM D751-06, Standard Test Methods for Coated Fabrics

1.3.5 ASTM D1777-96, Standard Test Method for Thickness of Textile Materials

1.3.6 ASTM D7003-03, Standard Test Method for Strip Tensile Properties of Reinforced Geomembranes

1.3.7 ASTM D7004-03, Standard Test Method for Grab Tensile Properties of Reinforced Geomembranes

1.3.8 ASTM D4533-15, Standard Test Method for Trapezoid Tearing Strength of Geotextiles

1.3.9 ASTM D5884-04, Standard Test Method for Determining Tearing Strength of Internally Reinforced Geomembranes

1.3.10 ASTM D4833-07, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

1.3.11 ASTM D6636-01, Standard Test Method for Determination of Ply Adhesion Strength of Reinforced Geomembranes

1.3.12 ASTM D7272-06, Standard Test Method for Determining the Integrity of Seams Used in Joining Geomembranes by Pre-Manufactured Taped Methods

1.3.13 ASTM D4437-08, Standard Practice for Non-destructive Testing (NDT) for Determining the Integrity of Seams Used in Joining Flexible Polymeric Sheet Geomembranes

1.3.14 ASTM D5641-94, Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber

1.3.15 ASTM D7747-11 Standard Test Method for Determining Integrity of Seams Produced Using Thermo-Fusion Methods for Reinforced Geomembranes by the Strip Tensile Method

Other References

1.3.16 USEPA. (1991). Inspection Techniques for The Fabrication Of Geomembrane Field Seams. Cincinnati, Ohio 45268: U.S. Environmental Protection Agency.

1.3.17 Koerner, R. M. (2005). Designing with Geosynthetics (5 ed.). Upper Saddle River, NJ 07458: Pearson Education, Inc.

1.3.18 Geosynthetic Research Institute (2012). "Standard Specification for Test Methods, Required Properties and Testing Frequencies for Scrim Reinforced Polyethylene Geomembranes Used in Exposed Temporary Applications" GRI GM 22, Geosynthetic Institute, Folsom, PA.

2. Products and Warranties

2.1 AquaMaster® products have warranties. Each project and product selection will typically have a warranty between 2 and 25 years. Please contact an IPG specialist to discuss the warranty for your specific project.

2.2 This includes all products sold under the AquaMaster® label including, NovaLiner™, ArmorLiner™, ArmorPad®, ArmorGrip™, and NovaGrip™.

3. Quality Control and Qualifications

3.1 Intertape Polymer Group (IPG) is committed to providing products that consistently meet or exceed customer and regulatory requirements. IPG has established a Quality Management System which is certified to ISO 9001:2008 standards. It is IPG's goal to continue meeting and exceeding industry standards and providing our customers with world class products.

3.2 Qualification Minimums

3.2.1 Manufacturer: IPG has more than 20-years of experience manufacturing the above-mentioned products. Additionally, IPG has manufactured more than the minimum industry standard of >2,000,000 m^2 (21,527,820 ft^2) through the last 5 years.

3.2.2 Fabricator: The fabricator of the geomembrane shall have fabricated a minimum of 500,000 m^2/year (5,381,955 ft^2/year) of the specified type or similar geomembranes.

3.2.3 Installer: The installer shall be the fabricator or approved fabricators installer, or an installer/contractor approved by the owner's representative. The geomembrane installer shall have installed at least 10 projects involving a total of 500,000 m^2 (5,381,955 ft^2) using the specified geomembrane.

4. Submittals

4.1. Documentation

4.1.1. AquaMaster® sample material warranty.

4.1.2. Sample of AquaMaster® Product(s) to be installed, including any technical data on the product.

4.1.3. Reports on the results of examinations and testing shall be prepared and submitted to the Owner's Representative.

4.1.4. Shop drawings/panel layout for Geomembranes with panel numbers, field seam locations and details, corresponding to shipping labels.

4.1.5. Submit resumes or qualifications of the installation supervisor and certified welding technicians.

4.1.6. Documentation of manufacturer's and installer's qualifications. It is recommended that the welding technicians hold an International Association of Geosynthetic Installers (IAGI) Certified Welding Technician (CWT) certification in reinforced geomembranes.

4.1.7. The documentation to be submitted by the Fabricator to the Owner varies depending on the Owner's requirements. Documentation may include copies of tested seam results, certifications, or any other document related to the quality of the geomembranes and their installation.

5. Storage and Handling of Products

5.1. Storage:

Both fabricated panels and rolled goods of AquaMaster® products shall be stored and handled in a proper manner, and in accordance with industry and project specific standards. Leave the panels and rolls packaged in UV protected wrap until the time of installation. If extremely hot or cold temperatures are present, keep the product(s) inside at a moderate temperature. This reduces the force required to unfold the panels. Fabricated panels, when possible, should be stored on pallets off the ground. The storage area should be dry, level, and with a firm base to facilitate lifting so the panels are not damaged, do not become dirty, and remain dry. Pallets should not be stacked as it increases the chance to damage the panels.

5.2. Handling

Special care should always be taken to reduce the chance of damage to rolls and fabricated panels of AquaMaster®. When unloading AquaMaster® products at a site the following steps should be followed.

1) Inspect product prior to unloading from vehicle, take inventory of roll/panel numbers, and make notes of any observed damage prior to removing from vehicle. If there is damage, make claims with carrier prior to unloading or shortly after unloading.
2) Material unloading at site should be completed using the proper equipment for the weight of the rolls/panels. It is recommended to have a storage/movement plan in place for material on site as to reduce the number of times material will need to be moved prior to installation, as each time it is moved the chance for damage to the product increases significantly.

6. Installation

6.1. Subgrade Preparation

6.1.1. A pre-installation meeting/inspection shall be completed by all interested parties, ie. owner, engineer, installer, contractors, governmental agencies and any other representatives that have a vested interest in the project. Any parties not present for the pre-installation inspection should provide written notification of their subgrade approval.

6.1.2. Subgrade surfaces shall be clear of all angular debris, including: rocks, sticks, metal objects, and any debris larger than 0.4 inches (>10mm). The surface shall be smooth, flat and stable. No standing water, mud, snow, or excessive moisture should be allowed underneath AquaMaster® products.

6.1.3. Vegetation shall be removed during subgrade preparation to avoid puncturing the geomembrane and ensure no long-term root damage will occur.

6.1.4. Wildlife can puncture geomembranes. While many of the AquaMaster® products are suitable for long term exposure if they are placed in a high animal traffic area, a layer of material

(approximately 3 to 6 inches (7.5 to 15 cm) over the geomembrane will greatly reduce the chance of damage. For more information on this subject, please contact your IPG technical representative.

6.1.5. All pipes, drains, fittings, etc., which are to be installed underneath the geomembrane, should be in place, backfilled, and ready to be covered with the geomembrane prior to deployment.

6.1.6. Anchor trenches, should be completed prior to deployment of the geomembrane. After deployment of the geomembrane, anchor trenches should be filled and compacted using standard compaction practices.

6.2. Unfolding and Deploying AquaMaster® products

Typically, AquaMaster® products are supplied as panels to most projects. However, the same process is usually used for rolled goods. Factory fabricated panels is an optimum choice and greatly reduces the installation time and amount of field seaming and testing which needs to be completed.

6.2.1. Fabricated geomembrane panels are normally placed at a starting point on one corner of the area to be lined. The deployment markings on the packaging or label indicate which direction the panel will unfold. Note, accordion-folded and rolled panels will unroll in only one principal direction while double accordion-folded panels may unfold in either principal direction.

6.2.2. Prior to installation, verify there is enough material and the installer is prepared to provide slack for the geomembrane on the project. Slack shall not be confused with unintentional wrinkles or folds, and is to be approximately 5% in hot climates. The exact amount of slack can be determined from the engineer of record. Please do not hesitate to contact your IPG technical representative to discuss.

6.2.3. While unrolling and/or unfolding the geomembrane, inspect the fabricated panel for proper material type and thickness, damage, and/or defects. Repair any damage found. Provide suitable wind uplift protection with sandbags, dirt or other ballast (important that the weighted ballast is free from sharp edges and materials) after the geomembrane panel is unfolded. Only material that is to be immediately welded, i.e., during that work-day, should be deployed. Once the geomembrane is properly placed, the material should be seamed as soon as practical. It is important to deploy the AquaMaster® material in a manner as to try and reduce the amount of field-seaming that will need to be completed.

6.3. Field Seaming

6.3.1. A large advantage of factory fabricated geomembranes is that manufactured rolls of material can be fabricated into large panels in a factory before shipment to the project site. This minimizes the amount of the field seaming and maximizes the amount of factory seaming which results in higher quality seams. The individual widths of the manufactured geomembrane rolls shall be assembled into large panels that are custom-designed for the specific project and correspond to the panel layout diagram. If factory seaming is maximized, field seaming can be reduced by 80 to 95%. In other words, only 5 to 20% of all seams need to be made in the field depending on the unit weight of the geomembrane material. This reduction in field seaming improves seam quality, accelerates construction, minimizes or eliminates destructive field seam tests, reduces weather exposure issues, allows modular construction, and reduces project costs.

6.3.2. Cleaning of Seaming Surfaces

It is important to try and protect the welding edges during installation. A minimum overlap of 4 to 6 inches (10 to 15 cm) of wrinkle free and "fish-mouth" free area, must be cleaned of all dirt, dust, water and any foreign debris within 30 minutes of the seaming operation. Verification of the contact surfaces being cleaned should be the responsibility of the certified welding technician.

6.3.3. All seaming shall be done with thermal heat-sealing equipment or with an adhesive. (The adhesive seaming method for ArmorPad® is discussed in Section 7.1). Heat sealing with automated wedge welding equipment is the preferred method whenever possible. Wedge welders for field seaming shall be qualified before field seaming of panels begins. A test section shall be completed to determine the proper operating temperature and speed of the welder. A minimum 6 foot (2 meter) sample field seam shall be completed for all AquaMaster® products.

6.3.4. Wedge welding is performed with a hot wedge welding machine, which uses a heated element to melt the geomembranes to be welded and then presses the two melted sheets together to form the bond. When performed properly, wedge welders produce high quality and consistent seams. The wedge in a hot wedge welder can be heated with hot air (hot air method), or with electric resistance heating (hot wedge method). All wedge welders employ a set point controller to accurately maintain the welding temperature within the most efficient welding temperature for the material. The pressure wheels should be adjustable to allow for good material bonding after heating. Only single or solid wedge arrangement is recommended for factory and field welding of AquaMaster® reinforced geomembranes. The single (or solid) wedge arrangement produces a continuous bonded weld not less than 1 inch (25.4 mm) wide.

6.3.5. Field Tape Seaming

AquaMaster® geomembranes should be field seamed by heat welding, sewing, or adhesive in the case of ArmorPad®. If necessary, they can be seamed using field tape seaming methods, but due to many variables, tape seaming is never guaranteed. Tape seaming is usually

limited to products less than 30-mil in thickness. Immediately after creating a tape seam, it should be loaded or secured to facilitate bonding. The preferred method for securing prepared tape joints is to backfill the geomembrane with a suitable soil cover so tensile stresses do not develop. The backfill creates a pressure seal between the geomembrane panels and tape which is usually effective. An alternative method of creating strength in a tape seam is to sew the seam first and then use prepared tapes to waterproof the joint. Even with a sewn seam, the recommended practice is to backfill the geomembrane to prevent shifting of the seam and to help adhere or bond the tapes.

To create a tape seam, place one or two continuous lines of double sided tape between the sheet overlap. Apply a minimum 4 inch (10 cm) wide single sided heavy-duty tape over the flap area. Press the sheet materials together to compress the tape using a rubber, nylon, or steel hand roller or similar tool. In areas where wrinkles cannot be removed, use tapes on all sides of the wrinkle to form a waterproof seal. Visually inspect the completed seam to ensure intimate contact between the tapes and the upper and lower sheet surfaces. Repair discontinuities by placing a patch over the damaged area with a prepared tape seal around the perimeter. The patch must be circular, oval, or contain rounded corners and extend 6-inches around the defect. Supervise the backfilling of the seam area to prevent the seam from being placed in tension and pulled apart. Backfill should proceed in a direction that does not tend to pull the seams apart or create a shear or tensile stress in the seam.

6.4. Field Seam Testing

6.4.1. Trial Seams

Test seams shall be prepared and tested by the Geomembrane Installer to verify that the seaming parameters meet accepted seam values at the start of each welding session or at the beginning of each working day. Test seams also may be made whenever personnel or equipment are changed, and when climatic conditions reflect wide changes in geomembrane temperature, or other conditions that could affect seam quality. A minimum of one test strip per seaming

apparatus shall be conducted at the start of each welding session during a day and at least every 4 hours or 3000 lineal feet (914 meters) of field seam per machine, whichever is more frequent.

Field test seams shall be made using “scrap” material from the same lot as the geomembrane being welded in the field. This requirement is necessary to ensure that the installed geomembrane panels are not damaged prior to the onset of the field welding process because no destructive seam tests shall be conducted on factory fabricated seams to preserve integrity of the fabricated panels. Test seaming shall be conducted under ambient conditions and with the same equipment, geomembrane, and operator as field seaming on the fabricated panels. The test seams shall be at least 6-feet long for all types of field seams. If there is no area or equipment on site to provide for these seam requirements, seam strength can be verified for production using trial welds sent to an independent testing laboratory to verify quality. If a test seam fails, an additional test seam shall be immediately completed.

If the additional test seam fails, the seaming apparatus shall be rejected and not used until the deficiencies are corrected and a successful full test seam is produced. Each test seam shall be labeled with date, geomembrane temperature, weather conditions, number of seaming unit, panel identification, seam number or test location, technician performing the test seam, and a pass or fail description. Pre-qualification seams for tape seams shall be in accordance with ASTM D7272.

6.4.2. Non-Destructive Seam Testing (NDT)

When required, field seams can be non-destructively tested by the geomembrane installer over the full length of the seams before the seam is covered. When seam NDT is part of the requirements, each seam shall be numbered or otherwise designated. The location, date, test unit, name of the technician, name of QC person, and outcome of all NDT shall be recorded and submitted to the Owner’s Representative. Testing should be performed as the seaming progresses; not at the completion of all field seaming, unless agreed to in advance by the Owner’s Representative. All defects found should

be repaired, re-tested, and remarked to indicate acceptable completion of repair.

NDT of field seams shall be performed using one or more of the following methods. Air Lance testing method is preferred whenever possible.

6.4.2.1. Air Lance Method (ASTM D4437)

If required by the contract documents, air lance testing can be accomplished to provide a good source of non-destructive testing. The Geomembrane Installer shall provide an air compressor, air hose, and air lance wand with a pressure gauge capable of measuring air flow to the tip. The testing shall be performed by experienced technicians familiar with this testing procedure. This non-destructive test involves placing the air lance wand approximately ¼ to ½ inch (6 mm to 12 mm) from the edge of a completed seam (not more than 2 inches (51 mm)) and closely monitoring the backside of the sheet for any air penetration through the seam, loose edges, riffles, and/or noise. If air penetrates the seam area, the technician will either see this visibly or hear it audibly and the area shall be marked for repair.

6.4.2.2. Mechanical Point Stress or "Pick" Test (ASTM D4437)

This NDT uses a dull tool (such as a blunt screwdriver) under the top edge of a field seam. With care, an installer can detect an un-bonded area, which is easier to separate than a properly bonded area. This method must be used with extreme care so as not to damage the parent geomembrane and bonded area, and is to be used only if other NDT methods are not available.

6.5. Evaluation of Defects

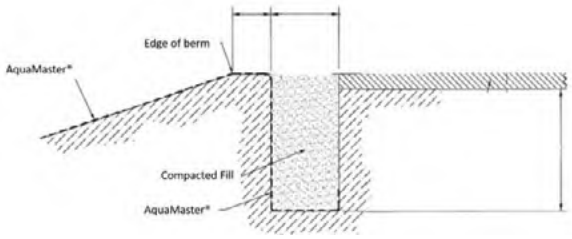
Each suspect location (both in geomembrane seam and non-seam areas) shall be non-destructively tested. Each location which fails non-destructive testing shall be marked, numbered, measured, and posted on the daily installation drawings and subsequently repaired. Defective seams, tears or holes shall be repaired by capping or cutting out the defective seam and re-seaming.

Single seams more than 20% of their length requiring repair should be entirely removed and re-welded. Each patch or capping shall extend a minimum of 6 inches in all directions beyond the defect. All repairs shall be located, measured, non-destructively tested, and recorded.

6.6. Anchoring and Concrete Attachments

6.6.1. Anchor Trench

Anchor trenches should be used on top of the slopes to ensure proper anchoring of the geomembrane and prevent wind uplift. The geomembrane must be secured at all times during the anchoring process by use of sandbags or other ballasts until the trench has been filled. The anchor trenches shall be filled with soil that doesn't damage the liner after it is compacted.



The type and dimensions of anchor trench (regular square or V shaped trenches) to be used shall be defined by the designing engineer to prevent slippage of the geomembrane.

6.6.2. Concrete Attachments

The geomembrane can be attached to concrete by using steel batten strips (1.375 inch (35 mm) wide and 0.25 inch (6.35 mm) thick, minimum) with expansion anchors. Details of liner attachment to concrete are the responsibility of the Project Engineer.

The concrete surfaces shall be clean, smooth and not friable. Neoprene gaskets shall be placed on both sides of the geomembrane, where the attachment will be made to protect it from both the batten strip and the concrete. Holes in the geomembrane shall be cut or stamped carefully to a diameter slightly smaller than the bolts to be used. Bolts should be tight enough to provide uniform compression on the gasket. Butt joints in batten strips should be kept to a minimum width and should not be in the same location as the gasket joints.

Once batten strip installation is complete, it should be inspected for loose bolts and visible defects.
The geomembrane fixed to a concrete structure must be on firm soil subgrade that will not deform and stretch the geomembrane. Compacting of the soil subgrade around such structures must be performed with particular care so excessive differential movement between the concrete and soil subgrade does not occur.

6.7. Pipe Penetrations

Whenever possible, avoid slitting geomembrane panels for piping details until a pre-fabricated pipe boot is ready for immediate installation. Cuts made in the geomembrane for clearance over penetrations should always be made as small as possible to minimize patch work. Generally, it is preferred to let the geomembrane straddle a relatively small protrusion (for later detail work) provided a rag or towel is taped over the pipe to avoid damage to the geomembrane.

Whenever there is a pipe penetration into the geomembrane, pipe boots should be prepared with excess material to fit the pipe tightly but not require excessive force to pull over the pipe. The number of welds made to fabricate a boot shall be minimized. The boot shall be fabricated such that when installed, it is fully supported by the pipe and the surrounding subgrade.

If a pipe boot feels overly snug but workable, try applying either talc powder or using compressed air with a nozzle to float the boot sleeve over and along the pipe. Pipe boots should never be used if the force required to install them stresses or weakens the boot. When properly installed, the pipe boot will lay flat against grade surrounding pipe without leaving pockets that may become stressed during or after placement of backfill.

The pipe boot sleeve should be attached to the pipe using butyl tape between the pipe and boot and two stainless steel clamps. Proper leak-proof sealing of pipe boots should be verified by using the air lance test method described above in section *6.4.2.1*.

When cover materials are not used, splash pads or additional geomembrane layers shall be used for all inflow pipes to prevent long term wear and damage to the geomembrane caused by the direct impact of the inflow on the geomembrane panels. The pads should be welded on top of the geomembrane panels and tested using the same air lance method. Common splash panel sizes are 4 to 6 feet in all directions. However, larger sizes may be required depending on the amount of inflow pipes and the height of the discharge point.

6.8. Inspection and Installation Approval

Geomembrane installation should be approved by all interested parties prior to covering it or filling the canal or reservoir. If installation is deemed not acceptable, it should be corrected before covering it. A walkover of the complete site with all interested parties shall be done in order to verify that liner installation is acceptable. Owner, contractor and geomembrane installer, or their representative, shall all approve in writing installation acceptance before moving on with the next step of the project.

6.9. Covering the Geomembrane

When covering or initially placing fill material over the liner, it is important not to lock the liner into the perimeter anchor trench prior to covering. This can cause undue stress and tension on the liner slopes during the covering process. The anchor trench or perimeter shelf area should be the last area covered to complete the cover process.

Under all operating conditions, protection of the geomembrane will be required. Care should be taken when covering the geomembrane to prevent any damage. At no time will construction equipment be allowed to operate or drive directly on the geomembranes.

Access roads for clean soil cover should be maintained to provide 0.45 m (18 inch) minimum and for heavier equipment on haul roads a minimum of 0.90 m (36 inch) preferable between the excavation equipment and the geomembrane at all times. Cover soil requirements should be

verified before placement with the Design Professional and geomembrane installer.

Additionally, a protection geotextile layer may be needed in rougher soil conditions between the geomembrane and the cover materials. The use of a protection layer should be verified with the Design Professional and Geomembrane Fabricator.

Cover material shall consist of less than 12 mm (0.5 inch) minus particles, clean rounded soils free of sharp edges, sticks, metal, rubbish, and debris or foreign materials. Site specific materials or sizes may be acceptable. It is recommended that the contractor receive prior written approval of acceptance of the cover materials from a Geomembrane Representative and/or Design Professional before covering the geomembrane.

Cover soils should be dumped and leveled over the geomembrane and not pushed from one end to the other to minimize rolling and wrinkling of the geomembrane beneath the soils. Cover soil should always be placed from the bottom to the top of slopes to avoid stressing the geomembrane and slope stability problems.
Equipment should be turned in long sweeping turns and not spun quickly to eliminate the chance of tires digging down to the geomembrane thru the cover soil and wrinkling or stretching the geomembrane.

If geomembrane damage does occur during construction, cover placement, and/or filling, DO NOT COVER IT UP. Advise the foreman and CQA personnel so repair can be made and documented which will make doing the repair a lot easier than after cover soil placement or filling.

7. ArmorPad®

ArmorPad® is a unique geomembrane product manufactured by IPG. It incorporates a non-woven geotextile laminated to one or both sides of the standard reinforced geomembrane. Installation of AquaMaster® ArmorPad® typically follows all the above-mentioned procedures, however, there are a couple of differences when placing the product into a canal or channel. Panels of ArmorPad® can be seamed together by standard methods or use of a hot-melt adhesive.

7.1. Hot Melt Adhesive

There are many hot-melt adhesives which have shown success in joining panels of ArmorPad®, such as Reynolds 51-128PLW. Please consult with your IPG technical representative prior to placing hot-melt adhesive.

7.2. Placement of Concrete

Concrete can be placed or shot directly onto the non-woven side of the ArmorPad® product to provide extra longevity and protection. The non-woven layer on the ArmorPad® provides an excellent bonding surface for the concrete.

7.3. Placement in a Channel of Canal

ArmorPad® is designed to be placed into a channel or canal. When ArmorPad® is installed in a channel or canal, it is important to shingle the rolls/panels downstream. Also, subgrade preparation is critical to longevity of the product in a channel or canal (Please refer to Section 6.1).

8. **Field Acceptance**

The installation will be accepted by the owner and or their representatives when the following has been completed:

8.1. The entire installation is finished or agreed upon subsections of the installation are finished.

8.2. All Installer's QC documentation is complete and submitted to the Owner.

8.3. Verification of the adequacy of all field seams and repairs and associated geomembrane testing are complete.

Disclaimer: IPG assumes no liability for the accuracy or completeness of this information or for the ultimate use by the purchaser. IPG disclaims any and all express, implied or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

PROUD MEMBER Industrial Fabrics Association International

PROUD MEMBER Geosynthetic Materials Association

FGI

Fabricated Geomembrane Institute

COTERRA

ATTACHMENT 2 –

Pressure Barrier Policy

COTERRA

Standard Operating Procedure

Pressure Barrier Policy (PBP) – Guidance Document

Marcellus Business Unit (MBU)

August 2025

Standard Operating Procedure (SOP)

Pressure Barrier Policy (PBP) – Guidance Document

Well Development Activities

Table of Contents

1.0 About this Document 2

2.0 Regulatory Overview 3

3.0 Pre and Post Frac Operations Considerations 3

4.0 Documentation 4

Attachment A – Process Charts for Identifying Operation Types

Attachment B – Pressure Barrier Model Plans

Note the attached Model Plans are for reference purposes only - actual job specific plans will be included in the appropriate and applicable job/site specific SOP.

1.0 About this Document

Purpose

This Standard Operating Procedure (SOP) provides general guidance for common types of activities requiring pressure barriers encountered during well development activities (i.e., drilling, completion, alteration, plugging, workover, and maintenance/repair activities) within Coterra's Marcellus Business Unit (MBU) in Pennsylvania.

The SOP identifies the typical types of Pressure Barriers utilized for each common activity. The purpose of this document is to help identify when pressure barriers are required.

This SOP is applicable for the following operations, defined in 25 Pa. Code § 78a.72:

1. Drilling a well that is intended to produce hydrocarbons from an unconventional formation.
2. Drilling out solid core hydraulic fracturing plugs to complete a well.
3. Operations on wells when well head pressures or natural open flows are anticipated at the well site that may result in a loss of well control.
4. Drilling in an area where there is no prior knowledge of the pressures or natural open flows to be encountered.
5. Operations associated with wells regulated by the Oil and Gas Conservation Law (58 P.S. §§ 401—419).
6. Drilling within 200 feet of a building.
7. Drilling within a gas storage reservoir or within the gas storage reservoir protective area.
8. Other identified operations requiring a pressure barrier, as determined by the operator.

The document is intended to provide general guidance, it does not contain site or project specific information. Refer to job specific SOPs for site/job specific information.

Scope

This SOP is intended for all Coterra workers and/or contractors responsible for well development activities requiring pressure barriers according to Pa. Code Chapter 78a.

Pressure Barrier Policy (PADEP definition)	A plan developed by an unconventional operator prior to the commencement of well activities identifying the combination of well barrier elements that together constitute a method of containment of fluids within a well that prevents uncontrolled flow of fluids (e.g., gas, oil and brine) into another formation or to escape at the surface to be used during identified operations (adapted from International Well Control Forum (IWCF) Well Control and Barrier Definitions).

2.0 Regulatory Overview

Overview	The SOP has been prepared in accordance with the requirements in Pa. Code Chapter 78a.55(d) and the PADEP technical guidance document titled, "*Guidelines for the Development of Operator Pressure Barrier Policy for Unconventional Wells*."
Regulatory Requirement	In accordance with 25 Pa. Code § 78a.72(i), at least two mechanical pressure barriers are required between the open formation and the atmosphere that are capable of being tested during well development operations. The mechanical pressure barriers shall be tested according to manufacturer specifications prior to operation. If during the course of operations, the operator only has one functioning barrier, operations shall cease until additional barriers are added and tested or the redundant barrier is repaired and tested.

3.0 Pre and Post Frac Operations Considerations

Pre Frac Operations	1. As part of the pre-drilling planning process, Coterra conducts geologic and reservoir analysis including a shallow geology review to identify zones susceptible to flow 2. Coterra completes PADEP's Area of Review (AOR) requirements outlined in the "*Guidelines for Implementing Area of Review (AOR) Requirement for Unconventional Wells*" to identify and monitor offset wells and other potential risks. The AOR process includes pre-frac notifications, contact information and response procedures.

Frac and Post Frac Operations	1. This Pressure Barrier Policy is included in Coterra's Integrated Contingency Plan which includes: a. **Site Specific Information** b. **Emergency Response Plan** c. **Preparedness, Prevention and Contingency (PPC) Plan** d. **Spill Prevention, Control and Countermeasure (SPCC) Plan (if applicable)** 2. Coterra will comply with incident response reporting requirements in accordance with 25 Pa Code § 78a.66. In addition, any potential related issues, such as lost circulation (25 Pa. Code § 78a.83b), defective casing and cementing (25 Pa. Code § 78a.86) and gas migration response (25 Pa. Code § 78a.89) will be reported and/or managed per the respective regulatory requirements. 3. See Attachment A *Process Charts for Identifying Operation Types* that are required to have a Pressure Barrier Model Plan 4. See Attachment B *Pressure Barrier Model Plans* which: a. Identify activities requiring pressure barriers, and b. Detail the types of pressure barriers that may be utilized *Note the attached Charts and Model Plans are for reference purposes only - actual job specific plans may be included in the appropriate and applicable job/site specific SOPs*.

4.0 Documentation

Pressure Barrier Policy	Necessary site personnel and designated contractors will have access to a copy of this SOP as well as project/job specific SOPs not included in this plan. Copies of this SOP will be included as an attachment within Coterra's Integrated Contingency Plan.

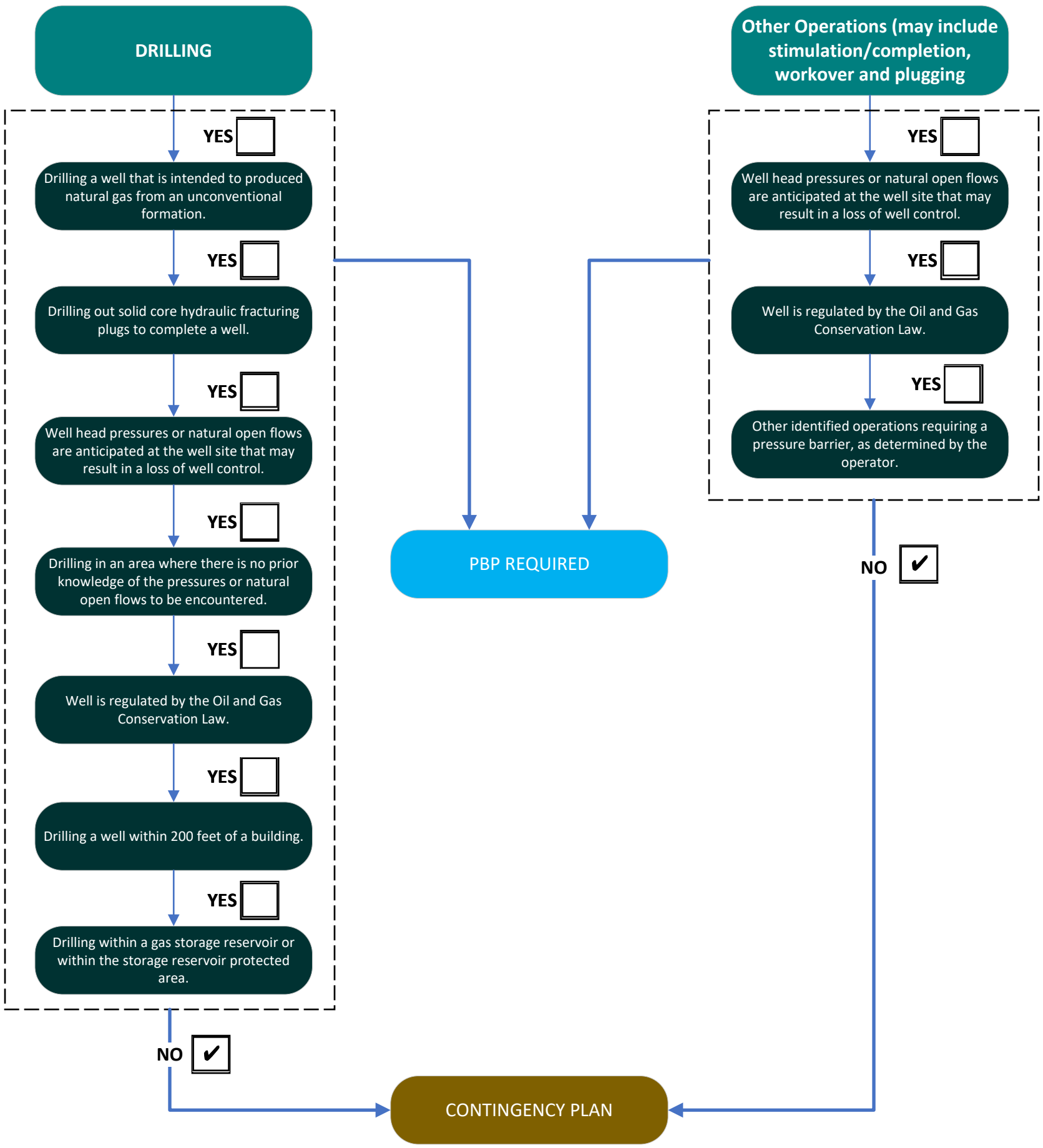
Attachment A – Process Charts for Identifying Operation Types

Attachment B – Pressure Barrier Model Plans

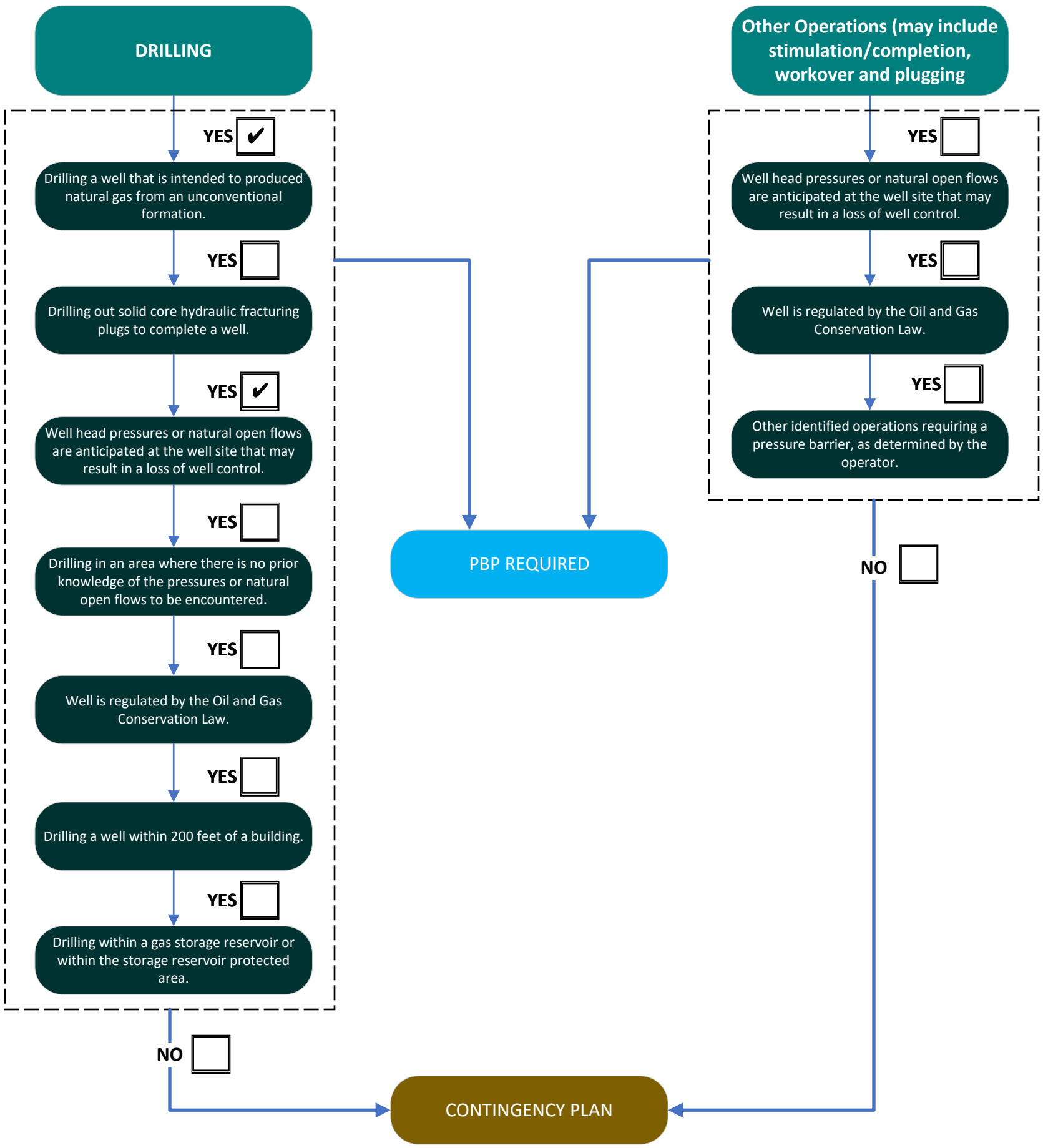
ATTACHMENT A - Process Charts for Identifying Operation Types

Drilling Phase	Internal barriers	External Barriers	Contingency
Surface drilling	drilling fluid & drill string float.	drilling fluid	
Surface casing run	3,600 psi rated float shoe / float collar and water.	drilling fluid	
Surface casing cementing	3,600 psi rated float shoe / float collar and water.	drilling fluid and cement	
Afer skidding off	3,600 psi rated float shoe / float collar and water.	cement	
Intermediate drilling	drilling fluid, drill string floats, floor valves.	drilling fluid and annular tested to 600 psi	
Intermediate casing run	5,000 psi rated float shoe / float collar and water.	drilling fluid and annular tested to 600 psi	
Intermediate casing cementing offline	5,000 psi rated float shoe / float collar and water.	Double wellhead seals tested to 5,000 psi and 2,000 psi rated wellhead outlets. Cement.	Able to route to choke manifold if needed for well control.
After skidding off	5,000 psi rated float shoe / float collar and water.	Cement, 2,000psi rated wellhead valves & 2,000 psi rated vent line hoses.	
Production drilling	drilling fluid, drill string floats, floor valves.	5,000psi BOP test for BOP components, (variable bore rams (VBR's) (3.5-5.5), Annular and blinds.	
Securing wells batch set to KOP	13 ppg drilling fluid, isolation plug (5,000psig tested) and TA cap (5,000 psig tested).	13 ppg drilling fluid, isolation plug (5,000 psi tested) and TA cap (5,000psi tested). B section wellhead valve tested and vent hose tested for pressure build up monitoring.	
Production casing cementing online	Drilling fluid, 2- 10,000 psig floats, TD IBOP's and TIW.	5,000psi BOP test for BOP components, VBR's (3.5-5.5), Annular. Cement.	
Production casing offline	Drilling fluid, 2- 10,000psig floats, TIW, 8 K tested gate valve. Back pressure valve initially installed into wellhead before pulling to install offline cementing TA cap.	Drilling fluid. B section 5,000psi tested gate valves. Wellhead packoff seals tested to 5,000psi before nippling down. 5,000psi tested plug plugs, ability to tie into BOP cross block to route to rigs choke manifold. Cement.	
Nippling down	Displace water, 2,000-10,000 psig floats, top plug provides additioanl barrier.	Wellhead packoff installed prior to ND and 5,000psi tested. Cement.	

Operations Type: **Drilling - Surface Casing**

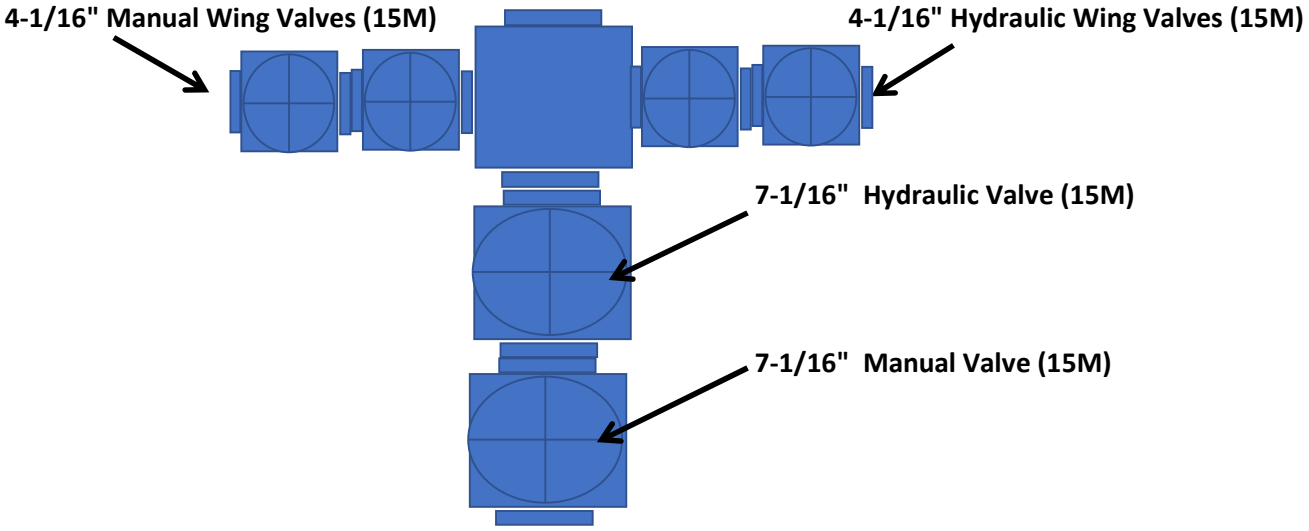


Operations Type: **Drilling - Intermediate & Production Casing**

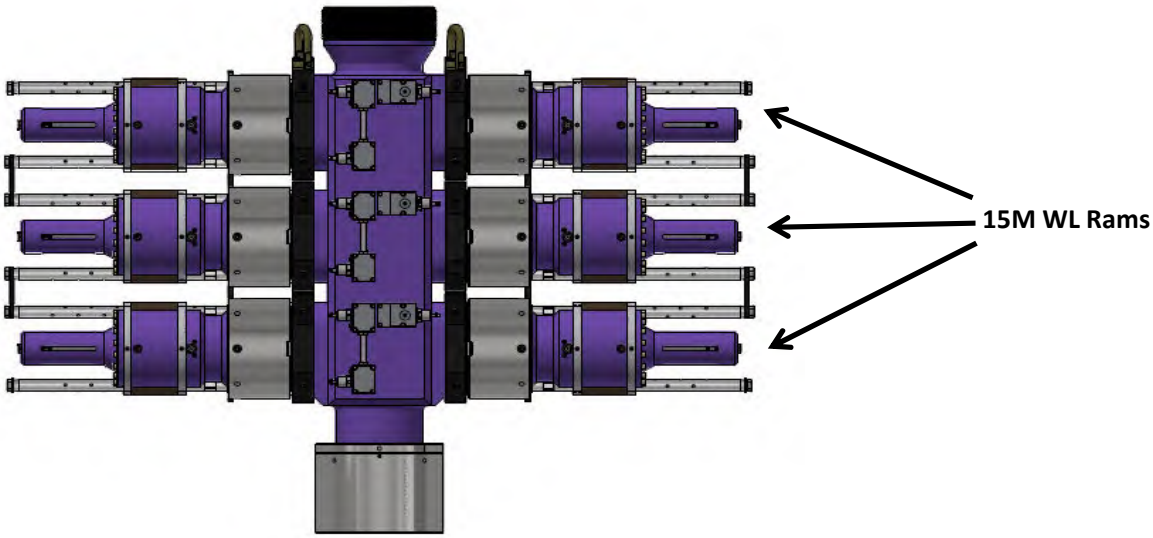


Completion Phase	# of Internal Barriers	Internal barriers	# of Annular Barriers	Annular Barriers	Contingency
Toe Prep (sleeve not opened)	minimum of 2 Barriers	2x 15M frac valves and flow cross on top with 2 x 4" flow cross valves	N/A	N/A	Heavy weight brine or mud
Top Prep (sleeve opened wireline stg 1 perf run)	minimum of 2 Barriers	2x 15M frac valves and flow cross on top with 2 x 4" flow cross valves.	minimum of 3 barriers	WL BOP Rams (3 sets of WL rams)	Heavy weight brine or mud
Post toe Prep	minimum of 2 Barriers	2x 15M frac valves and flow cross on top with 2 x 4" flow cross valves.	N/A	N/A	Heavy weight brine or mud
Frac Operations	minimum of 3 Barriers	3 x 15M frac valves. Or 2 x 15M frac valves + 2 x 15M flow cross valves (see frac stack schematic)	N/A	N/A	Heavy weight brine or mud
Wire Line Plug and perf operations	minimum of 3 Barriers	3 x 15M frac valves. Or 2 x 15M frac valves + 2 x 15M flow cross valves (see frac stack schematic)	minimum of 3 barriers	WL BOP Rams (3 sets of WL rams)	Heavy weight brine or mud
Swapping from Frac to DO Stack	minimum of 2 Barriers	Set two kill plugs. Swap out frac stack to DO stack (DO stack contains company purchased 10M lower valve)	N/A	N/A	Heavy weight brine or mud
Drill Out or Fishing Operations	minimum of 2 Barriers	2 x 10M frac valves. Or 2 x 10M frac valves + 2 x 10M flow cross valves (see DO stack schematic)	minimum of 2 barriers	WOR/RA BOP Stack (DO diagram)	Heavy weight brine or mud
Production Tree Install	minimum of 2 Barriers	Set BPV in tubing head and leave company purchased 10M lower valve)	N/A	N/A	Heavy weight brine or mud

Toe Prep Stack Configuration

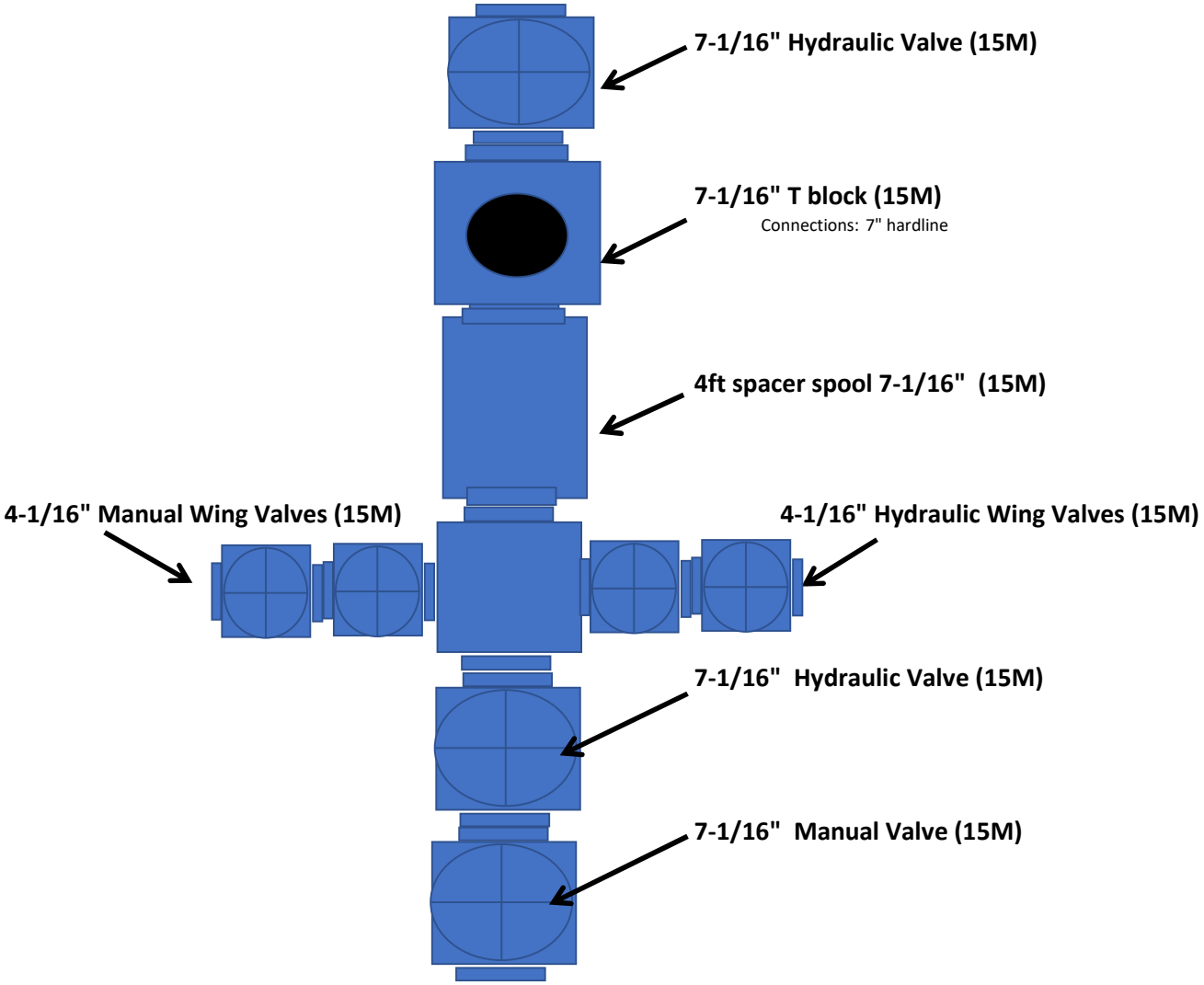


Wire Line Plug and perf operations

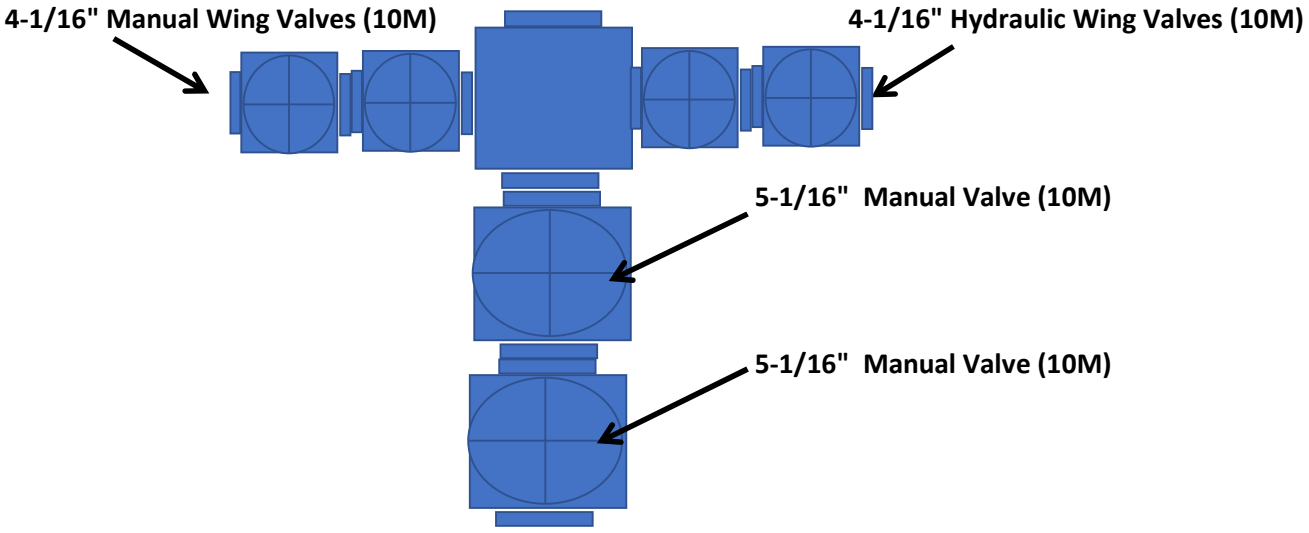


Frac Stack Configuration (zipper manifold w/7" T block)

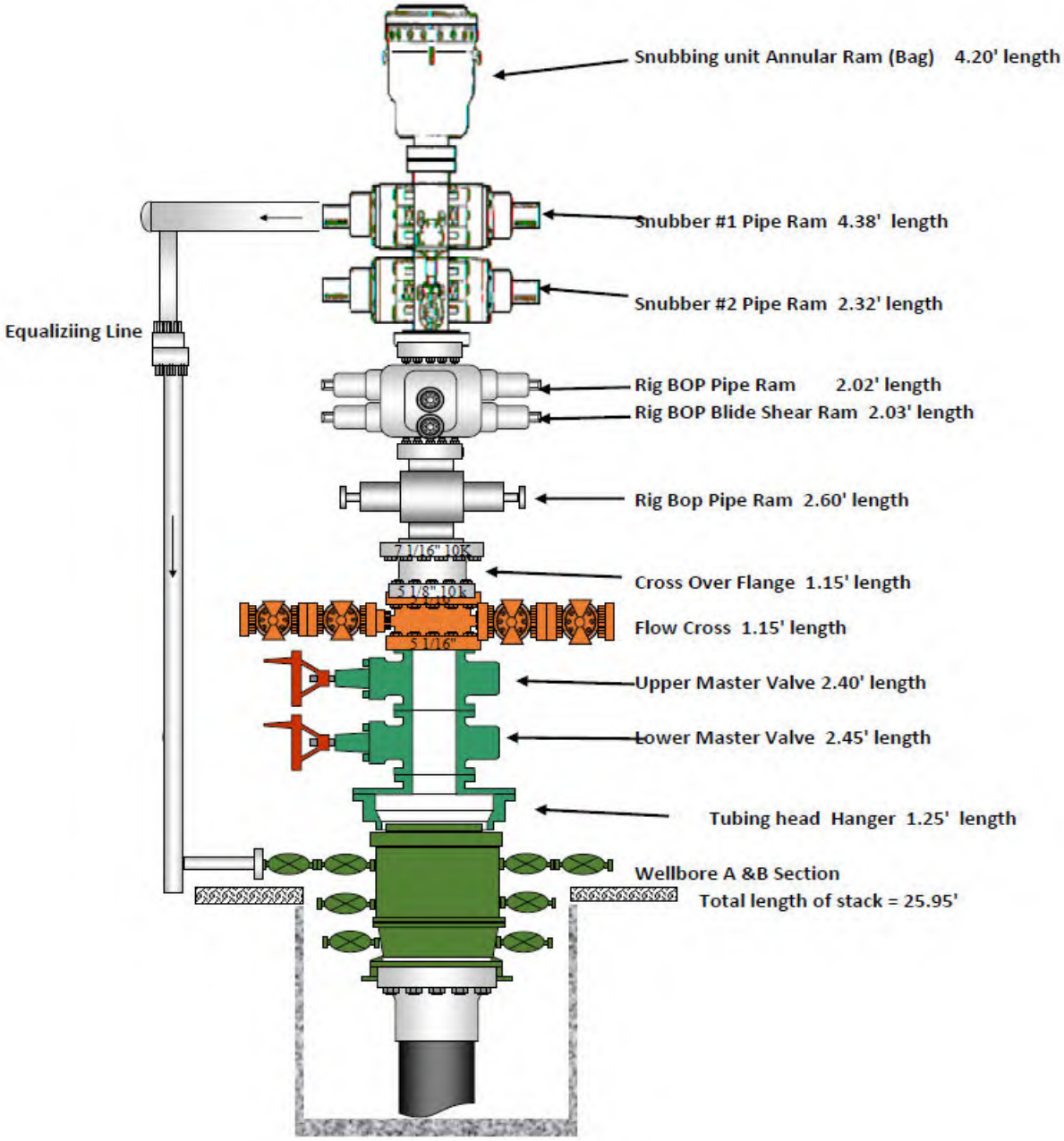
(**WL BOP rigs up on top of this for wireline operations)



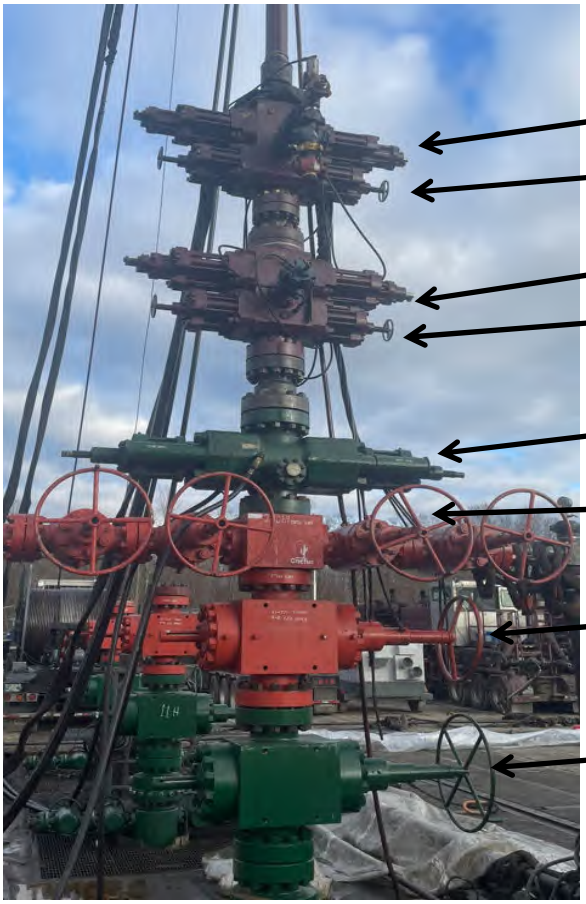
Drill Out Stack Configuration (will have Rig BOP stack on top)



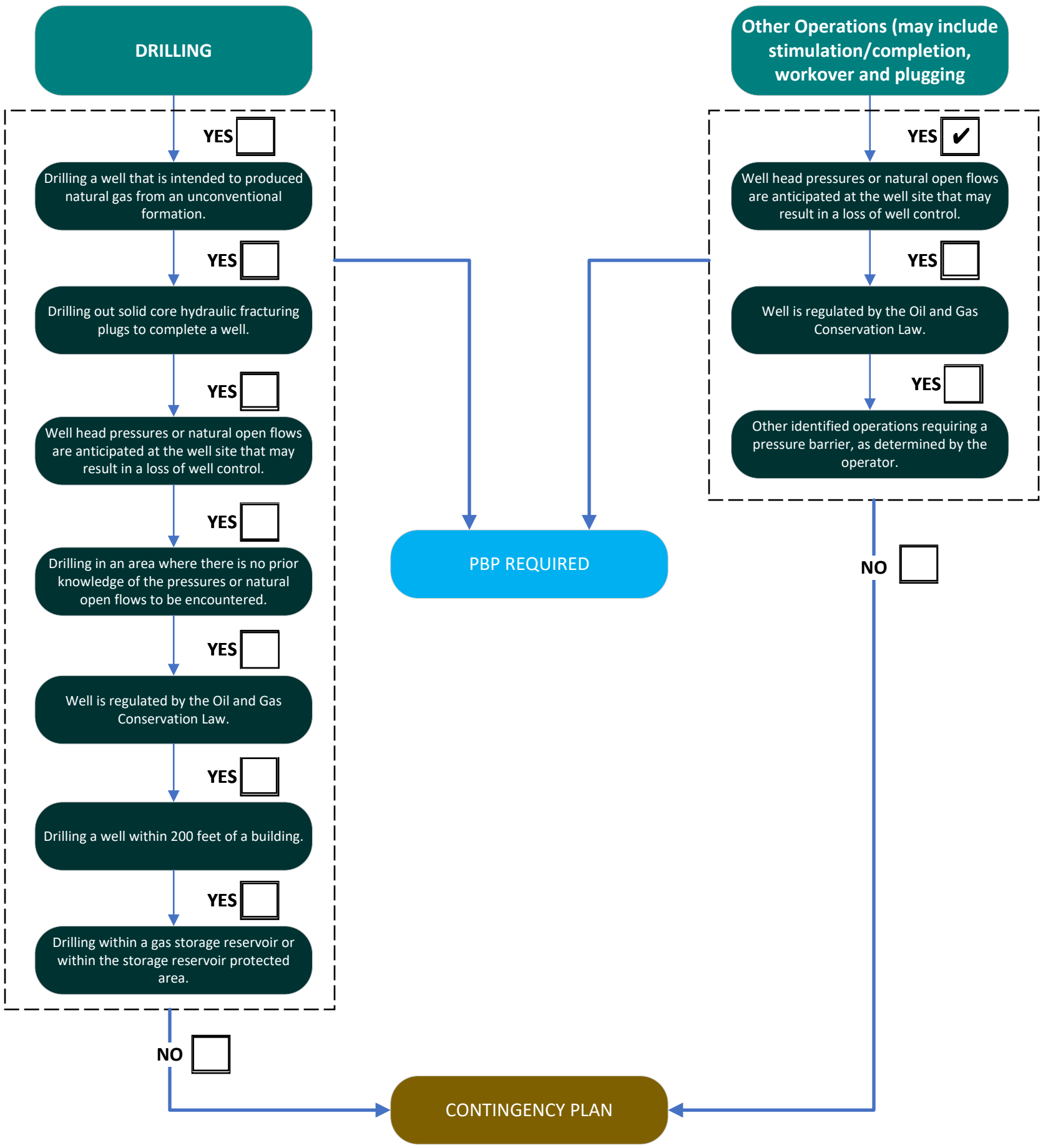
Rig/Snubbing Unit BOP Configuration



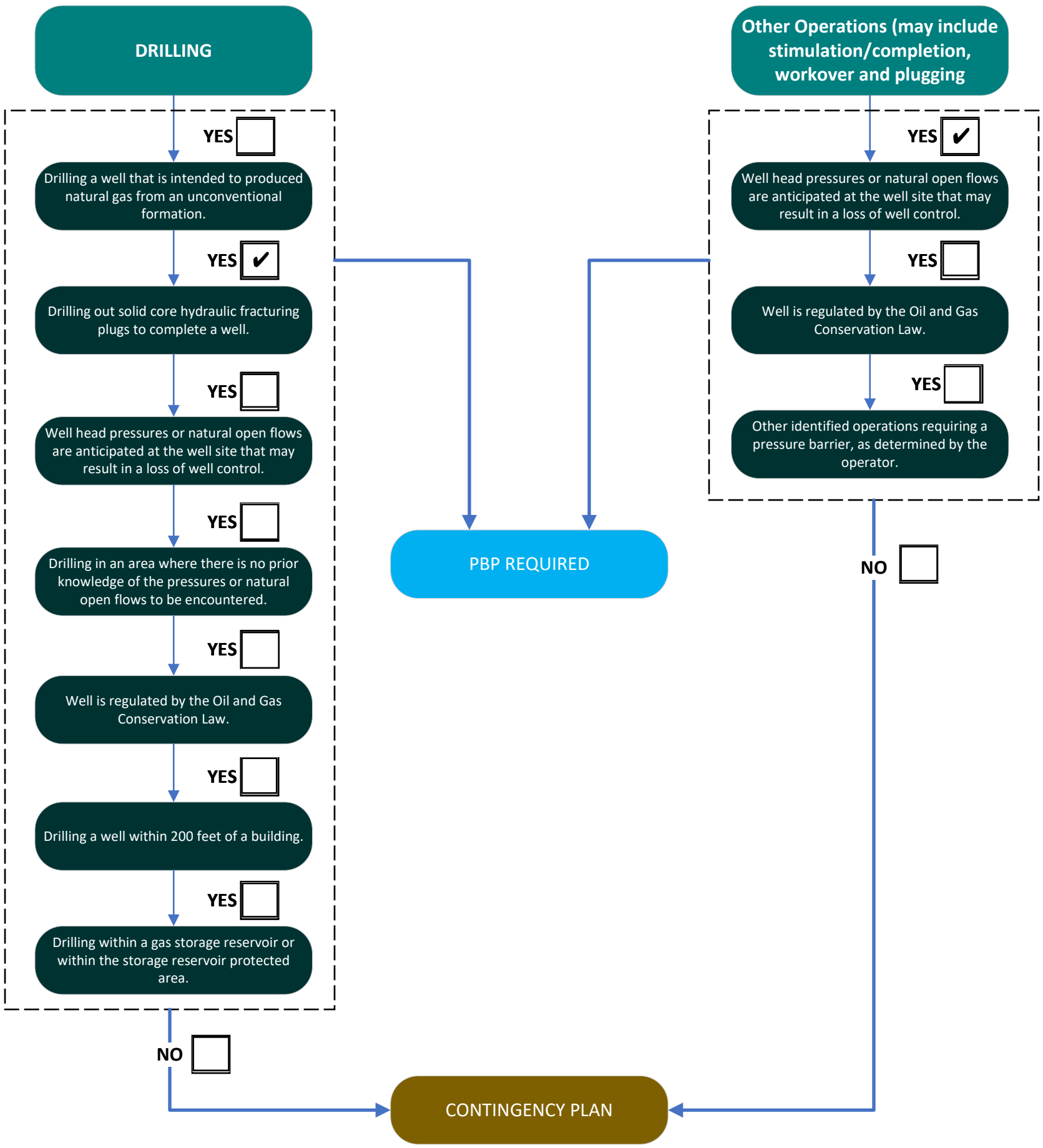
CO DO Configuration



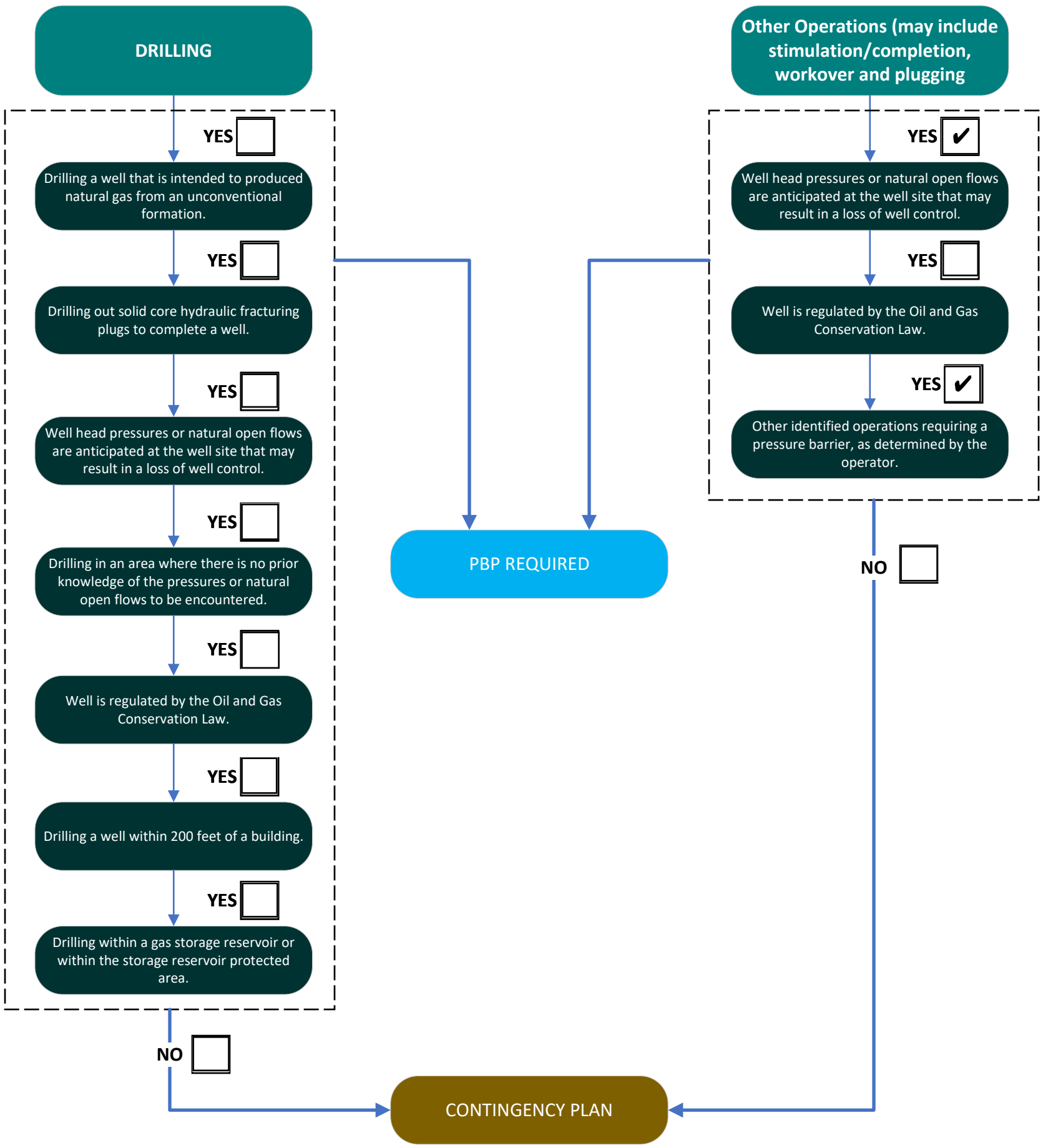
Operations Type: **Completions - Hydraulic Fracturing**



Operations Type: **Completions - Plug Drill-Out**

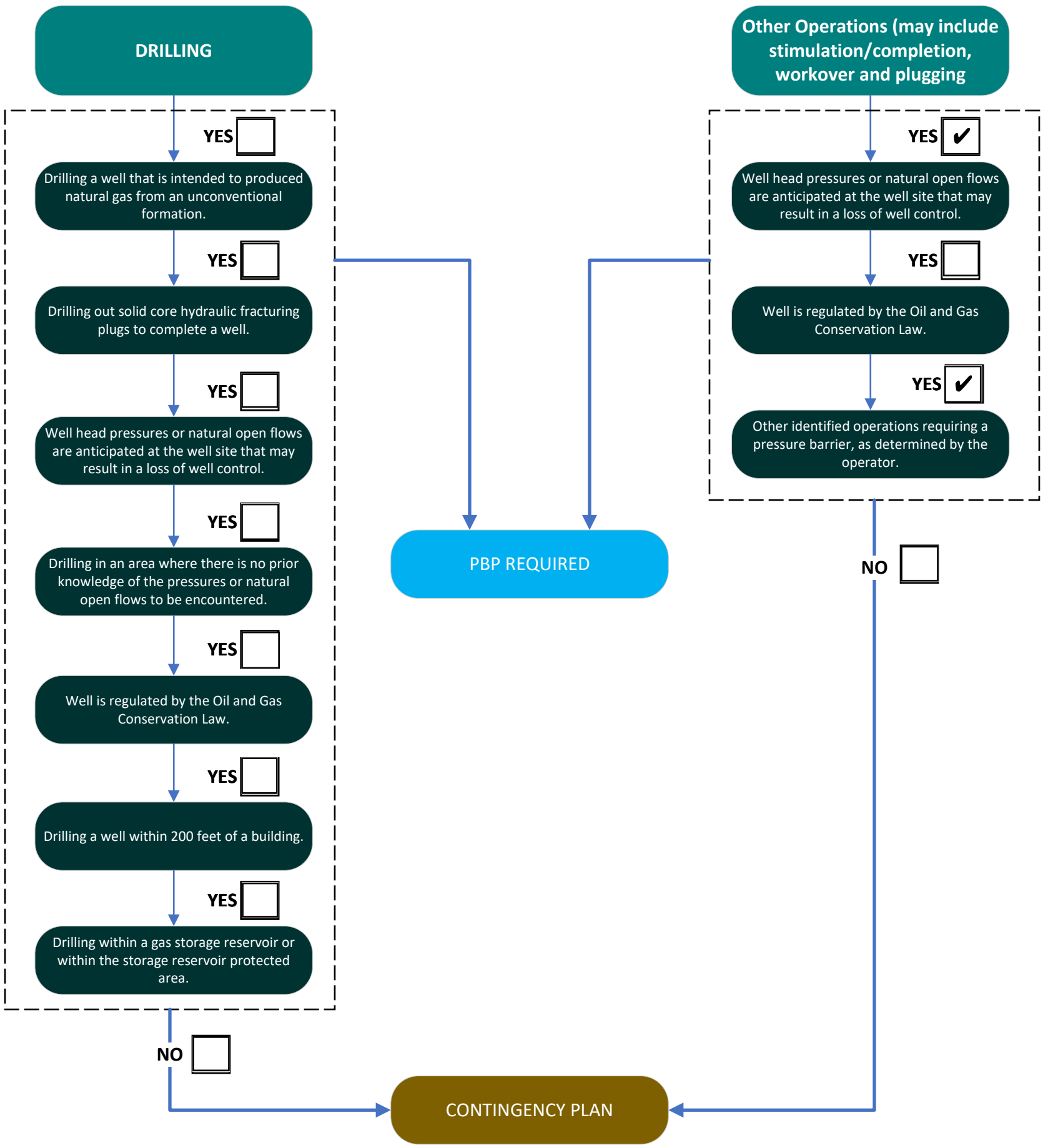


Operations Type: **Completions - Fishing**



Production Operations Phase
Surface drilling
Surface casing run
Surface casing cementing
Afer skidding off
Intermediate drilling
Intermediate casing run
Intermediate casing cementing offline
After skidding off
Production drilling
Securing wells batch set to KOP
Production casing cementing online
Produciton casing offline
Nippling down

Operations Type: **Production Workover**



ATTACHMENT B – Pressure Barrier Model Plans

Note the attached Model Plans are for reference purposes only - actual job specific plans will be included in the appropriate and applicable job/site specific SOP.

PRESSURE BARRIER POLICY MODEL PLAN - Drilling

Requirement	Conditional Requirement	Recommended Practice	Response				
PBP Audit Questions			Surface Hole Section	Intermediate Hole Section	Production Hole Section	Notes	Regulatory Citation
Is a BOP required? If no, proceed to Contingency Plan Section.			No	Yes	Yes	See job specific SOP for surface hole	§78a.72,§78a.87(a)(2), or §78a.55(d)
Identify all operations during which a BOP must be used.				Drilling	Drilling		§78a.72 and§78a.87(a)(2)
	If drilling in an underground gas storage reservoir, has the drilling as well as the casing and cementing plan, been approved by DEP and provided to the storage operator?		N/A	N/A	N/A	Not drilling in underground gas storage reservoir	§78a.76(a)
	If drilling in an underground gas storage reservoir, are there procedures for controlling anticipated gas storage reservoir pressures and flows at all times when drilling from 200 feet above the gas storage reservoir horizon to the depth at which the gas storage protective casing will be installed?		N/A	N/A	N/A	Not drilling in underground gas storage reservoir	§ 78a.87(a)(1)-(2)
Are there to be at least two *mechanical pressure barriers* in place during well drilling and completion operations?			N/A	Yes	Yes		§ 78a.72(i)
		Please briefly describe the *mechanical pressure barrier* s in use.	N/A	See job specific SOP	See job specific SOP	Annular preventer, blind rams, and pipe rams for intermediate and production hole sections	
Are there *well barrier elements* , including one or more casing strings of sufficient cemented length and strength, to address unexpected events, such as blowouts, explosions, fires, and casing failures, during installation, completion, and operation?			Yes	Yes	Yes		§ 78a.71
		Please briefly describe the procedures in place to address an event where a casing string may malfunction or become defective.	N/A	See job specific SOP	See job specific SOP	See contingency plan for surfacehole; soft shut-in and annular flow directed to gas buster for intermediate and production hole sections; contact well control vendor in all cases; access to SBM kill fluids will be available	
		Will any fluid barriers be used during this operation?	No	Yes	Yes		
		If fluid barriers will be used,please provide a brief description,including type (e.g., oil based mud(OBM),synthetic-based mud(SBM) or water based mud(WBM)),anticipated pounds pergallon(ppg) weight) of the fluids, and how they will be used.	**N/A**	See job specific SOP	See job specific SOP	Surfaceand intermediate hole sections drilled on air; production hole section on air to kick off point; switch to 15.4ppg SBMat KOP; access tSBM kill fluids while drilling on air through intermediate hole section	
		Please provide a brief description of the BOP and ancillary equipment, casing and well head configurations that will be available and may be utilized during drilling,stimulation/ completion,workover, and plugging.	**N/A**	See job specific SOP	See job specific SOP	See job specific SOP	§78a.71(a),§78a.72(i), and §78a.55(d)
Is there a procedure for documenting BOP inspection? Recording this information in the driller's log or other official operator documentation (electronically or otherwise) is sufficient for achieving compliance?			N/A	See job specific SOP	See job specific SOP	See job specific SOP	§78a.72(f)

	What is the maximum anticipated surface pressure (MASP) in pounds per square inch (psi) for the relevant operations that the BOP and ancillary equipment, casing and well head could be subjected to?		N/A	1500psi	4800psi		§78a.84(d) or (f)
		Please provide a brief description of how the MASP was determined. Forexample,estimates developed through reference of available pressure gradient maps followed by adjustments for formation and wellbore fluids represent one useful procedure.	**N/A**	See job specific SOP	See job specific SOP	Based on shoe depth and pressure gradient from known experience for intermediate and production hole sections	
		What is the pressure rating(PR)(psi) of the BOP?	**N/A**	5K	5K		
For a BOP with a PR greater than 3,000 psi, are controls accessible for actuation and additional controls present, not associated with the hydraulic system of the rig, at a minimum distance of 50 feet?			N/A	Yes	Yes		§78a.72(c)
Is there a procedure for a comprehensive test (pressure and operation) of the ram-type BOP and related equipment for implementation prior to use?			N/A	Yes	Yes	Follow API Standard53 Edition5 for all BOP testing	§78a.72€
Is there a procedure in place to have the annular type BOP tested per the manufacturer's published instructions, or the instructions of a professional engineer, prior to it being placed in service?			N/A	Yes	Yes	Follow API Standard53 Edition5 for all BOP testing; also seeInitial BOP Test Procedure/Checklist from Manufacturer	§78a.72(e)
	Is there a procedure for a shoe test in place? Note that a shoe test may include a Formation Integrity Test (FIT) or Leak Off Test (LOT). If gas will be produced inside of the intermediate casing, a shoe test is required. Note also that a single shoe test per drilling pad may be acceptable for all wells on the pad. Subsurface conditions and an evaluation of well construction, as performed by the operator, should determine whether this is technically appropriate.		N/A	No	Yes	No annular production planned-no relief valve necessary; shoe test completed to determine adequate support for mud weight in production hole section	§78a.83c.(b)
		What is the FIT/LOT test in equivalent ppg?	N/A	N/A	1900psi		
		How has the competency of the casing seat been determined?	N/A	N/A	See job specific SOP	Shoe test conducted in association with intermediate casing shoe prior to drilling production hole section; drill on air to KOP; LOT tosupport mud weight at intermediate shoe/based on operator experience in the area	§78a.72(a)
		Based on the competency and maximum anticipated pressure at the casing seat, is a hard shut in permissible?	N/A	No	No		§78a.72(a) and §78a.83c(b)
Do the pipe fittings, valves and unions placed on or connected to the BOP system have working pressure ratings in excess of the MASP?			N/A	Yes	Yes		§78a.72(d)
Is there a procedure in place to visually inspect the equipment during drilling operations? (Note: please see Appendix A for citation clarification).			N/A	Yes	Yes		§78a.72(f)

Have all ram testing procedures in place been developed in accordance with API Standard 53 or a different a procedure approved by DEP?			N/A	Yes	Yes	Follow API Standard53 Edition5 for all BOP testing	§78a.72(f)
Are pipe rams tested daily for closure during drilling operations, in accordance with API Standard 53, or has a different procedure been approved by DEP?			N/A	Yes	Yes	Follow API Standard53 Edition5 for all BOP testing	§78a.72(f)
Are blind rams tested for closure on each round trip or at least daily on days with multiple round trips; or are they tested in accordance with API Standard 53 or a different procedure been approved by DEP?			N/A	Yes	Yes	Follow API Standard53 Edition5 for all BOP testing	§78a.72(f)
Are all inspection and closure test results recorded in the driller's log before the end of the tour or has a different procedure been approved by DEP?			N/A	Yes	Yes		§78a.72(f)
Are all lines, valves, and fittings between the closing unit and the BOP stack flame resistant and characterized by working pressures that meet or exceed those of the BOP system?			N/A	Yes	Yes		§78a.72(g)
Does the minimum cemented intermediate casing meet the applicable requirements or has DEP approved an alternative method?			N/A	Yes	N/A		§78a.72(k)
Have all welded or used casing strings used to anchor BOPs, or any new casing used to anchor BOPs with pressure ratings greater than 3,000 psi been pressure tested after cementing?			N/A	Yes	Yes		§78a.84(d) or (f)
Is the pressure test procedure compliant (no more than 10% decrease in pressure over a 30-minute period) or has an alternative test method been approved by DEP?			N/A	Yes	Yes		§78a.84(d) or (f)
Has certification of the pressure test been confirmed (entry and signature of the person performing the test in the driller's log)?			N/A	Yes	Yes		§78a.84(f)
		Please provide a brief description and schematic ofthe well head assembly that clearly indicates which string of casing the "A"section of the well head will be attached to during the referenced operation.(Note: that schematics are readily available from wellhead manufacturers.)	N/A	See job specific SOP	See job specific SOP	Schematic for production hole section drilling depicted; note that "A"section for intermediate hole section is surface casing	
		Are there other completed wells on the padadjacent to the well that is the subject of the PBP	Yes	Yes	Yes		
	Please briefly describe how other wells on the pad have been secured and/or monitored during the current operation. At a minimum, the relevant regulatory notification requirements of the area of review (AOR) must be satisfied when the operation is hydraulic fracturing.		See job specific SOP	See job specific SOP	See job specific SOP	Anti-collision procedures in place;wellheads secured and clearly marked;real-time monitoring of all tubing,production, and production annuli	§78a.52a(c)(3) and §78a.73(c)

Is there an International Association of Drilling Contractors (IADC) certified individual or other individual certified by a DEP approved organization present on site during operations requiring a BOP?			N/A	Yes	Yes		§78a.72(h)
Is the IADC certification available for review on site?			N/A	Yes	Yes		§78a.72(h)

Requirement	Conditional Requirement	Recommended Practice	Response				
Contingency Plan							
PBP Audit Questions			Surface Hole Section	Intermediate Hole Section	Production Hole Section	Notes	Regulatory Citation
If excess gas is encountered during operations not requiring a pressure barrier, can it be flared, captured, or diverted in a manner that does not create a hazard to public health or safety?			See job specific SOP	See job specific SOP	See job specific SOP	All excess gas diverted to flare stack during drilling of surface hole; gas buster rigged up duringdrilling of intermediate and production hole sections-capable of 5mmcfpd intake; access to SBM kill fluids will be available	§ 78a.74
		Provide a brief description of the size, construction and length of the equipment used to manage any excess gas encountered. If a flare line will be used, include a brief description of the method used to anchor it and any igniters that will be used; and indicate if redundant igniters are present.	See job specific SOP	See job specific SOP	See job specific SOP	Diverter system run to flare stack through steel line; flare stack is situated approximately 100feet from the rig floor;flare stack is anchored by threesteel cables placed at 120-degree spacings radially;igniter assembly is weather resistant and capable of ignition in extreme environments;redundant igniters are present	
		If BOP equipment will not be utilized during drilling, completion, workover or plugging of the well, please briefly explain why or describe what type of *well barrier elements* are in place and provide the details of a contingency plan for managing unanticipated *kicks* or a *loss of well control.*	See job specific SOP	**N/A**	N/A	BOP used for intermediate and production hole sections; contingency plan for surface hole listed above	§ 78a.72
		Is there an IADC or equivalent methodology in place to kill the well or control a *kick,* if required?	N/A	N/A	N/A		
		Briefly describe the methodology in place to kill the well or control a *kick.*	**N/A**	**N/A**	N/A	Don't anticipate sustained flow while drilling surface hole; if well flows, divert to flare stack and flow well safely until zone blows down	

PRESSURE BARRIER POLICY MODEL PLAN - Completions

Requirement	Conditional Requirement	Recommended Practice	Response				
PBP Audit Questions			**Hydraulic Fracturing**	**Plug Drill-out**	**Fishing Operations**	**Notes**	Regulatory Citation
Is a BOP required? If no, proceed to Contingency Plan Section.			**Yes**	**Yes**	**Yes**		§78a.72,§78a.87(a)(2), or §78a.55(d)
Identify all operations during which a BOP must be used.			**Stimulation**	**Workover**	**Workover**		§78a.72 and§78a.87(a)(2)
	If drilling in an underground gas storage reservoir, has the drilling as well as the casing and cementing plan, been approved by DEP and provided to the storage operator?		**N/A**	**N/A**	**N/A**		§78a.76(a)
	If drilling in an underground gas storage reservoir, are there procedures for controlling anticipated gas storage reservoir pressures and flows at all times when drilling from 200 feet above the gas storage reservoir horizon to the depth at which the gas storage protective casing will be installed?		**N/A**	**N/A**	**N/A**		§ 78a.87(a)(1)-(2)
Are there to be at least two *mechanical pressure barriers* in place during well drilling and completion operations?			**Yes**	**Yes**	**Yes**		§ 78a.72(i)
		Please briefly describe the *mechanical pressure barrier* s in use.	**Narrative**	**Narrative**	**Narrative**	**We have 4 hydraulc valves in place during frac operations. During plug DO operations we have at least 3 hydraulic valves. With stick pipe in the hole we have**	
Are there *well barrier elements* , including one or more casing strings of sufficient cemented length and strength, to address unexpected events, such as blowouts, explosions, fires, and casing failures, during installation, completion, and operation?			**Yes**	**Yes**	**Yes**		§ 78a.71
		Please briefly describe the procedures in place to address an event where a casing string may malfunction or become defective.	**Narrative**	**Narrative**	**Narrative**	**We would shut down frac operations and close surface valves. During DO operations we would TOOH and shut in surface valves.**	
		Will any fluid barriers be used during this operation?	**No**	**No**	**Yes**		
		If fluid barriers will be used,please provide a brief description,including type (e.g., oil based mud(OBM),synthetic-based mud(SBM) or water based mud(WBM)),anticipated pounds pergallon(ppg) weight) of the fluids, and how they will be used.	**N/A**	**N/A**	**Narrative**	**Only in the event that fish being pulled out of the hole is inable to have an internal plug or does not have a functioning BPV**	
		Please provide a brief description of the BOP and ancillary equipment, casing and well head configurations that will be available and may be utilized during drilling,stimulation/ completion,workover, and plugging.	**Narrative**	**Narrative**	**Narrative**	**For frac operations we have a triple barrier frac valve frac stack. For wireline operations we also have 3 WL barrier rams on top of that frac stack. For DO and fishing operations we have a three barrier frac valve stack along with two barriers for the annular pipe.**	§78a.71(a),§78a.72(i), and §78a.55(d)

Is there a procedure for documenting BOP inspection? Recording this information in the driller's log or other official operator documentation (electronically or otherwise) is sufficient for achieving compliance?			**Yes**	**Yes**	**Yes**		§78a.72(f)
	What is the maximum anticipated surface pressure (MASP) in pounds per square inch (psi) for the relevant operations that the BOP and ancillary equipment, casing and well head could be subjected to?		**Frac operations we have a MASP of 12,500 psi but the equipment is rated for 15,000 psi. The average frac stage pressure is around 10,000 psi**	**For drill out operations we have a MASP of 6,000 psi but the equipment is rated for 10,000 psi**	**For fishing operations we have a MASP of 5,000 psi but the equipment is rated for 10,000 psi**		§78a.84(d) or (f)
		Please provide a brief description of how the MASP was determined. Forexample,estimates developed through reference of available pressure gradient maps followed by adjustments for formation and wellbore fluids represent one useful procedure.	**Narrative**	**Narrative**	**Narrative**	**MASP is determined from frac and pore pressure gradients. We generally use fresh water as our base fluid.**	
		What is the pressure rating(PR)(psi) of the BOP?	**15,000 psi**	**10,000 psi**	**10,000 psi**		
For a BOP with a PR greater than 3,000 psi, are controls accessible for actuation and additional controls present, not associated with the hydraulic system of the rig, at a minimum distance of 50 feet?			**Yes**	**Yes**	**Yes**		§78a.72(c)
Is there a procedure for a comprehensive test (pressure and operation) of the ram-type BOP and related equipment for implementation prior to use?			**Yes**	**Yes**	**Yes**		§78a.72€
Is there a procedure in place to have the annular type BOP tested per the manufacturer's published instructions, or the instructions of a professional engineer, prior to it being placed in service?			**Yes**	**Yes**	**Yes**		§78a.72(e)
	Is there a procedure for a shoe test in place? Note that a shoe test may include a Formation Integrity Test (FIT) or Leak Off Test (LOT). If gas will be produced inside of the intermediate casing, a shoe test is required. Note also that a single shoe test per drilling pad may be acceptable for all wells on the pad. Subsurface conditions and an evaluation of well construction, as performed by the operator, should determine whether this is technically appropriate.		**N/A**	**N/A**	**N/A**		§78a.83c.(b)
		What is the FIT/LOT test in equivalent ppg?					
		How has the competency of the casing seat been determined?	**N/A**	**N/A**	**N/A**		§78a.72(a)
		Based on the competency and maximum anticipated pressure at the casing seat, is a hard shut in permissible?	**N/A**	**N/A**	**N/A**		§78a.72(a) and §78a.83c(b)

Do the pipe fittings, valves and unions placed on or connected to the BOP system have working pressure ratings in excess of the MASP?			**Yes**	**Yes**	**Yes**		§78a.72(d)
Is there a procedure in place to visually inspect the equipment during drilling operations? (Note: please see Appendix A for citation clarification).			**N/A**	**Yes**	**Yes**		§78a.72(f)
Have all ram testing procedures in place been developed in accordance with API Standard 53 or a different a procedure approved by DEP?			**Yes**	**Yes**	**Yes**		§78a.72(f)
Are pipe rams tested daily for closure during drilling operations, in accordance with API Standard 53, or has a different procedure been approved by DEP?			**N/A**	**No**	**No**	**Not daily but at beginning of each well**	§78a.72(f)
Are blind rams tested for closure on each round trip or at least daily on days with multiple round trips; or are they tested in accordance with API Standard 53 or a different procedure been approved by DEP?			**N/A**	**No**	**No**		§78a.72(f)
Are all inspection and closure test results recorded in the driller's log before the end of the tour or has a different procedure been approved by DEP?			**N/A**	**N/A**	**N/A**		§78a.72(f)
Are all lines, valves, and fittings between the closing unit and the BOP stack flame resistant and characterized by working pressures that meet or exceed those of the BOP system?			**N/A**	**Yes**	**Yes**		§78a.72(g)
Does the minimum cemented intermediate casing meet the applicable requirements or has DEP approved an alternative method?			**Yes**	**Yes**	**Yes**		§78a.72(k)
Have all welded or used casing strings used to anchor BOPs, or any new casing used to anchor BOPs with pressure ratings greater than 3,000 psi been pressure tested after cementing?			**N/A**	**N/A**	**N/A**		§78a.84(d) or (f)
Is the pressure test procedure compliant (no more than 10% decrease in pressure over a 30-minute period) or has an alternative test method been approved by DEP?			**Yes**	**Yes**	**Yes**		§78a.84(d) or (f)
Has certification of the pressure test been confirmed (entry and signature of the person performing the test in the driller's log)?			**N/A**	**N/A**	**N/A**		§78a.84(f)
		Please provide a brief description and schematic ofthe well head assembly that clearly indicates which string of casing the "A"section of the well head will be attached to during the referenced operation.(Note: that schematics are readily available from wellhead manufacturers.)	**N/A**	**N/A**	**N/A**		
		Are there other completed wells on the padadjacent to the well that is the subject of the PBP	**N/A**	**N/A**	**N/A**		

	Please briefly describe how other wells on the pad have been secured and/or monitored during the current operation. At a minimum, the relevant regulatory notification requirements of the area of review (AOR) must be satisfied when the operation is hydraulic fracturing.		**Narrative**	**Narrative**	**Narrative**	**Area of review is followed.**	§78a.52a(c)(3) and §78a.73(c)
Is there an International Association of Drilling Contractors (IADC) certified individual or other individual certified by a DEP approved organization present on site during operations requiring a BOP?			**N/A**	**N/A**	**N/A**		§78a.72(h)
Is the IADC certification available for review on site?							§78a.72(h)

Requirement	Conditional Requirement	Recommended Practice	**Response**				
Contingency Plan							
PBP Audit Questions			**Surface Hole Section**	**Intermediate Hole Section**	**Production Hole Section**	**Notes**	Regulatory Citation
If excess gas is encountered during operations not requiring a pressure barrier, can it be flared, captured, or diverted in a manner that does not create a hazard to public health or safety?							§ 78a.74
		Provide a brief description of the size, construction and length of the equipment used to manage any excess gas encountered. If a flare line will be used, include a brief description of the method used to anchor it and any igniters that will be used; and indicate if redundant igniters are present.					
		If BOP equipment will not be utilized during drilling, completion, workover or plugging of the well, please briefly explain why or describe what type of *well barrier elements* are in place and provide the details of a contingency plan for managing unanticipated *kicks* or a *loss of well control.*					§ 78a.72
		Is there an IADC or equivalent methodology in place to kill the well or control a *kick,* if required?					
		Briefly describe the methodology in place to kill the well or control a *kick.*					

Coil Tubing Vendor:
Follow API 16ST
Coil BOPs (all items including rental auxiliary)
-function test at initial MIRU hookup, and then only re-function test if any hoses are broken loose.
-pressure test only before every RIH on well swaps (BOP components in open position)

Standalone Rig Vendor:
We do follow API 53.
We do a full pressure test upon initial rig up and again at 21 days if the job continues that long.
For rig overs we test only the flange broken and the surface lines, as mentioned from the API text below (b), the components not disconnected or repaired do not need to be re-tested.

We include stripping rams in the primary test upon rig up. The stripping rams are not considered a primary barrier and therefore do not require an official pressure test when they are opened and changed out during an operation (we do however, do an inflow test).

Company A:
Follow API 53
Function test & psi test against everything. Shears/blinds, annular, 1s, 2s, and rams on initial rig up and on each new well.

Company B:
Follow API 53
Function test & psi test against everything. Shears/blinds, annular, 1s, 2s, and rams on initial rig up and on each new well.

Company A WOR/RA Vendor:
Follow API 53
Function test & psi test against everything. Shears/blinds, annular, 1s, 2s, and rams on initial rig up and on each new well.

Company B WOR/RA Vendor:
Follow API 53
Function test & psi test against everything. Shears/blinds, annular, 1s, 2s, and rams on initial rig up and on each new well.

6.5.3.4 Pressure Test Frequency

6.5.3.4.1 Pressure tests on the well control equipment shall be conducted

a) before the equipment is put into operational service on the wellhead;

b) after the disconnection or repair of any pressure containment seal in the BOP stack, choke line, kill line, choke manifold, or wellhead assembly but limited to the affected component;

c) in accordance with the equipment owner's PM program; and

d) not to exceed intervals of 21 days.

PRESSURE BARRIER POLICY MODEL PLAN - Production

Requirement	Conditional Requirement	Recommended Practice	Response							
PBP Audit Questions			Workover Activities	Well Plugging	Tubing Install	Slick Line/Wirel Line Work	RBP Installs	Casing Cleanout	Notes	Regulatory Citation
Is a BOP required? If no, proceed to Contingency Plan Section.			Yes	Yes	Yes	Yes	Yes	Yes		§78a.72,§78a.87(a)(2), or §78a.55(d)
Identify all operations during which a BOP must be used.			Workover	Plugging	Workover	Workover	Workover	Workover		§78a.72 and§78a.87(a)(2)
	If drilling in an underground gas storage reservoir, has the drilling as well as the casing and cementing plan, been approved by DEP and provided to the storage operator?		N/A	N/A	N/A	N/A	N/A	N/A		§78a.76(a)
	If drilling in an underground gas storage reservoir, are there procedures for controlling anticipated gas storage reservoir pressures and flows at all times when drilling from 200 feet above the gas storage reservoir horizon to the depth at which the gas storage protective casing will be installed?		N/A	N/A	N/A	N/A	N/A	N/A		§ 78a.87(a)(1)-(2)
Are there to be at least two *mechanical pressure barriers* in place during well drilling and completion operations?			N/A	N/A	N/A	N/A	N/A	N/A		§ 78a.72(i)
		Please briefly describe the *mechanical pressure barrier* s in use.	Narrative	Narrative	Narrative	Narrative	Narrative	Narrative	Refer to Workover Procedure for specific projects	
Are there *well barrier elements* , including one or more casing strings of sufficient cemented length and strength, to address unexpected events, such as blowouts, explosions, fires, and casing failures, during installation, completion, and operation?			Yes	Yes	Yes	Yes	Yes	Yes		§ 78a.71
		Please briefly describe the procedures in place to address an event where a casing string may malfunction or become defective.								
		Will any fluid barriers be used during this operation?	Yes	Yes	Yes	No	No	Yes		
		If fluid barriers will be used,please provide a brief description,including type (e.g., oil based mud(OBM),synthetic-based mud(SBM) or water based mud(WBM)),anticipated pounds pergallon(ppg) weight) of the fluids, and how they will be used.	**Narrative**	**Narrative**	**Narrative**	**N/A**	**N/A**	**N/A**	Fresh Water or Field Produced Water with a ppg of 8.33 will be the fluid barrier required to keep the well in vacuum or static conditions.	
		Please provide a brief description of the BOP and ancillary equipment, casing and well head configurations that will be available and may be utilized during drilling,stimulation/ completion,workover, and plugging.	**Narrative**	**Narrative**	**Narrative**	**Narrative**	**Narrative**	**Narrative**	Refer to Workover Procedure for specific projects	§78a.71(a),§78a.72(i), and §78a.55(d)
Is there a procedure for documenting BOP inspection? Recording this information in the driller's log or other official operator documentation (electronically or otherwise) is sufficient for achieving compliance?										§78a.72(f)
	What is the maximum anticipated surface pressure (MASP) in pounds per square inch (psi) for the relevant operations that the BOP and ancillary equipment, casing and well head could be subjected to?									§78a.84(d) or (f)
		Please provide a brief description of how the MASP was determined. Forexample,estimates developed through reference of available pressure gradient maps followed by adjustments for formation and wellbore fluids represent one useful procedure.								
		What is the pressure rating(PR)(psi) of the BOP?	5000 psi	5000 psi	5000 psi	5000 psi	5000 psi	5000 psi		
For a BOP with a PR greater than 3,000 psi, are controls accessible for actuation and additional controls present, not associated with the hydraulic system of the rig, at a minimum distance of 50 feet?			Yes	Yes	Yes	No	Yes	Yes	Refer to Workover Procedure for specific projects For RBP Installs - we set RBPs on pipe sometimes, so we'd rely on the accumulator to actuate at a distance 50' away.	§78a.72(c)

Is there a procedure for a comprehensive test (pressure and operation) of the ram-type BOP and related equipment for implementation prior to use?			Yes	Yes	Yes	No	Yes	Yes	BOPs are tested at the service provider's facility prior to delivery.	§78a.72€
Is there a procedure in place to have the annular type BOP tested per the manufacturer's published instructions, or the instructions of a professional engineer, prior to it being placed in service?			Yes	Yes	Yes	N/A	Yes	Yes	Annular type BOPs are tested on location prior to the start of the project. RBPs are sometimes set on tubing so it would occur with the annular on top of the stack.	§78a.72(e)
	Is there a procedure for a shoe test in place? Note that a shoe test may include a Formation Integrity Test (FIT) or Leak Off Test (LOT). If gas will be produced inside of the intermediate casing, a shoe test is required. Note also that a single shoe test per drilling pad may be acceptable for all wells on the pad. Subsurface conditions and an evaluation of well construction, as performed by the operator, should determine whether this is technically appropriate.		N/A	N/A	N/A	N/A	N/A	N/A		§78a.83c.(b)
		What is the FIT/LOT test in equivalent ppg?	N/A	N/A	N/A	N/A	N/A	N/A		
		How has the competency of the casing seat been determined?	N/A	N/A	N/A	N/A	N/A	N/A		§78a.72(a)
		Based on the competency and maximum anticipated pressure at the casing seat, is a hard shut in permissible?	Yes	Yes	Yes	Yes	Yes	Yes		§78a.72(a) and §78a.83c(b)
Do the pipe fittings, valves and unions placed on or connected to the BOP system have working pressure ratings in excess of the MASP?			Yes	Yes	Yes	Yes	Yes	Yes		§78a.72(d)
Is there a procedure in place to visually inspect the equipment during drilling operations? (Note: please see Appendix A for citation clarification).			Yes	Yes	Yes	Yes	Yes	Yes	Daily checks are made Site Representatives and Tool Pushers.	§78a.72(f)
Have all ram testing procedures in place been developed in accordance with API Standard 53 or a different a procedure approved by DEP?			Yes	Yes	Yes	No	Yes	Yes		§78a.72(f)
Are pipe rams tested daily for closure during drilling operations, in accordance with API Standard 53, or has a different procedure been approved by DEP?			Yes	Yes	Yes	N/A	Yes	Yes		§78a.72(f)
Are blind rams tested for closure on each round trip or at least daily on days with multiple round trips; or are they tested in accordance with API Standard 53 or a different procedure been approved by DEP?			Yes	Yes	Yes	N/A	Yes	Yes		§78a.72(f)
Are all inspection and closure test results recorded in the driller's log before the end of the tour or has a different procedure been approved by DEP?			No	No	No	No	No	No		§78a.72(f)
Are all lines, valves, and fittings between the closing unit and the BOP stack flame resistant and characterized by working pressures that meet or exceed those of the BOP system?			Yes	Yes	Yes	N/A	Yes	Yes		§78a.72(g)
Does the minimum cemented intermediate casing meet the applicable requirements or has DEP approved an alternative method?			N/A	N/A	N/A	N/A	N/A	N/A		§78a.72(k)
Have all welded or used casing strings used to anchor BOPs, or any new casing used to anchor BOPs with pressure ratings greater than 3,000 psi been pressure tested after cementing?			N/A	N/A	N/A	N/A	N/A	N/A		§78a.84(d) or (f)
Is the pressure test procedure compliant (no more than 10% decrease in pressure over a 30-minute period) or has an alternative test method been approved by DEP?										§78a.84(d) or (f)
Has certification of the pressure test been confirmed (entry and signature of the person performing the test in the driller's log)?										§78a.84(f)

		Please provide a brief description and schematic ofthe well head assembly that clearly indicates which string of casing the "A"section of the well head will be attached to during the referenced operation.(Note: that schematics are readily available from wellhead manufacturers.)								
		Are there other completed wells on the padadjacent to the well that is the subject of the PBP								
	Please briefly describe how other wells on the pad have been secured and/or monitored during the current operation. At a minimum, the relevant regulatory notification requirements of the area of review (AOR) must be satisfied when the operation is hydraulic fracturing.									§78a.52a(c)(3) and §78a.73(c)
Is there an International Association of Drilling Contractors (IADC) certified individual or other individual certified by a DEP approved organization present on site during operations requiring a BOP?			Yes	Yes	Yes	Yes	Yes	Yes		§78a.72(h)
Is the IADC certification available for review on site?			Yes	Yes	Yes	Yes	Yes	Yes		§78a.72(h)

Requirement	Conditional Requirement	Recommended Practice	Response							
Contingency Plan										
PBP Audit Questions			Surface Hole Section	Intermediate Hole Section	Production Hole Section				Notes	Regulatory Citation
If excess gas is encountered during operations not requiring a pressure barrier, can it be flared, captured, or diverted in a manner that does not create a hazard to public health or safety?			**N/A**	**N/A**	**Narrative**				All workover operations will have (2) pressure barries as per company policy	§ 78a.74
		Provide a brief description of the size, construction and length of the equipment used to manage any excess gas encountered. If a flare line will be used, include a brief description of the method used to anchor it and any igniters that will be used; and indicate if redundant igniters are present.	**N/A**	**N/A**	**N/A**					
		If BOP equipment will not be utilized during drilling, completion, workover or plugging of the well, please briefly explain why or describe what type of *well barrier elements* are in place and provide the details of a contingency plan for managing unanticipated *kicks* or a *loss of well control*.	**N/A**	**N/A**	N/A					§ 78a.72
		Is there an IADC or equivalent methodology in place to kill the well or control a *kick,* if required?	N/A	N/A	Yes					
		Briefly describe the methodology in place to kill the well or control a *kick*.	**N/A**	**N/A**	Narrative				Bullheading heavy fluids forcing well to go on vacuum	

COTERRA

ATTACHMENT 3 –

Containment Dewatering Procedure

COTERRA

Standard Operating Procedure

Secondary Containment Dewatering

Marcellus Business Unit (MBU)

March 2024

Standard Operating Procedure (SOP)

Secondary Containment Dewatering

Table of Contents

1.0 About this Document 2
2.0 Regulatory Overview 2
3.0 Process Narrative 2
4.0 Documentation 5
5.0 Communication Plan 6
6.0 Company Contacts 6
Attachment - Process Flow Diagram 7
Attachment – Example MBU – Secondary Containment Dewater Form 8

1.0 About this Document

Purpose	This SOP is to communicate Coterra's requirements and detail the procedure to dewater unimpacted stormwater that accumulates in the secondary containment at well sites in Northeast Pennsylvania. This SOP provides guidance to personnel to determine if stormwater is unimpacted and can be discharged in a manner that does not adversely impact the environment.
Scope	This SOP is intended for all Coterra workers and/or contractors responsible for dewatering secondary containment.

2.0 Regulatory Overview

Overview	This document has been prepared according to 25 Pa. Code §§ 78a.60 & 78a.63a as well as Chapters 91, 92a, 93, 95, 102 and 105, The Clean Streams Law (35 P.S. § § 691.1—691.1001), the Dam Safety and Encroachments Act (32 P.S. § § 693.1—693.27) and the act." 25 Pa. Code § 78a.63a allows for an operator to request the discharge uncontaminated precipitation that collects in secondary containment. This SOP provides the required procedures to provide equivalent or superior protections to the requirements in 25 Pa. Code § 78a.60(b).

3.0 Process Narrative

Step 1 – Include SOP in PPC Plan	Prior to discharging precipitation that accumulates in secondary containment Coterra must prepare a SOP and must include the SOP in the well site-specific Preparedness Prevention Contingency (PPC) Plan. Coterra's EHS personnel manage these plans, please contact Coterra EHS to determine if a specific facility has the appropriate plan.
Step 2 - Characterization of Stormwater	Prior to discharging accumulated stormwater from secondary containment, the following conditions, as described 78a.60(b), must exist for each discharge at the time the dewatering occurs: **All personnel conducting the below characterization process must be authorized by Coterra and be familiar with the use of characterization equipment and the contents of this SOP.** 1. pH of the discharge fluid is <u>not less than 6 nor greater than 9 S.U.</u>

a. determined by pH paper or calibrated meter (e.g., Oakton PCTSTestr 5 or similar) capable of providing an instant/accurate result

2. Specific Conductivity of the discharge fluid is <u>less than 1 milliSiemen (mS)/cm (1,000 microOhms (µmHos)/cm)</u>
    a. Determined by a calibrated meter capable of providing an instant/accurate measurement (e.g., Oakton PCTSTestr 5 or similar)
3. There is no visible hydrocarbon sheen
4. There is no knowledge of a recent spill of a regulated substance to the secondary containment (identified during a Chapter 78a Containment Inspections)

<u>Water Quality Meter Procedure</u>

- Ensure meter has been properly calibrated according to the manufacturer's specifications (document meter calibration date of the MBU - Containment Dewater Form)
- Collect readings from each secondary containment structure
    - Document results on the MBU - Containment Dewater Form
- Rinse the probe thoroughly with distilled, deionized or organic free water and ensure the probe and electrodes are free of obvious corrosion or fouling
- Meter Specifications (equivalent or better)
    - pH Range: 0.0 to 14.0 S.U.
    - pH Accuracy: ± 0.01
    - Conductivity Range: 0.00 to 20.0 mS/cm
    - Conductivity Accuracy: ± 1% full scale

<u>pH Paper Procedure</u>

- Ensure pH paper is not expired
- Collect readings from each secondary containment by dipping the test strip into the fluid for time recommended by the manufacture
- Compare test strip to the manufacture provided color chart with the kit and document the results on the MBU - Containment Dewater Form.

Coterra personnel and designated contractors must review the attached process flow diagram and complete the MBU - Containment Dewater Form.

If containment water does not meet the above criteria, it cannot be discharged and must be managed as residual waste. If it meets the criteria above continue to Step 3 below.

Step 3 - Discharge of Unimpacted Stormwater

1. Dewater to an adequate discharge location
    a. Refer to the site specific PPC Plan and associated SOP
    b. Discharge locations will be:
        i. An existing erosion & sedimentation control Best Management Practice (BMP) or Post Construction Stormwater Management (PCSM) BMP capable of receiving the stormwater at a flow rate no greater than it is designed to receive, or
        ii. A vegetated area in a manner to prevent direct discharge to surface waters. Vegetated areas will be capable of absorbing discharged water. All discharges will be completed in a manner to not create an erosion and sedimentation issue, a proprietary spreader bar device or other device may be utilized.
        iii. Discharge areas will not be within 200-feet of a water supply, within 100-feet of a watercourse nor within the floodplain.
    c. Do not discharge to a BMP if it does not appear to be functioning properly or lacks capacity to receive discharge water
    d. Do not discharge to an area if it is not adequately vegetated
    e. Do not discharge stormwater to frozen or saturated ground and/or ground that is significantly snow covered and therefore not capable of adequately absorbing the discharge water.
    f. Do not discharge unimpacted stormwater during or immediately following significant precipitation events to a ground surface that is not capable of receiving/absorbing the discharge water or immediately prior to an anticipated significant precipitation event.

g. If sediment loading is significant, utilize filter socks or other sediment control devices to prevent sediment build up at the discharge location.

2. Utilize a trash pump or similar style pump with associated discharge hose to dewater and discharge unimpacted stormwater to the discharge location.
   a. Example: Wacker Nueson PT3A trash pump with a 3-inch discharge hose
   b. If necessary, connect a proprietary spreader bar device to the discharge hose to increase the surface area of the discharge hose and disperse the stormwater in a manner to avoid the potential to create soil erosion at the discharge location. Note that the specific device utilized could change depending on available technology and/or improvements made to the proprietary device.
3. Estimate the volume of water discharged per dewatering event by current best management practice included in the MBU – Containment Dewater Form
4. Coterra personnel or designated contractors will be present during the entire duration of the dewatering event.

4.0 Documentation

PPC Plan & SOP	Site personnel and designated contractors will have access to a copy of the site specific PPC Plan and SOP for each site.
Characterization of Stormwater	All characterization data will be collected on the MBU - Containment Dewater Form. Characterization data will be collected for each discharge event. These records will be maintained and can be made available to PADEP upon request.
Discharge of Unimpacted Stormwater	All data will be collected on the MBU - Containment Dewater Form. Discharge volumes will be calculated based on the pump rate and pump run time or determined via a calibrated flowmeter. Discharge volume data will be collected for each discharge event. These records will be maintained and can be made available to PADEP upon request.

5.0 Communication Plan

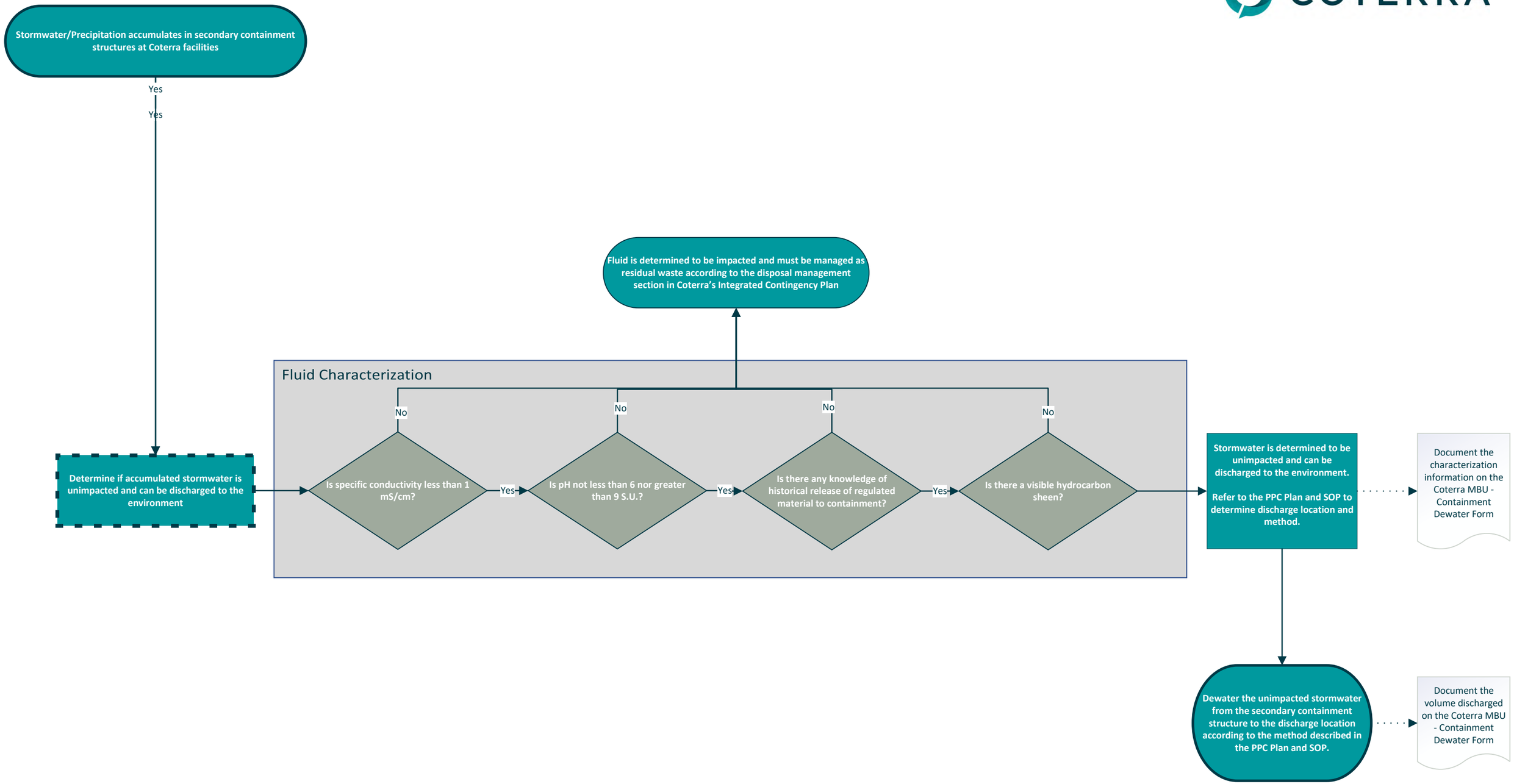
Overview	Coterra personnel and designated contractors will utilize this SOP to explain the discharge process and refer to the site specific PPC Plan should they receive questions from the public. Inquiries regarding this SOP should be directed to Coterra EHS.

6.0 Company Contacts

Plan Administration / Regulatory Oversite	Luke Marsh – Lead EHS Specialist 724-814-0439 Luke.Marsh@coterra.com
Operational/Technical Support	Michael Oakley – EHS Specialist 570-767-2267 Michael.Oakley@coterra.com
Emergency Contact (MBU EHS On-Call #)	570.737.4260

Attachment - Process Flow Diagram

Secondary Containment Dewatering - Process Flow Diagram



Attachment – Example MBU – Secondary Containment Dewater Form

(*The attached form is provided to present an example of the minimum information that Coterra will collect, Coterra may utilize a form with a different format and the form could be collected utilizing an Application on an Android or IOS device***)**

MBU – Secondary Containment Dewater Form

COTERRA

General Information

Date: _____

Time: _____

Inspector Name: _____

Location: _____

Type of Containment: _____

Weather Conditions _____ **Temperature (°F)** _____

Meter Equipment Information

Meter Type: _____

Has the above meter been calibrated according to manufacturers specifications?

YES

NO

Meter Calibration Date: _____

Characterization of Stormwater

(If "YES" is answered to any of the questions in this section, the stormwater is determined to be impacted and you may not discharge)

Has there been any known recent releases of regulated substances to this secondary containment?

YES

NO

Is there the presence of an oil sheen?

YES

NO

Is Specific Conductivity of the containment fluid less than 1mS/cm (1,000µmHos/cm)?

YES

NO

Specific Conductivity (mS/cm): _____

Is pH of the containment fluid between 6 and 9 S.U.?

YES

NO

pH (S.U.): _____

Discharge of Unimpacted Stormwater

Is the discharge location ground surface frozen or saturated?

(If "YES" is answered you may not discharge until the ground is unfrozen and not saturated)

YES

NO

Is there excess sediment or elevated suspended solids in the fluid (based on visual observation?

(If "YES" is answered you must utilize a filter sock or other sediment control device to prevent sediment build up at the discharge location)

YES

NO

Type of pump (model & pump rate)? _____

Pumping Start Date/Time? _____

Pumping Stop Date/Time? _____

Total Volume Pumped? _____