



BRIDGING THE RESPONSE GAP:

FIXED FACILITY VS. CONTRACT FIRE BRIGADES IN PROCESS SAFETY EVENTS

Bridging the Response Gap: Fixed Facility vs. Contract Fire Brigades in Process Safety Events

Welcome to our comprehensive exploration of emergency response capabilities in high-hazard process facilities. This presentation examines the critical interface between proprietary in-house fire brigades and contracted emergency services.

Join us as we analyze real-world case study, identify response gaps, and share actionable strategies to enhance safety and coordination during process safety incidents. Our dual-perspective approach offers unique insights from both facility and contractor viewpoints.



Meet Your Presenters



MARC HOLDER

Fire Chief and Emergency Services Specialist at AmSty. Marc is a seasoned emergency response professional with over 35 years of experience in industrial fire protection, hazardous materials response, medical and rescue operations, and incident management.



CHUCK LaSTRAPES

Industrial Fire Chief at IES Safety, LLC. Chuck is a seasoned industrial fire chief with over 30 years of experience managing high-risk emergency operations across the oil and gas, chemical, power generation, and marine sectors. Having advanced from trainee to command-level leadership, he has led critical responses to hazardous materials incidents, tank, and process unit fires.

Learning Objectives

1. Distinguish Brigade Types

Understand the operational differences between proprietary (in-house) and contracted fire brigades in PSM-regulated facilities.

2. Identify Capabilities & Limitations

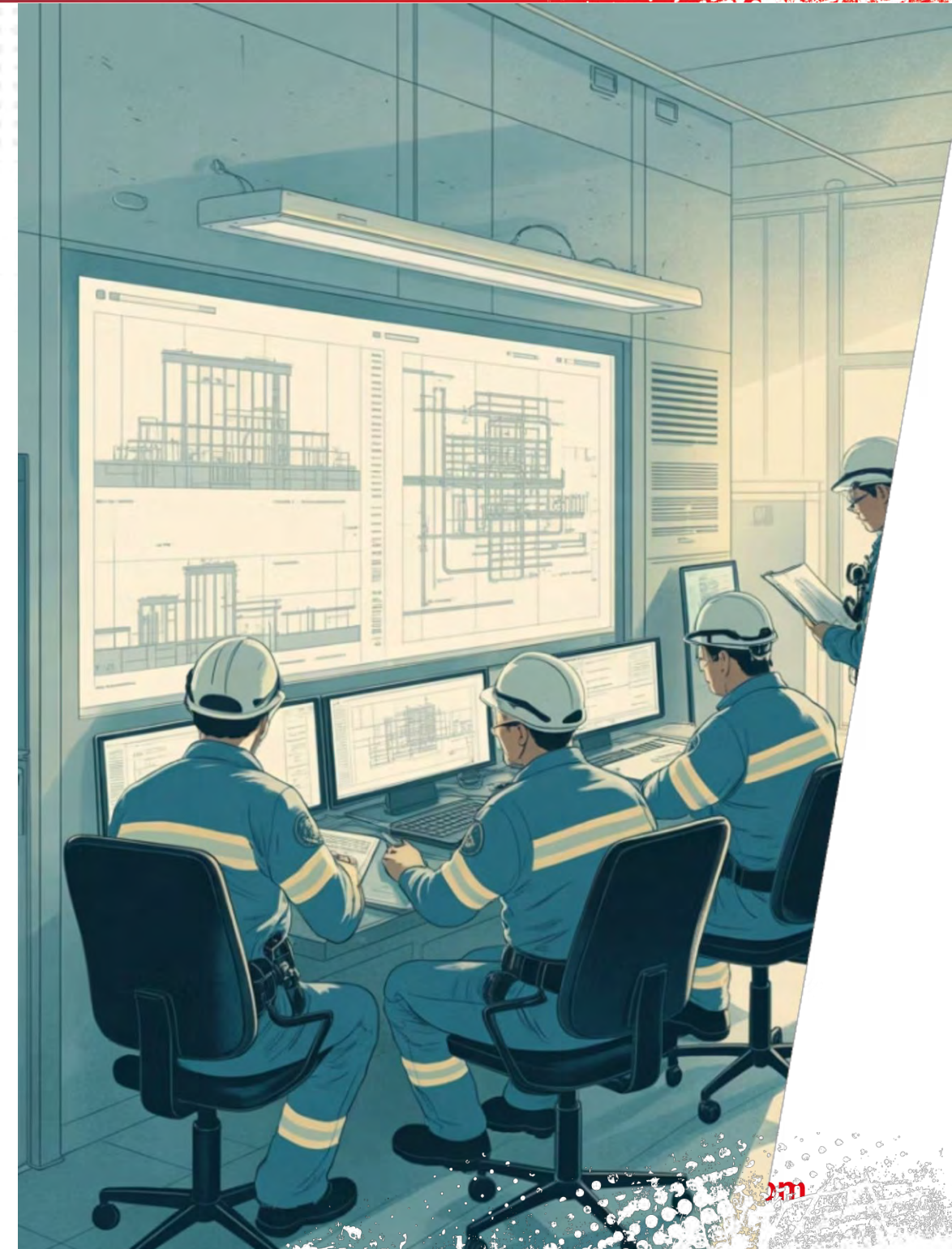
Recognize the unique strengths and constraints of each brigade type regarding response readiness, mobilization times, and emergency response plan execution.

3. Understand Integration Impact

Learn how coordination between internal and external responders directly influences incident outcomes and mitigation effectiveness.

4. Apply Real-World Lessons

Implement knowledge gained from actual process safety events involving fire emergencies and system failures.





High-Hazard Process Facilities: The Risk Landscape

Complex Chemical Processes

Facilities handling flammable, toxic, or reactive materials through intricate processing operations that require specialized knowledge and response protocols.

Catastrophic Potential

Incidents can rapidly escalate from minor releases to major events with potential for multiple casualties, environmental impact, and significant business disruption.

Regulatory Oversight

Operations governed by OSHA PSM, EPA RMP, and other standards requiring robust prevention and response capabilities to protect workers and communities.

Process Safety Management Framework



Process Knowledge & Documentation

Operating procedures, P&IDs, material hazards



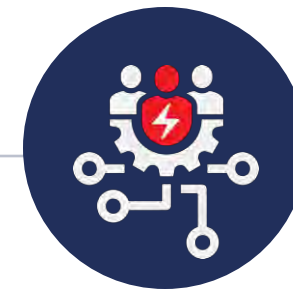
Hazard Identification & Risk Assessment

HAZOP studies, what-if analysis, consequence modeling



Workforce Involvement & Training

Competency development and participation



Incident Prevention & Response

Emergency planning, training, and readiness

Emergency Response Plans: The Backbone of Incident Management

1. Incident Detection

Automated systems and human observation identify abnormal conditions

2. Notification

Alert emergency responders and activate incident command structure

3. Initial Response

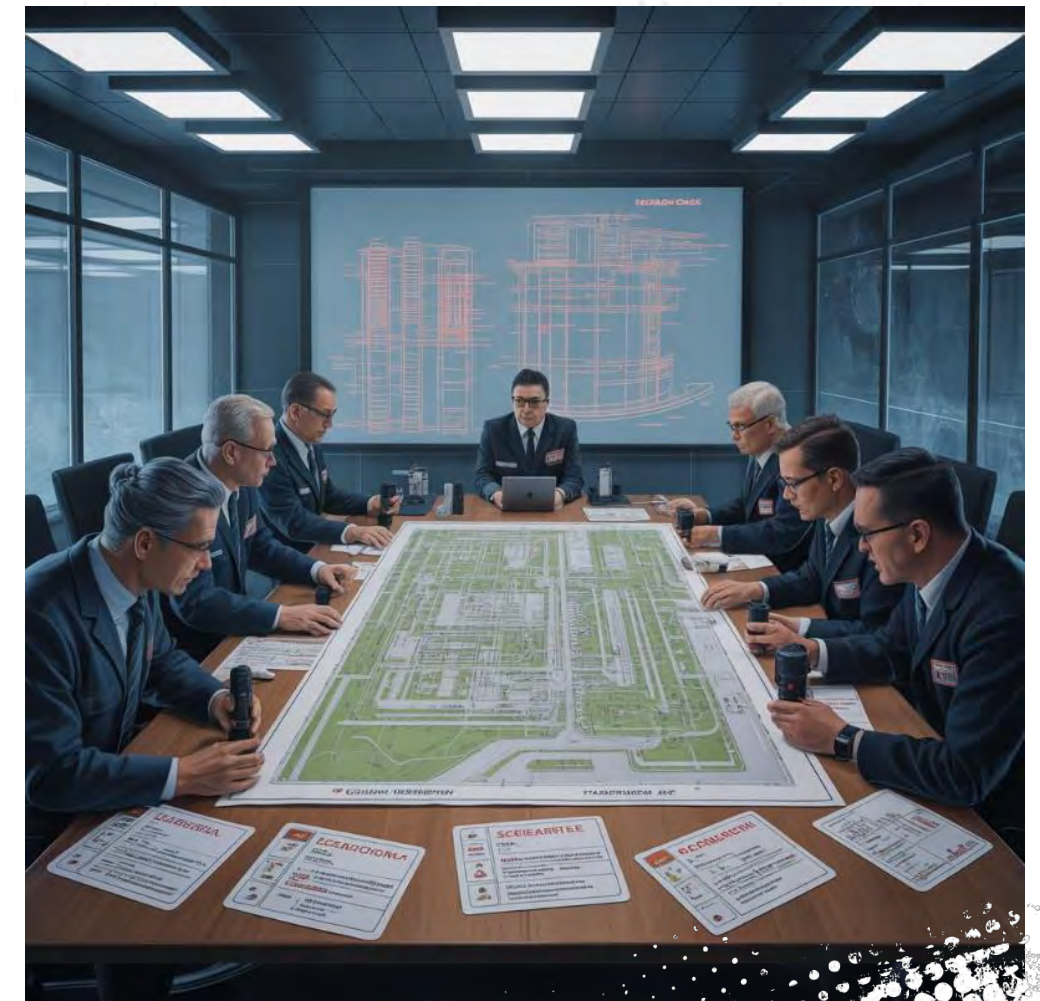
First responders implement immediate protective actions

4. Escalation Management

Mobilize additional resources as incident demands increase

5. Resolution

Implement mitigation strategies to control and terminate incident



Proprietary Brigade: Core Capabilities

Immediate Response

On-site personnel can initiate response within minutes of incident detection, critical for rapidly escalating scenarios.

Facility Knowledge

Intimate familiarity with process equipment, hazards, isolation points, and facility layout that external responders would lack.

Process Integration

Direct connection to operations teams allows coordinated actions between emergency response and process control functions.

PSM Alignment

Brigade training and procedures directly align with facility PSM program and specific hazard scenarios identified in PHAs.



Proprietary Brigade: Staffing & Organization



Leadership

Full-time emergency services specialists and incident commanders with facility-specific training

Core Response Team

Dedicated emergency responders trained to NFPA 1081 industrial fire brigade standards

Support Specialists

Maintenance, technical, and safety staff with specialized skills for complex incidents

Operations Personnel

Process operators with additional emergency response training who can provide technical process expertise

Proprietary Brigade: Challenges & Limitations



Limited Personnel Depth

Restricted number of qualified responders, especially on nights and weekends



Resource Constraints

Budget limitations for specialized equipment and full-time emergency staff



Training Challenges

Difficulty maintaining advanced skills with part-time responders



Incident Scalability

May lack capacity for prolonged or large-scale events

Contract Brigade: Core Capabilities

Specialized Equipment

Access to advanced firefighting apparatus, foam systems, hazmat equipment, and technical rescue tools that would be cost-prohibitive for individual facilities to maintain.

Advanced Training

Full-time emergency responders with extensive training in industrial firefighting, hazardous materials response, and technical rescue operations beyond what most facility brigades maintain.

Depth of Resources

Ability to mobilize additional personnel for sustained operations or complex incidents requiring rotation of responders over extended timeframes.

Multi-Facility Experience

Broader exposure to various incident types and solutions across multiple client facilities, bringing diverse experience to each response.



Contract Brigade: Response & Mobilization

Notification

Facility alerts contractor emergency services through dedicated hotline or automated system

Mobilization

Contractor assembles appropriate response team and specialized equipment based on incident type

Transit

Response time varies from immediate (if stationed on-site) to 120+ minutes depending on proximity

On-Scene Integration

Check-in with facility incident command and integration into response structure

Tactical Operations

Implementation of specialized response capabilities under unified command





Contract Brigade: Challenges & Limitations

Facility Familiarity Gap

- Limited knowledge of specific equipment layouts
- Unfamiliarity with process intricacies
- Reliance on facility guides during initial response

Response Time Delays

- Travel time from off-site locations
- Mobilization period for personnel and equipment

Integration Hurdles

- Communication system compatibility issues
- Command structure integration challenges
- Security access and site orientation requirements
- Unfamiliarity with facility emergency plans

Case Study: AmSty St. James PP-XXXX Pump Fire Incident

At approximately 6:30pm, an operator in the vicinity of the EB unit heard an unusual sound around the benzene pump and shortly thereafter observed a seal fire on a benzene pump, PP1-XXX, in the Ethylbenzene (EB) Unit. This pump is one of three adjacent pumps in the area.

- 1** → **Initial Detection**
 Operator heard unusual sound and observed seal fire on benzene pump PP1101S in the EB Unit
- 2** → **First Response**
 Proprietary brigade mobilized with initial assessment and containment strategy
- 3** → **Escalation**
 Fire conditions required specialized foam application and additional personnel
- 4** → **Integrated Response**
 Contract brigade arrived with specialized equipment to support ongoing efforts





AmSty Pump Fire: Proprietary Brigade Response

Technical Advantages

The proprietary brigade's intimate knowledge of the EB unit layout enabled:

Rapid Isolation

Immediate identification and closure of critical valves to limit fuel supply to fire

Resource Deployment

Strategic positioning of firefighting equipment considering adjacent pumps and exposures

Process Integration

Coordinated response with operations to manage process conditions during emergency

AmSty Pump Fire: Contract Brigade Integration

Specialized Equipment Deployment

Contract brigade arrived with industrial-grade foam application systems specifically designed for hydrocarbon fires, providing augmentation capabilities to the proprietary team

Command Integration

Initial coordination did not require clarification of terminology and equipment locations, highlighting the pre-incident facility orientation and joint training that had been conducted

Technical Expertise Application

Contractors' extensive experience with pump fires provided tactical recommendations that enhanced the overall response effectiveness of an already well-trained proprietary team

Mutual Support Operations

Integrated teams combining facility knowledge with contractor capabilities created an effective joint response that leveraged both groups' strengths





PSM Elements Influencing Emergency Response

1. Process Safety Information

Complete and accurate documentation of chemical properties, system designs, and equipment specifications is essential for effective emergency response. Gaps in PSI directly impact the ability of both internal and external responders to make informed decisions during incidents.

2. Process Hazard Analysis

Thorough HAZOP studies identify potential failure scenarios and establish the foundation for emergency planning. PHA recommendations often include specific emergency response measures that must be incorporated into brigade training and procedures.

3. Management of Change

Facility modifications that aren't properly communicated to emergency response teams create serious safety gaps. Both proprietary and contract brigades need updated information when process changes alter hazard profiles or response requirements.

Bridging Communication Gaps

Challenge Area

Proprietary Brigade Approach

Contract Brigade Approach

Integration Solution

Terminology

Facility-specific terms and equipment designations

Standardized emergency service terminology

Shared glossary and translation guides

Radio Systems

Plant radio networks with specific channels

Independent communication systems

Gateway devices and shared frequencies

Command Structure

Facility-focused incident management

NIMS-based command protocols

Unified command with liaison officers

Status Reporting

Process-oriented status updates

Tactical benchmarks and objectives

Integrated situation reports with dual focus



Training Integration Opportunities

Effective integration requires regular joint training exercises where proprietary and contract brigades practice together under realistic conditions. These sessions build mutual trust, establish common operating procedures, and identify integration issues before real emergencies occur.

Quarterly Hands-On Drills

Regular skills practice with shared equipment and coordinated tactics

Annual Full-Scale Exercises

Comprehensive scenarios testing all aspects of integrated response

Cross-Training Programs

Exchange of specialized knowledge between brigade types

Virtual Simulations (Table-tops)

Technology-based training to practice coordination without physical deployment

Unified Command Structure Best Practices



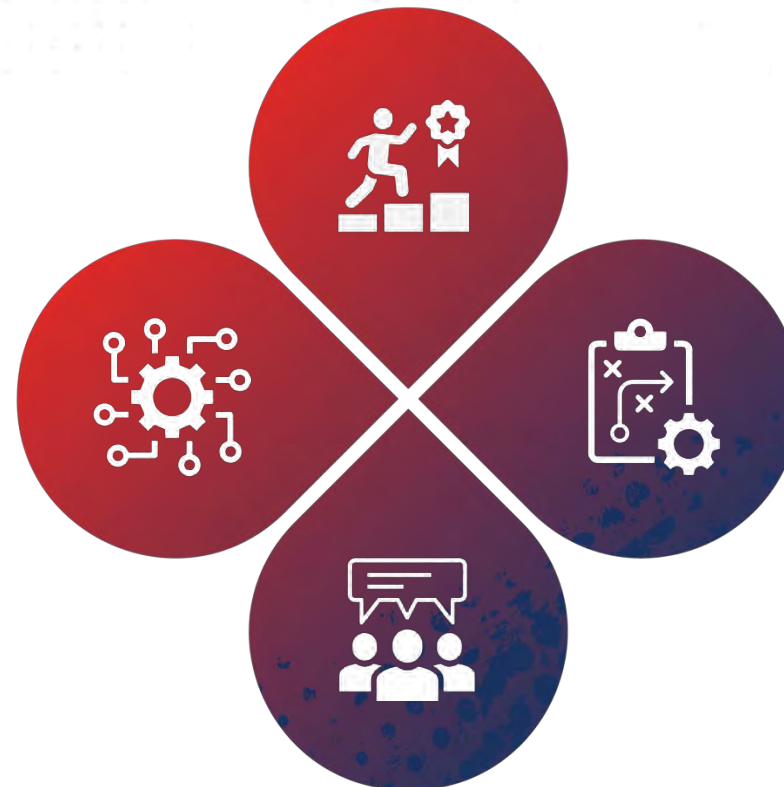
Unified Strategic Goals

Jointly established incident priorities and objectives



Resource Sharing Protocols

Established procedures for equipment and personnel deployment



Integrated Planning Process

Collaborative incident action planning incorporating both perspectives



Role Clarity & Specialization

Leveraging each team's strengths through clear assignments

Planning for Seamless Integration



Joint Training

Regular exercises involving both brigade types to build familiarity and trust

Shared Protocols

Common operating procedures and tactical guidelines accepted by both teams

Regular Coordination Meetings

Scheduled sessions to address planning, equipment, and procedural updates

Compatible Equipment

Standardized connections, tools, and resources that work together seamlessly

Interoperable Communications

Systems that allow direct information sharing between different response groups

Documentation Standardization

Consistent terminology and formats across all emergency response materials



Joint Training Framework

Tabletop Exercises

- Monthly scenario discussions
- HAZOP-based incident simulations
- Command staff focused

Operational Drills

- Quarterly hands-on training
- Equipment compatibility validation
- Tests communication protocols
- Tactical skill development
- Response time verification

Full-Scale Exercises

- Annual comprehensive scenarios
- Multiple agency participation
- Complete resource deployment
- Tests entire response system

Cross-Training Programs

- Facility familiarization for contractors
- Advanced tactics for proprietary teams
- Process hazard education
- Command system standardization

Integration Through Documentation

Integrated Response Plans

Modern ERPs should explicitly address the coordination between proprietary and contract resources for each major scenario. These documents must include specific trigger points for mobilization, integration procedures, and unified command establishment protocols.

Joint Operating Procedures

Developing shared SOPs for critical functions ensures consistent performance regardless of which brigade is executing the task. These procedures incorporate the strengths of both teams and establish clear expectations for all responders.



Tactical Pre-Incident Plans

Detailed unit-specific response guides should include information relevant to both response teams. These documents bridge the knowledge gap for external responders while standardizing approaches for all personnel regardless of their primary affiliation.

Digital Integration Tools

Modern emergency response platforms allow real-time sharing of critical information between all responders. These systems provide access to facility diagrams, hazard data, and response procedures through mobile devices, ensuring everyone has the same information.



Facility Design Considerations for Effective Response



Strategic Access Routes

Wide, well-marked access roads designed to accommodate large firefighting apparatus from contract services



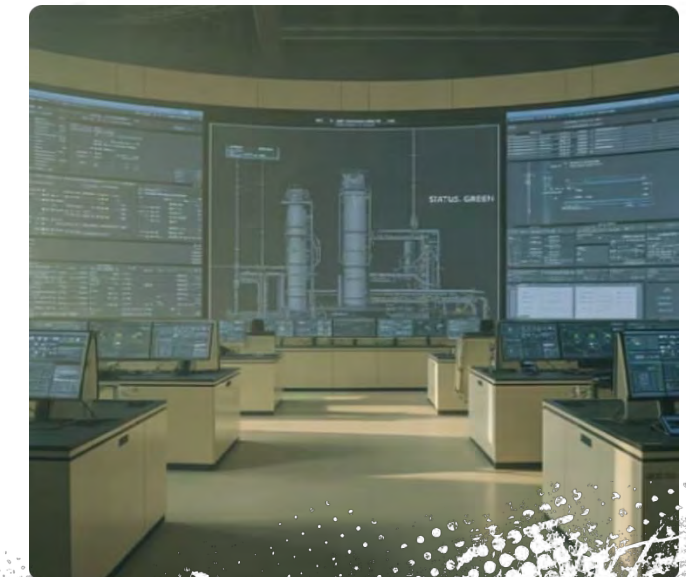
Emergency Equipment Caches

Strategically located firefighting and rescue equipment positioned for immediate access by proprietary brigades



Fixed Fire Protection

Comprehensive systems including fire water networks, monitors, and specialized extinguishing systems designed for integration with portable equipment



Command Facilities

Dedicated emergency operations centers equipped with communication systems, facility diagrams, and support resources for unified command

Regulatory Compliance & Brigade Integration

OSHA PSM Requirements (29 CFR 1910.119)

The Process Safety Management standard requires facilities to address emergency planning and response as part of a comprehensive safety program. Specific elements include:

- Written emergency action plan development
- Emergency response training requirements
- Emergency equipment maintenance standards

However, PSM doesn't explicitly address the integration of proprietary and contract emergency services, creating a potential gap in compliance.



Integration Compliance Strategies

To ensure regulatory compliance while optimizing brigade integration:

- Incorporate contractor capabilities in PSM emergency planning documentation
- Include integration procedures in compliance audit processes
- Document joint training in PSM training records
- Address brigade integration in management of change procedures

Performance Metrics for Integrated Response



90%

Joint Training Participation

Target for percentage of scheduled joint training exercises actually conducted with both proprietary and contract responders participating.



≤ 5

Integration Time (minutes)

Maximum target time from contractor arrival on-site to full operational integration into the incident management structure.



100%

Equipment Compatibility

Target for critical response equipment with verified compatibility between proprietary systems and contractor resources.



0

Communication Failures

Target for incidents where response was compromised by communication failures between proprietary and contract teams.

Legal & Contractual Considerations

Liability Boundaries

Clearly defined responsibility allocation between facility and contractor during joint operations is essential. Contracts should address chain of command, decision authority, and liability transfer points during escalating incidents.

Performance Requirements

Contracts should include specific, measurable performance standards for response time, resource deployment, and integration effectiveness. These metrics should align with the facility's PSM program and identified hazard scenarios.

Regulatory Compliance

Agreements must clearly delineate which party bears responsibility for various regulatory requirements, including training documentation, equipment testing, and after-action reporting to agencies.

Information Sharing

Appropriate safeguards for confidential process and business information while ensuring contractors have sufficient hazard knowledge to respond effectively and safely to facility-specific incidents.



Lessons Learned: Key Takeaways



HAZOP Integration is Critical

Emergency response planning must directly connect to process hazard analysis findings



Early Integration Saves Time

Pre-established protocols reduce critical delays during escalating incidents



Joint Training Builds Trust

Shared exercises develop mutual respect and operational familiarity



Systems Compatibility Matters

Technical interoperability ensures seamless response capability



Documentation Bridges Gaps

Comprehensive shared procedures ensure consistent performance

Recommendations for Effective Integration



Successful integration requires commitment from both facility management and contract providers. By implementing these recommendations, organizations can significantly reduce response gaps and enhance overall emergency readiness at high-hazard process facilities.

Contact Information & Resources



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Additional Resources

Presentation slides available by email request. Please complete the feedback form to help us improve future sessions.



Joint Response
Readiness Checklist



ERP Audit Tools



OSHA PSM Resources:
www.osha.gov/process-safety-management