WELCOME

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2016 25th Environmental Federation of Oklahoma (EFO) Meeting

"25 Years of Environmental Law, Policy and Politics – Where Do We Go From Here?"

Update – Process Safety Management (PSM) - (25 min)

Brett A. Wheelock

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Topics

- Brief Specific Industry Background
- Agency Regulations
- Regulations Environment – Presidential Executive Order #13650
- PSM Facility Ownership
- RAGAGEPs
- EPA Risk Management Program (RMP) vs. OSHA Process Safety Management
- OSHA's 1% Highly Hazardous Chemicals (HHC) concentration rule
- DHS Security – Topscreen 2.0 Resubmissions CSAT, SVA, SSP (New)
- DOT 49 CFR Product Odorization

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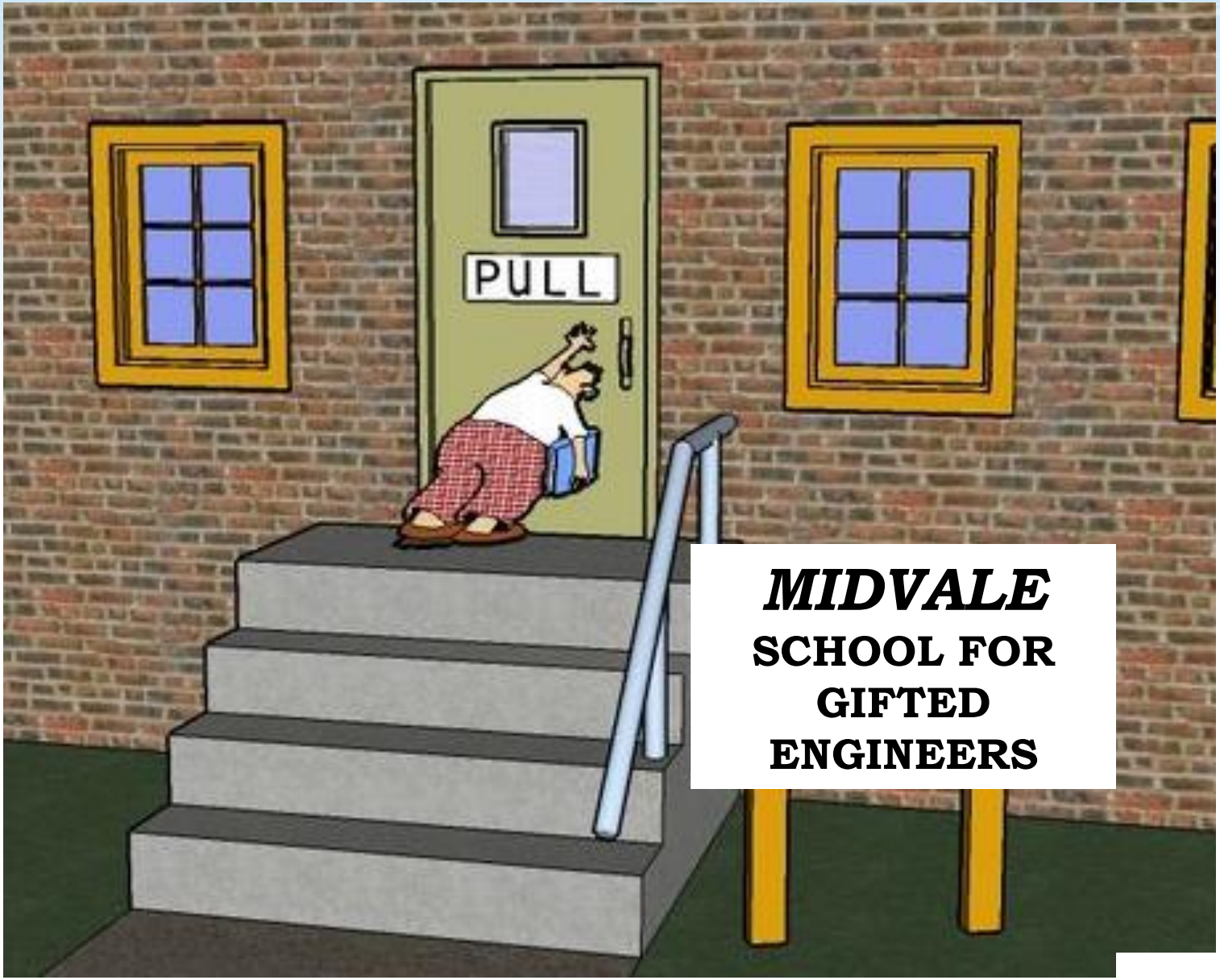
PULL
MIDVALE
SCHOOL FOR
GIFTED
ENGINEERS

Brief Industry Background

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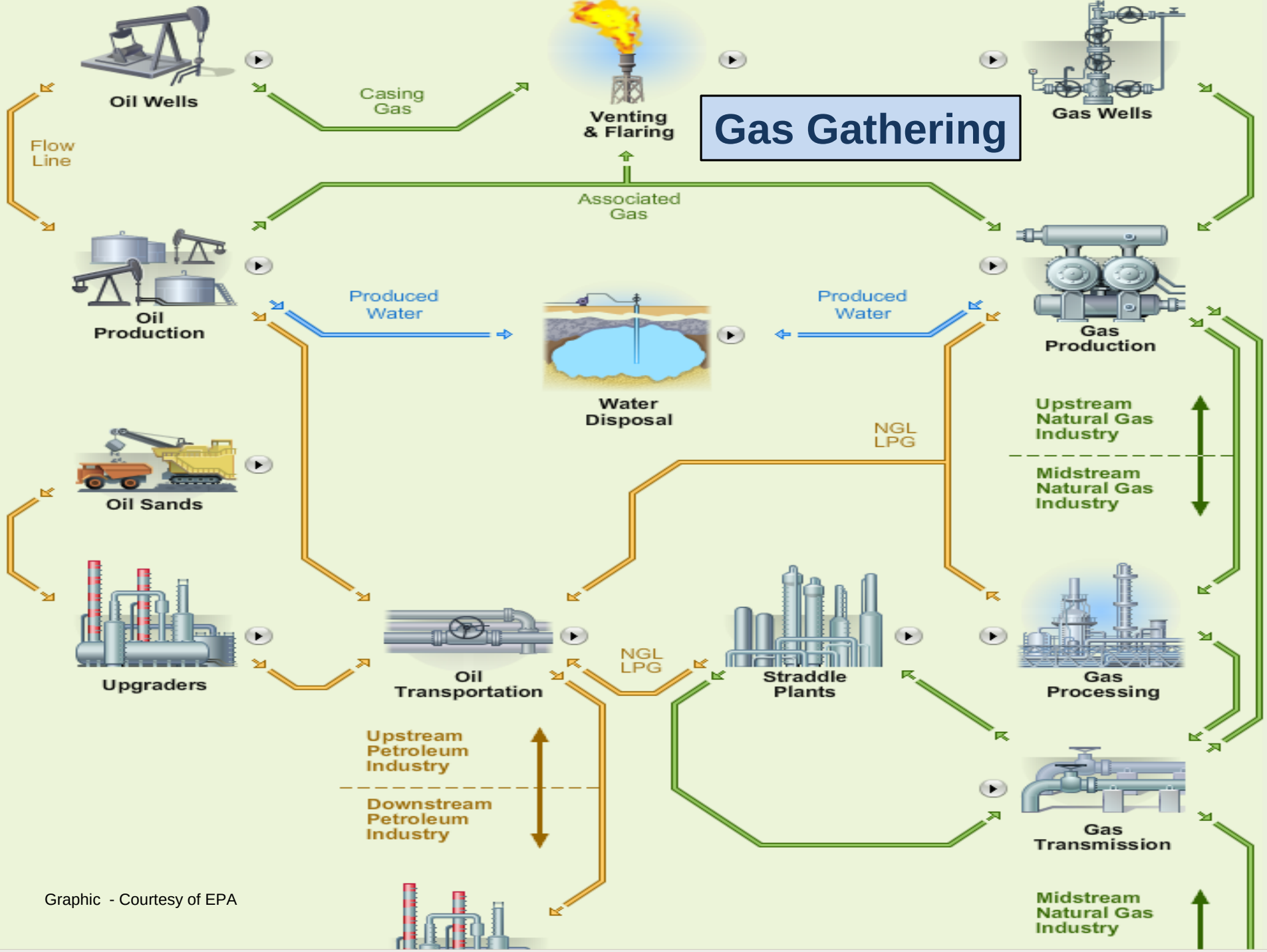
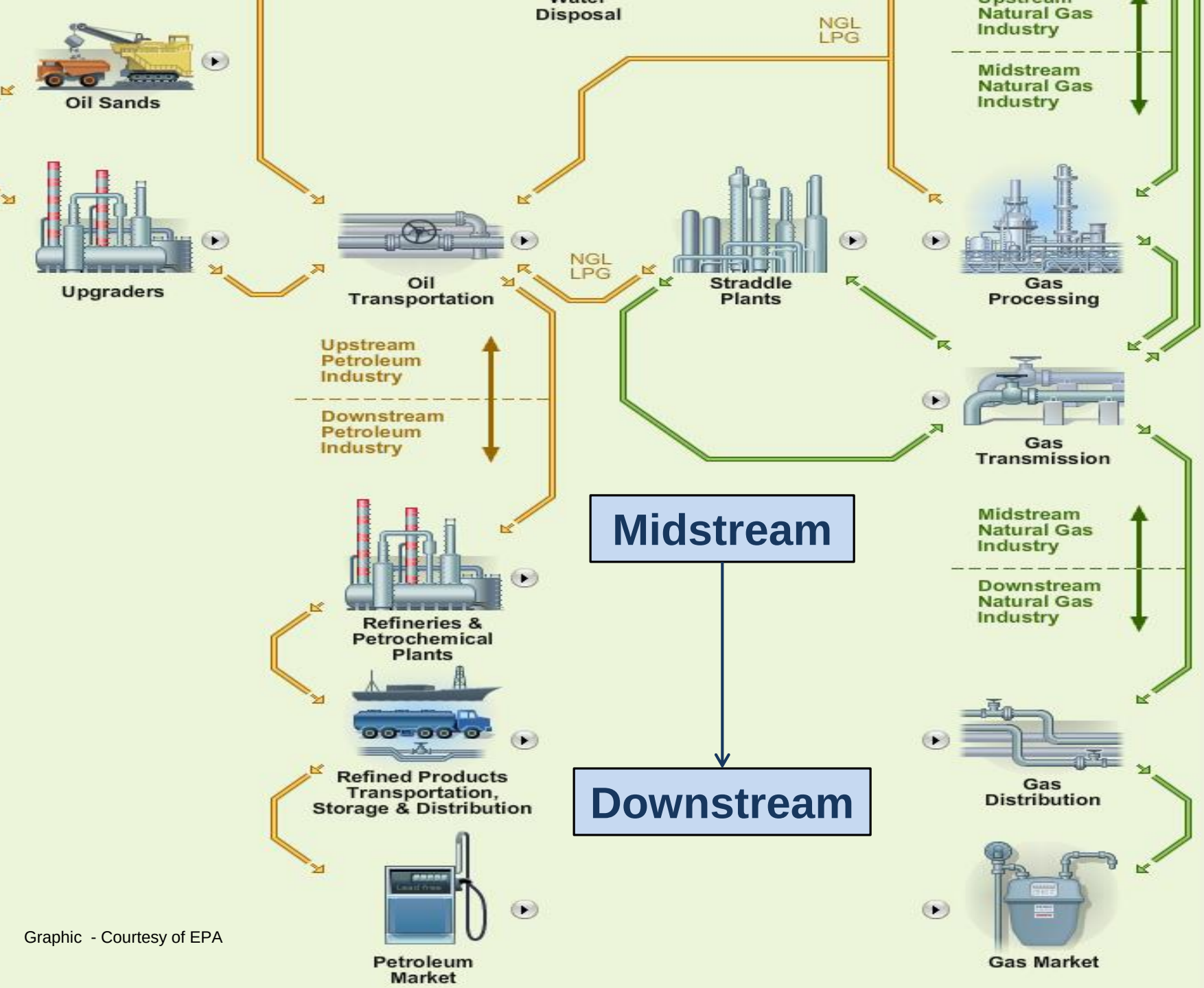
Gas Gathering

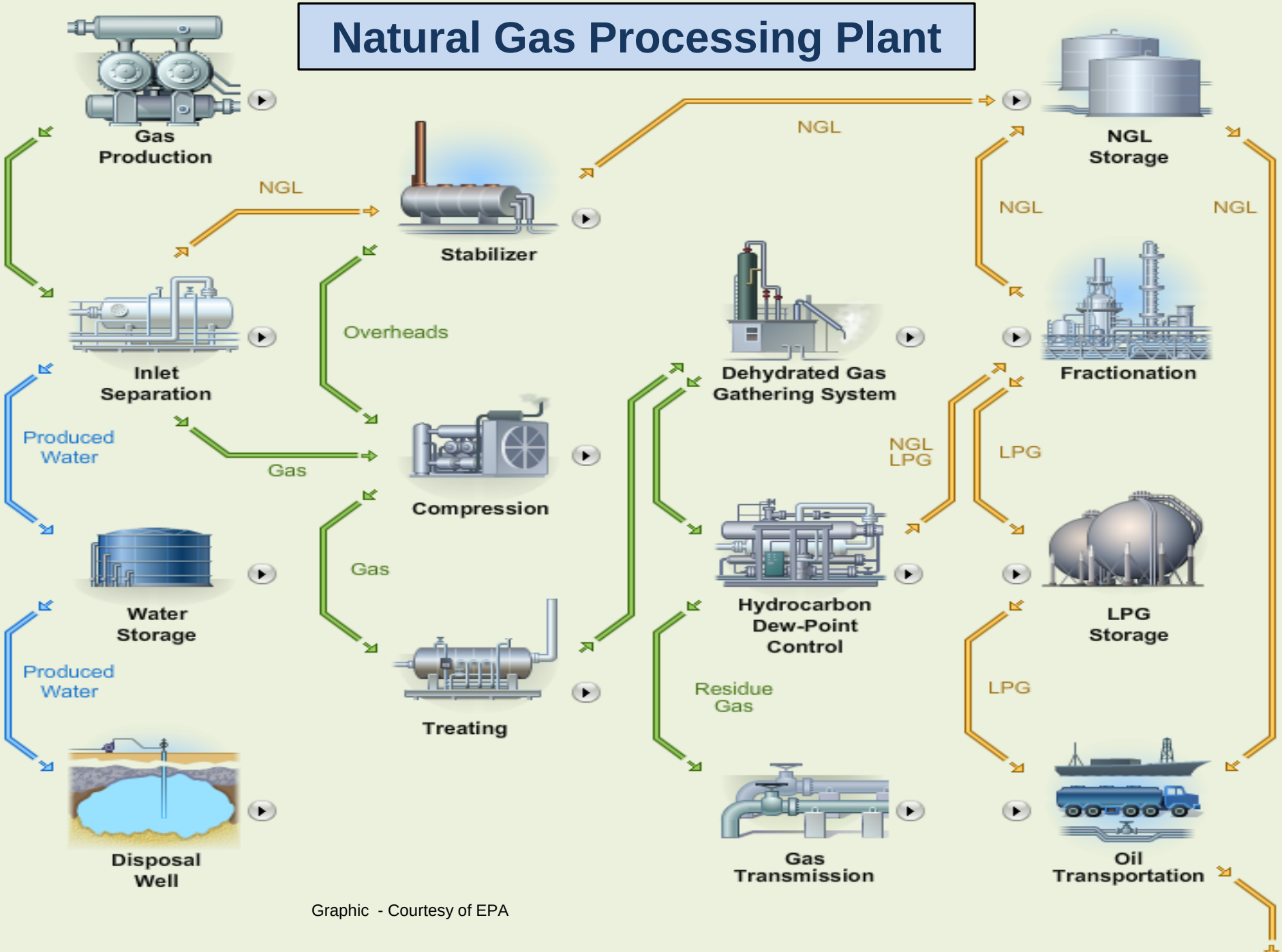


Graphic - Courtesy of EPA



Graphic - Courtesy of EPA

Natural Gas Processing Plant



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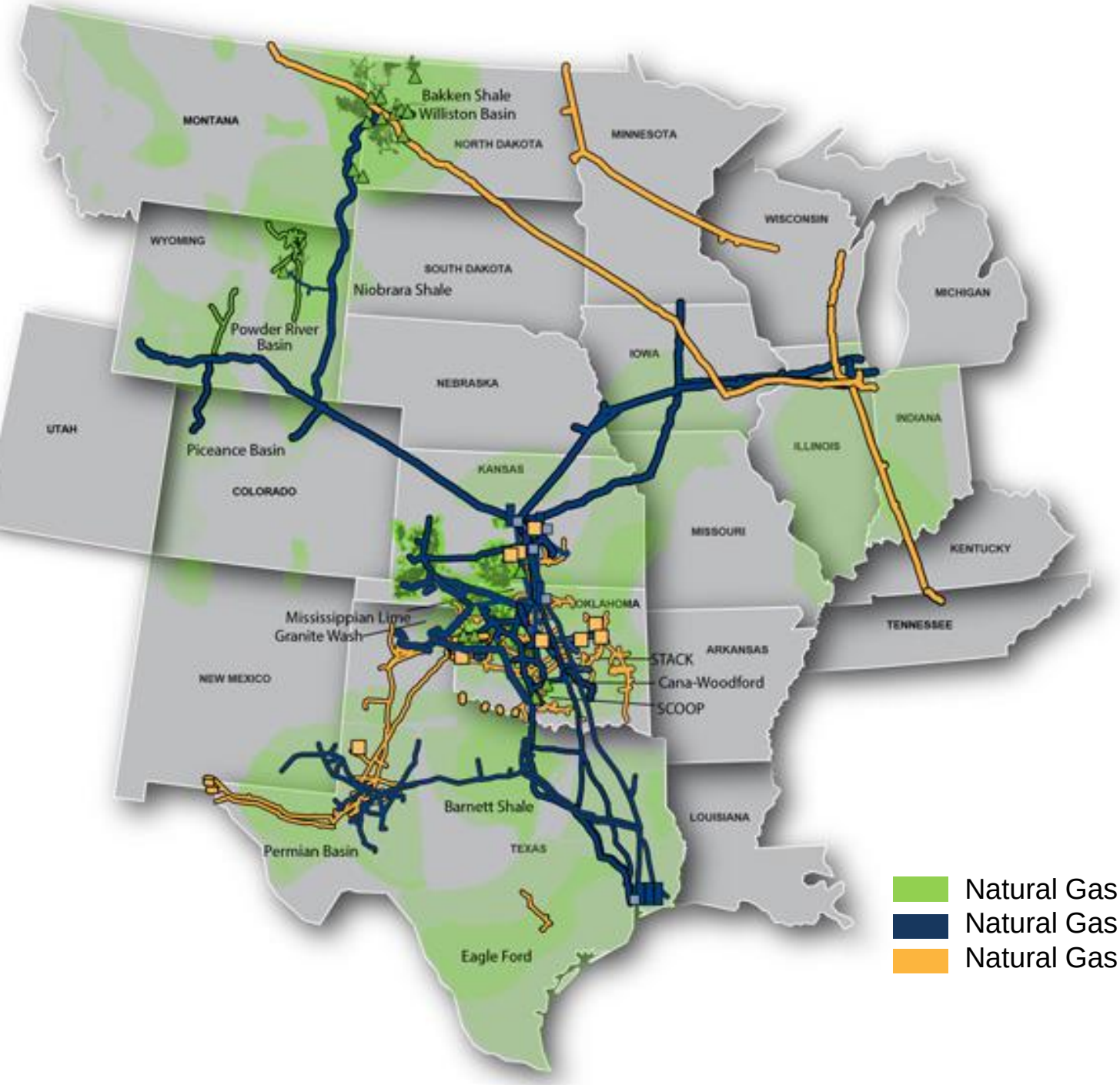

Natural Gas Gathering and Processing
Natural Gas Liquids
Natural Gas Pipelines

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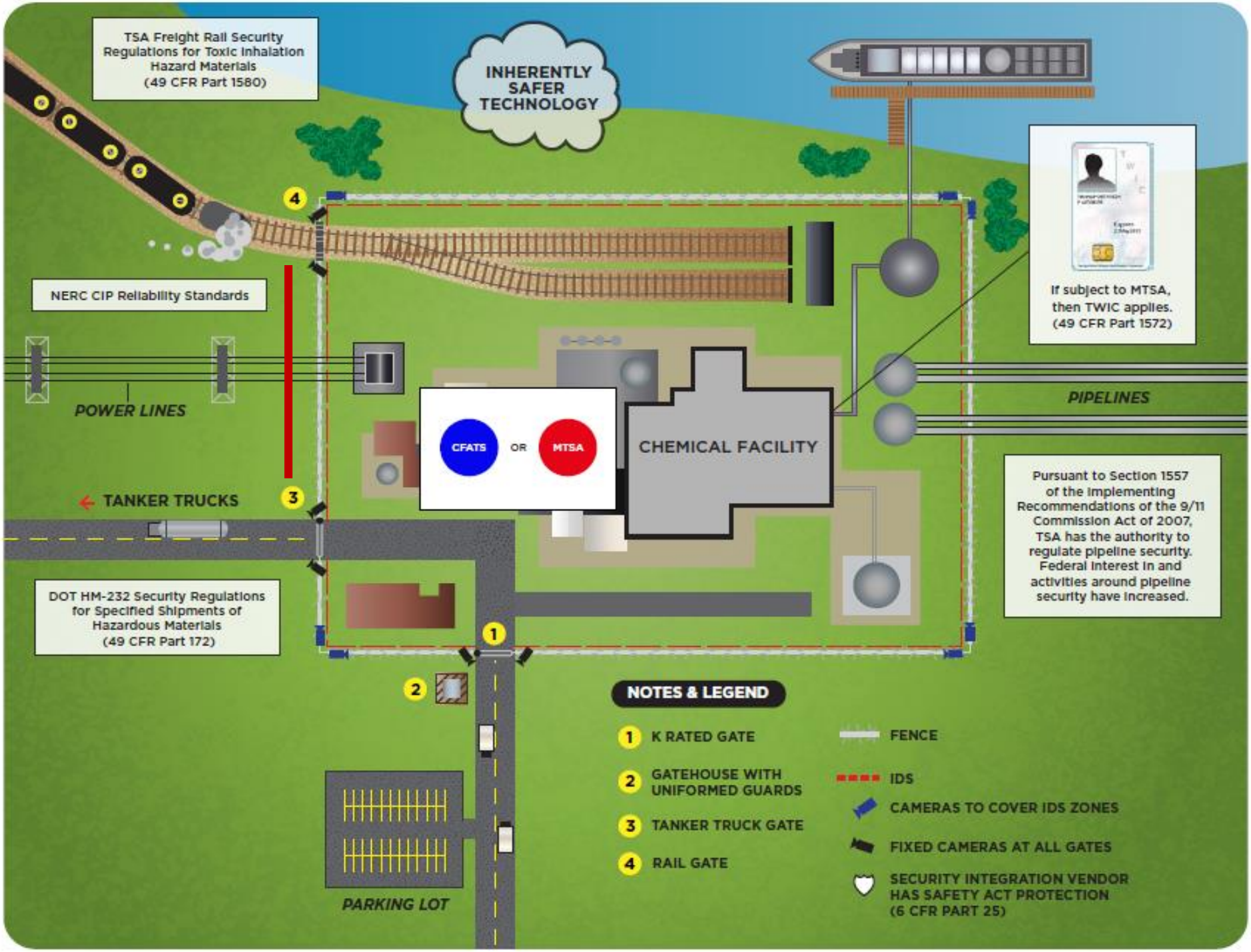
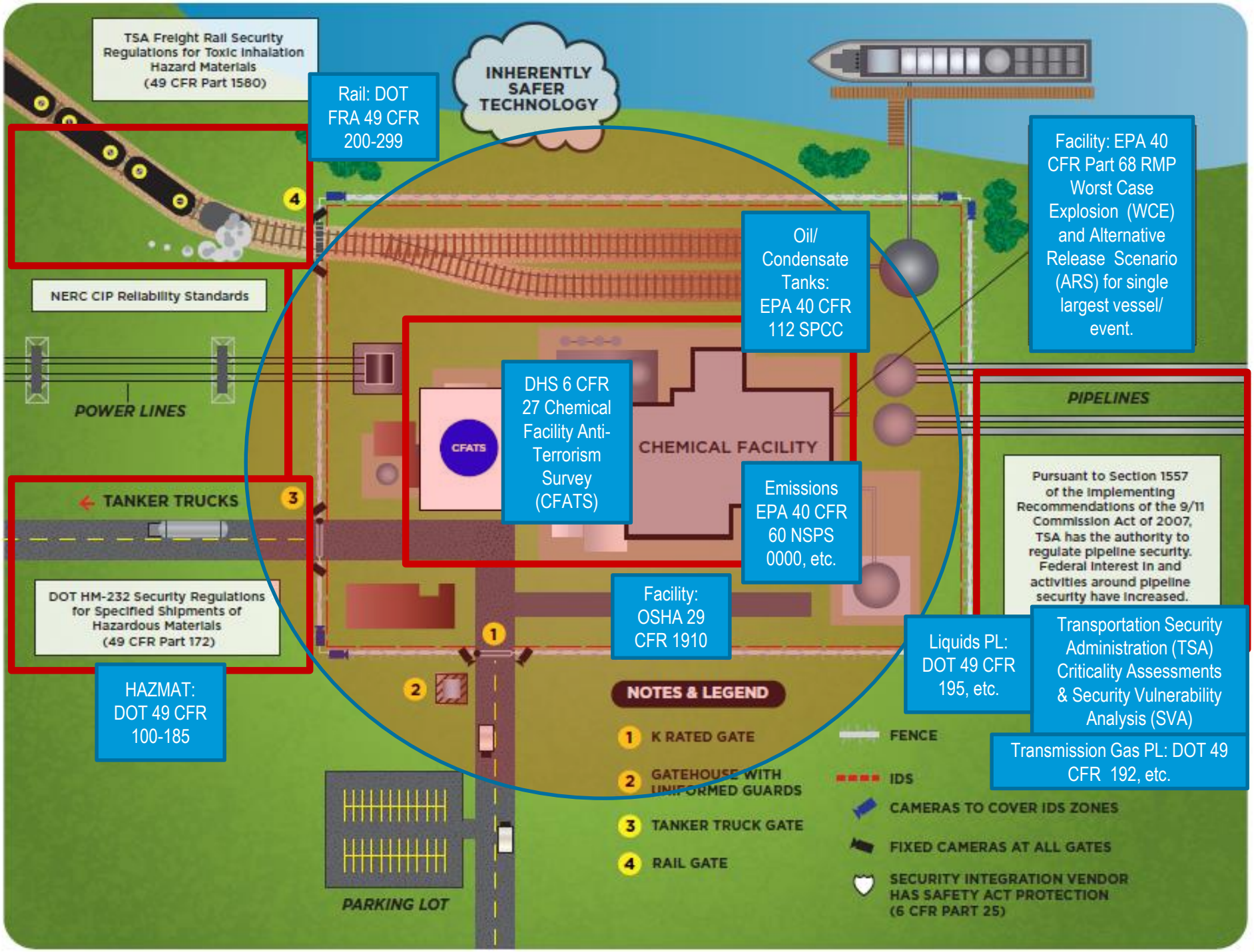
Agency Regulations


TSA Freight Rail Security Regulations for Toxic Inhalation Hazard Materials (49 CFR Part 1580)
INHERENTLY SAFER TECHNOLOGY
NERC CIP Reliability Standards
POWER LINES
TANKER TRUCKS
DOT HM-232 Security Regulations for Specified Shipments of Hazardous Materials (49 CFR Part 172)
CFATS
OR
MTSA
CHEMICAL FACILITY
If subject to MTSA, then TWIC applies. (49 CFR Part 1572)
PIPELINES
Pursuant to Section 1557 of the Implementing Recommendations of the 9/11 Commission Act of 2007, TSA has the authority to regulate pipeline security. Federal interest in and activities around pipeline security have increased.
PARKING LOT
NOTES & LEGEND
1 K RATED GATE
2 GATEHOUSE WITH UNIFORMED GUARDS
3 TANKER TRUCK GATE
4 RAIL GATE
FENCE
IDS
CAMERAS TO COVER IDS ZONES
FIXED CAMERAS AT ALL GATES
SECURITY INTEGRATION VENDOR HAS SAFETY ACT PROTECTION (6 CFR PART 25)


TSA Freight Rail Security Regulations for Toxic Inhalation Hazard Materials (49 CFR Part 1580)
Rail: DOT FRA 49 CFR 200-299
INHERENTLY SAFER TECHNOLOGY
Facility: EPA 40 CFR Part 68 RMP Worst Case Explosion (WCE) and Alternative Release Scenario (ARS) for single largest vessel/ event.
NERC CIP Reliability Standards
Oil/ Condensate Tanks: EPA 40 CFR 112 SPCC
POWER LINES
DHS 6 CFR 27 Chemical Facility Anti-Terrorism Survey (CFATS)
CFATS
CHEMICAL FACILITY
PIPELINES
TANKER TRUCKS
Emissions EPA 40 CFR 60 NSPS 0000, etc.
Pursuant to Section 1557 of the Implementing Recommendations of the 9/11 Commission Act of 2007, TSA has the authority to regulate pipeline security. Federal interest in and activities around pipeline security have increased.
DOT HM-232 Security Regulations for Specified Shipments of Hazardous Materials (49 CFR Part 172)
Facility: OSHA 29 CFR 1910
Liquids PL: DOT 49 CFR 195, etc.
Transportation Security Administration (TSA) Criticality Assessments & Security Vulnerability Analysis (SVA)
HAZMAT: DOT 49 CFR 100-185
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SECURITY INTEGRATION VENDOR HAS SAFETY ACT PROTECTION (6 CFR PART 25)
Transmission Gas PL: DOT 49 CFR 192, etc.
PARKING LOT

Regulations, Standards and Recommended Practices

Regulation

- OSHA 29 CFR 1910.119 – Process Safety Management (PSM)
- EPA 40 CFR 112 – Spill Prevention Control and Countermeasure Plan (SPCC)
- EPA 40 CFR Part 68 – Risk Management Program (RMP)
- DHS (Domestic Security) 6 CFR 27 – Chemical Facility Anti-Terrorism Standards (CFATS)
- DOT 49 CFR 192/195 – Pipeline and Hazardous Materials Safety Administration (PHMSA); State-level Oklahoma Corporation Commission (OCC)

RAGAGEP/ Recommended Practices/ Standards

- National Fire Protection Association (NFPA) Standards – Including National Electric Code (NEC)
- American Petroleum Institute (API) Standards
- American National Standards Institute (ANSI) Standards
- American Society for Testing and Materials (ASTM) Standards
- American Society of Mechanical Engineers (ASME) Standards
- Institute of Electrical and Electronics Engineers (IEEE) Standards
- Tubular Exchanger Manufacturers Association (TEMA) Standards
- Various others……..

Regulations Environment

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Executive Order #13650

"Improving Chemical Facility Safety and Security" August 1, 2013

The focus of the EO is to reduce risks associated with hazardous chemical incidents to owners and operators, workers, and communities by enhancing the safety and security of chemical facilities. A Federal Interagency Working Group led by the Assistant Secretary of Homeland Security for the Office of Infrastructure Protection (DHS); Assistant Secretary of Labor for the Occupational Safety and Health Administration (OSHA); and the Assistant Administrator of the Environmental Protection Agency's (EPA) Office of Solid Waste and Emergency Response, in coordination with the Department of Justice (DOJ), Bureau of Alcohol, Tobacco, and Firearms (ATF), Department of Transportation (DOT), and the Department of Agriculture (USDA) oversees chemical facility safety and security.

Note: Refer to West Fertilizer Explosion Incident, See CSB Presentation here: http://www.csb.gov/videos/dangerously-close-explosion-in-west-texas/

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Executive Order #13650

"Improving Chemical Facility Safety and Security" August 1, 2013 (Continued)

Through the analysis of the current operating environment, existing regulatory programs and stakeholder feedback, a consolidated Federal Action Plan was created to address five elements:

- Strengthening community planning and preparedness
- Enhancing Federal operational coordination
- Improving data management
- Modernizing policies and regulations
- Incorporating stakeholder feedback and developing best practices

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PSM Facility Ownership

People & Property

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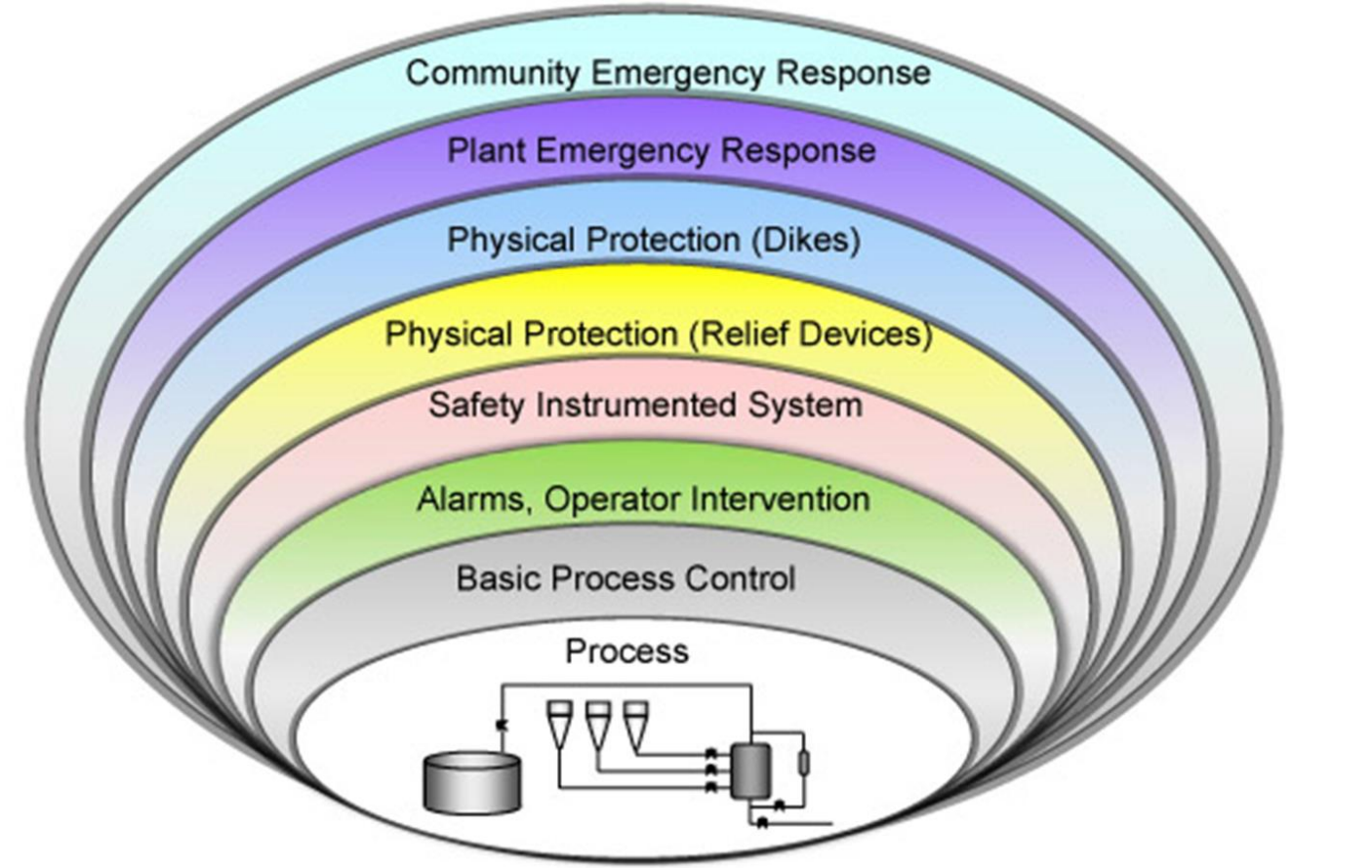
Regulation

Across the Various Layers of Protection



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EPA Risk Management Program (RMP)

Agency Objectives – 40 CFR Part 68

- EPA's **Risk Management Program** is about **reducing chemical/fire/explosion risk at the local level**
- This information **helps local fire, police, and emergency response personnel—**who must prepare for and respond to accidents
- Useful to citizens in **understanding the hazards in their communities**
- EPA anticipates that making the RMPs available to the public **stimulates communication between industry and the public to improve accident prevention and emergency response** practices at the local level.

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EPA Risk Management Program (RMP)

Plan – 40 CFR Part 68

- **HAZARD ASSESSMENT** that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of **worst-case and alternative accidental releases**
- **PREVENTION PROGRAM** that includes **safety precautions** and **maintenance, monitoring, and employee training measures**
- An **EMERGENCY RESPONSE PROGRAM** that spells out emergency health care, employee training measures **and procedures for informing the public and response agencies** (e.g. the Fire Department, Police, Sheriff, Ambulance, HazMat Responders, Bomb Squad, and others) should an accident occur.

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EPA 40 CFR vs. OSHA 29 CFR

EPA RMP Program 3 Facility	EPA RMP 40 CFR Part 68	OSHA PSM 29 CFR 1910.119
Process Safety Information (PSI)	§ 68.65	§ 1910.119(d)
Process Hazard Analysis (PHA)	§ 68.67	§ 1910.119(e)
Operating Procedures	§ 68.69	§ 1910.119(f)
Training	§ 68.71	§ 1910.119(g)
Mechanical Integrity	§ 68.73	§ 1910.119(j)
Management of Change (MOC)	§ 68.75	§ 1910.119(l)
Pre-Startup Review	§ 68.77	§ 1910.119(i)
Compliance Audits	§ 68.79	§ 1910.119(o)
Incident Investigation	§ 68.81	§ 1910.119(m)
Employee Participation	§ 68.83	§ 1910.119(c)
Hot Work Permit	§ 68.85	§ 1910.119(k)
Contractors	§ 68.87	§ 1910.119(h)
Trade Secrets	Not Required	§ 1910.119(p)

* EPA RMP, Part 68 Program 3 audits will mostly mirror an OSHA 119 audit.

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Process Safety Management (PSM) 14 Elements

20 CCPS Management System Elements

Center for Chemical Process Safety (CCPS)

- Process Safety Culture
- **Compliance with Standards**
- Process Safety Competency
- **Workforce Involvement**
- Stakeholder Outreach
- Process Knowledge Management
- **Hazard Identification & Risk Analysis**
- **Operating Procedures**
- **Safe Work Practices**
- **Asset Integrity and Reliability**
- **Contractor Management**
- **Training and Performance Assurance**
- **Management of Change**
- Operational Readiness
- Conduct of Operations
- **Emergency Management**
- **Incident Investigation**
- Measurement and Metrics
- **Auditing**
- Management Review and Continuous Improvement
- Implementation and the Future

Recognized and Generally-Accepted Good Engineering Practice (RAGAGEP)

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Defining RAGAGEP for Employers

HOT Topic

The Center for Chemical Process Safety's (CCPS) definition of RAGAGEPs is as follows:

"The basis for engineering, operation, or maintenance activities and are themselves based on established codes, standards, published technical reports or recommended practices or similar documents. RAGAGEPs detail <u>generally approved ways to perform specific engineering, inspection or mechanical integrity activities</u>, such as fabricating a vessel, inspecting a storage tank, or servicing a relief valve."

Employers are currently required by the OSHA standard to meet

<u>Recognized and Generally Accepted Good Engineering Practices (RAGAGEP)</u>.

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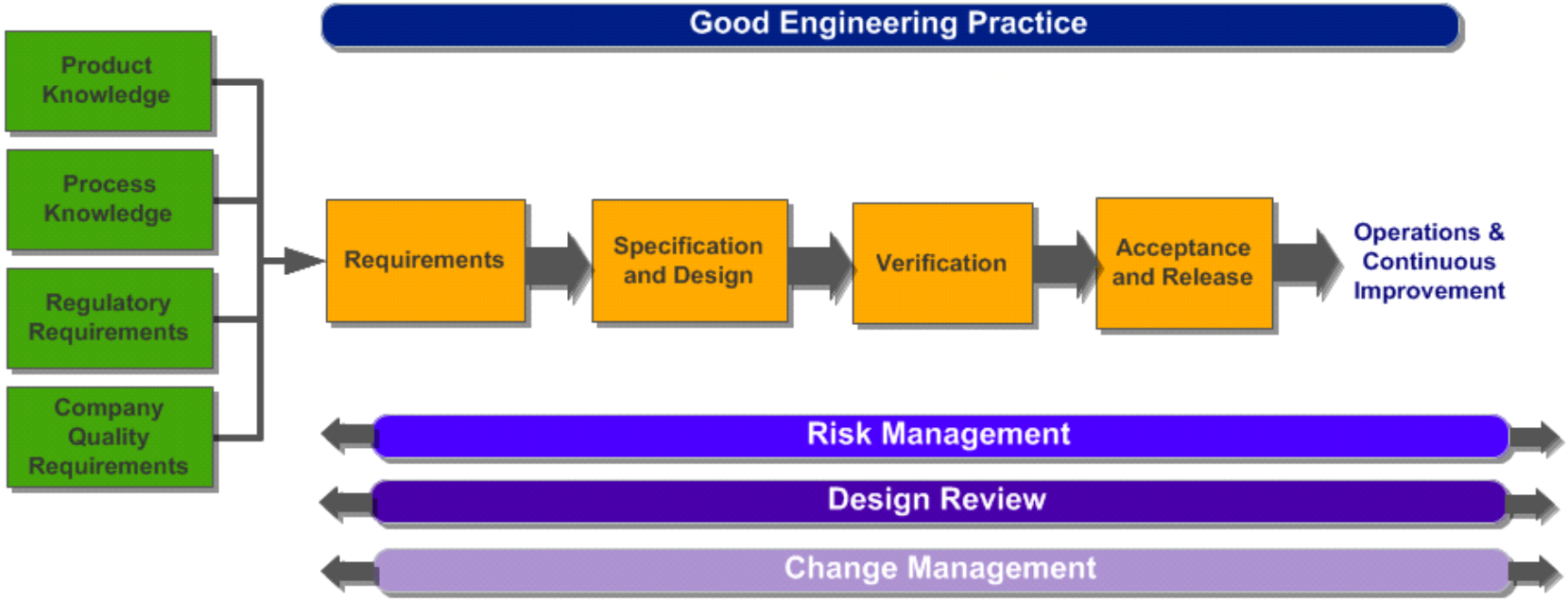
Early Recognition of RAGAGEP

On March 23, 2000 OSHA sent a letter to ISA endorsing IEC 61511 / ISA 84 as a “National Conensus Standard” for SIS and states:

1) The standard is a **“Recognized and Generally Accepted Good Engineering Practice”** per 29 CFR 1910.119 (d)(3)(ii) PSM Standard

2) ..Evaluating whether an employer’s engineering practices, **with respect to SISs** comply with PSM and meets the requirements of **IEC 61511 / ISA 84**

3) A large % of processes are NOT covered by PSM but may require SIS, due to potential hazards to personnel



The Specification, Design and Verification Process

The performance-based approach to PSM requires employers to "Say what you'll do, and do what you say!"

- Jim Lay, "OSHA PSM RAGAGEP Enforcement" June 8, 2015

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Primary Sources of RAGAGEP

Appropriate *Internal Standards*

Internally developed standards must still represent RAGAGEPs. Must be consistent with OSHA's intent. Legitimate purposes include:

- **Translating published requirements** into detailed programs and/or procedures
- **Setting requirements** for unique processes, equipment, and hazards for which **no published RAGAGEP exists**
- **Supplementing the published RAGAGEP** with their own applicable practices, protocols, and procedures to control hazards
- **Controlling hazards more efficiently** than the available codes, standards, or practices
- **Addressing hazards** when the **codes and standards are outdated**

Employers' internal standards must either meet or exceed the protective requirements of published RAGAGEP

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Appropriate Internal Standards

PSM interpretation does not imply that employers may disregard applicable published RAGAGEP. However, in the absence of an appropriate standard, the employer must document:

1. **Evidence** that **no existing standard** is applicable
2. Prove through **relevant process hazard analyses (PHAs) and supporting documents** that additional means of protection is/ is not required
3. Establish that the **internal approach is as protective** as the published RAGAGEP
4. It **represents "good engineering practice"**
5. The PSM standard makes no reference to a **'take-it OR leave-it'** approach to RAGAGEP selection (OSHA-added emphasis)

Employers that meet published RAGAGEP, but don't comply with their own more stringent internal requirements, may be cited under 1910.119(j)

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Common RAGAGEPs

Hot Topic Example

1. ITEMS:	2. DESIGN OR CONSTRUCTION CODES:	3. INSPECTION, REPAIR, ALTERATION, RERATING, OR FITNESS FOR SERVICE CODES:	4. "SUPPORT" OR "REFERENCED" CODES OR PUBLICATIONS:
Boilers	ASME I ASME IV	NBIC	ASME II, ABCD ASME V ASME VI & VI ASME IX API RP 573 5NT-TC-1A
Pressure Vessels	ASME VIII DIV. 1 & 2	NBIC API 510 API 579	ASME II, ABCD ASME V ASME IX API RP 572 API IRE II 5NT-TC-1A
Piping	ASME B31.1 ASME B31.3	API 570 API 579	ASME II, ABCD ASME V ASME IX API RP 574 ASME B16.5 5NT-TC-1A
Valves	ASME B16.34 API 600 API 609	API 598 API RP591	API RP 574 ASME V ASME IX
Aboveground Storage Tanks	API 12B API 650 API 620	API 653 API 579	API 651 API 652 API 2016 API 2207 API RP 575 ASME V ASME IX 5NT-TC-1A
Safety/Safety Relief Valves	ASME I ASME IV ASME VIII API 2000	NBIC API RP 576	ASME PTC-25 API 627 ASME V ASME IX
Pumps	API 610 API 574-676	API RP683 MFG STDS	MFG. STANDARDS AWS D14.5
Instrumentation and Controls	VARIOUS ISA STANDARDS AND RP 551	ISA/MFG STANDARDS	INSTRUMENT ENGINEER'S HANDBOOK MFG. STANDARDS
Pipelines (49 CFR-186-199)	B31.4 B31.8 API 1104	ASME B31G	ASME V ASME IX

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PSM Documentation Now Required

Employers are required to establish and document:

- Not only PSM-covered process equipment **but also equipment whose operation could affect the covered process equipment**
- Track the **age and installation date** of the process and equipment
- **Process and equipment modifications**, including the date and extent of process changes
- The **edition and publication date** of selected RAGAGEP
- How the employer's **internal requirements** are more stringent
- **Written procedures for inspection and testing** of equipment
- **Compliance to changes** in selected RAGAGEP through **PHA Revalidation and Management of Change (MOC) processes**, OR via corporate monitoring and review of published standards

OSHA now expects Employers to apply RAGAGEP and the enhanced documentation requirements to a wider range of equipment

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Potential Inspection Targets

- Selectively **mixing-and-matching provisions/sections** from multiple RAGAGEP addressing similar hazards **may be inappropriate** and could result in inadequately controlled hazards
- The PSM standard requires employers to have **written procedures for inspection and testing of equipment** and is in accordance with their selected RAGAGEP
- Employers must document that their **PSM-covered process equipment and equipment whose operation could affect** that process **comply** with RAGAGEP
- When an Employer is operating deficient equipment based on the use of **interim safeguards**, the Employer must develop and implement an **MOC procedure** for the **continued safe operation** of the equipment
- **Older equipment not covered** or operating under **obsolete RAGAGEP** now requires **documented evidence** that the equipment is **designed, maintained, inspected, tested, and operating** in a safe manner

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Definition – 'Should/Shall' Language in Documents

- **"Shall" and "Must"**
  - "Shall," "Must," or similar language used in published RAGAGEP reflects the (Standard) view that the practice is a mandatory minimum requirement
- **"Should"**
  - Use of the term "Should" or similar language in the RAGAGEP reflects an acceptable and preferred approach
  - OSHA presumes that employer compliance with the recommended approach is acceptable
- **"Should Not"**
  - "Should Not" or similar language describes disfavored or less than fully protective practices
  - Following such disfavored practices is presumed to be a violation

If an employer deviates from "Shall" or "Should Not" requirements in the Employer's adopted RAGAGEP, OSHA will presume a violation

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RAGAGEP Example

- **National Fire Protection Association (NFPA) 85, *Boiler and Combustion Systems Hazards Code*.** Applies to boilers and units that generate steam using heat generated by combustion.
- **National Fire Protection Association (NFPA) 86, *Standards for Ovens and Furnaces*.** Applies to heated enclosures (furnaces, ovens, dryers) regardless of heat source.
- **ISA/ANSI S84-TR5/ ISA TR.84.00.05, *The Application of S84-2004 for SIFs in Burner Management Systems*.** Review of SIS systems used as burner management systems (BMS).
- **API 556 *Instrumentation, Control, and Protective Systems for Gas Fired Heaters*.** Refineries, petrochemical, and chemical plants. Gas only, not for boilers, incinerators, pyrolysis furnaces. Uses "shall" 39 times.

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RAGAGEP Example 1 –

Fired Heater / BMS Permissive

		NFPA 85	NFPA 86	S84-TR5	API 556
1.1	**Fuel block valves proved closed**	✓	✓	✓	✓
1.2	**Absence of flame proved**	✓	✓	✓	✓
1.3.1	**Pre-purge flow proved**	✓	✓	✓	✓
1.3.2	**Pre-purge timer complete**	✓	✓	✓	✓
1.4	Air proved at low fire rate	✓		✓	✓
1.5	Fuel pressure in correct range	✓		✓	✓
1.6	Pilot flame detected within time	✓	✓	✓	
1.7	Main fuel set at low fire position	✓	✓	✓	
1.8	Main flame detected within time	✓	✓	✓	
1.9.1	Post purge flow proved	✓			
1.9.2	Post purge timer complete	✓			
1.10.1	Adequate process level			✓	
1.10.2	Adequate process flow				✓

Chart courtesy of Emerson Process Controls

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RAGAGEP Example 2 –

Interlocks: Ignition, Air & Fuel

		NFPA 85	NFPA 86	S84-TR5	API 556
2.1	**Loss of flame**	✓	✓	✓	✓
2.2	**Loss of combustion air**	✓	✓	✓	✓
2.3	Low furnace pressure				✓
2.4	High furnace pressure	✓			✓
2.5	**Low fuel pressure**	✓	✓	✓	
2.5.1	Low fuel pressure – at pilot	✓		✓	✓
2.5.2	Low fuel pressure – at main burner	✓			✓
2.6	**High fuel pressure**	✓	✓	✓	
2.6.1	High fuel pressure – at pilot	✓		✓	✓
2.6.2	High fuel pressure – at main burner	✓			✓
2.7.1	Loss of atomizing medium	✓	✓	✓	N/A
2.7.2	Heated oil – Low temp/High visc	✓	✓		N/A
2.7.3	High heated oil temperature	✓	✓		N/A

Chart courtesy of Emerson Process Controls

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RAGAGEP Example 3 –

Interlocks: Systems and Processes

		NFPA 85	NFPA 86	S84-TR5	API 556
3.1	**Loss of actuating energy**	✓	✓	✓	✓
3.2	**Power failure**	✓	✓	✓	✓
3.3	Emergency Shutdown	✓	✓		✓
4.1	Low (water) level	✓		✓	✓
4.2.1	**Excess (steam) pressure**	✓	✓	✓	✓
4.2.2	**Excess (water) temperature**	✓	✓	✓	✓
4.3	Low process flow		✓	✓	✓
4.4	High furnace discharge temp			✓	✓
4.5	High skin temperature				✓

Chart courtesy of Emerson Process Controls

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Documentation Requirements & Regulatory Compliance

- Safety Instrumented Function list (SIF)
- Safety Requirement Specification (SRS)
- SIL Verification Calculations
- Cause and Effect Table (C&E)
- P&IDs
- SIS Logic
- Loop Diagrams
- Logic Solver Panel Design
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Verification / Validation Checklist
- Functional Safety Assessment
- Installation and Commissioning QA/QC records
- Operating and Maintenance Procedures
- Executed Proof Test Procedures
- SIS Demand and Failure Tracking Log
- SIS Practice and Recording
- Audit Records
- MOC Records
- Training Records

Important! Know what documentation is required and to consider the means of generation, archiving & support

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OSHA Citations

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OSHA Typical Standards Cited

National Emphasis Program (NEP) - Refineries

- 1910.119 PSM – 249 violations
- 1910.147 Lockout/Tagout - 20
- 1910.120 HAZWOPER - 19
- 1910.1200 HAZCOM - 12
- 1910.146 Confined Space - 11
- 5A.001 General Duty - 9
- 1910.307 Hazardous Locations - 7

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OSHA Refining NEP PSM Enforcement Statistics

Based on 65 NEP Inspections:

Total Citations = 1,542

- PSM 1088 (70%)
- Non-PSM 454 (30%)

Total Fines = $9,401,472.00 **($ = pre-2016)**

INCREASES – Potential 2016 Maximum Penalties

**assumes 80% catch-up adjustment*

Violation Type	Current Maximum Penalty	2016 Maximum Penalty*
Other than Serious Violations	$7,000	$12,600
Serious Violation	$7,000	$12,600
Willful Violation	$70,000	$126,000
Repeat Violation	$70,000	$126,000

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OSHA Refining NEP PSM Enforcement Statistics

Mechanical Integrity	202
Process Safety Information	189
Process Hazard Analysis	188
Operating Procedures	184
Management of Change	92
Incident Investigation	71
Compliance Audits	47
Contractors	33
Training	29

855
79%

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OSHA Refining NEP PSM Enforcement Statistics

Emergency Planning and Response	17
Employee Participation	15
Pre-Startup Safety Review	13
Hot Work Permits	8
Trade Secrets	0
Total PSM Citations	**1088**

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Mechanical Integrity

MECHANICAL INTEGRITY

- PREVENTATIVE MAINTENANCE
- Pressure Vessels
- Relief Valves
- Weld Quality Control Program
- Tank Reliability
- Piping Inspection
- Electrical Instrumentation, Emergency Shutdown (ESD)
- INSPECTOR CERTIFICATIONS
- Acoustic Emmissions (AE) Tests Replications
- Exchanger Reliability
- Turnaround Inspections
- Heater Reliability
- MAINTENANCE TRAINING & CERTIFICATION

Drill & Tap?

OSHA NEP Enforcement Statistics Mechanical Integrity

J(1)	Process equipment	0
J(2)	Written procedures	37
J(3)	Training	3
J(4)	Inspection and testing	0
J(4)(i)	Inspection and testing	29
J(4)(ii)	Engineering practices	22
J(4)(iii)	Frequency	23
J(4)(iv)	Documentation	14
J(5)	Equipment deficiencies	61
J(6)(i)	Quality assurance	0
J(6)(ii)	Inspections	9
J(6)(iii)	Materials and spare parts	4
TOTAL		202

88

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OSHA NEP Enforcement Statistics

(J-2) Mechanical Integrity Program

No Procedures exist for:

- Pressure vessels with integrally bonded liners
- Corrosion under insulation inspections for pressure vessels and piping
- Addressing anomalous readings pertaining to metal thickness
- Determining thickness measurement frequency for pressure vessels
- Determining the representative number of thickness measurements

OSHA NEP Enforcement Statistics

(J-4) Testing and Inspections

Failure to follow own scheduled T/I Visual inspections

- Ultra sound
- Internal corrosion
- Total Mass Losses (TMLs)
- Vibration analysis

Failure to follow RAGAGEP Testing of wrong locations

- Testing at wrong frequencies
- Insufficient number of tests

Failure to document the T/I results

Note: OSHA Enforcement of 'RAGAGEP'

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OSHA Adoption of the 1% Rule

Similar to EPA 1% Rule

- Federal Register, dated 7/18/2016
- The 1% test states that any Appendix A HHC in a process contributes to the threshold quantity (TQ) if it is in a mixture at concentrations greater than 1%, and that only the contained amount of the HHC counts toward the TQ, not the entire quantity of the mixture.
- Two important exceptions to this rule
  - First, the quantity in the mixture does not count if the partial vapor pressure of the HHC is less than 10 mm Hg.
  - Second, the 1% rule does not apply if the HHC has a mixture concentration associated with its listing.
- Beginning next April 1 and going to the end of March 2018, processes newly covered because of the new 1% test will not be cited if the employer is making a good faith effort to get in compliance

For more information:
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=30848

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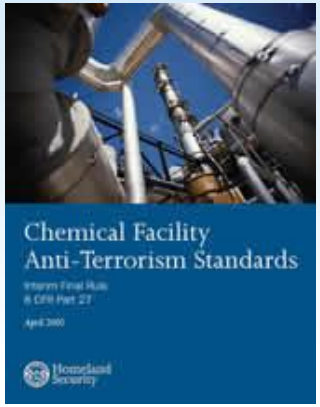
Department of Homeland Security (DHS) 6 CFR 27 Chemical Survey Assessment Tool (CSAT) V2.0 …

Top-screen Resubmissions for CFATS Compliance



- Effective July 20, 2016
- The Department will transition to the:
  - Revised CSAT Top-Screen application
  - Revised CSAT Security Vulnerability Assessment (SVA) application
  - Revised CSAT Site Security Plan (SSP) application
- CSAT 2.0 minimizes undue effort and unnecessary complexity that could inadvertently cause confusion
- The transition from the existing CSAT applications to CSAT 2.0 is a three-step process.
  - The first step is to temporarily suspend, effective July 20, 2016, the requirement for CFATS chemical facilities of interest to submit a Top-Screen and SVA
  - The second step will be to replace the current CSAT Top-Screen, SVA, and SSP applications with CSAT 2.0 (*i.e.,* the revised CSAT Top-Screen, SVA, and SSP applications)
  - The third step will be to reinstate the Top-Screen and SVA submission requirements in 6 CFR 27.210(a) on October 1, 2016.

Department of Transportation (DOT) 49 CFR

Propane / NGL Odorization – Regulatory Requirements for HAZMAT Transportation – ***81 FR 35483 Issued 6/2/2016, Effective 7/5/2016***

Compressed gases in cargo tanks and portable tanks 173.315(b)(2)

Offeror - Refinery, Gas Plant, Pipeline Terminal

"… the offeror must ensure that enough odorant **will remain in the cargo tank or portable tank during the course of transportation**.

Shipper - Refinery, Gas Plant, Pipeline Terminal

- "The shipper must have **procedures** in place…"
- **Quantitative testing** methods to measure odorant
- **Manual injection** of required amount of odorant
- **Automatic injection** of required amount of odorant, including calibration checks
- Notify persons who receive cargo tanks or portable tanks of:
  - Conditions that could lead to **corrosion of tanks**
  - **New tanks**
  - **Recently cleaned** tanks
- **Inspection of cargo tank or portable tank** for signs of oxidation or corrosion
- **Corrective actions** to ensure enough odorization remains in tank car **during course of transportation**

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Department of Transportation (DOT) 49 CFR

Odorization Exception

Exception

"odorization is not required if it is harmful in the use or further processing of the liquefied petroleum gas or if it will serve no useful purpose as a warning agent in such use or further processing."

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Summary

- OSHA's Process Safety Management (PSM) equivalent to EPA's Risk Management Program 3 OR Company Operational Excellence programs – expect external Agency audits to be similar.
- Center for Chemical Process Safety (CCPS) 20 Management System Elements – Worthwhile to review additional process management elements
- Recognized and Generally Accepted Good Engineering Practice (RAGAGEP) Respect – Select appropriate RAGAGEP and internal 'Should/Shall' Language
- Mechanical Integrity (MI) Programs – Increase FULL ownership of assets
- DHS CFAT 2.0 Topscreen Resubmissions – CSAT>SVA>SSP – Begin gathering facility information for resubmission of CSAT 2.0 Topscreens.
- DOT 49 CFR – Propane / NGL Odorization Regulation (No longer an NFPA RAGAGEP) – Set up responsible of ownership of product mercaptan injection systems, Operator and Maintenance training programs

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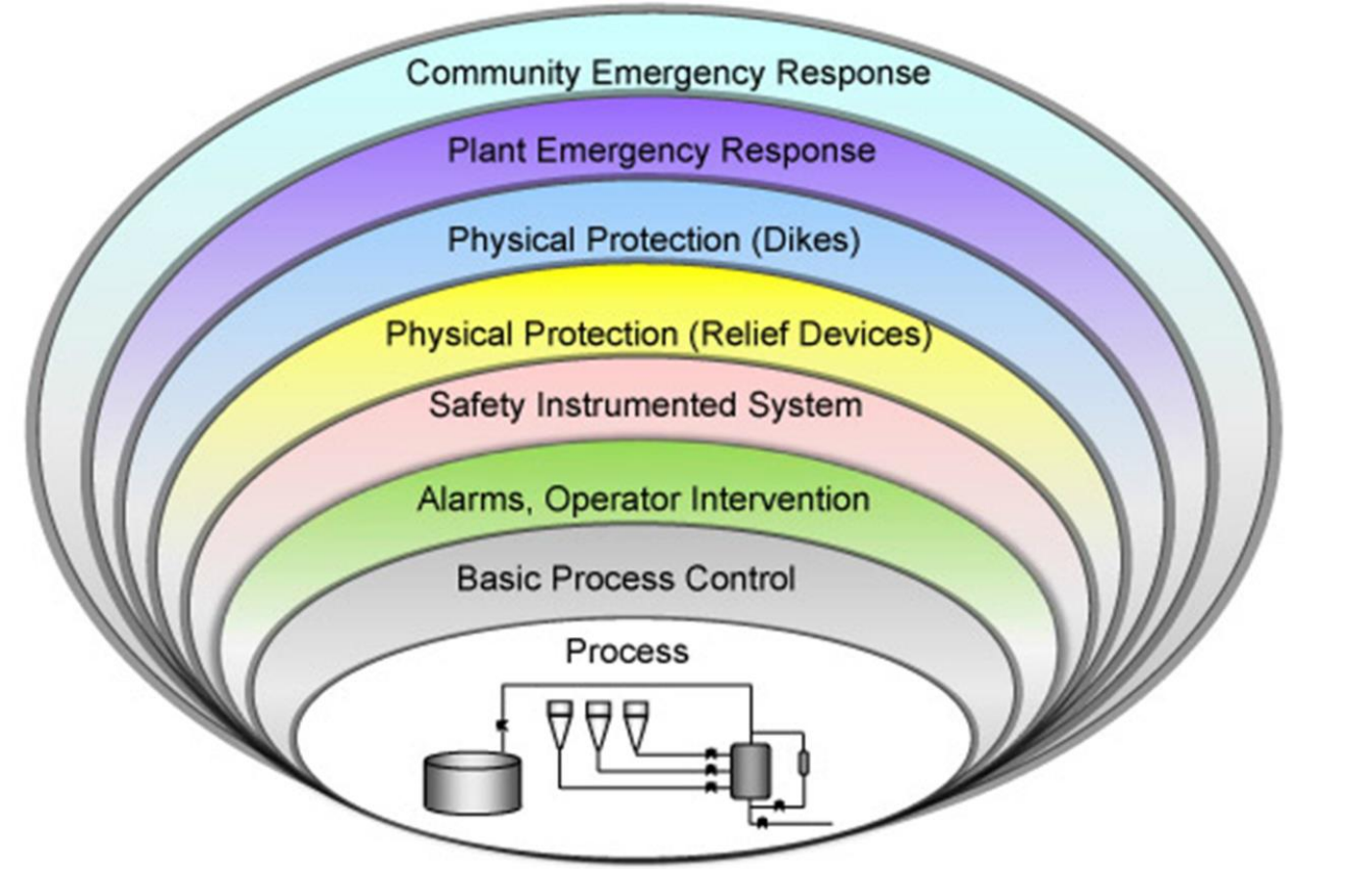
People and Property Ownership

Across the Various Design and O&M Layers



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Questions?

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THANK YOU!

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