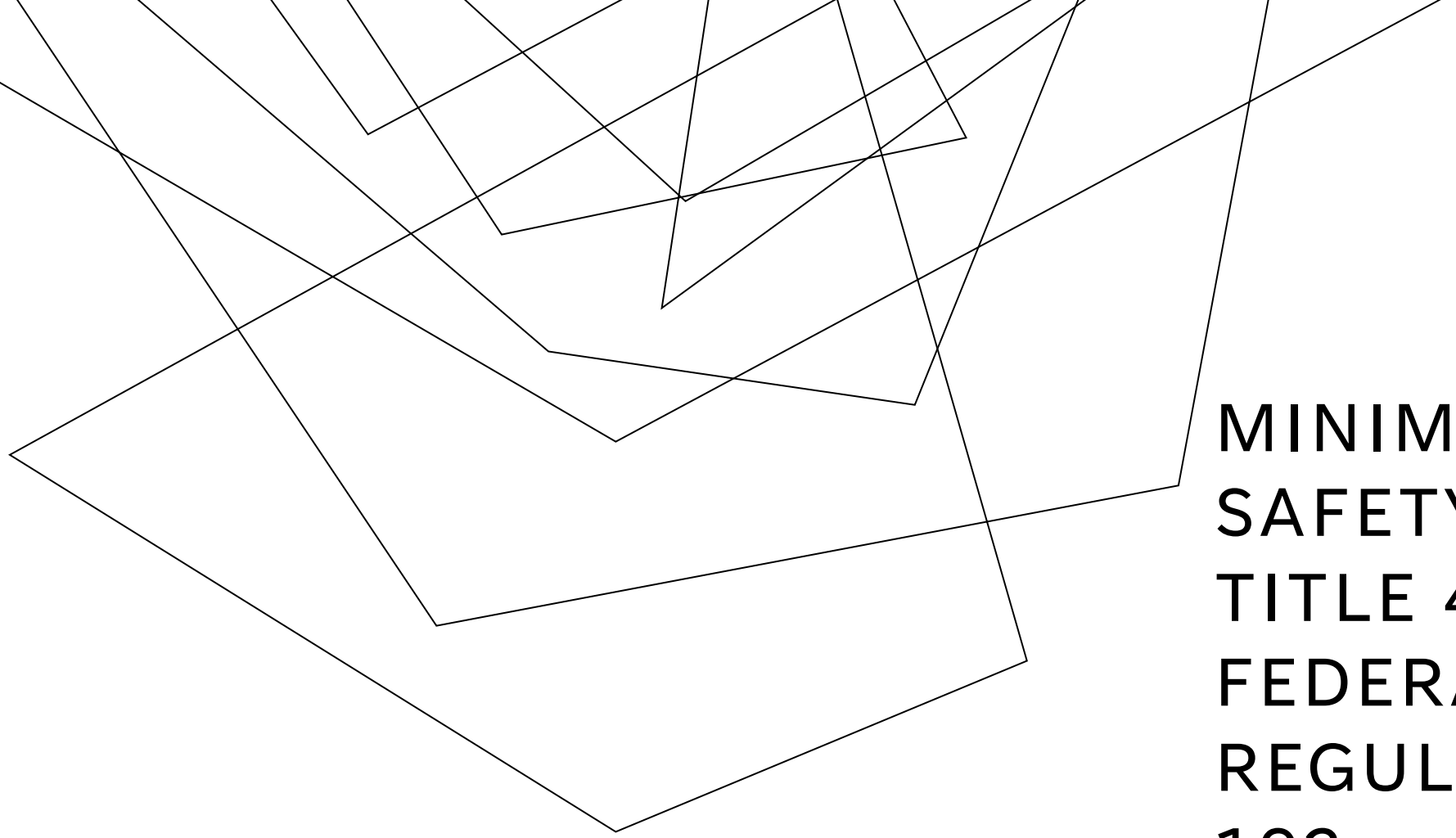


MINIMUM FEDERAL SAFETY STANDARDS TITLE 49 CODE OF FEDERAL REGULATIONS PART 192

Wisconsin Pipeline Safety Seminar

February 2024

PHMSA TQ

PIPELINE INCIDENTS

The first major incident involving natural gas was March 18,1937. A gas explosion in New London, Texas which killed 298 children

PIPELINE INCIDENTS

March 1965, Natchitoches, LA. Transmission line rupture, 17 fatalities

JANUARY 13, 1967, A LEAKING GAS MAIN IN THE JAMAICA SECTION OF NEW YORK CITY WAS IGNITED AND THE FIRE SPREAD BECOMING A 13-ALARM SIZE WITH 63 FIRE COMPANIES RESPONDING. 17 HOMES WERE DESTROYED. 7 INJURED WITH 19 FAMILIES LEFT HOMELESS

Pipeline Incidents

FEBRUARY 16, 1967 - PRESIDENT JOHNSON, WITH A SPECIAL MESSAGE TO THE CONGRESS, " TO PROTECT THE AMERICAN CONSUMER",
"I NOW CALL UPON THE 90TH CONGRESS...IN THE PUBLIC INTEREST...FOR THERE IS IMPORTANT AND NEW BUSINESS ON THE AGENDA TO:
-ENSURE THE SAFETY OF NATURAL GAS PIPELINES"

Call for Public Safety

49 CFR PART 192 – PIPELINE SAFETY ACT

Natural Gas Pipeline Safety Act of 1968

Authorization to regulate pipeline transportation of gas (natural, flammable, toxic or corrosive)

Section 3(a) of the Natural Gas Pipeline Safety Act of 1968 (Public Law 90481) which became effective August 12, 1968, provides as follows:

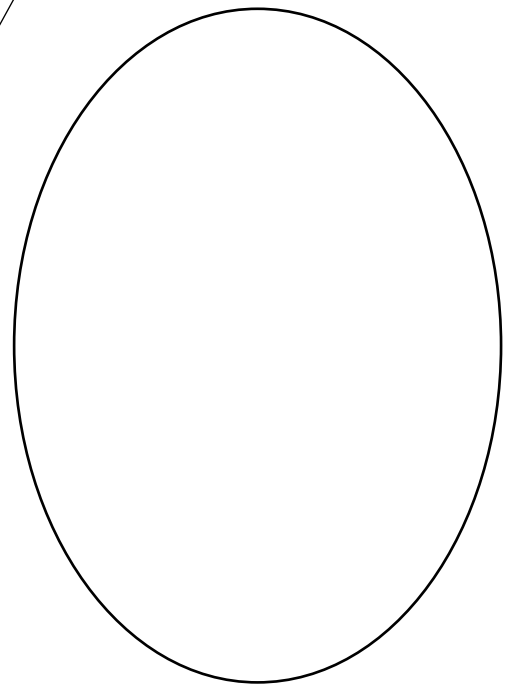
As soon as practicable but not later than 3 months after the enactment of this Act, the Secretary shall, by order, adopt as interim minimum Federal safety standards for pipeline facilities....

Pipeline Codes FROM THE ACT

PART 190	ENFORCEMENT PROCEDURES FOR PHMSA
PART 191	REPORTING REQUIREMENTS
PART 192	GAS PIPELINE SAFETY MINIMUM SAFETY STANDARDS
PART 193	LNG FACILITY SAFETY
PART 194	RESPONSE PLANS FOR ONSHORE OIL PIPELINES
PART 195	LIQUID PIPELINE MINIMUM SAFETY STANDARDS
PART 198	GRANTS TO STATE PIPELINE PROGRAMS
PART 199	DRUG & ALCOHOL TESTING
PART 40	PROCEDURES - DRUG & ALCOHOL TESTING

CODE OF FEDERAL REGULATIONS

These regulations govern design, operation, maintenance and construction of gas pipelines.



CODE STRUCTURE

Title

Subtitle

Chapter

Sub-Chapter

Part

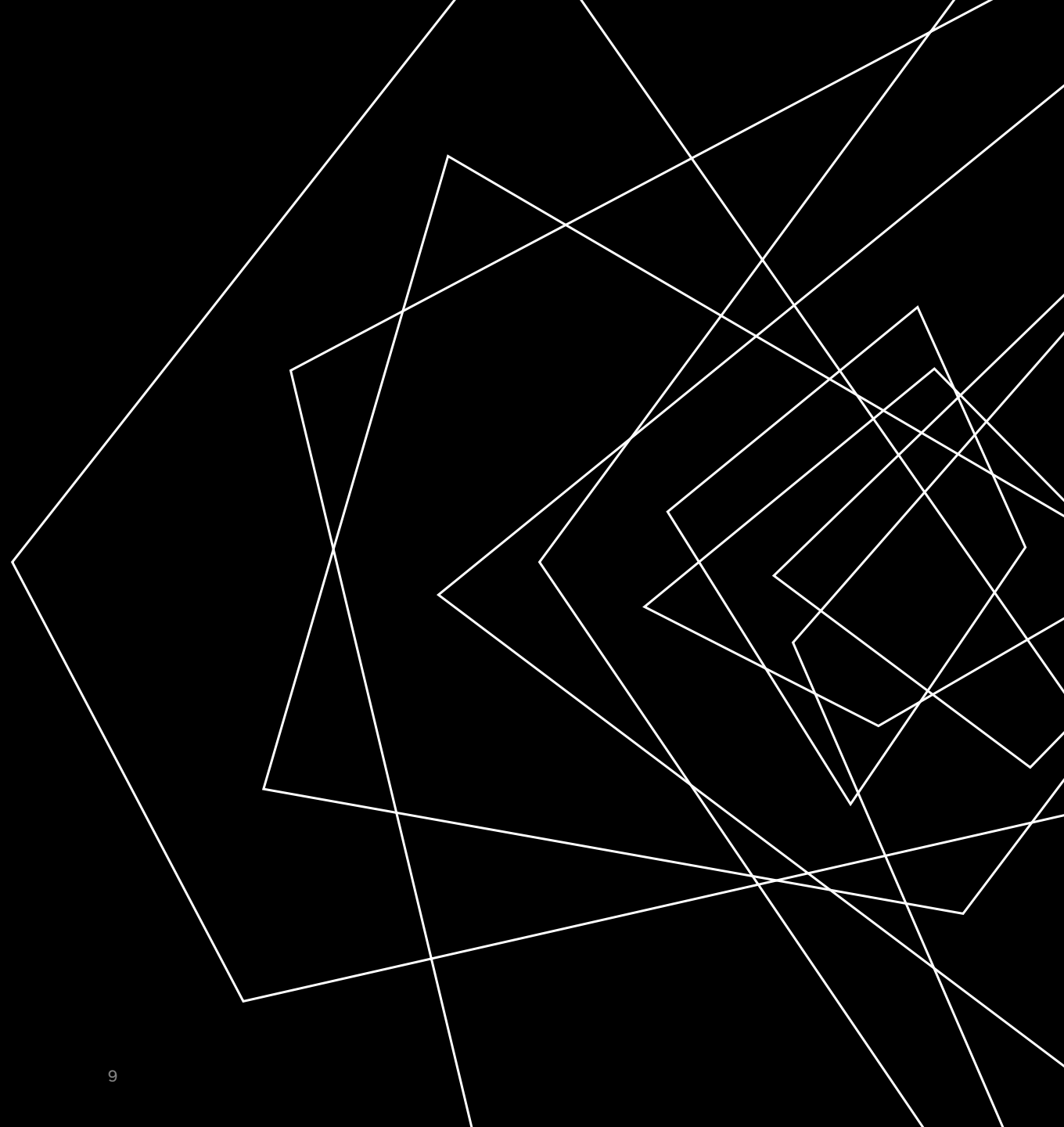
Subpart

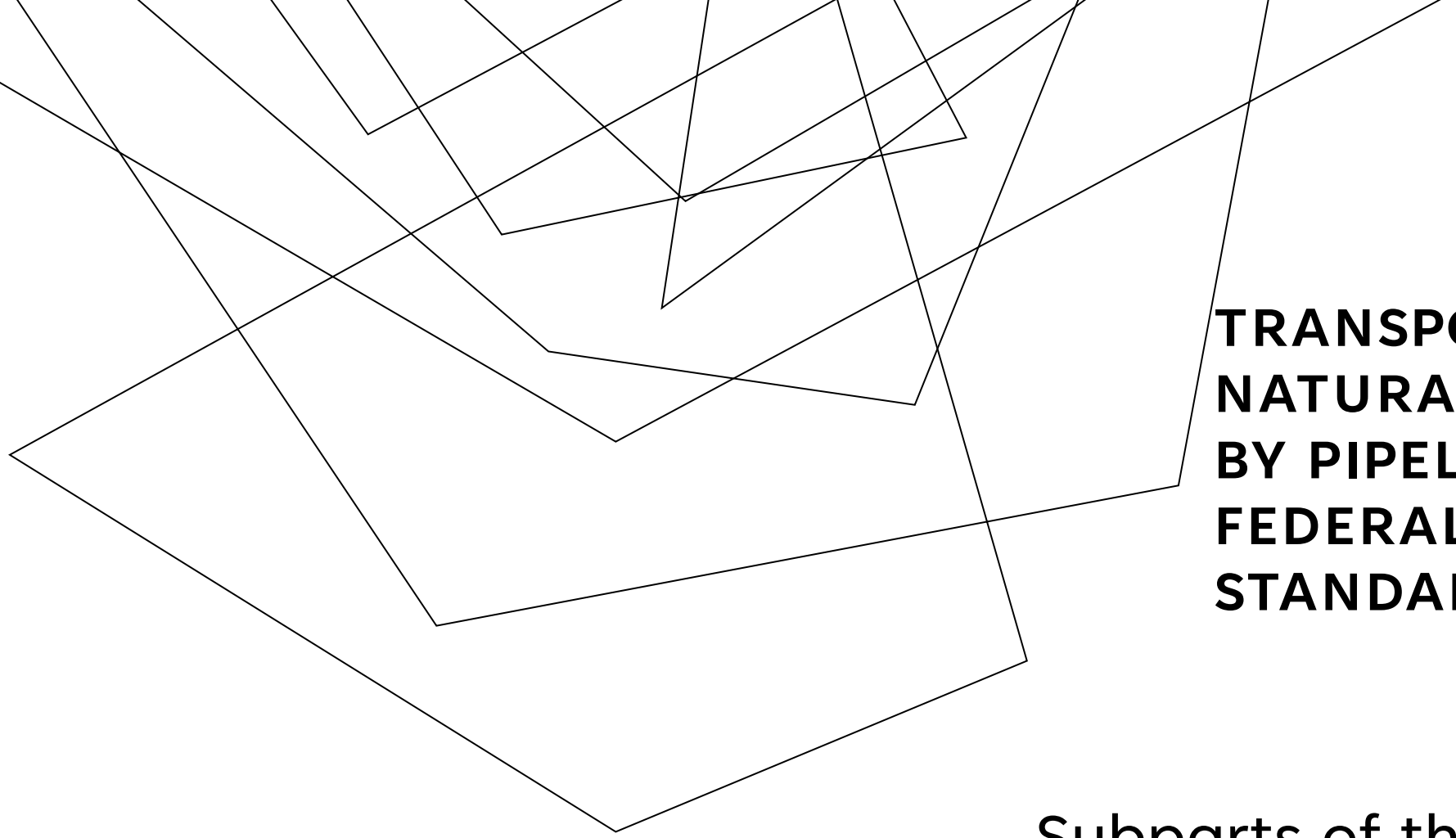
Section

Paragraph

For Example:

Title 49 CFR, Subtitle B, Chapter I, Subchapter D, Part 192, Subpart A, §192.1 (b)(2)(i)





TRANSPORTATION OF NATURAL OR OTHER GASES BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS

Subparts of the Code...

SUBPART A – GENERAL §§ 1-18

- Subpart A is the General information subpart
- Covers a lot of areas not addressed in other subparts
- Here you will find items such as
  - Scope statement (what does this part apply to?)
  - Definitions
  - Regulations concerning class locations
  - Incorporated by reference documents
  - Gathering line guidance
  - Other general requirements for regulated pipelines under part 192

SUBPART B – MATERIALS §§ 51-69

- Subpart B is where you will find the minimum requirements for pipe and components used in Pipelines
- This subpart will cover General requirements as well as specific requirements for:
  - Steel pipe
  - Plastic pipe
  - Marking of materials
  - Transportation of pipe
  - Records requirements
  - Storage and handling requirements

SUBPART C – PIPE DESIGN §§101-127

- Subpart C is where you find requirements for Design of pipe.
- This is where you will find items such as:
  - Design formula for steel pipe
  - Design factor for steel pipe
  - Longitudinal Joint Factor for steel pipe
  - Temperature Derating Factor for steel pipe
  - Design of plastic pipe
  - Design of copper pipe
  - And lastly, Records requirements

SUBPART D – DESIGN OF PIPELINE COMPONENTS §§141-205

- This subpart prescribes minimum requirements for design and installation of components and facilities and prescribes requirements relating to protection against accidental over pressuring.
- This subpart covers Items to include but not limited to
  - Valves
  - Compressor stations
  - Internal inspection devices (pigs)
  - Protection against accidental overpressuring
  - Design requirements for relief valves
  - Records

SUBPART E – WELDING OF STEEL IN PIPELINES §§221-245

- This subpart prescribes minimum requirements for welding steel materials in pipelines.
- This subpart covers items such as;
  - Welding procedures
  - Qualification of welders and welding operators
  - Inspection of test welds
  - Nondestructive testing
  - Records
  - Miter Joints

SUBPART F – JOINING OF MATERIALS OTHER THAN BY WELDING §§ 271-287

- This subpart prescribes minimum requirements for welding steel materials in pipelines.
- This subpart Is where you will find requirements for joining of pipes other than by welding such as;
  - Cast iron pipe
  - Ductile iron pipe
  - Plastic pipe
  - Qualification of plastic pipe joining procedures
  - Qualifying persons to make joints-plastic pipe
  - Inspection of joints-plastic pipe

SUBPART G – GENERAL CONSTRUCTION REQUIREMENTS §§301-329

- This subpart prescribes General construction requirements for Transmission Lines and Mains.
- This subpart Is where you will find General inspection requirements and other requirements such as;
  - Bends and Inspection of materials
  - Repair of steel pipe
  - Repair of plastic pipe
  - Casings
  - Cover(for buried pipe)
  - Protection from hazards
  - Underground clearance
  - Additional requirements for steel pipe using alternative MAOP
  - Installation of plastic pipe by trenchless excavation

SUBPART H – CUSTOMER METERS, SERVICE REGULATORS, AND SERVICE LINES §§351-385

- This subpart prescribes Requirements for installing meters, service regulators, service lines, service line valves and service line connections to Mains.
- This subpart Is where you will find requirements for customers meters and regulators;
  - Location
  - Installation
  - Protection from damage
  - Operating pressure
- Service line requirements for:
  - Installation
  - Valve requirements

SUBPART H – CUSTOMER METERS, SERVICE REGULATORS, AND SERVICE LINES §§ 351-385

- Service line requirements (cont.')
  - Location of valves
  - General requirements for connection to main piping
  - Connections to cast iron or ductile iron mains
  - Steel
  - Cast iron and ductile iron
  - Plastic
  - Installing service lines by trenchless excavation
  - Copper
  - Excess flow valve installation
  - Excess flow valve performance standards
  - Manual service line shut-off valve installation

SUBPART I – REQUIREMENTS FOR CORROSION §§ 451-493

Minimum requirements for protection of metallic pipelines from external. Internal and atmospheric corrosion.

- **External corrosion control**- All requirements for external corrosion such as monitoring, test stations, cathodic protection, protective coatings, Examination of buried pipelines when exposed
- **Internal corrosion control**- covers general requirements, Design and construction of transmission line, Monitoring requirements, and onshore transmission monitoring and mitigation.
- **Atmospheric corrosion control-** provides general requirements and monitoring requirements

SUBPART I – REQUIREMENTS FOR CORROSION

- **Remedial measures-** provides General requirements, Guidance for transmission lines and distribution Lines (other than cast iron or ductile iron) to include general corrosion and localized corrosion pitting, also calculating remaining Strength
- **Direct Assessment-** provides guidance for operators that use direct assessment on onshore transmission lines made primarily of steel.
- **Inline inspection of pipelines –** requirements for operators when conduction inline inspection of pipelines required by this part
- **Corrosion control Records -** Record keeping requirements for corrosion control

SUBPART J – TESTING REQUIREMENTS §§ 501-517

- This subpart is where you will find minimum leak test and strength test requirements for pipelines
- Subpart list general requirements as well as specific requirements for:
  - Strength test for steel operating at 30% or more of SMYS
  - Spike hydro test on transmission lines
  - Test requirements for pipeline operating less than 30% of SMYS but more than 100 Psig
  - Test requirements for service lines and plastic pipe
  - Environmental protection and safety concerns
  - And lastly Record requirements

SUBPART K – UPRATING §§ 551-557

- This subpart is where you will find minimum Requirements for increasing a pipelines MAOP(uprating)
- The general requirements section list specific requirements for the following:
  - Pressure increases
  - Records
  - Written plan requirement
  - Limitations on increase in MAOP
- The last two sections, §555 and §557 provide specific requirements for uprating to a pressure of 30% or more of SMYS in steel pipelines, and less than 30% SMYS for Plastic ,Cast iron and Ductile iron pipelines

SUBPART L – OPERATIONS §§601-636

- This subpart is where you will find minimum Requirements for The operation of pipeline facilities. As a pipeline operator you will spend a lot of time in this subpart.
- The general provisions section states that no person may operate a pipeline unless it is operated in accordance with this subpart.
- Operations subpart highlights:
  - Procedural manual requirements
  - Class location
  - Damage prevention program
  - Public awareness
  - Emergency plans
  - Odorization of gas
  - MAOP-Steel and Plastic pipelines

SUBPART M –MAINTENANCE §§ 701761

- This is where you will find minimum requirements for Maintenance of pipeline facilities. As a pipeline operator you will spend a lot of time in this subpart also.
- The general provisions section states that no person may operate a pipeline unless it is maintained in accordance with this subpart.
- Maintenance Subpart Highlights;
  - Patrolling for both Transmission and Distribution pipelines
  - Leak survey requirements for both Transmission and Distribution
  - Valve maintenance requirements for both Transmission and Distribution
  - General requirements for repair procedures
  - Pressure limiting and regulating stations- Inspection, testing, capacity of relief devices, Telemetry and recording devices
  - Compressor station maintenance requirements are also covered in subpart M

SUBPART N – QUALIFICATION OF PIPELINE PERSONNEL §§ 801-809

Highlights;

- §801- This subpart prescribes minimum requirements for operator Qualification of individuals performing covered tasks on a pipeline facility. §801 also defines what a covered task is.
- §803- Definitions- three definitions are listed which pertain to operator qualification, Abnormal operating condition, Evaluation and Qualified.
- §805- Qualification program requirements are listed; each operator must have and follow a written qualification program.
- §807- Record keeping requirements are listed with very prescriptive language as to what the records must include.
- §809- General, This section covers topics not already covered such as dates evaluation methods guidance etc.

SUBPART O – GAS TRANSMISSION PIPELINE INTEGRITY MANAGEMENT §§ 901-951

This subpart prescribes minimum requirements for an integrity management program on any gas transmission pipeline covered under this part.

Some Highlights;

- §903- Definitions- Definitions pertinent to integrity management are listed.
- §905 Provides guidance on identifying HCAs(High consequence Areas)
- §907- Tells operators what they must do to implement this subpart.
- §§919& 921 - Tells operators what must be in their baseline assessment plan. and how the assessment is to be conducted.

SUBPART P – GAS DISTRIBUTION PIPELINE INTEGRITY MANAGEMENT §§ 1001-1015

This subpart prescribes minimum requirements for an integrity management program on any gas distribution pipeline covered under this part (unless exempted in par (b) of §1003)

Some Highlights;

- §1003- Tells us what the regulations in this subpart cover
- §1005- Tells operators what they must do to implement this subpart.
- §1007- Tells operators what elements are required in their integrity management plan.

PART 192 APPENDIXES

- Appendix A- (Reserved)
- Appendix B- Qualification of pipe and components
- Appendix C- Qualification of welders for low stress level pipe
- Appendix D Criteria for Cathodic protection and Determination of Measurements
- Appendix E- Guidance on determining High Consequence Areas
- Appendix F- Criteria for conducting integrity assessments using guided wave ultrasonic testing (GWUT)

RETROACTIVITY IS BASED ON §192.13

Retroactive means - made effective as of a date prior to enactment.

K, I, L, A, M, O, & P

§192.13

(a) No person may operate a segment of pipeline listed in the first column of paragraph (a)(3) of this section that is readied for service after the date in the second column, unless:

(1) The pipeline has been designed, installed, constructed, initially inspected, and initially tested in accordance with this part; or

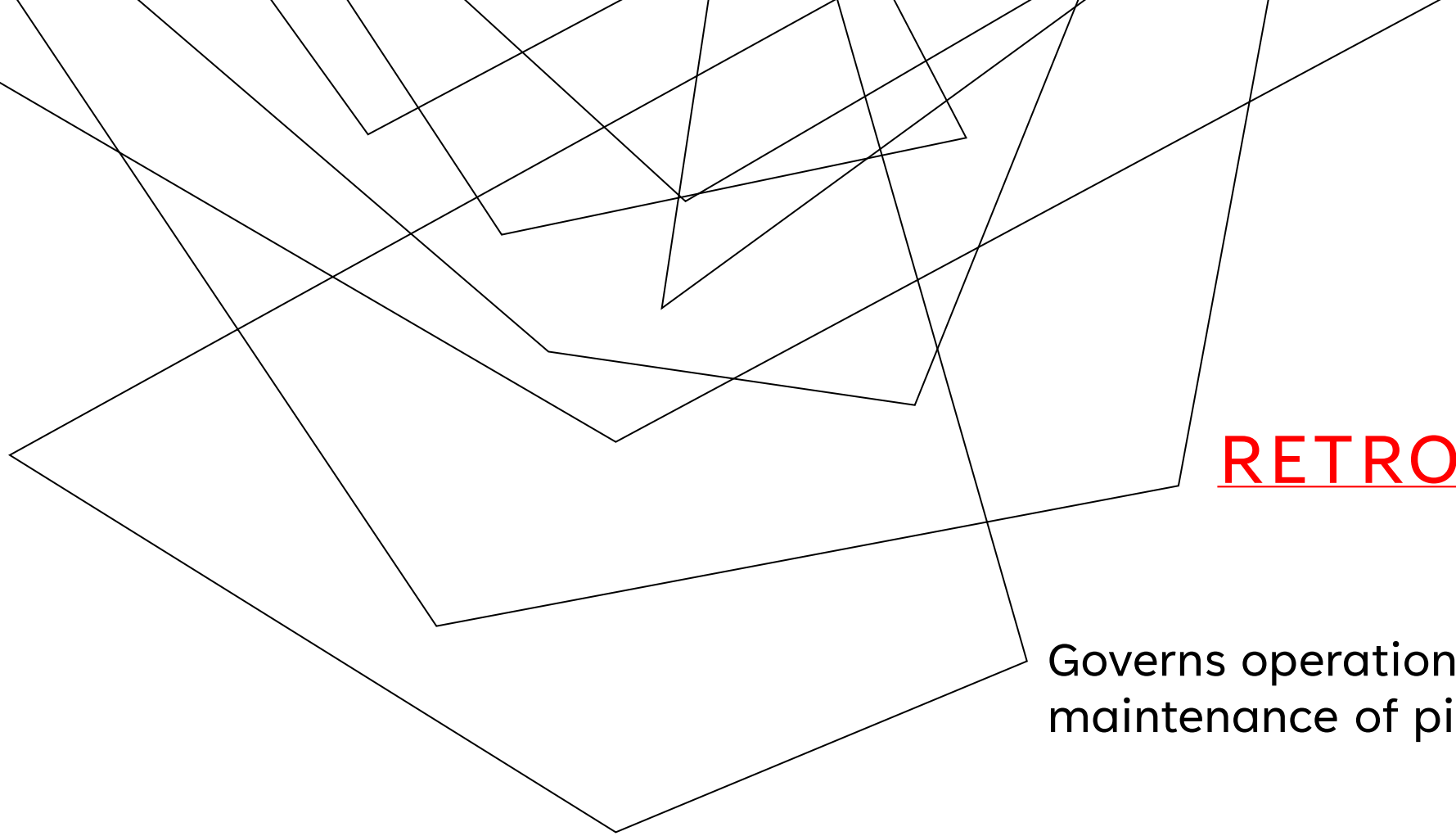
(2) The pipeline qualifies for use under this part according to the requirements in § 192.14.

TABLE A

Pipeline	Date
(i) Offshore gathering pipeline	July 31, 1977.
(ii) Regulated onshore gathering pipeline to which this part did not apply until April 14, 2006	March 15, 2007.
(iii) Regulated onshore gathering pipeline to which this part did not apply until May 16, 2022	May 16, 2023.
(iv) All other pipelines	March 12, 1971.

§ 192.13 WHAT GENERAL REQUIREMENTS APPLY TO PIPELINES REGULATED UNDER THIS PART?

(b) No person may operate a segment of pipeline listed in the first column of this paragraph (b) that is replaced, relocated, or otherwise changed after the date in the second column of this paragraph (b), unless the replacement, relocation or change has been made according to the requirements in this part.



RETROACTIVE

Governs operations and maintenance of pipeline facilities

Applies to ALL existing pipelines, regardless of the date of construction

RETROACTIVE –

REMEMBER KILAMOP FOR RETROACTIVE SECTIONS

- Subpart K – Uprating
- Subpart I – Requirements of Corrosion Control
- Subpart L – Operations
- Subpart A – General
- Subpart M – Maintenance
- Subpart O – Pipeline Integrity Management
- Subpart P – Distribution Integrity Management

NON-RETROACTIVE

Govern design, materials, construction and testing requirements for pipelines installed after March 12, 1971

Cannot apply to pre-existing pipelines, only facilities installed after March 12, 1971

NON-RETROACTIVE SUBPARTS

Subpart B – Materials

Subpart C – Pipe Design

Subpart D – Design of Pipeline Components Designed

Subpart E – Welding of Steel Pipelines

Subpart F – Joining of Materials Other than by Welding

Subpart G – General Construction Requirements for Transmission Lines and Mains

Subpart H – Customer Meters, Service Regulators and Service Lines

Subpart J – Test Requirements Tested

Subpart N – Qualification of Pipeline Personnel

PROCEDURES REQUIREMENTS

§ 192.605 Procedural manual for operations, maintenance, and emergencies

(a) General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.

CONTINUED :

Public Awareness – 192.616

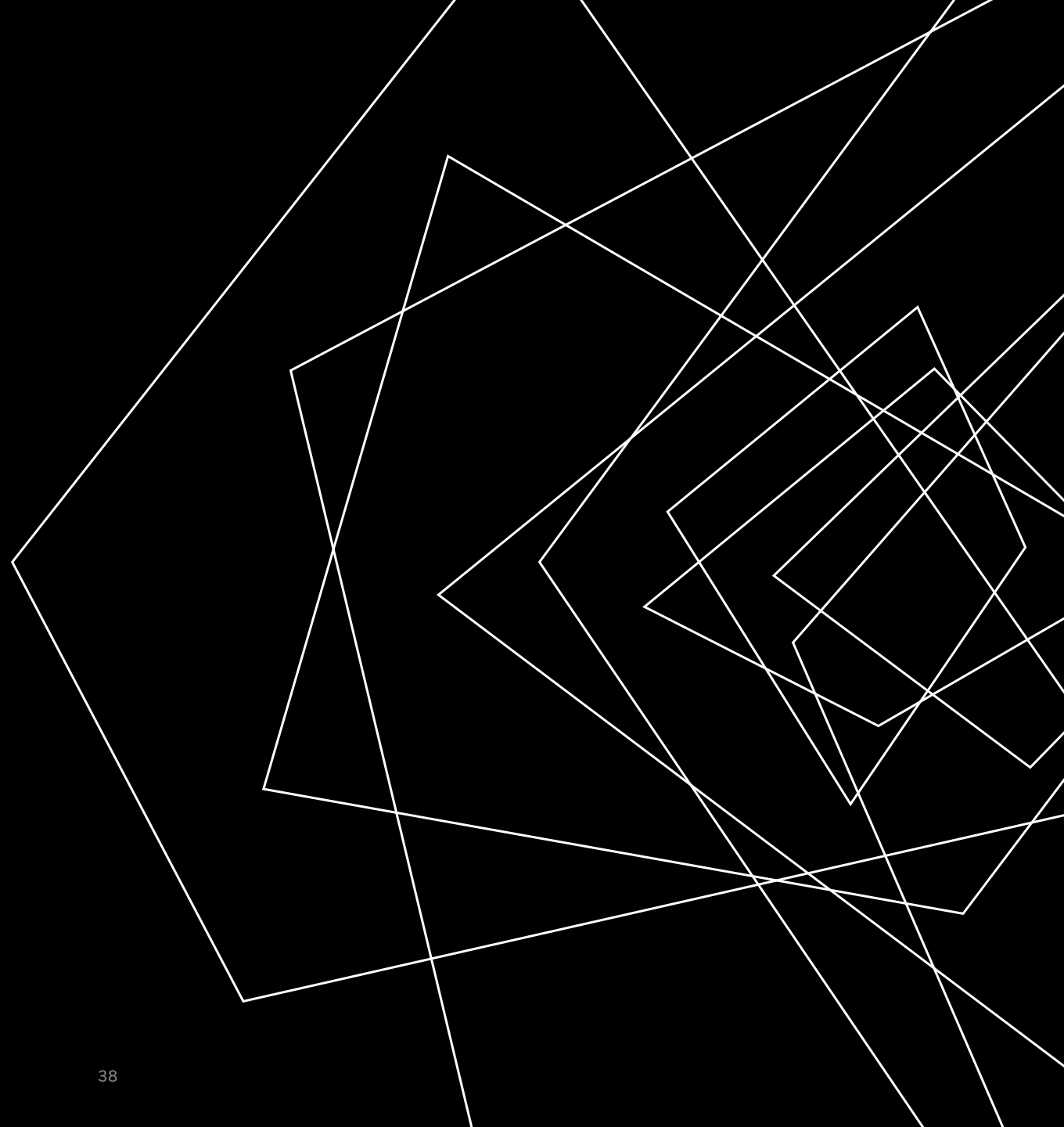
Emergency Plan – 192.615

Control Room Plan – 192.630

Operator Qualification – 192.805

TIMP – 192.907

DIMP – 192.1005



PROCEDURE REQUIREMENTS

§ 192.13 What general requirements apply to pipelines regulated under this part? (c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.

- Requirement for construction standards (non-retroactive sections)
- Same procedures may be used during operations or maintenance
- Procedures may be in the O&M

§192.15 Rules of Regulatory construction

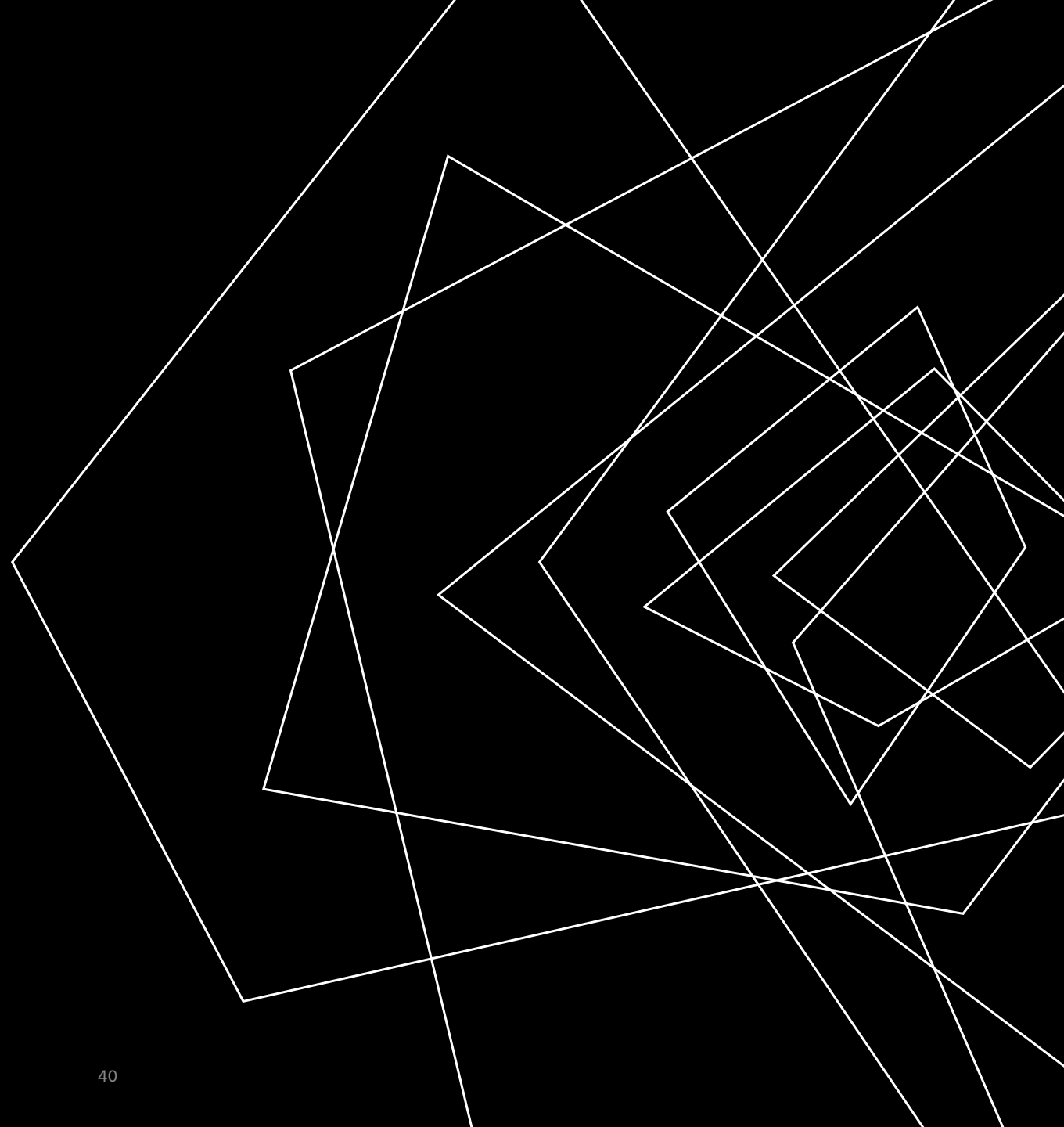
(a) As used in this part:

"Includes" means "including but not limited to."

"May" means "is permitted to" or "is authorized to."

"May not" means "is not permitted to" or "is not authorized to."

"Shall" is used in the mandatory and imperative sense.

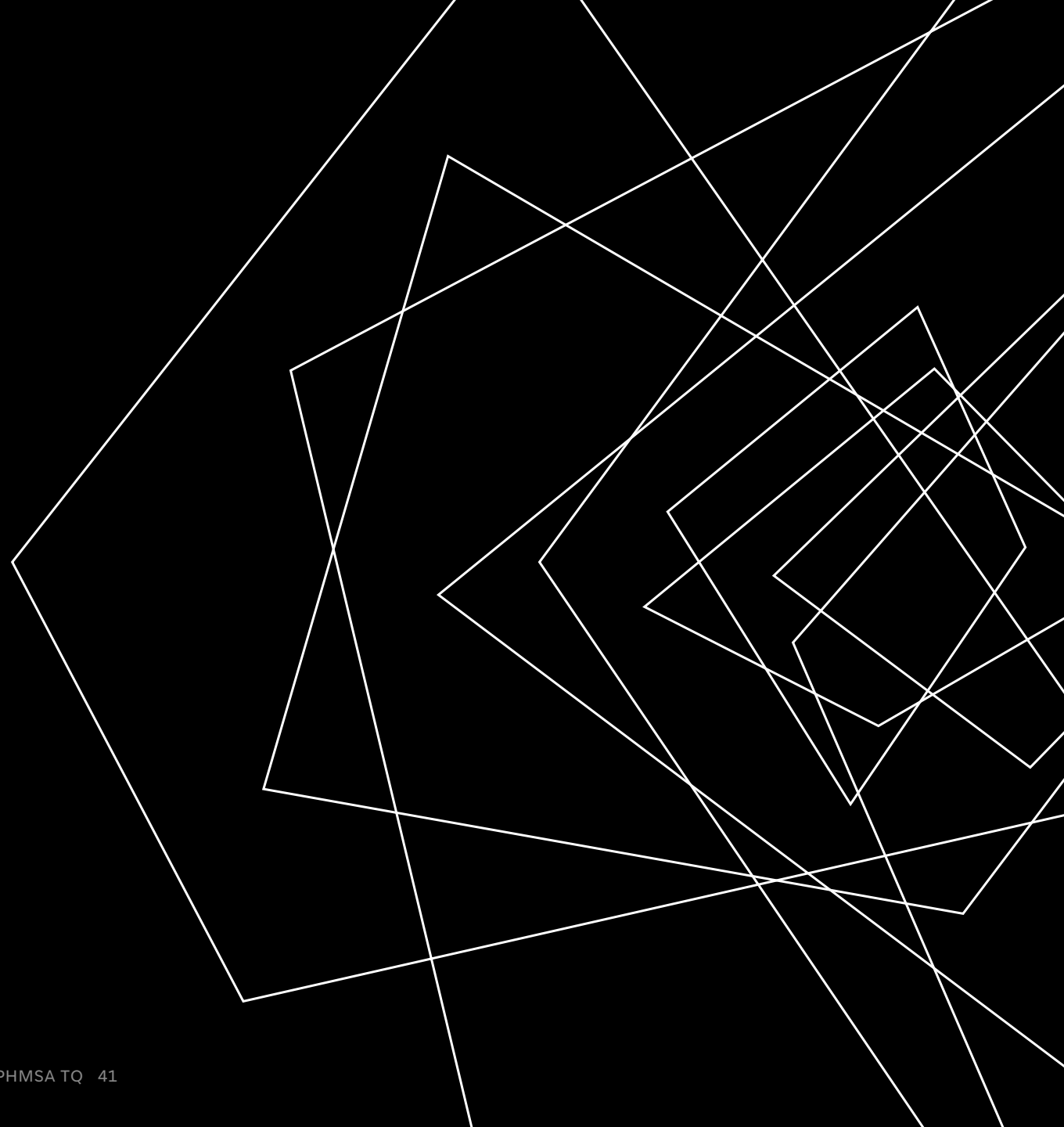


REGULATION TYPES

Prescriptive – Telling people what they should do, rather than simply giving suggestions or describing what is done.

AND...

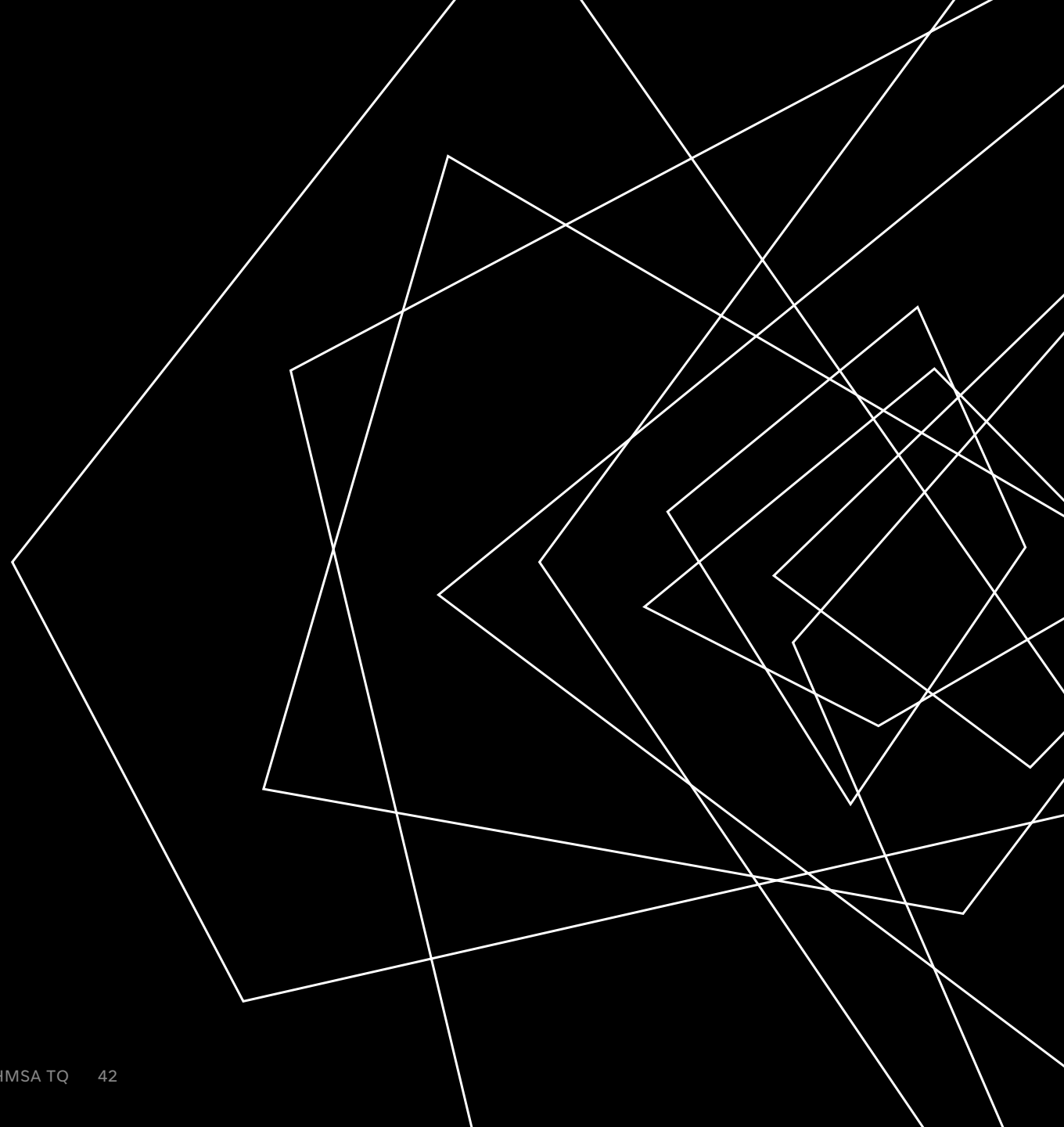
Performance Based – Allows the operator to determine the best approach to comply with the regulation.

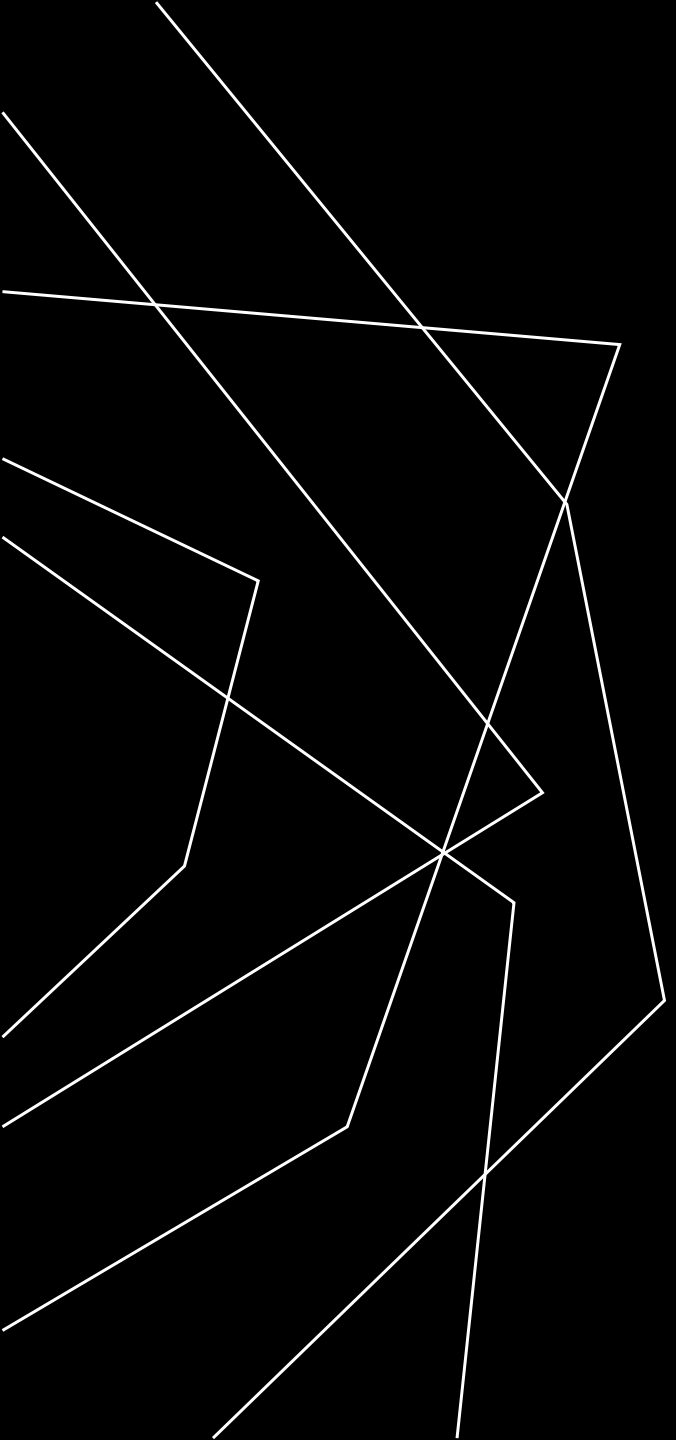


PRESCRIPTIVE VS. PERFORMANCE BASED

Prescriptive codes specify exactly what steps need to be taken to achieve the end goal.

The goals of a Performance Based code are usually in very broad terms.





BEFORE QUESTIONS

FACTUAL STATEMENT...

The code is not always black and white like these slides are!!!

ANY Questions?

THANK YOU

Johnny Eustace

PHMSA TQ Instructor

johnny.eustace@dot.gov