



# Natural Gas Processing



From the Wellhead to the Burner Tip



# Natural Gas Processing

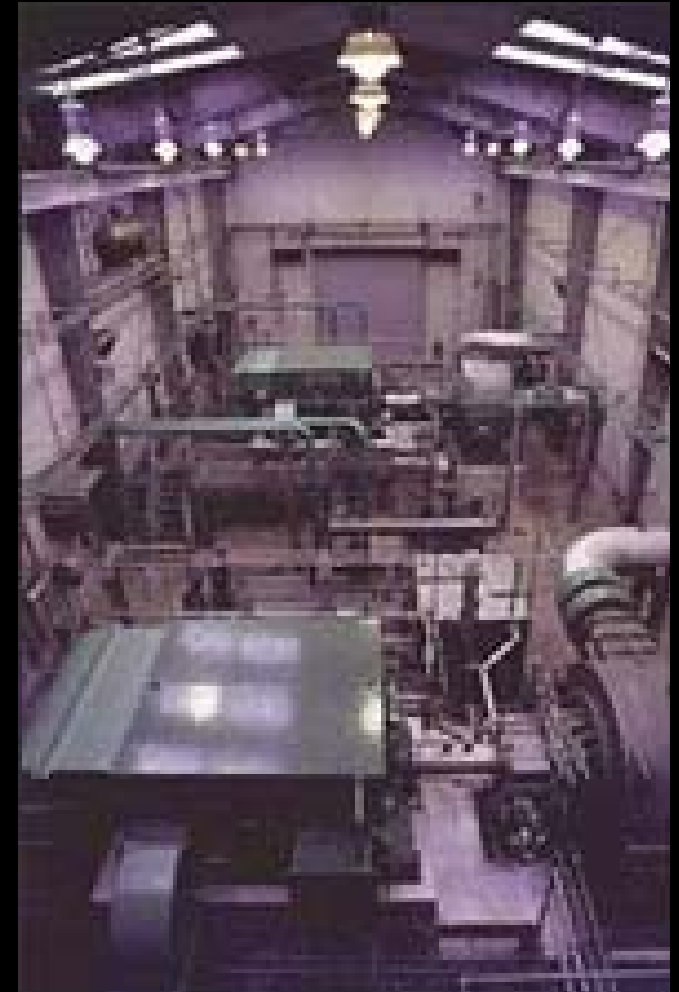
- Gathering systems
- Compressor stations
- Gas processing plants
- Pump Stations
- Natural Gas Liquids Fractionation
- Storage
- Pipelines connect everything

# Gathering Systems

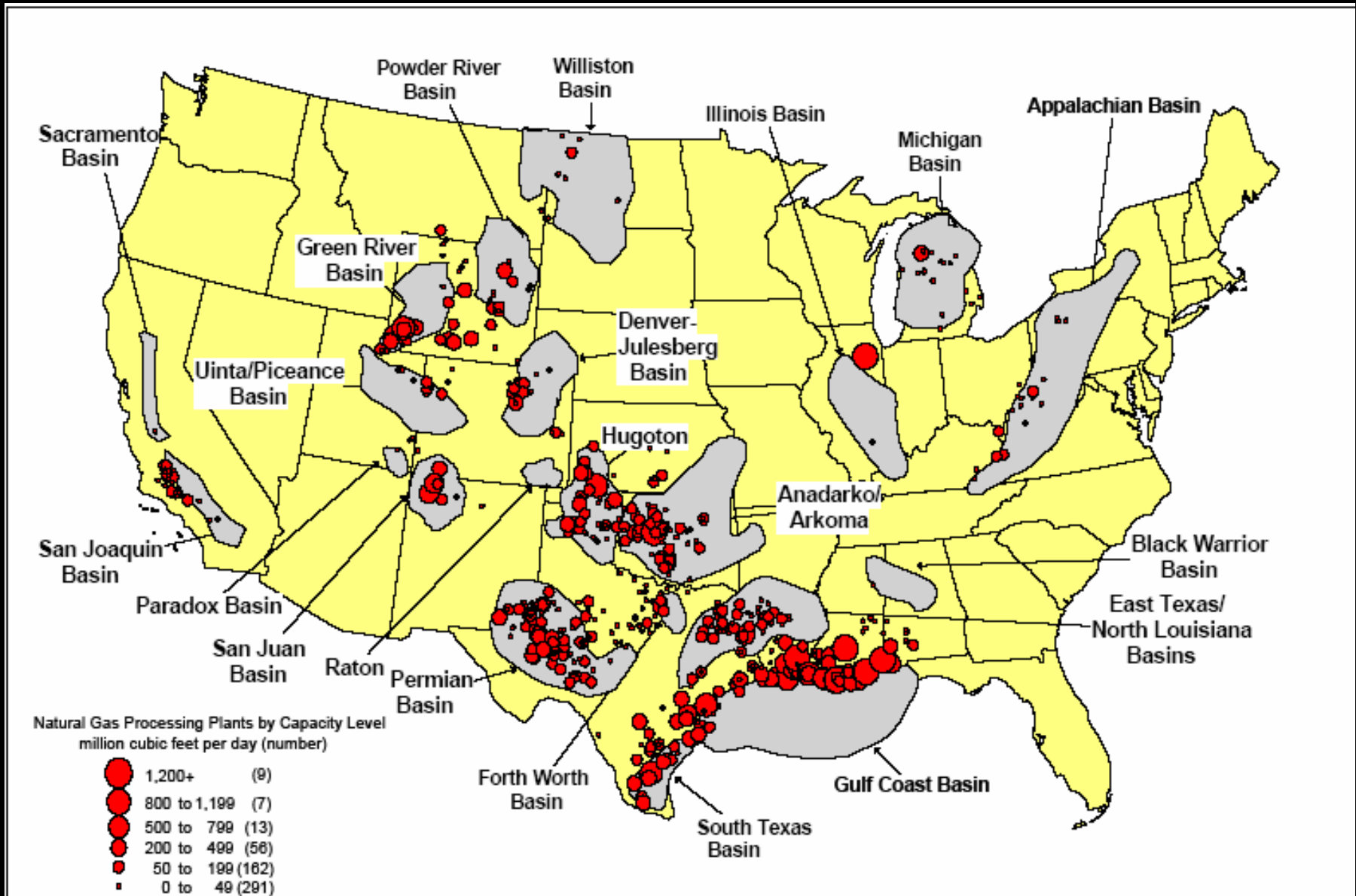


# Compressor stations

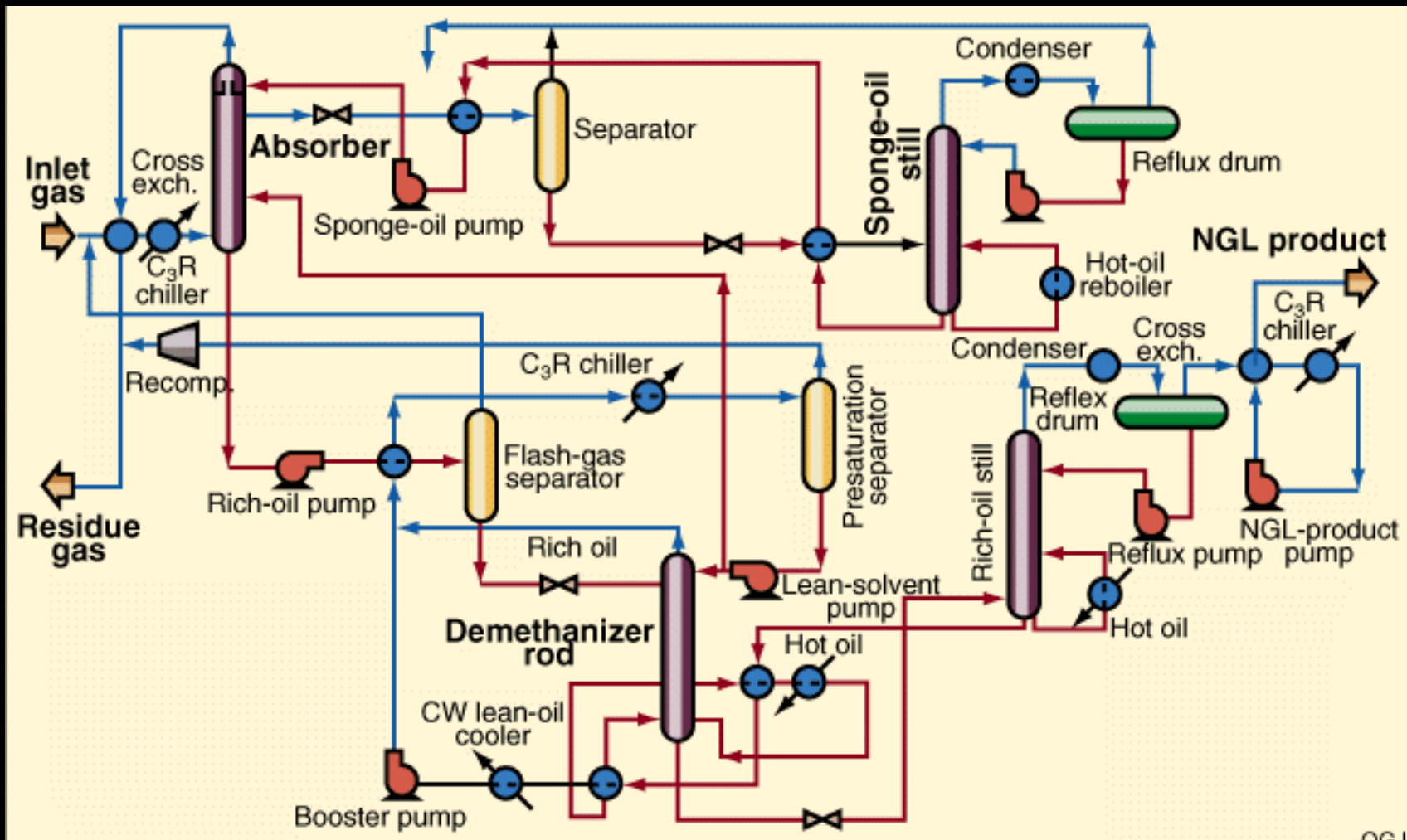
- Reciprocating internal combustion engines (RICE)



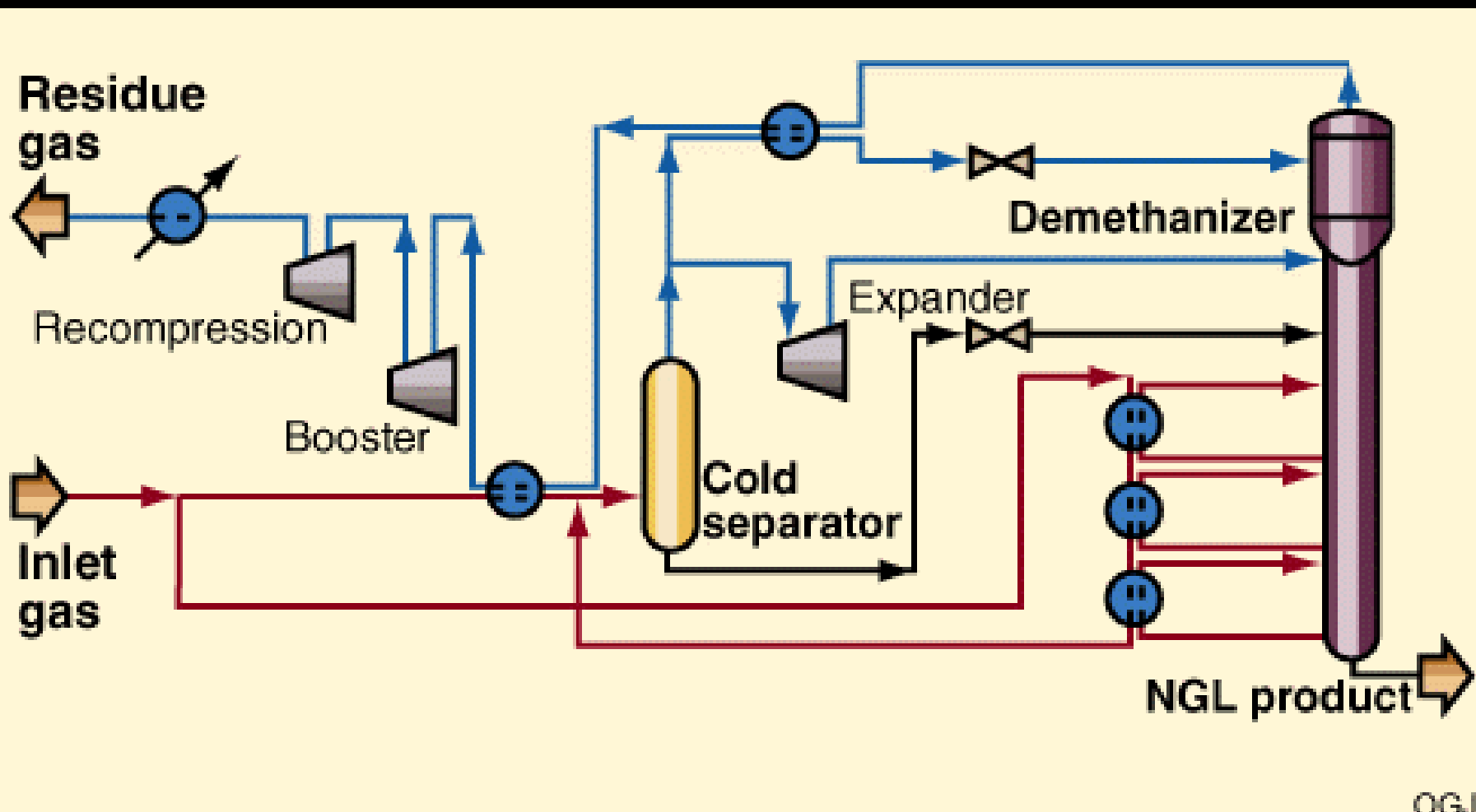
# Natural Gas Processing Plants



# Gas Processing – Lean Oil Absorption



# Gas Processing – Cryogenic Demethanization



# Gas Processing Plants



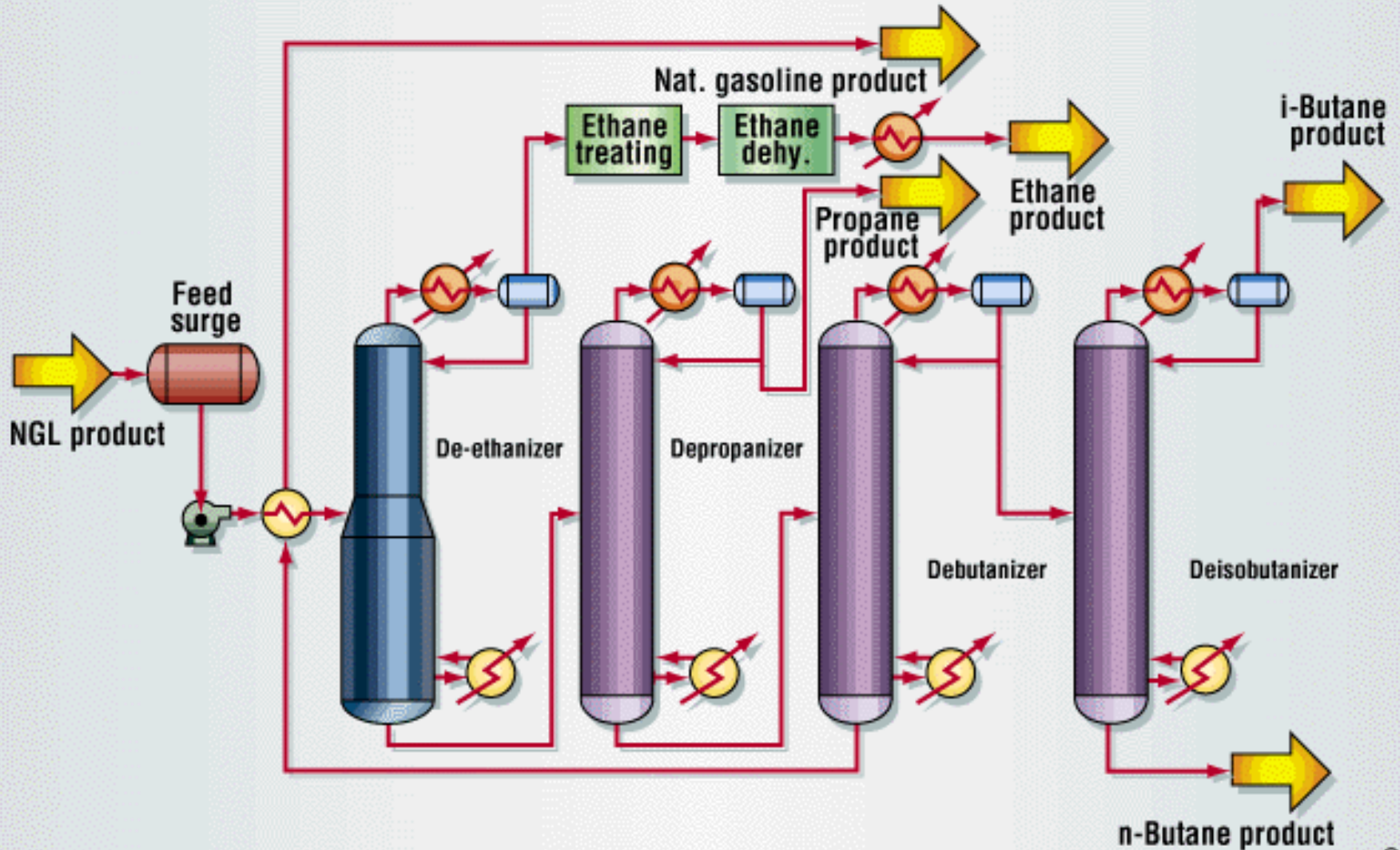


# Pump Stations

- Stationary gas turbines



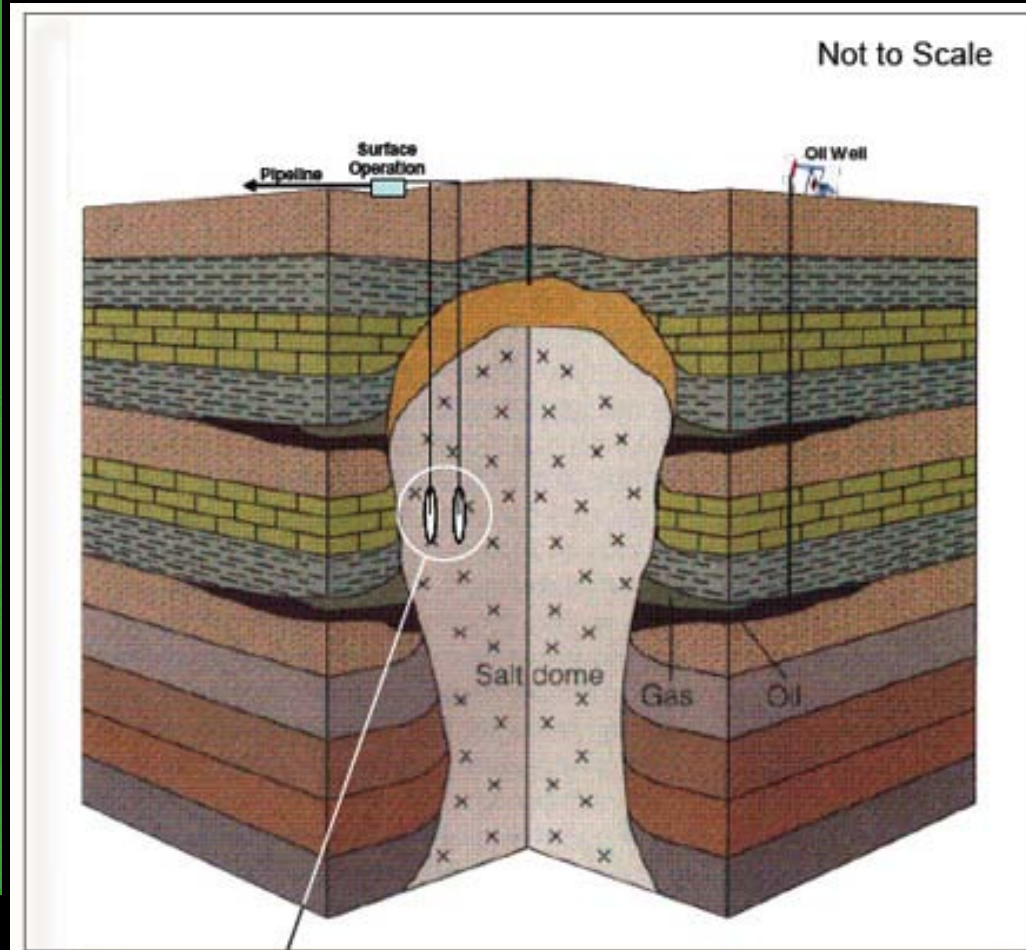
# Natural Gas Liquids Fractionation



# Natural Gas Liquids Fractionation

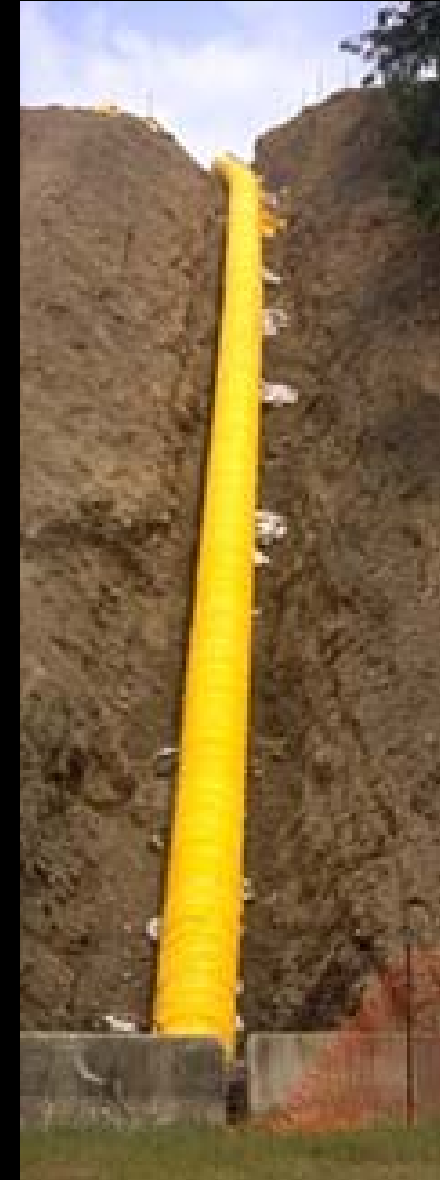


# Storage – Salt Dome Caverns

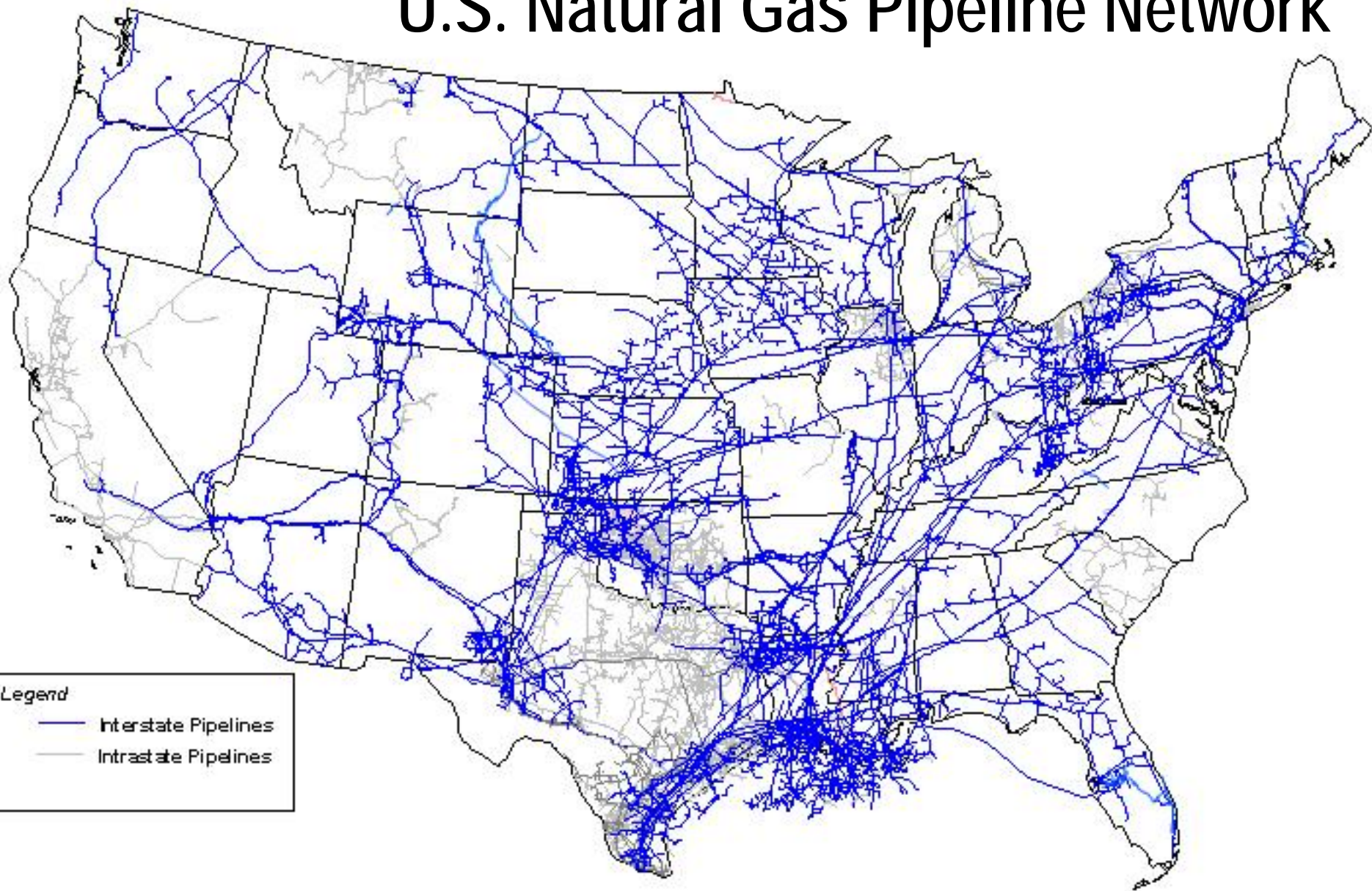


Salt Dome Caverns

# Systems connected by pipelines



# U.S. Natural Gas Pipeline Network



# Emission Points/Applicable Regulations

- Major Sources: Title V
- Flares: 60.18
- Steam Generating Units: Db
- Stationary Gas Turbines: GG and KKKK
- Storage Tanks: Kb
- Fugitives: KKK
- Acid Gas Treating: LLL
- RICE: 63-ZZZZ MACT
- TEG Dehydration: 63-HH Area Source



# Compliance with *Recordkeeping* requirements



01-Sep-07 05:00:00	54983.93359	0.423479915	1.160195589
01-Sep-07 06:00:00	55196.89453	0.443079114	1.115398407
01-Sep-07 07:00:00	54490.33203	0.443712354	1.048871398
01-Sep-07 08:00:00	54934.92578	0.433277845	1.105857253
01-Sep-07 09:00:00	55995.82813	0.477491021	1.092114329
01-Sep-07 10:00:00	54674.74219	0.475773454	1.105287779
01-Sep-07 11:00:00	53607.28906	0.478300124	1.145596504
01-Sep-07 12:00:00	55752.51563	0.481428146	1.128943324
01-Sep-07 13:00:00	54173.19531	0.475295275	1.055449963
01-Sep-07 14:00:00	54920.19922	0.473607987	1.090018392
01-Sep-07 15:00:00	55039.75391	0.471920699	1.09546721
01-Sep-07 16:00:00	55010.49609	0.505355537	1.019409657
01-Sep-07 17:00:00	54949.01563	0.545788765	1.018591404
01-Sep-07 18:00:00	56824.21484	0.514882028	1.031615496
01-Sep-07 19:00:00	59768.44531	0.496516943	1.008985043
01-Sep-07 20:00:00	54469.9375	0.513681233	1.027139544
01-Sep-07 21:00:00	56949.88672	0.507652819	1.122686863
01-Sep-07 22:00:00	61725.32031	0.528286815	1.128175855
01-Sep-07 23:00:00	62250.75391	0.546566844	1.193728089
02-Sep-07 00:00:00	60377.12109	0.536276877	1.122663021
02-Sep-07 01:00:00	61600.27734	0.483175755	1.138091803
02-Sep-07 02:00:00	61113.74609	0.477820992	1.154235005
02-Sep-07 03:00:00	62498.19922	0.502305031	1.151880503
02-Sep-07 04:00:00	60716.77734	0.503071964	1.153375387
02-Sep-07 05:00:00	59905.99609	0.497880638	1.245839477
02-Sep-07 06:00:00	59988.30859	0.469937205	1.30030632
02-Sep-07 07:00:00	60369.75	0.461675525	1.255434275
02-Sep-07 08:00:00	60004.80469	0.462152064	1.221636176
02-Sep-07 09:00:00	60014.34766	0.490437239	1.180274844
02-Sep-07 10:00:00	60084.76172	0.501503348	1.133836746

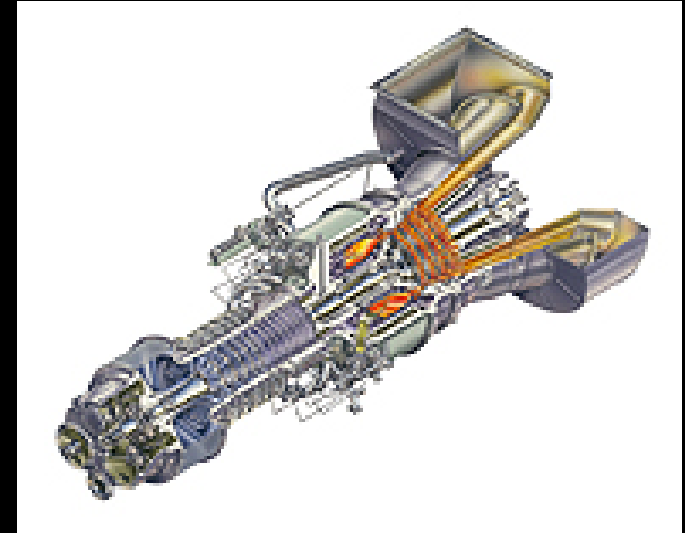


PHOTO: CATERPILLAR



# Compliance with *Reporting* requirements

The form is titled "Louisiana DEQ Title V Annual Compliance Certification Form (Certification Part 4)". It includes a header with the Louisiana DEQ logo. The main title is "Deviation Summary Report". It contains fields for "Title V Permit Number:", "Facility Name:", "Company Name:", "AI Number:", "Method(s) or Other Means For Determining Compliance Status:", and "Permit Required Monitoring Frequency:". Below these fields is a table with columns for "Pollutant", "Permit Condition Number", "Applicable Compliance Requirement (Include Rule Citation)", and "Permit Required Monitoring Frequency".

Pollutant	Permit Condition Number	Applicable Compliance Requirement (Include Rule Citation)	Permit Required Monitoring Frequency

The form is titled "LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY INDUSTRIAL SOLID WASTE GENERATOR ANNUAL REPORT". It includes the Louisiana DEQ logo. The form contains fields for "Use Identification Number", "Agency Name/Number", "Name of Generator", "Mailing Address", "Contact", and "REMARKS OF INDUSTRIAL SOLID WASTE GENERATOR THIS YEAR". There is a table with columns for "INDUSTRIAL WASTE CODE NUMBER", "QUANTITY (WEIGHT/TONS)", "CLASSIFICATION NUMBER", and "DISPOSER IDENTIFICATION NUMBER". Below the table is a "Total Amount Generated" section and a "CERTIFICATION" statement.

INDUSTRIAL WASTE CODE NUMBER	QUANTITY (WEIGHT/TONS)	CLASSIFICATION NUMBER	DISPOSER IDENTIFICATION NUMBER

The form is titled "Louisiana DEQ Permit Application Form". It includes the Louisiana DEQ logo. The form contains fields for "Facility Name", "Company Name", "AI Number", "Method(s) or Other Means For Determining Compliance Status", and "Permit Required Monitoring Frequency". It also includes a table with columns for "Pollutant", "Permit Condition Number", "Applicable Compliance Requirement (Include Rule Citation)", and "Permit Required Monitoring Frequency".The form is titled "LOUISIANA Department of Environmental Quality Application for Approval of Emissions of Air Pollutants". It includes the Louisiana DEQ logo. The form contains fields for "Company Name", "Facility Name", "Permit Number", "AI Number", "Method(s) or Other Means For Determining Compliance Status", and "Permit Required Monitoring Frequency". It also includes a table with columns for "Pollutant", "Permit Condition Number", "Applicable Compliance Requirement (Include Rule Citation)", and "Permit Required Monitoring Frequency".The form is titled "Louisiana DEQ Permit Application Form (Detailed)". It includes the Louisiana DEQ logo. The form contains fields for "Facility Name", "Company Name", "AI Number", "Method(s) or Other Means For Determining Compliance Status", and "Permit Required Monitoring Frequency". It also includes a table with columns for "Pollutant", "Permit Condition Number", "Applicable Compliance Requirement (Include Rule Citation)", and "Permit Required Monitoring Frequency".

# Title V Federal Operating Permit

## ■ Semi-Annual Title V Deviation Report

- Lists each instance that compliance with a permit requirement was not met

## ■ Annual Title V Compliance Certification

- Includes both semi-annual deviation reports
- Lists compliance method of every Title V permit requirement

 Louisiana DEQ Title V Annual Compliance Certification Form  
(Certification Part 1)

Applicable Reporting Period: \_\_\_\_\_ to \_\_\_\_\_  
mm/dd/yy mm/dd/yy

Company and Facility Identification			
Permit Number	Parish	Date Permit Issued	
Company Name			
Facility Name		Agency Interest Number	
Mailing Address			
City	State	Zip Code	
Contact Person	Phone #	Fax #	
Principal Facility Product/Business			

**Certification of Truth, Accuracy, and Completeness**  
I certify, based on information and brief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Responsible Official (signature)			
Responsible Official (typed)		Date	
Responsible Official Title			

# New Source Performance Standards

- Annual Air Emission Inventory
- Semi-Annual NSPS reports
  - Db Steam Generating Units
  - Kb Volatile Organic Liquid Storage Vessels
  - KKK Equipment Leaks of VOC From Onshore Natural Gas Processing Plants (Fugitive Monitoring)
  - GG Stationary Gas Turbines
  - KKKK Stationary Combustion Turbines
- Semi-Annual Part 63 NESHAPS Air Reports
  - HH Oil and Natural Gas Production Facilities (for major sources of air toxics and TEG dehydration for area sources)
  - ZZZZ Stationary Reciprocating Internal Combustion Engines

# Water, Waste and Misc. Reports

- Annual Hazardous Waste Report
- Annual Industrial Waste Report
- Annual Chemical Inventory report (Tier II)
- Monthly, Quarterly or Annual Discharge Monitoring Reports (DMR water reports)
- Inventory Update (Form U) report
- Written Follow-up from spills or releases
- Notifications required by permits
- Responses to Notices of Violation (NOVs), Enforcement (NOEs) and Potential Penalties (NOPP)

# Waste Generation - RCRA

- Most sites are Small Quantity or Conditionally Exempt Small Quantity Generators
- Fractionators with gasoline treaters generate waste caustic and are typically Large Quantity Generators

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL OR ENTER:

SITE NAME: \_\_\_\_\_

EPA ID NO: \_\_\_\_\_

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
2006 Hazardous Waste Report

FORM GM

WASTE GENERATION AND MANAGEMENT

Instructions: Please see the detailed instructions on pages 14 to 20 of this booklet before completing this form.

Sec. 1

A. Waste description  
B. EPA hazardous waste code  
C. State hazardous waste code  
D. Source code  
E. Form code  
F. Quantity generated in 2006  
G. UOM  
Density  
Integral  kg

Sec. 2

Was any of this waste managed on site?  
 1 Yes (CONTINUE TO ON-SITE PROCESS SYSTEM 1)  
 2 No (SKIP TO SEC. 3)

ON-SITE PROCESS SYSTEM 1

On-site Management Method code  
Quantity treated, disposed, or recycled on site in 2006

ON-SITE PROCESS SYSTEM 2

On-site Management Method code  
Quantity treated, disposed, or recycled on site in 2006

Sec. 3

A. Was any of this waste shipped off site in 2006 for treatment, disposal, or recycling?  
 1 Yes (CONTINUE TO BOX B)  
 2 No (FORM IS COMPLETE)

Site	B. EPA ID No. of facility to which waste was shipped	C. Off-site Management Method code Shipped to	D. Total quantity shipped in 2006
Site 1	_____	_____	_____
Site 2	_____	_____	_____
Site 3	_____	_____	_____

Comments: \_\_\_\_\_

# Emergency Response

- Third party damage – “Uh, I thought it was a root!”



# Beth Hebert, PE

- Director, Field Environmental Compliance
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  - Enterprise Products Operating LLC
  - TEPPCO LLC
  - Enterprise GP Holdings LLC
  - Dixie Pipeline LLC
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Questions?

