



Strategic Petroleum Reserve

Questions

spr.doe.gov/doeec/MO_Recompete.htm

Agenda

01

HISTROY

02

CAPACITY

03

FACILITIES & PROCESSES

04

CORE FUNCTION

05

EMPLOYEES



HISTORY

Strategic Petroleum Reserve Authorization

- Established by Congress:
- Energy Policy & Conservation Act (EPCA) 1975

MISSION

- To ensure U.S. energy security
- To reduce the impacts of potential disruptions in U.S. petroleum supplies
- To carry out U.S. obligations under the International Energy Program (Treaty)



SPR Release Authorities



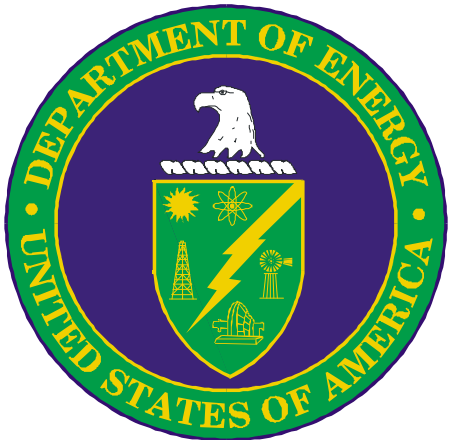
PRESIDENT OF THE UNITED STATES

Full Drawdown [EPCA Sec 161(d)]

- To address “Severe Petroleum Supply Interruption”
- To meet U.S. obligations under IEA Program

Ltd. Drawdown [EPCA Sec 161(h)]

- Added in 1991
- In preventing or addressing lesser supply shortages
- Limited to 30 million barrels and 60 days



SECRETARY DEPARTMENT OF ENERGY

Test Sale [EPCA Sec 161(G)]

- To conduct evaluations of sales procedures
- Limited to 5 million barrels of oil

Oil Exchanges [EPCA Sec 159(F)]

- Under “Oil Acquisition Authority”
- To acquire oil or to alter mix
- Also used to provide refiners short-term emergency loans to address problems

Crude Oil Quality

- Oil initially purchased for the SPR was chosen to represent the crudes being processed by U.S. refineries.
- Each SPR site maintains two common crude oil segregations:
 - **Light Low Sulfur (Sweet) Crude (less than .5)**
 - **Light Medium Sulfur (Sour) Crude (greater than .5)**
- These two crude types are separated by caverns and are not mixed.
- One type may be preferred, depending upon the nature and cause of the emergency or supply disruption.



Strategic Petroleum Reserve History - Fill

Established in 1975, in the aftermath of the OPEC oil embargo, the SPR was intended to hold 750 million bbls of crude oil. Today's design capacity is 714 million bbls. Filling of the SPR has been accomplished through a variety of programs:

Direct Purchases

- Mainly executed in the late 70s and early 80s
- Prices hovered around \$30/bbl
- Program suspended in 1994 due to federal budget deficit
- Resumed in 2009 to replace oil sold in response to Hurricane Katrina.

Royalty-in-Kind (RIK)

- Government ownership of oil produced on federal Gulf of Mexico oil leases range from 12.5 – 16.7%
- Royalties were traditionally collected in cash, in 1998 the DOE began accepting royalties “in-kind” of crude oil itself.
- From 1999 to 2009 the SPR collected RIK transfers as the primary means of acquiring crude oil.

Exchange Premium

- Exchanges are done in response to temporary supply disruptions
- A market entity (oil refiner) borrows SPR crude for a short period of time and replaces the volume in full, along with a premium of additional bbls at a later date.

The Energy Policy Act 2005 required that formal procedures be developed for the acquisition of crude oil by the Strategic Petroleum Reserve. Official Procedures were published in the Federal Reserve on Nov 8, 2006.

Crude Oil Sales as of July 2023

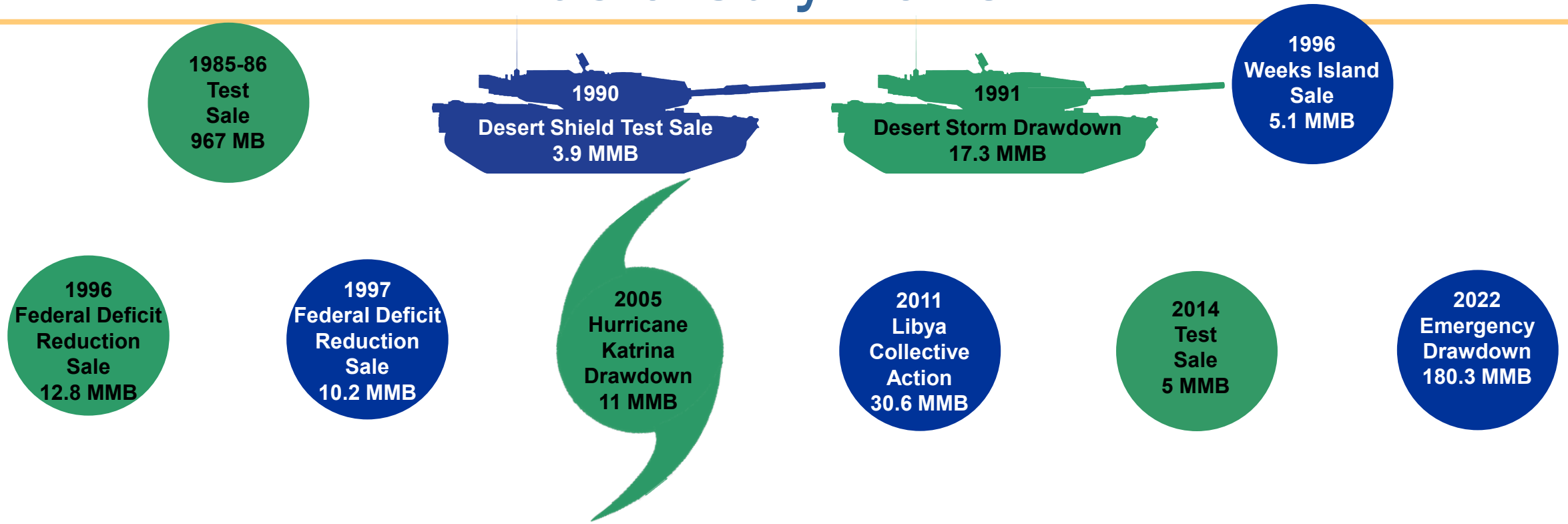
- 22 Oil Sales
- 3 Test Sales
- 4 Emergency Drawdowns
- 15 Non-Emergency Sales

Crude Oil Exchanges as of July 2023

- 17 Exchanges
- 7 Storms
- 5 Channel Closure/ Pipeline Blockage
- 5 Other



Crude Oil Sales as of July 2023



Congressional Sales (MYOS) FY 2017-2028 – 12 Sales to Date (140.8 MMB)

CAPACITY

Strategic Petroleum Reserve Basics

- **SPR Oil Storage Sites:**
Texas (2), Louisiana (2)
- **Storage Capacity:**
713.5 million barrels
- **Current Inventory: 12/31/23**
354.4 million barrels
- **Design Drawdown Capability:**
4.4 million barrels/day (for 90 days)
- **Current Drawdown Capability:**
1.14 million barrels per day
- **Design Fill Capability:**
685 thousand barrels/day
- **Recover Equipment:**
Stennis Space Center, MS



Strategic Petroleum Reserve

Site Information (as of 12/31/2023)



Bryan Mound



Big Hill



West Hackberry



Bayou Choctaw

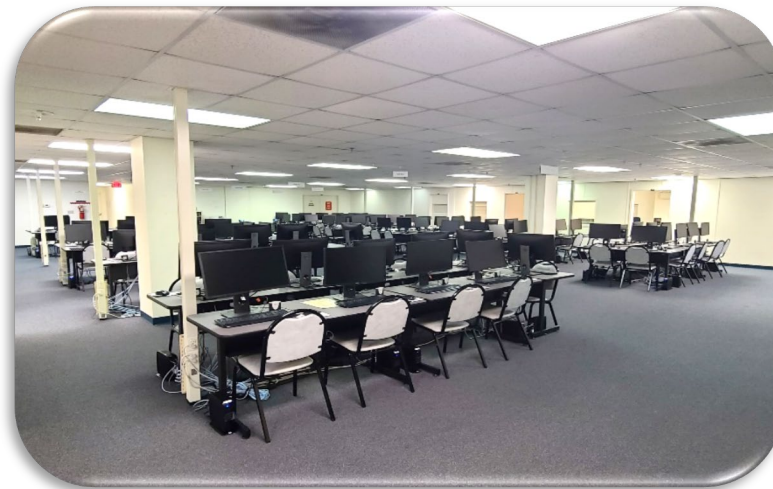
<u>SPR Site</u>	<u>Operational Caverns</u>	<u>Authorized Capacity</u>	<u>Current Inventory</u>	<u>Drawdown Rate</u>	<u>*Fill Rate</u>
Bryan Mound	19	247.1 MMB	176.3 MMB	0.0 MMB/d	0.225 MMB/d
Big Hill	14	170.0 MMB	55.4 MMB	0.442 MMB/d	0.225 MMB/d
West Hackberry	21	220.4 MMB	87.9 MMB	0.693 MMB/d	0.225 MMB/d
Bayou Choctaw	6	76.0 MMB	34.0 MMB	0.0 MMB/d	0.110 MMB/d
Pipeline/Tanks			0.809 MMB		
SPR Total	60	713.5 MMB	354.4 MMB	1.14 MMB/d	0.685 MMB/d

*Design rate

St. James Terminal & Dock

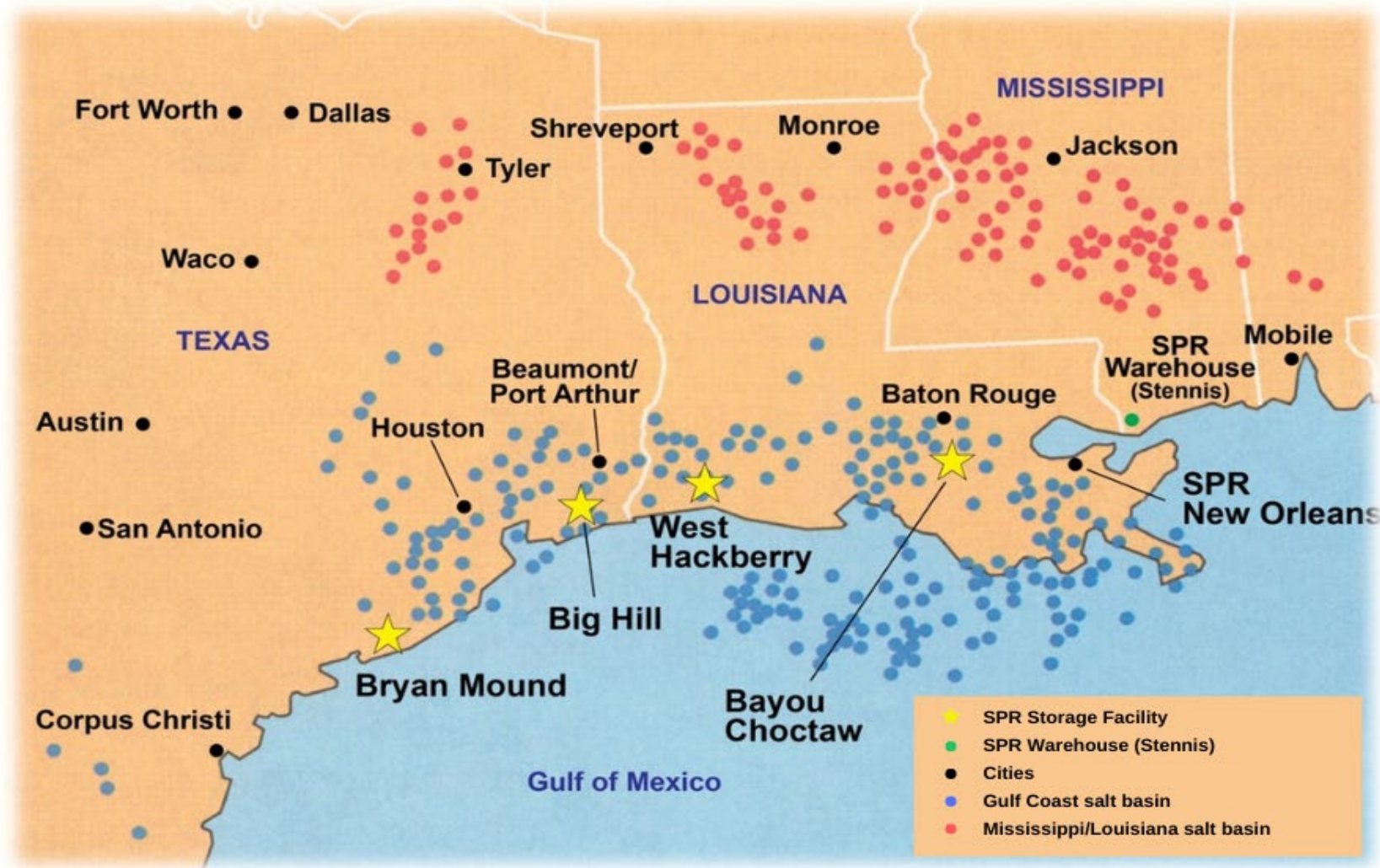


Stennis Warehouse Facility



FACILITIES & PROCESSES

Gulf Coast Salt Domes



Gulf Coast Storage

Concentration of Salt Domes

- Secure
- Economical
- Low Environmental Risk

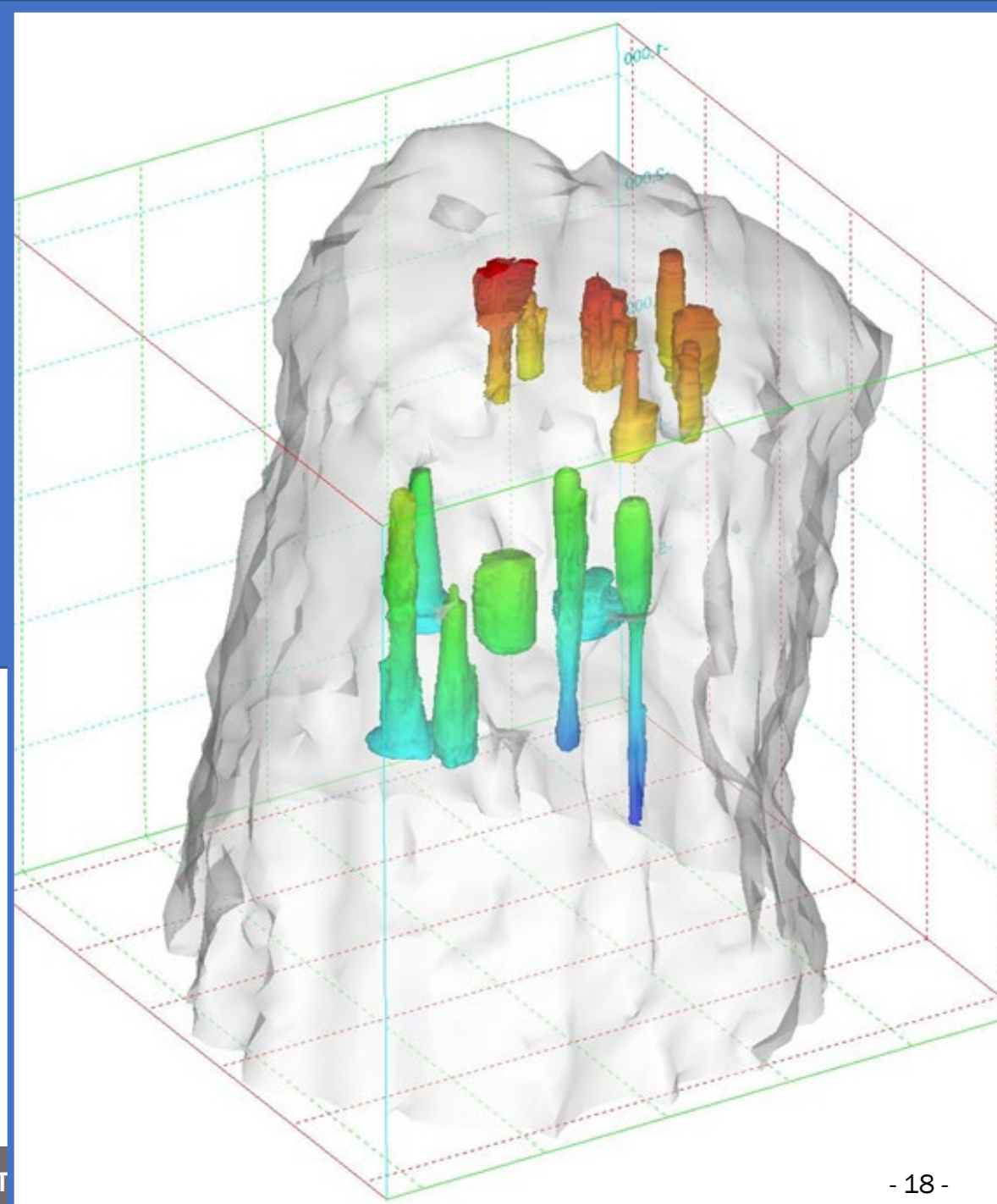
Major U.S. refinery area

Major Crude Oil Distribution Center

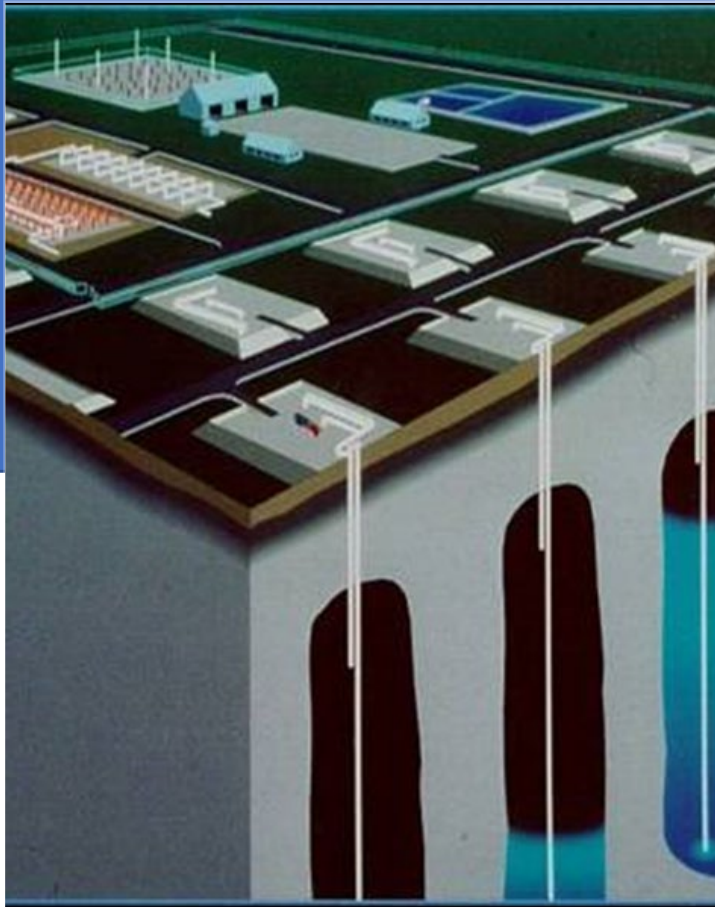
- Tanker Terminals
- Pipelines

Provides maximum flexibility to respond to a wide range of interruptions.

3D Model of SPR Bayou Choctaw Salt Domes and Caverns



Gulf Coast Storage



Schematic Illustration of a Cavern Storage Site

Cavern and Well Monitoring & Maintenance

Pressure Monitoring

Control cavern creep & detect incipient leaks (continuous)

Sonar Surveys

Measure cavern capacity & configuration (every 5 years)

Multi-Arm Caliper Surveys

Measure well casing deformation & penetration (every 5-10 years)

Mechanical Integrity Tests

Evaluate ability of caverns & wells to contain crude oil (every 5 years)

Wellhead Inspections

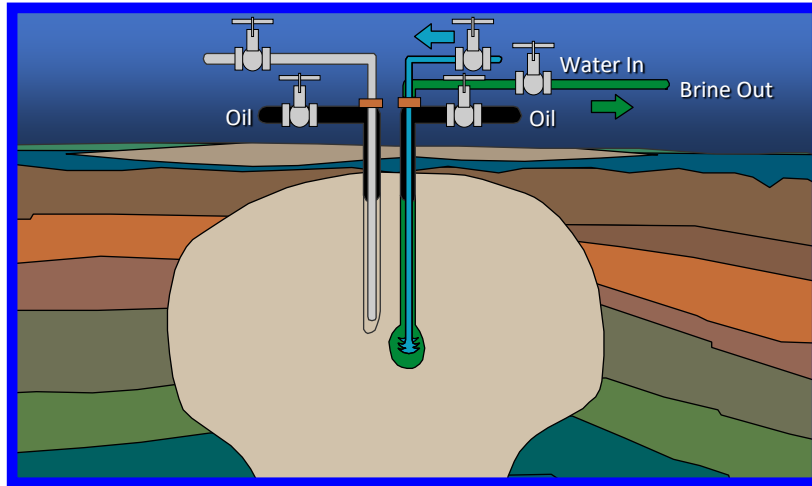
Monitor & mitigate corrosion (every 10 years)

Workovers & Well Remediation

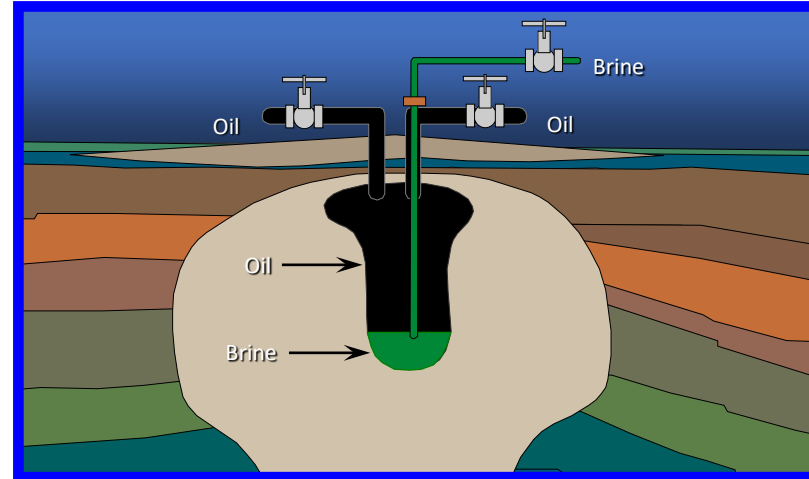
Monitor brine string wells & repair damage (as needed)

Storage Cavern Leaching Development

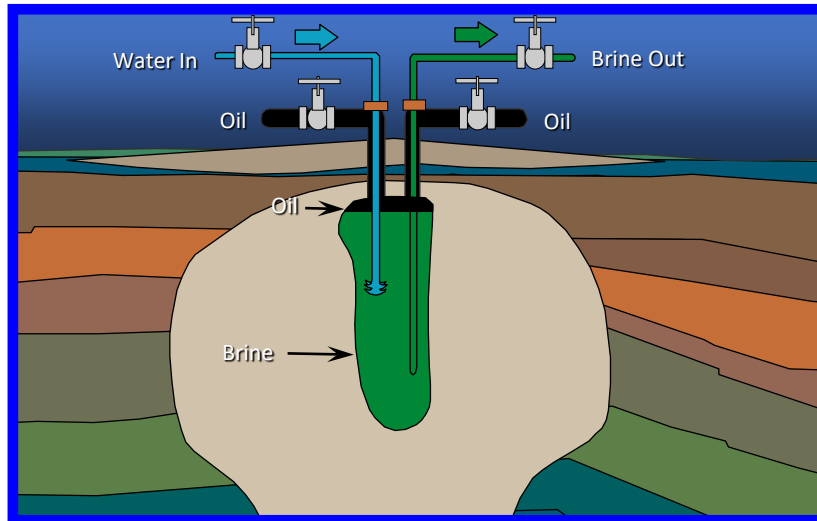
Stage 1 – Single-Well Leaching



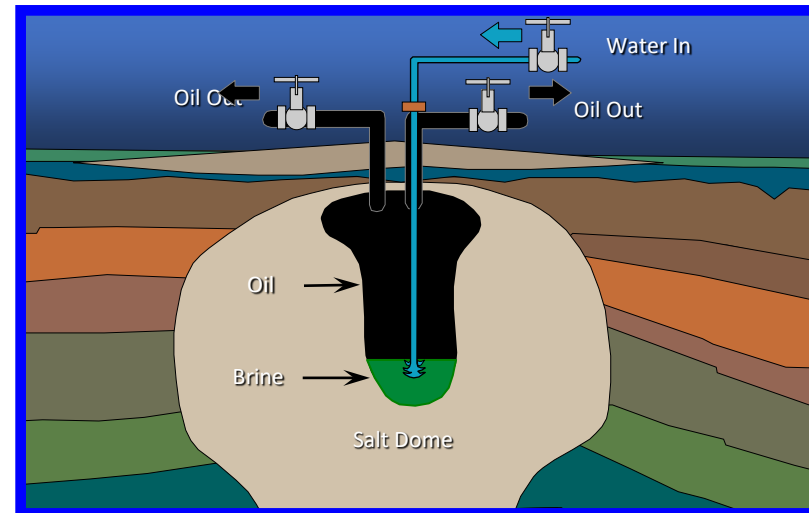
Stage 3 – Cavern Complete/Fill



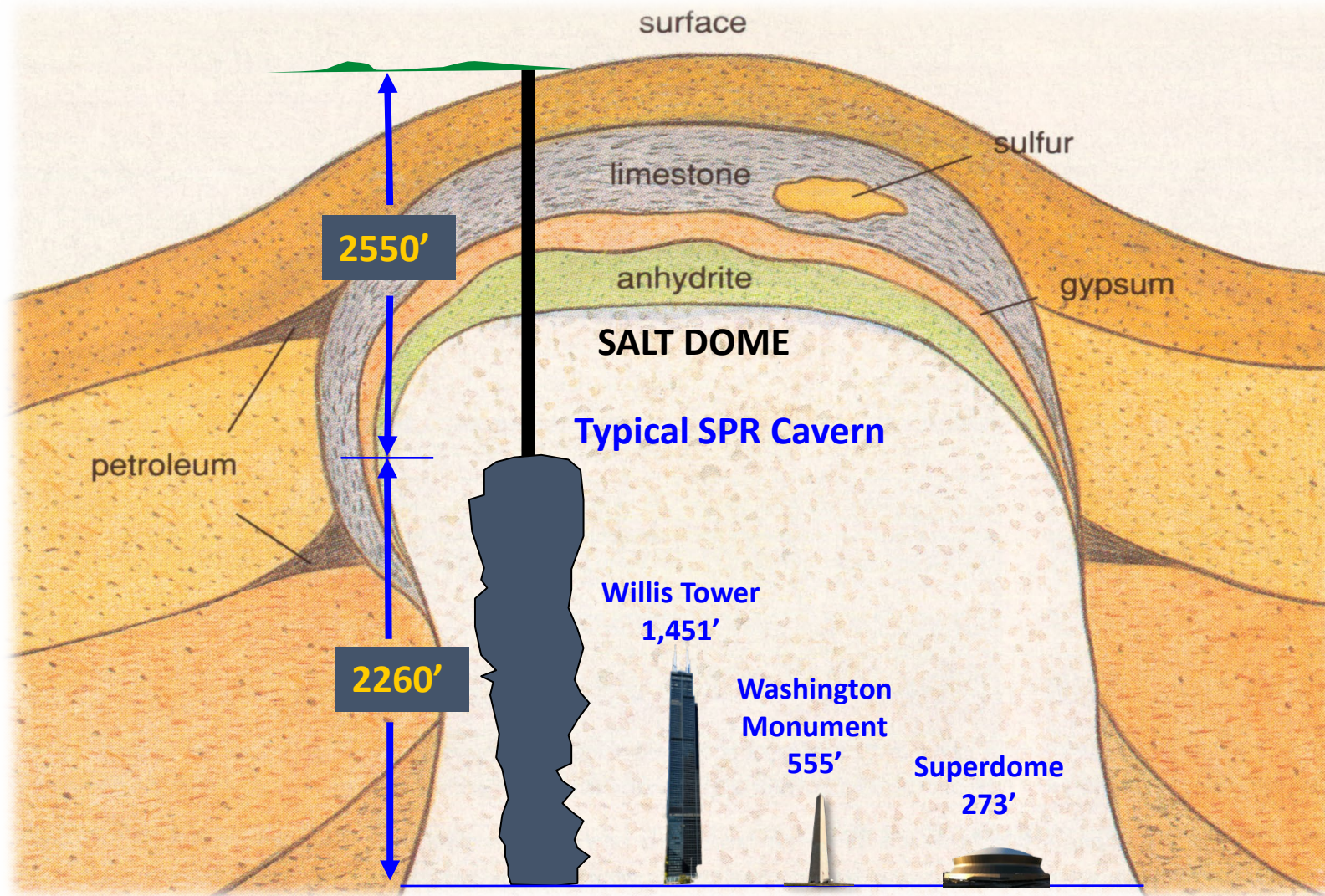
Stage 2 – Two-Well Leaching



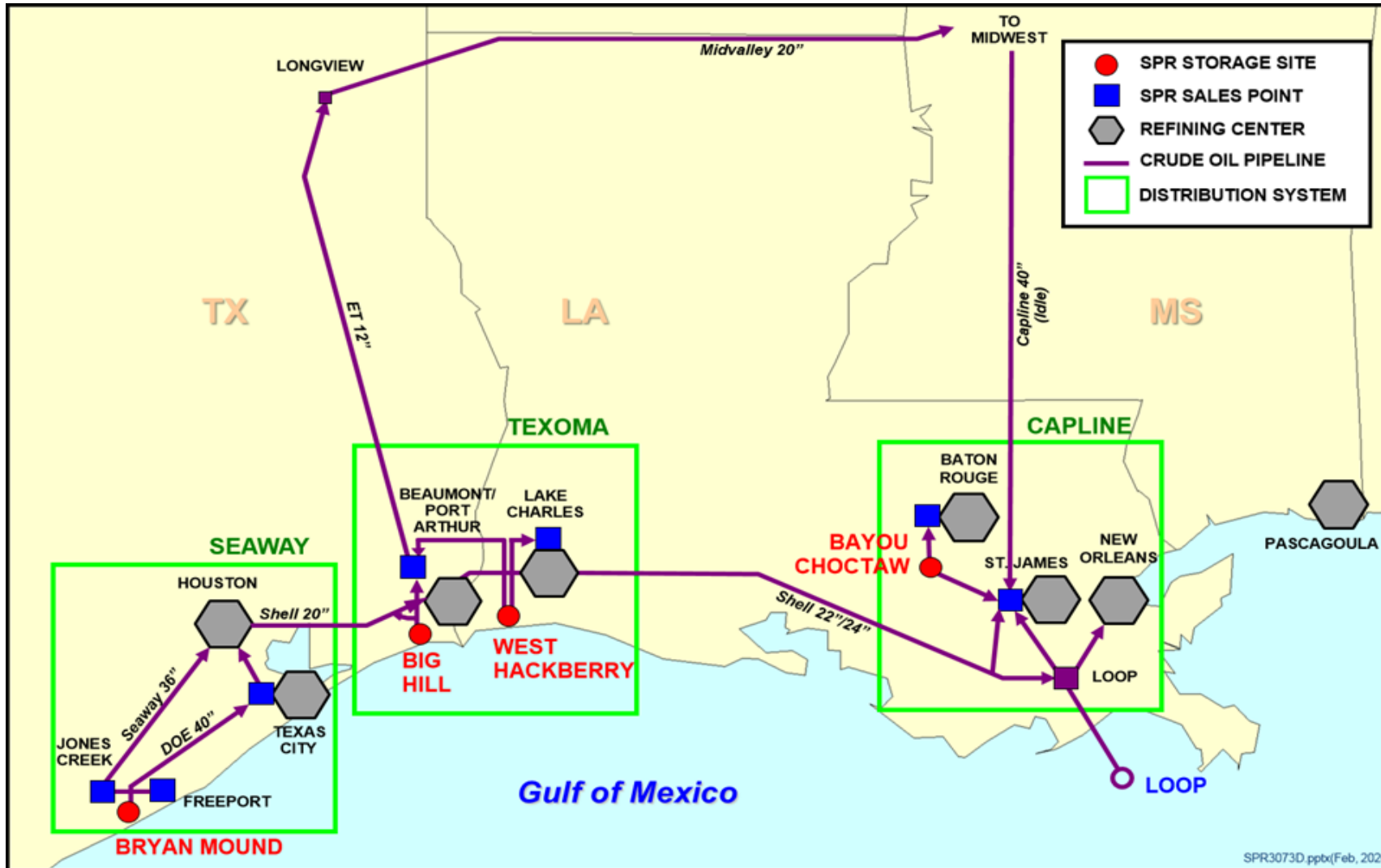
Stage 4 – Cavern Operational/Drawdown



Relational Comparison

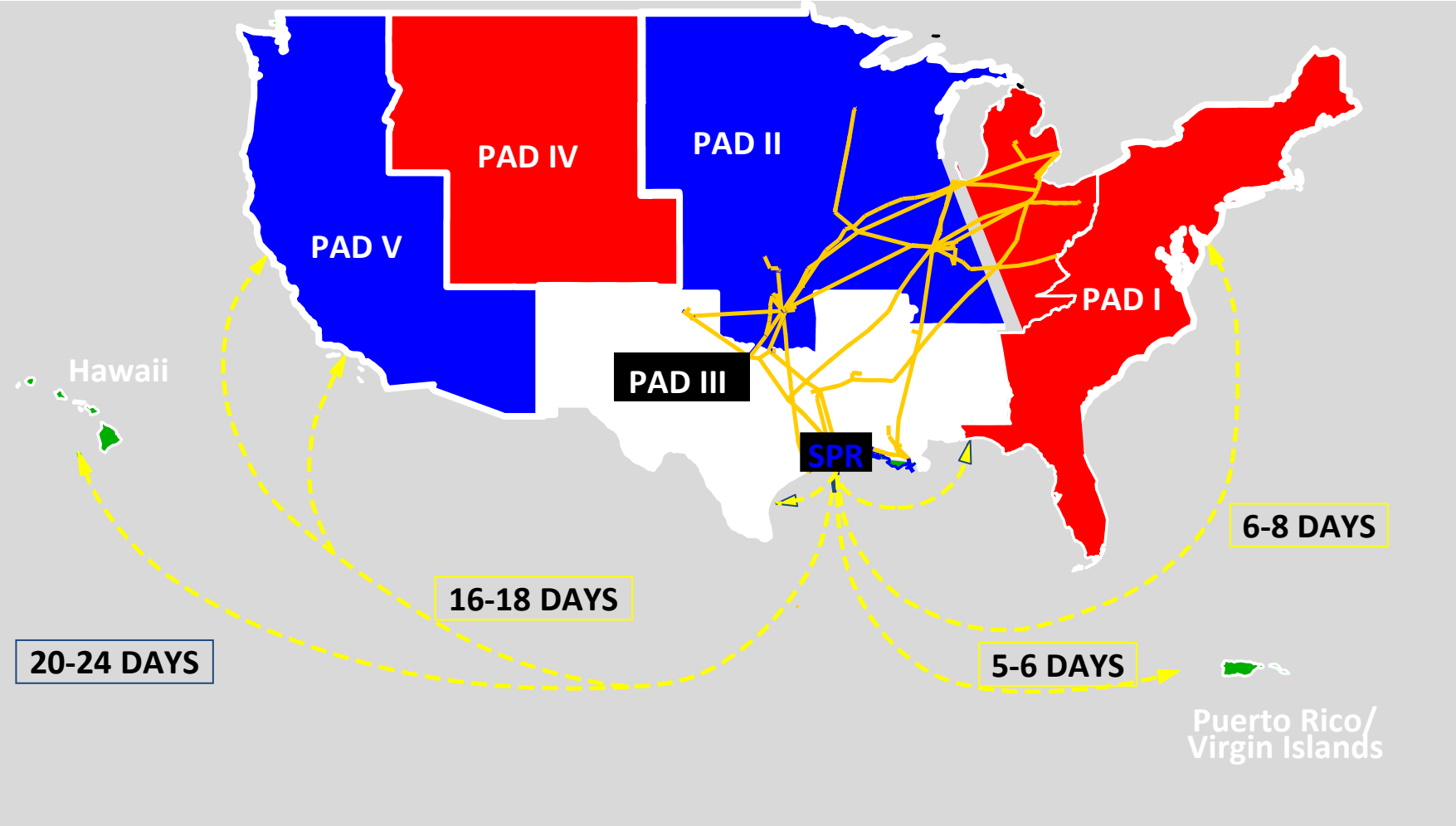


SPR Storage Sites



Reserve Distribution Capability

Pipeline Capabilities - 39 Refineries (Imports of >5 MMB/D)
Marine Capabilities - 5 Terminals (Capacity of 2.5 MMB/D)



CORE FUNCTION

Drawdown Readiness

Quarterly Readiness Reviews

System Test Exercises (Table-Top & Flow Tests)

Drawdown Sales Exercises

Terminal Assessments

Recovery System Tests

Facility Optimization

1995: Began program to lease underutilized facilities and pipelines.

Bayou Choctaw pipeline leased to Shell Pipeline Company in May 1997. Total cumulative revenues through 2019 totaled \$5,697,749.

St. James Marine Terminal leased to ExxonMobil Pipeline Company in June 2019. Total terminal revenues through 2019 totaled \$35,559,685.

Two Bryan Mound pipelines leased to ExxonMobil Pipeline Company in Jan. 1999. Total cumulative revenues through 2019 totaled \$69,170,117.

Life Extension 2

Federal Project Director

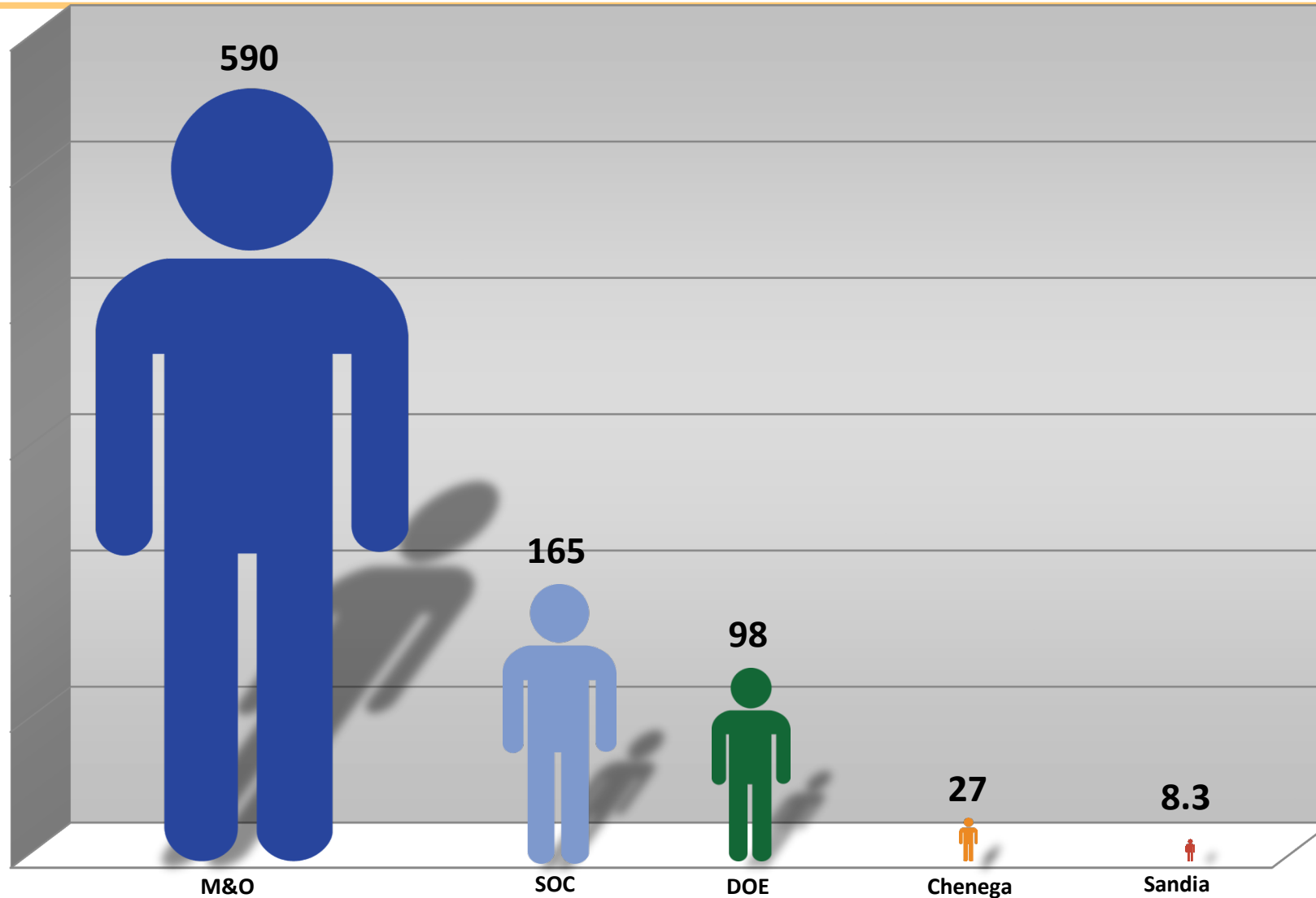
- The SPR-LE2 project scope will upgrade crude oil storage, raw water, brine disposal, and oil distribution systems at the Big Hill (BH) and Bryan Mound (BM) sites in Texas, and Bayou Choctaw (BC) site in Louisiana, to ensure it can maintain readiness, meet mission requirements and operate in an environmentally responsible manner for the next 25 years.
- Cost/Total Sub-Project Cost (TPC): (Not to exceed \$1.42B – Total Authorization)
 - Big Hill (BH): **\$607M**
 - Bryan Mound (BM): **\$348M**
 - Bayou Choctaw (BC): **\$369M**

Critical Decision (CD) History:

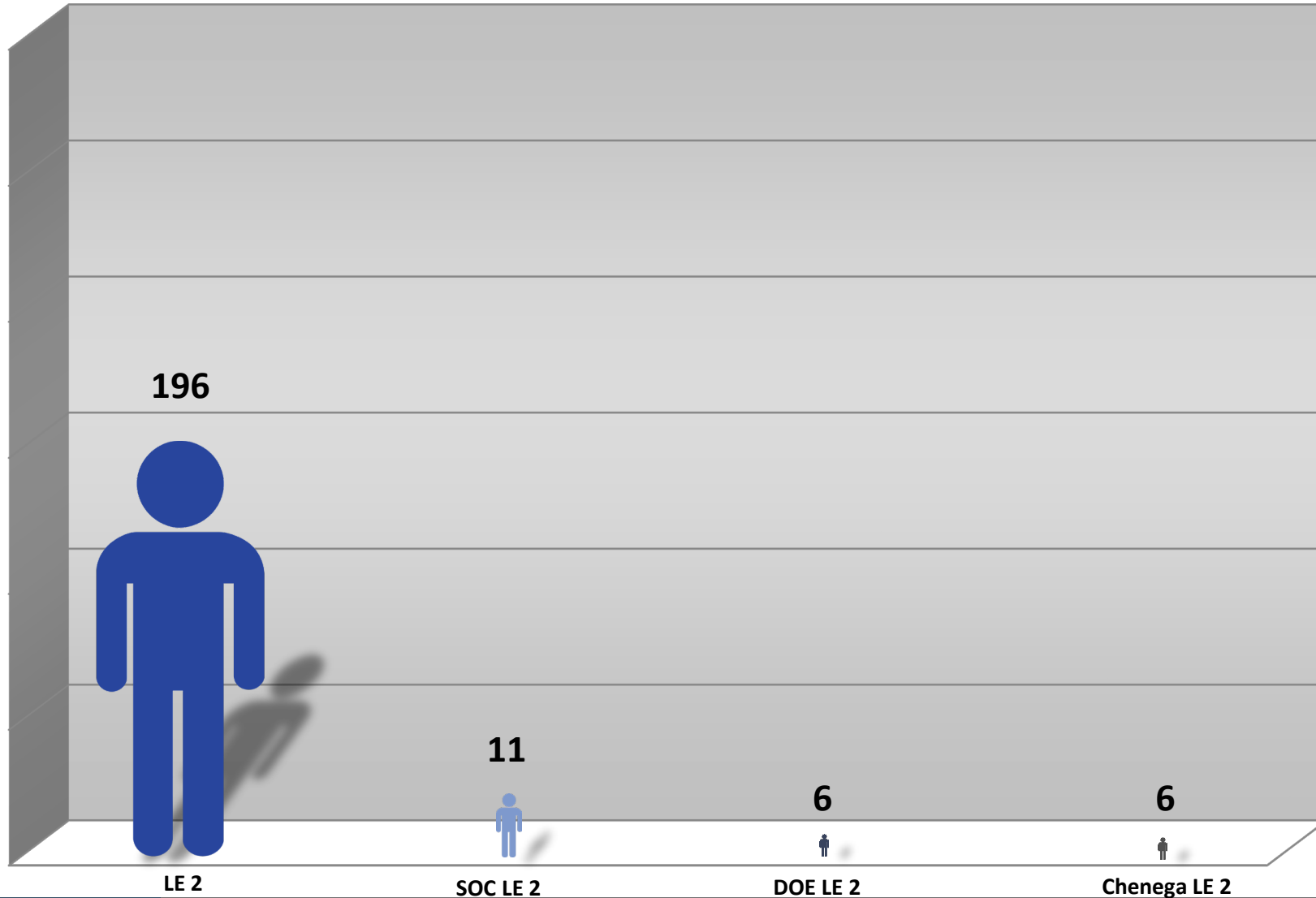
Critical Decision (CD)	Milestone	Date
CD-0	Approve Mission Need	Oct 2015 (Actual)
CD-1	Approve Alternative Selection and Cost Range	Dec 2016 (Actual)
CD-2/3	Approve Performance Baseline/Approve Start of Construction BH, BM, BC	June 2021 (Actual)
CD-4	Project Complete and Approved Start of Operations BH	Jan 2027
CD-4	Project Complete and Approved Start of Operations BM	Oct 2025
CD-4	Project Complete and Approved Start of Operations BC	Mar 2025

EMPLOYEES

2023 SPR Base Authorized Staffing



2023 LE 2 STAFFING



Storage Site Staffing



	Bryan Mound	Big Hill	West Hackberry	Bayou Choctaw
Federal Staff	4	5	4	4
M&O Staff	109	108	100	70
Security	38	37	34	33
Total	<i>151</i>	<i>150</i>	<i>138</i>	<i>107</i>

Data current as of 07/01/23

EMERGENCY MANAGEMENT & FIRE PROTECTION

ERT Academy 2023



Group provides resources for response to fire, hazardous material spills and personal injuries.

Coordinates with federal, state and local response agencies as well as and private response entities.

Emergency response teams at each site attend annual firefighting, high angle rescue and hazardous materials clean-up training.



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