



U.S. DEPARTMENT OF
ENERGY

Office of
Cybersecurity, Energy Security,
and Emergency Response

Strategic Petroleum Reserve Project Management Office

West Hackberry Storage Site

November 3, 2022





Strategic Petroleum Reserve

- Welcome
 - Site Safety Briefing
 - Control Room
 - STOP WORK

Strategic Petroleum Reserve Basics

- **SPR Oil Storage Sites:**
Texas (2), Louisiana (2)
- **Design Storage Capacity:**
713.5 Million Barrels
- **Current Inventory:**
406 Million Barrels (10/19/22)
- **Design Drawdown Capability:**
4.4 Million Barrels/Day
- **Design Fill Capability:**
785 Thousand Barrels/Day
- **Recovery Equipment**
Stennis Space Center, MS



Louisiana Storage Sites



SPR West Hackberry Storage Facility

Location: Hackberry, LA
Caverns : 22
Storage Capacity: 221,000,000 Barrels

Drawdown Rate: 1,300,000 Barrels/Day
(177,281 MT/Day)



SPR Bayou Choctaw Storage Facility

Location: Plaquemine, LA
Caverns : 6
Storage Capacity: 76,000,000 Barrels

Drawdown Rate: 515,000 Barrels/Day
(70,230 MT/Day)

SPR West Hackberry Site

Site Acquired: 1977

Location: Hackberry, LA (Cameron Parish)

Site Development:

- Converted 5 Industry Caverns
- Constructed 17 New Caverns
- Completed 1988
- 411 acres acquired in April 1977
- Additional 160 acres acquired by 1980

Storage Capacity: 221 MMB

Current Capacity: 125.7 MMB (As of 9/31/22)

Drawdown Rate: 1,300 MB/D

Distribution Capability: 2,825 MB/D*

- Beaumont/Port Arthur Refiners
- Lake Charles Refiners
- Marine: 1 Terminal
- 88 Miles of Gov't Offsite Pipeline

Largest Number of Storage Caverns (21) & Manages SPR Pipelines

* Distribution capability of Big Hill and West Hackberry combined due to shared distribution system



West Hackberry Site Personnel



Total Department of Energy – 4

- 1 – Senior Site Representative
- 2 – Site Engineers
- 1 – Safety Specialist

Total Fluor Federal Petroleum - 113

- 1 – Site Director
- 27 – Operations
- 42 – Maintenance
- 5 – ES&H
- 9 – Support Management
- 4 – Construction Management/SMTR
- 1 – Security
- 1 – Fire Protection
- 14 – WH Support Personnel
- 9 – Life Extension Support Personnel

Total SOC Protective Force - 45

- 6 – Captain, Site Lieutenant, Trainers
- 2 – K-9 Officers
- 37 – Shift Lieutenants and Officers



FLUOR
FEDERAL PETROLEUM
OPERATIONS

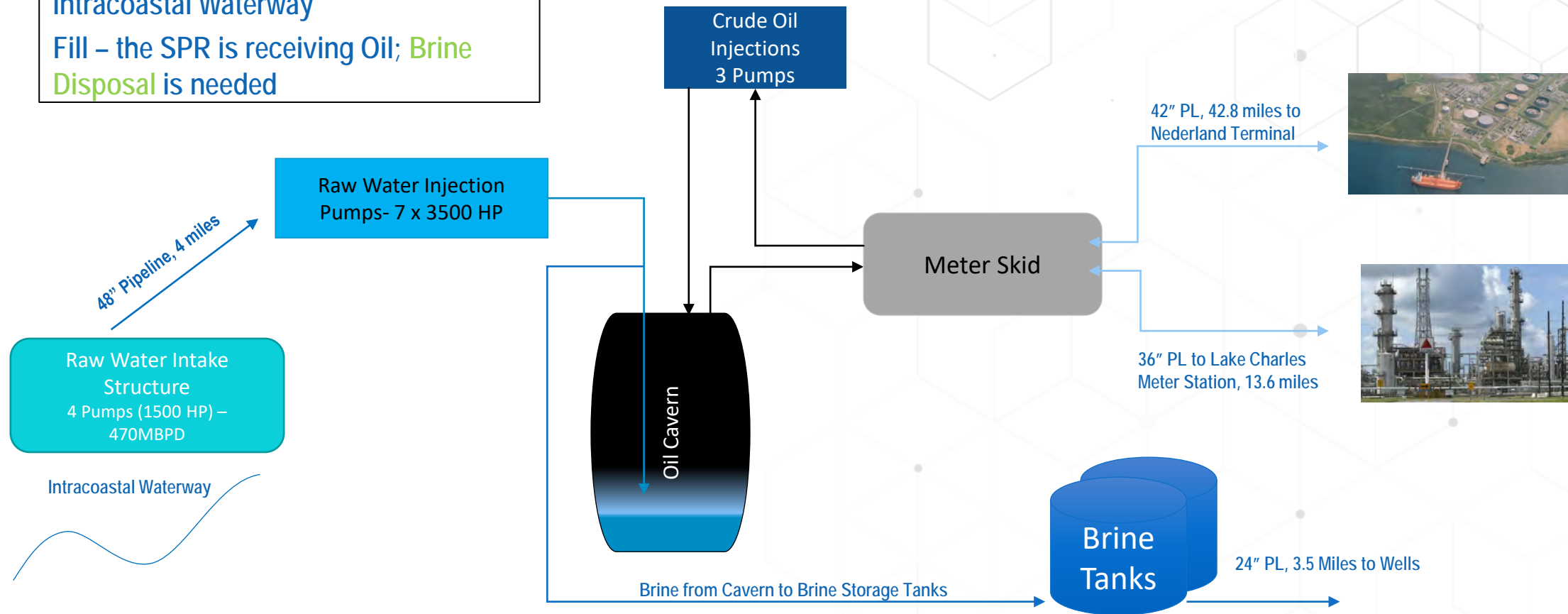


West Hackberry Raw Water Intake Structure



Current Drawdown and Fill Configuration at WH

Drawdown – Oil is leaving out of the SPR; Raw Water is needed from the Intracoastal Waterway
Fill – the SPR is receiving Oil; Brine Disposal is needed



Caverns – Wellhead

West Hackberry 22 Caverns
34 Wells (2 Wells TP&A)

Various Cavern Configurations

- 5 - Phase I (Early Strategic Reserve)
- 16 - Phase II (SPR Drilled Single Entry Cavern)
- 1 - Phase III (Dual Entry Cavern)

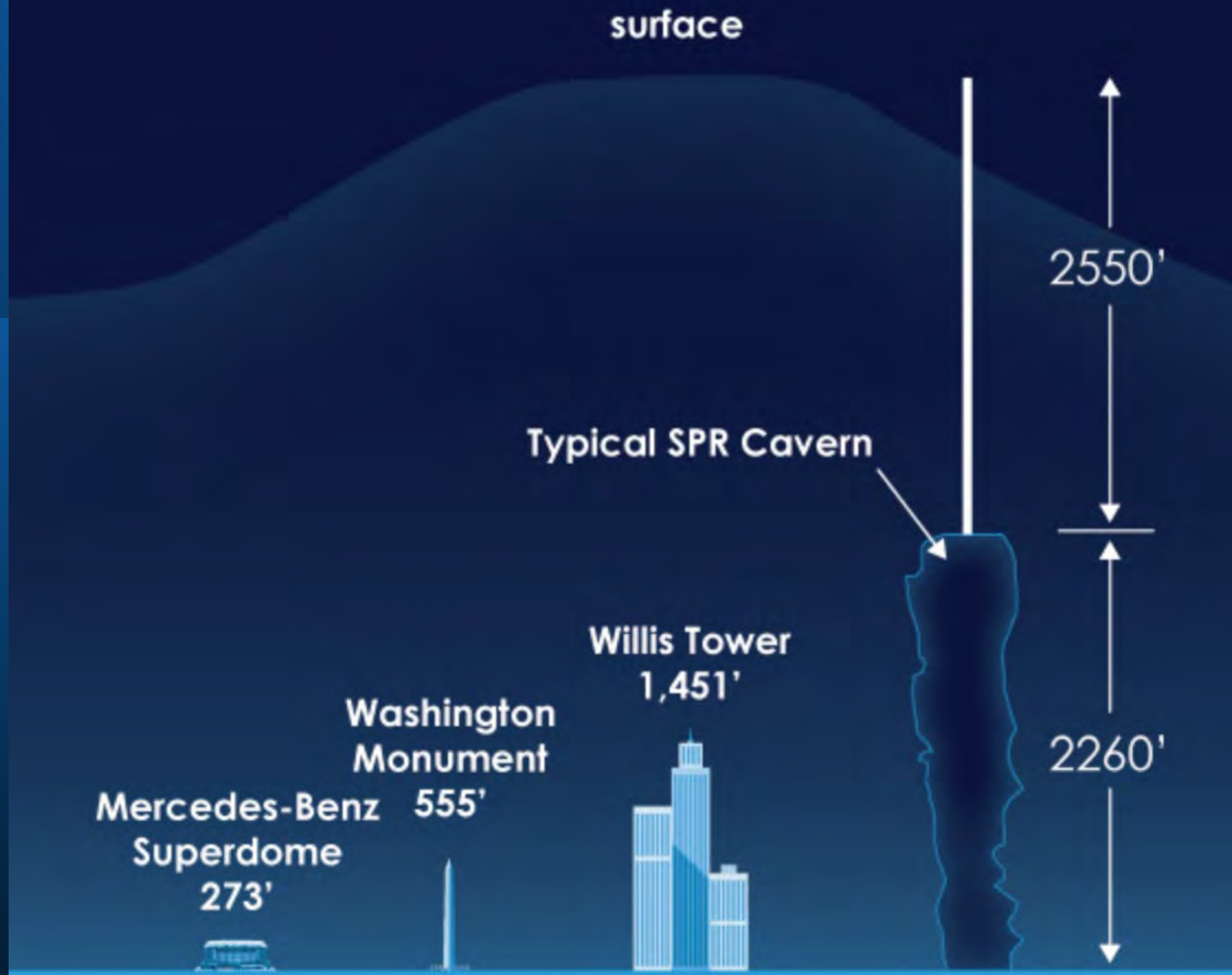
Well 9 was drilled in 1946 and is still in use. Active for 71 years

West Hackberry Current Configuration: 21 Active Caverns

- Sweet Caverns: 11
- Sour Caverns: 10
- Cavern 6 is Temporary Plugged



Relational Comparison



Cavern Storage – Gulf Coast Salt Dome

Concentration of Salt Domes

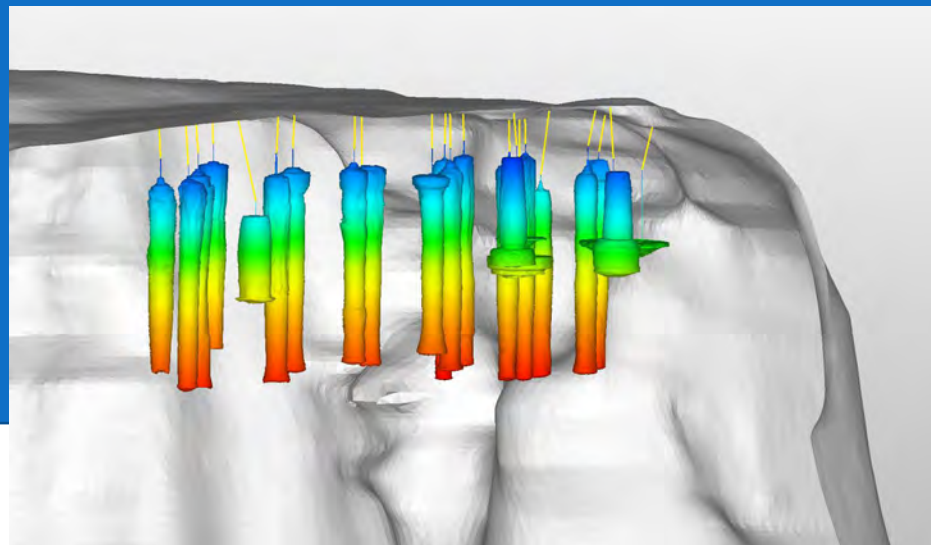
- Secure
- Economical
- Low Environmental Risk

Major U.S. refinery area

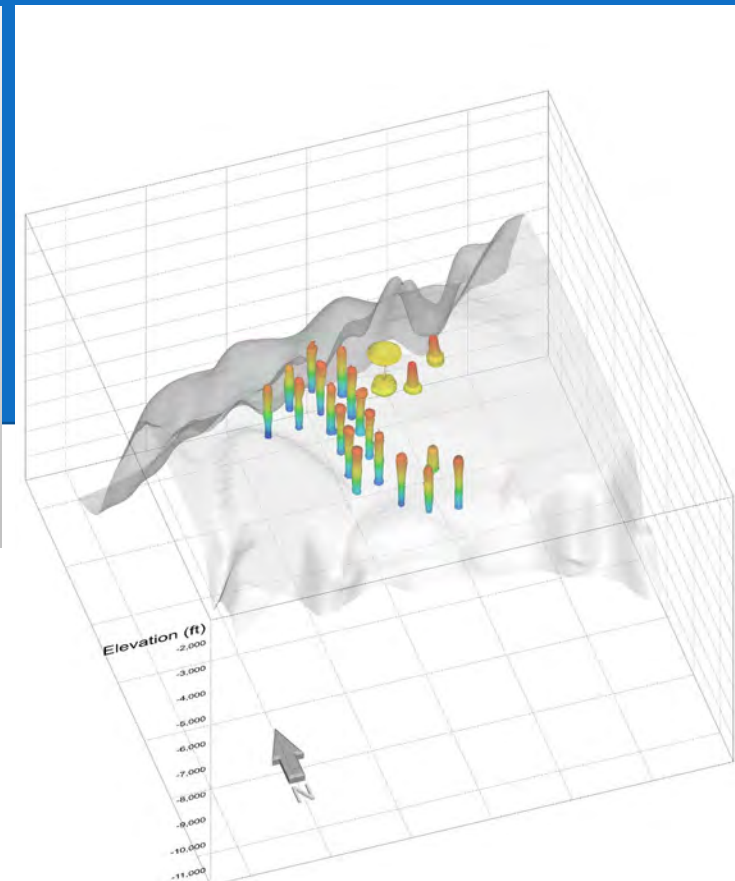
Major Crude Oil Distribution Center

- Tanker Terminals
- Pipelines

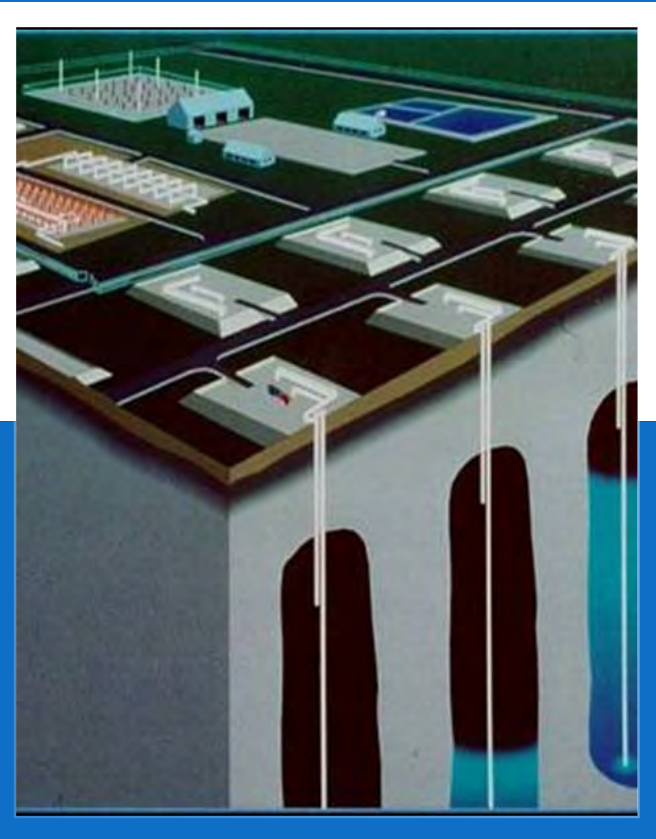
Provides maximum flexibility to respond to a wide range of interruptions.



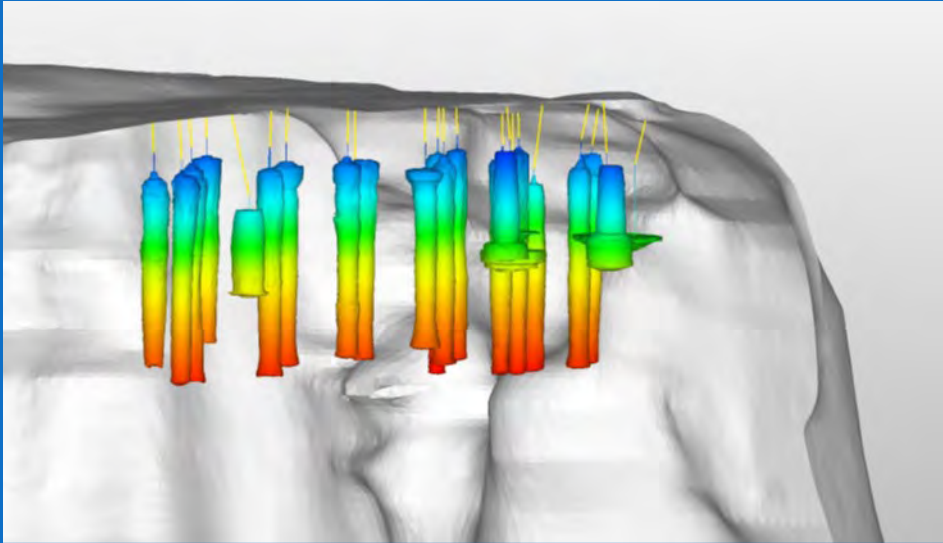
**3D Models of SPR
West Hackberry Salt Domes and
Caverns**



Cavern Storage – Gulf Coast Salt Dome



Schematic Illustration of a Cavern Storage Site

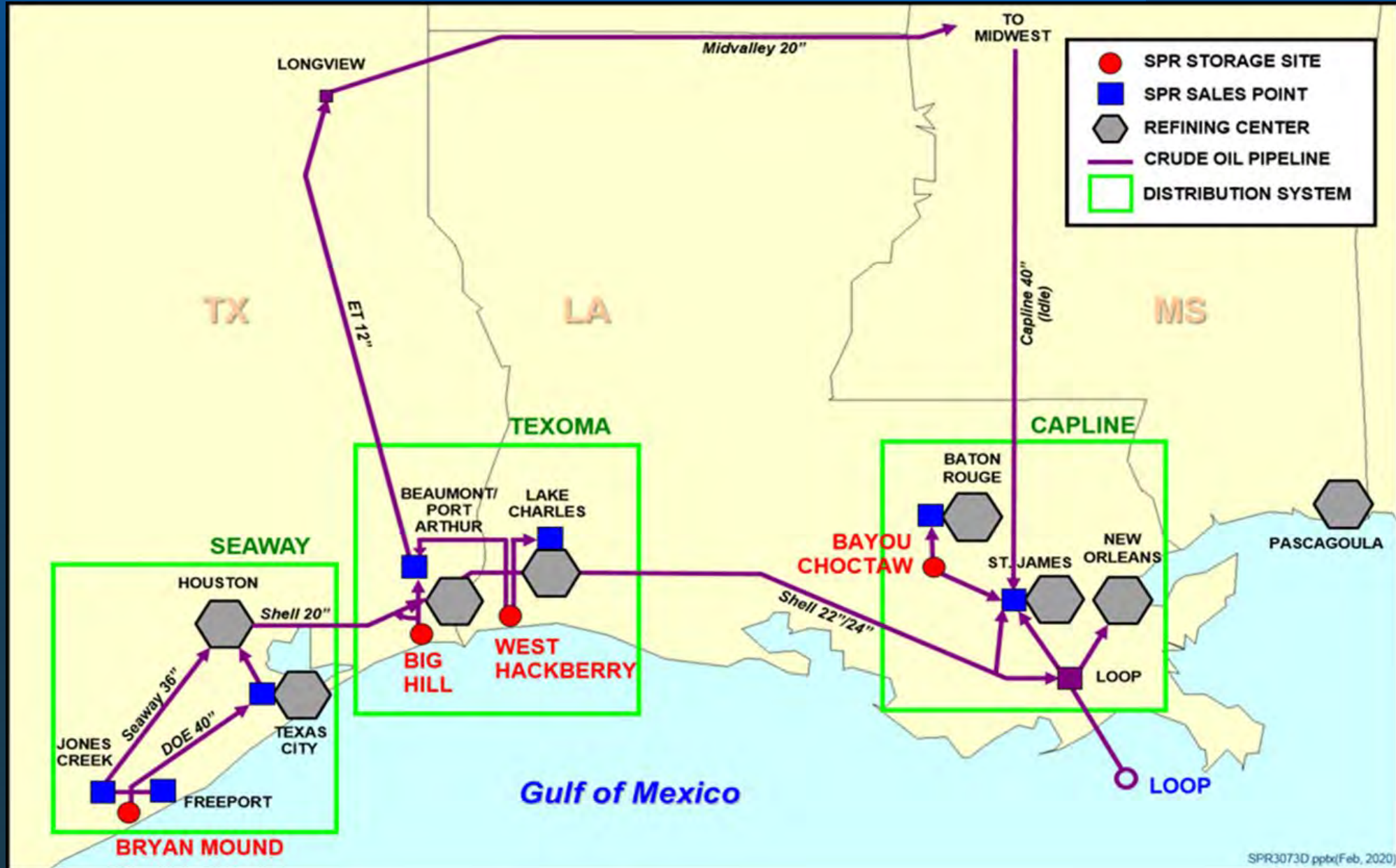


West Hackberry 3D Model of Cavern Storage Site

Cavern and Well Monitoring & Maintenance

<p>Pressure Monitoring</p>	<p>Control cavern creep & detect incipient leaks (continuous)</p>	<p>Mechanical Integrity Tests</p>	<p>Evaluate ability of caverns & wells to contain crude oil (every 5 years)</p>
<p>Sonar Surveys</p>	<p>Measure cavern capacity & configuration (every 5 years)</p>	<p>Wellhead Inspections</p>	<p>Monitor & mitigate corrosion (every 10 years)</p>
<p>Multi-Arm Caliper Surveys</p>	<p>Measure well casing deformation & penetration (every 5-10 years)</p>	<p>Workovers & Well Remediation</p>	<p>Monitor brine string wells & repair damage (as needed)</p>

SPR Distribution Systems



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

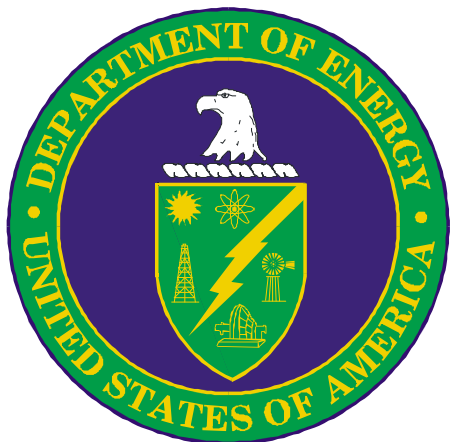
SECRETARY DEPARTMENT OF ENERGY

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



Prior SPR Oil Releases

SPR Drawdowns (IEA Actions):

- 1991 Iraq War: 17.3 MMB
- 2005 Hurricane Katrina: 11.0 MMB
- 2011 Libya Situation: 30.6 MMB

SPR Test Sales:

- 1985 Test Sale: 1.0 MMB
- 1990 Test Sale: 3.9 MMB
- 2014 Test Sale: 5.0 MMB

Emergency Exchanges (Loans):

- Seaway Emergency (1996): 1 MMB
- Ship Channel Closure (2000): 1 MMB
- Time Exchange (2000): 30 MMB
- Hurricane Ivan (2004): 5.4 MMB
- Hurricane Katrina (2005): 9.8 MMB
- Ship Channel Closures (2006): 1.6 MMB
- Hurricane Gustav/Ike (2008): 5.4 MMB
- Hurricane Isaac (2012): 1 MMB
- Hurricane Harvey (2017): 5.2 MMB

Non-Emergency Sales: [History of SPR Releases | Department of Energy](#)



Crude Oil Sales as of 11/1/2022

Projected Sales Volumes By Fiscal Year & Requirements																11/1/2022
Drawdown Legislation	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Bipartisan Budget Act of 2015 (P. L. 114-74, Section 404) (Annual Sales Volumes now based on \$1.4 Billion Revenue)	6.3	4.7	4.2*	-	6.6**	-	-	-	-	-	-	-	-	-	-	21.8
Bipartisan Budget Act of 2015 (P. L. 114-74, Section 403) (Annual Sales Volumes Mandated by Budget Act)	-	5	5	5	5	8	10	10	10	-	-	-	-	-	-	58.0
Fixing America's Surface Transportation Act of 2015 (P. L. 114-94, Section 32204) (Annual Sales Volumes Mandated by Highway Act)	-	-	-	-	-	-	16	25	25	-	-	-	-	-	-	66.0
21st Century Cures Act of 2015 (P.L. 114-255, Section 5010) (Annual Sales Volumes Mandated by Act)	9.9	9.2	6.0*	-	-	-	-	-	-	-	-	-	-	-	-	25.1
Tax Cuts and Jobs Act of 2017 (P.L. 115-97, section 20003) (Annual Sales Volumes Mandated by Act)	-	-	-	-	-	-	-	-	-	3.5	3.5	-	-	-	-	7.0
											(7)					
Bipartisan Budget Act of 2018 (P. L. 115-123, Section 30204) (Annual Sales Volumes Mandated by Budget Act)	-	-	-	-	-	30	-	0	-	35	35	-	-	-	-	100.0
Consolidated Appropriations Act, 2018 (P.L. 115-141, Section 501) (Annual Sales Volumes Mandated by Act)	-	-	-	4.9	5.1	-	-	-	-	-	-	-	-	-	-	10.0
America's Water Infrastructure Act of 2018 (P. L. 115-270, Section 3009) (Annual Sales Volumes Mandated by Act)	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5.0
Infrastructure Investment and Jobs Act (P.L. 117-58) (Annual Sales Volumes now based on \$6.1 Billion Revenue)	-	-	-	-	-	-	-	-	-	-	-	21.9	21.9	21.9	21.9	87.6
													(87.6)			
Total Annual Drawdown Volume	16.2	18.9	15.2	9.9	16.7	38.0	26.0	35.0	35.0	38.5	38.5	26.9	21.9	21.9	21.9	380.5

All volumes in millions of barrels

* 92,678 barrels from ESIM Sales FY 2019 were allocated to 21st Century Cures Act.

** ESIM sales volume for FY20 was based on \$450M authorized in Further Consolidation Appropriations Act, 2020. The CARES Act of 2020 authorized delay of FY20 ESIM sale through the end of FY22

Note: For purposes of calculating an annual volume, volumes across multiple years are split evenly across those years. In practice, actual sales may not end up being split evenly.



West Hackberry Site Maintenance and Operations



Workover Rig/Compliance

Environmental Aspects

Protection & Preservation
of Wetlands and Wildlife
while providing
U.S. Energy Security



The SPR support to Executive Order 13186*.

*Responsibilities of Federal Agencies to Protect Migratory Birds

Oil Pollution Act of 1990

Thank You Questions



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