

Carlsbad Brine Well Remediation Advisory Authority Update:

July 28, 2017 presentation to the
Radioactive and Hazardous Materials Committee:

By John Heaton

* Many photos and graphics used originated from Feb. 2017
presentation by the National Cave and Karst Research Institute

Status Update

- 2017 Legislative Act created the Carlsbad Brine Well Remediation Advisory Authority
- The Authority is an advisory agency only and makes recommendations to the OCD
- First official meeting took place July 12, 2017, in Carlsbad
- Next meeting scheduled for August 16, 2017, in Carlsbad
- Draft Minutes and Former Agenda posted on the Energy, Minerals & Natural Resources web page <http://www.emnrd.state.nm.us/cbwraa/index.html>

Authority Membership (Members may also appoint designees)

Chair of the Eddy County Board of
County Commissioners

* Ken McQueen, Member
Cabinet Secretary of NM Energy,
Minerals and Natural Resources
Department

* Butch Tongate, Member
Cabinet Secretary of NM Environment
Department

* Tom Church, Member
Cabinet Secretary of NM Department
of Transportation

* Dale Ballard, Member
Manager of the Carlsbad Irrigation
District

* Tom Blaine, Member

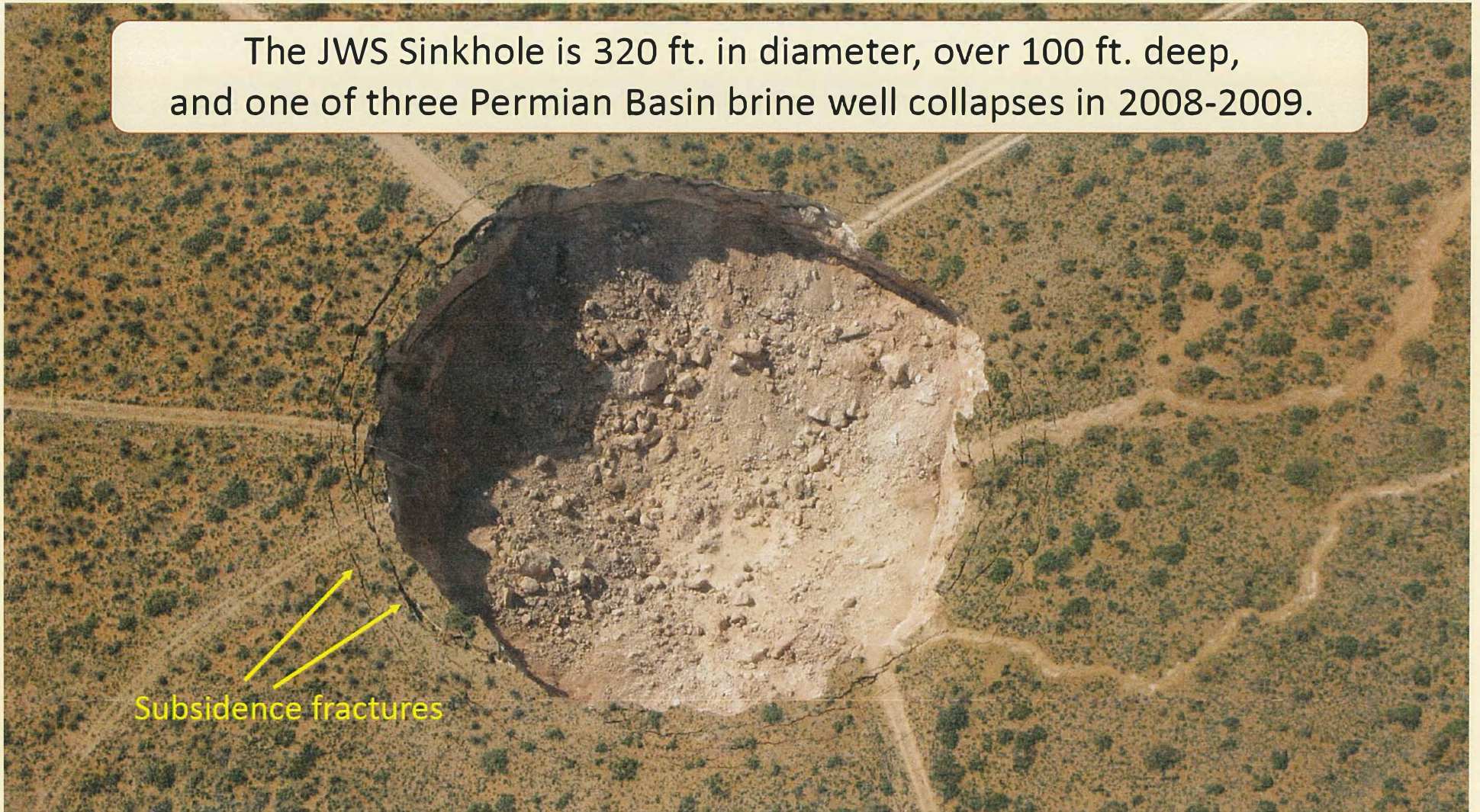
Appropriations

14	(14) ENERGY, MINERALS AND		
15	NATURAL RESOURCES DEPARTMENT	250.0	250.0
16	For a design-build request for proposals for remediation of the Carlsbad brine well contingent on		
17	receiving matching funds of one hundred twenty-five thousand dollars (\$125,000) from the city of Carlsbad		
18	and one hundred twenty-five thousand dollars (\$125,000) from Eddy county.		

- New Mexico: \$250,000
- Eddy County: \$125,000
- Carlsbad: \$125,000

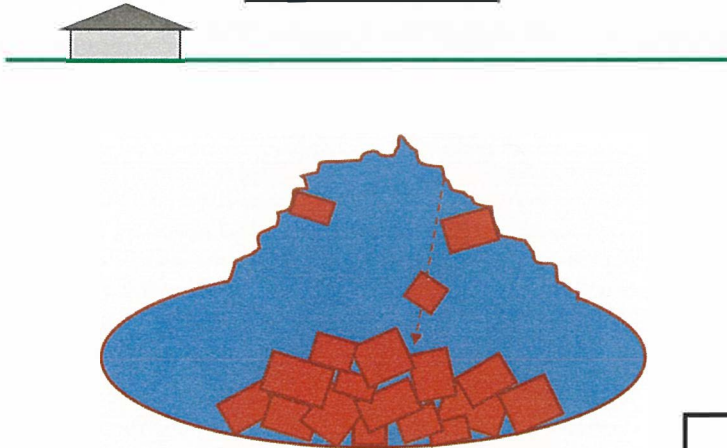
**Any additional state financing
requires legislative approval**

The JWS Sinkhole is 320 ft. in diameter, over 100 ft. deep, and one of three Permian Basin brine well collapses in 2008-2009.

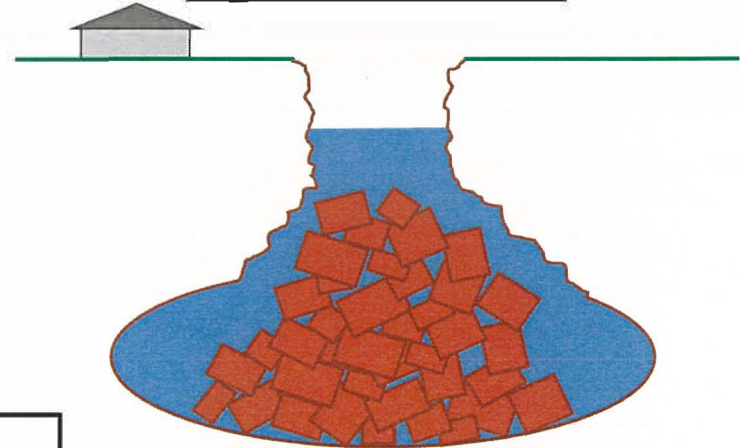


Subsidence fractures

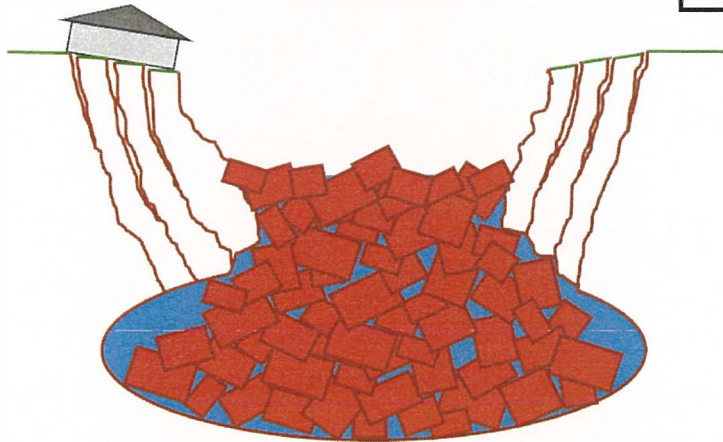
Stage 1: Initiation



Stage 2: Breach of Surface

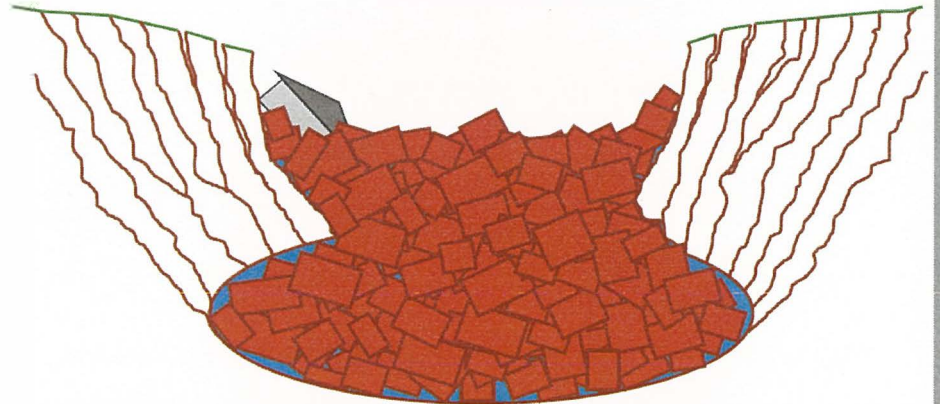


Stage 3: Initial Subsidence



Stages of Sinkhole Collapse

Stage 4: Advanced Subsidence



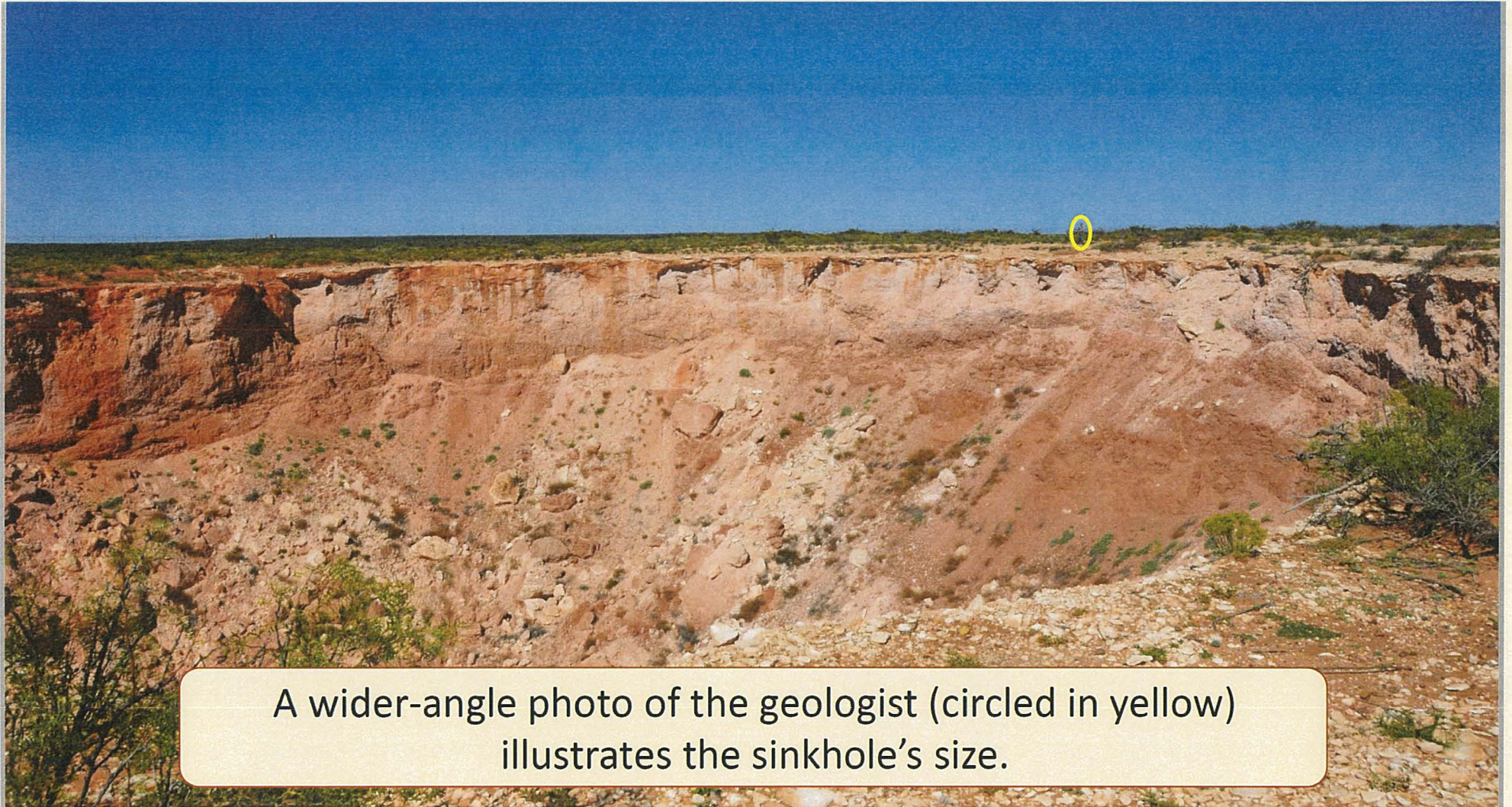


How big are these brine well collapses?

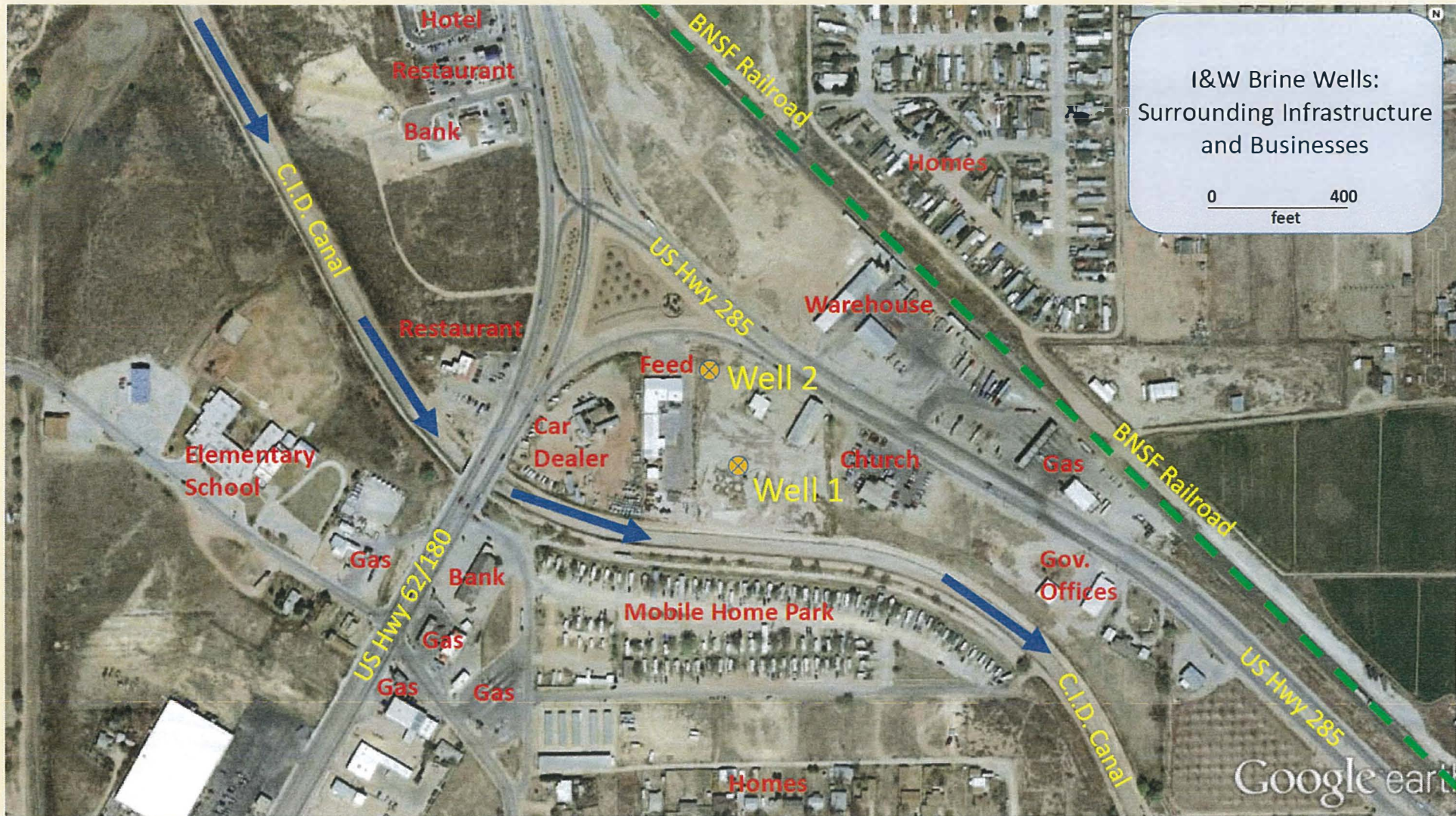
The JWS Sinkhole is roughly the minimum size of the sinkhole that will form if the I&W cavity collapses.

Since numbers, like “320 ft. in diameter,” can fail to convey the true size of something so large, a comparison is useful.

To the left is a Google Earth aerial view of the New Mexico State Capitol Roundhouse.



A wider-angle photo of the geologist (circled in yellow) illustrates the sinkhole's size.



I&W Brine Wells:
Surrounding Infrastructure
and Businesses

0 400
feet

Google earth



Brine Well Cavity:
Main Cavity Shape
and Location

0 400
feet







Brine Well Cavity:
Estimated Collapse Zone
and Potential Zone of
Subsidence for Decades

0 400
feet

Economic Analysis of a Collapse of the I&W Brine Well Cavity

Calculated impacts:

Total 2-year impact to agriculture and adjacent businesses ¹	\$640.4 million
Repair and rerouting of highways, canal, and utilities ²	\$80.3 million
Filling the sinkhole ²	\$16.0 million
<u>Security fencing³</u>	<u>\$0.2 million</u>
Total calculated impacts	\$736.9 million

Costs not available for calculation:

Closing of BNSF railroad, repair, or relocation	\$ millions
Groundwater contamination clean-up	\$ millions
Emergency response and security	\$ million
Loss of tourism	\$ millions
Loss of outside investments in New Mexico	\$ millions
Decades of continued damage due to subsidence	\$ millions
<u>Lawsuits by affected citizens</u>	<u>\$ millions</u>
Total calculated and uncalculated economic impacts	>\$1 billion est.

Remediation cost: \$25 million², 3.4% of calculated impact, <2.5% of estimated impact

(Sources: ¹Carlsbad Department of Development; ²NMDOT; ³Amec 2014 Feasibility Study)

The RFP/Liability Work Group Mission:

- How Will We Deal With the RFP Process
- Appropriations Implies a “Design-Build” Process
- Approach and Options:
 - Many Engineering Questions:
 - Fill Material
 - Sustaining Overburden While Filling
 - Final Squeeze Under Overburden
 - Drill Hole Risk of Failure

Further RFP/Liability Considerations

How Do We Get More Information

- Expression of Interest for Information
- RFI
- RFP
- Huge Liability Questions for a Contractor

Technical Work Group Mission:

- RFP for Engineering & design or
- What Questions Do We Need Answering
 - Fill Material
 - Method of filling
 - Technical Risks
- Design/Build RFP all Inclusive or
- Begin With Expressions of Interest
- Begin with Draft & RFI

Finance Work Group Mission: Find Money

- Remediation Fund
- Federal Funds from some unknown source
- BLM
- Congressional Appropriation
- FEMA (Possible Pre-Disaster Remediation)
- EPA
- State, County, City
- Disposal Operation

Questions

Q & A