

CASE NO. 14545
APPLICATION OF HESS CORPORATION
FOR APPROVAL OF ENLARGEMENT OF
THE WEST BRAVO DOME CARBON DIOXIDE GAS UNIT,
HARDING COUNTY, NEW MEXICO.
OUTLINE OF TESTIMONY
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West Bravo Dome Gas Unit (WBDGU) Expansion Proposal



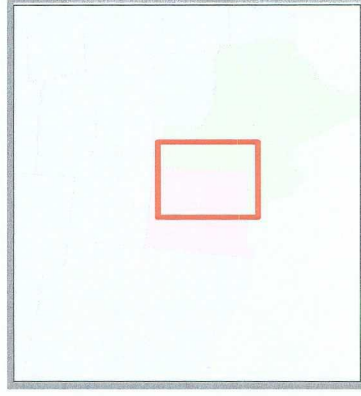
Proposal: Expand the WBDGU from 34,619 Acres to 76,950 Acres. This is a voluntary unit in which Hess, as operator and the sole working interest owner, seeks to add approximately 42,331 acres of Federal, State and Fee lands.

Reasons:

- Hess Corporation (Hess) has obtained the consent of T. E. Mitchell & Son, Inc. (Mitchell) to allow a portion of 63,000 acre lease to be included in WBDGU. Hess currently owns the Mitchell lease and operates the WBDGU, and is the only working interest owner. Amerigas, the previous lease owner, and Mitchell earlier refused unitization.
- Unit expansion will allow the entire area to be developed, as nearly as possible, as one large lease.
- Unit expansion is supported geologically and is based on drilling results of 74 wells drilled in the area to date.



- ## Index Map



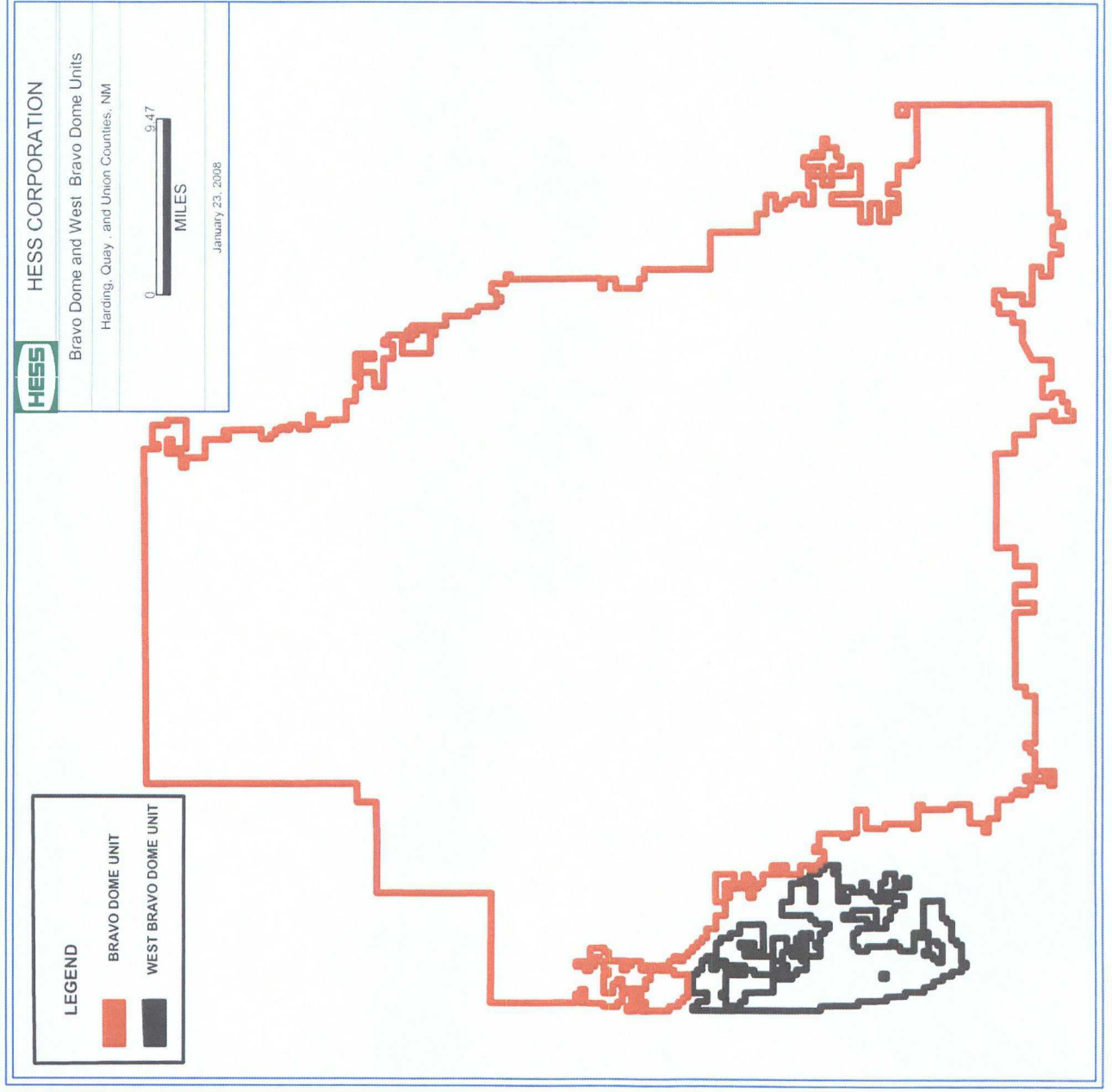
HESS CORPORATION
.S. ONSHORE PRODUCTION

PERMIAN REGIONAL MAP

Geologist: G.A. OLSON
Engineer: D.S. STOLL
Landman: J.S. HUGHART
Draftsman: G. McClellan

DATE: DECEMBER, 2007
Permian_Regional_SSAU_WBD.mxd

Bravo Dome & West Bravo Dome Unit Outlines





West Bravo Dome Gas Unit (WBDGU) Background

- WBDGU is a voluntary unit comprised of federal, state and fee lands. It currently contains 34,619 acres.
- The unitized area was originally located in the SW corner of the proposed Bravo Dome Gas Unit (BDGU), but failed to qualify for inclusion due to the refusal by Amerigas (previous owner of Mitchell lease) to participate.
- Effective 12-1-84 – 42,714 acre WBDGU approved by New Mexico Oil Conservation Commission, New Mexico State Land Commissioner, the BLM and working interest owners. Cities Service Oil & Gas Corp (Cities) was the operator. Again, the Mitchell lease was excluded from this unit and effectively became a barrier that separated the WBDGU and BDGU
- All wells were shut-in due to lack of CO2 market. Unit was maintained by shut-in payments, minimum royalties and rent regardless payments with 5% annual escalations and road maintenance.
- 5-1-86 – WBDGU enlarged by 7,307 acres to 50,021 acres.
- 7-14-95 – WBDGU contracted by 15,366 acres to 34,655 acres.
- 3-23-2009 – WBDGU acreage adjusted to 34,619 acres via Certificate of Effectiveness per title opinion.



West Bravo Dome Gas Unit (WBDGU) Background, Cont.

- Hess Corporation (Hess) is actively developing a tertiary oil recovery project known as the Residual Oil Zone (ROZ) within the Seminole San Andres Unit in Gaines County, Texas. CO₂ from West Bravo Dome Field is being injected into the oil reservoir to encourage the flow of oil and add decades to the life of the field. The West Bravo Dome Field is adjacent to the Bravo Dome CO₂ Gas Unit operated by Oxy USA in which Hess has a nearly 10% working interest. Hess's share of this CO₂ in Bravo Dome presently goes to Seminole San Andres Unit and is used for production enhancement of the Main Pay Zone (MPZ) which is just above the ROZ.
- Until 2007, There were 20 shut-in wells within the WBDGU, and 7 Mitchell wells, 3 of which produced to BOC.
- 2007, Hess drilled 18 wells .
- 2008, Hess constructed a production infrastructure consisting of 50 miles of gathering lines, a gas processing plant and an 11 mile sales line to the Sheep Mountain Pipeline interconnect at nearby Rosebud to transport CO₂ gas from the West Bravo Dome area to the Seminole ROZ project. First production occurred in December, 2008.



- 2009, finished turning 43 wells in the field to production by June (26 were unit wells and or participated in production based on spacing patterns). Peak field production was at 65mm/d. Settled to 44MM/d end of year. Royalty payments began in June.
- 2010, drilled 14 new wells and have turned 12 to production. Field production now at approximately 58mm/d from an average of 56 wells.



Stratigraphic Section WBDGU / Typical Well in Unit

STRATIGRAPHIC UNITS	LITHOLOGY	THICKNESS (ft.)	DESCRIPTION
QUATERNARY	Basalt flows, alluvial and terraca deposits, Ogallala Formation		Sands and gravels, basalt flows, caliche and pisolithic limestones.
CRETACEOUS	Carlile Shale	0-200	Black marine shale and minor thin-bedded limestone
	Greenhorn Limestone	0-30	Tan-colored marine limestone and thin-bedded shale
	Graneros Shale	0-125	Dark-grey marine shale, minor marine limestone.
	Dakota Sandstone	90-200	Marine sandstones overlain by nonmarine sandstone
	Pajarito Shale		Light-grey nonmarine shale and sandstone.
JURASSIC	Mesa Rica Sandstone	0-100	Deltaic and estuarine sandstones
	Tucumcari Shale		Dark-grey marine shale.
TRIASSIC	Morrison Formation	0-550	Nonmarine, variegated red and green shale, siltstone, and fine- to coarse-grained sandstone.
	Belt Ranch Formation		Orange to light-brown, lacustrine fine- to coarse-grained sandstone and siltstone.
	Todilto Formation	0-10	Lacustrine limestone.
PERMIAN	Entrada Sandstone	0-100	White to pink, fine-grained aeolian sandstone.
	Chinle Formation	500-1200	Fine- to coarse-grained alluvial sandstone and red fluvial and lacustrine shale
TRIASSIC	Santa Rosa Sandstone	150-400	Fine- to coarse-grained alluvial sandstone and red fluvial and lacustrine shale
	Bernal Formation		Reddish-orange, very fine-grained sandstone, minor dolomite and anhydrite
	Sage Andes Formation	0-400	Oolitic anhydritic dolomite and anhydrite.
	Glorieta Sandstone		White, fine- to medium-grained, quartzose shallow-marine sandstone
	Upper Clearfork member	200-500	Anhydrite, red shale, fine- to coarse-grained orange sandstone and thin-bedded dolomite.
	Cimarron Anhydrite	10-150	Anhydrite.
	Tubb Sandstone	0-400	Fine- to medium-grained orange sandstone, minor thin-bedded dolomite and orange shale
	Abo (Sangre de Cristo) Formation	0-4500	Fine- to medium-grained orange-red alluvial sandstone grading down into nonmarine red shale and arkosic conglomerate, minor thin-bedded dolomite.
	Wolfcamp		
	PRECAMBRIAN		Granite, diabase, metavolcanics, and metasediments.

CO2 PAY / CO2 SHOWS



Cap Rock / Mosquero

Typical Escarpment Profile

Valley / Mitchell Ranch

NO DRILL ZONE

Average Well Depths

3,200' PTD

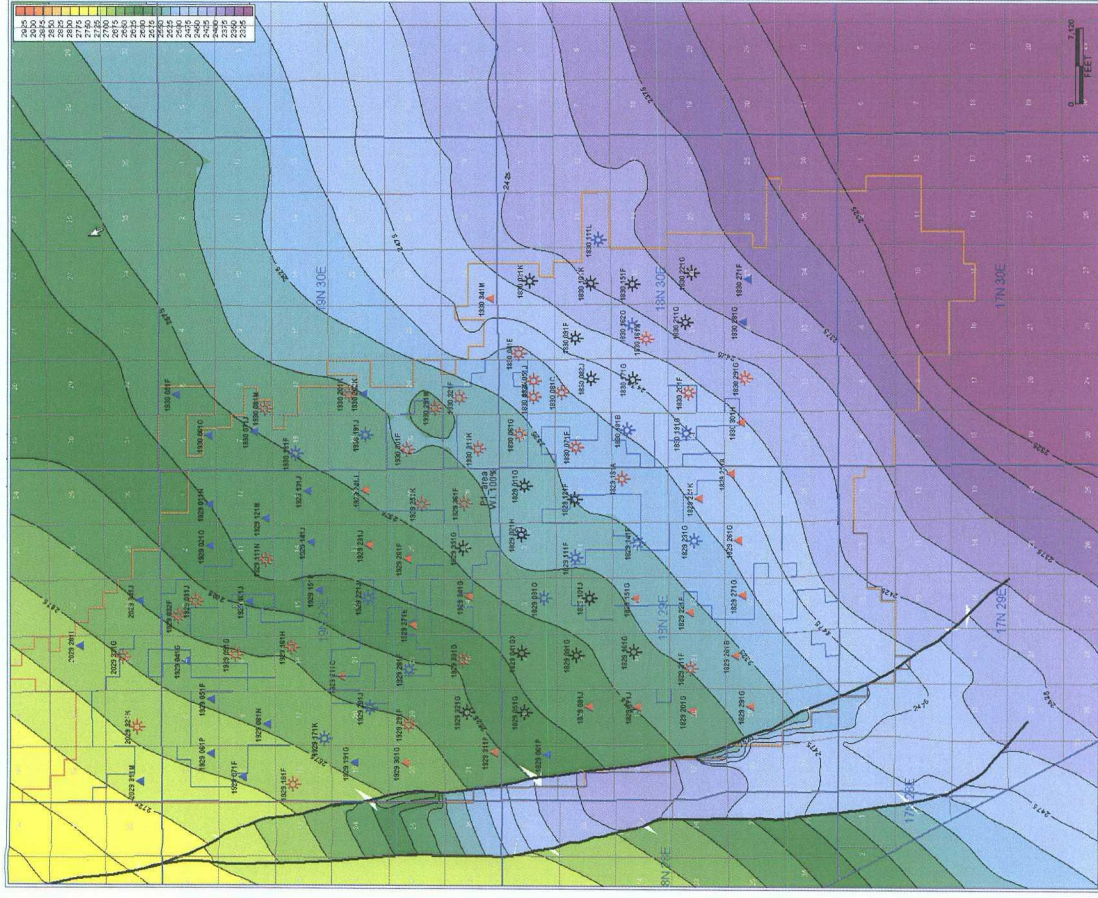
2,200' PTD

Baldwin and Muehlenberg, 1932 Lucas et al. 1985

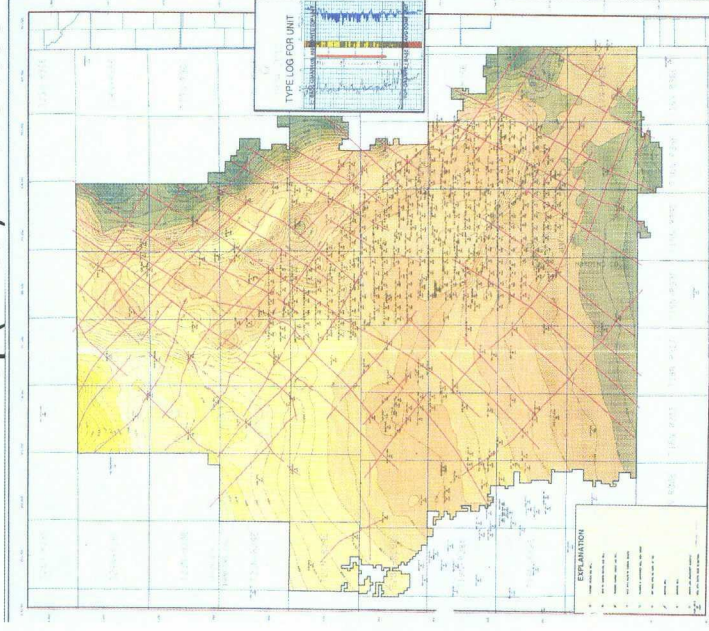
Modified from Broadhead, 1990, AAPG Treatise Petroleum Geology paper on Bravo Dome CO2 Gas Field

For Diagrammatic Purposes - Not to Scale

WBDGU Top Tubb Structure Map (CI: 25')



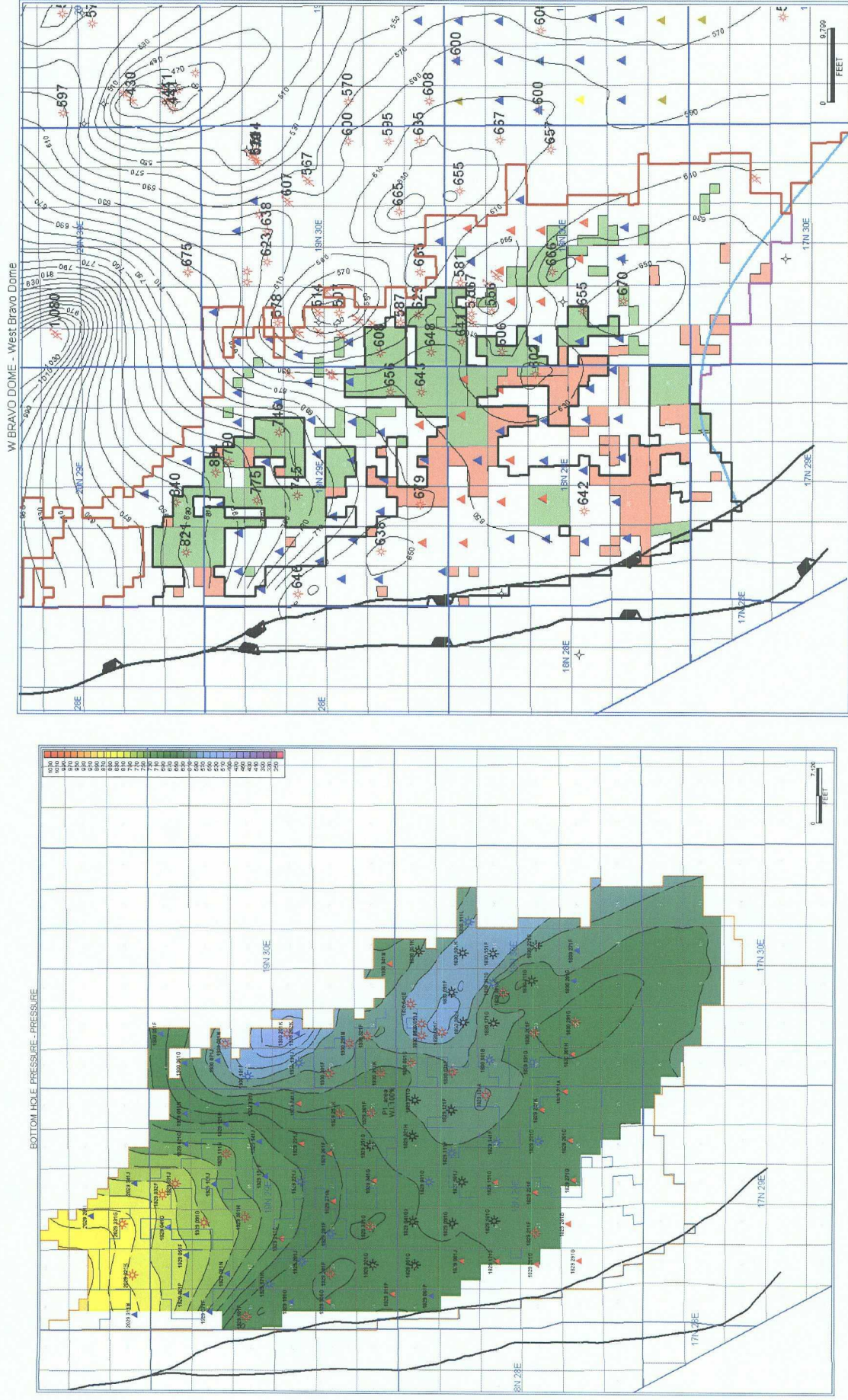
BDGU Top Tubb Unitized Interval
Structure Map (CI: 50') Amoco 1994



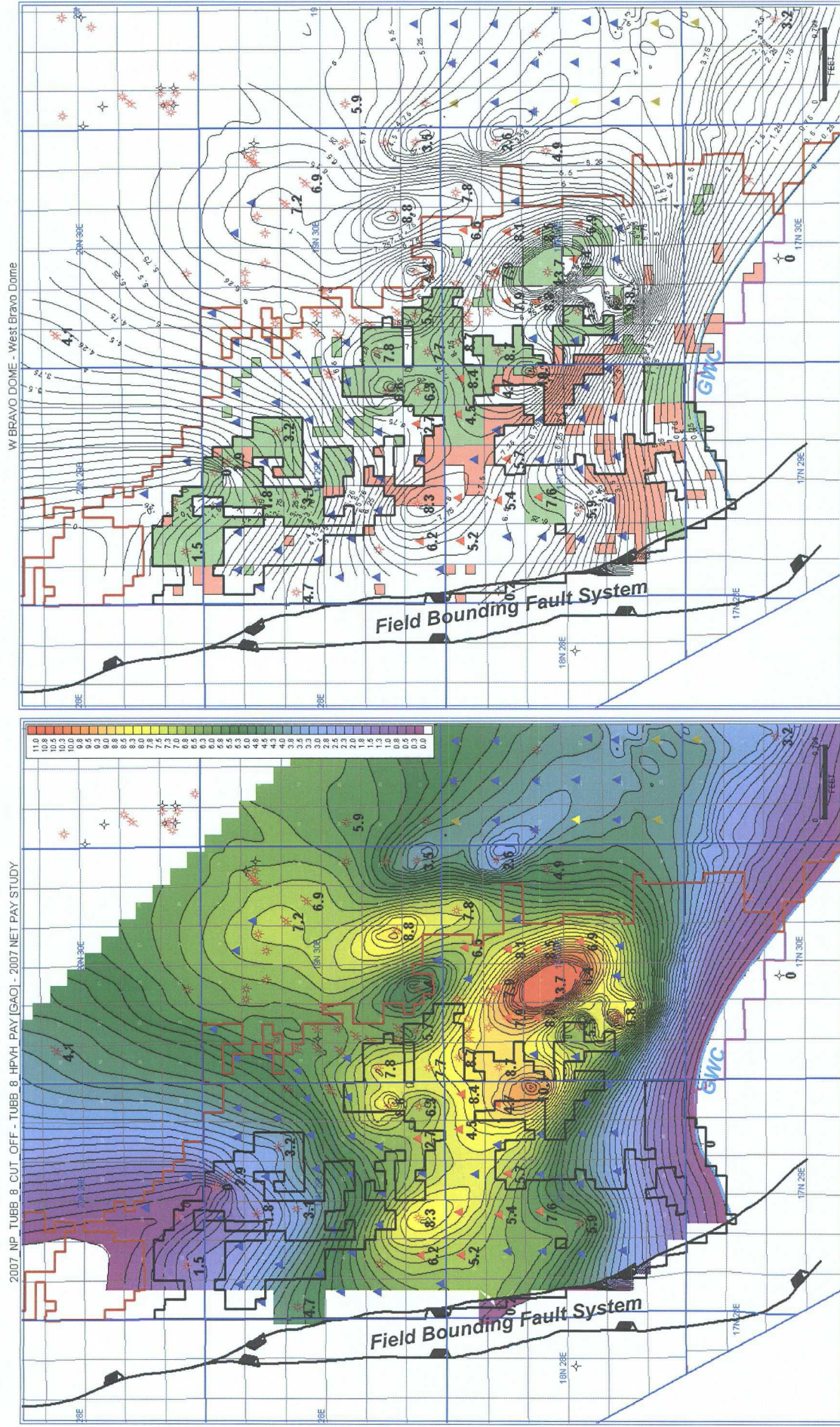
- Mapped on Base Cimarron / Top Tubb interval
- Map shows 1/3 to 3 degree dips over BDGU
- Shows location major NW-SE oriented horst blocks / plunging nose
- Note that minor faulting does not cut the top of the Tubb Sand, but drape folds the reservoir
- Seismic control over BDGU is shown in red lines



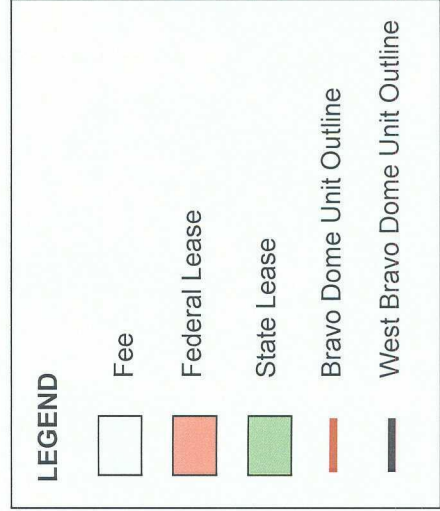
Tubb Bottom Hole Pressure Map (C.I.: 20 psi)



Tubb HPVH Contour Map (C.I.: 0.5Ft.) (Using 8% Porosity Cutoff)



West Bravo Dome Gas Unit Outline & Lease Ownership



Tract	Area (Acres)	Percentage of Unit
20 Federal Tracts	7,913.72	13.24%
40 State Tracts	13,995.24	20.78%
62 Private Tracts	51,400.62	86.98%
122 Tracts	73,409.58	100%

20 Federal Tracts	7,913.72 acs	13.24% of Unit
40 State Tracts	13,995.24 acs	20.78% of Unit
62 Private Tracts	51,400.62 acs	86.98% of Unit
122 Tracts	73,409.58 acs	100% of Unit

Legend

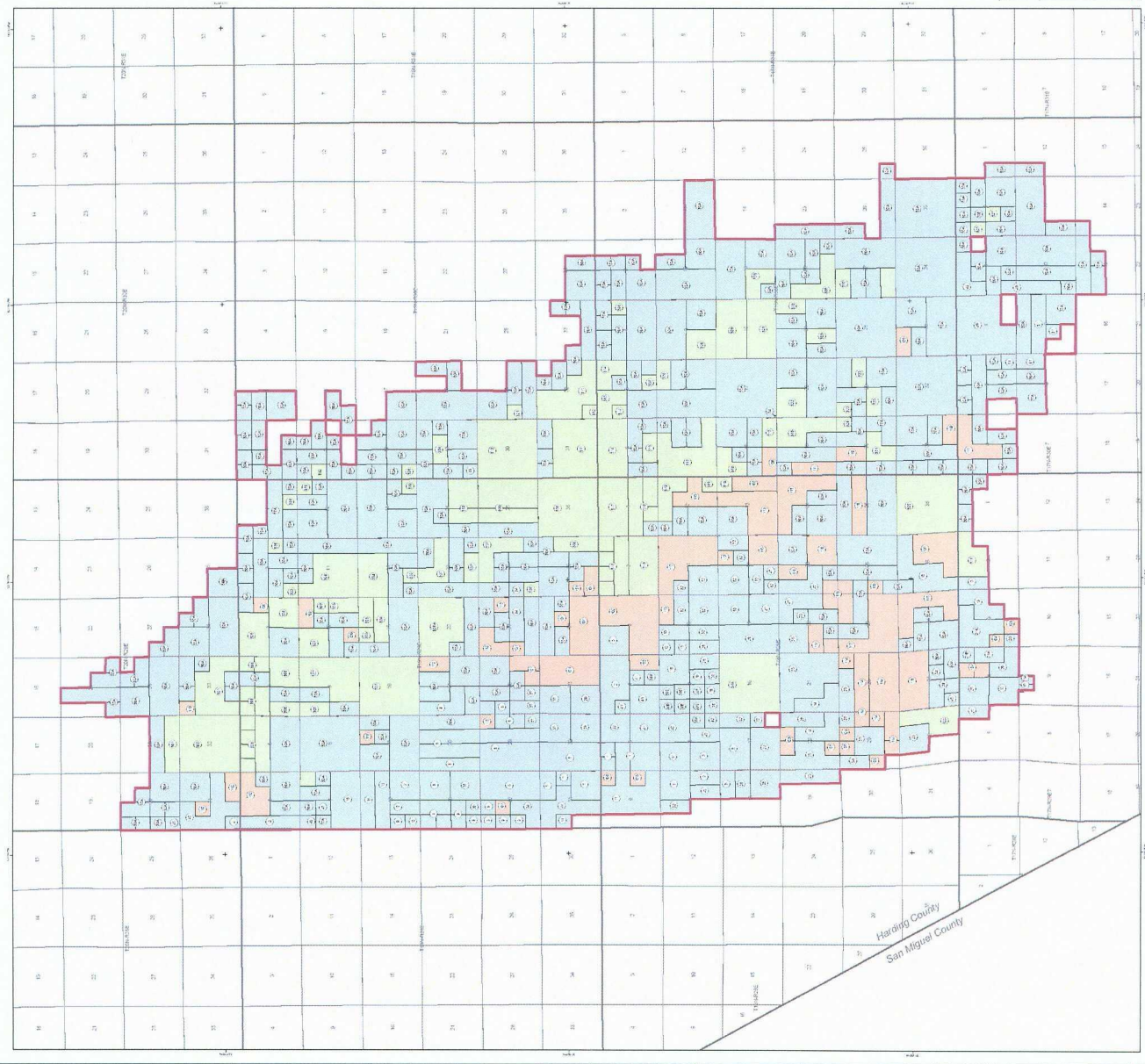
West Coast Low (See List)

Federal Lands (See List)

Private Lands (See List)

State Lands (See List)

HESS CORPORATION
U.S. ONSHORE PRODUCTION
WEST BRAVO DOME UNIT AREA
HARDING COUNTY, NEW MEXICO
EXHIBIT "A"



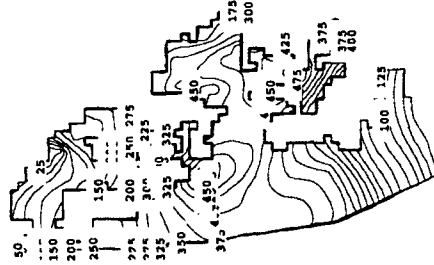
Americas Production – West Bravo Dome

WBDGU CO2 Gas Reserves: Volumetric Calculation Sheets



EXISTING WBDGU: Tubb Sand (8% cutoff)

Name: WBDGU LEASE2008 MEXBY-PAN Hydrocarbon Pore Volume Scale: 4000 ft/in



Top Thickness = 0 ft

CONTOUR DATA

h, ft	Area, ft2	Area, ft2
475	15,693,698	15,693,698
450	175,946,944	75,946,944
425	168,750,512	68,750,512
400	337,629,216	37,629,216
375	566,931,136	66,931,136
350	729,992,384	29,992,384
325	833,920,768	33,920,768
300	901,047,040	01,047,040
275	955,673,856	55,673,856
250	1,026,585,856	26,585,856
225	1,084,740,096	84,740,096
200	1,122,328,960	22,328,960
175	1,154,844,800	54,844,800
150	1,189,084,672	89,084,672

NOTES

HYDROCARBONS: Gas - Bgi

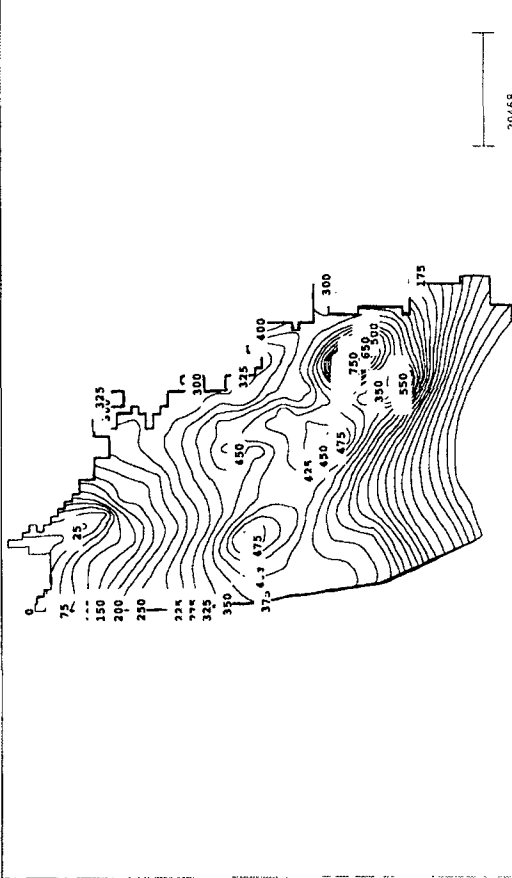
Vol = 445,210,165
 Por = 1
 Sg = 1
 Bgi = 1.0000
 Rf = .7

OGIP = 445.2 bcf
 Reserves = 311.6 bcf
 HC / Vol = 0.0000 bcf/MCF
 have = 296.6 ft



EXPANDED WBDGU: Tubb Sand (8% cutoff)

Name: WBDGU 2008 TUBB-EXP-TP Type: Hydrocarbon Pore Volume Scale: 4000 ft/in



Top Thickness = 12.5 ft

CONTOUR DATA

h, ft	Area, ft2	Area, acre
750	459,846	10.6
725	1,210,175	27.8
700	2,385,388	54.8
675	5,557,909	127.6
650	9,565,434	219.6
625	14,930,910	342.8
600	22,886,930	525.4
575	30,256,880	695.5
550	39,276,024	901.7
525	49,498,908	1,136
500	63,448,040	1,457
475	88,047,744	2,051
450	202,468,864	4,648
425	373,422,272	8,573

NOTES

HYDROCARBONS: Gas - Bgi

Vol = 9,28E+11
 Por = 1
 Sg = 1
 Bgi = 1.0000
 Rf = .7

OGIP = 928.0 bcf
 Reserves = 649.6 bcf
 HC / Vol = 0.0000 bcf/MCF
 have = 284.1 ft



Jan 23, 2008 2005 Plan Plus Export The Logic Group

Jan 22, 2008 2005 Plan Plus Export The Logic Group



West Bravo Dome Field – July 30, 2010 Update



EXISTING UNIT

TYPE	NET ACRES	PORTION OF UNIT
State	13,201.18	38%
Federal	6,834.47	20%
Fee	14,619.66	42%
Total	34,655.31	100%

All figures are estimates and subject to final review.

PROPOSED EXPANDED UNIT

TYPE	NET ACRES	PORTION OF UNIT
State	15,995.24	21%
Federal	7,913.72	10%
Fee	53,040.62	69%
Total	76,949.58	100%



Americas Production - West Bravo Dome
2008 WBDGU CO2 Gas Reserves



EXISTING WBDGU (BCF CO2) - Revised Feb. 08					
RESERVOIR	TOTAL OGIP	RECOVERABLE RESERVES (RF = 70%)	FEE SHARE RESERVES (42%)	STATE SHARE RESERVES (38%)	FEDERAL SHARE RESERVES (20%)
Tubb Sand	445	311	130	118	62.00
EXPANDED WBDGU (BCF CO2) - Revised Feb. 08					
RESERVOIR	TOTAL OGIP	RECOVERABLE RESERVES (RF = 70%)	FEE SHARE RESERVES (19%)	STATE SHARE RESERVES (21%)	FEDERAL SHARE RESERVES (11%)
Tubb Sand	928	650	123	136	65
					MITCHELL SHARE RESERVES (50%)
					325

All figures are based on best technical estimates.

September 15, 2010



Americas Production – West Bravo Dome
2010 WBDGU CO2 Gas Reserves



EXISTING WBDGU (BCF CO2) - Revised Sept 2010					
	TOTAL OGIP	RECOVERABLE RESERVES (RF = 70%)	FEE SHARE RESERVES (42%)	STATE SHARE RESERVES (38%)	FEDERAL SHARE RESERVES (20%)
RESERVOIR					
Tubb Sand	442	310	122	125	63
EXPANDED WBDGU (BCF CO2) - Revised Sept 2010					
	TOTAL OGIP	RECOVERABLE RESERVES (RF = 70%)	FEE SHARE RESERVES (19%)	STATE SHARE RESERVES (21%)	FEDERAL SHARE RESERVES (10%)
RESERVOIR					
Tubb Sand	995	697	132	146	70
					MITCHELL SHARE RESERVES (50%)
					348

All figures are based on best technical estimates.

September 15, 2010



2011 Planned Activity

- **Drill additional wells. Presently 43 possible locations. Actual number pending 2010 budget process.**

West Bravo Dome Field – July 30, 2010 Update

Proposed Expanded unit
outline showing pre-2010
completed wells (green)
and wells drilled and
being completed this
year (red).

