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throughout the thesis. Chapters Three and Five contain mostly background material on the Anadarko Basin study and the Pennsylvania study, because analysis and conclusions from these studies can be found in Chapters Six and Seven. The complete New Hampshire and Vermont study is in Chapter Five; it was not submitted for publication. Chapter Four presents the results and conclusions from the Sabine Uplift, East Texas study, which was part of a summer internship at Exxon Production Research, and this study is compared to the basin-scale studies in Chapters Six and Seven.

METHODS

The primary data for the dissertation research are point count data acquired with a method in which CL images and optical microscopy are combined (method modified from Gale, 1985). These data are supplemented by electron microprobe and scanning electron microscopy imaging and major and trace elemental data, stable isotope data on the carbonate cements, and fluid inclusion fluorescence petrography and microthermometry. I used published data on the thermal, pressure, stratigraphic, structural and fluid histories to establish the controls on the observed diagenetic variation.

For accurate quantification of quartz cement abundances and pressure solution contacts, CL imaging is necessary, because it allows an accurate distinction between authigenic and detrital quartz. Except for the Sabine Uplift, East Texas, study, in which I primarily used only polarizing microscopy, I used a point counting method which consists of the following steps: 1) take 18 CL photographs on a Nuclide, Inc. Luminoscope™ (1000 ASA color slide film, 35 second exposures) of designated areas of a thin section, each photograph containing approximately 10-15 grains; 2) project the CL photographs on a screen with 16 grid points; 3) locate the photographed areas on the thin section under the polarizing microscope; 4) identify the phase or pore type at each grid point using both the CL photograph and transmitted and reflected light under the polarizing microscope;

5) measure the length of long and short axes and contact indices (see below) of each of three grains (at additional grid points) in each photograph; 6) add up data, getting a total of 288 compositional points and 54 grain size/contact index points. Figures 1.1 and 1.2 are examples of CL photographs, illustrating quartz cement and intergranular pressure solution contacts.

The advantages of using CL photographs in combination with a polarizing microscope are: 1) better CL resolution due to long photograph exposure times; 2) the ability to use high power objectives, a rotating stage, and reflected light on the polarizing microscope (most luminoscope setups are unable to achieve these advantages); 3) prevention of excessive eye fatigue from looking at dim CL; and 4) reduction of electron beam damage (causing changes in intensity and color of luminescence) on the thin section.

The compositional variables counted for this study include: 1) all phases present, noting whether they are detrital, pore-filling, or grain-replacive, and, for clay minerals, whether they are grain-coating or pore-filling, and, 2) porosity, noting whether it is primary, secondary, and intergranular or intragranular. Compaction processes were quantified with the variable "intergranular volume" and with "contact indices". Intergranular volume (IGV), often called "minus-cement porosity", is the sum of intergranular cements, matrix, and intergranular porosity. In addition to using IGV as a measure of compaction, I measured "contact indices", including the contact index (CI) (Taylor, 1950), which is the total number of grains in contact with the average grain in a sample, and the tight packing index (TPI) (Wilson and McBride, 1988), which is the number of grains in pressure solution contact (long, sutured, or concave-convex) with the average grain in a sample.

Cement textures were characterized with scanning electron microscopy (SEM) and electron microprobe imaging techniques. Major and trace element compositions of some of the authigenic minerals were determined using the energy dispersive spectrometers (EDS) on the SEM and electron microprobe and the wavelength dispersive spectrometers

APPENDIX ABBREVIATIONS

TSID	thin-section well identification code (USGS LIBNO for Green River)
DEPTH	sample depth, in feet
Ro	vitrinite reflectance value
QZMO	monocrystalline quartz
QZPO	polycrystalline quartz
FSKF	potassium feldspar
FSPL	plagioclase feldspar
APAT	detrital apatite
RSCT	sedimentary rock fragment: chert
RSCL	sedimentary rock frag: clay-rich
RSQZ	sedimentary rock frag: quartz-rich
RSCL/QZ	sedimentary rock frag: mixed clay and quartz
RSCB	sedimentary rock frag: carbonate
RMAC	maceral, e.g., woody tissue
FOSL	fossil (detrital biomineralized material)
RMCL	metamorphic rock frag: mica-rich
RMQZ	metamorphic rock frag: quartz-rich
RMMI	metamorphic rock frag: mica grain
HEVY	heavy mineral
MUSC	detrital muscovite
PHOS	detrital phosphatic material
PYRI	detrital pyrite, or, possibly pyrite replacing detrital grain
MCGC	detrital matrix, grain-coating
MCPF	detrital matrix: pore-filling
CQTZ	quartz cement
CCAL	calcite cement
CDOL	dolomite cement
CSID	siderite cement
CANK	ankerite cement
CFLD	feldspar cement
CFEO	iron oxide cement
CPYR	pyrite cement
CCUN	unidentifiable clay cement
CCKO	kaolinite cement
CCIS	illite/smectite cement
CCCH	chlorite cement
CMUSC	muscovite cement, i.e., more well-crystallized & coarser than illite
CHCR	dead oil, pyrobitumen
C??	pink luminescing, isotropic, fine-grained, pore-filling, unidentified cement, mixed with bitumen in some cases
CGLA	glauconite cement
RCAL	grain-replacing calcite
RDOL	grain-replacing dolomite
RCLY	grain-replacing clay mineral
RFEO	grain-replacing iron oxide
RPYR	grain-replacing pyrite
R??	grain-replacing material similar to C?? (see above)
PIGP	intergranular primary porosity

PIGS	intergranular secondary porosity
PFLS	intragranular second. pore: in feldspar grain
PRFS	intragranular second. pore: in rock frag.
PORS	intragranular second. pore.: unidentifiable
PTOT	total porosity
TOTL	percentage total constituents after rounding to the nearest tenth
IGV	intergranular volume
CGCTOT	total of grain-coating clays
COUNTS	number of points counted
GRSZ	grain size, long and short dimensions, in microns, unless otherwise noted
STD DEV	standard deviation of grain size measurements
CI	contact index
TPI	tight packing index
DUCT	percentage ductile grain tight contacts
tpi+duct	total tight contacts, i.e., both TPI and DUCT

COTTON VALLEY SPREADSHEET ONLY:

MEMB	member
API #	API well reference number
LSF	lower shoreface facies
BS	backshore facies
USF	upper shoreface facies
OS	offshore facies
LG	lagoonal facies
PETR	petrographer (for Cotton Valley samples only; otherwise, all WNS)
WNS	W. Naylor Stone
JOS	John O. Szabo
KMC	Kirt M. Campion
MDW	Michael D. Wilson
JCVW	John C. Van Wagoner
DHH	Daniel H. Horowitz
RFUN	rock fragment unidentified
RVFS	rock fragment, volcanic
RMUN	rock fragment, metamorphic, unidentified
RMMP	rock fragment, metamorphic, muscovite-poor
RMMR	rock fragment, metamorphic, muscovite-rich
MXUN	unidentified matrix
MXCL	clay matrix (pore-fill & grain-coat undifferentiated)
MXSI	siliceous matrix
MXCB	fine-grained carbonate matrix
MXOR	other matrix
RUNI	grain-replacive cement, unidentified
RSID	grain-replacive siderite cement
RSIL	grain-replacive siliceous cement (e.g., chert)
RCHL	grain-replacive chlorite

Note: when a given component is absent from appendix, column is deleted

TSID/DEPTH	Ro	DEPTH, ft	FORMATION	WELL NAME	SEC-TWP-RGE
71730/17399		17399	WEBER	A544-TEXACO TABLE ROCK	02-19N-98W
71725/17072		17072	WEBER	A544-TEXACO TABLE ROCK	02-18N-98W
S817.01	0.78	11864	NUGGET	CHAMPLIN 5 BRADY UNIT 11-11	11-16N-101W
B087/7809.5	0.69	7809.5	TENSLEEP	GEN'L AMER 1-6 OLSON SPR	06-26N-95W
A544.01/17399	1.46	17399	WEBER	TEXACO TABLE ROCK	02-19N-98W
71725/17072	1.42	17072	WEBER	A544-TEXACO TABLE ROCK	02-19N-98W
71727/17195	1.44	17195	WEBER	A544-TEXACO TABLE ROCK	02-19N-98W
71728/17271	1.44	17271	WEBER	A544-TEXACO TABLE ROCK	02-19N-98W
71729/17320	1.45	17320	WEBER	A544-TEXACO TABLE ROCK	02-19N-98W
A492/11087.5	1.54	11087.5	TENSLEEP	AM QUASAR #1 BROWNING FED	13-14N-91W
C218/22458.3	2.03	22458.3	NUGGET	RAINBOW RES 1-34 FD PACIFIC CR	34-27N-103W
A742/13944.3	1.272	13944.3	WEBER	CHAMPLIN 13-W BRADY	02-16N-101W
B032/15839	1.284	15839	NUGGET	CHAMPLIN 2 HIGGINS UNIT 33-21	21-18N-98W
A742/13804.2	1.259	13804.2	WEBER	CHAMPLIN 13-W BRADY	02-16N-101W
C868/17859	1.84	17859	WEBER	MTN FUEL 1 BUTCHER KNIFE SPR	29-15N-112W
C890/16475.5	1.6	16475.5	TENSLEEP	PAN AM PET 7 JIM SPRINGS UNIT	11-12N-103W
C828/10117.5	1.49	10117.5	TENSLEEP	31-31 DEEP CREEK	31-16N-90W
B087/7857	0.7	7857	TENSLEEP	GEN'L AMER 1-6 OLSON SPRINGS	06-26N-95W
C890/16465.5	1.6	16465.5	TENSLEEP	PAN AM PET 7 JIM SPRINGS	11-12N-103W
A775\17776.3	1.9	17776.3	NUGGET	CHAMPLIN #2 USA SHELL CR	27-12N-99W
D037\6502.5	0.75	6502.5	WEBER	MTN FUEL #4 UPRR	11-19-104W
B630\14287	1.34	14287	NUGGET	WOODS #1 LEO UNIT II	20-15N-111W
B630\14287	1.34	14287	NUGGET	WOODS #1 LEO UNIT II	20-15N-111W
A821\15776.5	1.518	15776.5	NUGGET	CHAMPLIN 3 HIGGINS	14-17N-99W
B087/5948.5	0.477	5948.5	NUGGET	GEN'L AMER 1-6 OLSON SPR	06-26N-95W
A741/14485	1.327	14485	WEBER	CHAMPLIN 18 BRADY	13-16N-101W
A492/11052.5	1.54	11052.5	WEBER	AMER QUASAR 1 BROWNING FED	13-14N-91W
C218/22437	2.03	22437	NUGGET	RAINBOW RES 1-34 FED PACIF CK	34-27N-103W
A775/17782	1.9	17782	NUGGET	CHAMPLIN 2 USA SHELL CR	27-12N-99W
B045/4836	0.689	4836	TENSLEEP	TESORO 1 SKYLINE FED	28-19N-88W
A502/4634	0.621	4634	NUGGET	HILLIARD O&G 2 FED JOYCE CR	08-15N-103W
B032/15878	1.288	15878	NUGGET	CHAMPLIN 2 HIGGINS UNIT 33-21	21-18N-98W
A821/15855	1.528	15855	NUGGET	CHAMPLIN 3 HIGGINS	14-17N-99W
B106/15590	1.742	15590	WEBER	SUPERIOR OIL 4 MILE UNIT 1	03-11N-91W
DO37/6409.5	0.739	6409.5	WEBER	MTN FUEL SUPPLY 4 UPRR	11-19N-104W
C828/10068	1.489	10068	TENSLEEP	TRUE OIL 31-31 DEEP CREEK	31-16N-91W
B087/5988	0.482	5988	NUGGET	GEN'L AMER 1-6 OLSON SPR	06-26N-95W
A741/14290	1.307	14290	WEBER	CHAMPLIN 18 BRADY	13-16N-101W
S817/11591	0.749	11591	NUGGET	CHAMPLIN 5 BRADY UNIT 11-11	11-16N-101W
B045/4794.5	0.684	4794.5	TENSLEEP	TESORO 1 SKYLINE FED	28-19N-88W
E032/11746	0.768	11746	NUGGET	CHAMPLIN 21-11 BRADY UNIT 1	11-16N-101W
A502/4692	0.626	4692	NUGGET	HILLIARD O&G 2 FED JOYCE CR	08-15N-103W
EO32/11756	0.77	11756	NUGGET	CHAMPLIN 21-11 BRADY UNIT 1	11-16N-101W
ELWW/13100.9	1.2	13100.9	ERICSON	EL PASO WAGON WHEEL 1	05-30N-108W
ELWW/13104.1	1.2	13104.1	ERICSON	EL PASO WAGON WHEEL 1	05-30N-108W
S975/10492	0.971	10492	NUGGET	CHEVRON 33-31B PAINTER RES	31-16N-119W
S975/10074	0.904	10074	NUGGET	CHEVRON 33-31B PAINTER RES	31-16N-119W
FRNT/15763	?	15763	FRONTIER	WELL AND LOCATION UNKNOWN	
FRNT/15775	?	15775	FRONTIER	WELL AND LOCATION UNKNOWN	
B015/11075	1.223	11075	NUGGET	MOBIL 13-31 HOGSBACK	31-27N-113W
B015/11026	1.218	11026	NUGGET	MOBIL 13-31 HOGSBACK	31-27N-113W
A743/11292	0.934	11292	NUGGET	BELCO 4-4 HOBACK 111 UNIT	04-28N-115W
A743/11283.5	0.933	11283.5	NUGGET	BELCO 4-4 HOBACK 111 UNIT	04-28N-115W
A421/10966	1.048	10966	NUGGET	MTN FUEL 18 UNIT	10-27N-114W
A421/11259	1.095	11259	NUGGET	MTN FUEL 18 UNIT	10-27N-114W
B427/9392.5	0.792	9392.5	NUGGET	LADD PET 1-16 MOHAWK STATE	16-16N-119W
B427/9395.5	0.793	9395.5	NUGGET	LADD PET 1-16 MOHAWK STATE	16-16N-119W

TSID/DEPTH	QZMO	QZPO	FSKF	FSPL	APAT	RSCT	RSCL	RSQZ	RSCB	RMCL	RMQZ
71730/17399	71		4.3								
71725/17072	62.7	0.7	5.7			0.3					
S817.01	63.5	0.5	12.7	1		0.5	0.5				
B087/7809.5	54.5		4.9			0.3	0.7				
A544.01/17399	72.7		0.7	0.7							
71725/17072	71.5	0.9	2.6								
71727/17195	68.3		3.7								0.3
71728/17271	68		4								
71729/17320	70.7		7					1			
A492/11087.5	76.3		1	0.3			0.3				
C218/22458.3	71.7		4.3	0.7			0.3				
A742/13944.3	78.8		4.9				0.3				
B032/15839	79.5	1.4	3.5			0.3					
A742/13804.2	71.9		2.8								0.3
C868/17859	71.5		7.3								
C890/16475.5	63.9		4.5						0.7		0.7
C828/10117.5	68.4	0.3	4.5				0.3		1.7		
B087/7857	64.9	0.3	5.2	0.3							
C890/16465.5	64.6		4.2			0.7					
A775\17776.3	59.9					0.5	5.2				
D037\6502.5	71.4		6.2								
B630\14287	70.8					4.2					
B630\14287	71.2					1.4					
A821\15776.5	75.4		2.2	0.4		0.9	0.4				
B087/5948.5	55.7	0.5	10.9			0.5	2.1				
A741/14485	72.9		3.1								
A492/11052.5	70.8		1.4						0.7		
C218/22437	66.7		8								0.3
A775/17782	64.9	0.7	1.7			0.3	0.3				
B045/4836	65.3		3.8								
A502/4634	61.8	0.7	10.4								1
B032/15878	71.2	0.3	8.7	0.3						1.7	
A821/15855	72.6		6.9								
B106/15590	68.8		2.4								
DO37/6409.5	68.4		5.9								
C828/10068	74		4.5								1
B087/5988	69.1		4.9			1					
A741/14290	70.5		0.7								
S817/11591	66.3	1.7	3.1			1.4					1.4
B045/4794.5	65.3	0.3	2.8								
E032/11746	71.5	1	3.1								0.7
A502/4692	69.8	1	6.2								
EO32/11756	65.3	2.8	9.7			0.7					
ELWW/13100.9	58.7	0.7				9.4	3.8				
ELWW/13104.1	62.2	3.8				3.1	5.9				
S975/10492	60.8	1.4	11.8								
S975/10074	71.5	0.3	6.9								2.1
FRNT/15763	71.9	0.7				0.7					
FRNT/15775	71.5	0.3	0.3				1.7				
B015/11075	68.8	1	7.3								1
B015/11026	69.8	2.1	6.6							0.7	
A743/11292	70.8	1	6.6								0.3
A743/11283.5	67.4	1.7	6.6	0.3		0.3					
A421/10966	72.9	2.1	6.9	1	0.3	1					
A421/11259	64.2	2.8	10.1			1.4					
B427/9392.5	66.7		6.6								3.1
B427/9395.5	64.6	2.1	8.3							1.7	

TSID/DEPTH	RMMI	HEVY	MCGC	MCPF	CQTZ	CCAL	CDOL	CSID	CFLD	CFEO	CPYR
71730/17399					10		12.3			0.7	0.3
71725/17072					9		20.3			1.3	
S817.01			3.1		11.1				0.5		
B087/7809.5					6.2		6.2		1.4		0.3
A544.01/17399					14.3		3		0.7		
71725/17072					15.8		7.4			1.8	
71727/17195					26.7		0.3				
71728/17271					10.7		1.3			7	
71729/17320			0.7	0.7	11		8.3			0.7	
A492/11087.5			0.7		18.3		1.3			0.7	0.3
C218/22458.3			0.7		15		3		0.3	0.7	0.3
A742/13944.3					6.2		1		0.7		
B032/15839			2.1		10.1					1.7	
A742/13804.2					10.1		6.6			3.5	
C868/17859					16.7				0.3		
C890/16475.5					21.9		0.3			0.3	
C828/10117.5			0.5		19.8	2.4			0.7		
B087/7857					6.6	0.6			1		
C890/16465.5			1.4		18		3.1		0.3		
A775\17776.3		0.5	1.6		24						
D037\6502.5					7.3		2.1				
B630\14287					22.9						
B630\14287					4.8						
A821\15776.5			0.4		20.5						
B087/5948.5					4.7						
A741/14485	0.3				12.5	4.9			0.3		0.3
A492/11052.5					24.7	1.4			0.3		
C218/22437					20.8				1.7		
A775/17782					22.6						
B045/4836					10.8		0.7				
A502/4634	0.3				10.4		1.7		2.8		
B032/15878					10.4		0.7		0.3		
A821/15855					17.7		0.3		0.3		
B106/15590					17	3.8	3.8				0.3
DO37/6409.5					1.7	5.2			2.4		
C828/10068					8.3		0.3		1		0.7
B087/5988					1.7						
A741/14290					4.9	3.8			0.7		
S817/11591					13.9		1.7				
B045/4794.5		0.3			13.2		4.5		0.7		
E032/11746					4.2		1.4				
A502/4692					3.8				3.1		
EO32/11756					5.2		0.3		0.7		
ELWW/13100.9					19.1						
ELWW/13104.1		0.3			17						
S975/10492					8.7				1		0.3
S975/10074					2.4				1		
FRNT/15763					10.4						
FRNT/15775					6.2					0.3	
B015/11075					7.3				1.7		
B015/11026					3.8				0.7		
A743/11292					3.1				0.3		0.3
A743/11283.5					0	1			2.1		
A421/10966					5.6				0.7		
A421/11259					3.1				1.4		
B427/9392.5					2.4	2.1					
B427/9395.5					1.7						

TSID/DEPTH	CCUN	CCKO	CCIS	CCCH	CHCR	RCAL	RDOL	RCLY	RPYR	PIGP	PFLS
71730/17399										1.3	
71725/17072											
S817.01								1.6		4.2	
B087/7809.5					2.8		7.3			11.8	
A544.01/17399							7.7				
71725/17072											
71727/17195										0.7	
71728/17271										7	2
71729/17320											
A492/11087.5			0.3							0.3	
C218/22458.3			2					1			
A742/13944.3			0.3		1		0.3			6.2	
B032/15839			0.3		0.3					1.4	
A742/13804.2							2.1			2.8	
C868/17859										3.5	0.7
C890/16475.5							0.7			4.2	
C828/10117.5										1.4	
B087/7857			0.3			0.3			0.3	18	
C890/16465.5							5.9			1	
A775\17776.3	3.6							2.1		2.1	
D037\6502.5					0.5		2.1			10.4	
B630\14287	0.7										
B630\14287				4.8				1.4		15.4	
A821\15776.5											
B087/5948.5			3.1					1		13	
A741/14485			0.3		1.7	1				2.4	
A492/11052.5										0.7	
C218/22437			0.7				0.7			1	
A775/17782			1.4							4.2	
B045/4836							3.1			11.4	
A502/4634			0.3				1.4	1		4.5	
B032/15878			3.1							1.4	
A821/15855			0.3							1.7	
B106/15590			0.7		1.7		0.3			1	
DO37/6409.5						4.2				10.1	
C828/10068			1			0.3				4.2	
B087/5988		0.7	0.3					0.3		20.5	
A741/14290					0.7		0.7			15.6	
S817/11591			0.3				0.3			8.7	
B045/4794.5			0.7		7.3		3.1			1.4	
E032/11746			2.1							14.9	
A502/4692										10.1	
EO32/11756			1.7		0.7		0.7			11.4	
ELWW/13100.9		2.8	0.3		2.4					2.4	
ELWW/13104.1		1	1.4					0.7		1	
S975/10492			1							11.1	
S975/10074			1.7							10.8	
FRNT/15763		3.8								9.4	
FRNT/15775		2.4						1.4		11.8	
B015/11075			0.3							10.8	
B015/11026							0.3			14.6	
A743/11292	0.7		1.4						0.3	13.9	
A743/11283.5										18.8	
A421/10966										9	
A421/11259			1							14.2	
B427/9392.5			1		0.3					16.7	
B427/9395.5			3.1							17.7	

TSID/DEPTH	PRFS	PORS	PTOT	TOTL	IGV	CGCTOT	COUNTS
71730/17399			1.3	99.9	24.6	0	300
71725/17072			0	100	30.6	0	300
S817.01		0.5	4.7	99.7	18.4	3.1	189
B087/7809.5	0.7	2.8	15.3	99.9	28.7	0	288
A544.01/17399		0.3	0.3	100.1	18	0	300
71725/17072			0	100	25	0	228
71727/17195			0.7	100	27.7	0	300
71728/17271			9	100	26	0	300
71729/17320			0	100.1	21.4	0.7	300
A492/11087.5			0.3	99.8	21.9	0.7	300
C218/22458.3			0	100	22	2.7	300
A742/13944.3			6.2	99.7	15.4	0	288
B032/15839			1.4	100.6	15.9	2.1	288
A742/13804.2			2.8	100.1	23	0	288
C868/17859			4.2	100	20.5	0	288
C890/16475.5		2.8	7	100	26.7	0	288
C828/10117.5			1.4	100	24.8	0.5	288
B087/7857		1.7	19.7	99.5	26.5	0	288
C890/16465.5		0.7	1.7	99.9	23.8	1.4	288
A775\17776.3		0.5	2.6	100	31.3	1.6	192
D037\6502.5			10.4	100	20.3	0	192
B630\14287	1.4		1.4	100	23.6	0	144
B630\14287	1		16.4	100	25	2.9	208
A821\15776.5			0	100.2	20.9	0.4	224
B087/5948.5	1	7.3	21.3	99.8	20.8	2.1	192
A741/14485			2.4	99.7	22.4	0	288
A492/11052.5			0.7	100	27.1	0	288
C218/22437			1	99.9	24.2	0.7	288
A775/17782		3.8	8	99.9	28.2	0.7	288
B045/4836		4.9	16.3	100	22.9	0	288
A502/4634		3.5	8	99.8	19.7	0.3	288
B032/15878		1.7	3.1	99.8	15.9	2.8	288
A821/15855			1.7	99.8	20	0.3	288
B106/15590			1	99.8	28.3	0	288
DO37/6409.5		2.1	12.2	100	19.4	0	288
C828/10068		4.5	8.7	99.8	15.5	1	288
B087/5988	0.7	0.3	21.5	99.5	23.2	0.3	288
A741/14290		2.4	18	100	25.7	0	288
S817/11591		1	9.7	99.8	24.6	0.3	288
B045/4794.5		0.3	1.7	99.9	27.8	0.7	288
E032/11746		1	15.9	99.9	22.6	0.7	288
A502/4692		5.9	16	99.9	17	0	288
EO32/11756		0.7	12.1	99.9	20	1.7	288
ELWW/13100.9		0.3	2.7	99.9	27	0	288
ELWW/13104.1		3.5	4.5	99.9	20.4	0.7	288
S975/10492		3.8	14.9	99.9	22.1	1	288
S975/10074		3.1	13.9	99.8	15.9	1.7	288
FRNT/15763		3.1	12.5	100	23.6	0	288
FRNT/15775		3.8	15.6	99.7	20.7	0	288
B015/11075		1.7	12.5	99.9	20.1	0.3	288
B015/11026		1.4	16	100	19.1	0	288
A743/11292		1	14.9	99.7	19.7	1.4	288
A743/11283.5		1.7	20.5	99.9	21.9	0	288
A421/10966		0.3	9.3	99.8	15.3	0	288
A421/11259		1.7	15.9	99.9	19.7	1	288
B427/9392.5		1	17.7	99.9	22.5	0.7	288
B427/9395.5		0.7	18.4	99.9	22.5	3.1	288

TSID/DEPTH	COMMENTS	GRSZ, long	STD DEV	GRSZ, shrt
71730/17399	SOME CDOL REPLCV; CQTZ ID MOD DIFF			
71725/17072	FINE LAYERS; SOME CDOL REPLACIVE			
S817.01	CFLD IS FRACTURE FILL			
B087/7809.5				
A544.01/17399	RDOL VS CDOL DETERMINED AT EACH PT			
71725/17072	COARSE LAYERS; CDOL NOT REPLACIVE			
71727/17195				
71728/17271	CFEO=MIXED HEMATITE & ORGANIC?			
71729/17320	RSQZ=QUARTZ/MICA META FRAG			
A492/11087.5	CLIS IS PORE FILL	174.47		
C218/22458.3	RCLY INCL 2 KAOL. REP OF FELD	213.44		
A742/13944.3	CCIS IS PORE FILL	181.44		
B032/15839	CCIS IS PORE FILL	265.54		
A742/13804.2	CFEO MAY BE CHCR, OR MIXED	143		
C868/17859	FSDF HIGHLY ALTERED, MANY FLUIDINC	120.1		
C890/16475.5	CHECK CARBONATE COMPOSITION	160		
C828/10117.5	CHK CARB COMP	131.85		
B087/7857	" ", CCIS IS PORE FILL	159.41		
C890/16465.5		124.87		
A775\17776.3	CCUN IS POREFILL; PIGP IS MICROPOR	118.25		
D037\6502.5		157		
B630\14287	CEMENT LAYERS;PRFS-CHRT;CCUN-PORFIL	266.67		
B630\14287	UNCEMENT LAYERS; CCCH-2.9%GC,1.9%PF	283.05		
A821\15776.5		376.4		
B087/5948.5	CCIS:2.1-GC,1-PF	146.08		
A741/14485	CCIS IS POREFILL	206.87	81.68	
A492/11052.5		161.94	51.96	
C218/22437	RDOL IN FSKF; CCIS IS GRNCOAT	170.85	56.06	
A775/17782	FSKF: ALBITIZD; CCIS: .7 GC; .7 PF	170.22	44.68	120.18
B045/4836	SOME PORS IS IN FSKF	161.04	39.56	91.54
A502/4634	SOME CARB NONLUM; RCLY:.3I/S;.7KAOL	141.68	93.32	99.42
B032/15878	CCIS: 2.8 GC; .3 PF	160.92	94.05	109.78
A821/15855	CDOL: LUM & NONLUM; CCIS IS GC	227.41	62.45	139.63
B106/15590	PART LAMD; IRREG DIST HI IGV CCAL;CCIS-PF	254.02	115.83	168.87
DO37/6409.5		136.98	37.28	88.39
C828/10068	CONTAINS TWO CARB TYPES?	120	31.47	76.91
B087/5988	SOME PLUCK GRNS; PORS IN QTZ; CCIS-GC	284.26	117.27	180.92
A741/14290	PIGP POSS. SECONDRY INTER	169.07	79.33	110.96
S817/11591	C&RCARB IS ANKERITE; PIGP LOOKS SEC;CCIS-GC	232.76	148.5	154.52
B045/4794.5	CCIS IS GC; CHCR HAS LT PURP LUMIN	125.07	39.64	78.26
E032/11746	CCIS: .7-GC; 1.4 PF&BRIDGE; CCARB, LUM&NON	249.11	83.15	152.41
A502/4692		151.68	55.99	106.04
EO32/11756	CCIS-GC; RDOL IS ANKERITE	124.07	55.24	77.52
ELWW/13100.9	CCIS-PF; SOME RSCL IS HIGHLY MICROPOROUS	187.2	60.89	116.06
ELWW/13104.1	CCIS-.7PF,.7GC; RSCT,RSCL-MICROPORE;RCLY-KAO	253.46	74.22	164.92
S975/10492	CCIS-GC	114.87	34.73	73.48
S975/10074	CCIS IS GRAIN COATING; RMQZ ALSO CLAY	196.13	55.2	117.17
FRNT/15763		289.57	78.26	192.44
FRNT/15775	CFEO: W/CHCR & ON STYL; RCLY: KAOL	271.48	74.02	183.06
B015/11075	CCIS-GC	173.87	70.45	116.8
B015/11026		215.3	96.22	148
A743/11292	CCIS-GC; CCUN-PF, LOW BIREF	278.61	76.04	182.54
A743/11283.5		258.61	63.23	165.74
A421/10966		236.57	121.29	157.35
A421/11259	CCIS-GC	173.83	42.99	110.5
B427/9392.5	CCIS: .7 PF, .3 GC	176.07	86.28	109.15
B427/9395.5	CCIS IS GC	152.63	61.41	100.89

TSID/DEPTH	STD DEV	CI	TPI	DUCT	TPI+DUCT	FRAC
71730/17399						
71725/17072						
S817.01						
B087/7809.5						
A544.01/17399						
71725/17072						
71727/17195						
71728/17271						
71729/17320						
A492/11087.5		3.36	1.61		1.61	
C218/22458.3		3.58	1.47	0.17	1.64	
A742/13944.3		3.56	2.3		2.3	
B032/15839		4.35	3.65		3.65	
A742/13804.2		3.1	1.6		1.6	5.6
C868/17859		3.57	1.02		1.02	1.8
C890/16475.5		2.28	0.56		0.56	1.8
C828/10117.5		2.57	0.907		0.907	3.7
B087/7857		2.48	0.963		0.963	1.8
C890/16465.5		2.61	0.68		0.68	
A775\17776.3		1.97	0.25	0.11	0.36	
D037\6502.5		2.58	1.17		1.17	
B630\14287		2.33	0.48		0.48	
B630\14287		2.9	1.15		1.15	17.9
A821\15776.5		3.95	2.62		2.62	9.5
B087/5948.5		3.67	1.19	0.08	1.27	11.1
A741/14485		3.72	1.87		1.87	
A492/11052.5		2.94	1.33		1.33	5.6
C218/22437		3.52	1.57		1.57	0
A775/17782	35.94	2.61	0.59		0.59	3.7
B045/4836	25.17	2.87	0.81		0.81	3.7
A502/4634	72.69	3.87	1.65		1.65	3.7
B032/15878	68.07	5.04	2.41	0.02	2.43	13
A821/15855	44.26	3.56	1.2		1.2	14.8
B106/15590	76	2.85	0.46		0.46	1.7
DO37/6409.5	30.46	3.09	1.06		1.06	1.8
C828/10068	23.75	3.85	2.11		2.11	1.8
B087/5988	78.01	4.14	0.63		0.63	18.5
A741/14290	54.94	2.83	0.39		0.39	1.8
S817/11591	104.3	3.46	0.52		0.52	1.8
B045/4794.5	25.75	2.92	0.65		0.65	1.8
E032/11746	56.43	3.44	1.24	0.02	1.26	7.4
A502/4692	46.54	4.02	1.72		1.72	0
EO32/11756	30.77	4.17	1.98	0.07	2.05	1.8
ELWW/13100.9	43.35	3.41	0.5	0.3	0.8	1.8
ELWW/13104.1	53.46	3.52	0.68	0.26	0.94	3.7
S975/10492	23.57	3.76	1.33		1.33	1.8
S975/10074	31.2	3.89	1.63		1.63	9.2
FRNT/15763	51.51	2.74	0.46		0.46	5.6
FRNT/15775	58.05	3.17	0.83		0.83	5.6
B015/11075	50.12	3.87	0.92	0.02	0.94	5.6
B015/11026	80.5	4.42	1.15		1.15	1.8
A743/11292	49.43	3.96	1.89		1.89	9.2
A743/11283.5	46.94	4.04	1.74		1.74	3.7
A421/10966	84.72	5.09	2.33		2.33	3.7
A421/11259	27.64	3.61	1.3		1.3	1.8
B427/9392.5	47.47	4.06	0.91	0.15	1.06	3.7
B427/9395.5	44.62	3.68	1.31	0.15	1.46	0

Well I.D.	Depth, ft.	Ro	Tmax, from Ro	d13C	d18Opdb	d18Osmow	d18Ow@30
EO32	11756	0.77	123.136281	-3.427	-10.329	20.21225	-7.14775
C890	16475.5	1.6	213.31734	-1.54	-13.677	16.76093	-10.5991
B427	9392.5	0.792	126.609878	-4.445	-17.416	12.90654	-14.4535
B106	15590	1.742	223.801958	-21.273	-8.086	22.52447	-4.83553
A492	11087.5	1.54	208.60449	-3.139	-3.818	26.92418	-0.43582
B427	9395.5	0.793	126.765468	-3.924	-17.534	12.7849	-14.5751
A743	11275.5	0.933	146.812567	-2.658	-4.716	25.99846	-1.36154
A544	17072	1.42	198.601341	-3.16	-9.281	21.29259	-6.06741
A741	14290	1.307	188.376626	-14.378	-10.067	20.48233	-6.87767
A741	14485	1.327	190.249168	-0.83	-13.262	17.18873	-10.1713
B015	11026	1.218	179.680662	-4.048	-14.421	15.99397	-11.366
A742	13804	1.259	183.762978	-3.178	-11.722	18.77626	-8.58374

NOTE: last column is calculated d18Osmow of water in equil. w/ calcite at 30 C

Well I.D.	Depth, ft	Ro	Tmax, from R	d13C	18Omeas	corr factor	d18Opdb	d18Osmow	d18Ow@30	d18Ow@60	d18Ow@80	d18Ow@100	d18Ow@140	d18Ow@Tmax
B045	4794	0.68	108.533	-3.055	-2.259	5.703	-3.218	27.542	-5.778	0.2125	3.3825	6.06246	10.2925	7.076798
C868	17833	1.84	230.5506	0.442	-8.311	-0.397	-9.264	21.31	-12.01	-6.02	-2.85	-0.1703	4.0597	10.19708
A742	13804	1.26	183.763	-1.662	-0.446	7.5304	-1.407	29.41	-3.91	2.0796	5.2496	7.92961	12.1596	15.5817
C828	10068	1.49	204.4519	-2.688	-1.39	6.5789	-2.35	28.437	-4.883	1.1074	4.2774	6.95742	11.1874	15.9087
A742	13944	1.27	185.0297	-1.637	-0.219	7.7593	-1.18	29.643	-3.677	2.3134	5.4834	8.16339	12.3934	15.90012
B087	7809.5	0.69	109.6099	-1.668	2.419	10.418	1.4553	32.36	-0.96	5.0302	8.2002	10.8802	15.1102	12.01795
A544	17320	1.45	201.1792	-1.374	1.675	9.6684	0.712	31.594	-1.726	4.264	7.434	10.114	14.344	18.871
C890	16466	1.6	213.3173	-2.185	-5.691	2.2436	-6.647	24.008	-9.312	-3.322	-0.152	2.52795	6.75795	11.9859
B032	15888	1.29	186.571	-3.134	-8.943	-1.034	-9.896	20.659	-12.66	-6.671	-3.501	-0.8212	3.40882	7.017582
B045	4836	0.69	109.4311	-0.787	-3.869	4.0801	-4.827	25.884	-7.436	-1.446	1.7244	4.40437	8.63437	5.521712
D037	6409.5	0.74	118.0694	-2.104	2.814	10.816	1.8499	32.767	-0.553	5.437	8.607	11.287	15.517	13.35914
B106	15585	1.74	223.6603	-10.76	-8.655	-0.744	-9.608	20.955	-12.36	-6.375	-3.205	-0.5246	3.70542	9.490532
C218	22458	2.03	242.6678	-2.894	-14.31	-6.448	-15.26	15.127	-18.19	-12.2	-9.033	-6.3526	-2.1226	4.600391
B087	7852.5	0.7	111.3841	-1.778	-17.27	-9.43	-18.22	12.081	-21.24	-15.25	-12.08	-9.399	-5.169	-8.06011
S817	11591	0.75	119.7267	-3.162	-13.22	-5.351	-14.17	16.249	-17.07	-11.08	-7.911	-5.2311	-1.0011	-2.9829
A544	17072	1.42	198.6013	-2.639	-0.892	7.0809	-1.853	28.95	-4.37	1.6203	4.7903	7.47029	11.7003	16.07146
A502	4634	0.62	96.61847	-2.338	-8.418	-0.505	-9.371	21.199	-12.12	-6.131	-2.961	-0.2805	3.9495	-0.70451
A544	17399	1.46	202.0267	-1.309	-3.21	4.7444	-4.168	26.563	-6.757	-0.767	2.4031	5.08306	9.31306	13.89078
D037	6502.5	0.75	119.8912	-1.951	1.402	9.3932	0.4393	31.313	-2.007	3.9828	7.1528	9.83281	14.0628	12.09835
B106	15590	1.74	223.802	-6.112	-2.805	5.1526	-3.764	26.98	-6.34	-0.35	2.8202	5.50015	9.73015	15.52265

Note: last 6 columns give calculated d18Owater in equil. w/ dol. at various Ts

SAMPLE	CHIP	FRAC/O.G.	VIEW & #	SIZE, microns	Th	+-
A775/17776.3	A	FRAC	NONE	?	222	0.2
A775/17776.3	A	FRAC	1	?	191.2	?
A775/17776.3	A	FRAC	2	?	206.8	?
A775/17776.3	A	FRAC	3	?	206.8	?
A775/17776.3	A	FRAC	C-1	3 X 1.75	217.6	-5
A775/17776.3	A	FRAC	C-2	4 X 2	223.4	-4
A775/17776.3	A	FRAC	C-3	3 X 2	212.3	-2.3
A775/17776.3	A	FRAC	C-4	3.25 X 1.5	191.4	0.1
A775/17776.3	A	FRAC	D-1	3 X 1	109.4	-3
A775/17776.3	A	FRAC	E-1	2 X 1.75	216	-3
A775/17776.3	A	FRAC	E-2	6 X 4	216	-3
A775/17776.3	B	O.G.	A-1	2 X 1.25	190	0.9
A775/17776.3	B	O.G.	A-2	1.5 X 1.25	190	2
A775/17776.3	B	O.G. ?	B-1	2 X 1.75	155.9	-1.8
A775/17776.3	B	O.G. ?	B-2	1.5 X 1.25	147	-1.3
A775/17776.3	B	DETRITAL	B-3	3.25 X 2.5	150.4	?
A544/17044	A	O.G.	A-1	2 X ?	184.2	-2.2
A544/17044	A	O.G.	A-2	1.5 X ?	184.2	-2.2
A544/17044	A	O.G.	A-3	1.5 X ?	191.5	?
A544/17044	A	O.G. ?	B-1	9 X ?	142.3	?
A544/17044	A	O.G.	C-1	1.25 X ?	139	2
A544/17044	A	O.G.	C-2	3 X ?	144.5	1.2
A544/17044	A	O.G.	C-3	1.25 X ?	140.8	-4.1
A544/17044	A	O.G.	C-4	1.25 X ?	141.4	-6
A544/17044	A	O.G.	C-5	3 X 2	134	-1.4
A544/17044	B	O.G.	A-1	2.5 X 2.5	199.9	-0.9
A544/17044	B	O.G.	A-2	1.5 X 1	172	-1
A544/17044	B	O.G.	B-1	1.25 X ?	161.5	+.2 -.
A544/17044	B	O.G.	B-2	3.5 X 1.25	199.1	-6
A544/17044	B	O.G.	B-3	1.25 X ?	229.4	-0.4

Frac/O.G.=fracture fill vs overgrowth