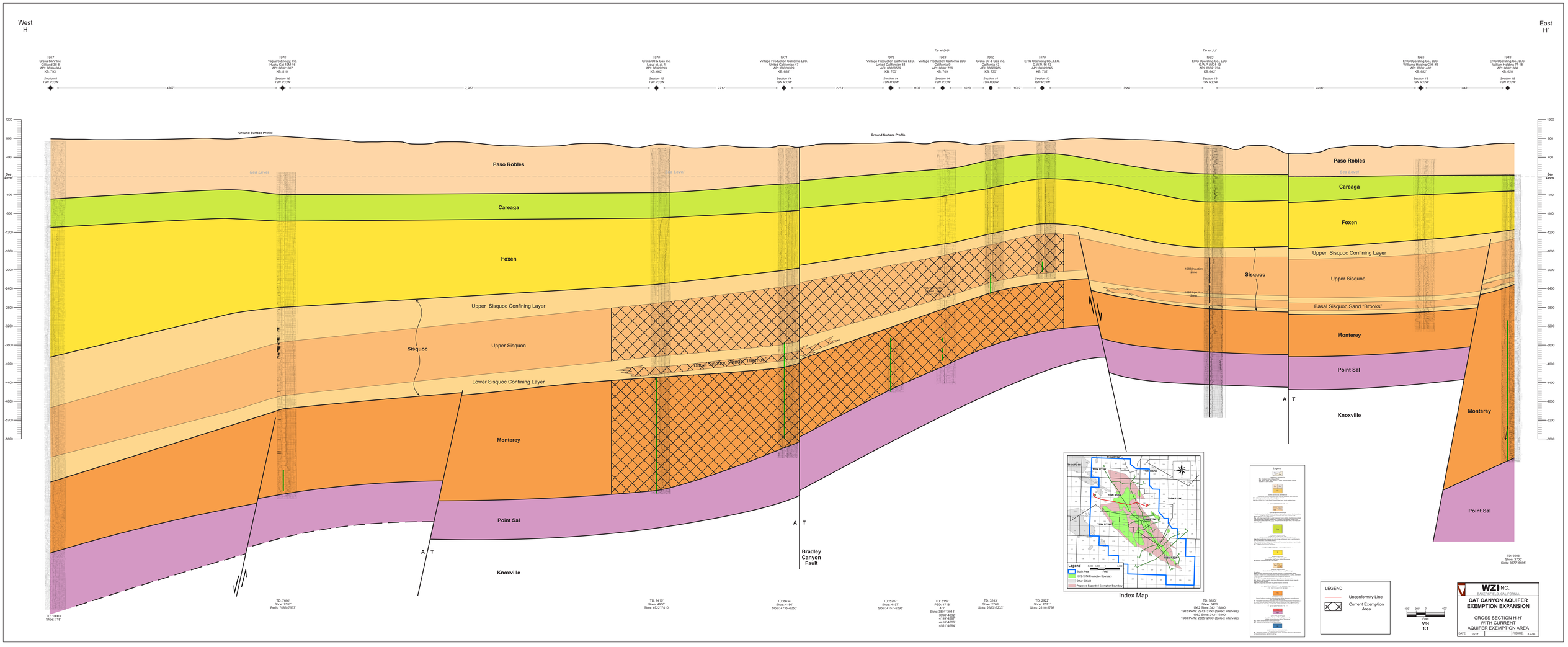
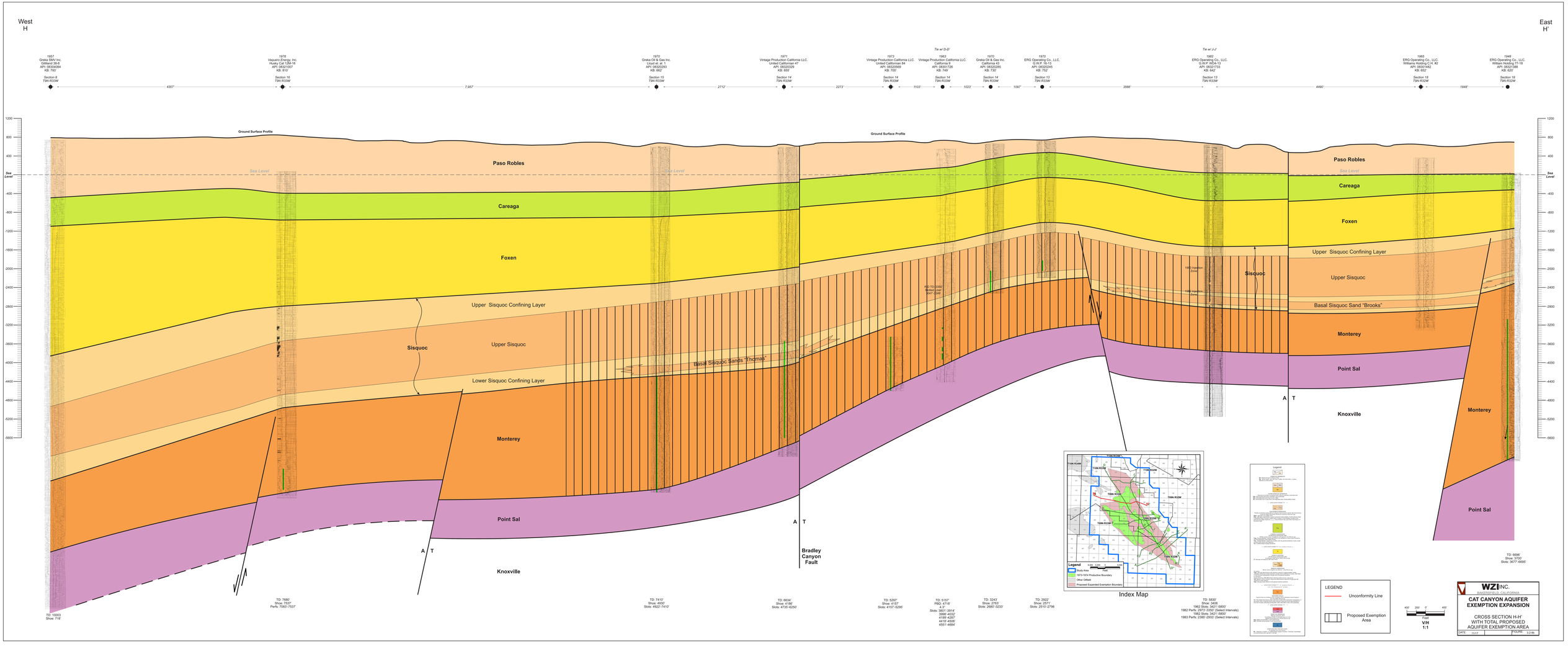

West
H
East
H'
1957
Greka SMV Inc.
Gilliland 36-8
API: 08304084
KB: 793
Section 8
T9N R33W
1976
Vaquero Energy, Inc.
Husky Cat 12M-16
API: 08321007
KB: 810
Section 16
T9N R33W
1970
Greka Oil & Gas Inc.
Lloyd et. al. 1
API: 08320293
KB: 662
Section 15
T9N R33W
1971
Vintage Production California LLC.
United Californian 47
API: 08320339
KB: 655
Section 14
T9N R33W
Tie w/ D-D'
1973
Vintage Production California LLC.
United Californian 84
API: 08320569
KB: 700
Section 14
T9N R33W
1963
Vintage Production California LLC.
California 9
API: 08301726
KB: 749
Section 14
T9N R33W
1970
Greka Oil & Gas Inc.
California 43
API: 08320285
KB: 730'
Section 14
T9N R33W
1970
ERG Operating Co., LLC.
G.W.P. 16-13
API: 08320340
KB: 752'
Section 13
T9N R33W
Tie w/ J-J'
1982
ERG Operating Co., LLC.
G.W.P. WD4-13
API: 08321733
KB: 642
Section 13
T9N R33W
1965
ERG Operating Co., LLC.
Williams Holding C.H. #2
API: 08301482
KB: 652
Section 18
T9N R32W
1948
ERG Operating Co., LLC.
William Holding 77-18
API: 08301388
KB: 620
Section 18
T9N R32W
4300'
7,957'
2712'
2273'
1103'
1023'
1097'
3566'
4490'
1948'
Ground Surface Profile
Sea Level
Paso Robles
Careaga
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Sisquoc
Basal Sisquoc Sands "Tiberias"
Lower Sisquoc Confining Layer
Monterey
Point Sal
Knoxville
Bradley Canyon Fault
A T
1983 Injection Zone
1982 Injection Zone
Basal Sisquoc Sands "Tiberias"
Upper Sisquoc Confining Layer
Basal Sisquoc Sand "Brooks"
TD: 10003
Shoe: 718
TD: 7680'
Shoe: 7537
Perfs: 7083'-7537'
TD: 7410'
Shoe: 4892'
Slots: 4922'-7410'
TD: 6634'
Shoe: 4198'
Slots: 4735'-6250'
TD: 5297'
Shoe: 4157'
Slots: 4157'-5250'
TD: 5157'
PBD: 4719'
4.3"
Slots: 3801'-3914'
3922'-3966'
4198'-4232'
4416'-4506'
4557'-4664'
TD: 3243'
Shoe: 2763'
Slots: 2660'-3233'
TD: 2922'
Shoe: 2571'
Slots: 2810'-2798
TD: 5830'
Shoe: 3436
1962 Slots: 3421'-5800'
1982 Perfs: 2973'-3350' (Select Intervals)
1982 Slots: 3421'-5800'
1983 Perfs: 2385'-2933' (Select Intervals)
TD: 6696'
Shoe: 3700'
Slots: 3677'-6695'
Index Map
T10N R34W
T10N R33W
T10N R32W
T9N R34W
T9N R33W
T9N R32W
T8N R34W
T8N R33W
T8N R32W
Legend
Study Area
1973-1974 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
LEGEND
Unconformity Line
Current Exemption Area
400' 200' 0' 400'
FEET
VIII
1:1
WZI INC.
WATER SCIENCE & SOLUTIONS
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION H-H'
WITH CURRENT
AQUIFER EXEMPTION AREA
DATE: 10/17
FIGURE: 2-8a


West
H
East
H'
1957
Greka SMV Inc.
Gilliland 36-8
API: 08304084
KB: 793
Section 8
T9N R33W
1976
Vaquero Energy, Inc.
Husky Cat 12M-16
API: 08321007
KB: 810
Section 16
T9N R33W
1970
Greka Oil & Gas Inc.
Lloyd et. al. 1
API: 08320293
KB: 662
Section 15
T9N R33W
1971
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United Californian 47
API: 08320339
KB: 655
Section 14
T9N R33W
Tie w/ D-D'
1973
Vintage Production California LLC.
United Californian 84
API: 08320569
KB: 700
Section 14
T9N R33W
1963
Vintage Production California LLC.
California 9
API: 08301726
KB: 749
Section 14
T9N R33W
1970
Greka Oil & Gas Inc.
California 43
API: 08320285
KB: 730'
Section 14
T9N R33W
1970
ERG Operating Co., LLC.
G.W.P. 16-13
API: 08320340
KB: 752'
Section 13
T9N R33W
Tie w/ J-J'
1982
ERG Operating Co., LLC.
G.W.P. WD4-13
API: 08321733
KB: 642
Section 13
T9N R33W
1965
ERG Operating Co., LLC.
Williams Holding C.H. #2
API: 08301482
KB: 652
Section 18
T9N R32W
1948
ERG Operating Co., LLC.
William Holding 77-18
API: 08301388
KB: 620
Section 18
T9N R32W
4300'
7,957'
2712'
2273'
1103'
1023'
1097'
3566'
4490'
1948'
Ground Surface Profile
Sea Level
Paso Robles
Careaga
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Sisquoc
Lower Sisquoc Confining Layer
Basal Sisquoc Sands "Thomas"
Monterey
Point Sal
Knoxville
A T
Bradley Canyon Fault
Upper Sisquoc Confining Layer
Basal Sisquoc Sand "Brooks"
TD: 10003
Shoe: 718'
TD: 7680'
Shoe: 7537'
Perfs: 7083'-7537'
TD: 7410'
Shoe: 4930'
Slots: 4922'-7410'
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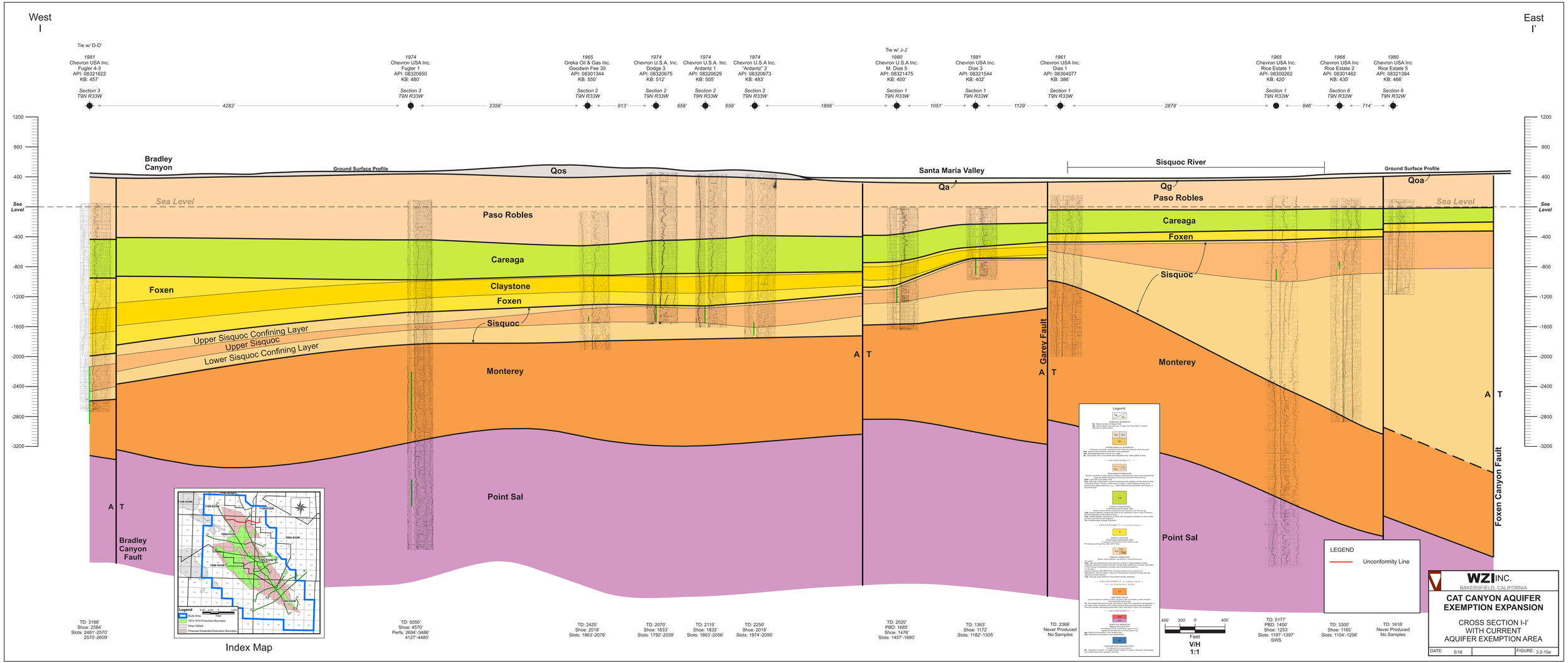
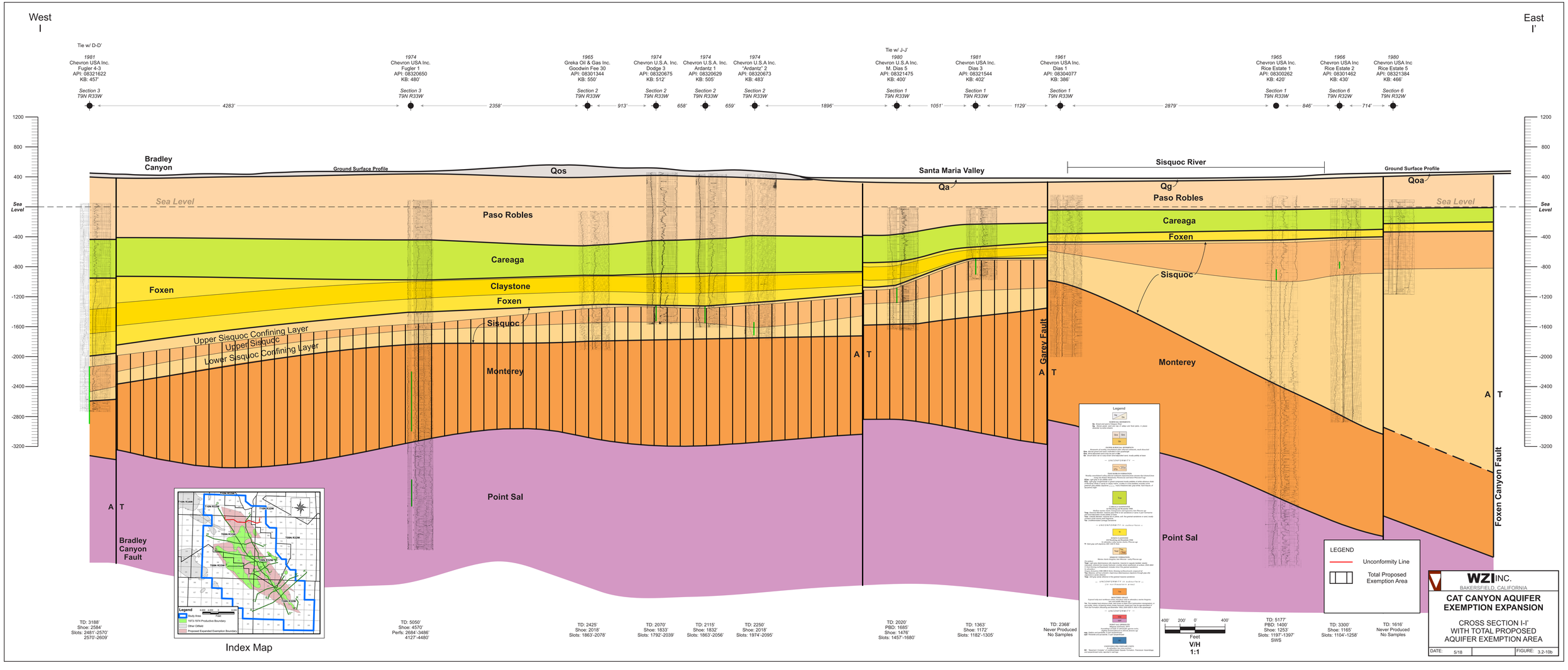
Shoe: 4198'
Slots: 4735'-6250'
TD: 5297'
Shoe: 4157'
Slots: 4157'-5250'
TD: 5157'
PBD: 4719'
4.3"
Slots: 3801'-3914'
1982 Slots: 3421'-5800'
4198'-4232'
4416'-4506'
4557'-4664'
TD: 3243'
Shoe: 2763'
Slots: 2660'-3233'
TD: 2922'
Shoe: 2571'
Slots: 2810'-2798
TD: 5830'
Shoe: 3436
1962 Slots: 3421'-5800'
1982 2973'-3350' (Select Intervals)
1982 Slots: 3421'-5800'
1983 Perfs: 2385'-2933' (Select Intervals)
1983 Injection Zone
1982 Injection Zone
Sisquoc
TD: 6696'
Shoe: 3700'
Slots: 3677'-6695'
Index Map
T10N R24W
T10N R23W
T10N R22W
T10N R21W
T9N R24W
T9N R23W
T9N R22W
T9N R21W
Legend
Study Area
1973-1974 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
LEGEND
Unconformity Line
Proposed Exemption Area
400' 200' 0' 400'
FEET
V/H
1:1
WZI INC.
WATER SCIENCE & SOLUTIONS
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION H-H'
WITH TOTAL PROPOSED AQUIFER EXEMPTION AREA
DATE: 10/2/17
FIGURE: 2-24b


West
I
East
I'
Tie w/ D-D'
1981
Chevron USA Inc.
Fugler 4-3
API: 08321622
KB: 457'
Section 3
T9N R33W
4283'
1974
Chevron USA Inc.
Fugler 1
API: 08320650
KB: 480'
Section 3
T9N R33W
2358'
1965
Greka Oil & Gas Inc.
Goodwin Fee 30
API: 08301344
KB: 550'
Section 2
T9N R33W
913'
1974
Chevron U.S.A. Inc.
Dodge 3
API: 08320675
KB: 512'
Section 2
T9N R33W
658'
1974
Chevron U.S.A. Inc.
Ardantz 1
API: 08320629
KB: 505'
Section 2
T9N R33W
659'
1974
Chevron U.S.A Inc.
"Ardantz" 2
API: 08320673
KB: 483'
Section 2
T9N R33W
1896'
Tie w/ J-J'
1980
Chevron U.S.A Inc.
M. Dias 5
API: 08321475
KB: 400'
Section 1
T9N R33W
1051'
1981
Chevron USA Inc.
Dias 3
API: 08321544
KB: 402'
Section 1
T9N R33W
1129'
1961
Chevron USA Inc.
Dias 1
API: 08304077
KB: 386'
Section 1
T9N R33W
2879'
1965
Chevron USA Inc.
Rice Estate 1
API: 08300262
KB: 420'
Section 1
T9N R33W
846'
1966
Chevron USA Inc
Rice Estate 2
API: 08301462
KB: 430'
Section 6
T9N R32W
714'
1980
Chevron USA Inc
Rice Estate 5
API: 08321384
KB: 466'
Section 6
T9N R32W
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Bradley Canyon
Ground Surface Profile
Qos
Santa Maria Valley
Qa
Sisquoc River
Qg
Qoa
Sea Level
Paso Robles
Careaga
Foxen
Claystone
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
Point Sal
Garey Fault
Foxen Canyon Fault
A T
Bradley Canyon Fault
TD: 3188'
Shoe: 2584'
Slots: 2481'-2570'
2570'-2609'
TD: 5050'
Shoe: 4570'
Perfs: 2684'-3486'
4127'-4480'
TD: 2425'
Shoe: 2018'
Slots: 1863'-2078'
TD: 2070'
Shoe: 1833'
Slots: 1792'-2039'
TD: 2115'
Shoe: 1832'
Slots: 1863'-2056'
TD: 2250'
Shoe: 2018'
Slots: 1974'-2095'
TD: 2020'
PBD: 1685'
Shoe: 1476'
Slots: 1457'-1680'
TD: 1363'
Shoe: 1172'
Slots: 1182'-1305'
TD: 2368'
Never Produced
No Samples
TD: 5177'
PBD: 1400'
Shoe: 1253'
Slots: 1197'-1397'
SWS
TD: 3300'
Shoe: 1165'
Slots: 1104'-1258'
TD: 1616'
Never Produced
No Samples
Index Map
T10N R32W
T10N R31W
T9N R32W
T9N R31W
T8N R32W
T8N R31W
Legend
Study Area
1973-1974 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
Legend
Qs
SUBSECTIONAL SEDIMENTS
Qs
Qs: Alluvial and Lacustrine deposits
Alluvial fan, alluvial plain and lake of valley and flood plains. In places also lake or playa deposits.
Qoa Qos
Qs
LOCAL ALLUVIAL DEPOSITS
Remnants of poorly consolidated valley alluvial sediments, much dissected
Qoa: Alluvial deposits of old terraces and fans
Qos: Alluvial deposits of local valleys
Alluvial deposits of local valleys, much eroded, locally underlying terraces
— UNCONFORMITY —
Qg Qg
PASO ROBLES FORMATION
Poorly consolidated valley alluvial sediments deposited from streams that derived from the Santa Maria Valley, Sisquoc River and Cuyama River
Qg: Light gray to tan sandy silt
Qa: Light gray to tan sandy silt and unconsolidated sands, pebbles of white gneiss, chert of Monterey Shale (I rarely to cause metric, crosby to cross-bedded included some cemented sandstone layers, very, very frequently bent and partially, fold-bound, of Sisquoc Light
Qa
Tsq
CAREAGA SANDSTONE
Tsq: Light gray to tan sandstone
Medium eastern clastic sandstone with expansive line (Pliocene age
Tsq: Light gray to tan sandstone, very fine to medium grained, well sorted, thin to massive beds, locally cross-bedded, with, the general sandstone is and, locally concave shell marine and fragments
Tsq: Light gray to tan sandstone
— UNCONFORMITY (= subsurface) —
Tc
FOXEN CLAYSTONE
LATE MIOCENE AGE (MOHNIAN STAGE)
Tc: Dark gray soft claystone, shale
Tsq Tsq Tsq
FOXEN FORMATION
Marine clastic deposits late Miocene / early Pliocene age
Tsq: Light gray diatomaceous silty claystone, massive to regular bedded, sandy diatomaceous siltstone, massive to regular bedded, fine to medium grained, well sorted, in, thin to very massive bedded, includes minor fine grained sandstone
Tsq: Light gray to tan sandstone, very fine to medium grained, well sorted, thin to massive, well bedded, locally cross-bedded, locally, thinning northwestward, conglomerate
Tsq: Light gray to tan sandstone, very fine to medium grained, well sorted, pebble gravel, pebbles of white gneiss, chert of Monterey Shale, pebbles of Sisquoc silty claystone
Tsq: Light gray, white siltstone to thin grained massive sandstone
— UNCONFORMITY (= subsurface) —
(= SUPERNADIC ZONE)
Tm
MONTEREY GROUP
MIDDLE MIOCENE AGE (MOHNIAN STAGE)
Exposed only over northern Santa Maria Valley, subsurface elsewhere, marine lithogenic
Tm: Tan siliceous and calcareous shale, well bedded, thin to massive, thin laminations, in, Tan siliceous and calcareous shale, well bedded, thin to massive, thin laminations, in, From the formation (Hoveling and Blueridge 1950, 2000 GEO 4 Map 2-5 Bio-stratigraph
— UNCONFORMITY —
Pm Pm
POINT SAL OPHIOLITE
Pm: Serpentinite, Serpentinite breccia, Serpentinite sandstone, Serpentinite conglomerate, Serpentinite breccia, Serpentinite breccia, Serpentinite breccia


West
I
East
I'
Tie w/ D-D'
1981
Chevron USA Inc.
Fugler 4-3
API: 08321622
KB: 457'
Section 3
T9N R33W
4283'
1974
Chevron USA Inc.
Fugler 1
API: 08320650
KB: 480'
Section 3
T9N R33W
2358'
1965
Greka Oil & Gas Inc.
Goodwin Fee 30
API: 08301344
KB: 550'
Section 2
T9N R33W
913'
1974
Chevron U.S.A. Inc.
Dodge 3
API: 08320675
KB: 512'
Section 2
T9N R33W
658'
1974
Chevron U.S.A. Inc.
Ardantz 1
API: 08320629
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Section 2
T9N R33W
659'
1974
Chevron U.S.A Inc.
"Ardantz" 2
API: 08320673
KB: 483'
Section 2
T9N R33W
1896'
Tie w/ J-J'
1980
Chevron U.S.A Inc.
M. Dias 5
API: 08321475
KB: 400'
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T9N R33W
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Chevron USA Inc.
Dias 3
API: 08321544
KB: 402'
Section 1
T9N R33W
1129'
1961
Chevron USA Inc.
Dias 1
API: 08304077
KB: 386'
Section 1
T9N R33W
2879'
1965
Chevron USA Inc.
Rice Estate 1
API: 08300262
KB: 420'
Section 1
T9N R33W
846'
1966
Chevron USA Inc
Rice Estate 2
API: 08301462
KB: 430'
Section 6
T9N R32W
714'
1980
Chevron USA Inc
Rice Estate 5
API: 08321384
KB: 466'
Section 6
T9N R32W
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Bradley Canyon
Ground Surface Profile
Qos
Santa Maria Valley
Qa
Sisquoc River
Qg
Paso Robles
Ground Surface Profile
Qoa
Sea Level
Paso Robles
Careaga
Foxen
Claystone
Foxen
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
Point Sal
A T
Bradley Canyon Fault
Garey Fault
Foxen Canyon Fault
TD: 3188'
Shoe: 2584'
Slots: 2481'-2570'
2570'-2609'
TD: 5050'
Shoe: 4570'
Perfs: 2684'-3486'
4127'-4480'
TD: 2425'
Shoe: 2018'
Slots: 1863'-2078'
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TD: 2115'
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Shoe: 2018'
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TD: 2020'
PBD: 1685'
Shoe: 1476'
Slots: 1457'-1680'
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Never Produced
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TD: 5177'
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TD: 3300'
Shoe: 1165'
Slots: 1104'-1258'
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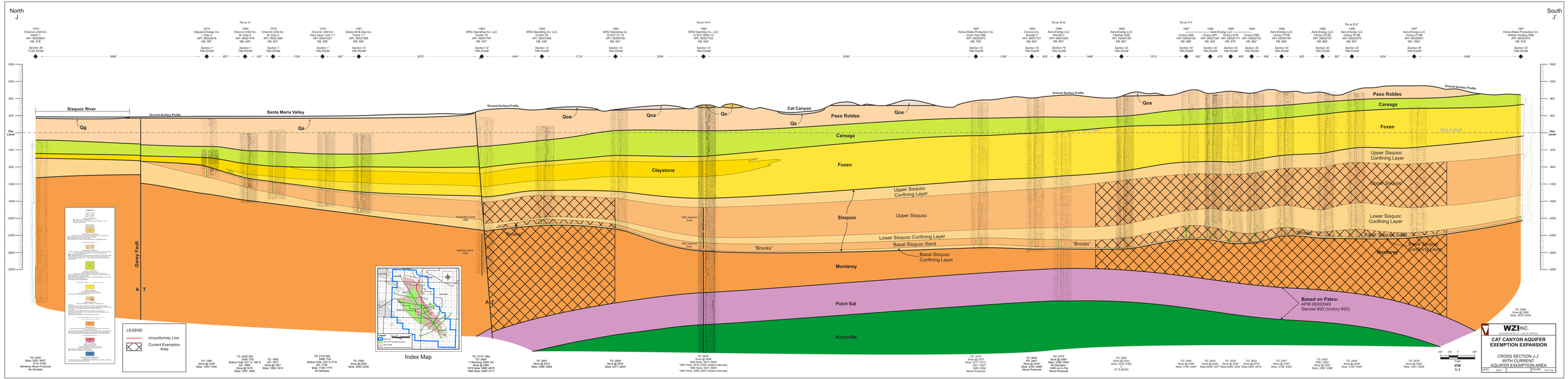
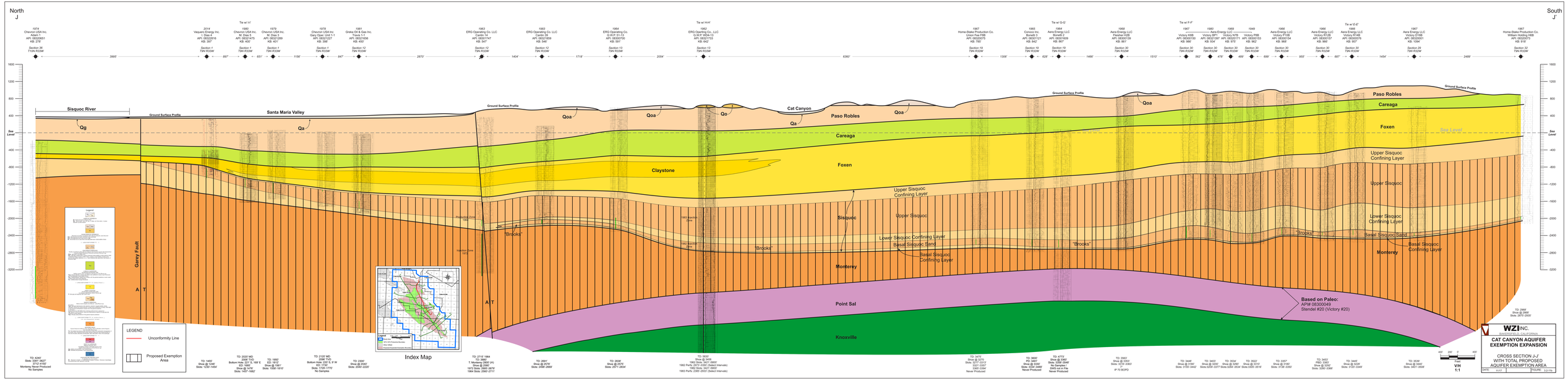
Never Produced
No Samples
Index Map
T10N R24W
T10N R23W
T10N R22W
T9N R24W
T9N R23W
T9N R22W
T8N R24W
T8N R23W
T8N R22W
Legend
Study Area
1973-1974 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
Legend
Unconformity Line
Total Proposed Exemption Area
400'
200'
0'
400'
Feet
V/H
1:1
WZI INC.
BAKERSFIELD, CALIFORNIA
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION I-I'
WITH TOTAL PROPOSED
AQUIFER EXEMPTION AREA
DATE: 5/18
FIGURE: 3.2-10b


North
J
South
J'
Tie w/ I-I'
Tie w/ H-H'
Tie w/ G-G'
Tie w/ F-F'
Tie w/ E-E'
1974 Chevron USA Inc. Adam 1 API: 08320651 KB: 278' Section 36 T10N R33W
1972 Vaquero Energy Inc. U Dos 4-1 API: 08320816 KB: 397' Section 1 T9N R33W
1980 Chevron USA Inc. M. Dias 5 API: 08321475 KB: 402' Section 1 T9N R33W
1979 Chevron USA Inc. M. Dias 3 API: 08321289 KB: 401' Section 1 T9N R33W
1978 Gary Oper. Unit 1-1 API: 08321227 KB: 398' Section 1 T9N R33W
1981 Greka Oil & Gas Inc. Tryna 1-1 API: 08321656 KB: 450' Section 12 T9N R33W
1963 ERG Operating Co. LLC Cardin 14 API: 08301747 KB: 547' Section 12 T9N R33W
1963 ERG Operating Co. LLC Cardin 39 API: 08321859 KB: 546' Section 12 T9N R33W
1964 ERG Operating Co. G.W.P. 51-13 API: 08300700 KB: 591' Section 13 T9N R33W
1962 ERG Operating Co., LLC G.W.P. WDA-13 API: 08321733 KB: 542' Section 13 T9N R33W
1967 Home-Stake Production Co. Union Fee F8B API: 08300075 KB: 785' Section 19 T9N R33W
1955 Conoco Inc. Bonetti 3 API: 08301121 KB: 842' Section 19 T9N R33W
1964 Aera Energy LLC Bonetti 2 API: 08301609 KB: 907' Section 19 T9N R33W
1968 Aera Energy LLC Fleisher H2B API: 08300139 KB: 861' Section 30 T9N R33W
1967 Victory H8B API: 08300150 KB: 986' Section 30 T9N R33W
1965 Aera Energy LLC Victory BP1 API: 08321387 KB: 934' Section 30 T9N R33W
1969 Victory NTB API: 08320171 KB: 975' Section 30 T9N R33W
1949 Victory P8B API: 08300153 KB: 962' Section 30 T9N R33W
1956 Aera Energy LLC Victory P12B API: 08300154 KB: 968' Section 30 T9N R33W
1966 Aera Energy LLC Victory R12B API: 08300157 KB: 966' Section 30 T9N R33W
1966 Aera Energy LLC Victory R14B API: 08300576 KB: 957' Section 30 T9N R33W
1967 Aera Energy LLC Victory ZT8B API: 08320001 KB: 1094' Section 29 T9N R33W
1967 Home-Stake Production Co. William Holding H6B API: 08320073 KB: 918' Section 32 T9N R33W
3995'
897'
651'
1156'
847'
2870'
1404'
1718'
2054'
6360'
1308'
628'
1486'
1510'
562'
478'
499'
699'
955'
687'
1454'
2489'
1600
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Sisquoc River
Ground Surface Profile
Santa Maria Valley
Qg
Qa
Qoa
Qo
Cat Canyon
Paso Robles
Careaga
Foxen
Sea Level
Upper Sisquoc Confining Layer
Hiatus Surface
Lower Sisquoc Confining Layer
Claystone
Upper Sisquoc Confining Layer
Upper Sisquoc
Sisquoc
Lower Sisquoc Confining Layer
Basal Sisquoc Sand
Basal Sisquoc Confining Layer
"Brooks"
Monterey
Point Sal
Knoxville
Gaviy Fault
A
T
Production Zone 1964
Injection Zone 1972
1983 Injection Zone
1982 Injection Zone
Based on Paleo:
AP#8 08320049
Stendel #20 (Victory #20)
TD: 4240' Sloss @ 3622' 3712'-4150' Monterey Never Produced No Samples
TD: 1460' Sloss @ 1248' Sloss: 1230'-1454'
TD: 2020' MD 2006' TVD Bottom Hole: 0.8' NE E. Sloss @ 1476' Sloss: 1457'-1882'
TD: 1860' ED: 1.9' NW Sloss: 1558'-1810'
TD: 2132' MD 2096' TVD Bottom Hole: 0.2' S W Sloss: 1729'-1770' No Samples
TD: 2300' Sloss @ 2040' Sloss: 2040'-2220'
TD: 2715' 1964 TD: 3880' T. Monterey @ 2900' (H) Sloss @ 2900' 1972 Sloss: 2880-3879' 1964 Sloss: 2500'-2717'
TD: 2691' Sloss @ 2576' Sloss: 2496'-2669'
TD: 2606' Sloss @ 2575' Sloss: 2571'-2634'
TD: 3400' Sloss @ 3406' 1962 Perfs: 3400-3600' (Select Intervals) 1982 Sloss: 3421'-3600' 1983 Perfs: 2260'-2612' (Select Intervals)
TD: 3470' Sloss @ 3271' Sloss: 3271'-3317' 3317'-3365' 3365-3394' Never Produced
TD: 3400' Sloss @ 3300' Sloss: 3294'-3449' Never Produced
TD: 4772' Sloss @ 3360' Sloss: 3294-3449' 3449'-4772' BWS not in File Never Produced
TD: 3320' Sloss @ 3310' Sloss: 3216'-3362' IP 70 BOPD
TD: 3448' Sloss @ 3180' Sloss: 3155'-3442'
TD: 3402' Sloss @ 3200' Sloss: 3209'-3337'
TD: 3534' Sloss @ 3200' Sloss: 3284'-3534'
TD: 3522' Sloss @ 3310' Sloss: 3305'-3516'
TD: 3337' Sloss @ 3180' Sloss: 3158'-3350'
TD: 3453' Sloss @ 3300' Sloss: 3280'-3390'
TD: 3445' Sloss @ 3320' Sloss: 3320'-3349'
TD: 3539' Sloss @ 3440' Sloss: 3461'-3508'
TD: 2966' Sloss @ 2668' Sloss: 2679'-2930'
Index Map
LEGEND
Unconformity Line
Current Exemption Area
400 200 0 400
Feet
Vertical Scale
1 : 1
WZI INC.
WATER ZONE INVESTIGATIONS
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION J-J'
WITH CURRENT AQUIFER EXEMPTION AREA
DATE 12/21/ FIGURE 2-21A


North
J
South
J'
Tie w/ I-I'
Tie w/ H-H'
Tie w/ G-G'
Tie w/ F-F'
Tie w/ E-E'
1974 Chevron USA Inc. Adam 1 API: 08320651 KB: 278' Section 36 T10N R33W
1972 Vaquero Energy Inc. U Dos 4-1 API: 08320816 KB: 397' Section 1 T9N R33W
1980 Chevron USA Inc. M. Dias 5 API: 08321475 KB: 402' Section 1 T9N R33W
1979 Chevron USA Inc. M. Dias 3 API: 08321289 KB: 401' Section 1 T9N R33W
1978 Chevron USA Inc. Gary Oper. Unit 1-1 API: 08321227 KB: 398' Section 1 T9N R33W
1981 Greka Oil & Gas Inc. Truck 1-1 API: 08321656 KB: 450' Section 12 T9N R33W
1983 ERG Operating Co. LLC Cardin 14 API: 08301747 KB: 547' Section 12 T9N R33W
1983 ERG Operating Co. LLC Cardin 34 API: 08321859 KB: 546' Section 12 T9N R33W
1982 ERG Operating Co. G.W.P. 31-13 API: 08300700 KB: 591' Section 13 T9N R33W
1982 ERG Operating Co., LLC G.W.P. WDA-13 API: 08321733 KB: 542' Section 13 T9N R33W
1967 Home-Stake Production Co. Union Fee F6B API: 08320075 KB: 785' Section 19 T9N R33W
1955 Cuyama Inc. Bonelli 3 API: 08301121 KB: 842' Section 19 T9N R33W
1964 Aera Energy LLC Bonelli 2 API: 08301609 KB: 842' Section 19 T9N R33W
1968 Aera Energy LLC Fleisher H2B API: 08300139 KB: 861' Section 30 T9N R33W
1967 Victory K6B API: 08300150 KB: 986' Section 30 T9N R33W
1965 Aera Energy LLC Victory BP1 API: 08321587 KB: 934' Section 30 T9N R33W
1955 Victory NTB API: 08320171 KB: 975' Section 30 T9N R33W
1949 Victory P6B API: 08300153 KB: 962' Section 30 T9N R33W
1956 Aera Energy LLC Victory R12B API: 08300154 KB: 968' Section 30 T9N R33W
1966 Aera Energy LLC Victory R13B API: 08300157 KB: 966' Section 30 T9N R33W
1966 Aera Energy LLC Victory R14B API: 08300576 KB: 957' Section 30 T9N R33W
1967 Aera Energy LLC Victory Z16B API: 08320001 KB: 1094' Section 29 T9N R33W
1967 Home-Stake Production Co. William Holding H6B API: 08320073 KB: 918' Section 32 T9N R33W
3995'
897'
651'
1156'
847'
2870'
1404'
1718'
2054'
6360'
1308'
628'
1466'
1510'
562'
478'
499'
699'
955'
687'
1454'
2489'
1600
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Sisquoc River
Ground Surface Profile
Santa Maria Valley
Qg
Qa
Qoa
Qo
Cat Canyon
Paso Robles
Careaga
Foxen
Claystone
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Basal Sisquoc Sand
Basal Sisquoc Confining Layer
Monterey
Point Sal
Knoxville
Garey Fault
A
T
A'
T'
Rincon Zone 1962
Weldner Zone 1972
1983 Brooke Zone
1983 Brooke Zone
"Brooke"
"Brooks"
Based on Paleo:
AP#8 08320049
Stendel #20 (Victory #20)
Legend
LEGEND
Unconformity Line
Proposed Exemption Area
Index Map
TD: 4240' Sloss @ 3622' 3712'-4150' Monterey Never Produced No Samples
TD: 1460' Sloss @ 1248' 1230'-1454'
TD: 2020' MD 2096' TVD Bottom Hole: 1,168' E Sloss @ 1476' 1457'-1882'
TD: 1850' ED: 1,168' E Sloss @ 1610' 1558'-1810'
TD: 2132' MD 2096' TVD Bottom Hole: 1,168' E, 9' W Sloss @ 1770' 1729'-1770' No Samples
TD: 2300' Sloss @ 2040' 2040'-2220'
TD: 2715' 1964 TD: 3880' T. Monterey @ 2940' 1972 Sloss: 2880-3879' 1964 Sloss: 2500-2717'
TD: 2691' Sloss @ 2576' 2576'-2691'
TD: 2836' Sloss @ 2571' 2571'-2834'
TD: 5600' Sloss @ 3456' 1982 Perfs: 3456-5600' (Select Intervals) 1982 Sloss: 3431-5600' 1983 Perfs: 2260-2612' (Select Intervals)
TD: 3470' Sloss: 3227-3310' 3227'-3310' 3365-3394' Never Produced
TD: 3400' Sloss @ 3397' 3394'-3400' Never Produced
TD: 4772' Sloss @ 3360' Sloss: 3394-3440' 3440'-4772' BWS not in File Never Produced
TD: 3320' Sloss: 3216' 3216'-3362' IP 70 BOPD
TD: 3448' Sloss @ 3180' 3155'-3442'
TD: 3402' Sloss @ 3200' Sloss: 3209'-3337'
TD: 3534' Sloss @ 3200' Sloss: 3284'-3534'
TD: 3522' Sloss @ 3310' Sloss: 3305'-3516'
TD: 3337' Sloss: 3158' 3158'-3350'
TD: 3453' Sloss @ 3300' Sloss: 3280'-3390'
TD: 3445' Sloss: 3120' 3120'-3349'
TD: 3639' Sloss @ 3440' Sloss: 3401'-3508'
TD: 2966' Sloss @ 2668' Sloss: 2670'-2930'
400 200 0 400
Feet
VH
1:1
WZI INC.
WATER ZONE INTERVENTIONS
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION J-J'
WITH TOTAL PROPOSED AQUIFER EXEMPTION AREA
DATE 12/27
FIGURE 12-17b

The documentation of the current exemption areas and the type logs for the current exemption are included in **Appendix 3-I, DOGGR State Water Board UIC EPA MOUs and 1973 Boundary Data**.

3.2.1 EOR in the Monterey Formation and Sisquoc Formation below the Upper Confining Layer

Due to the range of API gravity, (between 7° and 22° API) and the range of depths, (surface to 4000 feet), steam injection, water reinjection, and gas reinjection have been utilized to enhance recovery in addition to primary recovery. The water produced from the Monterey Formation and Sisquoc Formation below the Upper Confining Layer is reinjected on-site or within Cat Canyon Oil Field for the purpose of enhanced recovery**.** Historically, most produced water was not reinjected but rather was sent out of the Study Area to the Santa Maria River, Pacific Ocean, or piped to the Battles Gas Plant where it was treated and then put into the outfall. **Appendix 5-V, Fluid Levels and Material Balance** contains a map showing the historic gathering system. Starting in 1947 water was reintroduced for disposal and in 1963 water was reintroduced for cyclic steaming purposes and starting in 1954 water was reintroduced for flooding. Since then the practice of reinjection of in-field produced water has increased to promote Enhanced Oil Recovery.

A recent review of production response to the various types of injection was conducted. The field wide production history is shown in **Figure 3.2-1, Cat Canyon Oil Field Production and Injection**. All of the producing wells in the Monterey respond to injection with increased production or at least, with diminished production declines. The Sisquoc Formation below the Upper Confining Layer respond especially well to steam injection, as shown in **Appendix 5-V, Fluid Level Data and Material Balance Calculations, Operator Data,** Vaquero Upper Sisquoc Mass Balance by Lease-2016. This data shows a low steam/oil ratio (barrels of steam to barrels of oil produced) ranges from .85 to 1.27.

Steam and water, typically sourced from produced water, is injected into the Sisquoc Formation below the Upper Confining Layer and Monterey Formation to assist in recovery. Steam is selectively injected in certain producing elements of the Sisquoc Formation below the Upper Confining Layer depending on enhanced recovery designs. (Steam transfers heat to the reservoir which in turn reduces the viscosity of the oil allowing it to flow more easily to the producing wells.) In production areas where produced water was not reinjected as water or steam, the fluid inventory has been diminished. These areas of reduced fluid volumes are reflected by pressure decreases which assist in demonstrating operational confinement of the injected fluids below the Sisquoc Clay Upper Confining Layer and within sealed fault blocks.

4 Regional Geology

4.1 General Stratigraphy

The general stratigraphy of the geology is portrayed on **Figure 4.1-1 a**, **Type Log Gato Ridge Area, Figure 4.1-1b, Type Log Central Areas, Figure 4.1-1c, Type Log West Area, Figure 4.1-1d, Type Log East Area** and **Figure 4.1-1e, Type Log Sisquoc Area**. Multiple type logs were utilized to avoid misrepresentation of stratigraphy area to area. The surface geology, **Figure 4.1-2 Dibblee Surface Geology Map,** was correlated with the subsurface geology to accurately depict the stratigraphy. The stratigraphy is shown on the cross sections listed below and is discussed in this section:

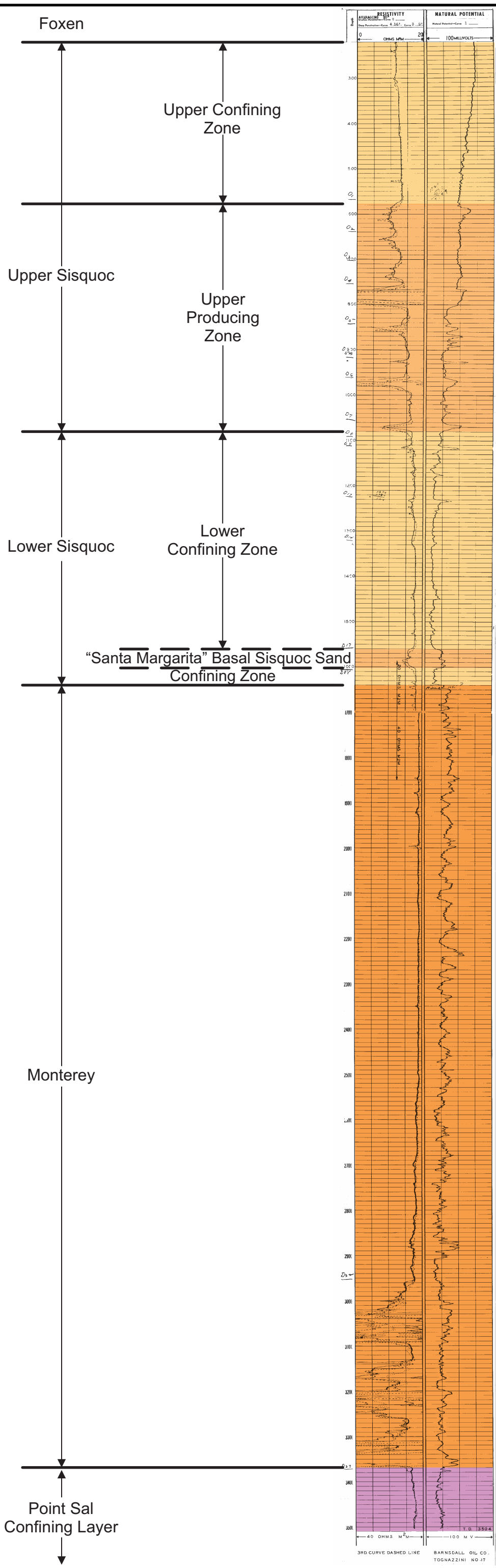
Figure 4.1-3 Cross Section A-A';
Figure 4.1-4 Cross Section B-B';
Figure 4.1-5 Cross Section C-C';
Figure 4.1-6a Cross Section D-D';
Figure 4.1-6b Cross Section D'-D";
Figure 4.1-7 Cross Section E-E';
Figure 4.1-8 Cross Section F-F';
Figure 4.1-9 Cross Section G-G';
Figure 4.1-10 Cross Section H-H';
Figure 4.1-11 Cross Section I-I'; and
Figure 4.1-12 Cross Section J-J'.

4.1.1 Alluvium

The surface alluvium is thin to nonexistent over most of the study area, **Figure 4.1-2 Dibblee Surface Geology Map.** Where present (in historic stream channels), the formation consists of interbedded unconsolidates yellowish–brown sands, gravels and clays with pebbles and grains of igneous rock and quartzite, (Bradley & al, 1943). Trending to the north and west of the Cat Canyon Oil Field Aquifer Exemption Expansion Study Area (into the Santa Maria Valley Oil Field) the Alluvium progressively thickens and provides important storage capacity for groundwater. (Worts & Thomasson, 1951), (Bradley & al, 1943).

4.1.2 Paso Robles Formation

The Paso Robles Formation is of Pleistocene age and consists of interbedded conglomerates, sands and clays of continental origin. There are thin fresh-water limestone beds at the base of the clays. The conglomerate of the Paso Robles is composed of black siliceous shale pebbles as well as Monterey shale and chert fragments. On the top of the Gato Ridge, the Paso Robles is not present. Trending to the south and west of the study area the formation reaches a thickness of 2000 feet beneath the central part of the San Antonio Creek Valley, (California Department of Water Resources Board, 2004). The Paso Robles Formation is the main water bearing formation in the San Antonio Creek Valley, (California Department of Water Resources Board, 2004).



Type Log

Gato Ridge Area

Cat Canyon

Well:

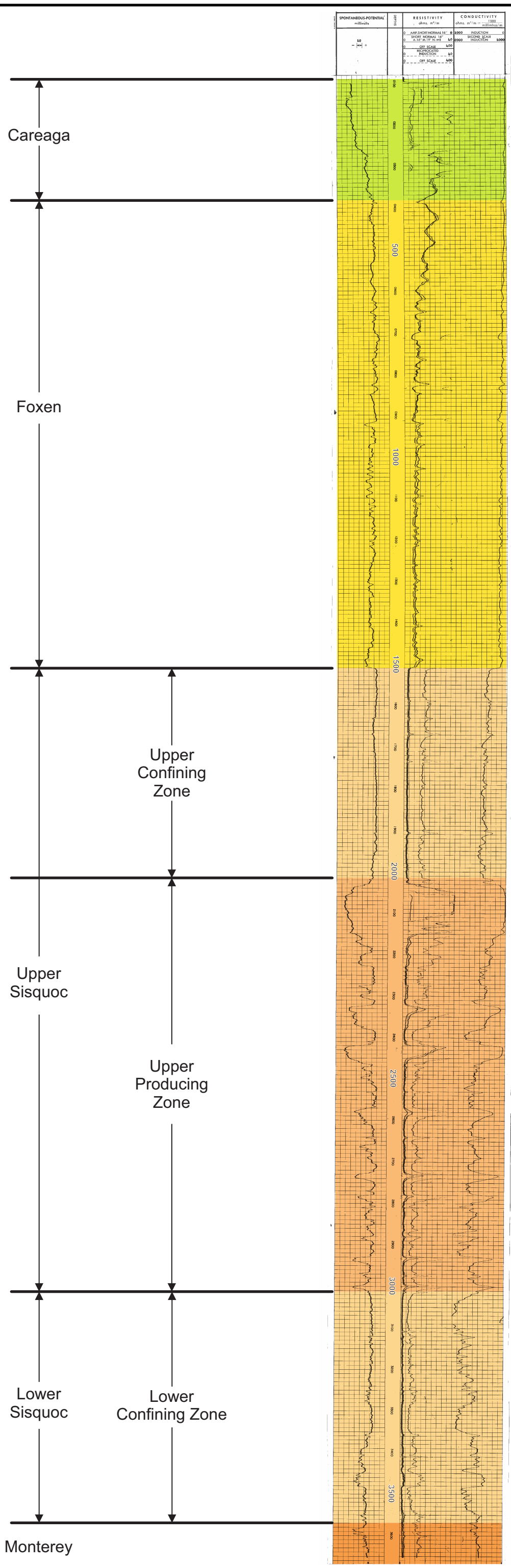
API# 08301455
Tognazzini 17
4-8N/32W

WZI INC.
BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

TYPE LOG OF GATO RIDGE AREA

DATE: 8/17		FIGURE: 4.1-1a



Type Log
Central Area
Cat Canyon

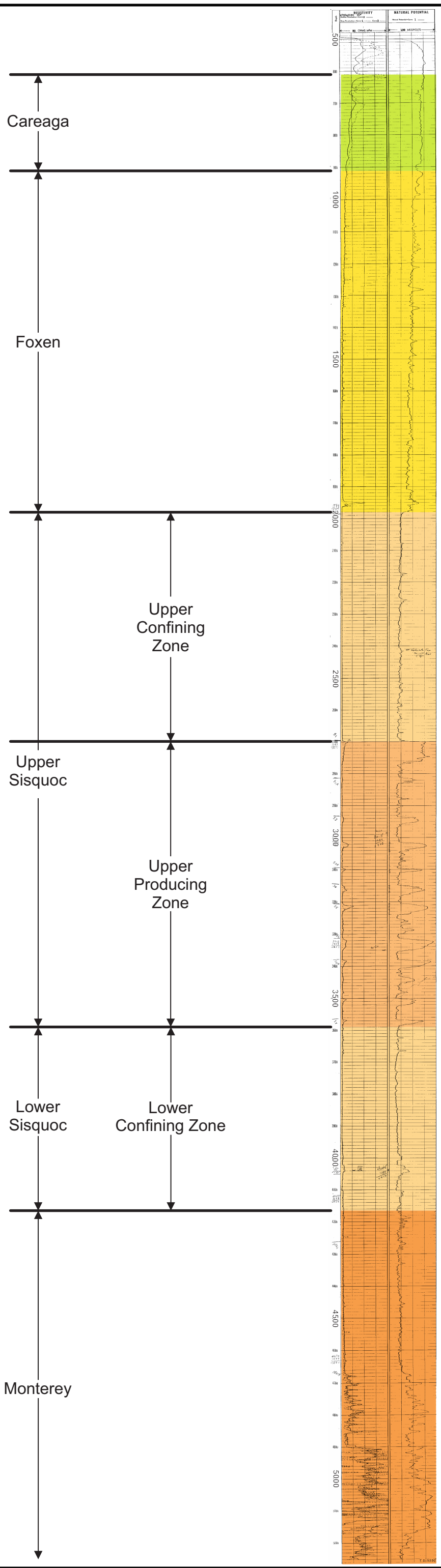
Well:
API# 08301198
Fullerton 5
31-9N/32W

WZI INC.
BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

TYPE LOG OF CENTRAL AREA

DATE: 7/17		FIGURE: 4.1-1b



Type Log
West Area
Cat Canyon

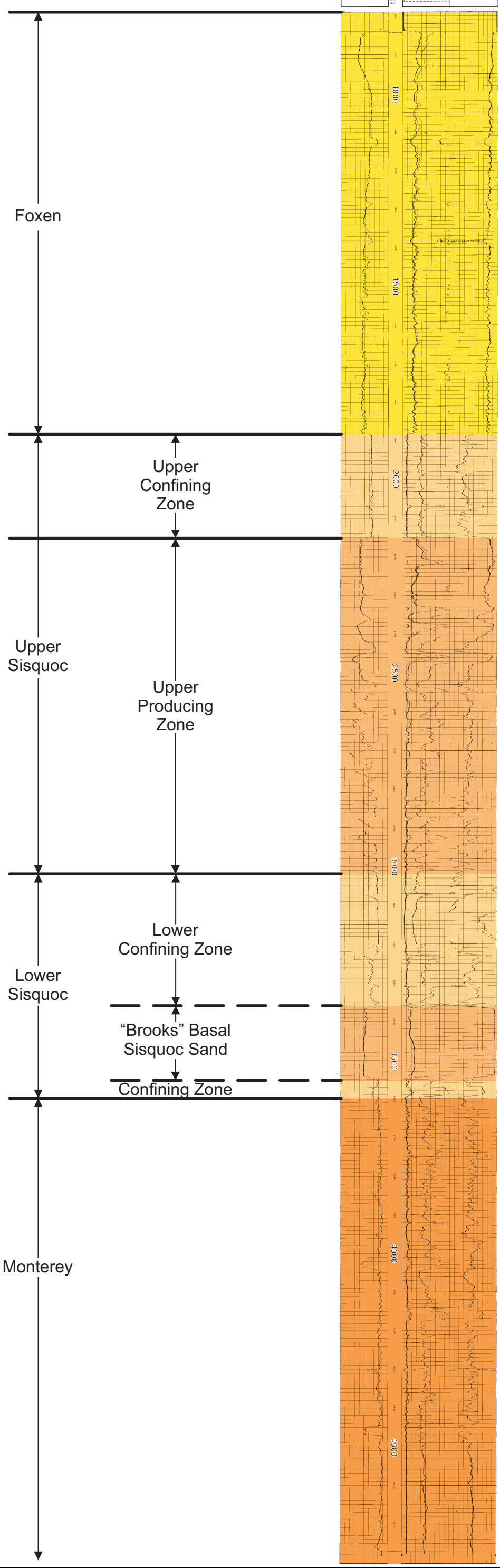
Well:
API# 08300804
Bell 48
26-9N/33W

WZI INC.
BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

TYPE LOG OF WEST AREA

DATE: 7/17		FIGURE: 4.1-1c



Type Log

East Area

Cat Canyon

Well:

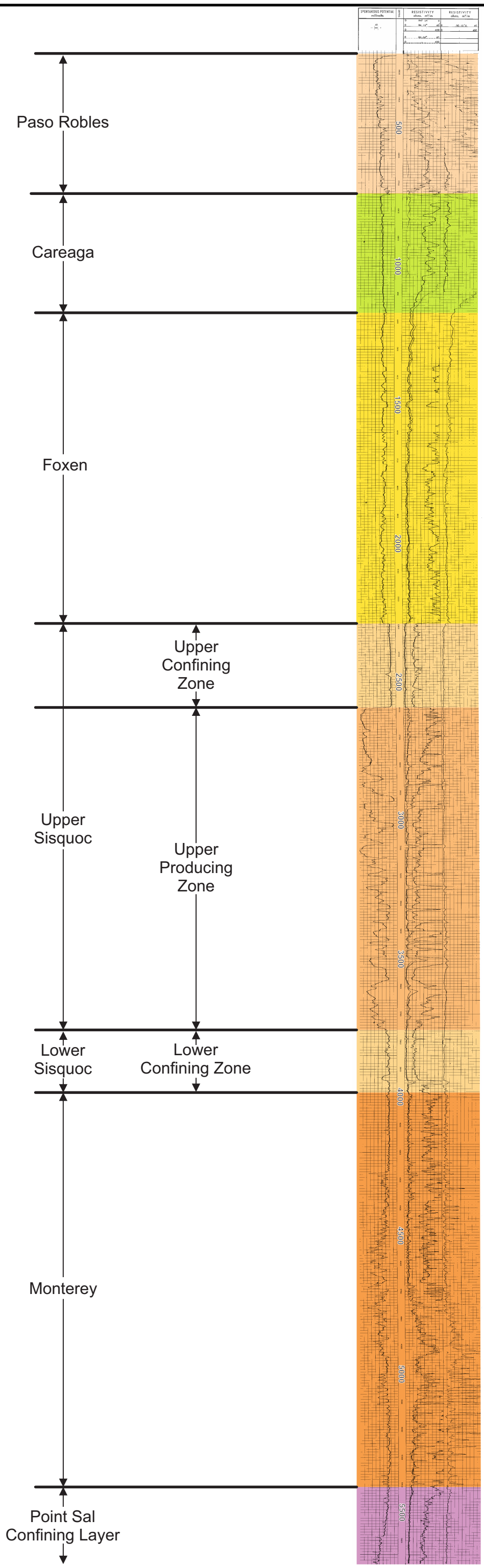
API# 08301609
Bonetti 2
19-9N/32W

WZI INC.
BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

TYPE LOG OF EAST AREA

DATE: 8/17		FIGURE: 4.1-1d



Type Log

Sisquoc Area

Cat Canyon

Well:

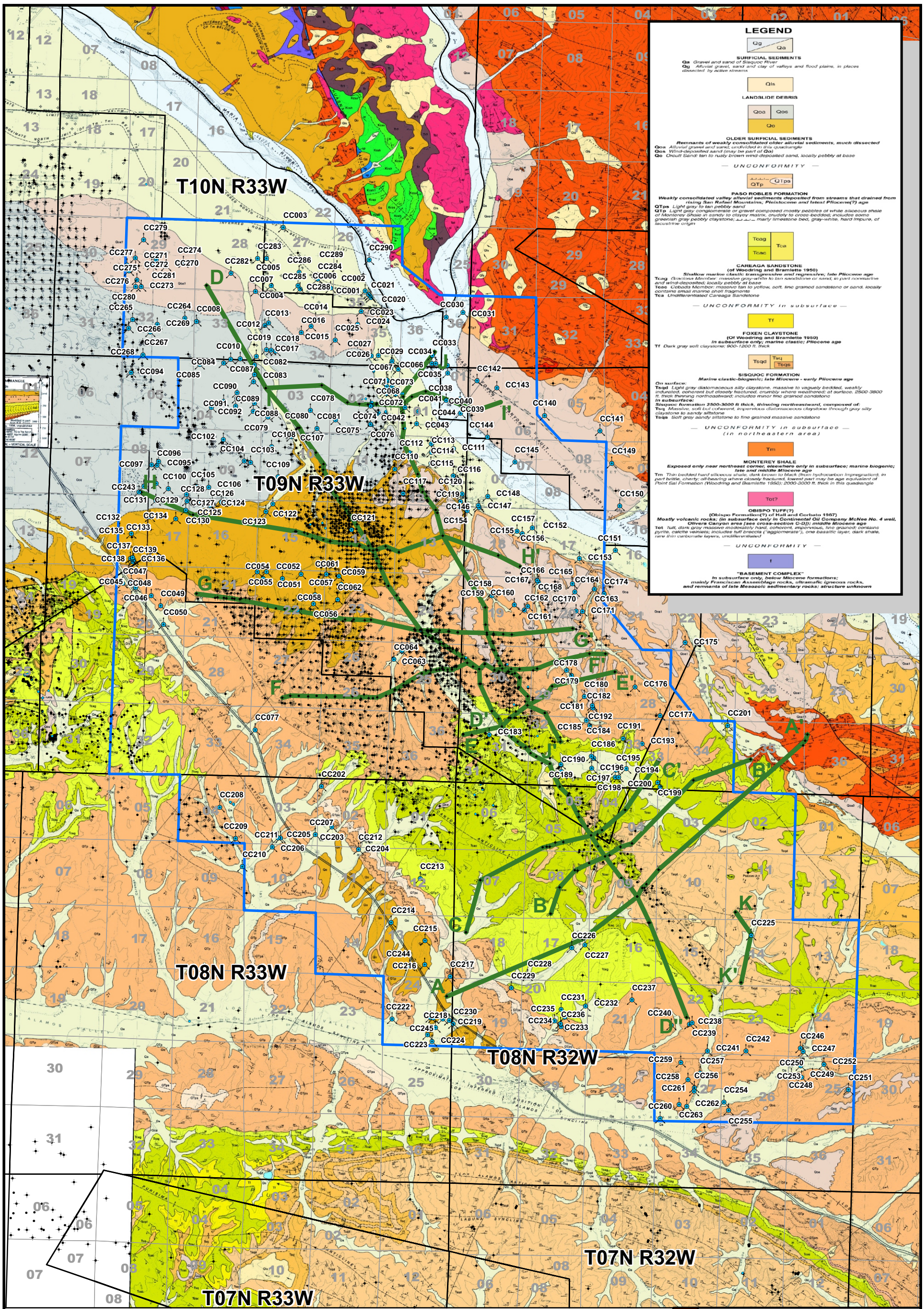
API# 08300371
Porter 82-23
23-9N/33W

WZI INC.
BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

TYPE LOG OF SISQUOC AREA

DATE: 7/17		FIGURE: 4.1-1e



Legend

- Water Wells

WellStatus

- Active
- Buried
- Idle
- New
- Plugged
- Cross Section
- Study Area

N

6,000 3,000 0 6,000

Feet

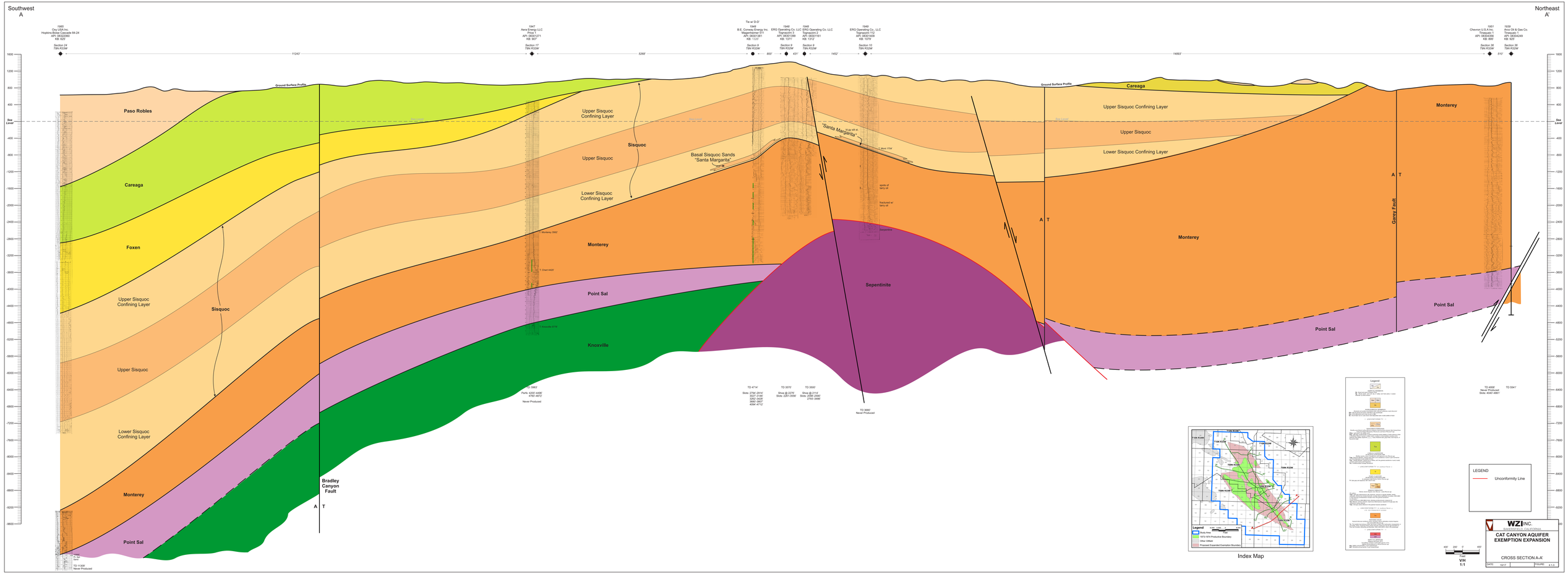
WZI INC.

BAKERSFIELD, CALIFORNIA

CAT CANYON AQUIFER EXEMPTION EXPANSION

DIBBLEE SURFACE GEOLOGY MAP

DATE: 7/17 | FIGURE: 4.1-2


Southwest
A
Northeast
A'
1985
Chu USA Inc.
Hopkins Canyon State 84-24
API: 0830290
KB: 620'
Section 24
T8N R33W
1947
Aera Energy LLC
Tiber 1
API: 0830371
KB: 907'
Section 17
T8N R33W
Tie w/ D-D'
1948
B.E. Conway Energy Inc.
Conway Ranch 1
API: 0830381
KB: 1320'
Section 9
T8N R32W
1948
ERQ Operating Co. LLC
Ranch House 1
API: 0830139
KB: 1371'
Section 3
T8N R33W
1948
ERQ Operating Co. LLC
Ranch House 2
API: 0830151
KB: 1312'
Section 3
T8N R33W
1949
ERQ Operating Co., LLC
Ranch House 3
API: 0830409
KB: 1079'
Section 10
T8N R33W
1951
Chevron U.S.A Inc.
Ranch House 4
API: 0830456
KB: 890'
Section 36
T8N R33W
1939
Arco Oil & Gas Co.
Gatey 1
API: 0830449
KB: 925'
Section 36
T8N R33W
11243'
526'
800'
431'
1452'
14693'
510'
Ground Surface Profile
Paso Robles
Careaga
Foxen
Upper Sisquoc Confining Layer
Sisquoc
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
Point Sal
Knoxville
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Basal Sisquoc Sands "Santa Margarita"
"Santa Margarita"
Monterey
Point Sal
Knoxville
Sepentinite
Bradley Canyon Fault
A T
Careaga
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
Point Sal
Gatey Fault
Monterey
Point Sal
Sea Level
TD 5967
Perfs: 4350-4490
4760-4812
Never Produced
TD 4714
Slots: 2794-2914
2918-2941
2957-3408
3665-3857
4094-4712
TD 3570'
Shoe @ 2270'
Slots: 2291-3556'
TD 3550'
Shoe @ 2114'
Slots: 2140-2347
2791-3486'
TD 3680'
Never Produced
TD 4005'
Never Produced
Slots: 4040'-4861'
TD 5541'
TD 11290'
Never Produced
Legend
Study Area
1973 1976 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
Index Map
LEGEND
Unconformity Line
WZI INC.
SANTA BARBARA, CALIFORNIA
CAT CANYON AQUIFER
EXEMPTION EXPANSION
CROSS SECTION A-A'
DATE: 10/17
FIGURE: 4.1.3
40' 20' 0' 40'
Feet
V/H
1:1

Southwest
B

Northeast
B'

1957
Terry Drilling Co.
Price Ranch 8-39
API: 08301457
KB: 1183'
Section 8
T8N R32W

2119'

1947
Oryx Energy Co.
Magenheimer 4
API: 08301435
KB: 1150'
Section 8
T8N R32W

1712'

1965
B.E. Conway Energy Inc.
Magenheimer A9
API: 08300503
KB: 1200'
Section 8
T8N R32W

1237'

1964
B.E. Conway Energy Inc.
Magenheimer 7
API: 08300626
KB: 1185'
Section 9
T8N R32W

1307'

1965
B.E. Conway Energy Inc.
Magenheimer 25
API: 08321724
KB: 1281'
Section 9
T8N R32W

1393'

1942
ERG Operating Co., LLC
Tognazzini 4
API: 08300344
KB: 1375'
Section 4
T8N R32W

918'

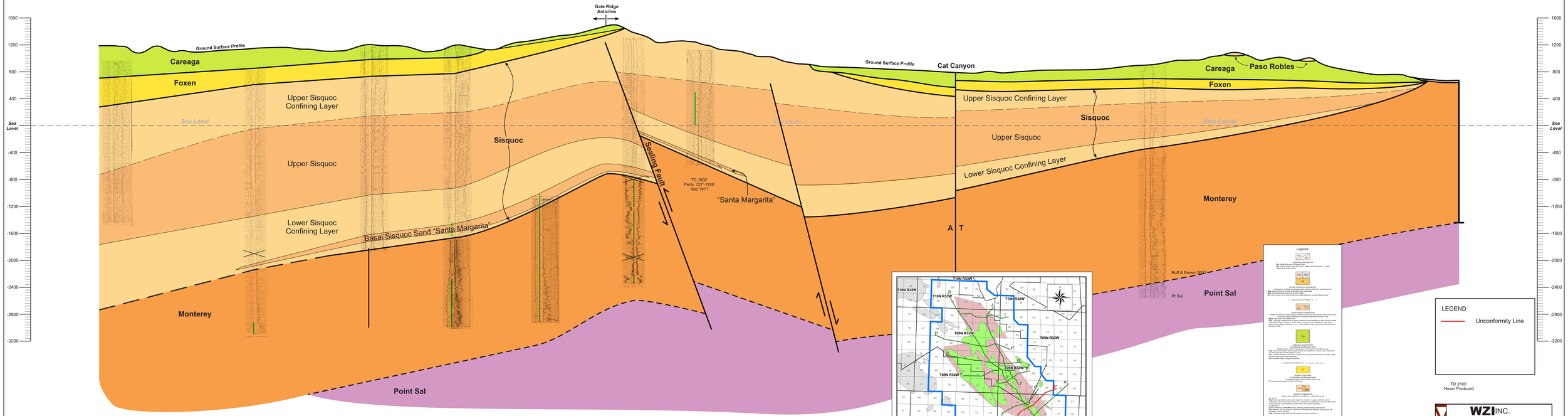
1967
ERG Operating Co., LLC
Tognazzini 20
API: 08320008
KB: 1221'
Section 4
T8N R32W

6714'

1974
ERG Operating Co., LLC
Wickenden 6
API: 08320628
KB: 964'
Section 34
T9N R32W

4640'

1910
Pinal Dome Corp.
Tognazzini 1
API: 08304398
KB: 660'
Section 35
T9N R32W



TD 2623'
Never Produced

TD 4307'
Slots 4071'-4246'
Never Produced

TD 4203'
Slots 3014'-4199'
Shoe @ 3027'
Last Prod. 9.2 BOPD, 11.7 BWPD 10/1969
1983: Water Disposal Well

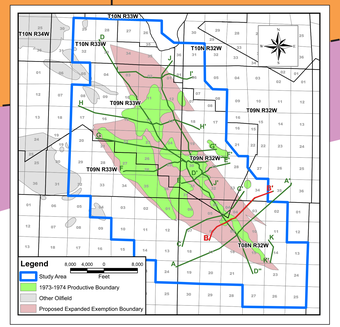
TD: 4175'
Shoe 2650'
Perfs: Basal Sisquoc 1964: 2619'-2827'
Monterey 1977: 3468'-4175'

TD 4200'
Perfs: 2295'-2385'
2390'-2450'
2530'-4200'
No Samples

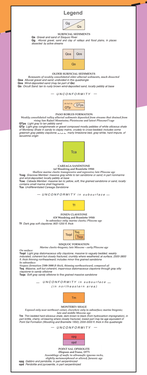
TD 3720'
Perfs: 2165'-2575'
2634'-3054'
3093'-3143'
3298'-3358'
3597'-3715'

TD 3507'
Slots: 2206'-3421'
IP 12 BOPD 6°

TD 2100'
Never Produced



Index Map



LEGEND

Unconformity Line

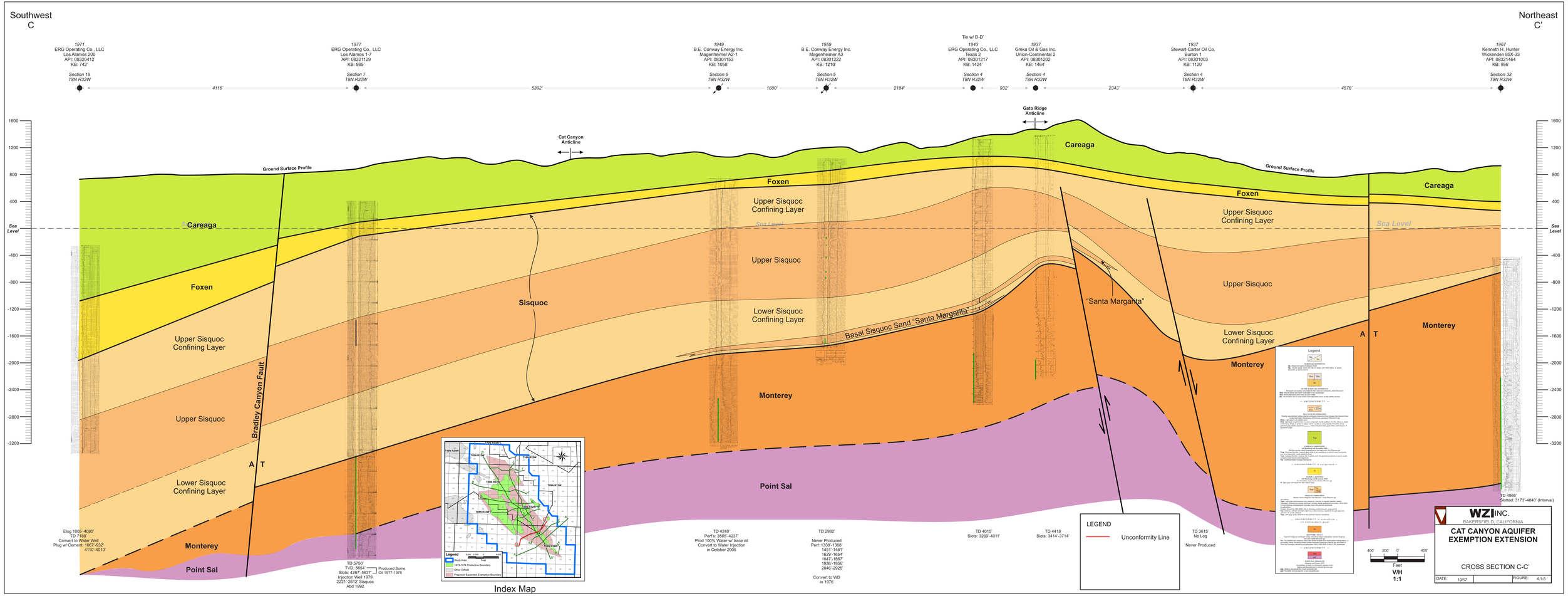
400' 200' 0' 400'
Feet
V/H
1:1

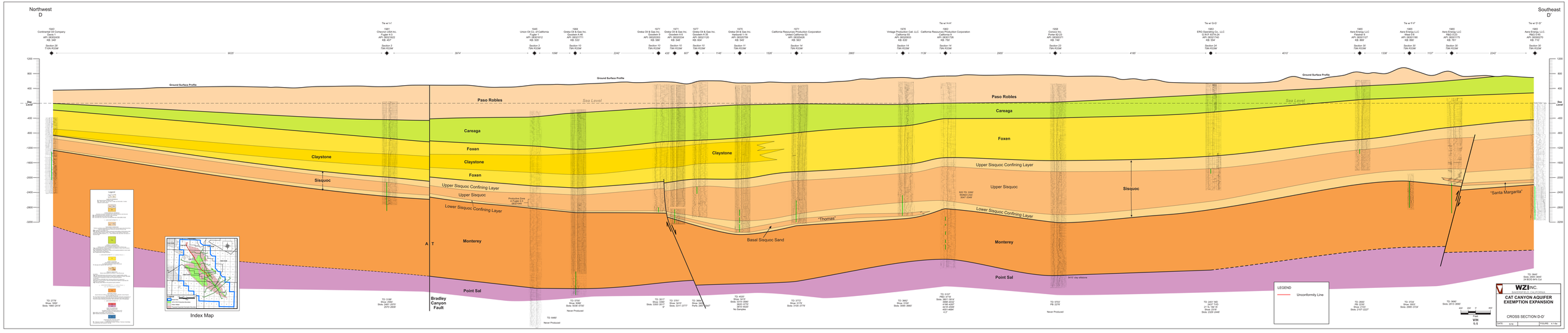
WZI INC.
BAKERSFIELD, CALIFORNIA

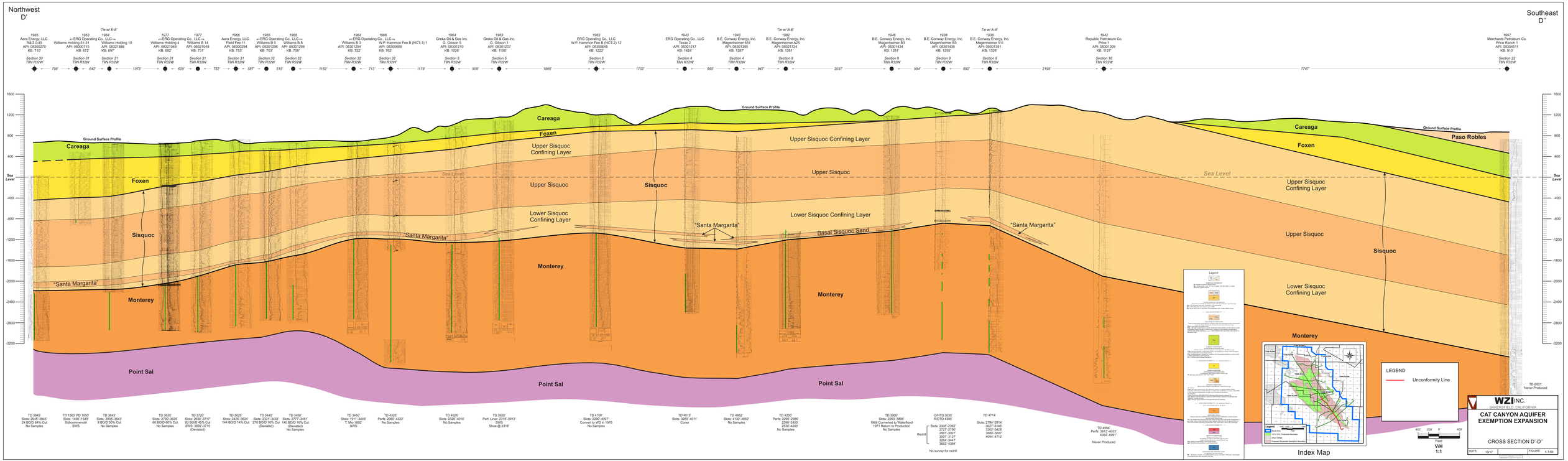
CAT CANYON AQUIFER EXEMPTION EXPANSION

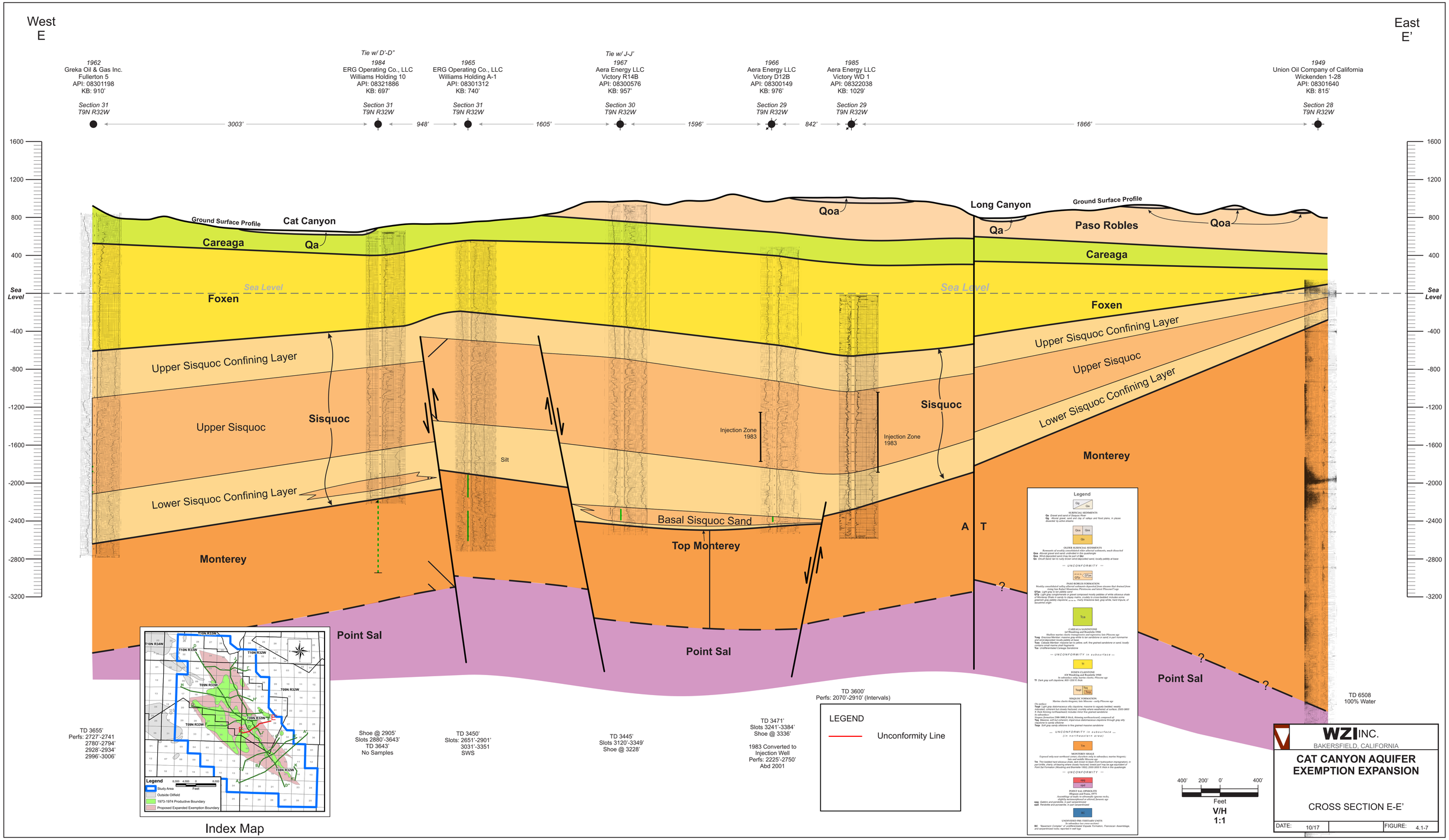
CROSS SECTION B-B'

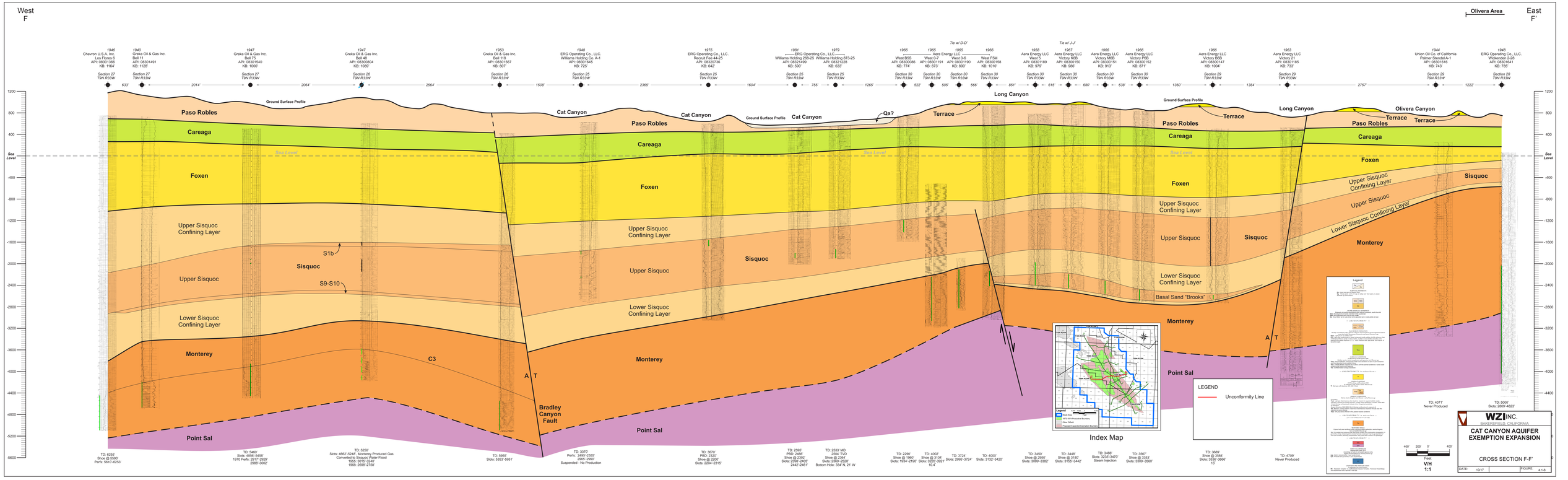
DATE: 10/17 | FIGURE: 4.1-4

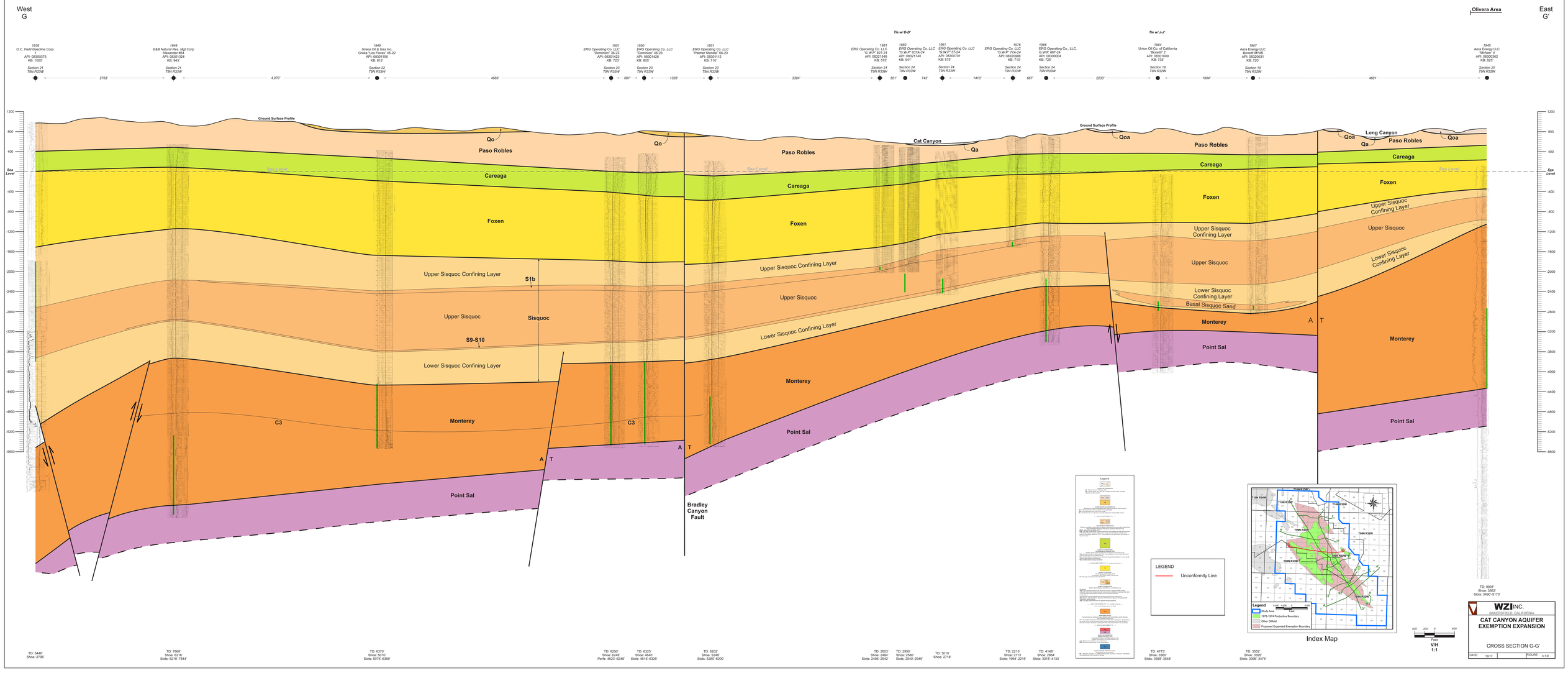

Southwest
C
Northeast
C'
1971
ERG Operating Co., LLC
Los Alamos 200
API: 08320412
KB: 742'
Section 18
T8N R32W
1977
ERG Operating Co., LLC
Los Alamos 1-7
API: 08321129
KB: 865'
Section 7
T8N R32W
1949
B.E. Conway Energy Inc.
Magenheimer A2-1
API: 08301153
KB: 1058'
Section 5
T8N R32W
1959
B.E. Conway Energy Inc.
Magenheimer A3
API: 08301222
KB: 1210'
Section 5
T8N R32W
Tie w/ D-D'
1943
ERG Operating Co., LLC
Texas 2
API: 08301217
KB: 1424'
Section 4
T8N R32W
1937
Greka Oil & Gas Inc.
Union-Continental 2
API: 08301202
KB: 1464'
Section 4
T8N R32W
1937
Stewart-Carter Oil Co.
Burton 1
API: 08301003
KB: 1120'
Section 4
T8N R32W
1967
Kenneth H. Hunter
Wickenden 85X-33
API: 08321464
KB: 956'
Section 33
T9N R32W
4116'
5392'
1600'
2184'
932'
2343'
4578'
1600
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Cat Canyon Anticline
Gato Ridge Anticline
Ground Surface Profile
Careaga
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Sisquoc
Basal Sisquoc Sand "Santa Margarita"
"Santa Margarita"
Monterey
Point Sal
Bradley Canyon Fault
A T
Elog 1005'-4080'
TD 7188'
Convert to Water Well
Plug w/ Cement: 1067'-932'
4110'-4010'
TD 5750'
TVD: 5654'
Slots: 4267'-5637'
Injection Well 1979
2221'-2612' Sisquoc
Abd 1992
Produced Some
Oil 1977-1978
TD 4240'
Perf's: 3585'-4237'
Prod 100% Water w/ trace oil
Convert to Water Injection
in October 2005
TD 2982'
Never Produced
Perf: 1338'-1368'
1451'-1461'
1629'-1654'
1847'-1867'
1936'-1956'
2846'-2925'
Convert to WD
in 1976
TD 4015'
Slots: 3269'-4011'
TD 4418
Slots: 3414'-3714'
TD 3615'
No Log
Never Produced
TD 4866'
Slotted: 3173'-4840' (Interval)
Index Map
T9N R34W
T9N R33W
T9N R32W
T8N R34W
T8N R33W
T8N R32W
T7N R34W
T7N R33W
T7N R32W
Legend
Study Area
1973-1974 Productive Boundary
Other Oilfield
Proposed Expanded Exemption Boundary
0 1.5 3 6 Miles
Legend
Unconformity Line
400' 200' 0' 400'
Feet
V/H
1:1
WZI INC.
BAKERSFIELD, CALIFORNIA
CAT CANYON AQUIFER
EXEMPTION EXTENSION
CROSS SECTION C-C'
DATE: 10/17
FIGURE: 4.1-5


Northwest
D
Southeast
D'
Ground Surface Profile
Sea Level
Paso Robles
Careaga
Foxen
Claystone
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
Point Sal
Bradley Canyon Fault
"Thomas"
Basal Sisquoc Sand
"Santa Margarita"
Index Map
LEGEND
Unconformity Line
VH
1:1
WZI INC.
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION D-D'
DATE 2/16
FIGURE 5.13a


Northwest
D'
Southeast
D''
Tie w/ E-E'
Tie w/ B-B'
Tie w/ A-A'
1965 Aera Energy, LLC. R&G 0-45 API: 0830070 KB: 710' Section 30 T9N R32W
1963 ←ERG Operating Co., LLC→ Williams Holding 51-31 API: 0830131 KB: 672' Section 31 T9N R32W
1964 ←ERG Operating Co., LLC→ Williams Holding 10 API: 0830185 KB: 691' Section 31 T9N R32W
1977 ←ERG Operating Co., LLC→ Williams Holding 4 API: 0830149 KB: 682' Section 31 T9N R32W
1977 ←ERG Operating Co., LLC→ Williams B 14 API: 0830148 KB: 731' Section 31 T9N R32W
1966 Aera Energy, LLC. Field Fee 11 API: 0830294 KB: 752' Section 31 T9N R32W
1965 ←ERG Operating Co., LLC→ Williams B 5 API: 0830136 KB: 763' Section 32 T9N R32W
1966 ←ERG Operating Co., LLC→ Williams B 8 API: 0830199 KB: 708' Section 32 T9N R32W
1964 ←ERG Operating Co., LLC→ Williams B 3 API: 0830128 KB: 722' Section 32 T9N R32W
1966 ←ERG Operating Co., LLC→ W.P. Hammon Fee B (NCT-1) 1 API: 0830089 KB: 762' Section 32 T9N R32W
1964 Greka Oil & Gas Inc. G. Gibson 5 API: 0830210 KB: 1026' Section 5 T8N R32W
1963 Greka Oil & Gas Inc. G. Gibson 1 API: 0830127 KB: 1156' Section 5 T8N R32W
1963 ERG Operating Co., LLC W.P. Hammon Fee B (NCT-2) 12 API: 0830045 KB: 1222' Section 5 T8N R32W
1943 ERG Operating Co., LLC Texaco API: 0830121217 KB: 1424' Section 4 T8N R32W
1943 B.E. Conway Energy, Inc. Magenheimer 651 API: 0830165 KB: 1287' Section 4 T8N R32W
1902 B.E. Conway Energy, Inc. Magenheimer A25 API: 0830124 KB: 1281' Section 9 T8N R32W
1946 B.E. Conway Energy, Inc. Magenheimer B3 API: 0830143 KB: 1281' Section 9 T8N R32W
1938 B.E. Conway Energy, Inc. Magenheimer B5 API: 0830130 KB: 1255' Section 9 T8N R32W
1938 B.E. Conway Energy, Inc. Magenheimer 511 API: 0830181 KB: 1326' Section 9 T8N R32W
1942 Republic Petroleum Co. Price API: 0830130309 KB: 1127' Section 16 T8N R32W
1957 Merchants Petroleum Co. Price Ranch 1 API: 0830451 KB: 910' Section 22 T8N R32W
798' 642' 1073' 628' 732' 587' 515' 1162' 713' 1179' 908' 1866' 1702' 995' 947' 2037' 994' 892' 2196' 7747'
1600 1200 800 400 Sea Level -400 -800 -1200 -1600 -2000 -2400 -2800 -3200
Ground Surface Profile
Careaga
Foxen
Sisquoc
Monterey
Point Sal
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Lower Sisquoc Confining Layer
Basal Sisquoc Sand
"Santa Margarita"
Paso Robles
TD 3845' Slots: 2945'-3845' 24 BOO 64% Cut No Samples
TD 1563' PD 1555' Slots: 1499'-1549' Subcommercial SWS
TD 3643' Slots: 2965'-3643' 8 BOO 50% Cut No Samples
TD 3630' Slots: 2760'-3630' 60 BOO 60% Cut No Samples
TD 3720' Slots: 2630'-3717' 83 BOO 45% Cut SWS: 3692'-3710 (Deviated)
TD 3625' Slots: 2425'-3624' 144 BOO 14% Cut
TD 3440' Slots: 2321'-3433' 270 BOO 16% Cut (Deviated)
TD 3460' Slots: 2777'-3451' 140 BOO 16% Cut (Deviated) No Samples
TD 3450' Slots: 1911'-3449' T. Mio 1892' SWS
TD 4325' Perfs: 2060'-4322' No Samples
TD 4026' Slots: 2320'-4016' No Samples
TD 3920' Perf. Liner: 2318'-3913' SWS Shoe @ 2318'
TD 4100' Slots: 2290'-4097' Convert to WD in 1976 No Samples
TD 4015' Slots: 3269'-4011' Cores
TD 4662' Slots: 4132'-4662' No Samples
TD 4200' Perfs: 2295'-2385' 2390'-2450' 2530'-4200' No Samples
TD 3900' Slots: 2283'-3898' 1969 Converted to Waterflood 1971 Return to Production No Samples
O/HTD 3035' R/DTD 4385'
Redrill
Slots: 2320'-2382' 2387'-2390' 2661'-3027' 3097'-3127' 3254'-3447' 3653'-4384'
No survey for redrill
TD 4714' Slots: 2794'-2914' 3027'-3144' 3327'-3428' 3690'-3803' 4094'-4712'
TD 4994' Perfs: 3812'-4033' 4384'-4991' Never Produced
TD 6001' Never Produced
Legend
Index Map
LEGEND
Unconformity Line
400' 200' 0' 400'
Feet
V/H
1:1
WZI INC.
BAKERSFIELD, CALIFORNIA
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION D'-D''
DATE: 10/17
FIGURE: 4.1-6b


West
E
East
E'
1962
Greka Oil & Gas Inc.
Fullerton 5
API: 08301198
KB: 910'
Section 31
T9N R32W
Tie w/ D'-D"
1984
ERG Operating Co., LLC
Williams Holding 10
API: 08321886
KB: 697'
Section 31
T9N R32W
1965
ERG Operating Co., LLC
Williams Holding A-1
API: 08301312
KB: 740'
Section 31
T9N R32W
Tie w/ J-J'
1967
Aera Energy LLC
Victory R14B
API: 08300576
KB: 957'
Section 30
T9N R32W
1966
Aera Energy LLC
Victory D12B
API: 08300149
KB: 976'
Section 29
T9N R32W
1985
Aera Energy LLC
Victory WD 1
API: 08322038
KB: 1029'
Section 29
T9N R32W
1949
Union Oil Company of California
Wickenden 1-28
API: 08301640
KB: 815'
Section 28
T9N R32W
3003'
948'
1605'
1596'
842'
1866'
1600
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
Ground Surface Profile
Cat Canyon
Careaga
Qa
Qoa
Long Canyon
Paso Robles
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Sisquoc
Lower Sisquoc Confining Layer
Monterey
Silt
Injection Zone
1983
Basal Sisquoc Sand
Top Monterey
A T
Point Sal
TD 3655'
Perfs: 2727'-2741
2780'-2794'
2928'-2934'
2996'-3006'
Shoe @ 2905'
Slots 2880'-3643'
TD 3643'
No Samples
TD 3450'
Slots: 2651'-2901'
3031'-3351
SWS
TD 3445'
Slots 3120'-3349'
Shoe @ 3228'
TD 3471'
Slots 3241'-3384'
Shoe @ 3336'
1983 Converted to
Injection Well
Perfs: 2225'-2750'
Abd 2001
TD 3600'
Perfs: 2070'-2910' (Intervals)
TD 6508
100% Water
LEGEND
Unconformity Line
Legend
Study Area
Outside Oilfield
1973-1974 Productive Boundary
Proposed Expanded Exemption Boundary
Index Map
400' 200' 0' 400'
Feet
V/H
1:1
WZI INC.
BAKERSFIELD, CALIFORNIA
CAT CANYON AQUIFER
EXEMPTION EXPANSION
CROSS SECTION E-E'
DATE: 10/17
FIGURE: 4.1-7


West
F
Olivera Area
East
F'
1946
Chevron U.S.A. Inc.
Los Flores 6
API: 08301366
KB: 1164'
Section 27
T9N R33W
1940
Greka Oil & Gas Inc.
Bell 11
API: 08301491
KB: 1128'
Section 27
T9N R33W
1947
Greka Oil & Gas Inc.
Bell 75
API: 08301540
KB: 1000'
Section 27
T9N R33W
1947
Greka Oil & Gas Inc.
Bell 48
API: 08300804
KB: 1089'
Section 26
T9N R33W
1953
Greka Oil & Gas Inc.
Bell 118
API: 08301567
KB: 807'
Section 26
T9N R33W
1948
ERG Operating Co., LLC.
Williams Holding Co. A-1
API: 08301645
KB: 725'
Section 25
T9N R33W
1975
ERG Operating Co., LLC.
Recruit Fee 44-25
API: 08320736
KB: 642'
Section 25
T9N R33W
1981
ERG Operating Co., LLC
Williams Holding 26B-25
API: 08321499
KB: 590'
Section 25
T9N R33W
1979
Williams Holding 873-25
API: 08321228
KB: 633'
Section 25
T9N R33W
Tie w/ D-D'
1966
West B55
API: 08300086
KB: 774'
Section 30
T9N R33W
1965
Aera Energy LLC
West O-7
API: 08301191
KB: 873'
Section 30
T9N R33W
1965
Aera Energy LLC
West O-6
API: 08301190
KB: 890'
Section 30
T9N R33W
1966
West F5M
API: 08300158
KB: 1010'
Section 30
T9N R33W
Tie w/ J-J'
1958
Aera Energy LLC
West 5
API: 08301189
KB: 979'
Section 30
T9N R33W
1987
Aera Energy LLC
Victory K6B
API: 08300150
KB: 986'
Section 30
T9N R33W
1966
Aera Energy LLC
Victory M6B
API: 08300151
KB: 913'
Section 30
T9N R33W
1966
Aera Energy LLC
Victory P6B
API: 08300152
KB: 871'
Section 30
T9N R33W
1966
Aera Energy LLC
Victory B6B
API: 08300147
KB: 1004'
Section 29
T9N R33W
1963
Aera Energy LLC
Victory 21
API: 08301185
KB: 732'
Section 29
T9N R33W
1944
Union Oil Co. of California
Palmer Stendel A-1
API: 08301616
KB: 742'
Section 29
T9N R33W
1949
ERG Operating Co., LLC.
Wickenden 2-28
API: 08301641
KB: 785'
Section 28
T9N R33W
633'
2014'
2064'
2564'
1508'
2365'
1604'
755'
1265'
522'
505'
556'
851'
615'
680'
638'
1360'
1384'
2757'
1222'
1200
800
400
Sea Level
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
-3600
-4000
-4400
-4800
-5200
-5600
Ground Surface Profile
Paso Robles
Cat Canyon
Cat Canyon
Ground Surface Profile
Cat Canyon
Qa?
Terrace
Long Canyon
Ground Surface Profile
Terrace
Long Canyon
Olivera Canyon
Terrace
Terrace
Paso Robles
Paso Robles
Paso Robles
Careaga
Careaga
Careaga
Sea Level
Sea Level
Sea Level
Foxen
Foxen
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Basal Sand "Brooks"
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Sisquoc
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Sisquoc
S1b
S9-S10
Upper Sisquoc
Lower Sisquoc Confining Layer
Monterey
C3
Monterey
Monterey
Monterey
A T
A T
Bradley Canyon Fault
Point Sal
Point Sal
Point Sal
TD: 6255'
Show @ 5590'
Perfs: 5610'-6253'
TD: 5460'
Slots: 4856'-5458'
1970 Perfs: 2917'-2929'
2988'-3002'
TD: 5250'
Slots: 4662'-5248'; Monterey Produced Gas
Converted to Steam Water Flood
1955: 3244'-3266'
1969: 2698'-2750'
TD: 5955'
Slots: 5353'-5951'
TD: 3370'
Perfs: 2495'-2555'
2965'-2990'
Suspended - No Production
TD: 3670'
PBD: 2320'
Show @ 2200'
Slots: 2204'-2315'
TD: 2595'
PBD: 2400'
Show @ 2350'
Slots: 2344'-2405'
2442'-2461'
TD: 2533' MD
TVD: 2394'
Show @ 2364'
Slots: 2389'-2528'
Bottom Hole: 334' N, 21' W
TD: 2290'
Show @ 1980'
Slots: 183'-2190'
TD: 4002'
Show @ 3104'
Slots: 3282'-3921'
10.4'
TD: 3724'
Slots: 2995'-3724'
TD: 4000'
Slots: 3132'-3420'
TD: 3450'
Show @ 2950'
Slots: 3089'-3382'
TD: 3448'
Show @ 3180'
Slots: 3150'-3442'
TD: 3488'
Slots: 3238'-3470'
Steam Injection
TD: 3567'
Show @ 3353'
Slots: 3309'-3560'
TD: 3689'
Show @ 3564'
Slots: 3538'-3666'
13'
TD: 4709'
Never Produced
TD: 407'
Never Produced
TD: 5000'
Slots: 2809'-4823'
Index Map
LEGEND
Unconformity Line
Legend
WZI INC.
SANTA MARIA, CALIFORNIA
CAT CANYON AQUIFER EXEMPTION EXPANSION
CROSS SECTION F-F'
DATE: 10/17
FIGURE: 4.1-8
400'
200'
0'
400'
Feet
V/H
1:1


West
G
Olivera Area
East
G'
Tie w/ D-D'
Tie w/ J-J'
1936
Ol.C. Field Gasoline Corp.
1
API: 08300375
KB: 1000'
Section 21
T9N R33W
2763'
1949
E&B Natural Res. Mgt Corp
Alexander #64
API: 08301324
KB: 943'
Section 21
T9N R33W
4,070'
1949
Greka Oil & Gas Inc.
Greka "Los Flores" 45-22
API: 08301156
KB: 812'
Section 22
T9N R33W
4683'
1951
ERG Operating Co. LLC
"Dominion" 36-23
API: 08301423
KB: 723'
Section 23
T9N R33W
661'
1950
ERG Operating Co. LLC
"Dominion" 46-23
API: 08301426
KB: 800'
Section 23
T9N R33W
1328'
1951
ERG Operating Co. LLC
"Palmer Standard" 66-23
API: 08301112
KB: 710'
Section 23
T9N R33W
3384'
1981
ERG Operating Co. LLC
"G.W.P." 227-24
API: 08321548
KB: 575'
Section 24
T9N R33W
50'
1982
ERG Operating Co. LLC
"G.W.P." 237A-24
API: 08321740
KB: 541'
Section 24
T9N R33W
743'
1961
ERG Operating Co. LLC
"G.W.P." 57-24
API: 08300701
KB: 575'
Section 24
T9N R33W
1410'
1976
ERG Operating Co. LLC
"G.W.P." 774-24
API: 08320988
KB: 715'
Section 24
T9N R33W
667'
1955
ERG Operating Co., LLC.
G.W.P. 857-24
API: 08300004
KB: 725'
Section 24
T9N R33W
2233'
1964
Union Oil Co. of California
"Bonetti" 2
API: 08301609
KB: 735'
Section 19
T9N R33W
1904'
1967
Aera Energy LLC
Bonetti 97-48
API: 08320031
KB: 720'
Section 19
T9N R33W
4681'
1945
Aera Energy LLC
"McVean" 4
API: 08300362
KB: 825'
Section 20
T9N R33W
Ground Surface Profile
Qo
Paso Robles
Cat Canyon
Qa
Qoa
Long Canyon
Careaga
Foxen
Upper Sisquoc Confining Layer
Upper Sisquoc
Lower Sisquoc Confining Layer
Basal Sisquoc Sand
S1b
Sisquoc
S9-S10
Monterey
Point Sal
C3
A T
Bradley Canyon Fault
Sea Level
Sea Level
Sea Level
Sea Level
1200
800
400
-400
-800
-1200
-1600
-2000
-2400
-2800
-3200
-3600
-4000
-4400
-4800
-5200
-5600
TD: 5446'
Shoe: 2796'
TD: 7868'
Shoe: 6216'
Slots: 6216'-7644'
TD: 6370'
Shoe: 5075'
Slots: 5076'-6368'
TD: 6250'
Shoe: 6248'
Perfs: 4527'-6248'
TD: 6325'
Shoe: 4646'
Slots: 4616'-6325'
TD: 6202'
Shoe: 5248'
Slots: 5200'-6200'
TD: 2603'
Shoe: 2484'
Slots: 2485'-2542'
TD: 2950'
Shoe: 2580'
Slots: 2540'-2949'
TD: 3010'
Shoe: 2718'
TD: 2215'
Shoe: 2115'
Slots: 1994'-2215'
TD: 4148'
Shoe: 2984'
Slots: 3418'-4133'
TD: 4773'
Shoe: 3380'
Slots: 3358'-3948'
TD: 3552'
Shoe: 3390'
Slots: 3246'-3474'
TD: 9001'
Shoe: 3583'
Slots: 3490'-5170'
Legend
LEGEND
Unconformity Line
Index Map
T10N R34W
T10N R33W
T10N R32W
T9N R34W
T9N R33W
T9N R32W
T8N R33W
T8N R32W
T8N R31W
Legend
Study Area
1975-1974 Productive Boundary
Other Offset
Proposed Expanded Exemption Boundary
0.500 0.250 0.1000
Miles
400' 200' 0 400'
Feet
V/H
1:1
WZI INC.
SANTA BARBARA, CALIFORNIA
CAT CANYON AQUIFER
EXEMPTION EXPANSION
CROSS SECTION G-G'
DATE: 10/17
FIGURE: 4-1-9