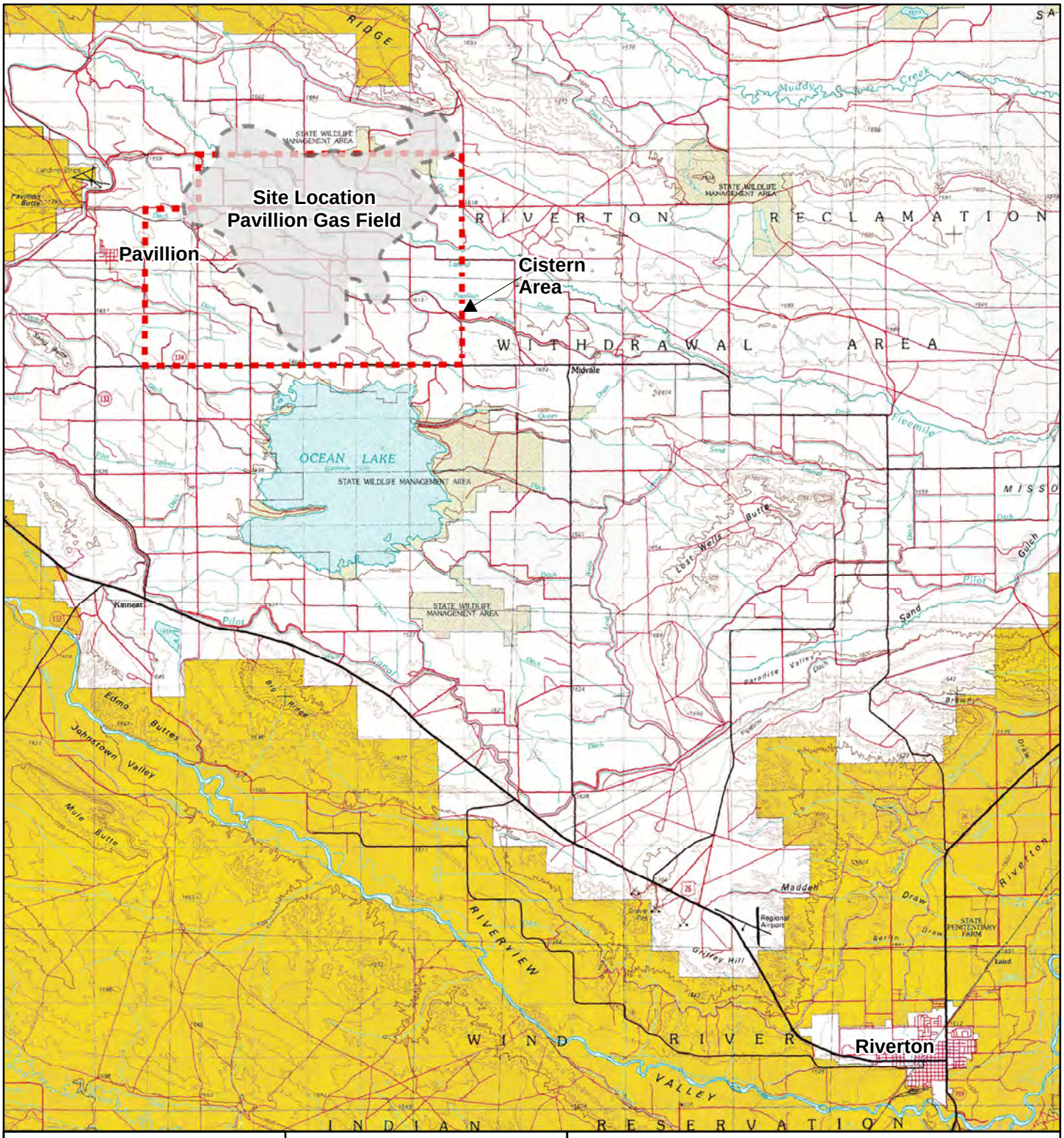


N

0 7,000 14,000

Feet

FIGURE 1

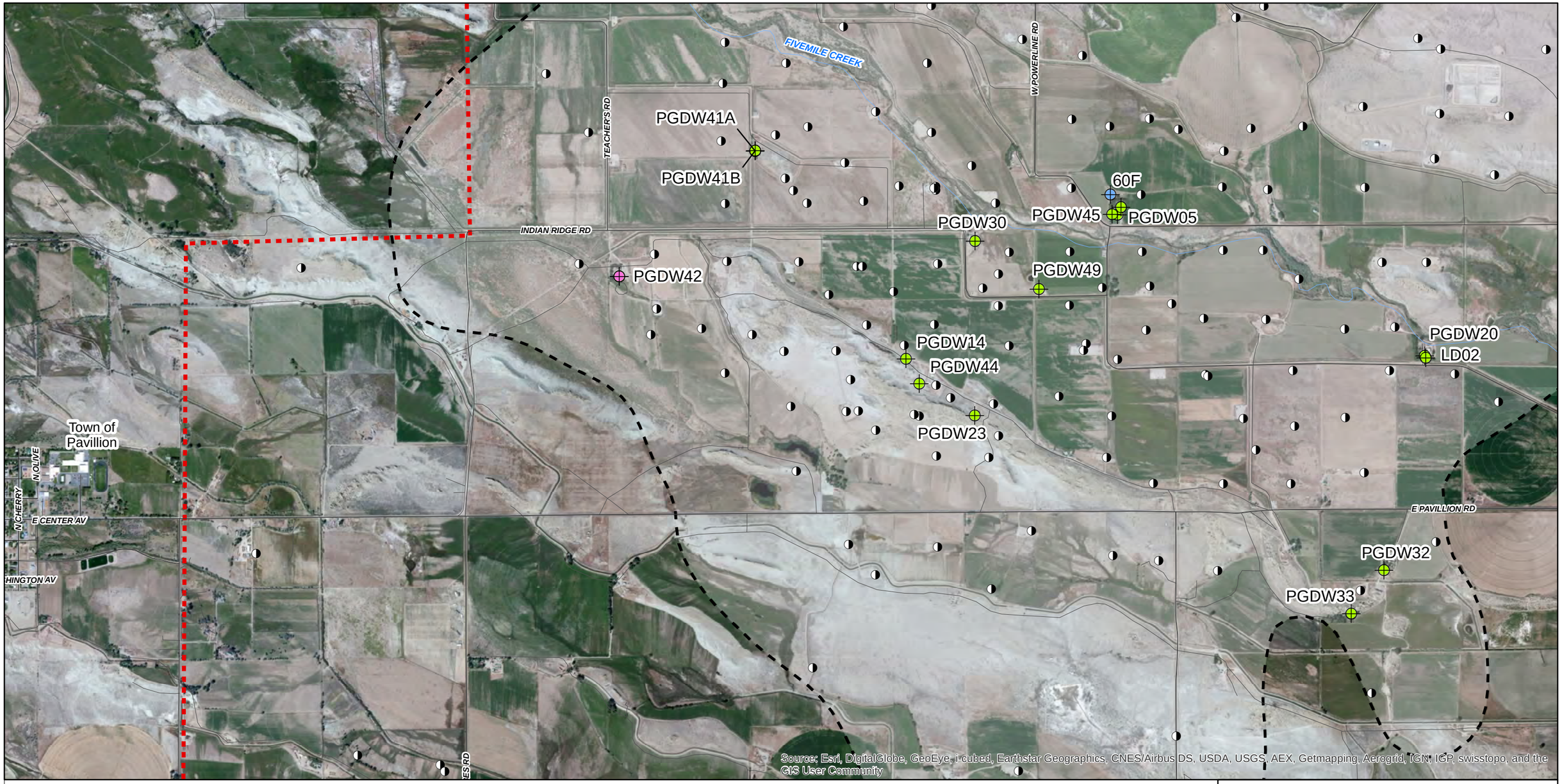
SITE LOCATION MAP

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

AME
Engineers and Earth Scientists

1107 Investment Blvd., #290, El Dorado Hills, California 95762 (916) 939-7550

2014-07-09 T:\90081_Pavillion\REPORT\19e\MXD\Fig01_Site_Location_Map.mxd JW



LEGEND

- PGDW32 — Water-Supply Well Location and Designation - Sampled
- PGDW42 — Water-Supply Well Location and Designation - Not Sampled in 2014
- 60F — Water-Supply Well Location and Designation - Depth to Water Only
- Oil and Gas Well Location
- Streams
- County and TIGER Roads
- Cistern Area
- Pavillion Gas Field

N

0 900 1800

1 in = 1,800 feet

Notes:

1. Sampled (2014) and depth to water measured (2014) water supply well locations were collected with sub-meter GPS equipment by AME, 2014.
2. All other map layers provided by WOGCC, WY DEQ, WY SEO, USGS, and US Census; locations and dimensions are approximate.

FIGURE 2

SITE MAP WITH GAS WELLS AND WATER-SUPPLY WELLS SAMPLED

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

AME
Engineers and Earth Scientists
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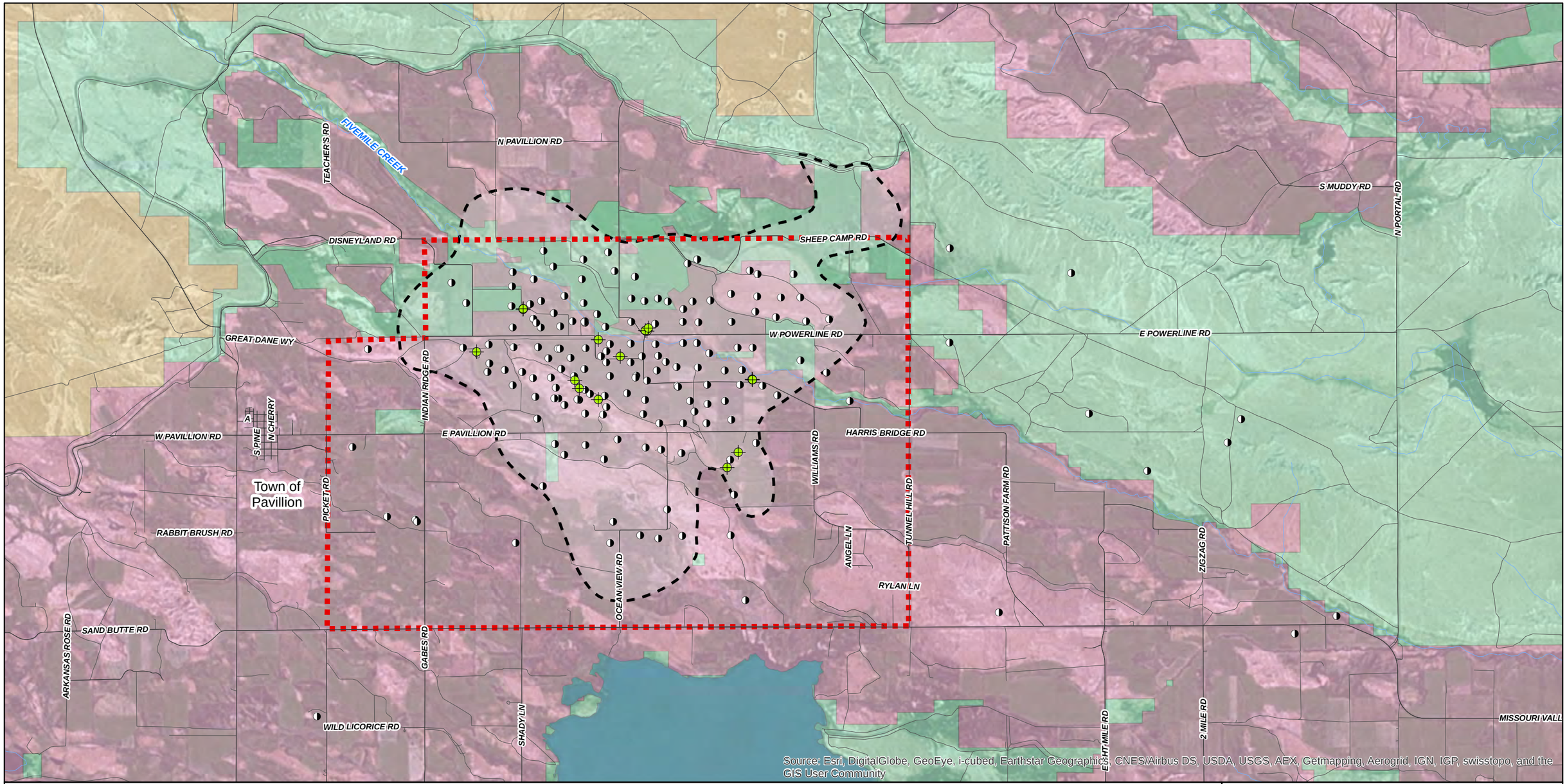

LEGEND

- Water-Supply Well Location
- Oil and Gas Well Location
- Streams
- County and TIGER Roads
- Cistern Area
- Pavillion Gas Field
- Water

Surface Ownership

- Bureau of Indian Affairs
- Bureau of Reclamation
- Private

N

0 0.5 1.0

1 in = 1 mile

FIGURE 3

SURFACE OWNERSHIP

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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Engineers and Earth Scientists

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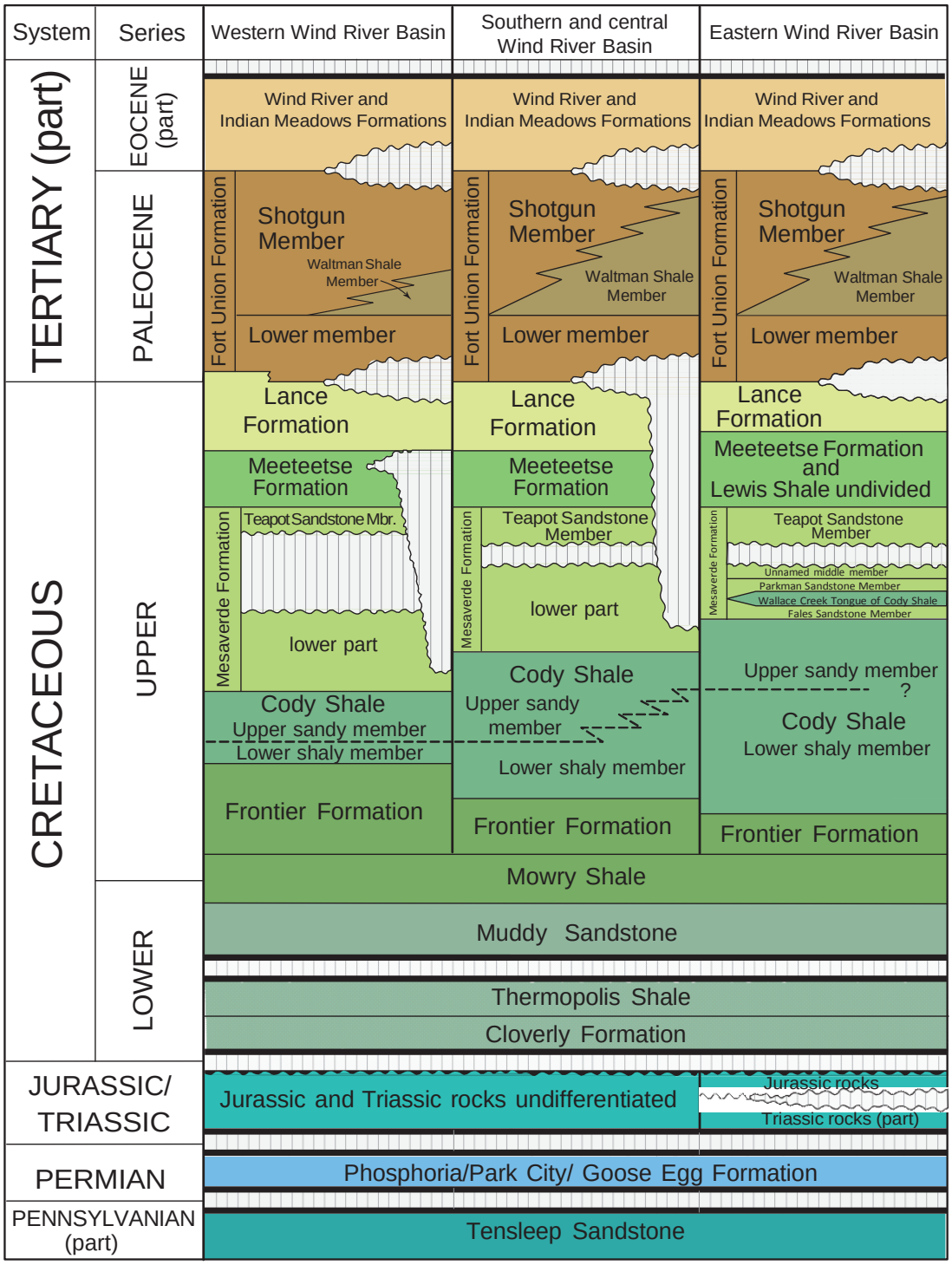
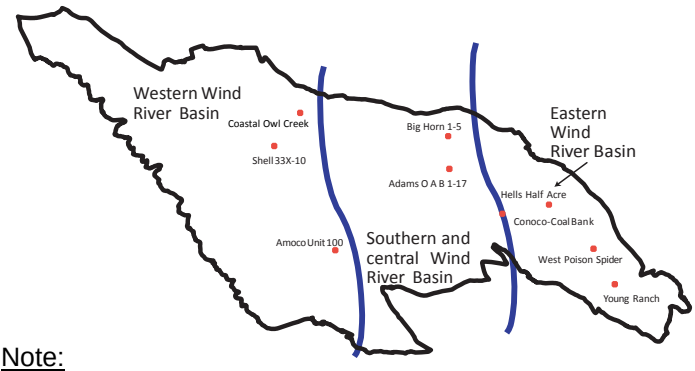
2015-06-15 T:\90081_Pavillion\REPORT\19e\MXD\Fig03_Surface_Ownership.mxd JW





Note:

Figure from Johnson et al. 2007.

FIGURE 4
GENERALIZED STRATIGRAPHIC COLUMNS AND CORRELATIONS OF MISSISSIPPIAN THROUGH EOCENE STRATA IN THE WIND RIVER BASIN

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

AME
Engineers and Earth Scientists

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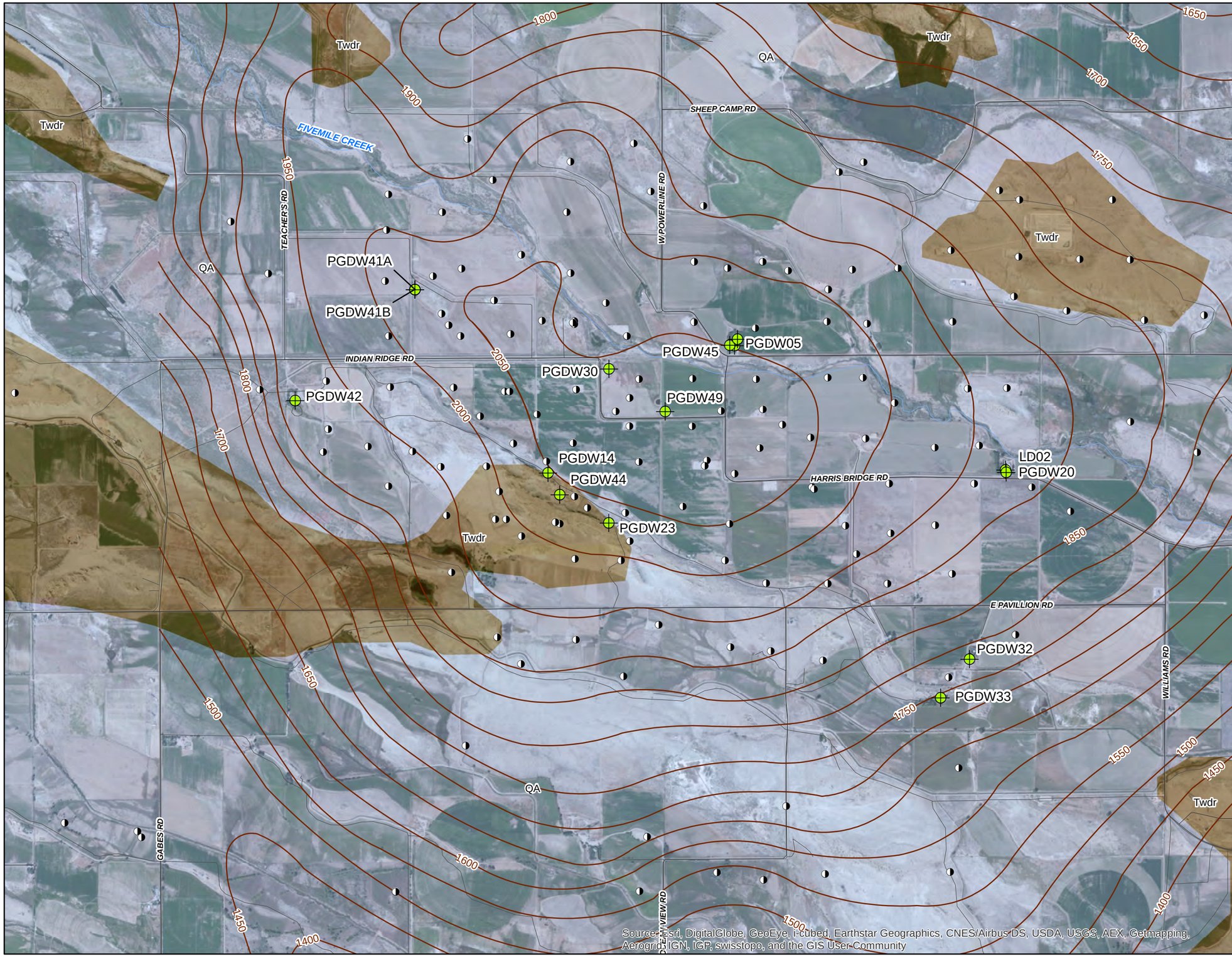

Legend

PGDW05 — Water-Supply Well Location and Designation

Oil and Gas Well Location

County and TIGER Roads

Streams

1950 — Structural Contour, Top of Fort Union Formation (elevation in feet)

Surficial Geology

Qa - Alluvium and colluvium

Twdr - Wind River Formation

Note:

Structural contours from Seeland, 1989.

N

0 1000 2000

1 in = 2,000 feet

FIGURE 5

GEOLOGIC MAP

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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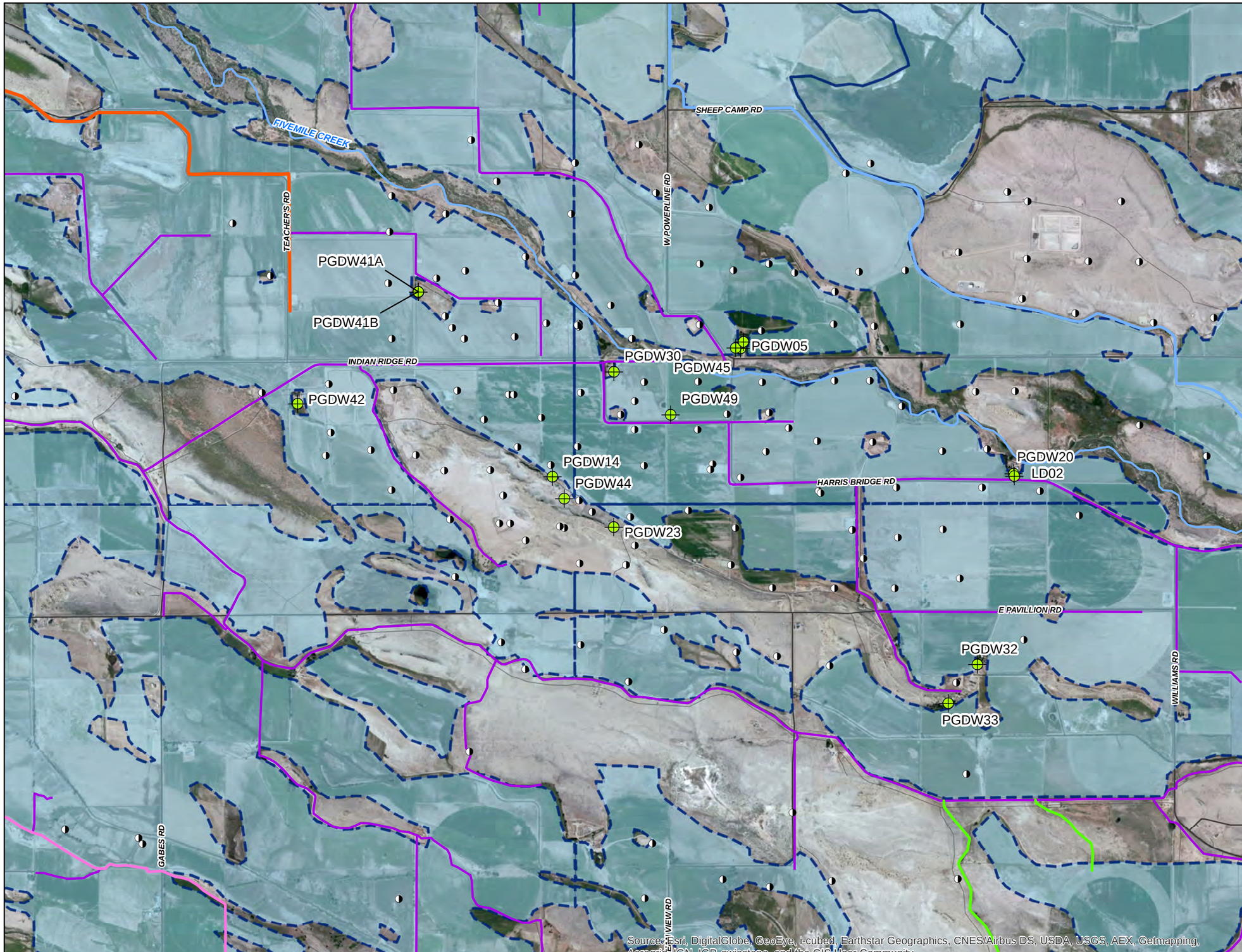
2015-06-15 T:\90081_Pavillion\REPORT\19e\MXD\fig05_geologic_map.mxd JW



Legend

- Water-Supply Well Location and Designation
- Oil and Gas Well Location
- County and TIGER Roads
- Streams
- Irrigated Land

Irrigation Ditch Location & Seepage Rate

- 0.0 - 5.0
- 5.1 - 10.0
- 10.1 - 20.0
- 20.1 - 30.0
- 30.1 - 40.0
- 40.1 - 50.0
- 50.1 - 60.0

N

0 1000 2000

1 in = 2,000 feet

FIGURE 6

HYDROLOGY AND IRRIGATED LAND

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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2015-06-15 T:\90081_Pavillion\REPORT\19e\MXD\fig06_hydrology_and_irrigated_land.mxd JW

Legend

PGDW20 — Water-Supply Well Location and Designation

Oil and Gas Well Location

County and TIGER Roads

Streams

Bm — Soil Map Unit Polygons

Soils Classifications

- ApA - Apron sandy loam, 0 to 3% slopes
- ApB - Apron sandy loam, 3 to 6% slopes
- ApC - Apron sandy loam, 6 to 10% slopes
- Bm - Binton silty clay loam
- BoC - Birdsley clay loam, 0 to 10% slopes
- Ef - Effington sandy clay loam
- EtA - Ethete loam, 0 to 3% slopes
- EtB - Ethete loam, 3 to 6% slopes
- FmA - Fivemile sandy clay loam, 0 to 3% slopes
- FnA - Fivemile silty clay loam, 0 to 3% slopes
- FoB - Fivemile silty clay loam, saline, 0 to 6% slopes
- Gu - Gullied land
- LoA - Lostwells sandy clay loam, 0 to 3% slopes
- LoB - Lostwells sandy clay loam, 3 to 6% slopes
- LoC - Lostwells sandy clay loam, 6 to 10% slopes
- LsB - Lostwells sandy clay loam, alkali, 0 to 6% slopes
- LtB - Lostwells sandy clay loam, saline, 0 to 6% slopes
- ORE - Oceanet-Rock land association, hilly
- POD - Persayo-Oceanet association, steep
- PaA - Pavillion sandy clay loam, 0 to 3% slopes
- PaC - Pavillion sandy clay loam, 3 to10% slopes
- PcB - Pavillion sandy clay loam, alkali, 0 to 6% slopes
- PeE - Persayo sandy clay loam, 0 to 30% slopes
- Sw - Saline wet land
- TVD - Trook-Clifterson association, moderately steep
- TcA - Teapo sandy clay loam, 0 to 3% slopes
- TcB - Teapo sandy clay loam, 3 to 6% slopes
- TeB - Teapo sandy clay loam, saline, 0 to 6% slopes
- TmC - Tipperary loamy sand, 6 to 10% slopes
- WSC - Worland-Oceanet complex, 0 to 10% slopes
- Wa - Wet alluvial land
- Wc - Winkleman silty clay
- We - Winkleman silty clay, saline
- Wk - Winkleman silty clay, wet
- WoB - Worland sandy loam, 3 to 6% slopes
- WoC - Worland sandy loam, 6 to 10% slopes
- Yo - Youngston clay loam

N

0 600 1200

1 in = 1,200 feet

FIGURE 7

SOILS MAP

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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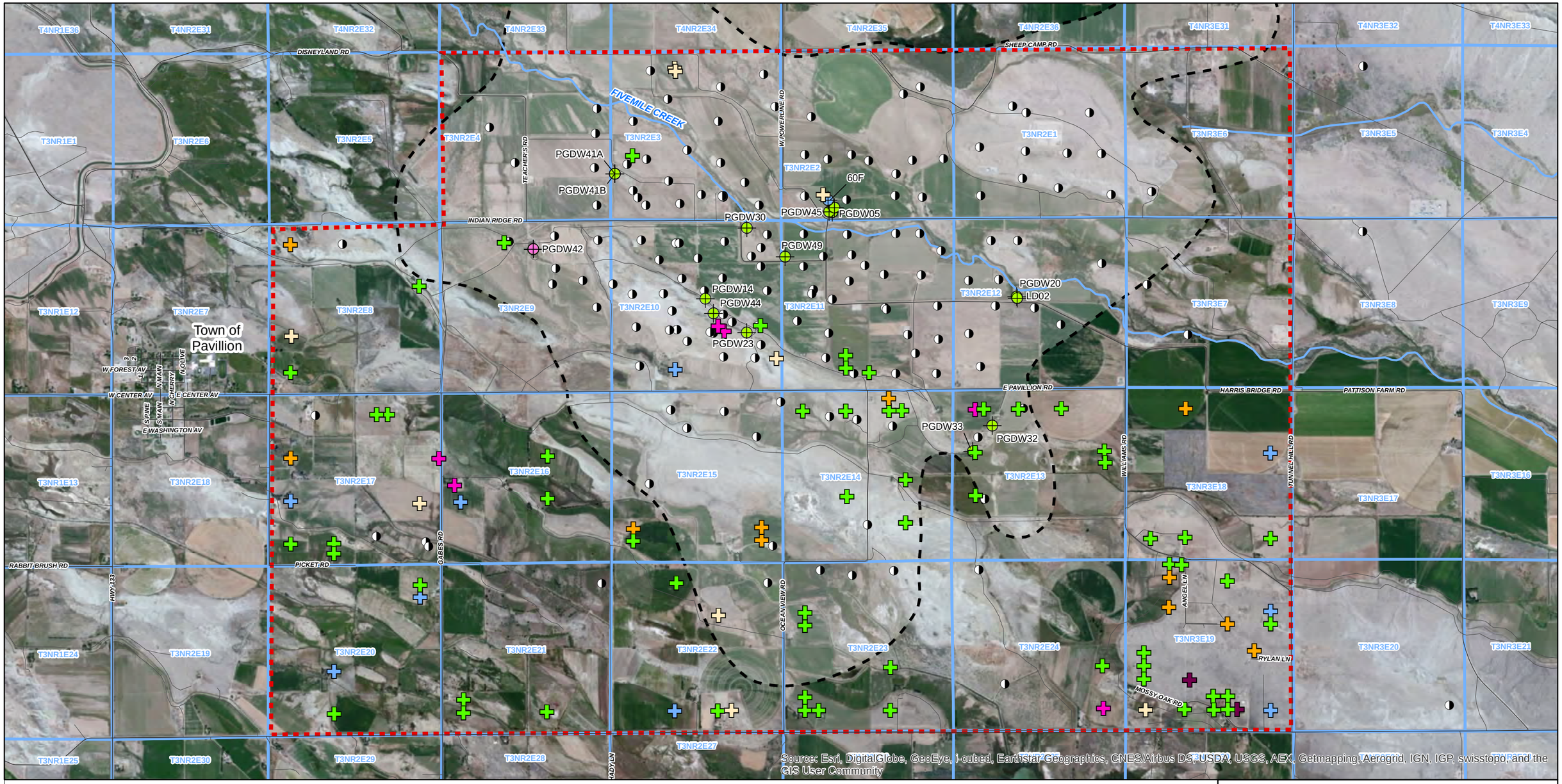
2015-06-15 T:\90081_Pavillion\REPORT\19e\MXD\fig07_soils_map.mxd JW



LEGEND

- PGDW32 — Water-Supply Well Location and Designation - Sampled
- PGDW42 — Water-Supply Well Location and Designation - Not Sampled in 2014
- 60F — Water-Supply Well Location and Designation - Depth to Water Only
- Oil and Gas Well Location
- Streams
- County and TIGER Roads
- Cistern Area
- Pavillion Gas Field
- Township Range Section (T3NR2E16)

Permitted Water-Supply Wells by Depth

- 0
- 0-200
- 200-400
- 400-600
- 600-800
- >800

N

0 1500 3000

1 in = 3,000 feet

Notes:

1. Sampled (2014) and depth to water measured (2014) water-supply well locations were collected with sub-meter GPS equipment by AME, 2014.
2. All other map layers provided by WOGCC, WY DEQ, WY SEO, USGS, and US Census; locations and dimensions are approximate.
3. Map includes water-supply wells with designated uses as domestic groundwater and/or stock. Reported depth of zero feet apparently used to denote unknown depth in WY SEO database. Well locations in SEO database reported to nearest 1/4-1/4 section.

FIGURE 8
SITE MAP WITH WATER-SUPPLY WELLS SAMPLED AND PERMITTED WATER-SUPPLY WELLS WITHIN THE CISTERN AREA

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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2015-06-15 T:\90081_Pavillion\REPORT\19e\MXD\Fig08_Site_Map_with_Water_Supply_Wells_Permitted_Supply_Wells.mxd JW

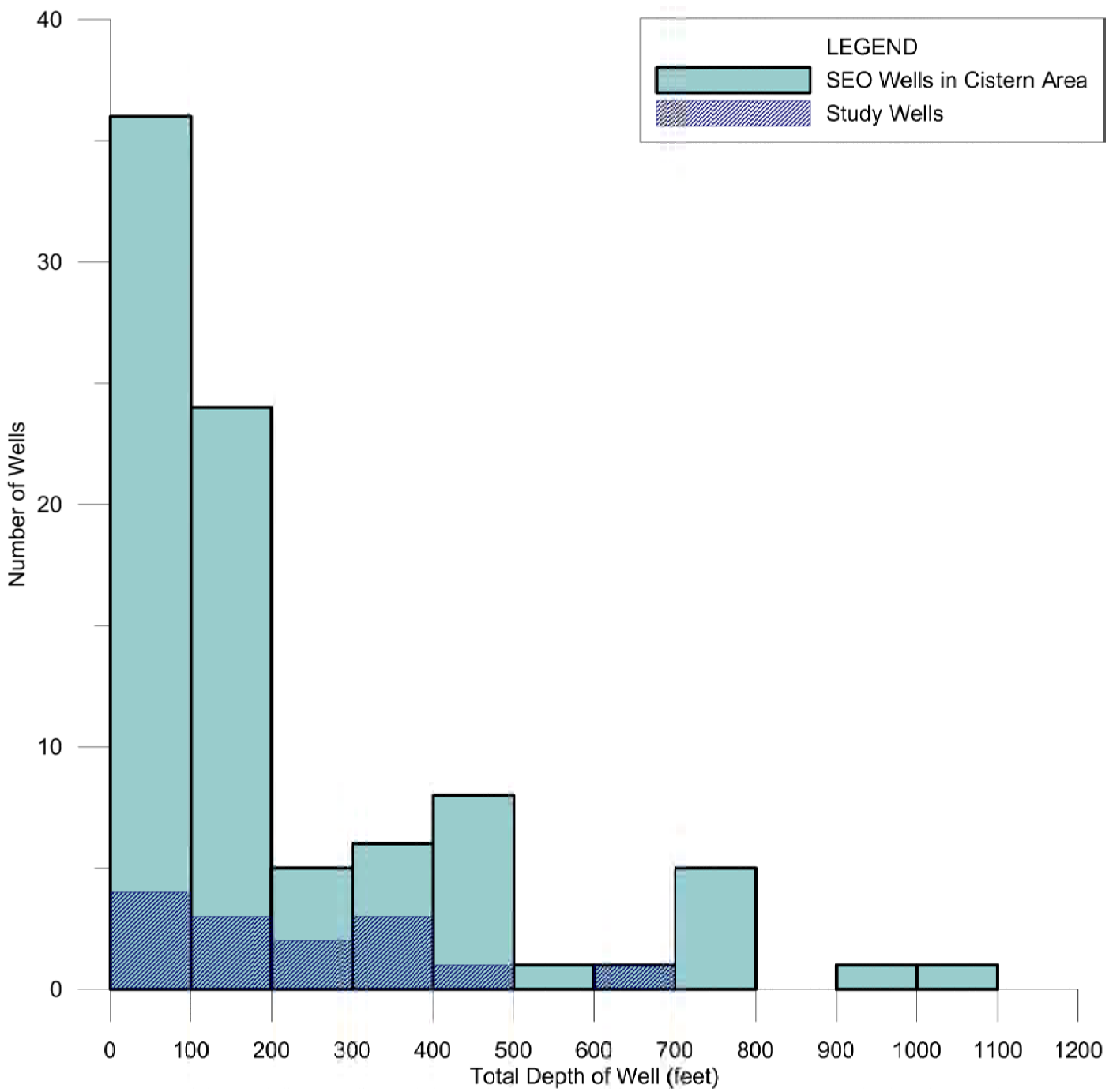

FIGURE 9

HISTOGRAM OF WATER-SUPPLY WELL DEPTHS

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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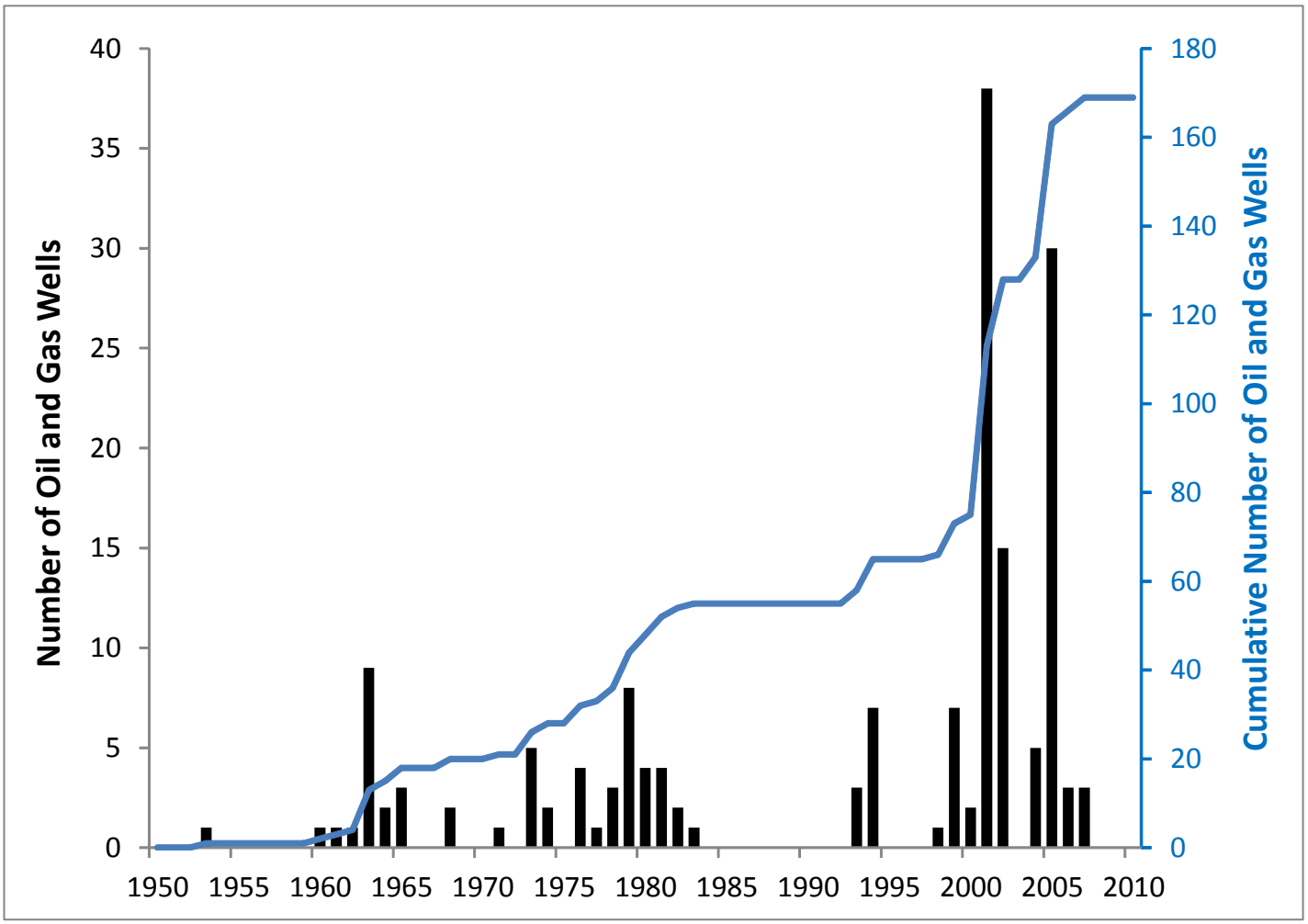
1107 Investment Blvd., #290, El Dorado Hills, California 95762 (916) 939-7550



Year	Number Completed	Cumulative Number
1953	1	1
1960	1	2
1961	1	3
1962	1	4
1963	9	13
1964	2	15
1965	3	18
1968	2	20
1971	1	21
1973	5	26
1974	2	28
1976	4	32
1977	1	33
1978	3	36
1979	8	44
1980	4	48
1981	4	52
1982	2	54
1983	1	55
1993	3	58
1994	7	65
1998	1	66
1999	7	73
2000	2	75
2001	38	113
2002	15	128
2004	5	133
2005	30	163
2006	3	166
2007	3	169

FIGURE 10

HISTORY OF OIL AND GAS WELL DEVELOPMENT IN THE PAVILLION FIELD

Pavillion, WY Area Domestic Water Wells
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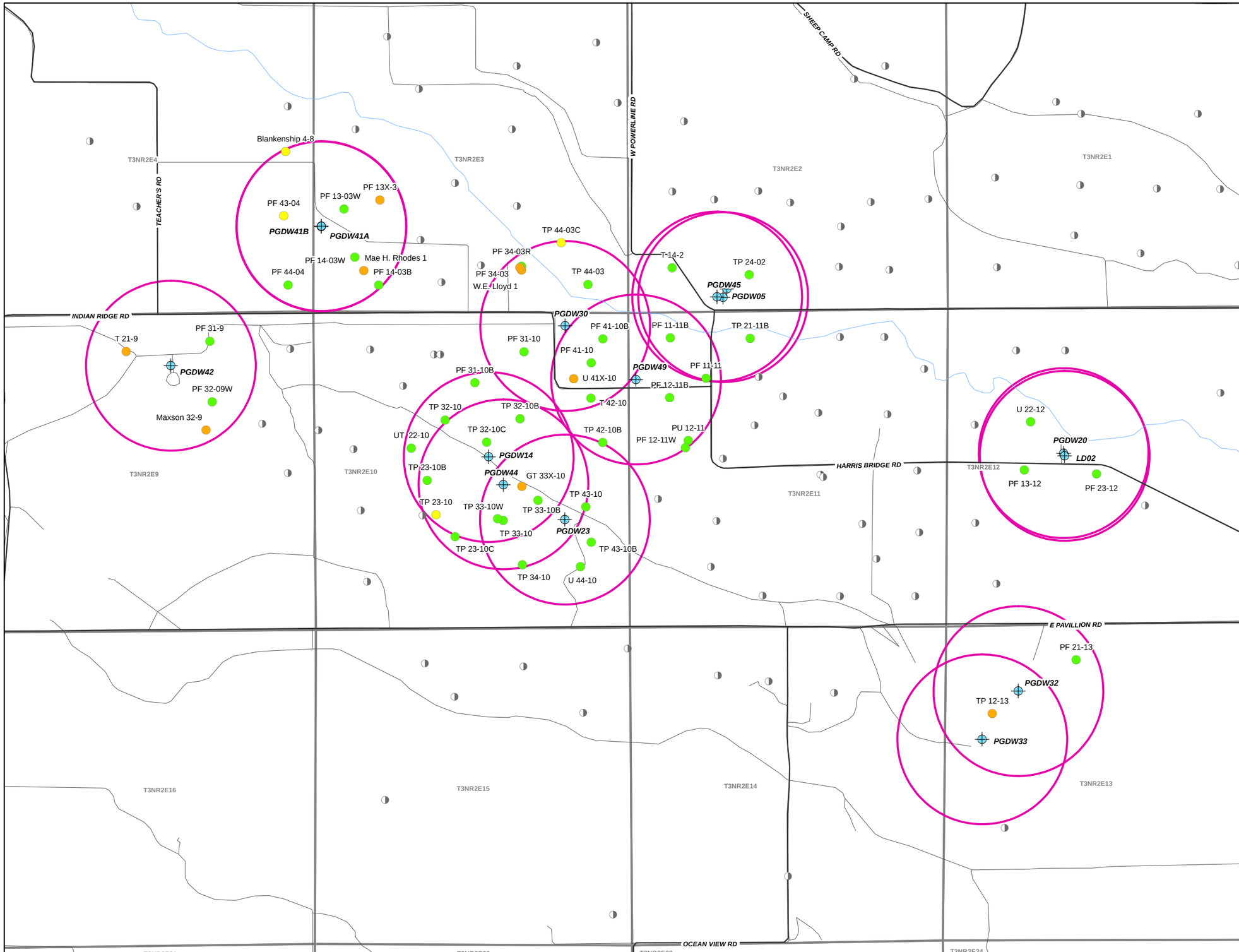

Legend

PGDW32 Water-Supply Well Location and Designation

Oil and Gas Wells Within 1,420 Feet of Water-Supply Wells

- Active
- Shut In
- Plugged

Other Oil and Gas Wells

County and TIGER Roads

Streams

Township Range Section

T3NR2E16

1,420 Foot Radius From Water-Supply Well (1/4 Mile Plus 100 Feet)

N

0 800 1600

1 inch equals 1,600 feet

FIGURE 11

OIL AND GAS WELLS WITHIN 1,420 FEET OF WATER-SUPPLY WELLS

Pavillion, WY Area Domestic Water Wells
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Engineers and Earth Scientists

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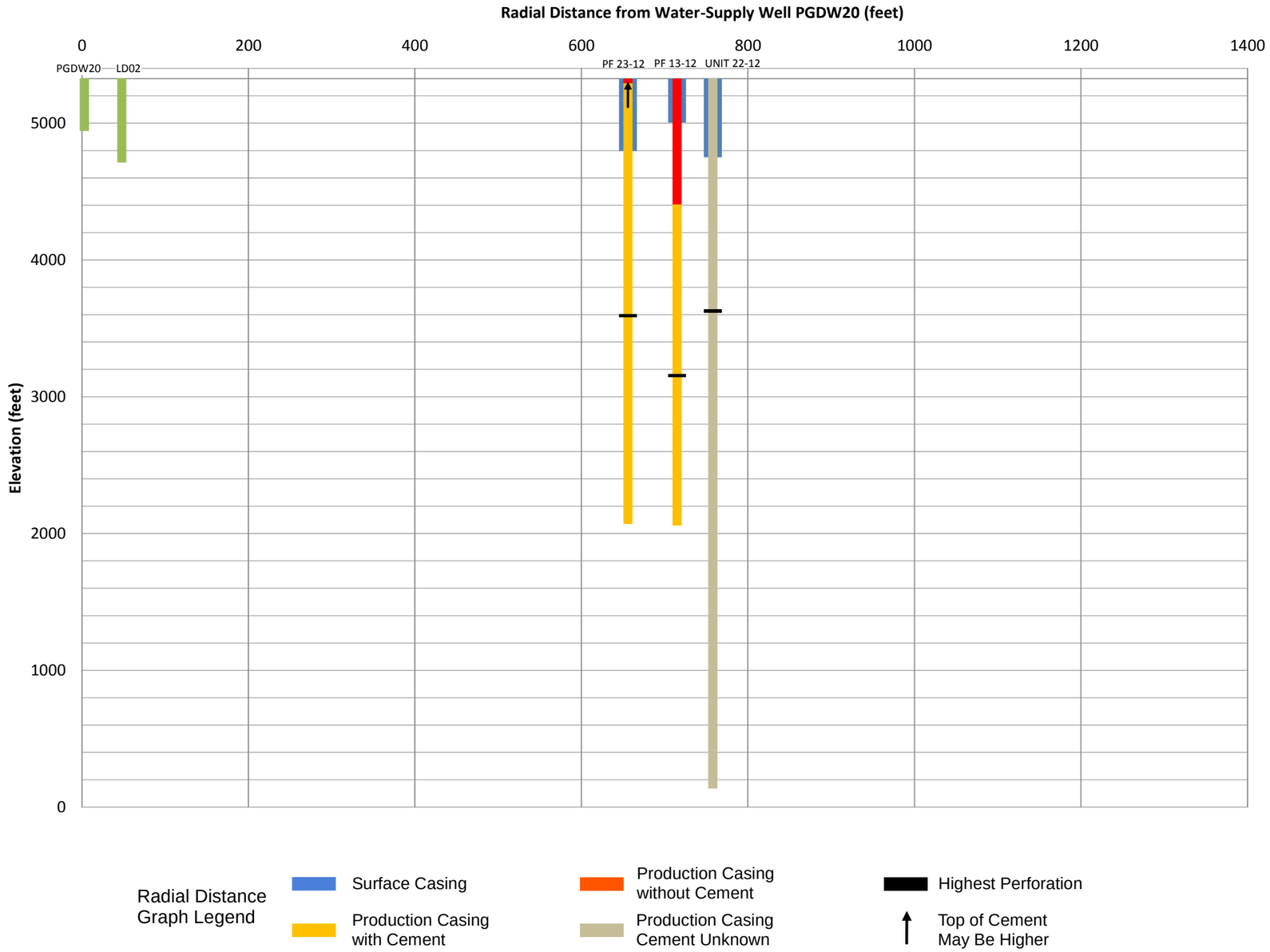
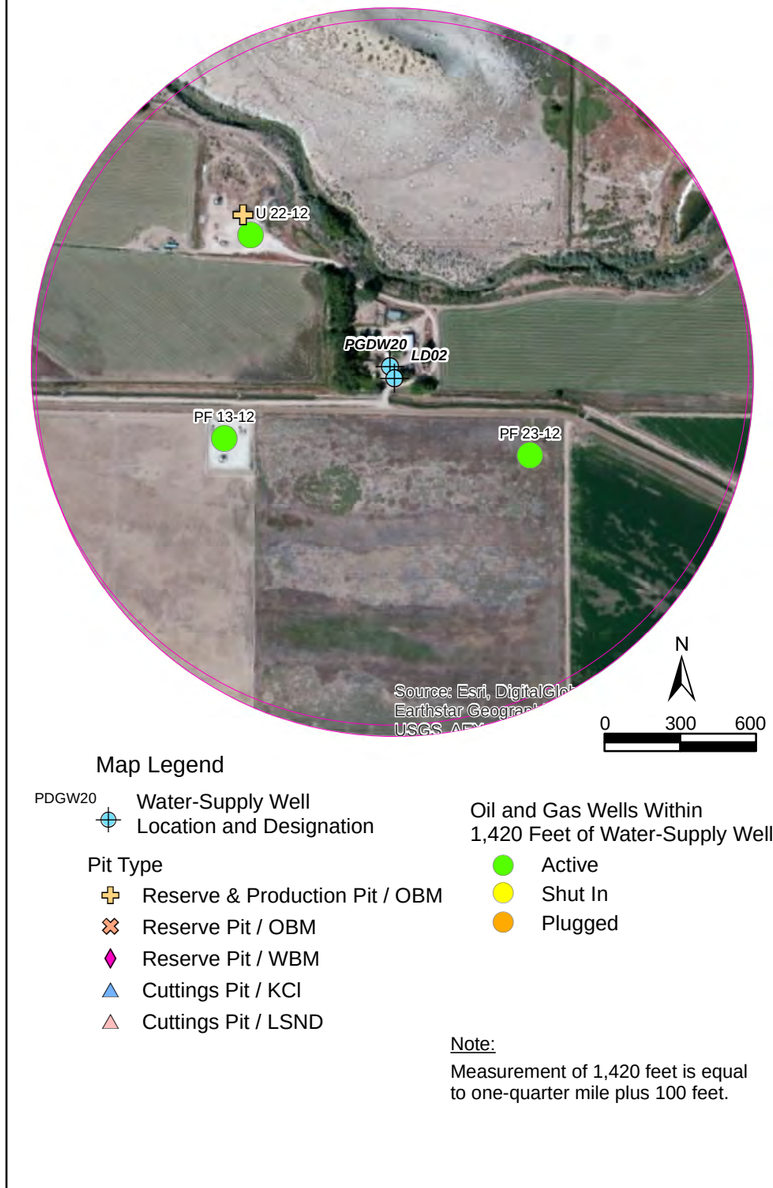
2015-06-01 T:\90081_Pavillion\REPORT\19e\MXD\fig13_pits_1-4_mile_buffer.mxd JW





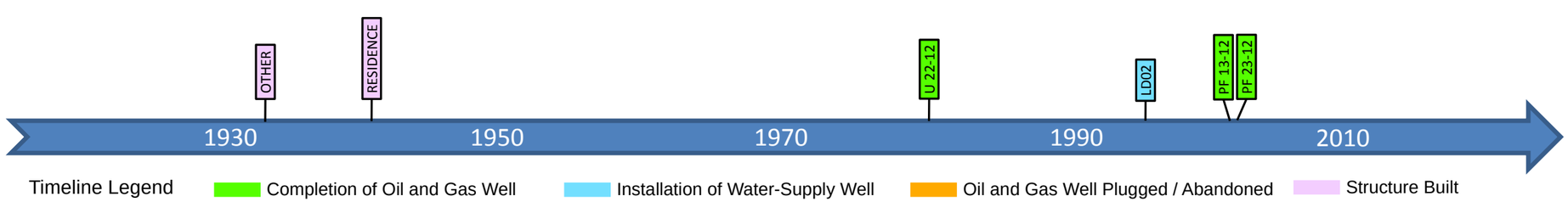


FIGURE 12A
GAS WELLS AND PITS WITHIN
1420 FEET OF WATER-
SUPPLY WELLS LD02 AND PGDW20

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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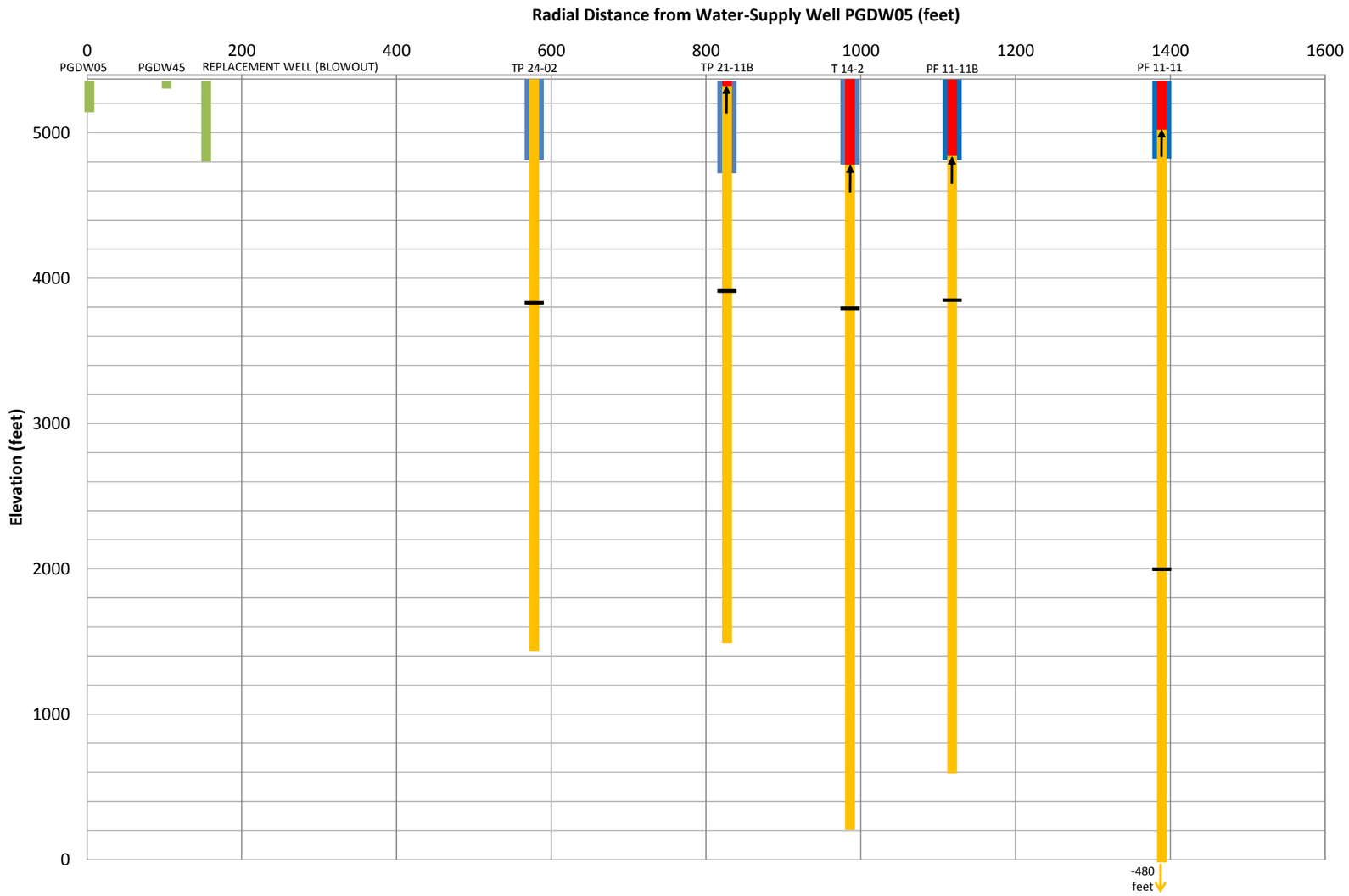
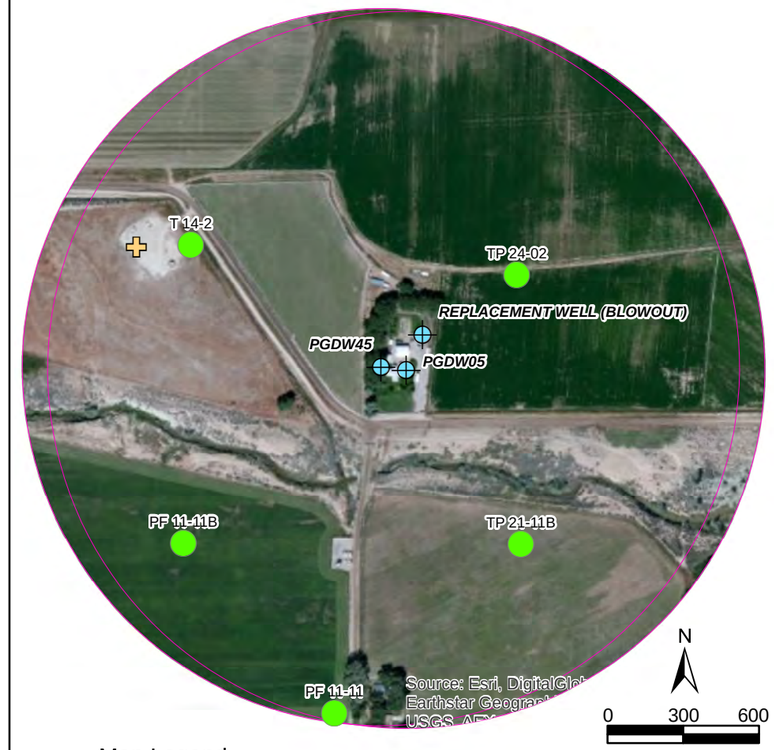
2015-06-08 T:\90081_Pavillion\REPORT\19e\MXD\fig12A_LD02_PGDW20.mxd JW



Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW45 Water-Supply Well Location and Designation

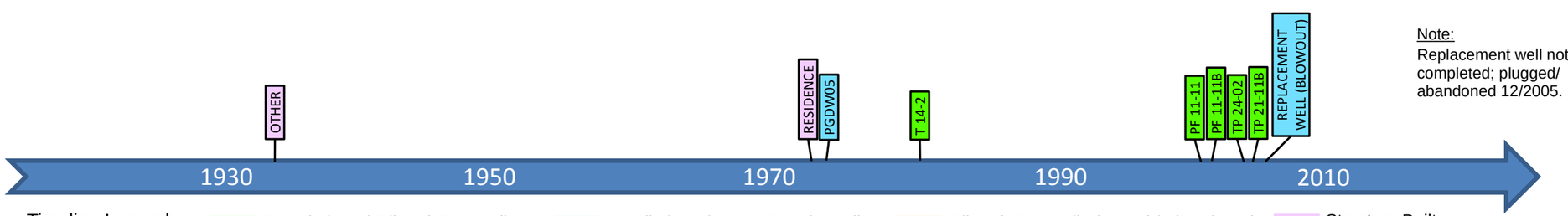
Pit Type

- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:
Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

Note:
Replacement well not completed; plugged/ abandoned 12/2005.

FIGURE 12B
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELLS PGDW05 AND PGDW45

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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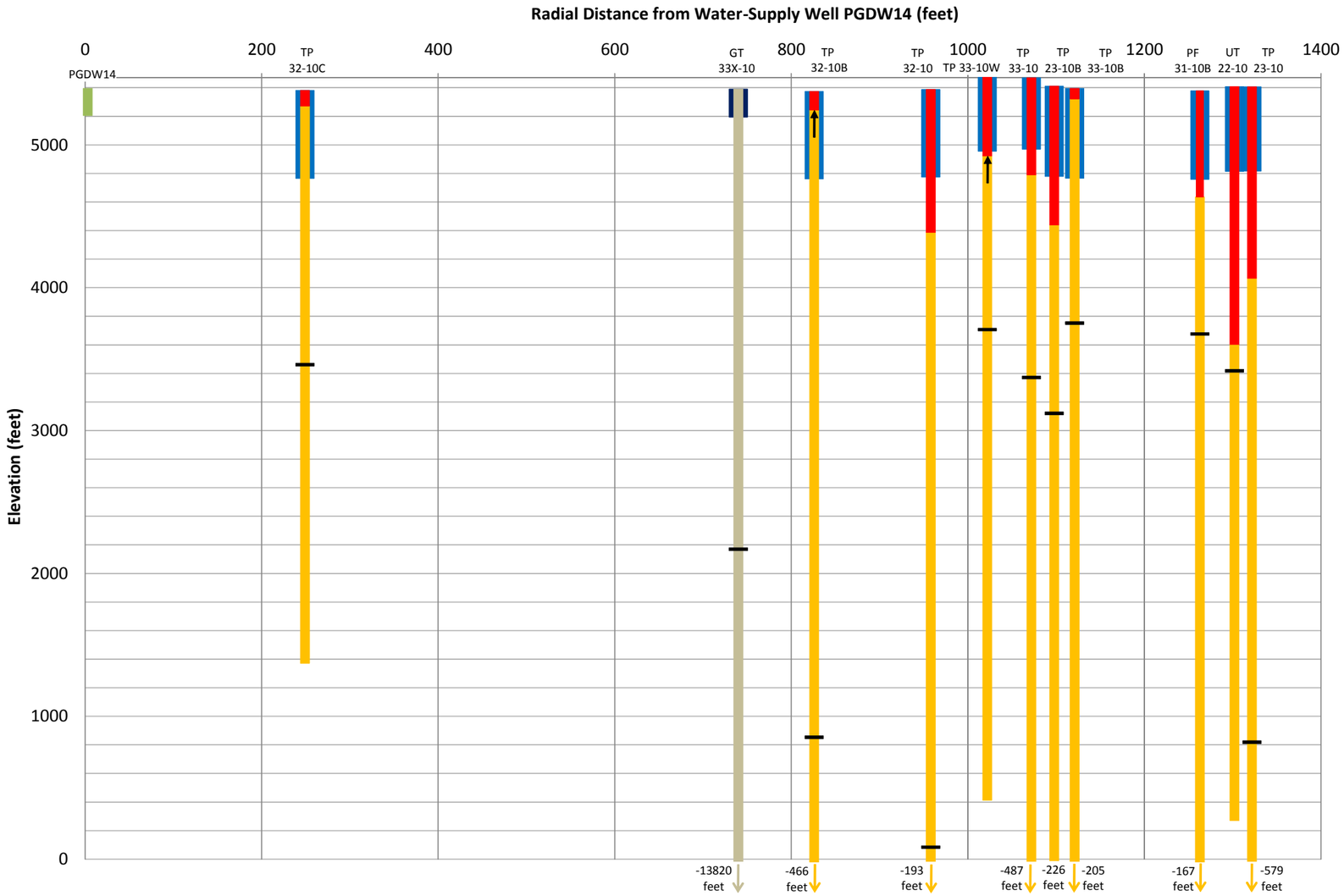
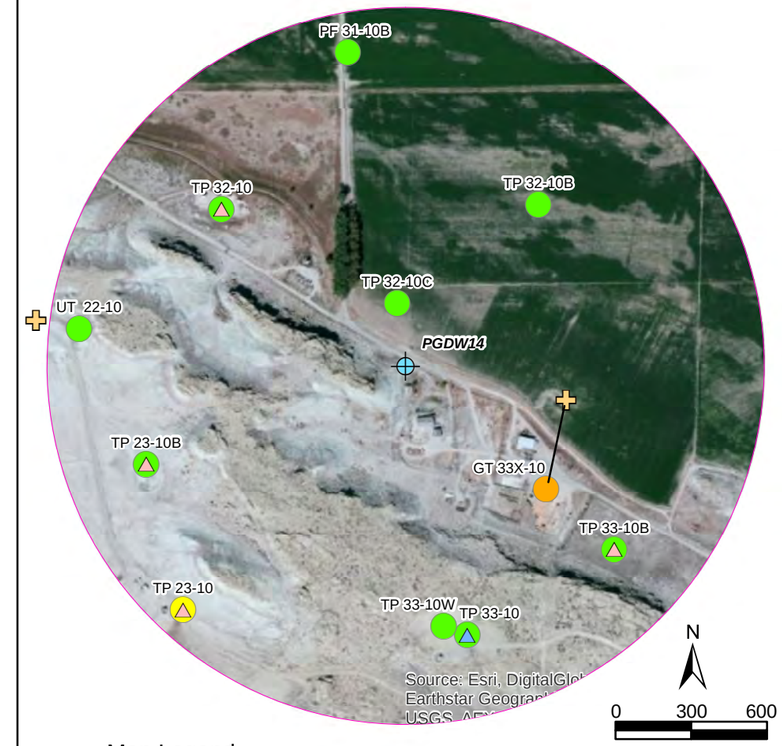
2015-06-08 T:\90081_Pavillion\REPORT\19e\MXD\fig12B_PGDW05_PGDW45.mxd JW



Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW14 Water-Supply Well Location and Designation

Pit Type

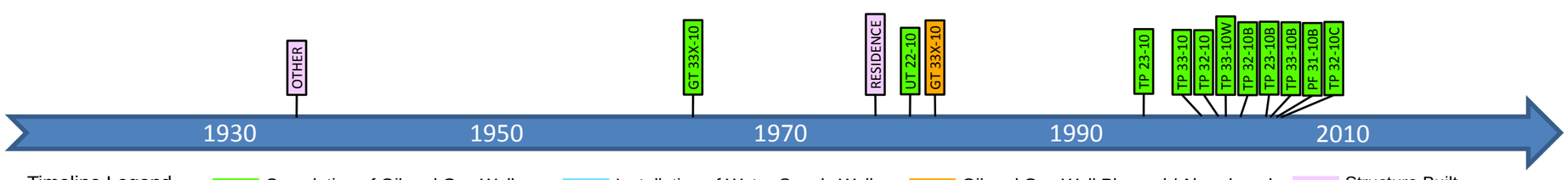
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12C
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW14

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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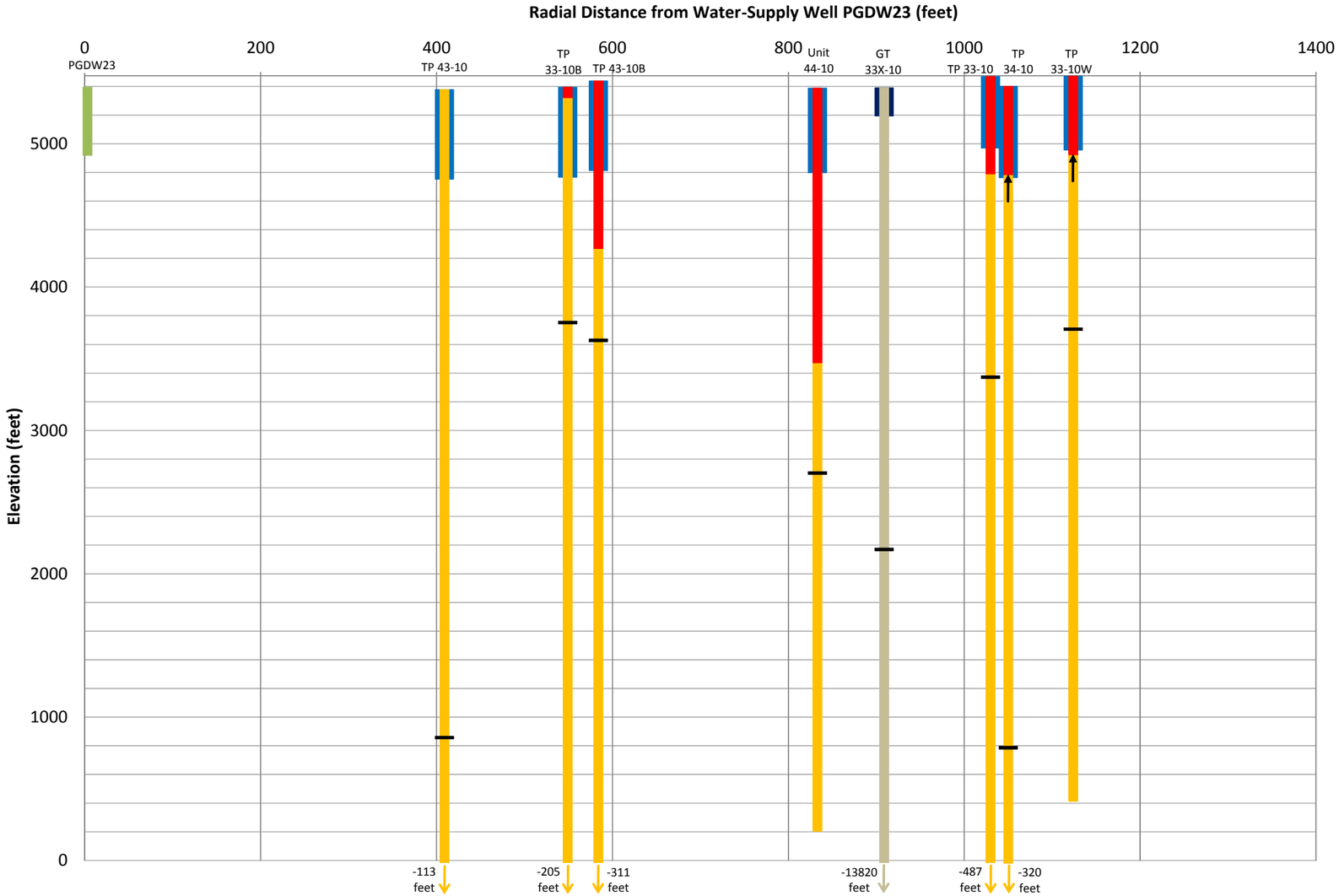
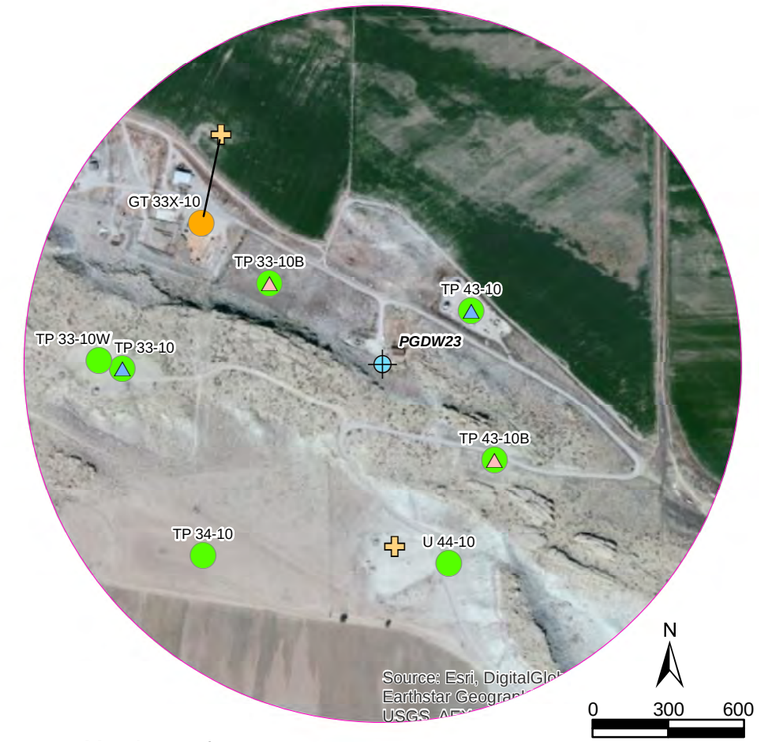
2015-06-03 T:\90081_Pavillion\REPORT\19e\MXD\fig12f_PGDW32.mxd JW



Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW23 Water-Supply Well Location and Designation

Pit Type

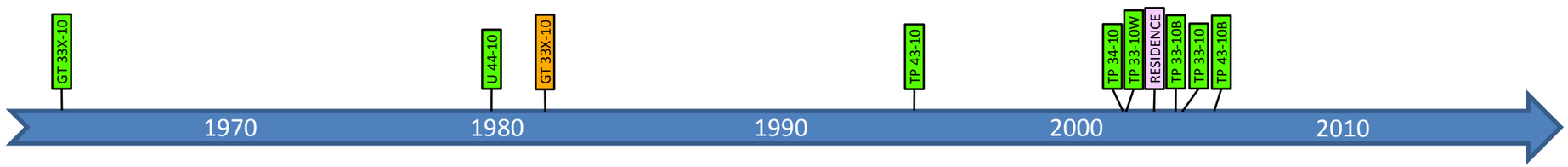
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12D
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW23

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

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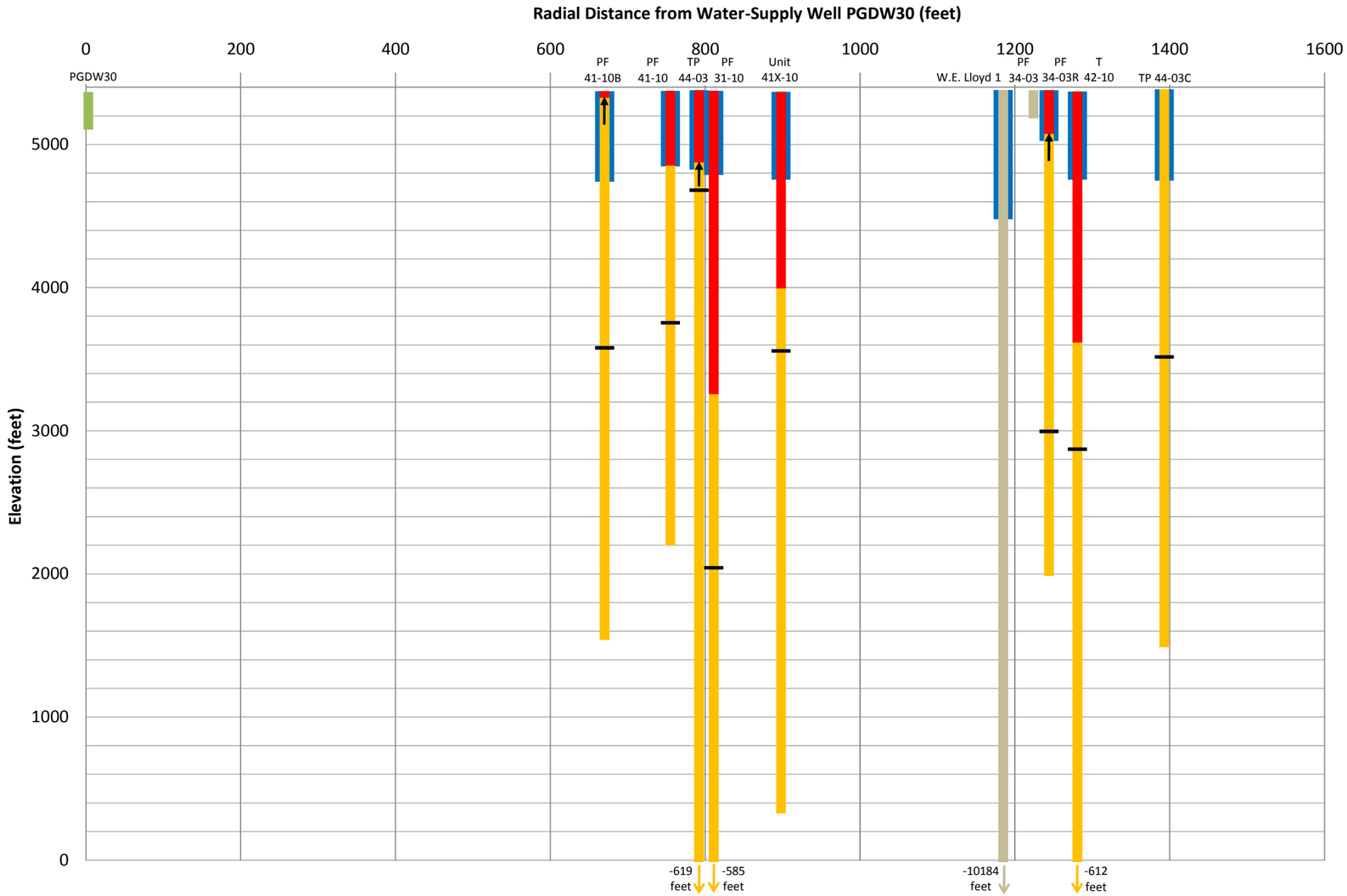
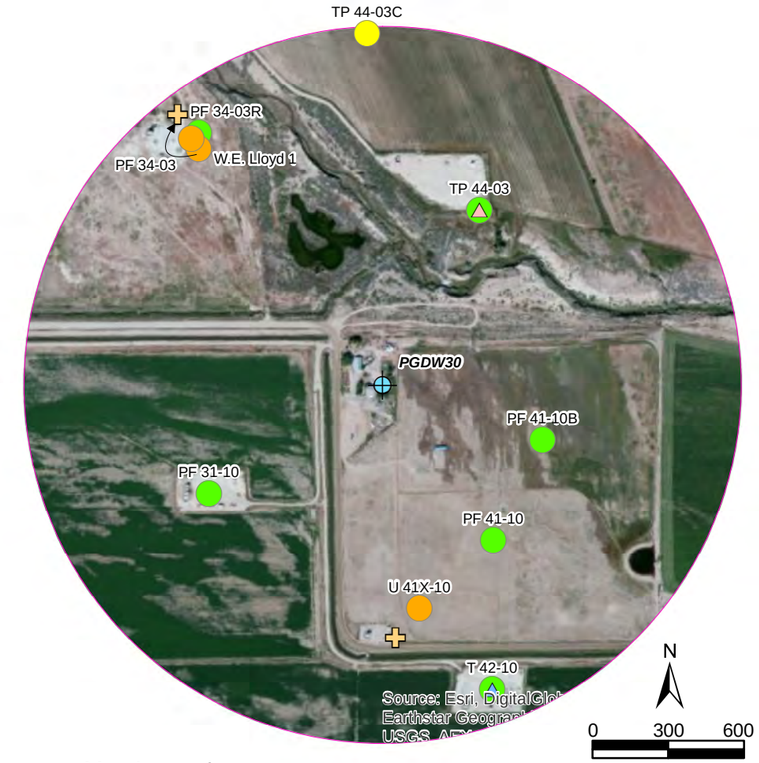
2015-06-08 T:\90081_Pavillion\REPORT\19e\MXD\fig12D_PGDW23.mxd JW



Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW30 Water-Supply Well Location and Designation

Pit Type

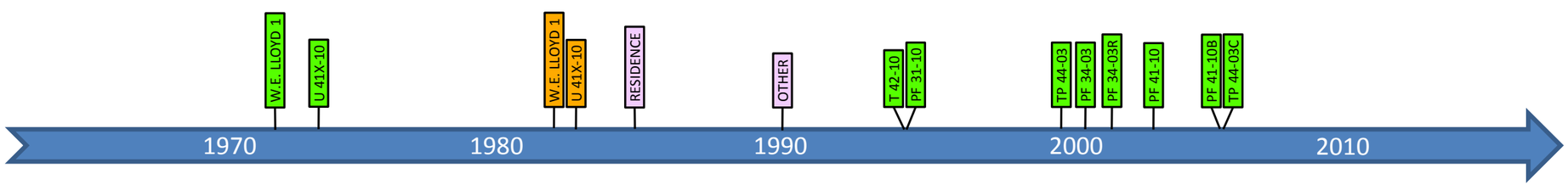
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12E
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW30

Pavillion, WY Area Domestic Water Wells
Final Report and Palatability Study

AME
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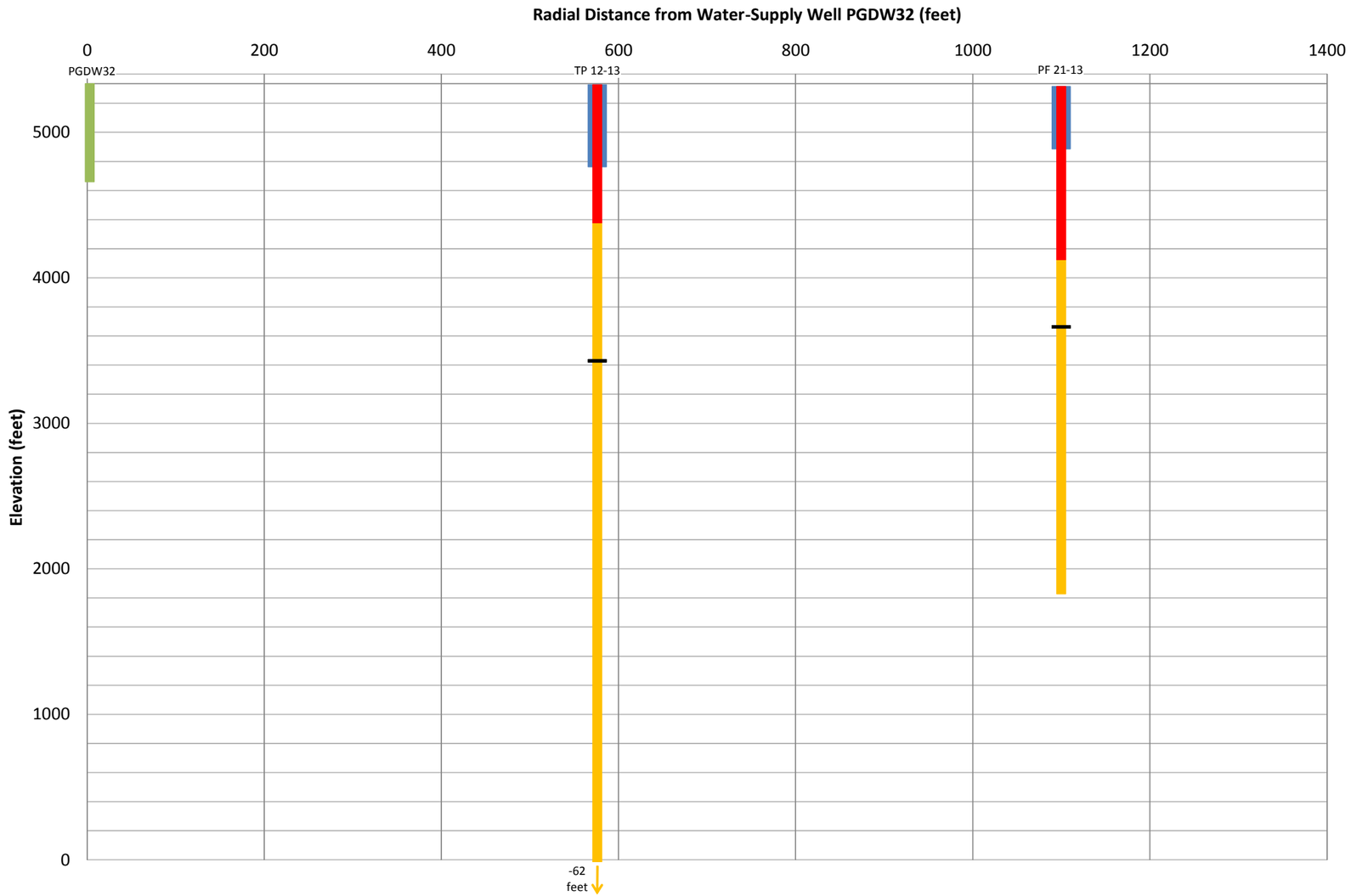


Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher

Map Legend

PDGW32 Water-Supply Well Location and Designation

Pit Type

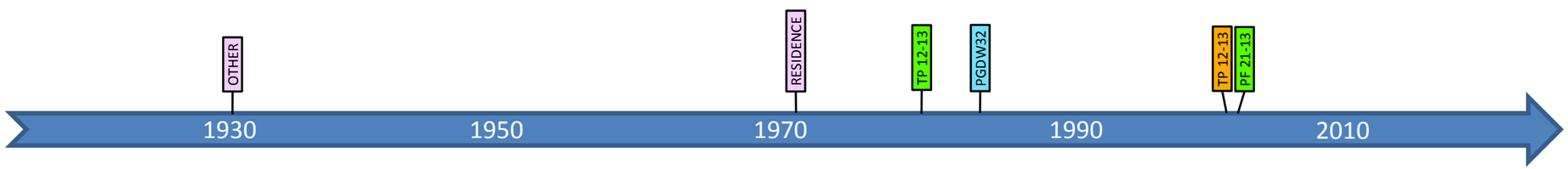
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12F
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW32

Pavillion, WY Area Domestic Water Wells
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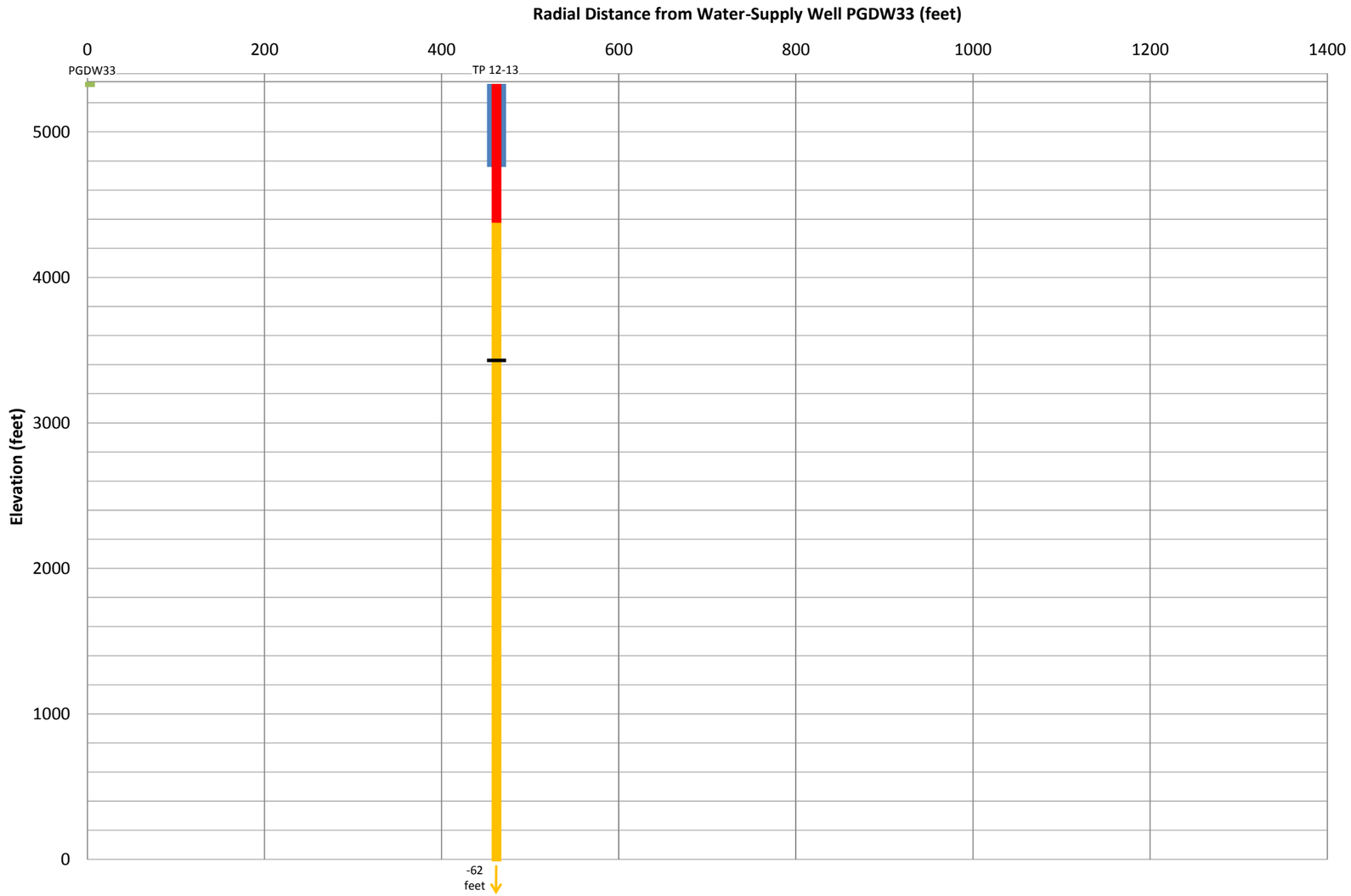


Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher

Map Legend

PDGW33 Water-Supply Well Location and Designation

Pit Type

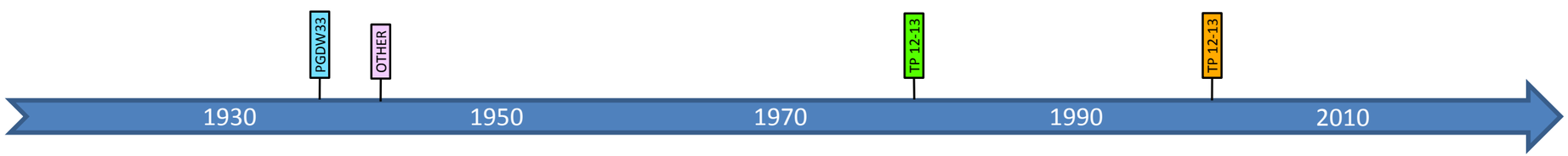
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12G
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW33

Pavillion, WY Area Domestic Water Wells
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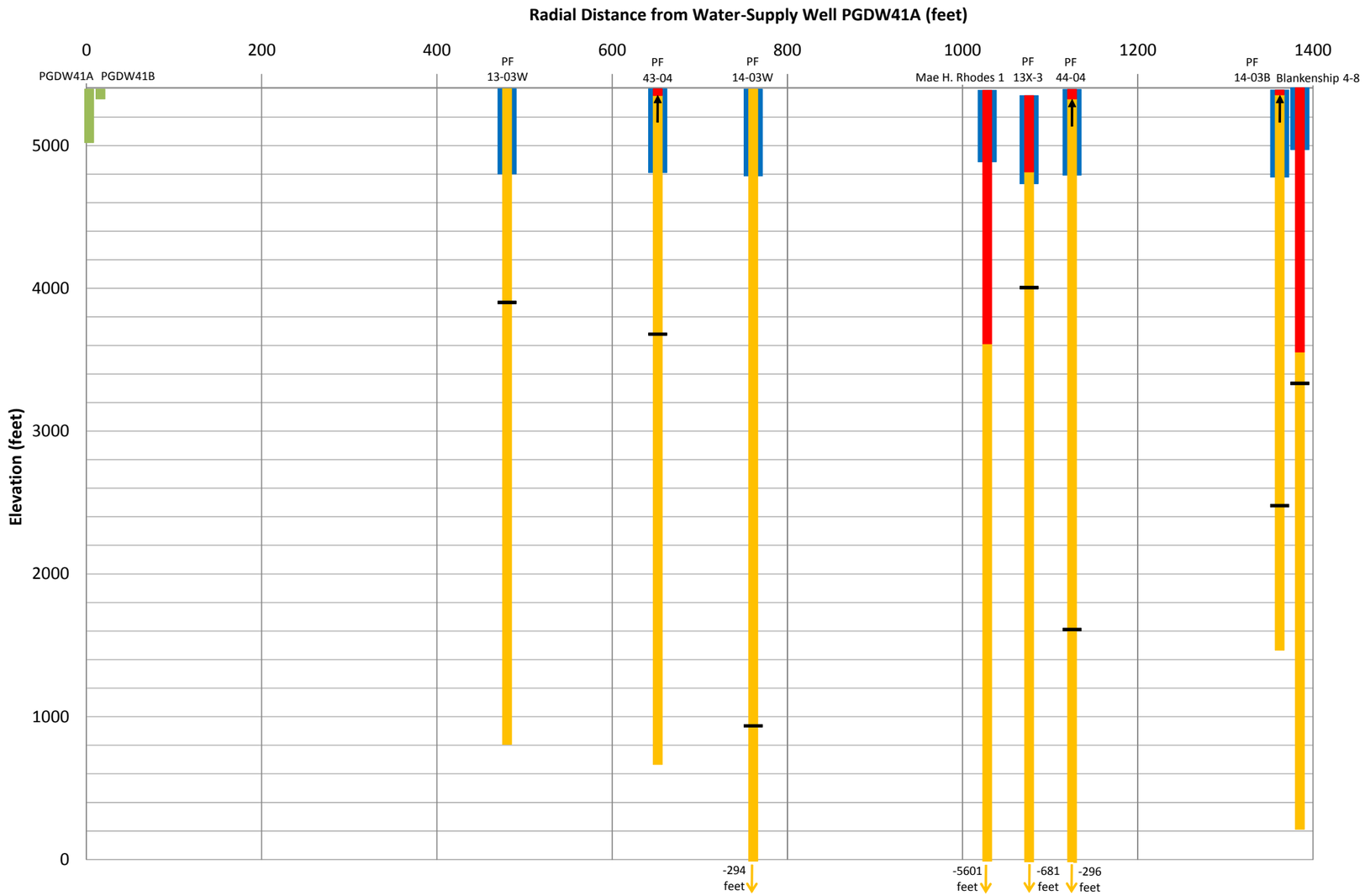
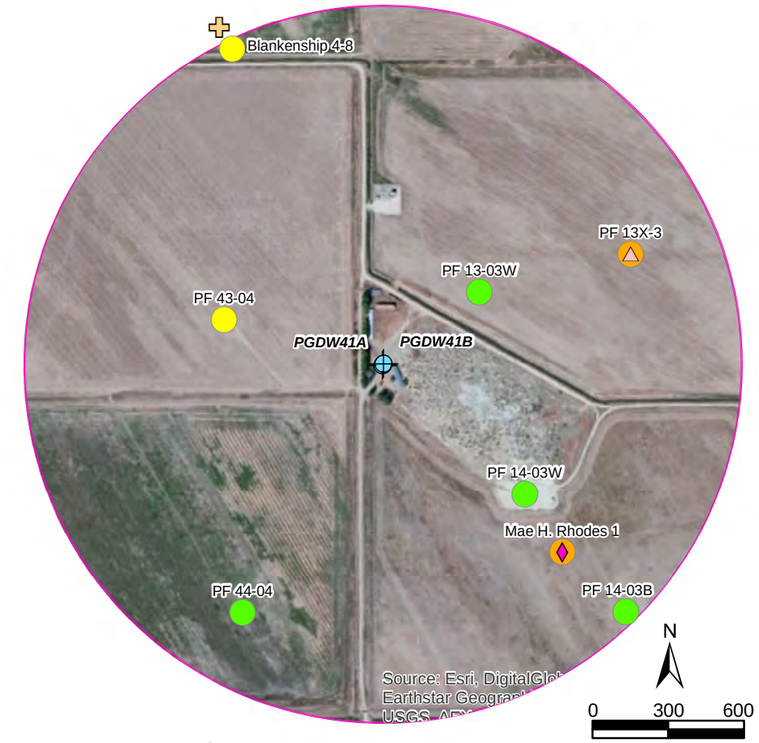


Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW41A Water-Supply Well Location and Designation

Pit Type

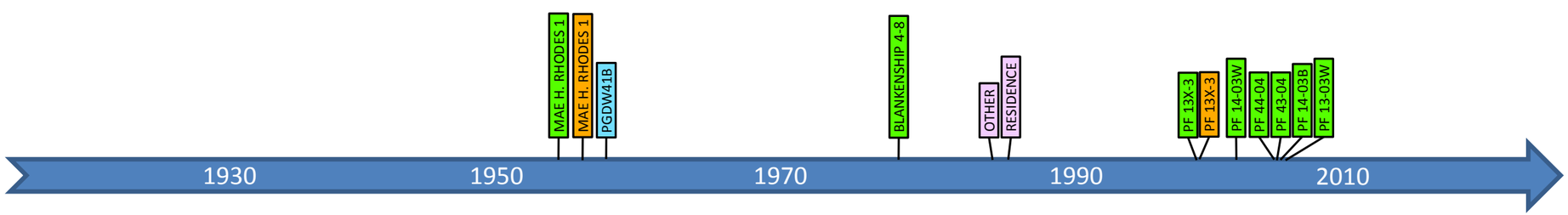
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12H
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELLS PGDW41A AND PGDW41B

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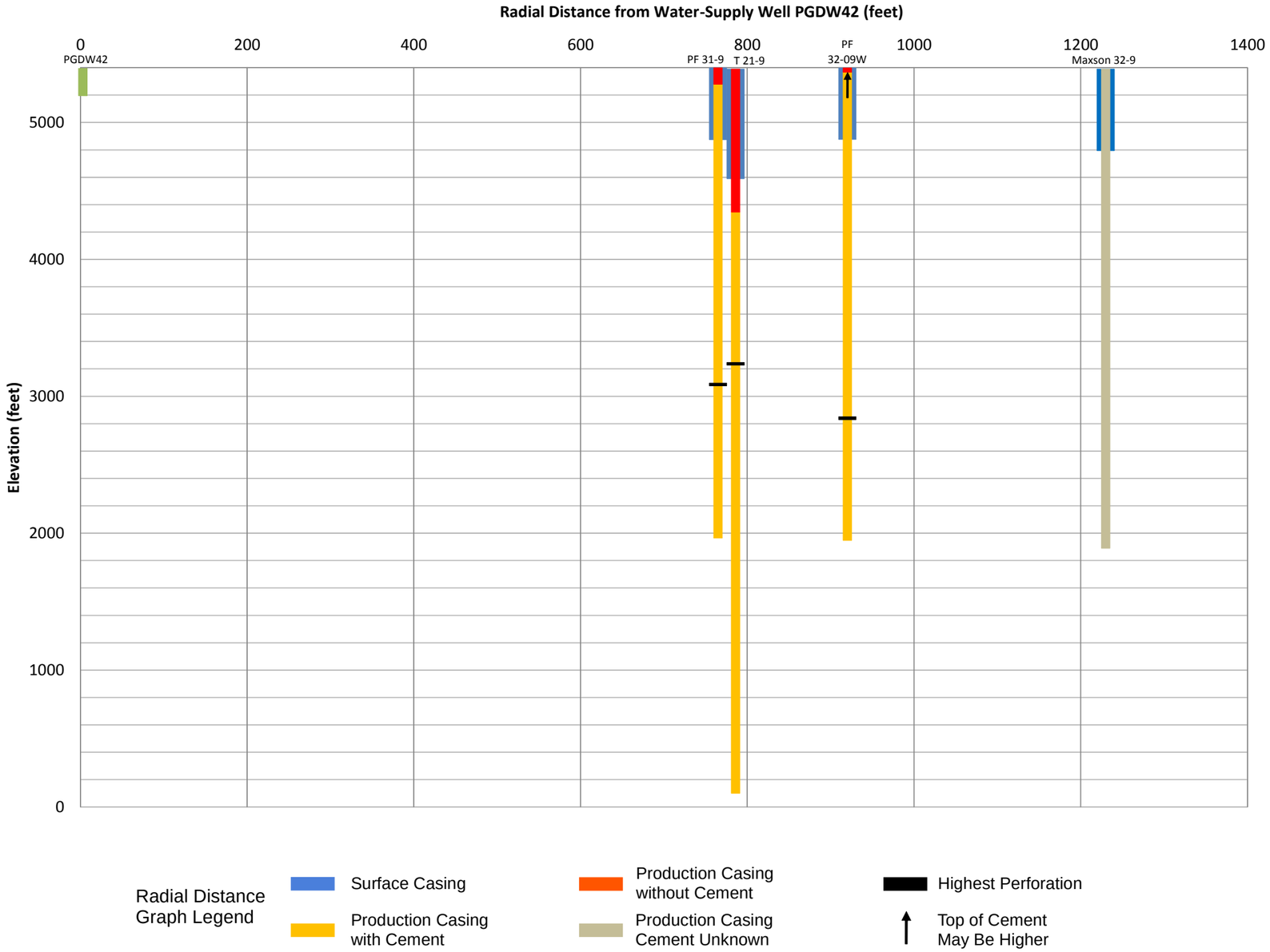

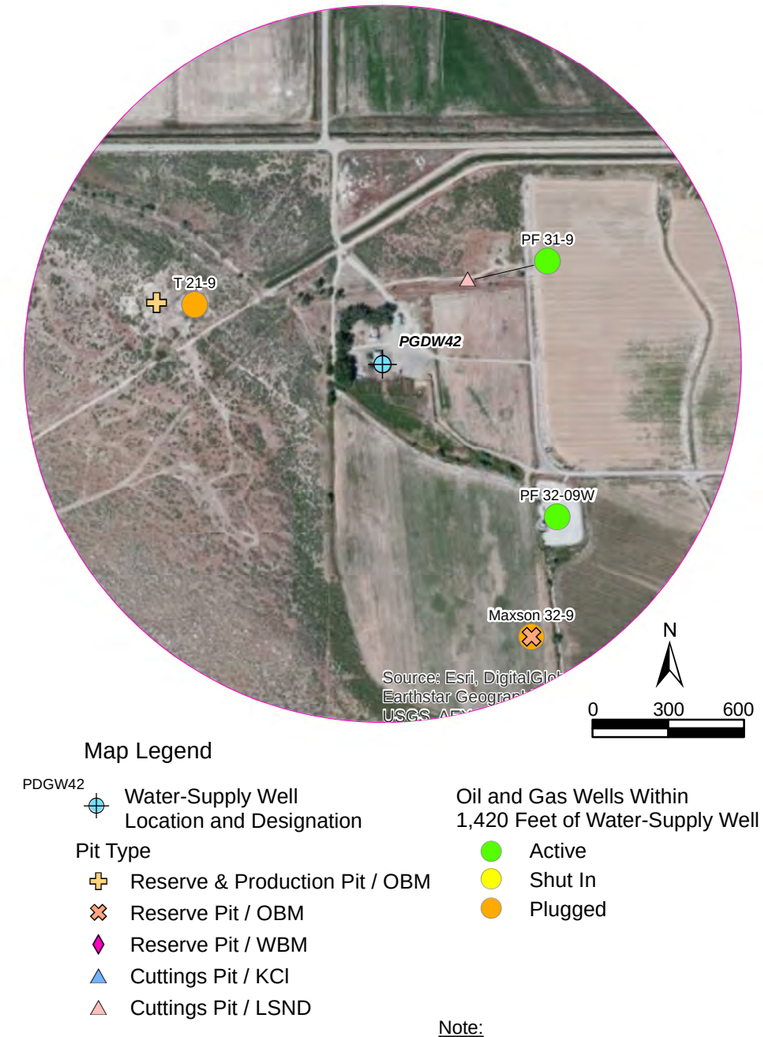

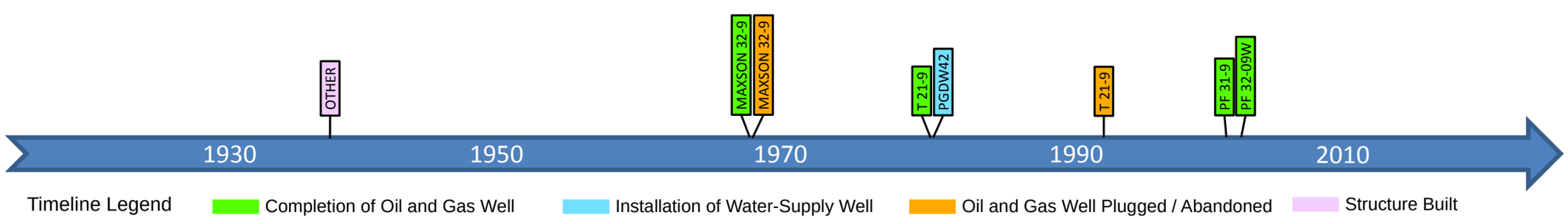

FIGURE 12I
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW42

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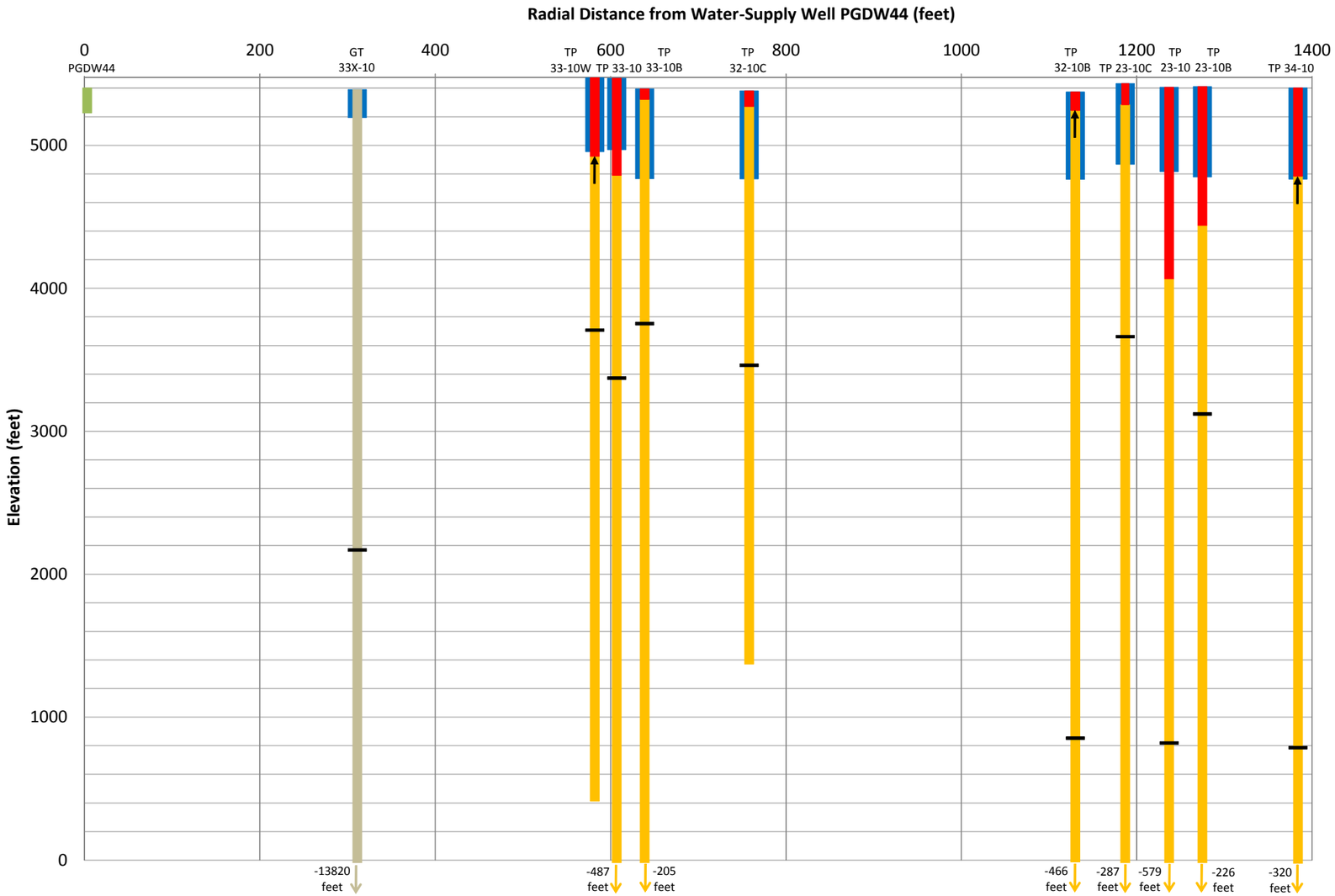
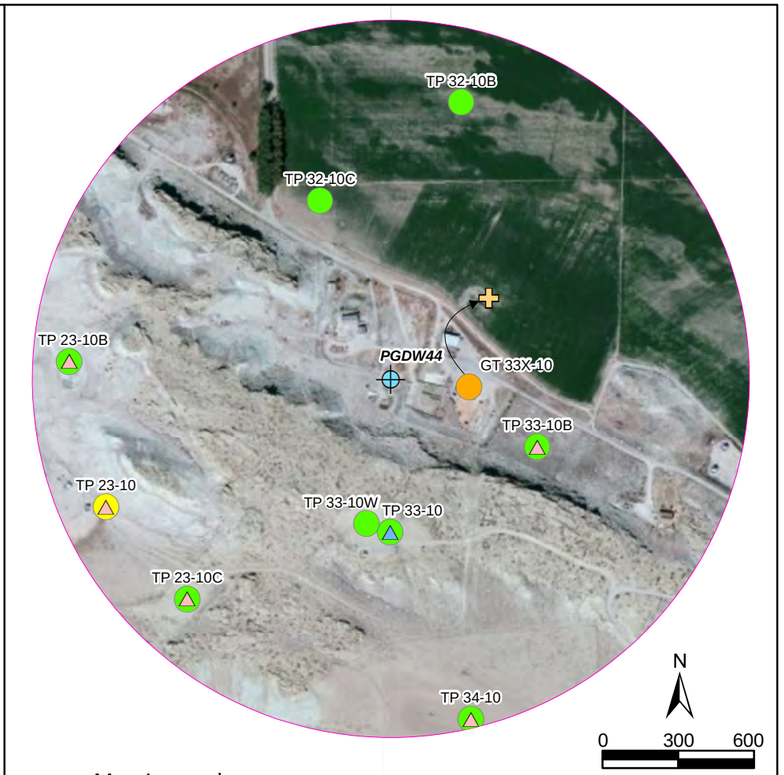


Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW44 Water-Supply Well Location and Designation

Pit Type

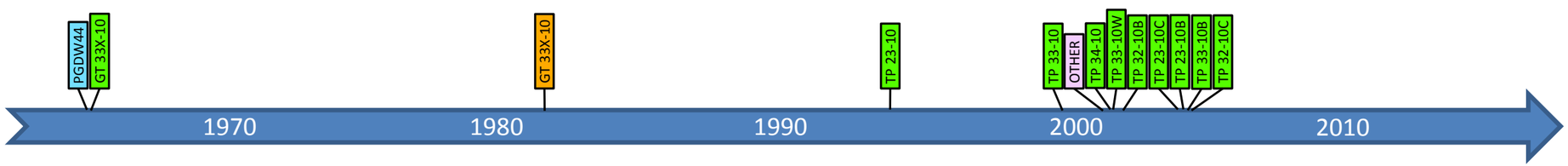
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12J
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW44

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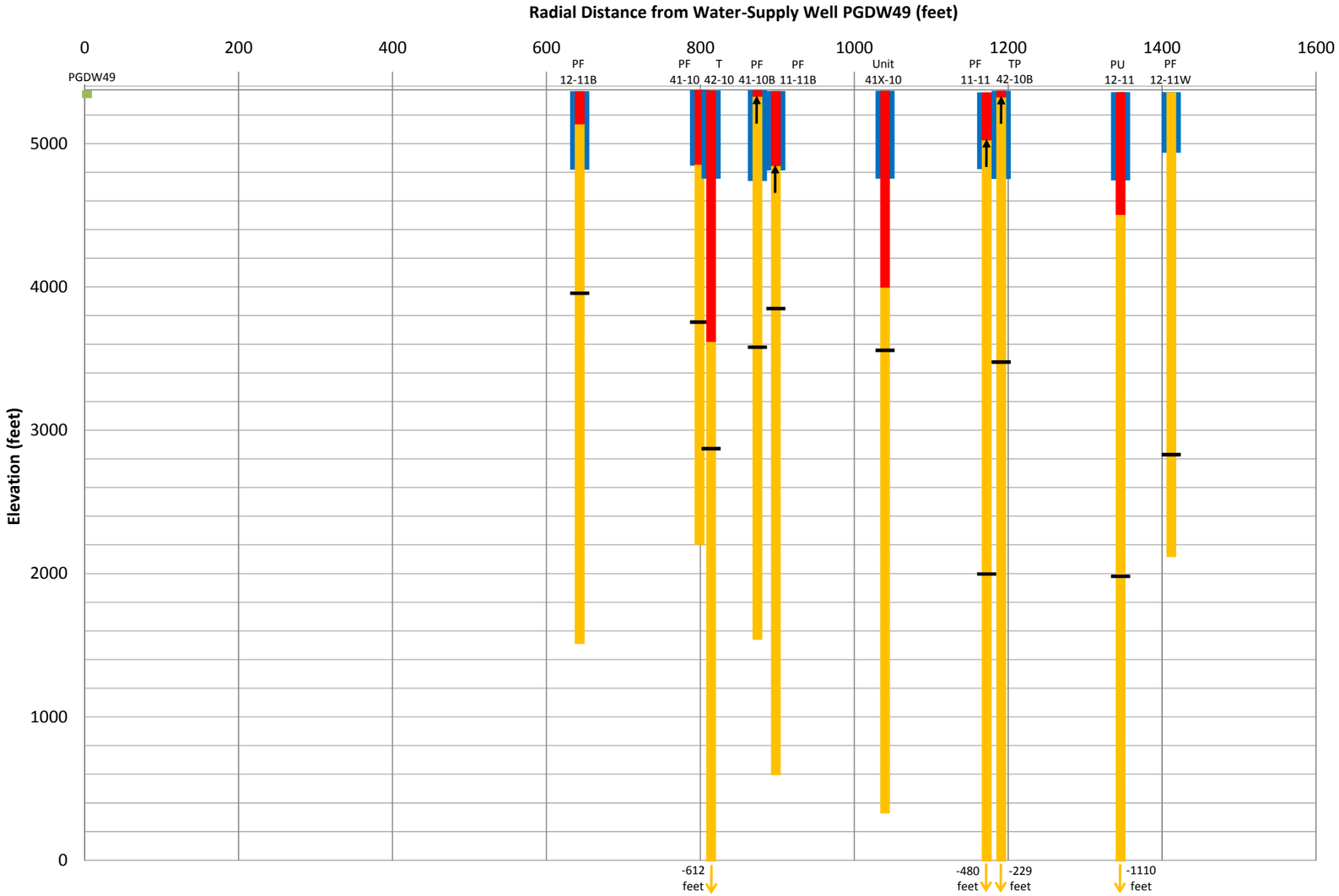
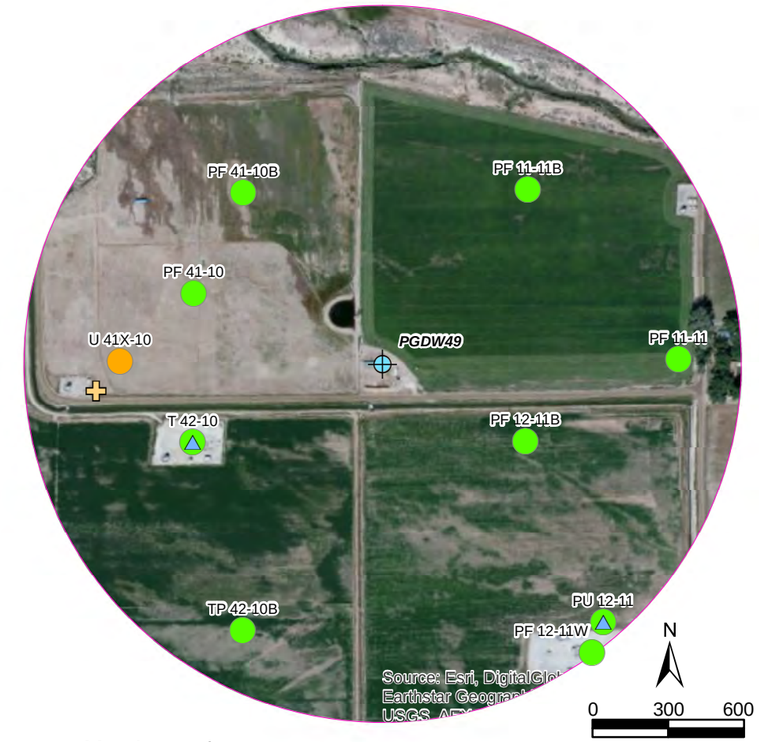


Radial Distance Graph Legend

- Surface Casing
- Production Casing with Cement
- Production Casing without Cement
- Production Casing Cement Unknown
- Highest Perforation
- Top of Cement May Be Higher



Map Legend

PDGW49 Water-Supply Well Location and Designation

Pit Type

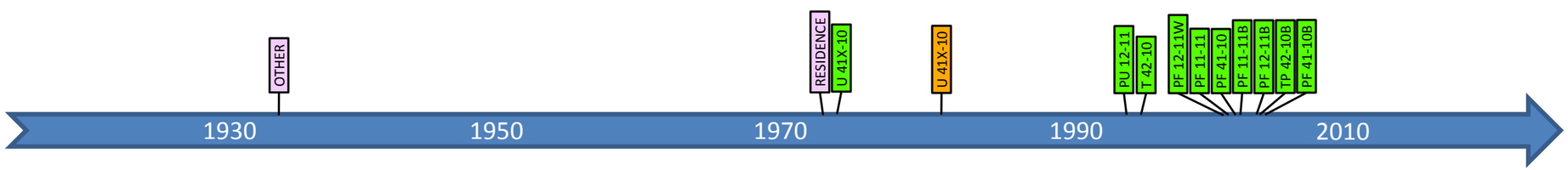
- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

Oil and Gas Wells Within 1,420 Feet of Water-Supply Well

- Active
- Shut In
- Plugged

Note:

Measurement of 1,420 feet is equal to one-quarter mile plus 100 feet.



Timeline Legend

- Completion of Oil and Gas Well
- Installation of Water-Supply Well
- Oil and Gas Well Plugged / Abandoned
- Structure Built

FIGURE 12K
GAS WELLS AND PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELL PGDW49

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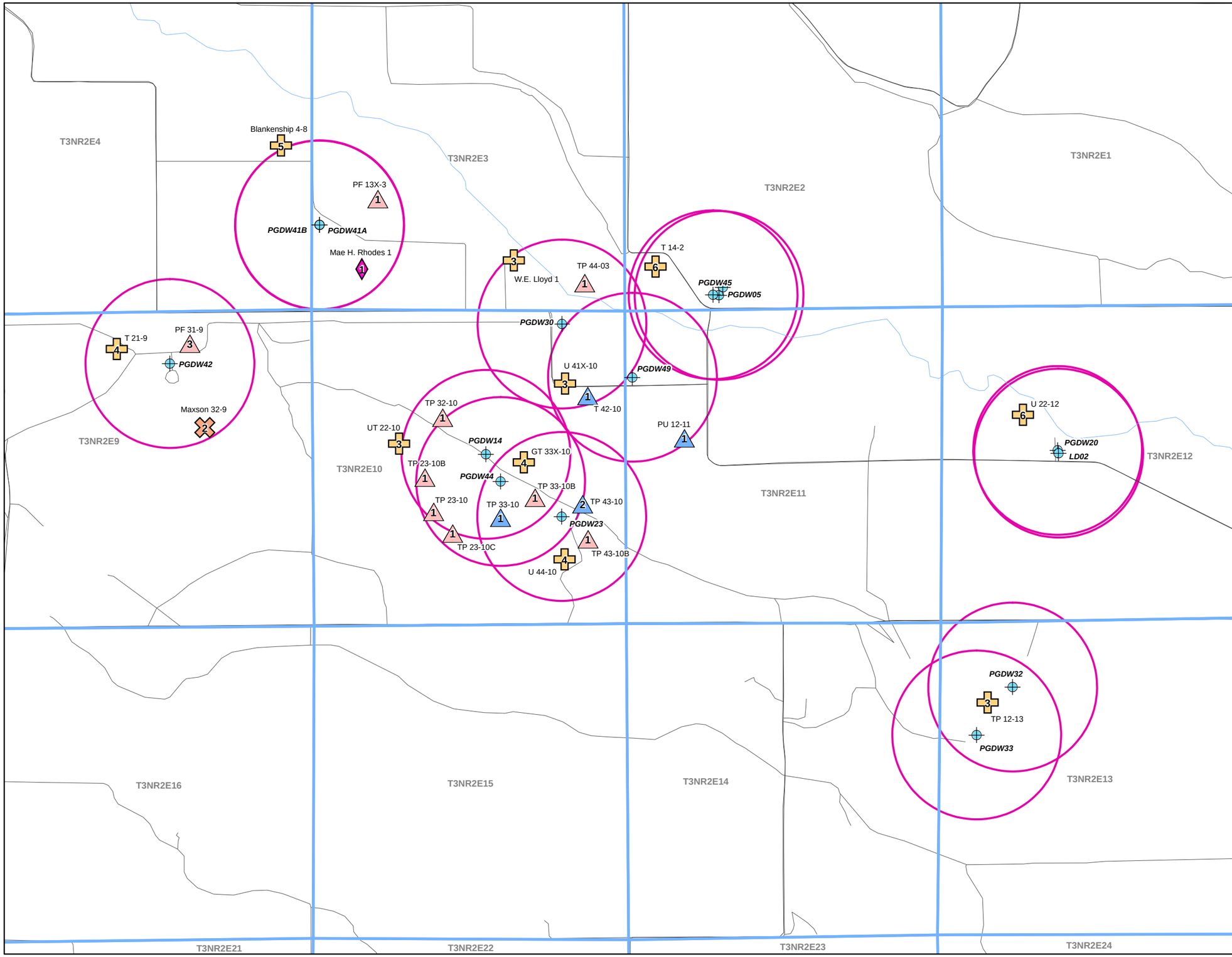

Legend

PDGW14 Water-Supply Well Location and Designation

Pit Type

- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

WOGCC Pit Investigation Status

1 No Need
2 Recommended
3 Soil
4 Soil (Excavation)
5 Soil and Groundwater (VRP)
6 Soil (Excavation) and Groundwater (VRP)

County and TIGER Roads

Streams

Township Range Section

T3NR2E16

1,420 Foot Radius From Water-Supply Well (1/4 Mile Plus 100 Feet)

N

0 800 1600

1 inch equals 1,600 feet

FIGURE 13

PITS WITHIN 1,420 FEET OF WATER-SUPPLY WELLS

Pavillion, WY Area Domestic Water Wells
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2015-06-01 T:\90081_Pavillion\REPORT\19e\MXD\fig13_pits_1-4_mile_buffer.mxd JW

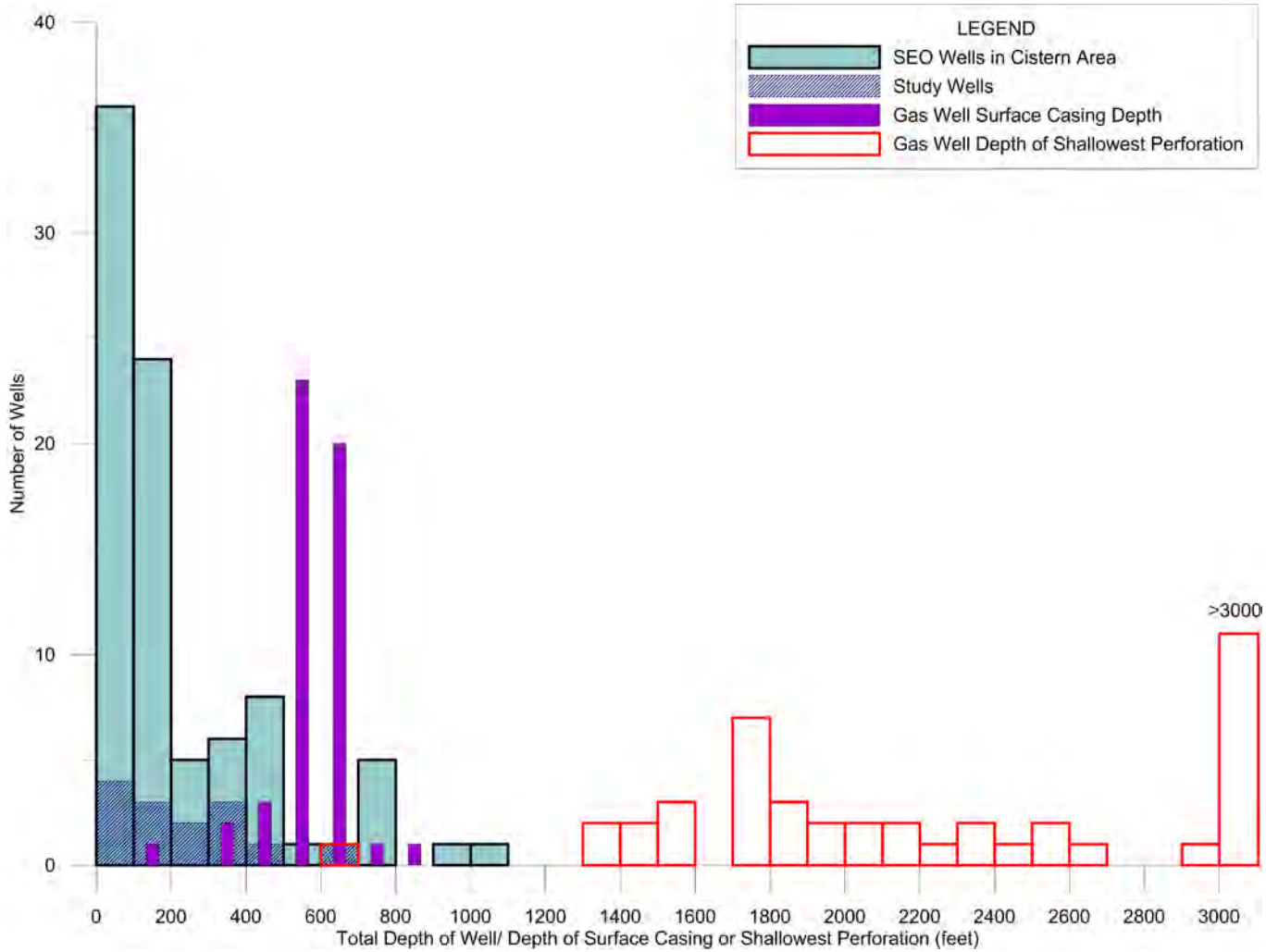

FIGURE 14
HISTOGRAM OF WATER-SUPPLY WELL DEPTHS AND GAS WELL SURFACE CASING DEPTHS AND DEPTHS OF SHALLOWEST PERFORATION

Pavillion, WY Area Domestic Water Wells
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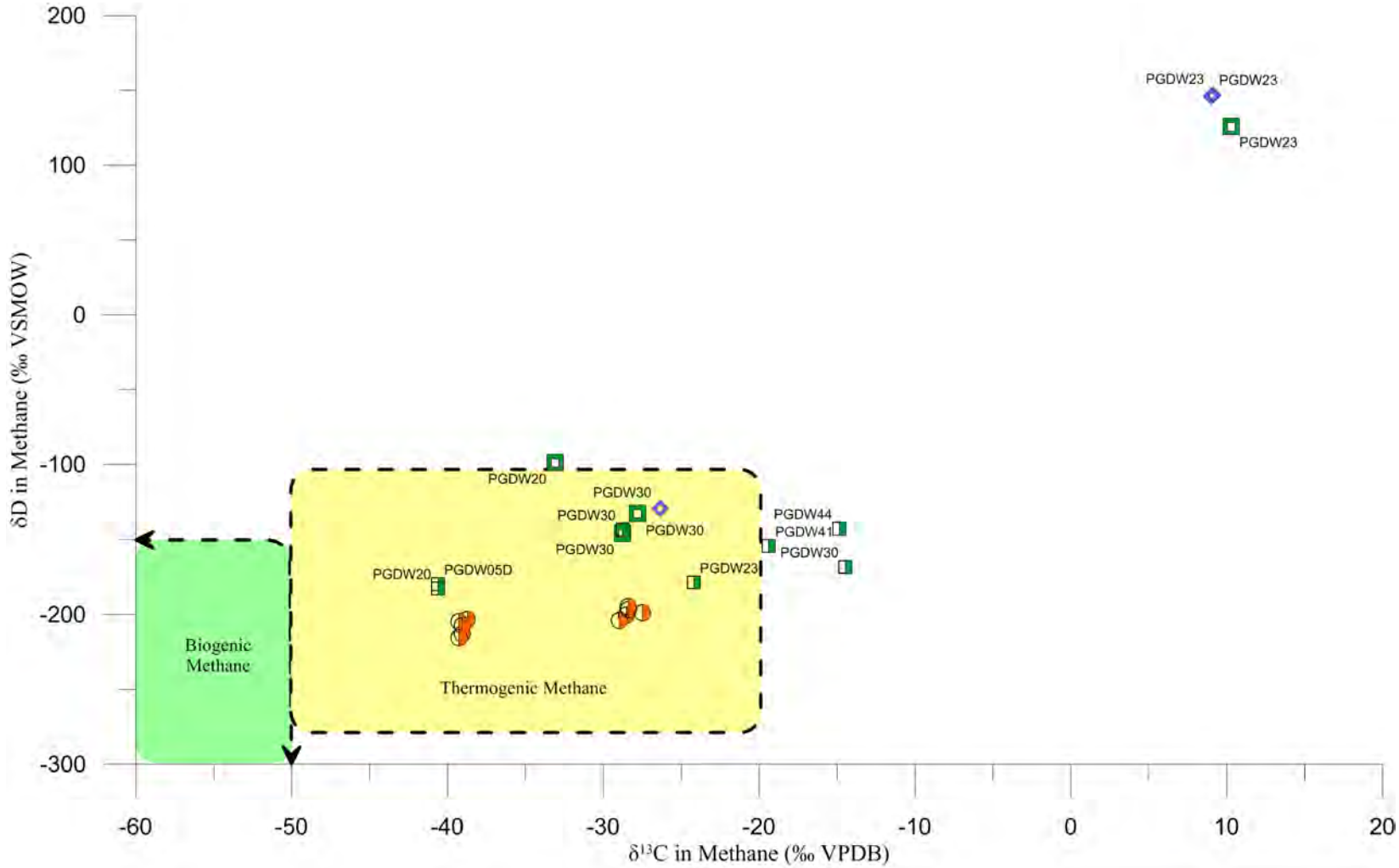
2015-10-02 T:\90081_Pavillion\REPORT\19e\MXD\fig14_Histogram_Water-Supply_Well_Depths_Gas_Well_Surface_Casing_Depths_Shallowest_Perforation.mxd JW



Legend

- AME, 2014
- EPA, Phase II
- EPA, Phase III-IV
- Gas, EPA, Phase II

Note:
Biogenic and thermogenic methane regions from Whiticar, 1999.

FIGURE 15

METHANE CARBON-13 AND DEUTERIUM ISOTOPIC RATIOS

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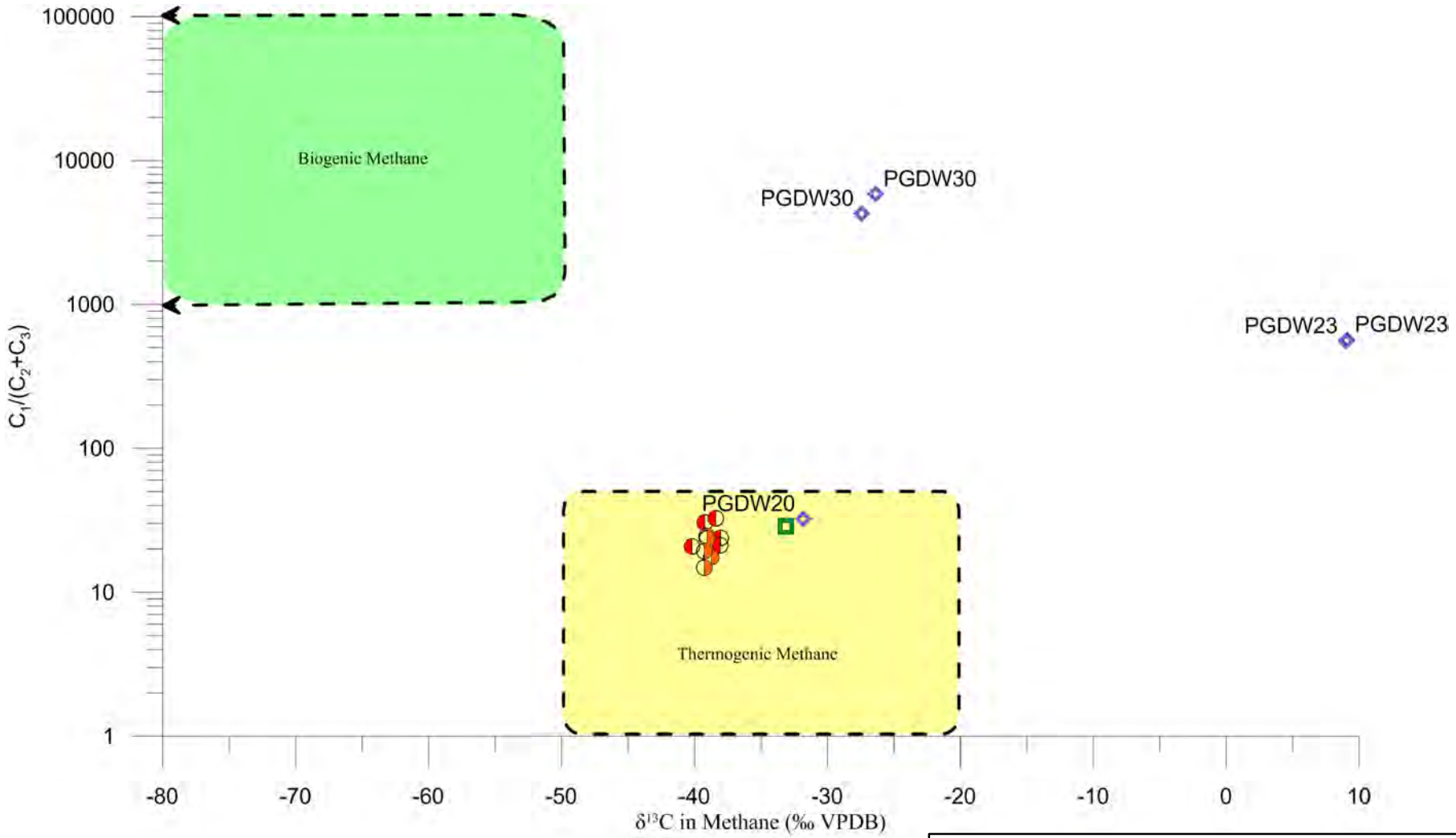
2015-06-23 T:\90081_Pavillion\REPORT\19e\MXD\fig15_Methane_Carbon-13_and_Deuterium_Isotopic_Ratios.mxd JW



Legend

- AME, 2014
- EPA, 2010-2011
- Johnson and Rice, 1993
- EPA, 2010

Note:
Biogenic and thermogenic methane regions from Bernard, 1977 (C1/(C2+C3) ratio) and Whiticar, 1999 (carbon isotope).

FIGURE 16

METHANE CARBON-13 VERSUS CHEMICAL COMPOSITION

Pavillion, WY Area Domestic Water Wells
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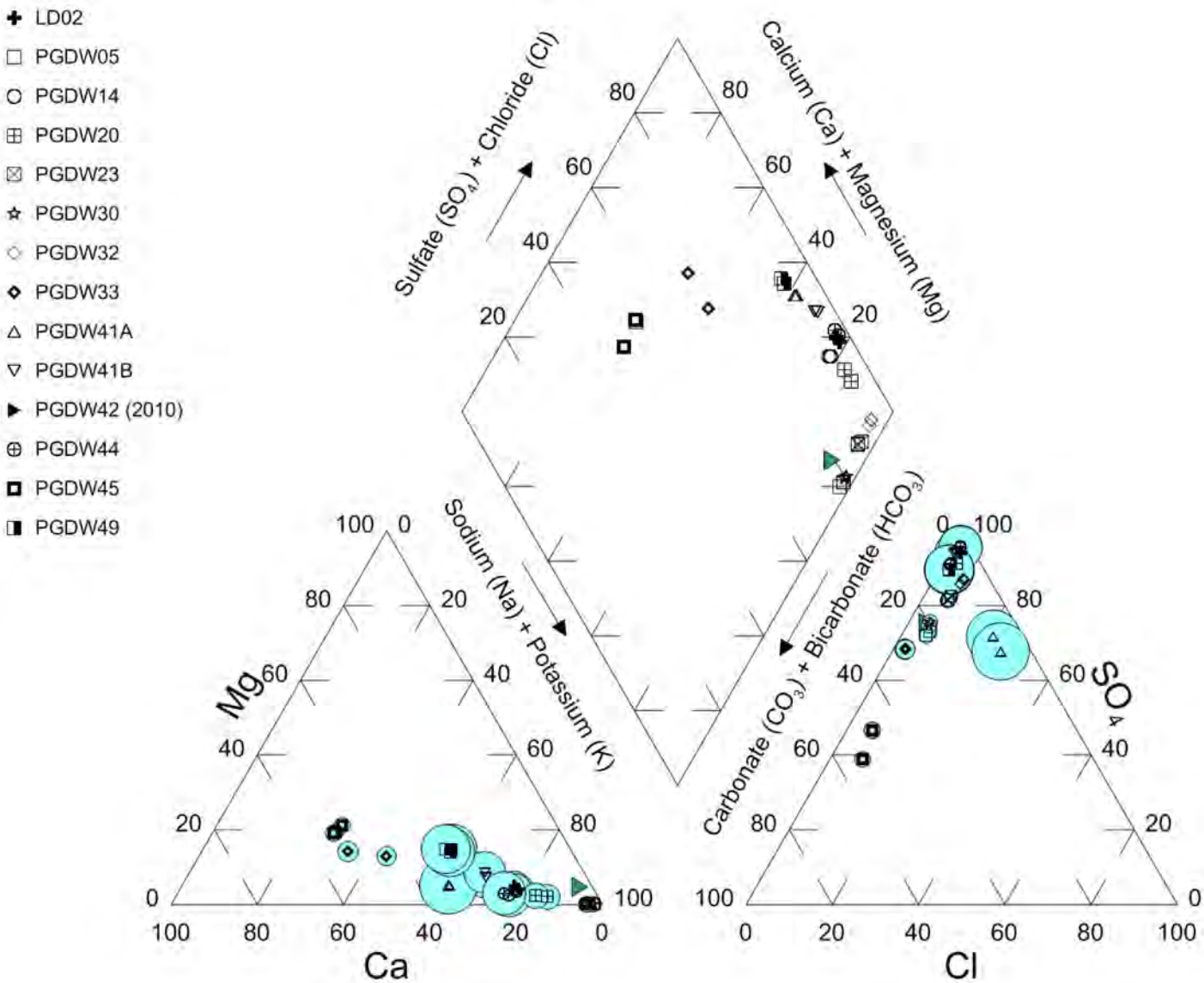

Notes:

1. Bubble plot radius is proportional to TDS concentration in the sample.
2. Cation composition uses results for total metals analyses, except for the sample from well PGDW41B which was analyzed for dissolved metals only.
3. Results for sample from well PGDW42 from 2010 included for comparison. No TDS concentration available for this sample.

FIGURE 17A

WATER QUALITY PIPER DIAGRAM
JUNE AND AUGUST 2014

Pavillion, WY Area Domestic Water Wells
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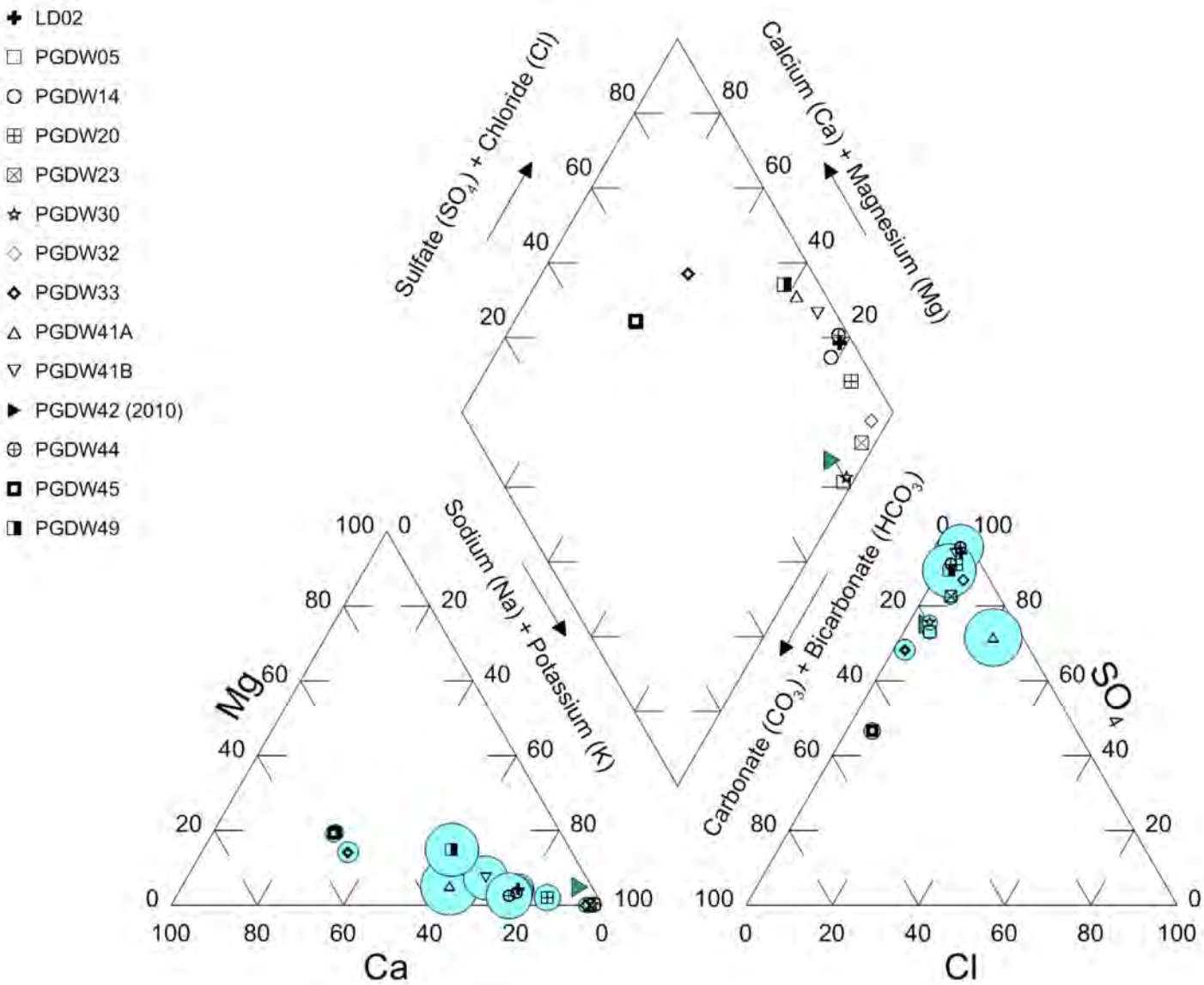
2015-06-23 T:\90081_Pavillion\REPORT\19e\MXD\fig17a_Water_Quality_Piper_Diagram.mxd JW



Notes:

1. Bubble plot radius is proportional to TDS concentration in the sample.
2. Cation composition uses results for total metals analyses, except for the sample from well PGDW41B which was analyzed for dissolved metals only.
3. Results for sample from well PGDW42 from 2010 included for comparison. No TDS concentration available for this sample.

FIGURE 17B

WATER QUALITY PIPER DIAGRAM, JUNE 2014

Pavillion, WY Area Domestic Water Wells
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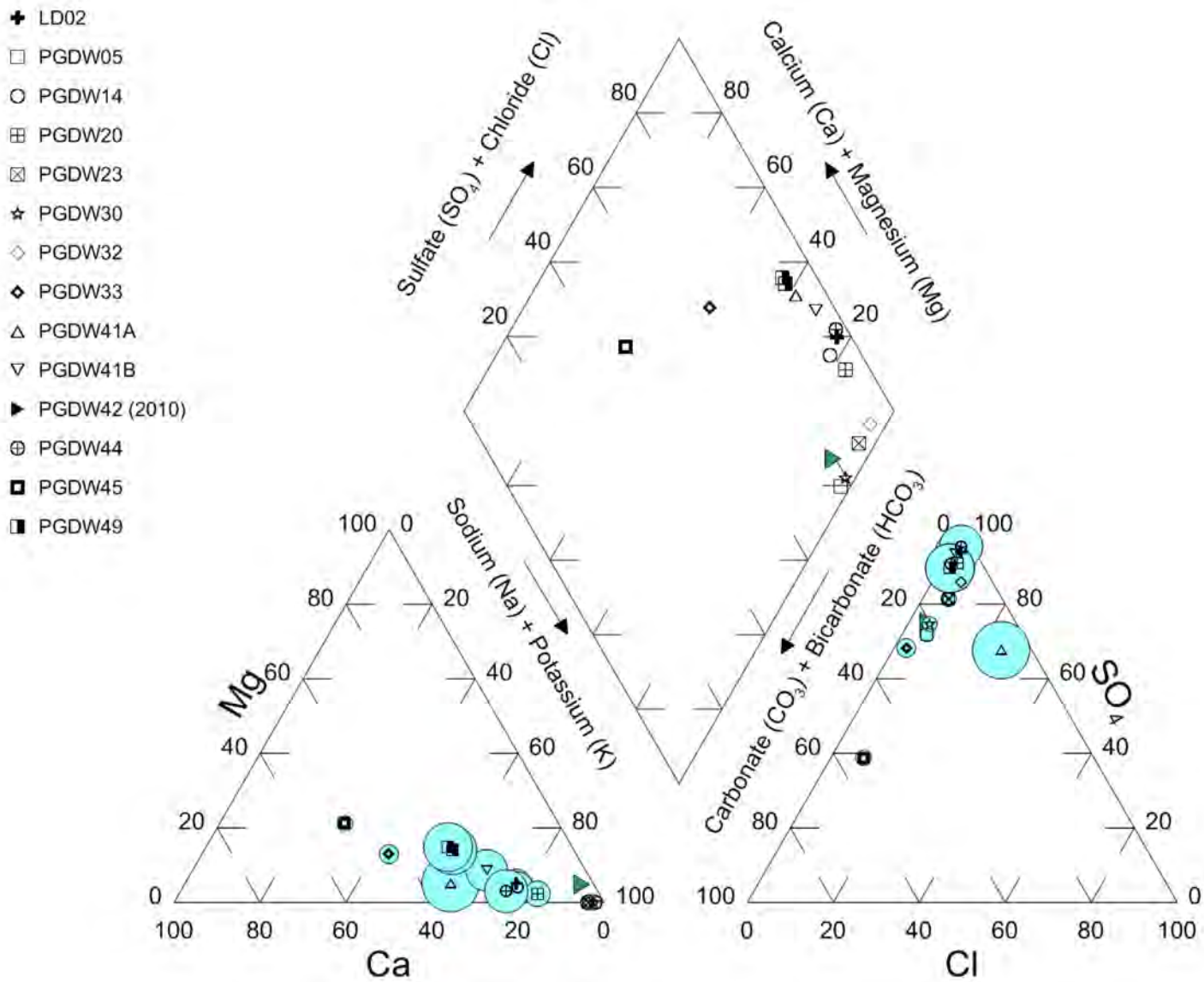

Notes:

1. Bubble plot radius is proportional to TDS concentration in the sample.
2. Cation composition uses results for total metals analyses, except for the sample from well PGDW41B which was analyzed for dissolved metals only.
3. Results for sample from well PGDW42 from 2010 included for comparison. No TDS concentration available for this sample.

FIGURE 17C

WATER QUALITY PIPER DIAGRAM, AUGUST 2014

Pavillion, WY Area Domestic Water Wells
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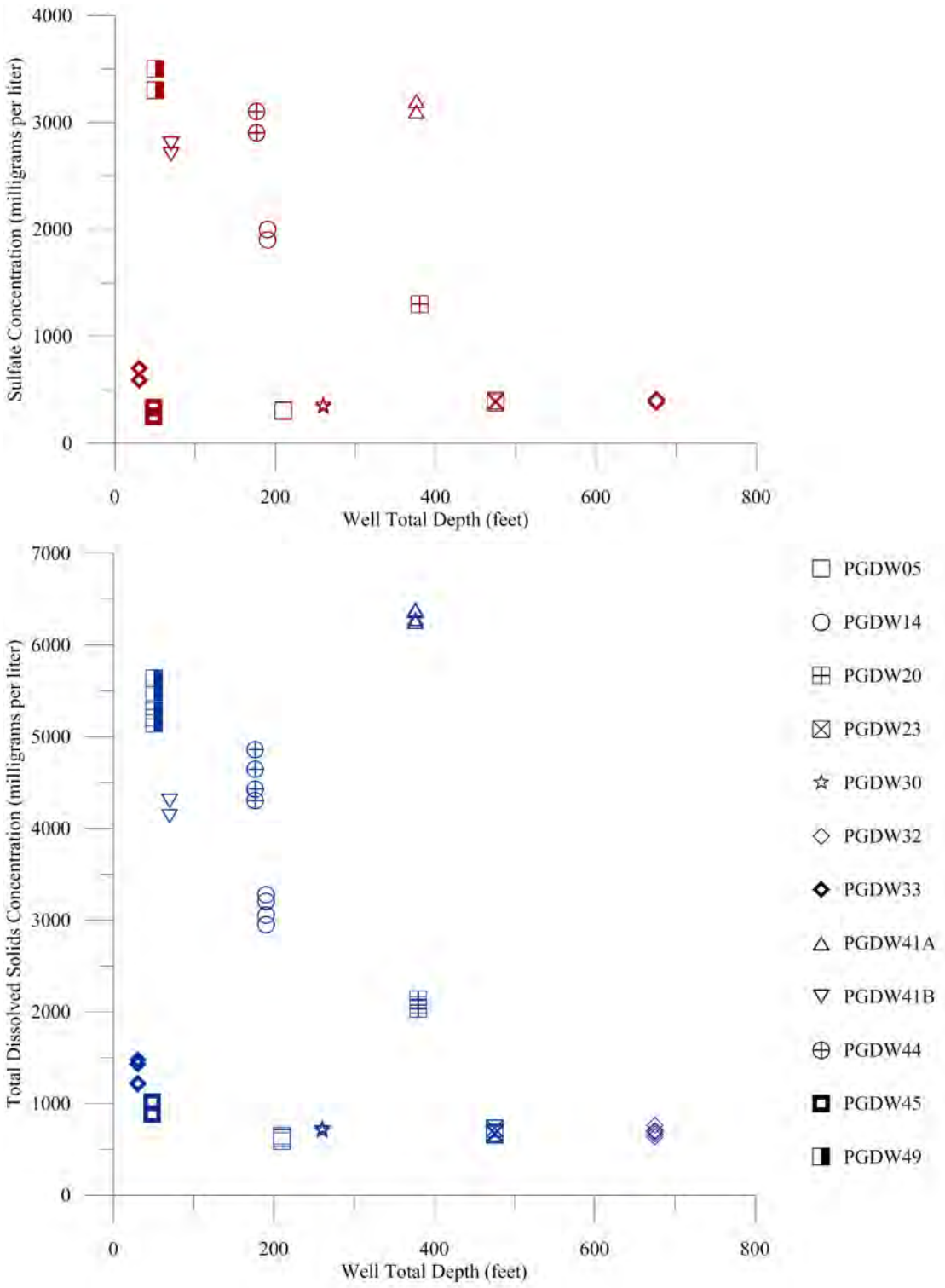

FIGURE 18
SULFATE AND TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN GROUNDWATER VERSUS WELL DEPTH, JUNE AND AUGUST 2014

Pavillion, WY Area Domestic Water Wells
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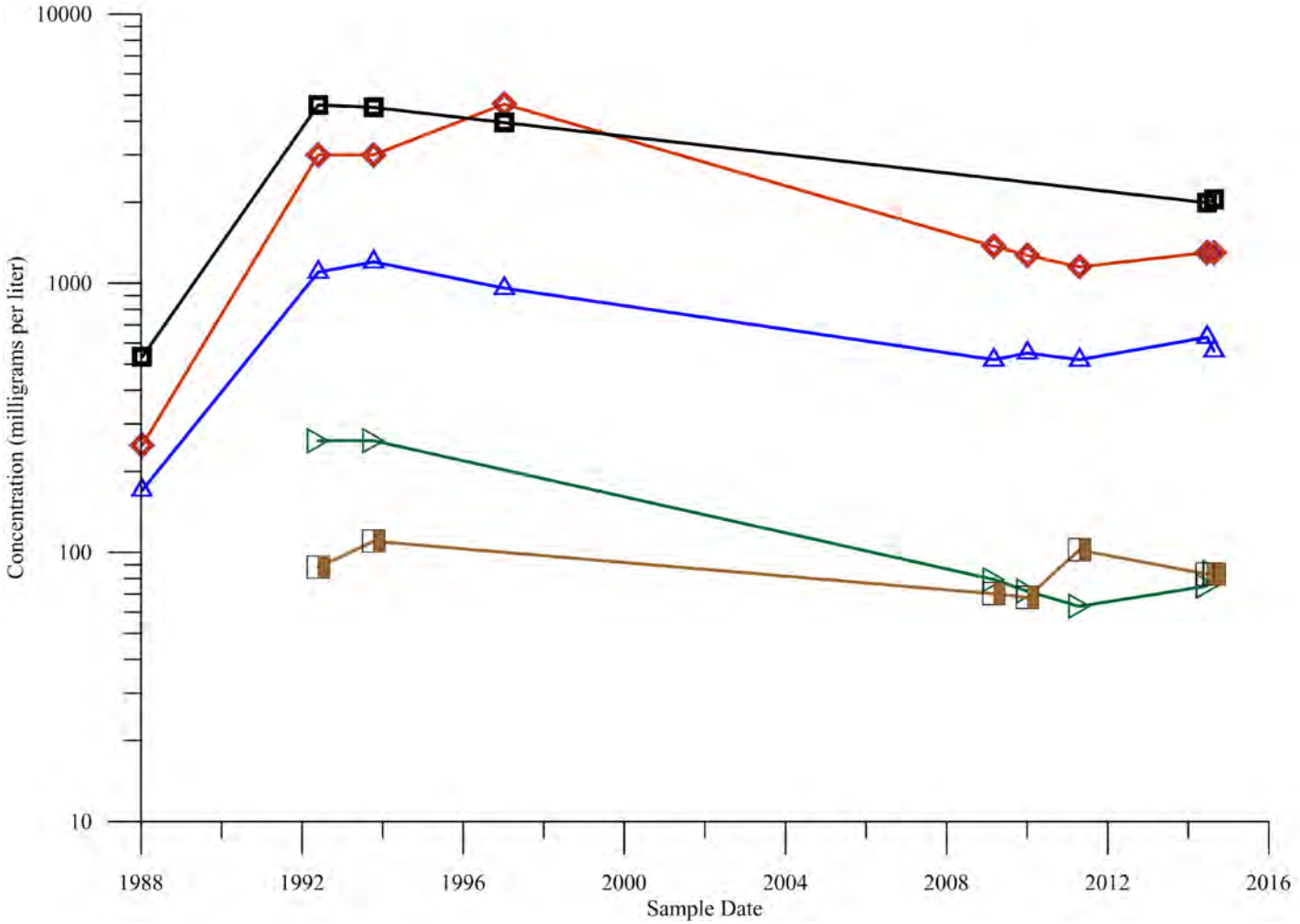
2015-08-03 T:\90081_Pavillion\REPORT\19e\MXD\fig18_sulfate_TDS.mxd JW



Legend

- Alkalinity, Total
- Calcium
- Sodium
- Sulfate
- TDS

FIGURE 19

WATER-QUALITY TRENDS IN
WATER-SUPPLY WELL PGDW20

Pavillion, WY Area Domestic Water Wells
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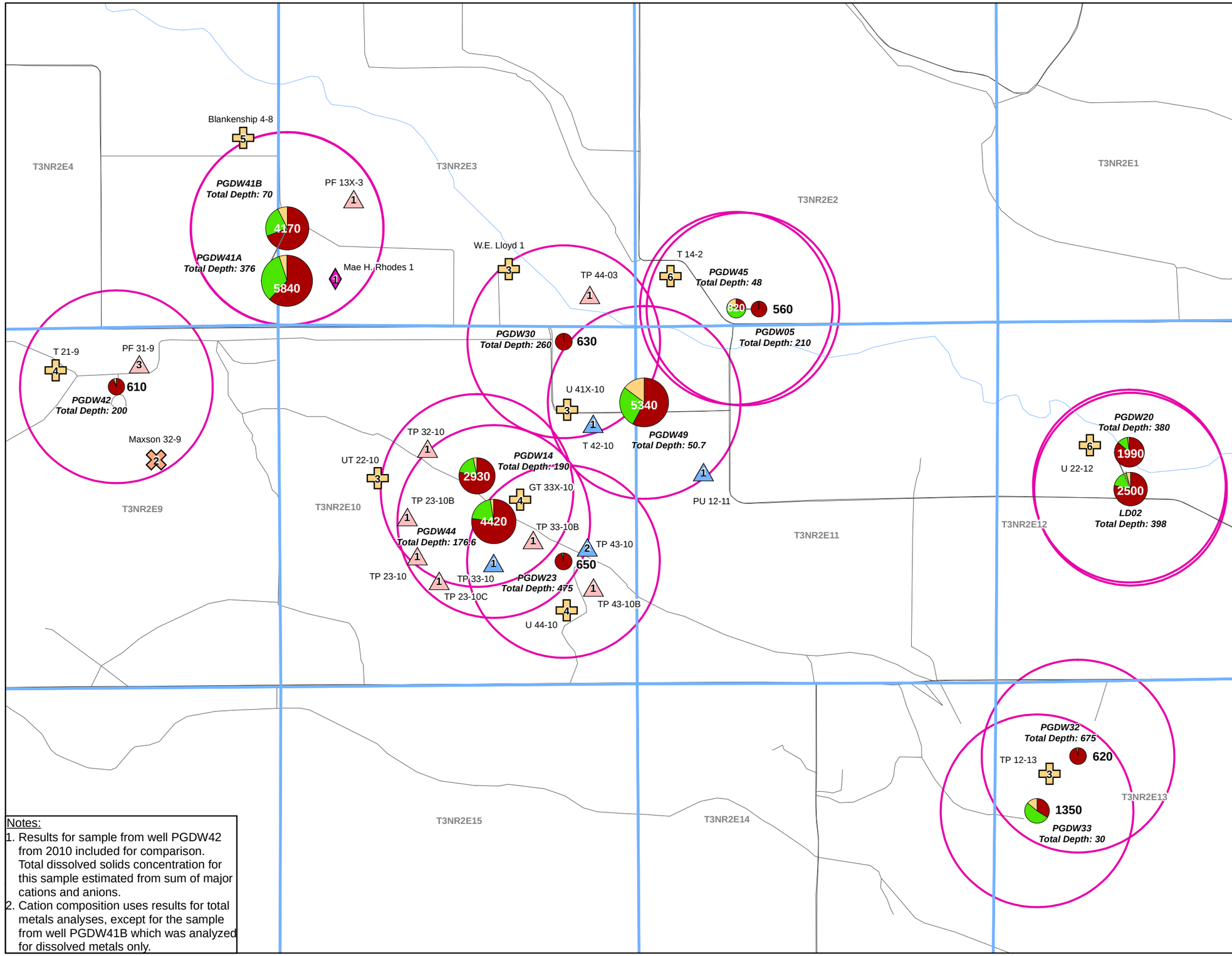

Legend

Pit Type

- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

WOGCC Pit Investigation Status

1 No Need
2 Recommended
3 Soil
4 Soil (Excavation)
5 Soil and Groundwater (VRP)
6 Soil (Excavation) and Groundwater (VRP)

County and TIGER Roads

Streams

Township Range Section

T3NR2E16

1,420 Foot Radius From Water-Supply Well (1/4 Mile Plus 100 Feet)

560 The size of the pie chart is proportional to the total dissolved solids concentration in milligrams per liter, which is listed in the center or to the right of the pie chart.

Proportion of Major Cations on Basis of Milliequivalents per Liter

- Na + K
- Ca
- Mg

N

0 700 1400

1 inch equals 1,400 feet

Notes:
1. Results for sample from well PGDW42 from 2010 included for comparison. Total dissolved solids concentration for this sample estimated from sum of major cations and anions.
2. Cation composition uses results for total metals analyses, except for the sample from well PGDW41B which was analyzed for dissolved metals only.

FIGURE 20
MAJOR CATIONS IN JUNE 2014
GROUNDWATER SAMPLES AND PITS WITHIN
1,420 FEET OF WATER-SUPPLY WELLS

Pavillion, WY Area Domestic Water Wells
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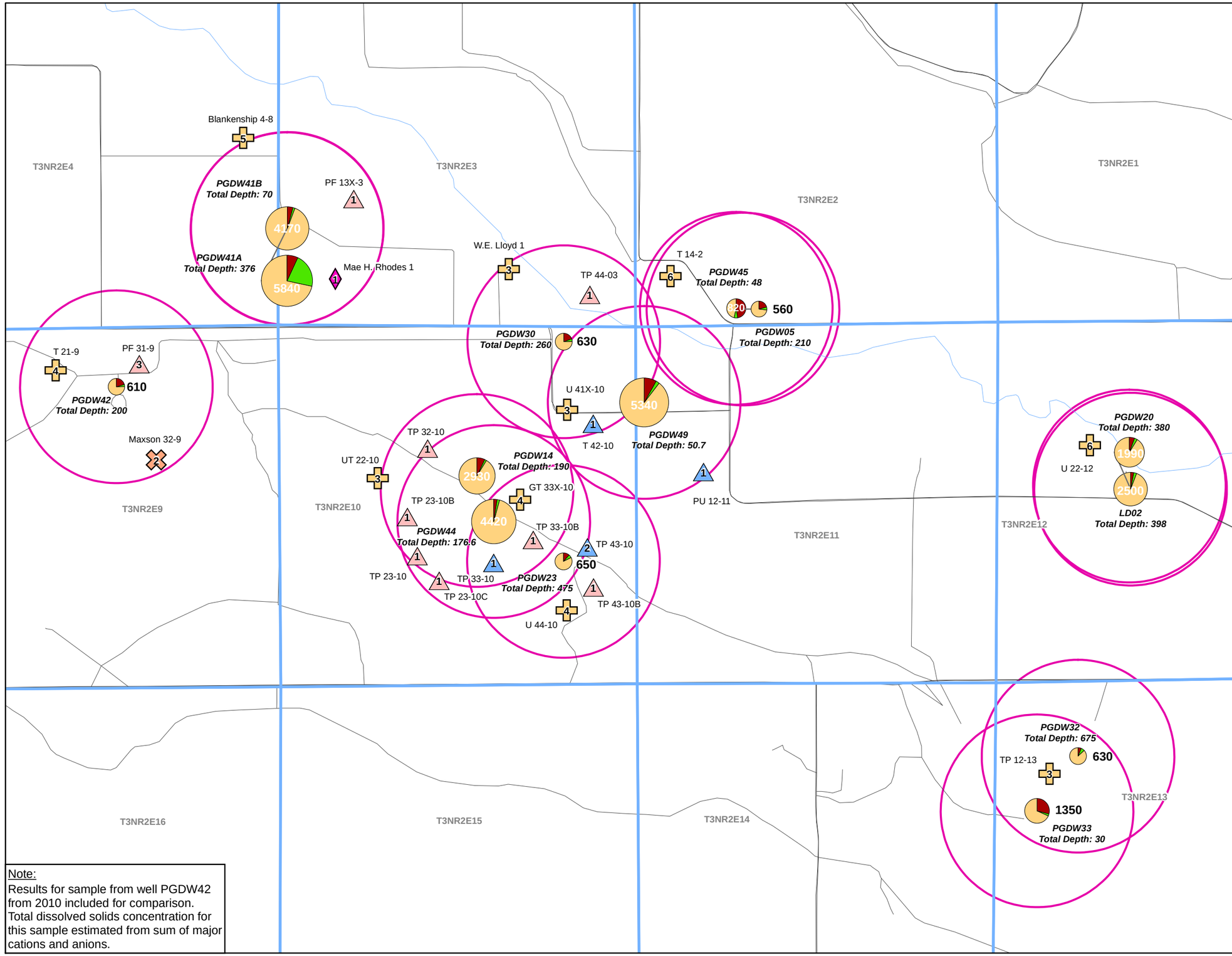
2015-09-16 T:\90081_Pavillion\REPORT\19e\MXD\Fig20_Major_Cations_June2014.mxd JW



Note:
Results for sample from well PGDW42 from 2010 included for comparison. Total dissolved solids concentration for this sample estimated from sum of major cations and anions.

Legend

Pit Type

- Reserve & Production Pit / OBM
- Reserve Pit / OBM
- Reserve Pit / WBM
- Cuttings Pit / KCl
- Cuttings Pit / LSND

WOGCC Pit Investigation Status

1 No Need
2 Recommended
3 Soil
4 Soil (Excavation)
5 Soil and Groundwater (VRP)
6 Soil (Excavation) and Groundwater (VRP)

County and TIGER Roads

Streams

Township Range Section

T3NR2E16

1,420 Foot Radius From Water-Supply Well (1/4 Mile Plus 100 Feet)

560 The size of the pie chart is proportional to the total dissolved solids concentration in milligrams per liter, which is listed in the center or to the right of the pie chart.

Proportion of Major Anions on Basis of Milliequivalents per Liter

- HCO3+CO3
- Cl
- SO4

N

0 700 1400

1 inch equals 1,400 feet

FIGURE 21
MAJOR ANIONS IN JUNE 2014
GROUNDWATER SAMPLES AND PITS WITHIN
1,420 FEET OF WATER-SUPPLY WELLS

Pavillion, WY Area Domestic Water Wells
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2015-09-16 T:\90081_Pavillion\REPORT\19e\MXD\Fig21_Major_Anions_June2014.mxd JW