**EXPLANATION**

**Definition of terms**
- **API** - American Petroleum Institute
- **CPS** - counts per second
- **Den(SS)** - short-spaced density
- **Den(LS)** - long-spaced density
- **Gam(Nat)** - natural gamma radiation
- **Neutron** - hydrogen index

**Rock units**
- Basalt
- Sediment

**Well completion**
- Slotted casing
- Cased interval
- Submersible pump
- Water level
**ANP-9 Comments**

Established 06/01/1956, Cable Tool

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**Porosity**

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Submersible pump intake near 262 ft bls; depth to water is 245.24 ft taken October 2, 2014.

8-in. slotted casing extends from 236 to 314 ft bls. Aquifer test data collected July 24, 1959 show 6.4 ft of drawdown at 24 gal/min.

No current electronic geophysical data available. Generalized lithology from driller log suggest basalt with some fractured basalt and cinders present from 240 to 322 ft bls.
ARA-MON-A-002 Well

Depth (ft BLS) | Natural Gamma | Well | Neutron | Gamma | DEN(SS) | DEN(LS) | Porosity
---|---|---|---|---|---|---|---
0 | API | 75 | NEUTRON | 0 | 12500 | 100 | 65000

ARA-MON-A-002 Comments
Established 07/29/1994; Down Hole Hammer

6-in. stainless steel well casing set from -2.25 to 600 ft; 5-in. well screen from 600 to 620 ft bsl; 5-in. casing blank from 600 to 629 ft bsl; 5-in. casing blank from 620 to 629 ft bsl. Cement from 0 to 582.5 ft bsl; bentonite pellets from 582.5 to 594.4 ft bsl; silica sand from 594.4 to 629 ft bsl.

Submersible pump intake near 604 ft bsl. Depth to water is 600.32 taken October 9, 2014.
MTR-Test has a 8-in. casing set down to 588 ft b.l.s with perforations in casing (slotted) from 447 to 588 ft b.l.s. Submersible pump (5 hp) inlet set near 486 ft b.l.s. Water level data shows depth to water at 470.96 ft taken October 8, 2014. Aquifer test data collected July 1, 1987 suggest 0.02 ft of drawdown at a pumping rate of 26 gallons per minute.
6-inch casing from LS to 599 ft bbls; milled perforations in 6-in. casing extend from 500 to 535 ft bbls. Aquifer test data collected 6/09/1987 suggest about 0.25 ft of drawdown at about 26 gallons per minute.

Submersible pump intake near 486 ft bbls. Depth to water 476.04 ft taken October 10, 2014.

Geology from 400 to 600 ft bbls (approximated and based off NG digitized log):
- 400 to 430 ft - sediment
- 430 to 550 ft - basalt with sediment stringers
- 550 to 600 ft - sediment
NRF-10 has an 8-in. casing set down to 298 ft BLS. NRF-10 has a k-packer (6-in.) starting near 279 ft BLS and extends to 427 ft BLS; the 6-in. k-packer is screened from 377 to 427 ft BLS. NRF-10 is filled in from 427 to 450 ft BLS with sluff.

Video data from July 21, 2008 suggest bottom of hole at about 412 ft BLS.

It is not clear what material is present between 427 ft BLS and 450 ft BLS. The well likely is filled in between 412 and 427 ft BLS.

Submersible pump (5 hp) inlet set near 408 ft BLS. Water level data shows depth to water at 391.88 ft taken November 17, 2014.

Geology (approximate):
350 to 450 ft BLS - basalt
NRF-9 has a 8-in. casing set down to 309 ft BLS. NRF-9 has a k-packer (6-in) starting near 289 ft BLS and extends to 422 ft BLS; the 6-in. k-packer is screened from 372 to 422 ft BLS.

Submersible pump (5 hp) inlet set near 409 ft BLS. Water level data shows depth to water at 392.08 ft taken December 4, 2014.

Geology (approximate):
350 to 422 ft BLS - basalt
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10-inch perforated casing from 190 to 315 ft bbls. Aquifer test data collected 8/21/1990 suggest 5.9 ft of drawdown at about 44 gallons per minute.

Submersible pump intake near 242 ft bbls. Depth to water 234.3 ft taken October 2, 2014

Geology from 200 to 322 ft bbls from driller log:
- 200 to 305 - basalt
- 305 to 315 - basalt rubble and clay
- 315 to 322 - basalt

Established 11/24/1957, Cable Tool
RWMC-M12S has a 6-in. casing set down to 568 ft bsl; RWMC-M12S has a 6-in. well screen that extends from 528 to 538 ft bsl and from 548 to 568 ft bsl then capped at bottom.

Submersible pump (5 hp) inlet set near 560 ft bsl. Water level data show depth to water at 542.84 ft taken October 2, 2014.
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**RWMC-M6S Comments**

- Constructed July 29, 1992; Tri-cone and DHH drilled
- RWMC-M6S has a 6-in. casing set down to 638 ft bls;
- RWMC-M6S has a 6-in. well screen that extends from 638 to 668 ft bls and capped at bottom.
- Natural Gamma sensor not working and not displayed in figure.
- Submersible pump (1.5 hp) inlet set near 663 ft bls. Water level data shows depth to water at 645.83 ft taken June 7, 2014.
- RWMC-M6S has silica sand set between 632 and 696 ft bls and surrounds the well screen between 638 and 668 ft bls.

RWMC-M6S has a 6-in. casing set down to 638 ft bls. Water level data shows depth to water at 645.83 ft taken June 7, 2014. RWMC-M6S has silica sand set between 632 and 696 ft bls and surrounds the well screen between 638 and 668 ft bls.
Site-19 has a 10-in. casing set down to 572 ft blls. Site-19 has an 8-in. casing set down to 865 ft blls. Site-19 is perforated between the following intervals: 472 to 512 ft blls; 532 to 572 ft blls; 596 to 616 ft blls; 780 to 862 ft blls (approximate). Video data from 9/24/2002 suggest the bottom of Site-19 is at 860 ft blls.

Submersible pump (5 hp) inlet set near 486 ft blls. Water level data shows depth to water at 479.83 ft taken October 15, 2014. Aquifer test data collected June 24, 1987 suggest 0.08 ft of drawdown at a pumping rate of 25 gallons per minute.

Geology (approximate):
- 450 to 567 ft - basalt with cinders
- 567 to 569 ft - basalt cinders with silt
- 569 to 664 ft - basalt with cinders
- 664 to 674 ft - silt
- 674 to 714 ft - basalt
- 714 to 727 ft - clay/sand/silt
- 727 to 865 ft - basalt
Blank 5-in. carbon steel casing from 423 to 600 ft bls. The 5-in. casing set with lead packer 10 ft inside of 6-in. casing (overlap).

Perforated 5-in. casing from 600 to 630 ft bls. Submersible pump intake near 611 ft bls. Depth to water 595.44 ft bls taken October 1, 2014. Total estimated depth of USGS-1 is 630 ft bls, open hole below 5-in. casing.

Established 12/01/1949, Cable Tool

Blank 5-in. carbon steel casing from 423 to 600 ft bls. The 5-in. casing set with lead packer 10 ft inside of 6-in. casing (overlap).

Perforated 5-in. casing from 600 to 630 ft bls. Submersible pump intake near 611 ft bls. Depth to water 595.44 ft bls taken October 1, 2014. Total estimated depth of USGS-1 is 630 ft bls, open hole below 5-in. casing.
Established August 19, 1974; Air Rotary Drilled

No electronic logs available for neutron and (or) gamma-gamma density; natural gamma collected down to about 668 ft b.s. Aquifer test data collected June 17, 1987 suggest 0.13 ft of drawdown at a pumping rate of about 18 gallons per minute. USGS-100 has 8-in. casing that extends from land surface to 662 ft b.s.; USGS-100 has a 6-in. open hole from 662 to 750 ft b.s.

Submersible pump (5 hp) inlet set near 696 ft b.s.; however, CWI may have performed maintenance in 2011 but no notes in USGS database. Water level data shows depth to water at 688.15 ft taken October 1, 2014.

Geology:
662 to 750 ft b.s. - basalt (firm and broken)
6-in. steel casing from land surface to 774 ft BLS; 4-in. steel casing from 750 to 865 ft BLS with random slotted perforations in casing starting near 765 ft BLS (video taken July 5, 2005). Aquifer test July 2, 1987 shows 0.5 ft of drawdown at 8.5 gal/min.

Sediment layer caved in on top of pump and it cannot be removed as of March, 2015.

Geology (approximate):
- 765 to 786 ft - basalt
- 786 to 794 ft - sediment
- 794 to 865 ft - basalt

Pump (5hp-submersible) intake near 800 ft BLS. Water level 781.53 ft BLS taken August 8, 2014.

Sediment sluff inside of well casing starts near 842 ft BLS based off video log taken July 5, 2005. Well currently does not make much water and has sand problems.
Established August 28, 1980; Air-Rotary Drilled

USGS-106

- Depth (ft BLS)
- Rock Unit(s)
- USGS-106 Comments

USGS-106 has a 8-in. casing set down to 400 ft bbls; USGS-106 is open hole (10-in.) from 400 to 605 ft bbls and open hole (8-in.) from 605 to 760 ft bbls.

Submersible pump (5 hp) inlet set near 612 ft bbls. Water level data shows depth to water at 594.85 ft taken October 20, 2014.

Aquifer test data collected June 11, 1987 suggest 0.03 ft of drawdown at a pumping rate of 22 gallons per minute.

Geology (approximate):
- 580 to 589 ft - Clay
- 589 to 720 ft - Basalt
- 720 to 735 ft - Clay
- 735 to 760 ft - Basalt
USGS-112 Comments
Established September 7, 1984; Hydraulic-Rotary Drilled

USGS-112 has a 8-in. casing set down to 432 ft. USGS-112 is open hole (10-in.) from 432 to 444 ft and open hole (6-in.) from 444 to 563 ft. Borehole deviation data suggest a 2.81 ft at 483 ft, based off 9095 gyro-data collected 11/19/2002.

Submersible pump (5 hp) inlet set near 500 ft. Water level data shows depth to water at 483.14 ft taken October 7, 2014.

Aquifer test data collected May 26, 1987 suggest 0.05 ft of drawdown at a pumping rate of 25 gallons per minute. Borehole filled in near 507 ft based off video taken 8/27/2007.

Geology (approximate):
- 420 to 426 ft: Clay
- 426 to 432 ft: Basalt
- 432 to 434 ft: Clay
- 434 to 483 ft: Basalt
- 483 to 563 ft: Basalt

470
480
490
500
510
520
530
540
550
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### USGS-12 Comments
Established 06/26/1950, Cable Tool

- 12-in. casing from LS to 387 ft b.s.; 10-in. casing from 335 to 587 ft b.s.; 4-in. drill string stuck in hole from about 588 to 640 ft b.s. Casing does not appear to have perforations. Aquifer test data collected 5/15/1990 suggest about 0.44 ft of drawdown at about 30 gallons per minute.

- Submersible pump intake near 358 ft b.s. Depth to water 346.52 ft taken October 6, 2014.

- No current electronic geophysical log data available.

- Geology from 300 to 690 ft b.s from driller log (approximate):
  - 300 to 490 - basalt
  - 490 to 505 - sand
  - 505 to 515 - basalt
  - 515 to 620 - mixed sediment and basalt sections
  - 620 to 690 - mostly basalt
USGS-121 has a 6-in. casing set down to 449 ft BLS; USGS-121 has 6-in. well screen between 449 and 475 ft BLS and blank from 475 to 480 ft BLS. USGS-121 was drilled to 746 ft BLS and cemented up between 480 and 746 ft BLS. Borehole deviation data suggest a 1.68 ft at 464 ft BLS, based off 9095 gyro-data collected 8/23/2007.

Submersible pump (5 hp) inlet set near 473 ft BLS. Water level data shows depth to water at 464.32 ft taken October 7, 2014.

Geology (approximate):
460 to 480 ft - Basalt
480 to 745.8 ft - Geology not identified
**USGS-123**

**Well Details**
- **Completion Date:** April 6, 1994
- **Drilling Method:** Air-Rotary Drilled

**USGS-123 Comments**
- **Submersible Pump:** 5 hp inlet set near 481 ft bls; pump resting on the bottom of the well. Well screen set from about 460 to 744 ft bls.
- **Water Level Data:** Depth to water at 475.03 ft taken October 6, 2014.
- **Drill Cuttings:** From about 516 to 744 ft bls.

**Geology (approximate):**
- **460 to 501 ft - Basalt**
- **501 to 503 ft - Clay**
- **503 to 561 ft - Basalt**
- **561 to 563 ft - Sand and rubble**
- **563 to 687 ft - Basalt**
- **687 to 690 ft - Silt**
- **690 to 740 ft - Basalt**
- **740 to 745 ft - Clay (soft)**

**Graphical Data**
- **Natural Gamma (GAM):**
- **Neutron (NEUT):**
- **Density (DEN):**
- **Depth (ft BLS):**

**X-Axis (Depth):** 460 to 470 ft BLS

**Y-Axis:**
- **GAM:** 0 to 60 units
- **NEUT:** 0 to 1600 units
- **DEN:** 65000 to 125000 units

**Notes:**
- USGS-123 was last modified December 16, 2004.
Geology from driller notes (approximate):
Basalt is generally porous.

Submersible pump inlet set near 739 ft bls. Aquifer test data collected September 14, 1989 suggest 0.08 ft of drawdown at 15.9 gal/min. Depth to water 720.95 ft bls taken October 14, 2014.

5-in. blank casing extends from 559 to 720 ft bls; 5-in. perforated casing extends from 720 to 747 ft bls; 5-in. blank casing from 747 to 751.5 ft bls.
6-in. casing from LS to 255 ft BLS; 4-in. casing from 255 to 298 ft BLS; 4-in. casing with perforations from 298 to 322 ft BLS; 4-in. casing blank from 322 to 329 ft BLS. Aquifer test data collected 8/29/1990 suggest about 0.09 ft of drawdown at about 32 gallons per minute.

Submersible pump intake near 302 ft BLS. Depth to water 292.48 ft taken October 6, 2014.

Geology from 250 to 329 ft BLS from driller log (approximate):
- 250 to 284 - clay and sand
- 284 to 285 - basalt
- 285 to 299 - sand
- 290 to 329 - basalt with some sand lenses described.
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Blank 6-in. carbon steel casing from LS to 434 ft bls; 5-in. casing set from 427 to 704 ft bls; perforations from 675 to 696 ft bls.

Perforated 5-in. casing from 675 to 696 ft bls. Submersible pump intake near 685 ft bls. Depth to water 670.16 ft bls taken October 1, 2014. Total estimated depth of USGS-2 is 699 ft bls (video 8/5/2002). Aquifer test data suggest 4.5 ft of drawdown at about 15 gallons per minute rate.
8-in. slotted casing extends from 285 to 305 ft bbl; 10.25-in.
open hole from 305 to 428 ft bbl. Total well depth is not
known where this well was used as a seismic shot hole in the
1960’s and likely had damage to the open hole section.
Aquifer test data collected July 10, 1953 show 1.7 ft of
drawdown at a discharge rate of 280 gal/min.

No current electronic geophysical data available.
Submersible pump intake near 284 ft bbl; depth to water
268.76 ft bbl taken October 2, 2014.

Generalized lithology from driller log starting near 250 ft bbl:
250 to 305 ft - Basalt, dark gray and red
305 to 345 ft - Basalt dense
345 to 355 ft - Vesicular basalt
350 to 373 ft - Dense basalt
373 to 402 ft - Vesicular to very vesicular basalt
402 to 415 ft - porous red lava (cinders?)
415 to 429 ft - gray lava
### USGS-32 Comments
Established 06/24/1953, Cable Tool

#### Rock Unit(s)

6-in. slotted casing extends from 306 to 324 ft bsc; 5.5-in. open hole from 324 to 392 ft bss. Aquifer test data collected August 24, 1990 show 0.01 ft of drawdown at a discharge rate of 31 gal/min.

No current electronic geophysical data available.

Submersible pump intake near 322 ft bsc; depth to water 306.85 ft bsc taken October 2, 2014.

Generalized lithology from driller log starting near 250 ft bsc:
- 305 to 350 ft - Basalt, dark gray and red
- 350 to 372 ft - Vesicular basalt
- 372 to 392 ft - Clay material (yellow and blue in color)

Well is caved near 374 ft bsc?
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6-in. open hole from 48 ft to 572 ft BLS. USGS-39 has had lots of sediment problems and well is currently sloughed in to about 493 ft BLS.

Submersible pump intake near 487 ft BLS. Depth to water 485.66 ft at BLS taken July 17, 2014. Aquifer test data suggest 0.01 ft of drawdown at about 23 gallons per minute rate. Geology not very well noted in site schedule.
USGS-47 has a 6-in. open hole from 458 to 651 ft bls.

Submersible pump (5 hp) inlet set near 486 ft bls. Water level data shows depth to water at 469.00 ft taken October 12, 2010.

Geology from natural gamma log:
- 460 to 534 ft bls - basalt (firm and broken)
- 534 to 542 ft bls - sediment layer
- 542 to 651 ft bls - basalt

Video taken 4/18/2005 suggest downward flow occurs below sediment zone, after about 550 ft bls.
Submersible pump intake near 488 ft bsl. Depth to water 480.41 ft bsl taken October 7, 2014. Total estimated depth of USGS-5 is 500 ft bsl. Aquifer test data suggest 17.1 ft of drawdown at about 5.4 gallons per minute rate.

Geology (based off old natural gamma log):
- basalt - 450 to 458 ft bsl
- sediment - 458 to 462 ft bsl
- basalt - 462 to 490 ft bsl
- sediment - 490 to 500 ft bsl
### USGS-58 Comments

Established February 4, 1961; Cable Tool Drilled

USGS-58 has a 6-in. casing set down to 218 ft bls; USGS-58 is open hole from 218 to 503 ft bls. Well was deepened in 1961 from 475 to 503 ft bls.

Submersible pump (5 hp) inlet set near 483 ft bls. Water level data shows depth to water at 472.70 ft taken October 8, 2014. Aquifer test data collected June 18, 1987 suggest 0.08 ft of drawdown at a pumping rate of 25 gallons per minute.

### USGS-58 Well Data

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USGS-59 has a 6-in. casing set down to 464 ft BLS; USGS-59 is open hole from 464 to 657 ft BLS. Video taken 8/25/2004 shows the well is caved in near 587 ft BLS.

Submersible pump (5 hp) inlet set near 480 ft BLS. Water level data shows depth to water at 467.74 ft taken October 8, 2014. Well was cleaned out in 2003 but it appears there are unstable sections that continue to cave in.

Geology 450 to 657 ft BLS (based off ICPP Observations):
- 450 to 558 ft BLS - basalt with areas of cinders
- 558 to 561 ft BLS - red cinders and clay
- 561 to 657 ft BLS - basalt with cinders
USGS-65 Comments
Established 06/26/1950, Cable Tool

Submersible pump intake near 489 ft BLS. Depth to water 476.46 ft taken October 8, 2014.
Limited electronic geophysical log data available.

Geology from 320 to 498 ft BLS from geophysical log and driller log (approximate):
320 to 329 - basalt
329 to 338 - clay
338 to 498 - basalt

6-in. casing from LS to 326 ft BLS; 4.5-in. casing to 456 ft BLS. Casing does not appear to have perforations. USGS-65 is open from 456 to 498 ft BLS (6-in.). Aquifer test data collected November 13, 1990 suggest about 0.07 ft of drawdown at about 6.2 gallons per minute.

Depth (ft BLS) | Natural Gamma | Neutron | Gamma | USGS-65 Comments
---|---|---|---|---
0 API 150 | GAM(NAT) | NEUTRON | DEN(SS) | Established 06/26/1950, Cable Tool
0 API 800 | | | DEN(LS) |
0 % 100 | Porosity | DEN(LS) | |
### USGS-7 Comments

Established 04/04/1950, Cable Tool

- **Well Depth (ft BLS):**
  - 250
  - 275
  - 300
  - 325
  - 350
  - 375
  - 400
  - 425
  - 450
  - 475
  - 500
  - 525
  - 550
  - 575
  - 600

- **Porosity:**
  - 0
  - %
  - 100

- **Gamma (GAM(NAT))**
  - 0
  - API
  - 75

- **Neutron (NEUTRON)**
  - 0
  - API
  - 800

- **Density (DEN(SSL))**
  - 65000
  - CPS
  - 125000

- **Density (DEN(LS))**
  - 0
  - CPS
  - 20000

- **Rock Unit(s):**
  - USGS-7
  - Notes:
  - **Established 04/04/1950, Cable Tool**
  - **Depth to water 237.24 ft taken October 2, 2014.**
  - **Submersible pump intake near 242 ft bbl.**
  - **Geology from 230 to 1,200 ft bbl from driller log (approximate):**
    - 230 to 680 - basalt
    - 680 to 685 - sand and gravel
    - 685 to 755 - basalt
    - 755 to 775 - mixed sediment and basalt
    - 775 to 900 - basalt
    - 900 to 1,000 - sediment with basalt
    - 1,000 to 1,040 - basalt
    - 1,040 to 1,060 - sand
    - 1,060 to 1,080 - basalt
    - 1,080 to 1,090 - sand
    - 1,090 to 1,200 - basalt with missing intervals
  - **6-inch casing from LS to 252 ft bbl; milled perforations in 6-in. casing extend from 239 to 252 ft bbl.**
  - **USGS-7 notes suggest 6-in. casing was removed and is open hole from 252 to about 775 ft bbl.**
  - **USGS-7 was drilled to 1,200 ft; 5.5-in. from 775 to about 950 ft, 3.5-in. from about 950 to 1,200 ft bbl.**
  - **Aquifer test data collected 8/31/1990 suggest about 1 ft of drawdown at about 48 gallons per minute.**
  - **This well was modified after initial construction.**
  - **Submersible pump intake near 242 ft bbl. Depth to water 237.24 ft taken October 2, 2014.**

- **Comments:**
  - **Geology from 230 to 1,200 ft bbl from driller log (approximate):**
    - 230 to 680 - basalt
    - 680 to 685 - sand and gravel
    - 685 to 755 - basalt
    - 755 to 775 - mixed sediment and basalt
    - 775 to 900 - basalt
    - 900 to 1,000 - sediment with basalt
    - 1,000 to 1,040 - basalt
    - 1,040 to 1,060 - sand
    - 1,060 to 1,080 - basalt
    - 1,080 to 1,090 - sand
    - 1,090 to 1,200 - basalt with missing intervals
USGS-76 has a 6-in. casing set down to 457 ft BLS; USGS-76 is open hole from 457 to 718 ft BLS.

Submersible pump (5 hp) inlet set near 502 ft BLS. Water level data shows depth to water at 484.91 ft taken October 8, 2014.

Aquifer test data collected June 10, 1987 suggest 0.02 ft of drawdown at a pumping rate of about 25 gallons per minute.

Geology from 450 to 718 ft BLS (approximate):
- 450 to 528 ft: Basalt
- 528 to 534 ft: Sand and clay
- 534 to 717 ft: Basalt with areas of cinders
USGS-84 has 6-in. casing that extends down to 324 ft BLS and 4-in. casing that extends down to 420 ft BLS. USGS-84 is open hole (6-in.) from 420 to 505 ft BLS.

Submersible pump inlet set near 498 ft BLS. Depth to water 493.00 ft BLS taken October 22, 2014.

Geology approximated:
475 to 505 ft - basalt with cinders in areas
USGS-85 has a 6-in. casing set down to 522 ft bbls; USGS-85 is open hole from 522 to 614 ft bbls. Well video taken in 1993 suggest the well is filled in below about 614 ft bbls.

Submersible pump (5 hp) inlet set near 514 ft bbls. Water level data shows depth to water at 494.68 ft taken October 8, 2014.

Aquitard test data collected September 12, 1990 suggest 0.00 ft of drawdown at a pumping rate of 22 gallons per minute.

Geology approximate:
- 475 to 518 ft - basalt
- 518 to 522 ft - sand and basalt (drive shoe set through sediment)
- 522 to 613 - basalt with areas of cinders
- 613 to 619 - clay (sluffed in near 613 ft bbls)
USGS-86 Comments
Established October 1, 1966, Cable Tool

Submersible pump inlet set near 673 ft b.s. Depth to water 656.49 ft b.s taken October 22, 2014. USGS-86 was constructed as 8-in. open hole from 48 to 691 ft b.s. Aquifer test conducted August 4, 1987 suggest USGS-86 shows drawdown of 3.39 ft at a discharge rate of 19.0 gal/min. Total well depth near 690 ft b.s based of video taken September 17, 2013.

8-in. casing extends down to 48 ft and USGS-86 is open hole (8-in.) between 48 and 691 ft b.s.
<table>
<thead>
<tr>
<th>Depth (ft BLS)</th>
<th>Natural Gamma</th>
<th>Well</th>
<th>Neutron</th>
<th>Gamma</th>
<th>USGS-87 Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>580</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>USGS-87 has a 6-in. casing set down to 585 ft bises; USGS-87 was deepened in 1974 and has 4-in. casing set from 568 to 673 ft bises with slotted perforations.</td>
</tr>
<tr>
<td>590</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>Submersible pump (1.5 hp) inlet set near 610 ft bises. Water level data shows depth to water at 595.31 ft taken April 17, 2014.</td>
</tr>
<tr>
<td>600</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>Aquifer test data collected October 17, 1988 suggest 0.3 ft of drawdown at a pumping rate of 6 gallons per minute.</td>
</tr>
<tr>
<td>610</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>Geology approximate:</td>
</tr>
<tr>
<td>620</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>575 to 600 ft - basalt</td>
</tr>
<tr>
<td>630</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>600 to 610 ft - sand and basalt (drive shoe set through sediment)</td>
</tr>
<tr>
<td>640</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>610 to 630 - basalt with areas of cinders</td>
</tr>
<tr>
<td>650</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>630 to 640 - sand</td>
</tr>
<tr>
<td>660</td>
<td></td>
<td>USGS-87</td>
<td></td>
<td></td>
<td>640 to 673 - basalt with areas of cinders</td>
</tr>
</tbody>
</table>
6-in. casing extends down to 618 ft BLS. Sediment layers estimated from natural gamma logs near 594 and 609 ft BLS.

Submersible pump inlet set near 632 ft BLS. 6-in. perforated casing extends from 618 to 648 ft BLS. Aquifer test data collected July 30, 1987 suggest 0.04 ft of drawdown at 18.7 gal/min. Depth to water 614.05 ft BLS taken October 22, 2014.

6-in. blank casing extends from 648 to 652 ft BLS. 6-in. open hole described from 652 to 654 ft BLS; however, sluff material observed in video near 650 ft BLS (July 1, 2003).
New 4-in. stainless steel well screen installed in 2005. USGS-98 is screened from 418 to 428 and from 468 to 508 ft bls. Sediment layers, described from natural gamma logs, occur near 440 and 444 ft bls. Sediment starting near 444 is described as silt and clay and video data suggests water from above this zone is pulled downward (video December 16, 2003).

Submersible pump inlet set near 440 ft bls. Depth to water 425.79 ft bls taken October 14, 2014. Aquifer test conducted June 5, 1987 suggest 0.03 ft of drawdown at a sustained pumping rate of 18.3 gal/min.
**Natural Gamma**

<table>
<thead>
<tr>
<th>Depth (ft BLS)</th>
<th>Well</th>
<th>Neutron</th>
<th>Gamma</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 API 75</td>
<td>USGS-99</td>
<td>NEUTRON</td>
<td>DEN(SS)</td>
</tr>
<tr>
<td>0 API 800</td>
<td>65000 CPS 125000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Porosity**

<table>
<thead>
<tr>
<th>Depth (ft BLS)</th>
<th>Rock Unit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>USGS-99 Comments</td>
</tr>
<tr>
<td>410</td>
<td>Established September 20, 1974; Air-Rotary Drilled</td>
</tr>
<tr>
<td>420</td>
<td>USGS-99 has a 6-in. casing set down to 344 ft bbls; USGS-99 has 4-in. casing set down to 362 ft bbls; USGS-99 has 4-in. perforated casing from 362 to 449 ft bbls.</td>
</tr>
<tr>
<td>430</td>
<td>Submersible pump (5 hp) inlet set near 422 ft bbls. Water level data shows depth to water at 410.18 ft taken October 2, 2014. Aquifer test data collected June 30, 1987 suggest 0.03 ft of drawdown at a pumping rate of 25 gallons per minute.</td>
</tr>
<tr>
<td>440</td>
<td>Geology (approximate): 380 to 445 ft - Basalt with cinders in areas 445 to 450 ft bbls - sand and (or) clay</td>
</tr>
</tbody>
</table>

Submersible pump (5 hp) inlet set near 422 ft bbls. Water level data shows depth to water at 410.18 ft taken October 2, 2014. Aquifer test data collected June 30, 1987 suggest 0.03 ft of drawdown at a pumping rate of 25 gallons per minute.

Geology (approximate):
- 380 to 445 ft - Basalt with cinders in areas
- 445 to 450 ft bbls - sand and (or) clay