

**Acevedo, Gabriel, NMENV**

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**From:** KOTTKAMP, SHEEN T CTR USAF AFSOC 27 SOCES/CEIER  
<sheen.kottkamp.ctr@us.af.mil>  
**Sent:** Monday, July 11, 2016 11:01 AM  
**To:** Acevedo, Gabriel, NMENV  
**Subject:** RE: Groundwater Monitoring  
**Attachments:** Monitoring Well Construction Details 2016.pdf; Monitoring well information S.pdf; Monitoring well information T.pdf; Monitoring well information U.pdf; Table 1 Monitoring Well Details Updated.pdf

Thanks. Apologies for the delay, always busy on Monday mornings. See attached spreadsheet "Monitoring Well Construction Details 2016" showing groundwater static water elevations obtained in April for all 18 monitoring wells in the program. During our preparations to develop a scope of work to rehabilitate (brush and bail) the referenced wells S, T, and U; we wanted objective confirmation of the location of the screened intervals within the wells, that information was lacking in the installation admin record. We recently received information from the USGS that indicate the respective wells have 40' sumps below the screened interval (see attached). The historic data previously indicated the wells were screened from the bottom of the wells. The USGS actually installed the wells in 1998. The recently acquired data explains why we could not reach stabilization in the wells during the sampling effort. The attached Table 1 represents the revised data based on this new information. The idea was to perforate the wells as the water level declined; however, this approach is not feasible as the wells are constructed of 4" Sch 80 PVC. Sheen

-----Original Message-----

**From:** Acevedo, Gabriel, NMENV [mailto:Gabriel.Acevedo@state.nm.us]  
**Sent:** Friday, July 08, 2016 4:59 PM  
**To:** KOTTKAMP, SHEEN T CTR USAF AFSOC 27 SOCES/CEIER  
<sheen.kottkamp.ctr@us.af.mil>  
**Subject:** RE: Groundwater Monitoring

Sheen,

I am working on the Work Plan for SWMU 107/FT008. I got pulled away from it this week by a couple of other things. After the extension approval for the other well replacements, I was thinking we should considered the groundwater conditions at that time before moving ahead. It looks like things are changing faster than expected. Can you send me the current measurements for groundwater for all the site wells where data was recently collected? I will need to get my thoughts together on this and talk to my management. We can set up a conference call after that. Hope your weekend goes well.

-----Original Message-----

**From:** KOTTKAMP, SHEEN T CTR USAF AFSOC 27 SOCES/CEIER  
[mailto:sheen.kottkamp.ctr@us.af.mil]  
**Sent:** Friday, July 08, 2016 4:27 PM

To: Acevedo, Gabriel, NMENV  
Subject: Groundwater Monitoring

Good afternoon Gabe, hope all is well with you. Last we spoke I was going to have monitoring wells S, T, and U redeveloped/rehabilitated as we were unable to sample these three wells during the recent 2016 Spring sampling event. I thought the problem was encrustation/biofouling but have discovered the issue is the groundwater static water level has now fallen below the screened interval in these wells. The wells are important to the GWM program here at Cannon due to their association with Cell 3 in Landfill #5/SWMU 113 and will have to be replaced. An additional three wells that will require replacement. We would like to set up a teleconference call with you and your leadership to discuss the groundwater monitoring program here at Cannon and replacement well construction as the water level continues to decline throughout our area. In addition, we can discuss any other issues of importance regarding Restoration here at Cannon. I would like to bring in our contractor FPM and URS into the discussion as well. Let me know what would work for everyone and we will work to arrange a date and time. Lastly, I was curious about the status of the "Supplemental RFI Work Plan for SWMU 107/FT008". I'm looking forward to executing the fieldwork and effectively delineating this site. Enjoy the weekend. Sheen

Sheen Thomas Kottkamp M.S.  
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**TABLE 1**  
**MONITORING WELL**  
**CONSTRUCTION DETAILS**  
**CANNON AFB, NEW MEXICO**

Well Identification	Date Installed	TOC Elevation (feet amsl) (NAVD 88)	Concrete Pad Elevation (feet amsl) (NAVD 88)	Top of Screen (feet bgs)	Top of Screen (feet BTOC)	Bottom of Screen (feet bgs)	Bottom of Screen (feet BTOC)	Screen Length (feet)	Sump length (feet)	Bottom of Well (feet bgs)	Bottom of Well (feet BTOC)	Boring Depth (feet bgs)
MW-A	1/7/1985	4268.72 <sup>1</sup>	4267.01 <sup>1</sup>	325.13	326.84	340.13	341.84	15.00	--	340.13	341.84	365.00
MW-B	11/30/1984	4266.80 <sup>1</sup>	4265.19 <sup>1</sup>	347.90	349.50	362.90	364.50	15.00	--	362.90	364.50	362.30
MW-C	1/11/1985	4268.90 <sup>1</sup>	4267.00 <sup>1</sup>	346.60	348.50	361.60	363.50	15.00	--	361.60	363.50	362.00
MW-D	12/16/1984	4266.90 <sup>1</sup>	4265.20 <sup>1</sup>	340.00	341.70	355.00	356.70	15.00	--	355.00	356.70	356.75
MW-E	11/17/1985	4284.96 <sup>1</sup>	4282.92 <sup>1</sup>	334.09	336.14	349.09	351.14	15.00	--	349.09	351.14	373.00
MW-F	11/19/1985	4280.84 <sup>1</sup>	4278.09 <sup>1</sup>	349.55	352.30	364.55	367.30	15.00	5	369.55	372.30	375.00
MW-G	11/10/1985	4281.55 <sup>1</sup>	4279.65 <sup>1</sup>	350.90	352.80	365.90	367.80	15.00	--	365.90	367.80	372.00
MW-H	11/18/1985	4281.18 <sup>1</sup>	4279.18 <sup>1</sup>	324.80	326.80	344.80	346.80	20.00	5	349.80	351.80	375.00
MW-I	8/12/1988	4262.36 <sup>2</sup>	--	273.00	--	293.00	--	20.00	10	303.00	--	305.00
MW-J	8/16/1988	4262.70 <sup>2</sup>	--	261.00	--	281.00	--	20.00	--	305.00	--	305.00
MW-K	--	--	--	-	--	--	--	--	--	--	--	--
MW-L 4	6/2/1992	4264.72 <sup>2</sup>	4262.67 <sup>2</sup>	261.15	--	281.15	--	20.00	4	285.15	--	290.15
MW-L 6		4264.72 <sup>2</sup>	4262.67 <sup>2</sup>	261.15	--	281.15	--	20.00	4	285.15	--	290.15
MW-M	2/5/1992	4264.29 <sup>2</sup>	4262.57 <sup>2</sup>	262.48	--	282.48	--	20.00	5	287.48	--	287.48
MW-N	12/13/1994	4269.70 <sup>2</sup>	4267.59 <sup>2</sup>	268.00	--	298.00	--	30.00	--	303.00	--	303.00
MW-O	10/30/1994	4273.10 <sup>2</sup>	4271.00 <sup>2</sup>	273.90	--	303.90	--	30.00	--	304.30	--	304.30
MW-Q	2/24/1996	4266.89 <sup>2</sup>	-	266.59	--	296.59	--	30.00	--	296.59	--	297.59
MW-Na	12/16/2004	4270.51 <sup>1</sup>	4269.42 <sup>1</sup>	290.81	291.90	350.81	351.90	60.00	5	--	356.90	382.40
MW-Oa	2/29/2004	4273.96 <sup>1</sup>	4273.29 <sup>1</sup>	301.20	301.87	361.20	361.87	60.00	5	--	366.87	370.96
MW-Pa	2/21/2004	4274.73 <sup>1</sup>	4274.07 <sup>1</sup>	296.54	297.20	356.54	357.20	60.00	5	--	362.20	370.97
MW-R	--	-	-	-	--	-	--	--	--	--	--	--
MW-Ra	7/7/2001	4265.19 <sup>2</sup>	4262.19 <sup>2</sup>	280.56	--	309.81	--	29.25	--	310.50	--	313.00
MW-Rb	10/4/2012	4277.73 <sup>1</sup>	4275.41 <sup>1</sup>	301.39	303.71	331.39	333.71	30.00	--	331.39	333.71	350.00
MW-S	12/6/1998	4265.75 <sup>1</sup>	4263.81 <sup>1</sup>	284.87	286.80	324.87	326.80	40.00	40	364.87	366.80	365.00
MW-T	12/10/1998	4265.72 <sup>1</sup>	4263.90 <sup>1</sup>	284.57	286.40	324.57	326.40	40.00	40	364.57	366.40	365.00
MW-U	12/13/1998	4267.30 <sup>1</sup>	4265.43 <sup>1</sup>	284.14	286.00	324.14	326.00	40.00	40	364.14	366.00	365.00
MW-V	8/8/2001	4329.90 <sup>1</sup>	4328.27 <sup>1</sup>	325.11	326.74	365.11	366.74	40.00	5	370.11	371.74	370.00
MW-W	6/1/2002	4302.22 <sup>1</sup>	4300.15 <sup>1</sup>	320.94	323.00	360.94	363.00	40.00	5	365.94	368.00	381.50
MW-X	2/26/2004	4269.23 <sup>1</sup>	4268.02 <sup>1</sup>	291.64	292.85	331.64	332.85	40.00	5	336.64	337.85	340.00

Notes:

<sup>1</sup> = Elevation surveyed in September 2014 by FPM/AECOM.

<sup>2</sup> = Elevation obtained from historical boring logs obtained from Cannon AFB administrative records

-- = No information was identified in the records available.

AFB = Air Force Base

amsl = above mean sea level

bgs = below ground surface

BTOC = below top of casing

NA = Not Applicable

NAVD 88 = North American Vertical Datum 1988

TOC = top of casing

**TABLE 2  
MONITORING WELL CONSTRUCTION DETAILS  
CANNON AFB, NEW MEXICO**

Well Identification	Site Association	TOC Elevation (feet amsl) (NAVD 88) <sup>2</sup>	Concrete Pad Elevation (feet amsl) (NAVD 88) <sup>2</sup>	Depth to Top of Screen (feet BTOC)	Depth to Bottom of Screen (feet BTOC)	June 2014 Well Depth <sup>1</sup> (feet BTOC)	June 2014 Depth to Water <sup>1</sup> (feet BTOC)	July 2014 Depth to Water <sup>1</sup> (feet BTOC)	May 2015 Depth to Water <sup>1</sup> (feet BTOC)	April 2016 Depth to Water <sup>1</sup> (feet BTOC)
MW-A	LF005	4268.72	4267.01	326.84	341.84	341.84	318.42	318.77	318.60	317.22
MW-B	LF005	4266.80	4265.19	349.5	364.5	364.50	330.35	330.49	331.01	330.36
MW-C	LF005	4268.90	4267.00	348.5	363.5	363.50	333.42	333.87	334.23	334.12
MW-D	LF005	4266.90	4265.20	341.7	356.7	356.70	327.53	327.71	328.15	327.49
MW-E	SI101	4284.96	4282.92	336.14	351.14	351.14	319.50	319.65	320.65	321.08
MW-F	SI101	4280.84	4278.09	357.3	372.3	372.30	317.32	317.80	318.67	319.11
MW-G	SI101	4281.55	4279.65	352.8	367.8	367.80	321.56	321.16	321.73	321.93
MW-H	SI101	4281.18	4279.18	331.8	351.8	351.80	320.95	321.44	321.95	322.12
MW-Na	LF004	4270.51	4269.42	296.9	356.9	356.90	NM <sup>3</sup>	312.35	312.12	312.55
MW-Oa	LF003	4273.96	4273.29	306.87	366.87	366.87	324.66	325.12	324.36	325.19
MW-Pa	LF025	4274.73	4274.07	302.2	362.2	362.20	315.31	315.60	316.15	316.24
MW-Rb	LF025	4277.73	4275.41	303.71	333.71	333.71	NM <sup>4</sup>	315.14	315.90	316.22
MW-S	LF005	4265.75	4263.81	326.8	366.8	366.80	332.60	332.98	337.49	337.00
MW-T	LF005	4265.72	4263.90	326.4	366.4	366.40	334.70	335.60	342.23	342.24
MW-U	LF005	4267.30	4265.43	326	366	366.00	330.73	330.95	333.90	331.29
MW-V	Background	4329.90	4328.27	311.74	371.74	371.74	349.31	349.79	350.51	350.60
MW-W	Background	4302.22	4300.15	308	368	368.00	334.74	335.50	336.79	337.22
MW-X	Background	4269.23	4268.02	277.85	337.85	337.85	286.60	287.04	287.13	286.5

Notes:

<sup>1</sup> = Measured by URS.

<sup>2</sup> = Elevation surveyed in September 2014.

<sup>3</sup> = Dedicated pump could not be removed and water level indicator could not be lowered past a depth of 268 feet BTOC.

<sup>4</sup> = Did not have key to access at time of June 2014 maintenance activities.

AFB = Air Force Base

amsl = above mean sea level

BTOC = below top of casing

NA = Not Applicable

NAVD 88 = North American Vertical Datum 1988

TOC = top of casing

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT  
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU  
525 CAMINO DE LOS MARQUEZ, SUITE 4  
SANTA FE, NEW MEXICO 87502

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER S -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 10.58 "

WELL LOCATION (LATITUDE) 34 ° 21 ' 57.02 "

AQUIFER NAME Ogallala

AQUIFER CONFINED \_\_\_\_\_ UNCONFINED X

WELL INSTALLATION DATE 12 -02 to 06 -1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule-80)

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3898.83 feet above MSL

ELEV BOTTOM OF WELL CASING 3898.83 feet above MSL

ELEV BOTTOM OF SCREENED INT 3939.81 feet above MSL

ELEV OF TOP OF SCREENED INT 3979.83 feet above MSL

SURVEYED ELEV OF CASING TOP 4263.83 feet above MSL

DATE OF REPORT 09-15-2003 SIGNATURE *Fredrick E. Gebhardt*

NAME (TYPED) Fredrick E. Gebhardt

# MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT  
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU  
525 CAMINO DE LOS MARQUEZ, SUITE 4  
SANTA FE, NEW MEXICO 87502

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER T -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 09.33 "

WELL LOCATION (LATITUDE) 34 ° 22 ' 00.10 "

AQUIFER NAME Ogallala

AQUIFER CONFINED \_\_\_\_\_ UNCONFINED X

WELL INSTALLATION DATE 12 -6 to 10 -1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule-80)

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3898.69 feet above MSL

ELEV BOTTOM OF WELL CASING 3898.69 feet above MSL

ELEV BOTTOM OF SCREENED INT 3939.69 feet above MSL

ELEV OF TOP OF SCREENED INT 3979.69 feet above MSL

SURVEYED ELEV OF CASING TOP 4263.69 feet above MSL

DATE OF REPORT 09-15-2003 SIGNATURE *Fredrick E. Gebhardt*

NAME (TYPED) Fredrick E. Gebhardt

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT  
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU  
525 CAMINO DE LOS MARQUEZ, SUITE 4  
SANTA FE, NEW MEXICO 87502

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER U -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 09.84 "

WELL LOCATION (LATITUDE) 34 ° 22 ' 04.88 "

AQUIFER NAME Ogallala

AQUIFER CONFINED \_\_\_\_\_ UNCONFINED X

WELL INSTALLATION DATE 12 -10 to 13 -1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule-80)

METHOD OF DEVELOPMENT BALD

ELEV BOTTOM OF BOREHOLE 3900.26 feet above MSL

ELEV BOTTOM OF WELL CASING 3900.26 feet above MSL

ELEV BOTTOM OF SCREENED INT 3941.26 feet above MSL

ELEV OF TOP OF SCREENED INT 3981.26 feet above MSL

SURVEYED ELEV OF CASING TOP 4265.26 feet above MSL

DATE OF REPORT 09-15-2003 SIGNATURE *Fredrick E. Gebhardt*

NAME(TYPED) Fredrick E. Gebhardt