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Sandia National Laboratories

Operated for the U.S. Department of Energy
By: **Sandia Corporation**
Carlsbad, New Mexico 88220

date: February 16, 2023

to: Records Center

from: Mike Farinacci, SNL Contractor *signature on file*

subject: 2022 Calculated Densities

The groundwater densities for the WIPP Culebra monitoring wells were calculated for 2022 as described in the Activity/Project Specific Procedure (SP) 9-11 *Calculation of Densities for Groundwater in WIPP Wells, Revision 3*. The derivation of the data is explained in the following sections and supporting data are attached.

1. Calculation Process:
As stated in SP 9-11, for each calculation the observed water pressure is divided by the height of the water column. Specifically, the measured pressure value minus the closest corresponding barometric pressure value was divided by the pressure gauge install depth minus the closest corresponding depth to water (from or adjusted to the same measurement point elevation), and that result was then divided by 0.4335 (psi to feet of water conversion at 4°C, at which temperature the density of pure water is 1.000 g/cm^3). The individual calculated density results for each well were then averaged for a final density value.

The density data are included in the *2022 Calculated Densities.xlsx* workbook file created in Excel. Within that workbook, the worksheet *2022 Calc Dens* summarizes the resulting density values and supporting information for the calculated densities, and the worksheet *2022 Calc Dens Formulas* provides the formulas in the worksheet. In addition, the Excel file contains individual well worksheets that include the data used for the calculations and plots of the pressure gauge pressure data. The columns in the worksheets and their contents are described below:

- A – Monitor Well – Well name
- B – 2022 Avg Calc Dens (g/cm^3) – Average calculated density value for 2022
- C – 2022 Specific Gravity (Reference: Freshwater at 70°F) – Average calculated density value for 2022 divided by 0.998 g/cm^3 to represent specific gravity in reference to freshwater at 70°F
- D – 2021 Avg Calc Dens (g/cm^3) – Average calculated density value for 2021
- E – 2022 - 2021 Difference (g/cm^3) – Difference between 2022 and 2021 calculated densities (Column B - Column D)
- F – # of Dens Averaged – number of density values averaged to get the final value
- G – 2022 Timeframe of Data – Time period for pressure data used in calculations
- H – Pressure Gauge File Name (Gauge SN) – File name for pressure data and INW or In-Situ gauge serial number

WIPP:4.4.23.1:TD:QA-L:RECERT:541153

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- I – Pressure Gauge Install Depth (ft BTOC/BTEC/BTOT) – Depth below primary measuring point at which the pressure gauge was installed
- J – Pressure Gauge Ideal Install Depth (ft BTOC/BTEC/BTOT) – Mid-Culebra depth below top of referenced casing
- K – Length Off Ideal Depth (ft) – Depth in feet that the pressure gauge is installed below or above the ideal (Column I - Column J)
- L – Date of Install – Date(s) the pressure gauge(s) was/were installed
- M – Installation Logbook Page – Reference to scientific notebook(s) and page(s) where the pressure gauge installation(s) is/are documented
- N – Comments/Explanations – Comments and/or explanations regarding data, as needed

The spreadsheet entries were verified by Orlando Reyna (8882) and Shelly Nielsen (8880).

2. Identification/Listing of Input, Input sources, and Output:

- Excel workbook including the data – 2022 Calculated Densities.xlsx
  - Worksheet 1 – 2022 Calc Dens
  - Worksheet 2 – 2022 Calc Dens Formulas
  - Worksheet 3 – Baro Data
  - Worksheet 4 – AEC-7R
  - Worksheet 5 – C-2737
  - Worksheet 6 – ERDA-9
  - Worksheet 7 – H-4bR
  - Worksheet 8 – H-5bR
  - Worksheet 9 – H-6bR
  - Worksheet 10 – H-9bR
  - Worksheet 11 – H-10cR
  - Worksheet 12 – H-11b4R
  - Worksheet 13 – H-12R
  - Worksheet 14 – H-15R
  - Worksheet 15 – H-16
  - Worksheet 16 – H-19b0
  - Worksheet 17 – IMC-461
  - Worksheet 18 – SNL-1
  - Worksheet 19 – SNL-2
  - Worksheet 20 – SNL-3
  - Worksheet 21 – SNL-5
  - Worksheet 22 – SNL-6
  - Worksheet 23 – SNL-8
  - Worksheet 24 – SNL-9
  - Worksheet 25 – SNL-10
  - Worksheet 26 – SNL-12
  - Worksheet 27 – SNL-13
  - Worksheet 28 – SNL-14
  - Worksheet 29 – SNL-15
  - Worksheet 30 – SNL-16
  - Worksheet 31 – SNL-17a
  - Worksheet 32 – SNL-18
  - Worksheet 33 – SNL-19
  - Worksheet 34 – WIPP-11R
  - Worksheet 35 – WQSP-1
  - Worksheet 36 – WQSP-2
  - Worksheet 37 – WQSP-3
  - Worksheet 38 – WQSP-4
  - Worksheet 39 – WQSP-5
  - Worksheet 40 – WQSP-6

3. Data Qualification for Compliance Decision Analysis:

Data sources are documented in Column H (Pressure Gauge File Name (Gauge SN)), Column M (Installation Logbook Page), and in the References Section of this memorandum.

4. Software Used:

Dell Latitude 5430, Intel® vPRO i7, Windows 11 Pro, Microsoft Excel for Microsoft 365 Apps

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5. Reviews:
Technical: Orlando Reyna, 8882
QA: Shelly Nielsen, 8880

6. References:

- Pressure gauge installation data and SNL water level data from the following scientific notebooks (package ERMS 543277):
  Long-Term Monitoring Notebook (LTM)-35
  Long-Term Monitoring Notebook (LTM)-36
  Long-Term Monitoring Notebook (LTM)-37
- RES Water Level Data submitted to SNL in monthly memoranda (package ERMS 525178)
- Johnson, Patricia B., Culebra Center Depths for Use in Calculating Equivalent Freshwater Heads of the Culebra Dolomite Member of the Rustler Formation near the WIPP Site, Revision 3, June 10, 2010 (ERMS 553781)
- Pressure Transducer Calibration Certificates (INW Certificates ERMS 558531, Troll Certificates ERMS 506685)

7. List of Attachments:

1. Printout of Excel file worksheet 2022 Calc Dens.xls
2. Printout of Excel file worksheet 2022 Calc Dens Formulas.xls
3. All is archived at /data/cvs/CVSLIB/WIPP_EXTERNAL/SP911_2022

Information Only

2022 Calculated Densities

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Monitor Well	2022 Avg Calc Dens (g/cm^3)	2022 Specific Gravity (Reference: Freshwater at 70°F)	2021 Avg Calc Dens (g/cm^3)	2022 - 2021 Difference (g/cm^3)	# of Dens Averaged	2022 Timeframe of Data	Pressure Gauge File Name (Gauge SN)	Pressure Gauge Install Depth (ft BTOC/BTEC/ BTOT)	Pressure Gauge Ideal Install Depth (ft BTOC/BTEC/ BTOT)	Length Off Ideal Depth (ft)	Date of Install	Installation Logbook Page	Comments/Explanations
AEC-7R	1.070	1.072	1.067	0.003	8	Aug - Nov	AEC-7R C27 071422 (3220066), AEC-7R C28 101222 (3220066)	866.00	868.98	-2.98	7/14/2022, 10/12/2022	LTM-36 pg 151, LTM-37 pg 49	Shift in pressure in October due to cable replacement.
C-2737	1.025	1.027	1.026	-0.001	8	Aug - Nov	C-2737 C41 021022 (21830023)	688.85	689.78	-0.93	2/10/2022	LTM-36 pg 11	Pressure fluctuations from September to present are suspected to be due to drilling of new WIPP shaft.
ERDA-9	1.074	1.076	1.073	0.001	8	May - Aug	ERDA-9 C31 021022 (10210601)	717.20	717.81	-0.61	2/10/2022	LTM-36 pg 10	Due to well being plugged and abandoned on 8/23/2022 a more representative time range was utilized.
H-4bR	1.019	1.021	1.021	-0.002	8	Aug - Nov	H-4BR C26 071122 (21237006), H-4BR C27 110122 (21918008)	507.90	507.72	0.18	7/11/2022, 11/1/2022	LTM-36 pg 129, LTM-37 pg 62	Data gap due to equipment failure.
H-5bR	1.089	1.091	NA	NA	8	Aug - Nov	H-5BR C10 071222_Append_2023 -01-17_11-14-15-254 (452594)	910.15	908	2.15	7/12/2022	LTM-36 pg 137	
H-6bR	1.038	1.040	1.038	0.000	8	Aug - Dec	H-6BR C29 080922 (3220062)	616.60	616.58	0.02	8/9/2022	LTM-37 pg 8	Due to equipment failures during the targeted time frame, a more representative data timeframe was utilized.
H-9bR	1.002	1.004	1.002	0.000	8	Aug - Nov	H-9BR C22 071222 (6202173)	660.54	660.47	0.07	7/12/2022	LTM-36 pg 131	
H-10cR	1.090	1.092	1.089	0.001	8	Aug - Nov	H-10CR C20 071222_Append_2022-12-14_11-51-24-941 (609157)	1374.10	1368.38	5.72	7/12/2022	LTM-36 pg 133	
H-11b4R	1.078	1.080	1.079	-0.001	8	Aug - Nov	H-11B4R C23 050922 (6202177), H-11B4R C24 101322 (6202177)	735.85	736.72	-0.87	5/9/2022, 10/13/2022	LTM-36 pg 79, LTM-37 pg 54	
H-12R	1.103	1.105	1.103	0.000	8	Aug - Nov	H-12R C20 070722_Append_2022-12-14_12-34-15-426 (791388)	835.80	834.69	1.11	7/7/2022	LTM-36 pg 123	Shift in pressure suspected to be due to multiple active O&G rigs in nearby vicinity.
H-15R	1.125	1.127	1.124	0.001	8	Aug - Nov	H-15R C30 070622_Append_2022-12-15_12-01-28-528 (810456)	872.50	872.57	-0.07	7/6/2022	LTM-36 pg 121	
H-16	1.031	1.033	1.030	0.001	8	Aug - Nov	H-16 C18 021622 (21830040)	715.10	714.50	0.60	2/16/2022	LTM-36 pg 25	Pressure fluctuations from September to present are suspected to be due to drilling of new WIPP shaft.
H-19b0	1.065	1.067	1.065	0.000	8	Aug - Nov	H-19B0 C34 030222 (8200113)	754.00	753.49	0.51	3/2/2022	LTM-36 pg 31	
IMC-461	1.002	1.004	0.997	0.005	8	Aug - Nov	IMC-461 C39 011722 (6202194)	376.50	376.10	0.40	1/17/2022	LTM-35 pg 115	
SNL-1	1.032	1.034	1.029	0.003	8	Aug - Nov	SNL-1 C42 020822 (21534009)	612.90	612.23	0.67	2/8/2022	LTM-36 pg 7	
SNL-2	1.007	1.009	1.009	-0.002	8	Aug - Nov	SNL-2 C49 061622_Append_2022-12-13_09-55-40-473 (810453)	470.70	470.69	0.01	6/16/2022	LTM-36 pg 109	
SNL-3	1.025	1.027	1.027	-0.002	8	Aug - Nov	SNL-3 C35 061622_Append_2022-12-15-09-56-11-956 (810458)	766.50	766.19	0.31	6/16/2022	LTM-36 pg 111	
SNL-5	1.006	1.008	1.005	0.001	8	Aug - Nov	SNL-5 C46 033122 (21933000)	649.00	648.84	0.16	3/31/2022	LTM-36 pg 50	
SNL-6	1.260	1.263	1.259	0.001	8	Aug - Dec	SNL-6 C31 061622_Append_2022-08-10_11-57-43-942 (793272), SNL-6 C32 091922_2022-10-12_11-54-00-429 (793273), SNL-6 C33 101222_Append_2022-12-14_14-20-46-543 (793273)	1288.02	1288.02	0.00	6/16/2022, 9/19/2022, 10/12/2022	LTM-36 pg 112, LTM-37 pg 37, LTM-37 pg 50	Due to equipment failure during the targeted timeframe, a more representative data timeframe was utilized.
SNL-8	1.090	1.092	1.090	0.000	8	Apr - Dec	SNL-8 C58 033122 (21933004), SNL-8 C59 061422 (6202170), SNL-8 C61 101222 (3200497)	969.70	968.56	1.14	3/31/2022, 6/14/2022, 10/12/2022	LTM-36 pg 51, LTM-36 pg 107, LTM-37 pg 48	Due to ongoing well maintenance, large gaps in data exist during the targeted timeframe and a more representative timeframe was utilized.
SNL-9	1.015	1.017	1.015	0.000	8	Sep - Dec	SNL-9 C47 070722_Append_2022-08-22_12-23-51-480 (810463), SNL-9 C49 110922 (21237052)	567.20	566.07	1.13	7/7/2022, 11/9/2022	LTM-36 pg 122, LTM-37 pg 64	Due to equipment failure during the targeted timeframe, a more representative data timeframe was utilized.
SNL-10	1.003	1.005	1.011	-0.008	8	Aug - Nov	SNL-10 C37 071122_2022-08-09_09-38-32-357 (539743), SNL-10 C38 080922_Append_2022-11-14_12-55-26-946 (539743)	613.50	612.53	0.97	7/11/2022, 8/9/2022	LTM-36 pg 126, LTM-37 pg 9	Shift in pressure in August due to cable replacement.
SNL-12	1.012	1.014	1.010	0.002	8	Aug - Nov	SNL-12 C36 041922 (21918011), SNL-12 C37 110122 (6221761)	570.90	570.68	0.22	4/19/2022, 11/1/2022	LTM-36 pg 69, LTM-37 pg 59	
SNL-13	1.025	1.027	1.024	0.001	8	Aug - Nov	SNL-13 C39 060322 (6202181)	401.00	400.62	0.38	6/3/2022	LTM-36 pg 98	
SNL-14	1.046	1.048	1.043	0.003	8	Aug - Nov	SNL-14 C48 071322 (3220065)	668.95	668.95	0.00	7/13/2022	LTM-36 pg 143	
SNL-15	1.228	1.230	1.230	-0.002	8	Aug - Nov	SNL-15 C42 071222_Append_2022-12-14_12-56-55-049 (452208)	922.18	922.18	0.00	7/12/2022	LTM-36 pg 135	
SNL-16	1.018	1.020	1.015	0.003	8	Sep - Dec	SNL-16 C41 080922 (21830038)	207.86	207.86	0.00	8/9/2022	LTM-37 pg 6	Due to equipment failure during the targeted timeframe, a more representative data timeframe was utilized.
SNL-17a	0.999	1.001	1.013	-0.014	8	Aug - Nov	SNL-17A C40 071222 (6202197)	348.90	349.93	-1.03	7/12/2022	LTM-36 pg 130	Shift in density between 2021 and 2022 due to cable replacement that eliminated a significant amount of stretch that had been influencing previous density calculations.
SNL-18	1.000	1.002	1.011	-0.011	8	Aug - Nov	SNL-18 C45 071422 (3220064)	549.30	549.30	0.00	7/14/2022	LTM-36 pg 150	
SNL-19	1.004	1.006	1.004	0.000	8	May - Dec	SNL-19 C33 042622 (21237011)	355.10	354.19	0.91	4/26/2022	LTM-36 pg 72	Due to ongoing well maintenance, large gaps in data exist during the targeted timeframe and a more representative timeframe was utilized.
WIPP-11R	1.023	1.025	1.030	-0.007	8	Aug - Nov	WIPP-11R C8 071322 (21918013)	853.14	849.50	3.64	7/13/2022	LTM-36 pg 142	
WQSP-1	1.054	1.056	1.042	0.012	8	Jan - Nov	WQSP-1 C5 082521 (6202188), WQSP-1 C8 070622 (6202168)	707.00	710.68	-3.68	8/25/2021, 7/6/2022	LTM-35 pg 18, LTM-36 pg 120	Due to equipment failures during the targeted time frame, a more representative data timeframe was utilized.
WQSP-2	1.031	1.033	1.031	0.000	8	Apr - Nov	WQSP-2 C5 082521 (3200497), WQSP-2 C6 041122 (3200497), WQSP-2 C7 081822 (6221763)	814.00	822.20	-8.20	8/25/2021, 4/11/2022, 8/18/2022	LTM-35 pg 19, LTM-36 pg 55, LTM-37 pg 22	
WQSP-3	1.139	1.141	1.139	0.000	8	Apr - Nov	WQSP-3 C6 082521 (6202178), WQSP-3 C7 081822 (6221760)	849.00	857.39	-8.39	8/25/2021, 8/18/2022	LTM-35 pg 19, LTM-37 pg 23	
WQSP-4	1.068	1.070	NA	NA	8	Apr - Dec	WQSP-4 C1 030122 (1221922), WQSP-4 C2 070622 (6202169)	771.69	780.81	-9.12	3/1/2022, 7/6/2022	LTM-36 pg 28, LTM-36 pg 121	Due to equipment failures during the targeted time frame, a more representative data timeframe was utilized. Pressure data for this well did not exist before 2022.
WQSP-5	1.022	1.024	NA	NA	8	Apr - Dec	WQSP-5 C1 030122 (1221918), WQSP-5 C2 060822 (1221918)	653.99	658.73	-4.74	3/1/2022, 6/8/2022	LTM-36 pg 29, LTM-36 pg 99	Due to equipment failures during the targeted time frame, a more representative data timeframe was utilized. Pressure data for this well did not exist before 2022.
WQSP-6	1.008	1.010	NA	NA	8	Apr - Nov	WQSP-6 C1 030122 (1221919)	589.09	597.09	-8.00	3/1/2022	LTM-36 pg 29	Pressure data for this well did not exist before 2022.

Notes:

All pressure gauges except H-5bR, H-10cR, H-12R, H-15R, SNL-2, SNL-3, SNL-6, SNL-10, and SNL-15, are INW brand

H-5bR, H-10cR, H-12R, H-15R, SNL-2, SNL-3, SNL-6, SNL-10, and SNL-15 pressure gauges are In-Situ brand

SNL-9 pressure data utilizes both In-Situ and INW brand pressure gauges

All cables are In-Situ brand and non-vented.

Barometric data are from INW gauges - SN 21237003 and SN 21237001

ft BTOC = feet below top of casing

ft BTEC = feet below top of environmental casing

ft BTOT = feet below top of tubing

LTM = Long-Term Monitoring

PT = Pressure Transducer

NA = Not available

Mid Depths are from ERMS 553781, except for AEC-7R, H-9bR, H-11b4R, H-5bR, WIPP-11R, and H-12R, which are from RES BDRs and/or construction diagrams, and WQSP wells which are from DOE-WIPP-95-2154

Information Only

2022 Calculated Densities

A	B	C	D	E	F	G	H	I	J
Monitor Well	2022 Avg Calc Dens (g/cm^3)	2022 Specific Gravity (Reference: Freshwater at 70°F)	2021 Avg Calc Dens (g/cm^3)	2022 - 2021 Difference (g/cm^3)	# of Dens Averaged	2022 Timeframe of Data	Pressure Gauge File Name (Gauge SN)	Pressure Gauge Install Depth (ft BTOC/BTEC/ BTOT)	Pressure Gauge Ideal Install Depth (ft BTOC/BTEC/ BTOT)
AEC-7R	1.07	=B4/0.998	1.067	=B4-D4	8	Aug - Nov	AEC-7R C27 071422 (3220066), AEC-7R C28 101222 (3220066)	866	868.98
C-2737	1.025	=B5/0.998	1.026	=B5-D5	8	Aug - Nov	C-2737 C41 021022 (21830023)	688.85	689.78
ERDA-9	1.074	=B6/0.998	1.073	=B6-D6	8	May - Aug	ERDA-9 C31 021022 (10210601)	717.2	717.81
H-4bR	1.019	=B7/0.998	1.021	=B7-D7	8	Aug - Nov	H-4BR C26 071122 (21237006), H-4BR C27 110122 (21918008)	507.9	507.72
H-5bR	1.089	=B8/0.998	NA	NA	8	Aug - Nov	H-5BR C10 071222_Append_2023 -01-17_11-14-15-254 (452594)	910.15	908
H-6bR	1.038	=B9/0.998	1.038	=B9-D9	8	Aug - Dec	H-6BR C29 080922 (3220062)	616.6	616.58
H-9bR	1.002	=B10/0.998	1.002	=B10-D10	8	Aug - Nov	H-9BR C22 071222 (6202173)	660.54	660.47
H-10cR	1.09	=B11/0.998	1.089	=B11-D11	8	Aug - Nov	H-10CR C20 071222_Append_2022-12-14_11-51-24-941 (609157)	1374.1	1368.38
H-11b4R	1.078	=B12/0.998	1.079	=B12-D12	8	Aug - Nov	H-11B4R C23 050922 (6202177), H-11B4R C24 101322 (6202177)	735.85	736.72
H-12R	1.103	=B13/0.998	1.103	=B13-D13	8	Aug - Nov	H-12R C20 070722_Append_2022-12-14_12-34-15-426 (791388)	835.8	834.69
H-15R	1.125	=B14/0.998	1.124	=B14-D14	8	Aug - Nov	H-15R C30 070622_Append_2022-12-15_12-01-28-528 (810456)	872.5	872.57
H-16	1.031	=B15/0.998	1.03	=B15-D15	8	Aug - Nov	H-16 C18 021622 (21830040)	715.1	714.5
H-19b0	1.065	=B16/0.998	1.065	=B16-D16	8	Aug - Nov	H-19B0 C34 030222 (8200113)	754	753.49
IMC-461	1.002	=B17/0.998	0.997	=B17-D17	8	Aug - Nov	IMC-461 C39 011722 (6202194)	376.5	376.1
SNL-1	1.032	=B18/0.998	1.029	=B18-D18	8	Aug - Nov	SNL-1 C42 020822 (21534009)	612.9	612.23
SNL-2	1.007	=B19/0.998	1.009	=B19-D19	8	Aug - Nov	SNL-2 C49 061622_Append_2022-12-13_09-55-40-473 (810453)	470.7	470.69
SNL-3	1.025	=B20/0.998	1.027	=B20-D20	8	Aug - Nov	SNL-3 C35 061622_Append_2022-12-15-09-56-11-956 (810458)	766.5	766.19
SNL-5	1.006	=B21/0.998	1.005	=B21-D21	8	Aug - Nov	SNL-5 C46 033122 (21933000)	649	648.84
SNL-6	1.26	=B22/0.998	1.259	=B22-D22	8	Aug - Dec	SNL-6 C31 061622_Append_2022-08-10_11-57-43-942 (793272), SNL-6 C32 091922_2022-10-12_11-54-00-429 (793273), SNL-6 C33 101222_Append_2022-12-14_14-20-46-543 (793273)	1288.02	1288.02
SNL-8	1.09	=B23/0.998	1.09	=B23-D23	8	Apr - Dec	SNL-8 C58 033122 (21933004), SNL-8 C59 061422 (6202170), SNL-8 C61 101222 (3200497)	969.7	968.56
SNL-9	1.015	=B24/0.998	1.015	=B24-D24	8	Sep - Dec	SNL-9 C47 070722_Append_2022-08-22_12-23-51-480 (810463), SNL-9 C49 110922 (21237052)	567.2	566.07
SNL-10	1.003	=B25/0.998	1.011	=B25-D25	8	Aug - Nov	SNL-10 C37 071122_2022-08-09_09-38-32-357 (539743), SNL-10 C38 080922_Append_2022-11-14_12-55-26-946 (539743)	613.5	612.53
SNL-12	1.012	=B26/0.998	1.01	=B26-D26	8	Aug - Nov	SNL-12 C36 041922 (21918011), SNL-12 C37 110122 (6221761)	570.9	570.68
SNL-13	1.025	=B27/0.998	1.024	=B27-D27	8	Aug - Nov	SNL-13 C39 060322 (6202181)	401	400.62
SNL-14	1.046	=B28/0.998	1.043	=B28-D28	8	Aug - Nov	SNL-14 C48 071322 (3220065)	668.95	668.95
SNL-15	1.228	=B29/0.998	1.23	=B29-D29	8	Aug - Nov	SNL-15 C42 071222_Append_2022-12-14_12-56-55-049 (452208)	922.18	922.18
SNL-16	1.018	=B30/0.998	1.015	=B30-D30	8	Sep - Dec	SNL-16 C41 080922 (21830038)	207.86	207.86
SNL-17a	0.999	=B31/0.998	1.013	=B31-D31	8	Aug - Nov	SNL-17A C40 071222 (6202197)	348.9	349.93
SNL-18	1	=B32/0.998	1.011	=B32-D32	8	Aug - Nov	SNL-18 C45 071422 (3220064)	549.3	549.3
SNL-19	1.004	=B33/0.998	1.004	=B33-D33	8	May - Dec	SNL-19 C33 042622 (21237011)	355.1	354.19
WIPP-11R	1.023	=B34/0.998	1.03	=B34-D34	8	Aug - Nov	WIPP-11R C8 071322 (21918013)	853.14	849.5
WQSP-1	1.054	=B35/0.998	1.042	=B35-D35	8	Jan - Nov	WQSP-1 C5 082421 (6202188), WQSP-1 C8 070622 (6202168)	707	710.68
WQSP-2	1.031	=B36/0.998	1.031	=B36-D36	8	Apr - Nov	WQSP-2 C5 082521 (3200497), WQSP-2 C6 041122 (3200497), WQSP-2 C7 081822 (6221763)	814	822.2
WQSP-3	1.139	=B37/0.998	1.139	=B37-D37	8	Apr - Nov	WQSP-3 C6 082521 (6202178), WQSP-3 C7 081822 (6221760)	849	857.39
WQSP-4	1.068	=B38/0.998	NA	NA	8	Apr - Dec	WQSP-4 C1 030122 (1221922), WQSP-4 C2 070622 (6202169)	771.69	780.81
WQSP-5	1.022	=B39/0.998	NA	NA	8	Apr - Dec	WQSP-5 C1 030122 (1221918), WQSP-5 C2 060822 (1221918)	653.99	658.73
WQSP-6	1.008	=B40/0.998	NA	NA	8	Apr - Nov	WQSP-6 C1 030122 (1221919)	589.09	597.09

Notes:
All pressure gauges except H-5bR, H-10
H-5bR, H-10cR, H-12R, H-15R, SNL-2, SI
SNL-9 pressure data utilizes both In-Sit
All cables are In-Situ brand and non-ver
Barometric data are from INW gauges -
ft BTOC = feet below top of casing
ft BTEC = feet below top of environmer
ft BTOT = feet below top of tubing
LTM = Long-Term Monitoring
PT = Pressure Transducer
NA = Not available
Mid Depths are from ERMS 553781, ex

Information Only