Dakota County EDD - Water Level Reporting Formats
for Static Water Levels

Beginning in 2016-2017, Dakota County requires that static water level data for Registered Well Permits be submitted in a standardized electronic format (EDD). This document describes two EDD formats that have been defined by Dakota County. In addition, the County may accept water level formats defined by the Minnesota DNR, and commercial data logger files in readable formats, provided that they contain the information needed to convert the readings to mean sea level.

Dakota County welcomes comments about the formats, and may modify them in the future based on comments received. In the interest of simplicity descriptions of free product depth or pumping rate from the sampled well have not yet been addressed. Please address comments or questions about the formats to Bill.Olsen at co.dakota.mn.us.

File types:

The following file types are accepted:
>   Comma separated values text files (.csv, .txt, ...)
>   Excel spreadsheets (.xls, .xlsx)
>   Database format (.dbf)
>   Sqlite database (.sqlite)

Other file types will be <u>not</u> be accepted in place of the above (e.g. .pdf, .jpg, .doc, .docx).   But they may be submitted to supplement the required file.

File formats and required fields:

The two file formats for water levels defined by Dakota County are named DCWL1 and DCWL2. In format DCWL1 there is one row for each water level reading, and each row contains all of the data needed to document the reading. In format DCWL2, there is one sampling date on each row, and a different column for each well.

Template files are provided for each file format. The template files each contain 2 worksheets named INSTRUCTIONS, and DATA. The Instructions worksheet contains more specific information about the format than are provided here. The data worksheet is ready to be filled in for your submittal.

If you have data logger files, export the file in a text based format for submission. It is common to add information in the file headers, and that is allowed. Particularly to note if the transducer is vented, or whether the data is barometrically corrected.

To be generally useful, water levels have to be converted to a common datum. We use the mean sea level elevation as our common datum. You must know and report the mean sea level of the point from which the reported water levels are measured. That elevation is called the Measuring Point elevation

(*MPelev*).   If your data is already converted to mean sea level elevation, then the MPelev will be zero. If you report depth to water from top of casing, then the *MPelev* is the mean sea level elevation of the top of the casing.   We do not specify a required accuracy or method for determining the *MPelev*. If you need help determining the *MPelev* for your well(s), please contact Bill.Olsen at co.dakota.mn.us.

Conversion from reading value to mean sea level elevation depends on the way that the reading is reported. The two options for reporting are Rtype = **DTW** and Rtype = **ELEV**. **DTW** stands for depth to water, and the mean sea elevation of the reading will be computed by

$$msl = MPelev - reading$$

ELEV stands for elevation, and the mean sea level elevation of the reading will be computed by

$$msl = MPelev + reading$$

Both Rtype and MPelev are required for each well. If a well is reconstructed and MPelev changes, that can be entered easily in format DCWL1. In format DCWL2 a change in MPelev requires to be entered in a separate column or a separate table.

Several required fields are needed to make the data useful in a general context. These are:

Unique_no	Minnesota Unique Well identifier (also used in Dakota County well permits)
Date	Date of the water level reading
Reading	The numerical water level reading, or
	a keyword: **DRY, FLOWING, FROZEN, NM** (not measured)
Rtype	The way that the reading is reported. There are two possible values:
	DTW Depth to water
	ELEV water level elevation
MPelev	Measuring Point elevation: The mean sea level elevation from which the reading is measured.

In addition three optional fields are defined.

Local_id	Local well identifier (e.g. "MW-1")
Time	Time of the measurement

Units of water level should be decimal feet unless otherwise documented.

Illustrated examples for format DCWL1.

DCWL1, Example 1. Reporting depth to water (DTW) from the Top of Casing:

Unique_no	Local_id	Date	Time	Reading	Rtype	MPelev
100222	MW-2	2016-06-16	14:22:00	37.51	DTW	986.45
100223	MW-3	2016-06-16	15:05:00	36.98	DTW	977.89
100224	MW-4	2016-06-16	15:21:00	41.66	DTW	990.51
100222	MW-2	2016-07-17	09:38:00	34.55	DTW	986.45
100223	MW-3	2016-07-17		39.22	DTW	977.89
100224	MW-4	2016-07-17	15:00:00	DRY	DTW	990.51

Header row. Required

Data rows. Required.

Time is optional: leave blank if unknown.

DCWL1, Example 2. Reporting water elevation relative to a local datum:

Unique_no	Local_id	Date	Time	Reading	Rtype	MPelev
100222	MW-2	2016-07-17	09:38:00	53.94	ELEV	895.00
100223	MW-3	2016-06-16	15:05:00	45.91	ELEV	895.00
100224	MW-4	2016-06-16	15:21:00	53.85	ELEV	895.00
100222	MW-2	2016-07-17	09:38:00	56.90	ELEV	895.00
100223	MW-3	2016-07-17		43.67	ELEV	895.00
100224	MW-4	2016-07-17	15:00:00	DRY	ELEV	895.00

Data rows. The readings are reported as mean sea level elevations, so the MPelev is set to 0.

DCWL1, Example 3. Reporting water elevation as mean sea level elevation:

Unique_no	Local_id	Date	Time	Reading	Rtype	MPelev
100222	MW-2	2016-06-16	14:22:00	948.94	ELEV	0.00
100223	MW-3	2016-06-16	15:05:00	940.91	ELEV	0.00
100224	MW-4	2016-06-16	15:21:00	948.85	ELEV	0.00
100222	MW-2	2016-07-17	09:38:00	951.90	ELEV	0.00
100223	MW-3	2016-07-17		938.67	ELEV	0.00
100224	MW-4	2016-07-17	15:00:00	DRY	ELEV	0.00

Data rows. The readings are reported relative to a local bench mark called '100.00 ft', whose msl elevation is 995 ft.

MPelev = 995 - 100 = 895 ft

Illustrated examples for format DCWL2.

DCWL2, Example 4. Reporting depth to water (DTW) from the Top of Casing.
Note that sampling times cannot be reported in this format.

Bob's Fuels Store, Summer 2016.			
Collected by S. Goodman using etape.			
MP is Top of Casing			
Rtype	DTW	DTW	DTW
MPelev	986.45	977.89	990.51
Units	feet	feet	feet
Unique_no	100222	100223	100224
Local_id	MW-2		MW-4
Date			
2016-06-16	37.51	36.98	41.66
2016-07-17	34.55	39.22	DRY

Meta-data section. No required size, format, or values.

Header section. Row headings in column 1 (in blue) are required. All values except Local_id are required.

Date and Data section. Only numbers, keywords, or empty cells are allowed.

DCWL2, Example 5. Reporting water elevation (ELEV) relative to a local datum.

Bob's Fuels Store, Summer 2016.			
Collected by S. Goodman.			
Relative to hydrant plug at 990.00 msl, minus 100.00 ft.			
Rtype	ELEV	ELEV	ELEV
MPelev	895	895	895
Units	feet	feet	feet
Unique_no	100222	100223	100224
Local_id	MW-2		MW-4
Date			
2016-06-16	53.94	45.91	53.85
2016-07-17	56.9	43.67	DRY

DCWL2, Example 6. Reporting water elevation (ELEV) relative to mean sea level.

Bob's Fuels Store, Summer 2016.			
Collected by S. Goodman with steel tape.			
MP from top of casing, converted to mean sea level.			
Rtype	ELEV	ELEV	ELEV
MPelev	0	0	0
Units	feet	feet	feet
Unique_no	100222	100223	100224
Local_id	MW-2		MW-4
Date			
2016-06-16	948.94	940.91	948.85
2016-07-17	951.9	938.67	DRY