5/15/2025

Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet

Lake Information

Lake Name **Antler Lake**   County **Polk**

Data Collectors

Primary Data Collector _____   Email _____   Phone No. (___) ___ - ___

Additional Data Collector(s) _____

Reference Mark and Staff Gauge Information

Reference Mark #1 (RM1)   Reference Mark Type: **Well Cap**
Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1244.03 Photograph ☐
Location Description: _____

Reference Mark #2 (RM2)   Reference Mark Type: **Top Boulder**
Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1240.40 Photograph ☐
Location Description: _____

Reference Mark #3 (RM3)   Reference Mark Type: **PK Nail top of Stump**
Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1240.38 Photograph ☐
Location Description: _____

Staff Gauge

Latitude: _____ Longitude: _____ Mean Sea Level Yes ☐ No ☐ Elevation: 1231.88 Photograph ☐
Location Description: _____

Date: _____   Time: _____ AM/PM   Check one: Install ☐ Midseason ☐ Removal ☐

Survey Stage 1 - Instrument at first height*

	Reference Mark 1		Fore sight (FS1)	Calculated Elevation (CE1)
Given Elevation (GE$_{RM1}$)	1244.03		Water FS1 10.88	ZEROSED
Back sight 1 (BS1)	0.98			Elev. = 1234.13 WATER ELEV.
Height of Instrument (HI1)	1245.01	- Staff Gauge	13.13	= 1231.88
	HI1	- Ref Mark 2	2.61	= 1242.40
	HI1	- Ref Mark 3	4.63	= 1240.38

6/16/25 E.7.

Survey Equations:
HI1 = GE$_{RM1}$ + BS1
CE1 = HI1 − FS1

Survey Stage 2 – Reset instrument at different height

	Staff Gauge		Fore sight (FS2)	Calculated Elevation (CE2)
Calculated Elevation1	1231.88			
Back sight 2 (BS2)	+ 13.08			
Height of Instrument (HI2)	1244.96	- Ref Mark 1	0.92	= 1244.04
	HI2	- Ref Mark 2	2.55	= 1242.41
	HI2	- Ref Mark 3	4.39 / 4.59	= 1240.37

Survey Equations:
HI2 = CE$_{SG1}$ + BS2
CE2 = HI2 − FS2

Quality Assurance Checks:

Reference Mark 1:   BS1 0.98   FS1 13.13
GE = CE2   BS2 + 13.08   FS2 + 0.92
                    14.06   =   14.05

QA Equations:
BS1 + BS2 = FS1$_{SG}$ + FS2$_{RM1}$
GE$_{RM1}$ = CE2$_{RM1}$

*Accept Survey Stage 1 if QA checks within 0.01 ft. Use calculated elevations 1 for the rest of the season unless the gauge moves.

EGAD # 3200-2018-45

Wisconsin DNR – Lake Level Monitoring
Staff Gauge Survey Data Sheet

Lake Level Reading: _____2.24_____ ft

Site Diagram (including Staff Gauge and Reference Marks)

N

Notes

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Data Management

Survey Data uploaded to SWIMS?	Yes ☐ No ☐	Date: _____	Name: _____
Data Sheet scan uploaded to SWIMS?	Yes ☐ No ☐	Date: _____	Name: _____

Equipment Maintenance

Replace bolts/screws on staff gauge?	Yes ☐ No ☐	Date: _____	Name: _____
Replace gauge plate on staff gauge?	Yes ☐ No ☐	Date: _____	Name: _____
Replace post or wooden board?	Yes ☐ No ☐	Date: _____	Name: _____