

Mile High Flood District Douglas County ALERT Network 2020 End of Year Report



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1. INTRODUCTION

This report summarizes the field maintenance activities conducted in 2020 by Water and Earth Technologies, Inc. (WET) under contract to the Urban Drainage and Flood Control District (District) for the Real-Time Flood Detection System in Douglas County.

A single maintenance database is used to track all fieldwork conducted by WET. The maintenance records generated from the maintenance software are shown as an appendix to this report.

2. MONITORING NETWORK

Entering 2020, the District maintained a network of forty-two stations in Douglas County (County).

- | | |
|--|--|
| 1. Highlands Ranch (ID 2710) | 22. Dakan Road (ID 2980) |
| 2. Salisbury Park (ID 2730) | 23. Tomah Road (ID 10065) |
| 3. Castle Rock (ID 2750) | 24. West Creek Repeater (ID 10037) |
| 4. Antelope Creek (ID 10068) | 25. East Plum Creek at Hwy 105 (ID 3010) |
| 5. West Cherry Creek (ID 2790) | 26. West Creek Weather (ID 3020) |
| 6. Pine Cliff (ID 10057) | 27. Bingham Lake Park (ID 3030) |
| 7. Haskins Gulch (ID 2820) | 28. E. Cherry Creek at Russellville (ID 10056) |
| 8. Sulphur Gulch (ID 10066) | 29. East/West Trailhead (ID 10045) |
| 9. Cherry Creek at Bayou Gulch (ID 2850) | 30. Fire Station #47 (ID 10039) |
| 10. Cherry Creek at Stroh Road (ID 2860) | 31. Newlin Gulch at Jordan Rd (ID 10055) |
| 11. Cherry Creek at Cottonwood (ID 2870) | 32. Tallman Gulch at Tallman Park (ID 10067) |
| 12. Happy Canyon Creek (ID 10059) | 33. Big Dry Creek at Heritage Park (ID 10054) |
| 13. Spruce Mountain Open Space (ID 2890) | 34. Castle Rock Repeater (ID 3100) |
| 14. Russellville Gulch (ID 2900) | 35. Upper Sellers Gulch (ID 10014) |
| 15. East Cherry Creek (ID 2910) | 36. Sellers Gulch @ Haystack Rd (ID 10015) |
| 16. West Cherry Head (ID 2920) | 37. Plum Creek at Sedalia (ID 10029) |
| 17. Spring Valley Road (ID 2930) | 38. Columbine Open Space (ID 10044) |
| 18. Willow Creek (ID 2940) | 39. Baldwin Gulch Dam (ID 10077) |
| 19. DC Public Works (ID 2950) | 40. WCC-7 (ID 10080) |
| 20. Indian Creek (ID 2960) | 41. FP-S1 (ID 10081) |
| 21. Rampart Range Road (ID 2970) | 42. FP-P1 (ID 10082) |

A map of the monitoring network is shown). Data is received by the West Creek Repeater (ID 3000) and is rebroadcast to the District base station located at Diamond Hill in Denver.

The system was inspected and activated in February/March. The entire monitoring network was operational from April 1 to October 25. The rain and water level stations were shut down and winterized in late October. The weather stations and repeater will remain operational throughout the winter.

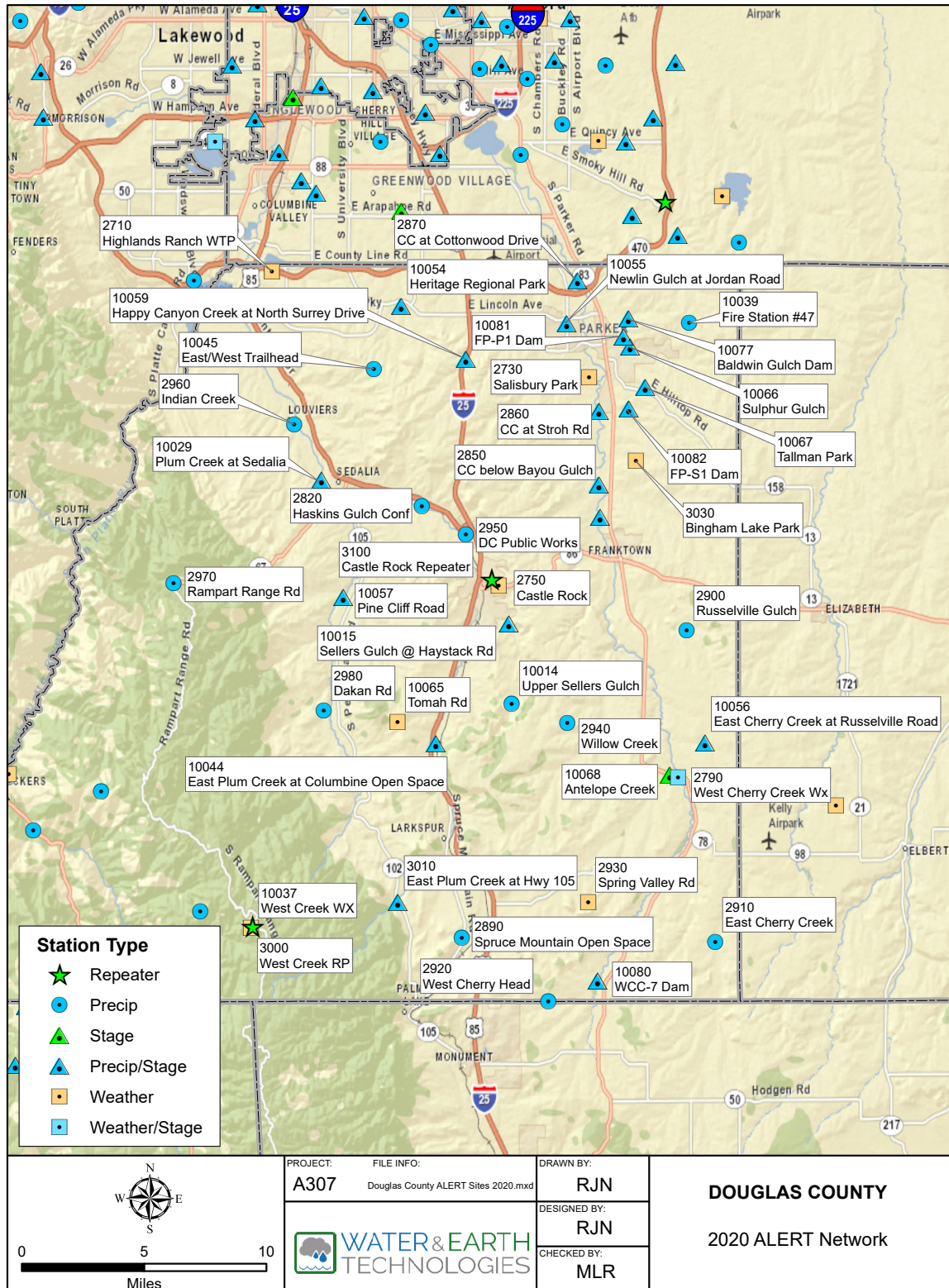


Figure 2-1. Map of Douglas County ALERT Network

3. MAINTENANCE ACTIVITIES

A summary of station types present in Douglas County is shown in **Table 3-1**. Scheduled routine maintenance inspections were conducted to each station throughout the year. **Table 3-2** shows the schedule of maintenance trips. Each station is designated as either a full weather (Wx), weather and stage (WxS), precipitation only (P), stage only (S), precipitation and stage (PS), precipitation and repeater (PR) or repeater (R).

Table 3-1. Douglas County Station Summary List

Label	Station Type	Quantity
Wx	Weather Station	7
WxS	Weather & Stream Gage	2
P	Rain Gage	12
S	Stage Gage	1
PS	Rain & Stage	16
PSF	Rain & Stage & Flasher	1
PR	Rain & Repeater	1
R	Repeater	2
	2020 TOTAL	42

Table 3-2. ALERT System Preventive Maintenance Schedule

Site ID	Station Name	Type	Apr Round 1	Jun Round 2	Jul Round 3	Aug Round 4	Oct Round 5
2710	Highlands Ranch	Wx	F	F		F	F
2730	Salisbury Park	Wx	F	F		F	F
2750	Castle Rock	Wx	F	F		F	F
10068	Antelope Creek	S	F	F		F	F
2790	West Cherry Creek	WxS	F	F		F	F
10057	Pine Cliff	PS	F	F		F	F
2820	Haskins Gulch	P	F		L		F
10066	Sulphur Gulch	PS	F	F		F	F
2850	Cherry Creek at Bayou Gulch	PS	F	F		F	F
2860	Cherry Creek at Stroh Road	PS	F	F		F	F
2870	Cherry Creek at Cottonwood	PS	F	F		F	F
10059	Happy Canyon Creek	PS	F	F		F	F
2890	Spruce Mountain Open Space	P	F		L		F
2900	Russelville Gulch	P	F		L		F
2910	East Cherry Creek	P	F		L		F
2920	West Cherry Head	P	F		L		F
2930	Spring Valley Road	Wx	F	F		F	F
2940	Willow Creek	P	F		L		F
2950	DC Public Works	P	F		L		F
2960	Indian Creek	P	F		L		F
2970	Rampart Range Road	P	F		L		F
2980	Dakan Road	PR	F	F		F	F
10065	Tomah Road	Wx	F	F		F	F
3000	West Creek Repeater	R	F	F		F	F
3010	E. Plum Creek @ Hwy 105	WxS	F	F		F	F
3020	West Creek	Wx	F	F		F	F
3030	Bingham Lake Park	Wx	F	F		F	F
10056	E. Cherry Creek @ Russelville Rd	PS	F	F		F	F
10045	East/West Trailhead	P	F		L		F
10039	Fire Station #47	P	F		L		F
10055	Newlin Gulch @ Jordan Rd	PSF	F	F		F	F
10067	Tallman Gulch @ Tallman Park	PS	F	F		F	F
10054	Big Dry Creek @ Heritage Regional	PS	F	F		F	F
3100	Castle Rock Repeater	R	F	F		F	F
10014	Upper Sellers Gulch	P	F		L		F
10015	Sellers Gulch at Haystack	PS	F	F		F	F
10029	Plum Creek at Seldalia	PS	F	F		F	F
10044	E. Plum Creek @ Columbine Open Space	PS	F	F		F	F
10077	Baldwin Gulch Dam	PS	F	F		F	F
10080	WCC-7 Dam	PS	F	F		F	F
10081	FP-P1 Dam	PS	F	F		F	F
10082	FP-S1 Dam	PS	F	F		F	F

The type of preventive maintenance performed during each visit is designated as either full service (F) or low impact (L). The **full-service** inspection includes removal of the top section of each ALERT rain gage standpipe assembly to clean the screen, funnel, and tipping bucket. Tipping buckets are leveled; standpipes and other appurtenances are painted to protect against corrosion and vandalism; antenna mounts, clamps, cables and conduits are secured; and each site is inspected to meet the terms of existing license agreements or varying field conditions. The radio and antenna system are tested. The battery is checked. Test transmissions are performed to assure that gage reports are being received by ALERT base stations. Pressure transducer (PT) orifices and protective housings are checked and maintained free of mud and debris. Pressure tests are performed on all accessible PT's. Transmitted data are recorded and compared with calibration tables. All defective equipment is repaired or replaced as needed using available spare parts. Calibration adjustments are made as needed.

The **low impact** inspection is conducted on rain only sites and includes a non-penetrating assessment of the general condition of the site and a tipping bucket performance test using water. If the low impact inspection indicates possible problems, a full-service inspection is conducted.

A summary of maintenance work performed at each location is provided in the following sections. Detailed maintenance records are provided under cover of this report.

3.1 HIGHLANDS RANCH WTP WX (ID 2710)

The weather station at Highlands Ranch Water Treatment Plant was visited for a full-service inspection on January 30th. All equipment was checked, cleaned and tested and found to be in working order.

The mid-season inspection was conducted on June 10th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 6th. All equipment was checked, cleaned and tested.

On November 10th, a final inspection and maintenance was performed. Since this is a weather station it remains operational throughout the winter, so the transmitter was not removed.



Photo 3-1. Highlands Ranch WTP (Wx)

Table 3-3. Highlands Ranch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR
2710	Highlands Ranch WTP	1/30/20	13.26	13.17	0.09	13.70	11	3.50	0.00	1.00
		6/10/20	13.13	13.05	0.08	13.67	23	3.50	0.75	2.74
		8/6/20	12.80	12.71	0.09	13.76	27	5.00	0.00	1.00
		11/10/20	13.60	13.44	0.16	14.32	33	4.00	0.00	1.00

3.2 SALISBURY PARK WX (ID 2730)

The weather station at Highlands Ranch Water Treatment Plant was visited for a full-service inspection on January 28th. All equipment was checked, cleaned and tested and found to be in working order.

The mid-season inspection was conducted on June 10th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On November 10th, a final inspection and full maintenance was performed. Since this is a weather station, it remains operational throughout the winter, so the transmitter was not removed.



Photo 3-2. Salisbury Park (Wx)

Table 3-4. Salisbury Park Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
						Output	Output			
			Quiet (V)	Load (V)	Delta (V)	Voltage (V)	Current (mA)	FWD (W)	REF (W)	SWR
2730	Salisbury Park	1/28/20	13.71	13.63	0.11	14.57	226	4.50	0.00	1.00
		6/10/20	13.31	13.19	0.12	14.22	127	5.00	0.10	1.33
		8/4/20	13.74	13.43	0.31	14.29	200	5.00	0.20	1.50
		11/10/20	13.95	13.60	0.35	14.70	303	4.00	0.00	1.00

3.3 CASTLE ROCK WX (ID 2750)

A full-service inspection was conducted at the Castle Rock weather station on January 29th. All equipment was checked, cleaned and tested and found to be in working order.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 12th. All equipment was checked, cleaned and tested.

On November 10th, a final inspection and full maintenance was performed. Since this is a weather station, it remains operational throughout the winter, so the transmitter was not removed.



Photo 3-3. Castle Rock Weather Station and Radio Repeater (Wx and R)

Table 3-5. Castle Rock Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output	Output	FWD (W)	REF (W)	SWR
						Voltage (V)	Current (mA)			
2750	Castle Rock	1/29/20	13.86	13.75	0.11	14.07	178	4.50	0.10	1.35
		6/16/20	13.60	13.55	0.05	13.77	-	4.90	0.00	1.00
		8/12/20	13.55	13.48	0.07	13.73	203	5.00	0.25	1.58
		11/10/20	13.93	13.64	0.29	14.66	216	4.25	0.20	1.55

3.4 ANTELOPE CREEK S (ID 10068)

The station at Antelope Creek was visited for a full-service inspection on March 11th. All equipment was checked, cleaned and tested and found to be in working order.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 5th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter location.



Photo 3-4. Antelope Creek (S)

Table 3-6. Antelope Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR	Multiplier	Offset	Date	Time
10068	Antelope Creek	3/11/20	12.33	12.07	0.26	13.56	33	4.80	0.25	1.59	25.88	-0.33	3/11/20	9:30 AM
		6/16/20	13.23	13.11	0.12	13.62	14	6.25	0.50	1.79	25.88	-0.14	6/16/20	3:58 PM
		8/5/20	13.05	12.93	0.12	13.52	22	5.00	0.50	1.93	25.91	-0.12	8/5/20	2:03 PM

3.5 WEST CHERRY CREEK WXS (ID 2790)

The weather station at West Cherry Creek was visited for a full-service inspection on January 29th. All equipment was checked, cleaned and tested. Replaced signal conditioning box for PT. The PT was not calibrated since the riser pipe was frozen. The site was visited on March 11th to calibrate the PT.

The mid-season inspection was conducted on June 10th. All equipment was checked, cleaned and tested. Everything was working well at the station, but the maintenance Fast Field Form was lost so the PT did not change calibration.

A second mid-season inspection was conducted on July 27th. All equipment was checked, cleaned and tested.

On November 10th, winter shut-down activities were performed with full maintenance. The PT was pulled up into its winter location, but the transmitter was left running because it is a weather station.



Photo 3-5. West Cherry Creek (WxS)

Table 3-7. West Cherry Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR				
			(V)	(V)	(V)	Voltage	Current	(W)	(W)		Slope	Offset	Date	Time
2790	West Cherry Creek	1/29/20	13.75	13.60	0.15	14.90	20	4.75	0.10	1.34	0.0903	-0.3268	3/11/20	10:05:00 AM
		6/10/20	-	-	-	-	-	-	-	-	-	-	-	-
		7/27/20	13.23	13.11	0.12	20.77	610	5.00	0.28	1.62	0.0906	-0.0740	7/27/20	10:47:00 AM
		11/10/20	13.86	13.67	0.19	14.62	693	4.80	0.30	1.67	-	-	-	-

3.6 PINE CLIFF PS (ID 10057)

The station at Pine Cliff Road was activated for the season on March 10th. All equipment was checked, cleaned and tested. The wire-weight gage and radar were off due to the change in survey numbers. The radar was recalibrated to the wire-weight gage.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 6th. All equipment was checked, cleaned and tested. The wire-weight gage set screw was loose causing the measurement to be off. The wire-weight was calibrated back to 1.00 ft along with the radar since the stream was dry.

On October 22nd, winter shut-down activities were performed. The transmitter was removed.



Photo 3-6: Pine Cliff (PS)

Table 3-8: Pine Cliff Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output Voltage	Output Current	FWD	REF	SWR
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10057	Pine Cliff	3/10/20	12.99	12.91	0.08	20.86	292	4.75	0.00	1.00
		6/16/20	13.57	13.42	0.15	20.51	392	6.00	0.10	1.30
		8/6/20	12.92	12.84	0.08	19.53	563	4.50	0.00	1.00

3.7 HASKINS GULCH P (ID 2820)

The station at Haskins Gulch Confluence was activated for the season on January 30th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 28th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-7. Haskins Gulch (P)

Table 3-9. Haskins Gulch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2820	Haskins Gulch	1/30/20	12.88	12.76	0.12	19.53	563	4.50	0.00	1.00

3.8 SULPHUR GULCH PS (ID 10066)

The station at Sulphur Gulch was activated for the season on March 11th. All equipment was checked, cleaned and tested.

The mid-season inspection was conducted on June 17th. All equipment was checked, cleaned and tested.

On July 14th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-8. Sulphur Gulch (PS)

Table 3-10. Sulphur Gulch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR				
			(V)	(V)	(V)	Voltage	Current	(W)	(W)		Multiplier	Offset	Date	Time
10066	Sulphur Gulch	3/11/20	12.69	12.60	0.09	14.14	35	5.00	0.25	1.58	23.11	-0.01	3/11/20	4:00 PM
		6/17/20	13.66	13.58	0.08	13.91	169	4.50	0.25	1.62	23.11	-0.03	6/17/20	12:50 PM
		8/4/20	13.65	13.51	0.14	14.11	237	4.80	0.25	1.59	23.10	-0.002	8/4/20	2:00 PM

3.9 CHERRY CREEK AT BAYOU GULCH PS (ID 2850)

The station at Bayou Gulch was activated for the season on March 11th. All equipment was checked, cleaned and tested.

The mid-season inspection was conducted on June 17th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-9. Cherry Creek at Bayou Gulch (PS)

Table 3-11. Cherry Creek at Bayou Gulch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet (V)	Load (V)	Delta (V)	Voltage (V)	Current (mA)	FWD (W)	REF (W)	SWR	Slope	Offset	Date	Time
2850	Cherry Creek at Bayou Gulch	3/11/20	12.81	12.72	0.09	19.92	222	3.50	0.25	1.73	0.0905	-0.0739	3/11/20	12:14:00 PM
		6/17/20	13.18	13.02	0.16	14.06	29	3.50	0.00	1.00	-	-	-	-
		8/4/20	13.61	13.47	0.14	14.17	181	4.25	0.25	1.64	0.0905	-0.0651	8/4/20	11:51:00 AM

3.10 CHERRY CREEK AT STROH ROAD PS (ID 2860)

The station at Stroh Road was activated for the season on March 11th. All equipment was checked, cleaned and tested. The signal conditioning box was replaced with a new terminal block.

The mid-season inspection was conducted on June 17th. The tipping bucket military connector was re-soldered because tips were not being recording. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-10. Cherry Creek at Stroh Road (PS)

Table 3-12. Cherry Creek at Stroh Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR				
			(V)	(V)	(V)	Voltage	Current	(W)	(W)		Slope	Offset	Date	Time
2860	Cherry Creek at Stroh Road	3/11/20	12.79	12.69	0.10	13.75	8	5.00	0.00	1.00	0.0899	0.0178	3/11/20	2:18 PM
		6/17/20	13.28	13.20	0.08	13.84	22	5.50	0.00	1.00	-	-	-	-
		8/4/20	13.48	13.31	0.17	13.79	37	5.00	0.25	1.58	0.0904	0.0433	8/4/20	10:52 AM

3.11 CHERRY CREEK AT COTTONWOOD PS (ID 2870)

The station at Cherry Creek at Cottonwood was activated for the season on March 12th. All equipment was checked, cleaned and tested. All equipment was in working order.

The mid-season inspection was conducted on June 17th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-11. Cherry Creek at Cottonwood (PS)

Table 3-13. Cherry Creek at Cottonwood Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet (V)	Load (V)	Delta (V)	Voltage (V)	Current (mA)	FWD (W)	REF (W)	SWR	Slope	Offset	Date	Time
2870	Cherry Creek at Cottonwood	3/12/20	12.77	12.69	0.08	13.68	13	5.25	0.25	1.56	0.091	0.0114	3/12/20	8:46 AM
		6/17/20	13.17	13.09	0.08	13.79	26	7.00	0.25	1.47	-	-	-	-
		8/4/20	12.91	12.70	0.21	13.74	37	6.00	0.75	2.09	0.091	-0.0380	8/4/20	9:44 AM

3.12 HAPPY CANYON CREEK PS (ID 10059)

The station at Happy Canyon Creek was activated for the season on March 10th. All equipment was checked, cleaned and tested.

The mid-season inspection was conducted on June 22nd. All equipment was checked, cleaned and tested.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 13th. All equipment was checked, cleaned and tested.

On October 22nd, winter shut-down activities were performed, and the PT was pulled up into its winter position.



Photo 3-12. Happy Canyon Creek (PS)

Table 3-14. Happy Canyon Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR	Multiplier	Offset	Date	Time
						Voltage	Current							
						(V)	(mA)							
(V)	(V)	(V)	(V)	(mA)	(W)	(W)								
10059	Happy Canyon @ Surrey	3/10/20	12.58	12.42	0.16	12.66	6	3.00	0.25	1.81	26.65	-1.08	3/10/20	6:43:00 PM
		6/22/20	12.97	12.84	0.13	14.19	29	3.25	0.10	1.43	-	-	-	-
		8/13/20	13.13	13.02	0.11	13.72	277	5.00	0.75	2.26	26.43	-1.02	8/13/20	12:49 PM

3.13 SPRUCE MOUNTAIN OPEN SPACE P (ID 2890)

The station at Spruce Mountain Open Space was activated for the season on January 28th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 21st, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-13. Spruce Mountain Open Space (P)

Table 3-15. Spruce Mountain Open Space Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2890	Spruce Mountain Open Space	1/28/20	12.83	12.73	0.10	20.33	267	5.00	0.00	1.00

3.14 RUSSELLVILLE GULCH P (ID 2900)

The station at Russellville Gulch was activated for the season on March 11th. All equipment was checked, cleaned and tested. The radio cable from the transmitter to the polyphaser had a short and was replaced and tested.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-14. Russellville Gulch (P)

Table 3-16. Russellville Gulch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output	Output	FWD (W)	REF (W)	SWR
						Voltage (V)	Current (mA)			
2900	Russellville Gulch	3/11/20	12.70	12.46	0.24	14.20	24	24.00	1.00	1.51

3.15 EAST CHERRY CREEK P (ID 2910)

The station at East Cherry Creek was activated for the season on January 28th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-15. East Cherry Creek (P)

Table 3-17. East Cherry Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2910	East Cherry Creek	1/28/20	12.79	12.67	0.12	21.69	266	3.50	0.10	1.41

3.16 WEST CHERRY HEAD P (ID 2920)

The station at West Cherry Head was activated for the season on January 28th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-16. West Cherry Head (P)

Table 3-18. West Cherry Head Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2920	West Cherry Head	1/28/20	13.07	12.96	0.11	No Solar Panel		3.00	0.00	1.00

3.17 SPRING VALLEY ROAD WX (ID 2930)

The weather station at Spring Valley Road was visited for a full-service inspection on January 28th. All equipment was checked, cleaned and tested. The relative humidity sensor was reprogrammed.

The mid-season inspection was performed on June 9th. All tested equipment was in working order. The wind sensor was loosened and cleaned to move better.

A second mid-season inspection was conducted on August 5th. All equipment was checked, cleaned and tested.

On November 10th, a final inspection and full maintenance was performed. Since this is a weather station, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-17. Spring Valley Road (Wx)

Table 3-19. Spring Valley Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output	Output	FWD (W)	REF (W)	SWR
						Voltage (V)	Current (mA)			
2930	Spring Valley Road	1/28/20	13.63	13.54	0.09	14.03	100	4.25	0.10	1.36
		6/9/20	13.53	13.46	0.07	13.96	144	4.75	0.25	1.60
		8/5/20	13.95	13.90	0.05	18.87	125	5.00	0.50	1.93
		11/10/20	14.41	14.34	0.07	15.10	297	4.75	0.30	1.67

3.18 WILLOW CREEK P (ID 2940)

The station at Willow Creek was activated for the season on January 29th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-18. Willow Creek (P)

Table 3-20. Willow Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2940	Willow Creek	1/29/20	12.92	12.75	0.17	14.62	15	4.25	0.10	1.36

3.19 DC PUBLIC WORKS P (ID 2950)

The station at Douglas County Public Works was activated for the season on January 29th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 28th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-19. DC Public Works (P)

Table 3-21. DC Public Works Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
						(V)	(mA)			
2950	DC Public Works	1/29/20	12.82	12.71	0.11	20.22	50	5.00	0.10	1.33

3.20 INDIAN CREEK P (ID 2960)

The station at Indian Creek was activated for the season on January 30th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 28th. All tested equipment was in working order.

On October 22nd, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-20. Indian Creek (P)

Table 3-22. Indian Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2960	Indian Creek	1/30/20	12.75	12.61	0.14	14.76	157	5.00	0.10	1.33

3.21 RAMPART RANGE ROAD P (ID 2970)

The station at Rampart Range was activated for the season on March 10th. All equipment was checked, cleaned and tested.

The mid-season low impact inspection was performed on July 28th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-21. Rampart Range Road (P)

Table 3-23. Rampart Range Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR
2970	Rampart Range Road	3/10/20	12.90	N/A	N/A	20.93	293	N/A	N/A	N/A

3.22 DAKAN ROAD PR (ID 2980)

The rain gage and repeater at Dakan Road was visited for a full-service inspection on January 29th. All equipment was checked, cleaned and tested.

The mid-season maintenance inspection was performed on June 22nd. All tested equipment was in working order.

A second mid-season inspection was conducted on August 12th. All equipment was checked, cleaned and tested.

On October 24th, winter shut-down activities were performed. The transmitter was kept in place to act as a repeater for Hwy 105.



Photo 3-22. Dakan Road (PR)

Table 3-24. Dakan Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
						Output	Output			
			Quiet	Load	Delta	Voltage	Current	FWD	REF	SWR
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
2980	Dakan Road	1/29/20	13.38	13.27	0.11	22.13	241	4.50	0.10	1.35
		6/22/20	12.72	12.67	0.05	20.67	289	5.00	0.10	1.33
		8/12/20	12.53	12.44	0.09	20.36	390	5.00	0.30	1.65

3.23 TOMAH ROAD WX (ID 10065)

The weather station at Tomah Road was visited for a full-service inspection on January 29th. All equipment was checked, cleaned and tested.

The mid-season inspection was conducted on June 9th. All equipment was checked, cleaned and tested. The radio was replaced due to its low wattage and the weather sensors were set to transmit every 15 minutes.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 12th. All equipment was checked, cleaned and tested.

On November 10th, a final inspection and full maintenance was performed. Since this is a weather station, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-23. Tomah Road (Wx)

Table 3-25. Tomah Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR
10065	Tomah Road	1/29/20	13.86	13.77	0.09	14.63	162	2.50	0.50	2.62
		6/9/20	13.77	13.68	0.09	14.17	171	5.00	0.50	1.93
		8/12/20	13.20	13.14	0.06	13.72	58	4.50	0.75	2.38
		11/10/20	13.84	13.67	0.17	14.75	396	3.25	0.10	1.43

3.24 WEST CREEK REPEATER R (ID 3000)

The early season maintenance visit was conducted on June 6th. All equipment was checked and tested.

The mid-season inspection was conducted on August 27th. The radios and antenna system were tested. The ScadaLynx program was upgraded to 2.01.10 and the firmware on the encoder board was updated to 5.3.8.

After reviewing the April Monthly Data Analysis put together by WET, it was apparent that many stations were experiencing latency issues getting to the base-station. The original thought was that the 2 second slot length for the repeater was not long enough and it was causing stations to miss reports and have latency issues getting to the base. After further analysis of log files, it was found that the amount of data coming in through the 2-minute frame was well under the maximum amount of data packets. This showed that the slot length for the repeater was sufficient and not causing the latency or missed packets. With the issue still looming, WET consulted with Hydrolynx on the issue and the determined problem pointed towards a timing issue with the ALERT2 stations. The solution was installing new EPROMS (2019) for the 5096 transmitters, updating the ScadaLynx programing on the 50386 boards, and updating the firmware on the ALERT2 encoder boards to 5.3.8. The firmware update on the encoder board increases check-ins with satellites to maintain GPS lock and reduce drifting of time on the transmitter. After all the EPROMS were installed and all programs were updated, we saw a significant drop in latency issues and missed transmissions.

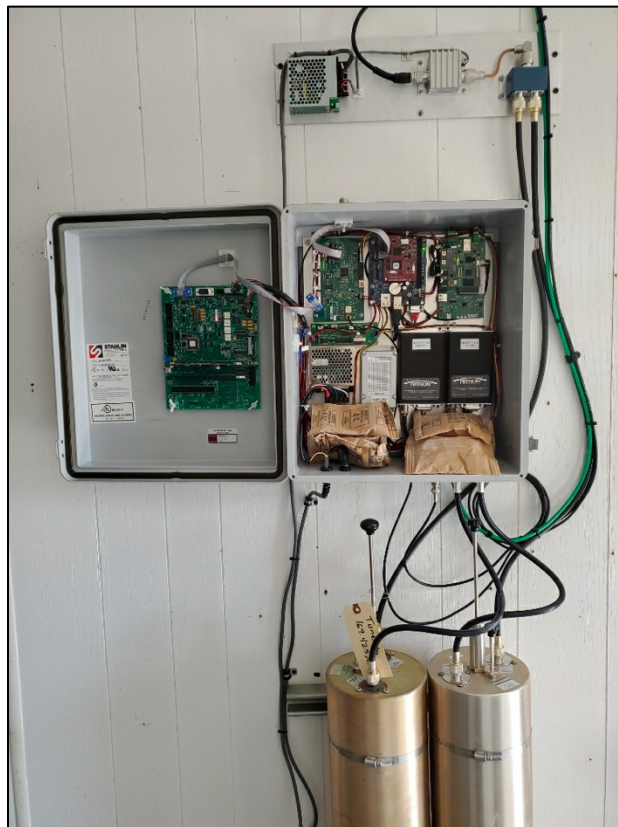


Photo 3-24: West Creek (R)

3.25 HIGHWAY 105 AT EAST PLUM CREEK WXS (ID 3010)

The pre-season inspection was conducted on January 28th. The radio was tested without the amplifier and all equipment was checked and tested. The PT was placed into the monitoring location on March 10th.

The mid-season inspection was conducted on June 10th. The radio was tested without the amplifier and all equipment was checked and tested.

A second mid-season inspection was conducted on August 12th. The radio was tested without the amplifier and all equipment was checked and tested.

On November 10th, a final inspection and full-service maintenance was performed. All equipment was checked and tested. The PT was pulled up into its winter position. Since this is a weather station, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-25. Highway 105 at East Plum Creek (WxS)

Table 3-26. Highway 105 at East Plum Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
3010	East Plum Creek at Hwy 105	1/28/20	13.49	NA	NA	21.28	7930	4.00	0.10	1.38
		6/10/20	13.56	NA	NA	21.11	7854	4.50	0.10	1.35
		8/12/20	13.63	13.59	0.04	19.46	1704	6.00	0.10	1.30
		11/10/20	14.40	14.30	0.10	19.70	4800	4.50	0.20	1.53

3.26 WEST CREEK WX (ID 10037)

The ALERT2 weather station at West Creek was visited for a full-service inspection on June 3rd.

The mid-season inspection was conducted on August 27th. All equipment was checked and tested. A new updated EPROM was installed on the 5096 board and the firmware on the ALERT2 encoder board was updated to 5.3.8. Since this is a weather station, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-26. West Creek (Wx)

Table 3-27. West Creek Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10037	West Creek Weather	6/3/20	13.76	13.68	0.08	14.33	310	6.25	0.25	1.50
		8/27/20	13.52	13.36	0.16	14.02	291	5.00	0.00	1.00

3.27 BINGHAM LAKE PARK WX (ID 3030)

The weather station at Bingham Lake Park was visited for a full-service inspection on January 28th. All equipment was checked, cleaned and tested.

The mid-season inspection was performed on June 10th. All equipment was checked, cleaned and tested.

The second mid-season inspection was conducted on August 4th. All equipment was checked and tested.

On November 10th, a final inspection and full-service maintenance was performed. Since this is a weather station, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-27. Bingham Lake Park (Wx)

Table 3-28. Bingham Lake Park Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
			(V)	(V)	(V)	Voltage	Current	(W)	(W)	
3030	Bingham Lake Park	1/28/20	13.53	13.45	0.08	14.44	279	3.00	0.10	1.45
		6/10/20	13.59	13.50	0.09	14.30	266	3.25	0.10	1.43
		8/4/20	13.55	13.44	0.11	14.01	53	4.25	0.30	1.72
		11/10/20	14.25	14.15	0.10	14.27	237	4.00	0.00	1.00

3.28 EAST CHERRY CREEK AT RUSSELLVILLE ROAD PS (ID 10056)

The station at East Cherry Creek at Russellville was visited for a full-service inspection on March 11th. All equipment was checked, cleaned and tested.

The mid-season inspection was performed on June 17th. All equipment was checked, cleaned and tested.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

The second mid-season inspection was conducted on August 5th. All equipment was checked and tested. All equipment was in working order.

The end of season inspection was conducted on October 21st. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-28. East Cherry Creek at Russellville (PS)

Table 3-29. East Cherry Creek at Russellville Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet (V)	Load (V)	Delta (V)	Output		FWD (W)	REF (W)	SWR	Multiplier	Offset	Date	Time
						Voltage (V)	Current (mA)							
10056	Cherry Creek @ Russellville	3/11/20	12.35	12.23	0.12	21.83	192	2.75	0.00	1.00	25.67	-0.12	3/11/20	10:51 AM
		6/17/20	13.81	13.75	0.06	14.08	87	3.75	0.00	1.00	25.94	-0.01	6/17/20	9:55 AM
		8/5/20	13.75	13.69	0.06	20.28	91	5.00	0.30	1.65	25.77	-0.053	8/6/20	2:52 PM

3.29 EAST/WEST TRAILHEAD P (ID 10045)

The station at East/West Trailhead was activated for the season on March 30th. All equipment was checked, cleaned and tested.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

The mid-season low impact inspection was performed on July 28th. All tested equipment was in working order.

On October 22nd, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-29. East/West Trailhead (P)

Table 3-30. East/West Trailhead Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
						Output	Output			
			Quiet	Load	Delta	Voltage	Current	FWD	REF	SWR
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10045	East/West Trailhead	1/30/20	12.85	12.75	0.10	22.54	269	4.25	0.10	1.36

3.30 FIRE STATION #47 P (ID 10039)

The ALERT2 station at Fire Station #47 was activated for the season on March 28th. All equipment was checked, cleaned and tested.

On July 14th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-30. Fire Station #47 (P)

Table 3-31. Fire Station #47 Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10039	Fire Station #47	1/28/20	12.53	12.41	0.12	22.28	176	4.75	0.30	1.67

3.31 NEWLIN GULCH AT JORDAN ROAD PS (ID 10055)

The ALERT2 station at Newlin Gulch at Jordan Road was activated for the season on March 12th. All equipment was checked, cleaned and tested.

A mid-season inspection was performed on June 17th. All equipment was tested and was in working order.

A second mid-season inspection was performed on August 4th. All equipment was tested and was in working order.

On October 22nd, winter shut-down activities were performed by covering the tipping bucket.



Photo 3-31. Newlin Gulch at Jordan Road Standpipe (PS)



Photo 3-32. Newlin Gulch at Jordan Road Flasher (PS)

Table 3-32. Newlin Gulch at Jordan Road Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output	Output	FWD (W)	REF (W)	SWR
						Voltage (V)	Current (mA)			
10055	Newlin Gulch at Jordan Road	3/12/20	12.55	12.47	0.08	13.59	131	3.50	0.25	1.73
		6/17/20	13.67	13.55	0.12	14.78	357	5.00	0.10	1.33
		8/4/20	13.20	13.12	0.08	13.88	625	5.00	0.50	1.93

3.32 TALLMAN GULCH AT TALLMAN PARK PS (ID 10067)

The ALERT2 station at Tallman Gulch was activated for the season on March 11th. All equipment was checked, cleaned and tested. On March 17th the station was visited to repair the antenna system. A polyphaser was installed with a new cable from the polyphaser to the antenna and polyphaser to the transmitter. The radio wattage was tested to be 4.75 watts forward and 0 watts reflected.

On July 14th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

The mid-season inspection was conducted on June 9th. All equipment was checked, cleaned and tested.

A second mid-season inspection was conducted on August 4th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed, and the PT was pulled up into its winter position.



Photo 3-33. Tallman Gulch at Tallman Park (PS)

Table 3-33. Tallman Gulch at Tallman Park Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR				
			(V)	(V)	(V)	Voltage	Current	(W)	(W)		Multiplier	Offset	Date	Time
10067	Tallman Park	3/11/20	12.69	12.60	0.09	20.69	300	4.00	1.00	3.00	25.80	0.12	3/11/20	3:11 PM
		6/9/20	13.79	13.61	0.18	7.39	52	4.75	0.10	1.34	25.57	-0.03	6/9/20	11:23 AM
		8/4/20	13.56	13.42	0.14	14.04	50	6.00	0.25	1.51	25.88	0.11	8?4	1:21 PM

3.33 BIG DRY CREEK AT HERITAGE REGIONAL PARK PS (ID 10054)

The ALERT2 station at Big Dry Creek at Heritage Park was activated for the season on March 10th. All equipment was checked, cleaned and tested. All equipment was working correctly.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested.

On July 15th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 13th. All equipment was cleaned, checked, and tested.

On October 22nd, winter shut-down activities were performed. The PT was pulled up into its winter position.



Photo 3-34. Big Dry Creek at Heritage Regional Park (PS)

Table 3-34. Big Dry Creek at Heritage Regional Park Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR	Multiplier	Offset	Date	Time
			(V)	(V)	(V)	Voltage	Current	(W)	(W)					
10054	Heritage Regional Park	3/10/20	12.64	12.54	0.10	20.94	28	3.50	0.10	1.41	23.14	-0.03	3/10/20	9:02 AM
		6/16/20	13.72	13.57	0.15	13.97	163	4.50	0.25	1.62	23.09	-0.04	6/16/20	9:50 AM
		8/13/20	13.33	13.19	0.14	13.78	273	5.00	0.50	1.93	23.11	-0.02	8/13/20	1:50 PM

3.34 CASTLE ROCK REPEATER R (ID 3100)

The Castle Rock repeater was serviced on January 29th. All equipment was checked, cleaned and tested. All equipment was working correctly.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested. All equipment was working correctly.

A second mid-season inspection was conducted on August 12th. All equipment was cleaned, checked, and tested.

On October 16th, a final inspection was performed. Since this is a repeater, it is operational throughout the winter, so the transmitter was not removed.



Photo 3-35. Castle Rock Repeater (R)

Table 3-35. Castle Rock Repeater Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR
3100	Castle Rock Repeater	1/29/20	13.24	13.11	0.13	22.22	363	5.00	0.10	1.33
		6/16/20	13.28	13.11	0.17	13.70	400	5.00	0.30	1.65
		8/12/20	13.16	13.10	0.06	20.65	1207	5.00	0.00	1.00

3.35 UPPER SELLERS GULCH P (ID 10014)

The ALERT2 station at Upper Sellers Gulch was activated for the season on January 29th. All equipment was checked, cleaned and tested. All equipment was working correctly.

On June 30th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

The mid-season low impact inspection was performed on July 27th. All tested equipment was in working order.

On October 19th, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-36. Upper Sellers Gulch (P)

Table 3-36. Upper Sellers Gulch Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
						Output	Output			
			Quiet	Load	Delta	Voltage	Current	FWD	REF	SWR
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10014	Upper Sellers Gulch	1/29/20	12.66	12.55	0.11	20.68	60	5.00	0.25	1.58

3.36 SELLERS GULCH AT HAYSTACK ROAD PS (ID 10015)

The ALERT2 station at Sellers Gulch at Haystack Road was activated for the season on March 10th. All equipment was checked, cleaned and tested. All equipment was working correctly besides the solar regulator. The regulator was replaced and tested.

Mid-season inspection was conducted on June 16th. All equipment was checked, cleaned and tested.

On June 30th a new updated EPROM was installed on the 5096 board and the firmware was updated on the ALERT2 encoder board to 5.3.8.

A second mid-season inspection was conducted on August 12th. All equipment was checked, cleaned and tested.

On October 21st, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-37. Sellers Gulch at Haystack Road (PS)

Table 3-37. Sellers Gulch at Haystack Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio			Pressure Transducer			
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR	Multiplier	Offset	Date	Time
10015	Sellers Gulch at Haystack	3/10/20	12.65	12.58	0.07	14.44	106	4.25	0.25	1.64	25.19	-0.12	3/10/20	5:00 PM
		6/16/20	13.53	13.46	0.07	14.06	17	5.00	0.25	1.58	25.64	-0.29	6/16/20	2:17 PM
		8/12/20	13.44	13.34	0.10	14.33	372	5.00	0.25	1.58	25.62	-0.25	8/12/20	2:33 PM

3.37 PLUM CREEK AT SEDALIA (PS) (ID 10029)

The station at Plum Creek at Sedalia is a USGS station where WET pulls stage and discharge measurements from the USGS radar sensor through an SDI-12 communication protocol. The data is then transmitted over ALERT2.

Plum Creek at Sedalia was visited on March 10th for early season maintenance. All equipment was cleaned, checked, and tested.

The mid-season inspection was conducted on June 16th. All equipment was checked, cleaned, and tested.

A second mid-season inspection was conducted on August 6th. All equipment was checked, cleaned and tested.

On October 22nd, a final inspection and low maintenance was performed by checking the battery and radio.

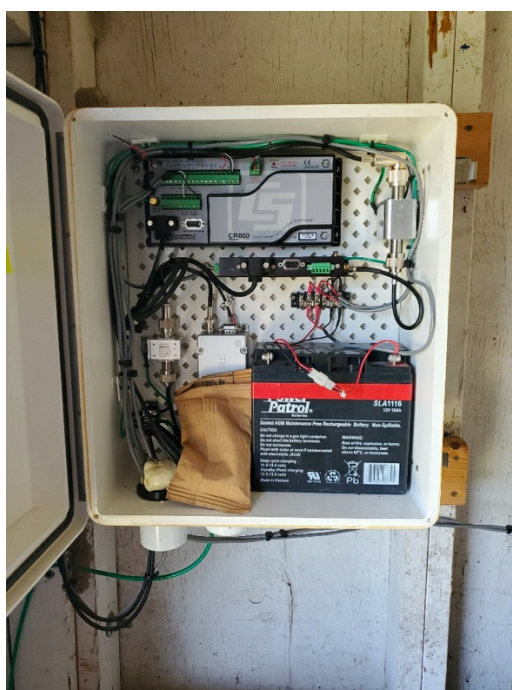


Photo 3-38. Plum Creek at Sedalia (PS)

Table 3-38. Plum Creek at Sedalia Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10029	Plum Creek @ Sedalia	3/10/20	13.47	13.38	0.09	21.41	463	4.25	0.00	1.00
		6/16/20	14.03	13.95	0.08	14.37	197	4.25	0.10	1.36
		8/6/20	13.64	13.57	0.07	13.96	466	5.50	0.25	1.54

3.38 EAST PLUM CREEK AT COLUMBINE OPEN SPACE (PS) (ID 10044)

The ALERT2 station at East Plum Creek at Columbine Open Space was activated for the season on March 10th. All equipment was tested, cleaned, and calibrated. All equipment was working correctly. The radar was compared to the wire-weight gage and matched the reading on the transmitter.

The mid-season inspection was performed on June 22nd. All equipment was clean, checked, and tested. The radar and wire-weight gage readings matched.

On July 15th the firmware on the ALERT2 encoder board was updated to 5.3.8.

A second mid-season inspection was conducted on August 5th. All equipment was checked, cleaned, and tested. Wire-weight gage and radar readings matched.

On October 21st, winter shut-down activities were performed. The transmitter was removed for winter storage.



Photo 3-39. East Plum Creek at Columbine Open Space (PS)

Table 3-39. East Plum Creek at Columbine Open Space Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Output Voltage (V)	Output Current (mA)	FWD (W)	REF (W)	SWR
10044	E. Plum Creek @ Columbine	3/10/20	12.63	12.59	0.04	21.56	662	4.75	0.00	1.00
		6/22/20	13.34	13.28	0.06	14.05	579	5.00	0.00	1.00
		8/5/20	13.04	12.95	0.09	13.83	536	5.00	0.30	1.65

3.39 BALDWIN GULCH DAM (PS) (ID 10077)

The ALERT2 station at Baldwin Gulch Dam was activated for the season on March 12th. All equipment was tested, cleaned, and calibrated. All equipment was working correctly.

The mid-season inspection was performed on June 22nd. All equipment was clean, checked, and tested.

A second mid-season inspection was conducted on August 13th. All equipment was checked, cleaned, and tested.

On October 20th, winter shut-down activities were performed.



Photo 3-40. Baldwin Gulch Dam (PS)

Table 3-40. Baldwin Gulch Dam Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10077	Baldwin Gulch Dam	3/12/20	13.76	13.66	0.10	18.26	383	4.50	0.00	1.00
		6/22/20	13.96	13.89	0.07	19.65	422	5.00	0.00	1.00
		8/13/20	13.69	13.61	0.08	20.73	401	5.50	0.25	1.54

3.40 WCC-7 DAM (PS) (10080)

The ALERT2 station at WCC-7 Dam was activated for the season on March 17th. All equipment was tested, cleaned, and calibrated. All equipment was working correctly. The PT was reading in PSI and the units were changed to read in feet.

The mid-season inspection was performed on June 22nd. All equipment was clean, checked, and tested.

A second mid-season inspection was conducted on August 13th. All equipment was checked, cleaned, and tested.

On October 20th, winter shut-down activities were performed.



Photo 3-41. WCC-7 Dam (PS)

Table 3-41. WCC-7 Dam Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output	Output	FWD	REF	SWR
						Voltage	Current			
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10080	WCC-7 Dam	3/17/20	13.92	13.84	0.08	22.69	203	4.50	0.00	1.00
		6/22/20	13.55	13.34	0.21	20.32	466	4.00	0.10	1.38
		8/13/20	13.44	13.33	0.11	20.21	319	4.50	0.00	1.00

3.41 FP-P1 DAM PS (10081)

The ALERT2 station at FP-P1 Dam was activated for the season on March 12th. All equipment was tested, cleaned, and calibrated. All equipment was working correctly. The PT units were in PSI and were reprogrammed to be in feet.

The mid-season inspection was performed on June 22nd. All equipment was clean, checked, and tested.

A second mid-season inspection was conducted on August 13th. All equipment was checked, cleaned, and tested.

On October 20th, winter shut-down activities were performed.



Photo 3-42. FP-P1 Dam (PS)

Table 3-42. FP-P1 Dam Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet (V)	Load (V)	Delta (V)	Voltage (V)	Current (mA)	FWD (W)	REF (W)	SWR
10081	FP-P1 Dam	3/12/20	13.69	13.59	0.10	22.65	363	3.75	0.00	1.00
		6/22/20	13.70	13.62	0.08	19.33	357	4.00	0.00	1.00
		8/13/20	13.50	13.41	0.09	20.66	246	5.00	0.00	1.00

3.42 FP-S1 DAM PS (10082)

The ALERT2 station at FP-S1 Dam was activated for the season on March 12th. All equipment was tested, cleaned, and calibrated. All equipment was working correctly. The PT units were in PSI and were recalibrated to feet.

The mid-season inspection was performed on June 22nd. All equipment was clean, checked, and tested.

A second mid-season inspection was conducted on August 13th. All equipment was checked, cleaned, and tested. The PT was calibrated due to readings being off during calibration. The calibration was not linear, so the reading is 0.18 ft at 0 ft of water. The PT should be monitored and if it gets worse should be sent in for calibration or replaced. The offset programmed was -0.59 ft.

On October 20th, winter shut-down activities were performed.



Photo 3-43. FP-S1 Dam (PS)

Table 3-43. FP-S1 Dam Maintenance Summary

Sta. No.	Station Name	Date	Battery Voltage			Solar Regulator		Radio		
			Quiet	Load	Delta	Output Voltage	Output Current	FWD	REF	SWR
			(V)	(V)	(V)	(V)	(mA)	(W)	(W)	
10082	FP-S1 Dam	3/12/20	12.58	12.51	0.07	22.63	563	4.00	0.00	1.00
		6/22/20	13.83	13.77	0.06	20.34	417	4.25	0.00	1.00
		8/13/20	13.13	0.08	0.08	20.47	607	5.50	0.00	1.00

4. SUMMARY OF NON-PREVENTIVE SERVICE CALLS

Overall, the network functioned without major problems. As usual, there were a few minor issues including bad batteries, clogged intake lines, bad pressure transducers, and solar panel issues. Below is a list of the stations with non-preventative service calls:

- Tomah Rd (ID 10065)
 - Replaced Radio
 - Replaced antenna cable
- Upper Sellers Gulch at Haystack (ID 10015)
 - Station keeps losing GPS lock. May need to replace the power cable to transmitter (possible short) or the GPS cable.
- Pine Cliff (ID 2810)
 - Recalibrated wire-weight gage and radar when there was no water in channel
 - Radar shifted in box or someone moved radar to being facing inside of box causing alarms and readings to be 16ft. Returned to correct position and tightened nuts.
- Tallman Gulch @ Tallman Park (ID 10067)
 - A polyphaser was installed with a new cable from the polyphaser to the antenna and polyphaser to the transmitter. The radio wattage was tested to be 4.75 watts forward and 0 watts reflected.
 - Tipping bucket was stuck and not tipping
- FP-P1 Dam (ID 10081)
 - Changed SDI-12 units from PSI to feet
- FP-S1 Dam (ID 10082)
 - Changed SDI-12 units from PSI to feet
- WCC-7 Dam (ID 10080)
 - Changed SDI-12 units from PSI to feet
- Spring Valley Weather (ID 2930)
 - Loosened wind direction sensor since it was getting stuck in place.
- West Creek Repeater (ID 6001)
 - Upgraded programming and ALERT2 encoder board firmware due to latency issues with both Legacy alert and ALERT2 stations. After upgrading the programming and encoder board firmware the latency issues have mostly been resolved. The only stations still experiencing latency issues is Tomah Rd which is believed to be due to programming issues at the transmitter and Heritage Regional Park. The programming has been changed at Tomah Rd and Heritage Regional will need a deeper analysis. Latency issues will be monitored through next season to see if the problem has been resolved.
- West Cherry Creek Weather (ID 2970)
 - The RH and Temperature sensor got unplugged during a maintenance trip. The station was visited, and the terminal block was tightened.

This was the seventh year that ALERT2 transmitters were deployed in the field and there were far fewer issues with the ALERT2 transmitters this year as compared to previous years. It appears that the software changes over the past few years have helped work out the kinks that were present before.

WET has increased the frequency of desiccant replacement in the pressure transducer signal conditioning boxes which may help reduce the number of pressure transducers failing each year. WET has also begun to obtain pressure transducers from Keller that seem to hold up better than the Druck pressure transducers. From WET's research, it appears that Keller pressure transducers are more robust and cheaper than the Druck pressure transducers. The next time a Druck PT goes bad, WET recommends that it be replaced by a Keller PT because of their durability and cheaper cost.

5. SPARE EQUIPMENT

5.1 INVENTORY ON HAND

WET has accounted for the following spare supplies located at the Fort Collins office. A more detailed list is included in Appendix B

- 500 mA Wall Charger
- 5096 Board
- ALERT 2 Encoder Board
- Antenna Cable (x6)
- Antenna Top Section (x5)
- Battery
- Directional Antenna
- GPS
- Lateral Antenna (x3)
- MasterLock (x3)
- Miscellaneous Wind Sensor parts
- Radio amplifier
- Pressure Transducer (X2)
- Programmed Maxon VHF Radio (x6)
- Repeater
- Ritron Radio
- Signal Conditioning Board (x2)
- Signal Conditioning Box (x5)
- Solar Panel (x5)
- Solar Panel Mount for Standpipe
- Solar Regulator (x2)
- Tipping Bucket (x3)
- Tipping Bucket Metal Screen Set (x4)
- Hydrolynx 5096 Transmitter (x2)
- High Sierra 3306 Transmitter (x2)
- High Sierra 3206 Transmitter (x3)
- VHF Polyphaser (x4)

5.2 RECOMMENDED ADDITIONAL INVENTORY

Prior to the 2020 maintenance season, WET recommends the purchase of the following spare equipment:

- (2) MaxRad antenna base mounts - \$40 ea.
- (4) Solar panel mount - \$50 ea.
- (2) Maxon Radios - \$300 ea.
- (3) Solar Charge Regulators- \$45 ea.
- (1) Desiccant- \$125
- (2) Door Kit- \$500 ea.

6. RECOMMENDATIONS


The stations at Cherry Creek at Sulphur Gulch and Cherry Creek at Bayou Gulch are the two remaining standpipes without a door kit. WET suggests purchasing two door kits to be installed in the 2021 season for ease of access to the transmitter and to prevent the tangling/damage of cables from the transmitter being dropped from the top.

WET also recommends the continuation of upgrading stations to ALERT2. There are much fewer issues especially with data transmission with the ALERT2 sites.

7. APPENDIX A. SITE SPECIFIC MAINTENANCE/REPAIR RECORDS

Station Maintenance Form

Station Maintenance Form

Location	Highlands Ranch WTP
Station_ID	2710
Technician(s)	ZJN
Date	01/30/2020
Time Arrive	07:45 AM (-7 GMT)
GPS Location	
	Lat: 39.5611046 Long: -105.0179502
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2710
Tips During Calibration	12
Volume Added or Removed (mL)	9.00
Error (%)	-0.68
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.70
Charging Current (mA)	11.00
Battery Voltage Quiet (V)	13.26
Battery Voltage Transmitted (V)	13.17

Sensor Verification

Temperature (°C)	-2.80
Relative Humidity (%)	57.30
Wind Speed (mph)	12.00
Temperature (°C)	-2.00
Relative Humidity (%)	55.60
Wind Speed (mph)	11.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmissions
Depart Time	08:20 AM (-7 GMT)

Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Highlands Ranch WTP
Station_ID	2710
Technician(s)	EJH
Date	06/10/2020
Time Arrive	09:06 AM (-6 GMT)
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2710
Tips During Calibration	12
Volume Added or Removed (mL)	6.00
Error (%)	-0.36
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.67
Charging Current (mA)	23.00
Battery Voltage Quiet (V)	13.13
Battery Voltage Transmitted (V)	13.05

Sensor Verification

Temperature (°C)	18.30
Relative Humidity (%)	32.50
Wind Speed (mph)	2.00

Station Maintenance Form

Temperature (°C)	18.00
Relative Humidity (%)	30.10
Wind Speed (mph)	1.30

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

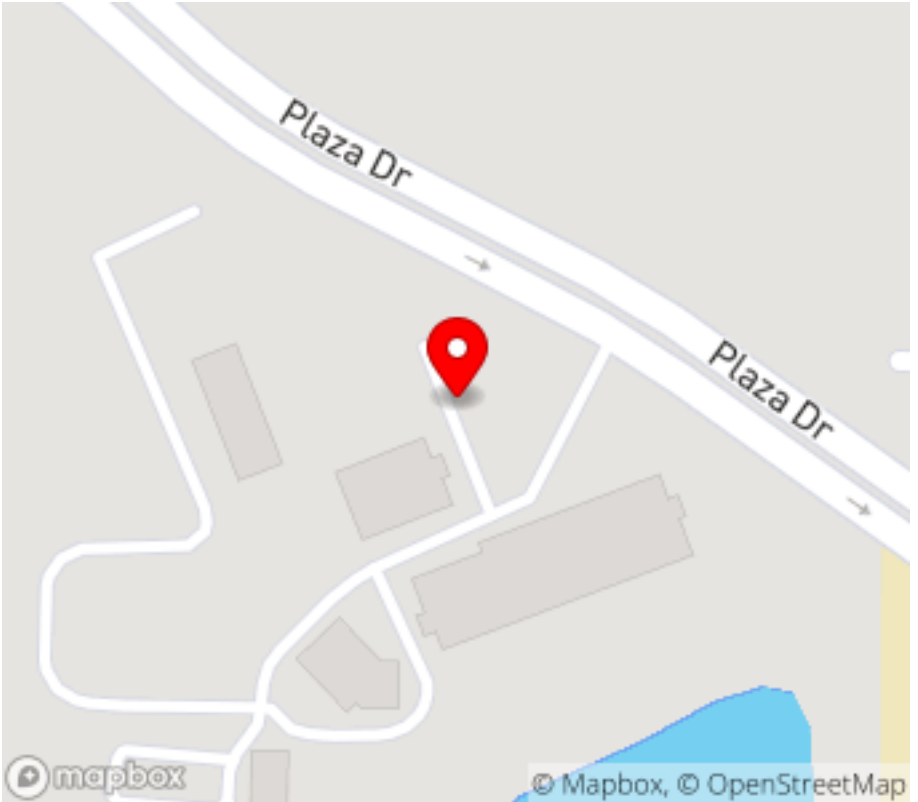
Watts Forward	3.50
Watts Reflected	0.75
Standing Wave Ratio	2.7238
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Replaced desiccant. Received test transmission
Depart Time	09:44 AM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Highlands Ranch WTP
Station_ID	2710
Technician(s)	ZJN
Date	08/06/2020
Time Arrive	08:52 AM (-6 GMT)
GPS Location	
	Lat: 39.5609377 Long: -105.0190509
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2710
Tips During Calibration	12
Volume Added or Removed (mL)	4.00
Error (%)	-0.15
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.76
Charging Current (mA)	27.00
Battery Voltage Quiet (V)	12.80
Battery Voltage Transmitted (V)	12.71

Sensor Verification

Temperature (°C)	24.40
Relative Humidity (%)	58.40
Wind Speed (mph)	0.00
Temperature (°C)	26.10
Relative Humidity (%)	54.30
Wind Speed (mph)	0.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmission
Depart Time	09:21 AM (-6 GMT)

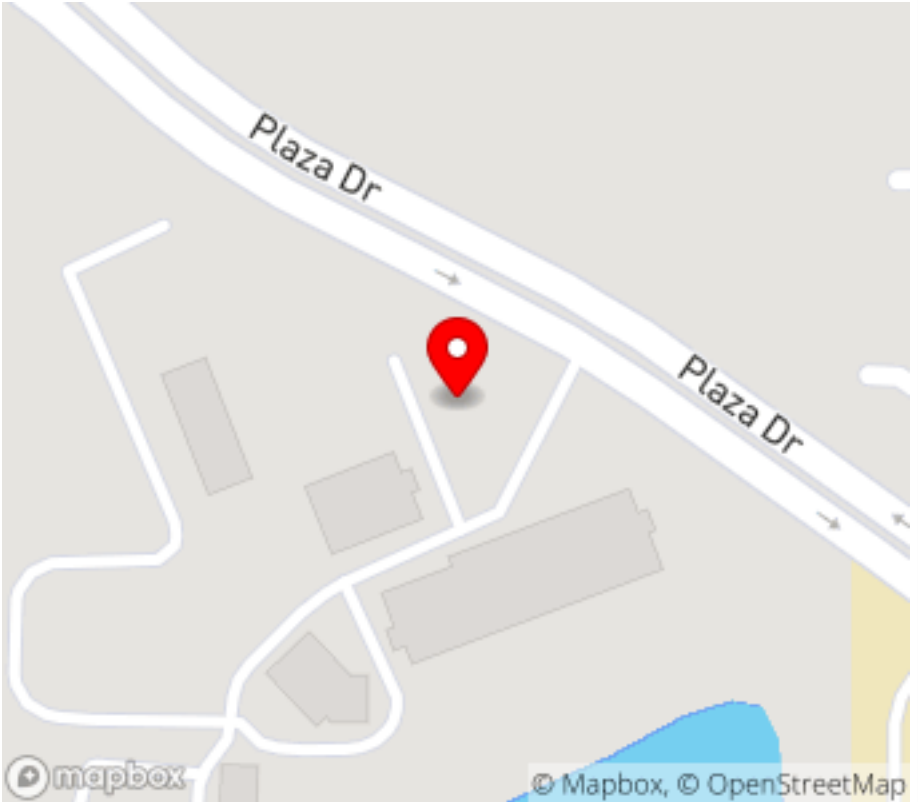
Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Highlands Ranch WTP
Station_ID	2710
Technician(s)	ZJN,KGS
Date	11/10/2020
Time Arrive	02:01 PM (-7 GMT)
GPS Location	
	Lat: 39.5609817 Long: -105.0189291
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Gage Calibration

Error (%)	0.27
-----------	------

Power System

Station Maintenance Form

Regulator Output Voltage (V)	14.32
Charging Current (mA)	33.00
Battery Voltage Quiet (V)	13.60
Battery Voltage Transmitted (V)	13.44

Sensor Verification

Temperature (°C)	9.50
Wind Speed (mph)	6.20
Temperature (°C)	10.40
Relative Humidity (%)	20.30
Wind Speed (mph)	7.00


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	4.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Did not test tipping bucket. Left covered for winter. Everything working well.
Depart Time	02:35 PM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Salisbury Park
Station_ID	2730
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	02:39 PM (-7 GMT)
GPS Location	
	Lat: 39.49772976 Long: -104.77314949
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Tipping_bucket, Solar_panel
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2730
Tips During Calibration	12
Volume Added or Removed (mL)	1.00
Error (%)	0.16
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.57
Charging Current (mA)	226.00
Battery Voltage Quiet (V)	13.71
Battery Voltage Transmitted (V)	13.63

Sensor Verification

Temperature (°C)	10.00
Relative Humidity (%)	33.70
Wind Speed (mph)	0.00
Temperature (°C)	9.00
Relative Humidity (%)	35.40
Barometric Pressure (mBar)	981.50
Wind Speed (mph)	0.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmissions
Depart Time	03:23 PM (-7 GMT)

Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Salisbury Park
Station_ID	2730
Technician(s)	EJH
Date	06/10/2020
Time Arrive	10:07 AM (-6 GMT)
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Tipping_bucket, Funnel, Solar_panel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2730
Tips During Calibration	13
Volume Added or Removed (mL)	-7.00
Error (%)	1.01
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.22
Charging Current (mA)	127.00
Battery Voltage Quiet (V)	13.31
Battery Voltage Transmitted (V)	13.19

Sensor Verification

Temperature (°C)	19.40
Relative Humidity (%)	34.90
Wind Speed (mph)	3.30

Station Maintenance Form

Temperature (°C)	20.20
Relative Humidity (%)	36.30
Wind Speed (mph)	3.20

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	5.00
Watts Reflected	0.10
Standing Wave Ratio	1.3294
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Replaced desiccant. Everything working well. Received test transmission.
Depart Time	10:39 AM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Salisbury Park
Station_ID	2730
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	10:13 AM (-6 GMT)
GPS Location	
	Lat: 39.497707 Long: -104.7732236
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2730
Tips During Calibration	12
Volume Added or Removed (mL)	16.00
Error (%)	-1.42
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.29
Charging Current (mA)	200.00
Battery Voltage Quiet (V)	13.74
Battery Voltage Transmitted (V)	13.43

Sensor Verification

Temperature (°C)	87.00
Relative Humidity (%)	36.10
Temperature (°C)	82.00
Relative Humidity (%)	30.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.20
Standing Wave Ratio	1.5000
Does the station have a stage sensor?	No

Finishing Comments

Depart Time	10:32 AM (-6 GMT)
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Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Salisbury Park
Station_ID	2730
Technician(s)	ZJN,EJH
Date	11/10/2020
Time Arrive	10:03 AM (-7 GMT)
GPS Location	
	Lat: 39.4977426 Long: -104.7731488
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Sensor

Does the station have a rain sensor?	No
--------------------------------------	----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
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Power System

Regulator Output Voltage (V)	14.70
Charging Current (mA)	303.00
Battery Voltage Quiet (V)	13.95
Battery Voltage Transmitted (V)	13.60

Sensor Verification

Temperature (°C)	5.55
Relative Humidity (%)	38.40
Wind Speed (mph)	1.10
Temperature (°C)	6.10
Relative Humidity (%)	34.00
Wind Speed (mph)	1.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Tipping bucket covered. Everything working well. Received test transmission.
Depart Time	10:20 AM (-7 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Castle rock weather
Station_ID	2750
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	12:50 PM (-6 GMT)
GPS Location	
	Lat: 39.3768005371094 Long: -104.848476424911
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	12.00
Error (%)	-1.00
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.77
Battery Voltage Quiet (V)	13.60
Battery Voltage Transmitted (V)	13.55

Sensor Verification

Temperature (°C)	170.00
Relative Humidity (%)	39.00
Barometric Pressure (mBar)	796.00
Wind Speed (mph)	11.00
Temperature (°C)	32.60
Relative Humidity (%)	23.50
Barometric Pressure (mBar)	956.00
Wind Speed (mph)	5.90

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.90
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Depart Time	01:15 PM (-6 GMT)
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Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Castle Rock Wx
Station_ID	2750
Technician(s)	ZJN
Date	01/29/2020
Time Arrive	02:17 PM (-7 GMT)
GPS Location	
	Lat: 39.37670299 Long: -104.84854672
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Tipping_bucket, Solar_panel
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2750
Tips During Calibration	12
Volume Added or Removed (mL)	16.00
Error (%)	-1.42
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.07
Charging Current (mA)	178.00
Battery Voltage Quiet (V)	13.86
Battery Voltage Transmitted (V)	13.75

Sensor Verification

Temperature (°C)	5.00
Relative Humidity (%)	64.70
Wind Speed (mph)	1.20
Temperature (°C)	5.60
Relative Humidity (%)	64.50
Barometric Pressure (mBar)	956.40
Wind Speed (mph)	1.60

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.10
Standing Wave Ratio	1.3504
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmissions
Depart Time	03:00 PM (-7 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Castle Rock Wx
Station_ID	2750
Technician(s)	ZJN
Date	08/12/2020
Time Arrive	03:02 PM (-6 GMT)
GPS Location	
	Lat: 39.3767975 Long: -104.8485009
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2750
Tips During Calibration	12
Volume Added or Removed (mL)	7.00
Error (%)	-0.47
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.73
Charging Current (mA)	203.00
Battery Voltage Quiet (V)	13.55
Battery Voltage Transmitted (V)	13.48

Sensor Verification

Temperature (°C)	27.20
Relative Humidity (%)	25.10
Wind Speed (mph)	1.20
Temperature (°C)	30.80
Relative Humidity (%)	25.30
Wind Speed (mph)	0.90

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	03:37 PM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Castle Rock Wx
Station_ID	2750
Technician(s)	ZJN,EJH
Date	11/10/2020
Time Arrive	01:14 PM (-7 GMT)
GPS Location	
	Lat: 39.3767822 Long: -104.8486116
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Gage Calibration

Error (%)	0.27
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Power System

Station Maintenance Form

Regulator Output Voltage (V)	14.66
Charging Current (mA)	216.00
Battery Voltage Quiet (V)	13.93
Battery Voltage Transmitted (V)	13.64

Sensor Verification

Temperature (°C)	8.30
Relative Humidity (%)	24.30
Wind Speed (mph)	8.00
Temperature (°C)	10.30
Relative Humidity (%)	18.60
Wind Speed (mph)	5.60

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	4.25
Watts Reflected	0.20
Standing Wave Ratio	1.5541
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Did not test tipping bucket. Left covered for winter. Everything working well. Received test transmission.
Depart Time	01:14 PM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	West Cherry Creek
Station_ID	2790
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	10:32 AM (-6 GMT)
GPS Location	
	Lat: 39.2621911 Long: -104.7094284
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Solar_panel
--------------	-------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	No
--------------------------------------	----

Rain Gage Calibration

Error (%)	0.27
-----------	------

Power System

Regulator Output Voltage (V)	20.77
Charging Current (mA)	610.00
Battery Voltage Quiet (V)	13.23
Battery Voltage Transmitted (V)	13.11

Sensor Verification

Temperature (°C)	21.80
Relative Humidity (%)	42.40
Wind Speed (mph)	1.20
Temperature (°C)	21.70
Relative Humidity (%)	41.60
Wind Speed (mph)	1.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.28
Standing Wave Ratio	1.6200
Does the station have a stage sensor?	Yes
Is the PT an SDI-12?	No

5096 ALERT1 PT Calibration

5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.07
Calibrated Reading 1	134.00
Stage 2	10.16
Calibrated Reading 2	113.00
Stage 3	8.18
Calibrated Reading 3	91.00

Station Maintenance Form


Stage 4	5.98
Calibrated Reading 4	67.00
Stage 5	3.70
Calibrated Reading 5	42.00
Stage 6	1.97
Calibrated Reading 6	22.00
Stage 7	0.00
Calibrated Reading 7	1.00
Slope	0.09059
Offset	-0.07401
Effective Date	07/27/2020
Effective Time	10:47 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions.
Depart Time	11:06 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	West Cherry Creek Wx
Station_ID	2790
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	09:35 AM (-6 GMT)
GPS Location	
	Lat: 39.26221496 Long: -104.70936657
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration

5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.35

Station Maintenance Form


Calibrated Reading 1	137.00
Stage 2	10.16
Calibrated Reading 2	113.00
Stage 3	8.20
Calibrated Reading 3	91.00
Stage 4	5.97
Calibrated Reading 4	67.00
Stage 5	4.05
Calibrated Reading 5	45.00
Stage 6	2.01
Calibrated Reading 6	23.00
Stage 7	0.00
Calibrated Reading 7	0.00
Slope	0.09027
Offset	-0.03268
Effective Date	03/11/2020
Effective Time	10:05 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Items Replaced	signal conditioning box
Final Comments	Calibrated PT. Left in winter position since riser is frozen. Replaced signal conditioning box
Depart Time	10:09 AM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	West Cherry Creek
Station_ID	2790
Technician(s)	ZJN
Date	01/29/2020
Time Arrive	08:09 AM (-7 GMT)
GPS Location	
	Lat: 39.26218553 Long: -104.7093634
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Sensor

Does the station have a rain sensor?	No
--------------------------------------	----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
-----------	------

Power System

Regulator Output Voltage (V)	14.90
Charging Current (mA)	20.00
Battery Voltage Quiet (V)	13.75
Battery Voltage Transmitted (V)	13.60

Sensor Verification

Temperature (°C)	-2.10
Relative Humidity (%)	82.00
Barometric Pressure (mBar)	850.00
Wind Speed (mph)	1.00
Temperature (°C)	-1.00
Relative Humidity (%)	87.30
Barometric Pressure (mBar)	953.40
Wind Speed (mph)	1.20

Transmitter

Transmitter Checks	Time, Program, Desiccant
--------------------	--------------------------

Radio

Watts Forward	4.75
Watts Reflected	0.10
Standing Wave Ratio	1.3394
Does the station have a stage sensor?	Yes
Is the PT an SDI-12?	No

Finishing Comments

Note for next visit	zip tie cables
Final Comments	Did not calibrate pt, left in winter position. Everything working well.
Depart Time	08:35 AM (-7 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	West Cherry Creek
Station_ID	2790
Technician(s)	ZJN,EJH
Date	11/10/2020
Time Arrive	11:09 AM (-7 GMT)
GPS Location	
	Lat: 39.2621737 Long: -104.7093003
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Sensor

Does the station have a rain sensor?	No
--------------------------------------	----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
-----------	------

Power System

Regulator Output Voltage (V)	14.62
Charging Current (mA)	693.00
Battery Voltage Quiet (V)	13.86
Battery Voltage Transmitted (V)	13.67

Sensor Verification

Temperature (°C)	3.80
Relative Humidity (%)	36.10
Barometric Pressure (mBar)	8.00
Temperature (°C)	9.00
Relative Humidity (%)	32.00
Wind Speed (mph)	7.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.80
Watts Reflected	0.30
Standing Wave Ratio	1.6667
Does the station have a stage sensor?	Yes

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	11:25 AM (-7 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Haskins Gulch
Station_ID	2820
Technician(s)	ZJN
Date	01/30/2020
Time Arrive	10:46 AM (-7 GMT)
GPS Location	
	Lat: 39.42327669 Long: -104.90439103
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2820
Tips During Calibration	13

Station Maintenance Form

Volume Added or Removed (mL)	-3.00
Error (%)	0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.55
Charging Current (mA)	306.00
Battery Voltage Quiet (V)	12.88
Battery Voltage Transmitted (V)	12.76

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------


Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Calibrated tipping bucket. Left covered. Everything working well. Received test transmissions
Depart Time	11:15 AM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Haskins Gulch
Station_ID	2820
Technician(s)	ZJN
Date	07/28/2020
Time Arrive	01:00 PM (-6 GMT)
GPS Location	
	Lat: 39.4233187 Long: -104.9044522
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent two tips. Received both transmissions
Depart Time	01:05 PM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Cc @ bayou gulch
Station_ID	2850
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	08:05 AM (-6 GMT)
GPS Location	
	Lat: 39.4356079101563 Long: -104.769387636431
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	4.00
Error (%)	-0.15
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.06
Charging Current (mA)	29.00
Battery Voltage Quiet (V)	13.18
Battery Voltage Transmitted (V)	13.02


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	3.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Depart Time	08:46 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	CC @ Bayou Gulch
Station_ID	2850
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	11:34 AM (-6 GMT)
GPS Location	
	Lat: 39.4354841 Long: -104.7694592
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Tipping_bucket, Solar_panel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	2850
Tips During Calibration	13
Volume Added or Removed (mL)	-2.00
Error (%)	0.48
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.17
Charging Current (mA)	181.00
Battery Voltage Quiet (V)	13.61
Battery Voltage Transmitted (V)	13.47

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.25
Standing Wave Ratio	1.6404
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration

5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.17
Calibrated Reading 1	135.00
Stage 2	9.97
Calibrated Reading 2	111.00
Stage 3	8.16
Calibrated Reading 3	91.00
Stage 4	6.06
Calibrated Reading 4	68.00
Stage 5	4.09
Calibrated Reading 5	45.00
Stage 6	1.92

Station Maintenance Form


Calibrated Reading 6	22.00
Stage 7	0.00
Calibrated Reading 7	1.00
Slope	0.09054
Offset	-0.06513
Effective Date	08/04/2020
Effective Time	11:51 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	12:03 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	CC @ Bayou
Station_ID	2850
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	11:53 AM (-6 GMT)
GPS Location	
	Lat: 39.43558329 Long: -104.76945033
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	2850
Tips During Calibration	13
Volume Added or Removed (mL)	-4.00
Error (%)	0.69
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	19.92
Charging Current (mA)	222.00
Battery Voltage Quiet (V)	12.81
Battery Voltage Transmitted (V)	12.72

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.50
Watts Reflected	0.25
Standing Wave Ratio	1.7295
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration

5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.39
Calibrated Reading 1	138.00
Stage 2	10.46
Calibrated Reading 2	116.00
Stage 3	8.06
Calibrated Reading 3	90.00
Stage 4	6.06
Calibrated Reading 4	68.00
Stage 5	4.08
Calibrated Reading 5	46.00
Stage 6	2.04

Station Maintenance Form

Calibrated Reading 6	23.00
Stage 7	0.00
Calibrated Reading 7	1.00
Slope	0.09047
Offset	-0.07393
Effective Date	03/11/2020
Effective Time	12:14 PM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

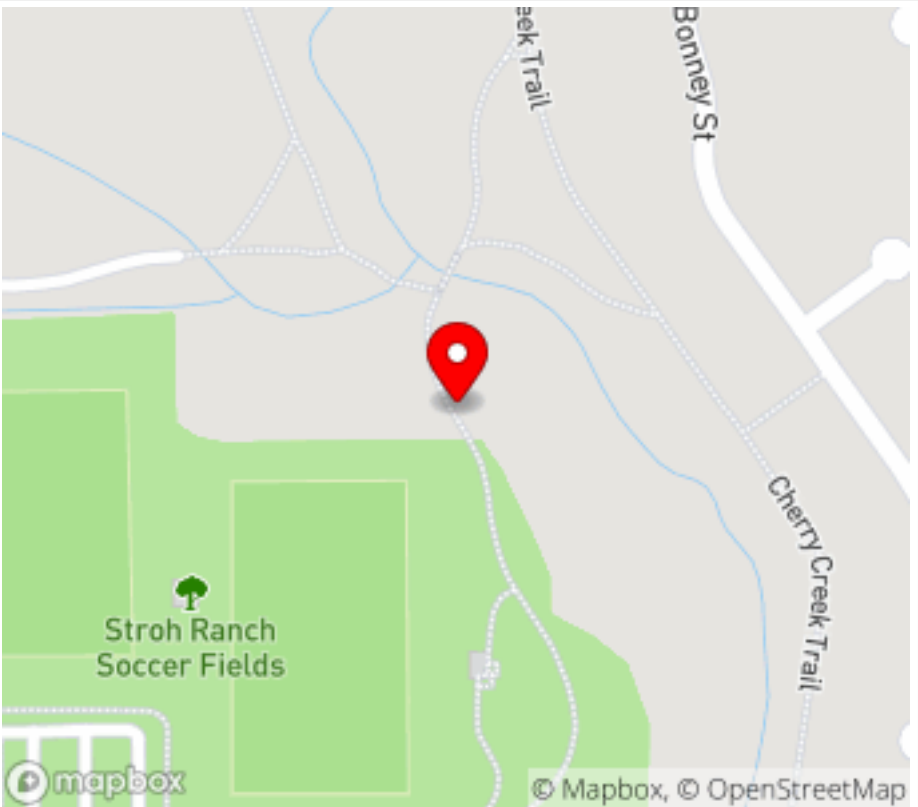
Finishing Comments

Final Comments	Everything working well. Received test transmissions. Needs door kit
Depart Time	12:25 AM (-6 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	CC @ Stroh Rd
Station_ID	2860
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	01:39 PM (-6 GMT)
GPS Location	
	Lat: 39.48014371 Long: -104.76978081
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	2860
Tips During Calibration	13
Volume Added or Removed (mL)	0.00
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.75
Charging Current (mA)	8.00
Battery Voltage Quiet (V)	12.79
Battery Voltage Transmitted (V)	12.69

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration

5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.33
Calibrated Reading 1	137.00
Stage 2	9.99
Calibrated Reading 2	111.00
Stage 3	8.23
Calibrated Reading 3	91.00
Stage 4	5.84
Calibrated Reading 4	65.00
Stage 5	4.08
Calibrated Reading 5	45.00
Stage 6	2.01

Station Maintenance Form


Calibrated Reading 6	22.00
Stage 7	0.00
Calibrated Reading 7	0.00
Slope	0.08993
Offset	0.01779
Effective Date	03/11/2020
Effective Time	02:18 PM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Replaced signal conditioning box with better terminal block. Everything working well. Received test transmissions.
Depart Time	02:21 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	CC @ Stroh Rd
Station_ID	2860
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	10:40 AM (-6 GMT)
GPS Location	
	Lat: 39.4801435 Long: -104.7697326
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Tips During Calibration	13
Volume Added or Removed (mL)	-19.00
Error (%)	2.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.79
Charging Current (mA)	37.00
Battery Voltage Quiet (V)	13.48
Battery Voltage Transmitted (V)	13.21

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration


5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.06
Calibrated Reading 1	133.00
Stage 2	9.96
Calibrated Reading 2	110.00
Stage 3	8.22
Calibrated Reading 3	90.00
Stage 4	5.88
Calibrated Reading 4	65.00
Stage 5	4.02
Calibrated Reading 5	44.00
Stage 6	1.82
Calibrated Reading 6	19.00

Station Maintenance Form


Stage 7	0.00
Calibrated Reading 7	0.00
Slope	0.09036
Offset	0.04325
Effective Date	08/04/2020
Effective Time	10:52 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	11:22 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Cc @ Stroh road
Station_ID	2860
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	10:20 AM (-6 GMT)
GPS Location	
	Lat: 39.4801940917969 Long: -104.769780496233
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	17.00
Error (%)	-1.53
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.84
Charging Current (mA)	22.00
Battery Voltage Quiet (V)	13.28
Battery Voltage Transmitted (V)	13.20

Transmitter

Transmitter Checks	Bucket, Time, Program, Desiccant
--------------------	----------------------------------

Radio


Watts Forward	5.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Re-soldered TB military connector. Wasn't reading tips.
Depart Time	11:14 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	CC @ Cottonwood
Station_ID	2870
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	09:30 AM (-6 GMT)
GPS Location	
	Lat: 39.5579171 Long: -104.7855942
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	2870
Tips During Calibration	13
Volume Added or Removed (mL)	-19.00
Error (%)	2.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.74
Charging Current (mA)	37.00
Battery Voltage Quiet (V)	12.91
Battery Voltage Transmitted (V)	12.70

Transmitter

Transmitter Checks	Program, Desiccant, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	6.00
Watts Reflected	0.75
Standing Wave Ratio	2.0938
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration


5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	11.95
Calibrated Reading 1	132.00
Stage 2	9.87
Calibrated Reading 2	109.00
Stage 3	8.14
Calibrated Reading 3	90.00
Stage 4	6.03
Calibrated Reading 4	67.00
Stage 5	3.90
Calibrated Reading 5	44.00
Stage 6	2.05

Station Maintenance Form


Calibrated Reading 6	23.00
Stage 7	0.00
Calibrated Reading 7	0.00
Slope	0.09076
Offset	-0.03795
Effective Date	08/04/2020
Effective Time	09:44 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	09:30 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	CC @ Cottonwood
Station_ID	2870
Technician(s)	ZJN
Date	03/12/2020
Time Arrive	08:25 AM (-6 GMT)
GPS Location	
	Lat: 39.55787985 Long: -104.78557813
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	2870
Tips During Calibration	13
Volume Added or Removed (mL)	0.00
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.68
Charging Current (mA)	13.00
Battery Voltage Quiet (V)	12.77
Battery Voltage Transmitted (V)	12.69

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.25
Watts Reflected	0.25
Standing Wave Ratio	1.5583
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT1 PT Calibration


5096 Alert PT Calibration

How many different values are being tested?	7
Stage 1	12.16
Calibrated Reading 1	134.00
Stage 2	9.72
Calibrated Reading 2	107.00
Stage 3	8.29
Calibrated Reading 3	91.00
Stage 4	5.97
Calibrated Reading 4	66.00
Stage 5	4.09
Calibrated Reading 5	45.00
Stage 6	1.94

Station Maintenance Form

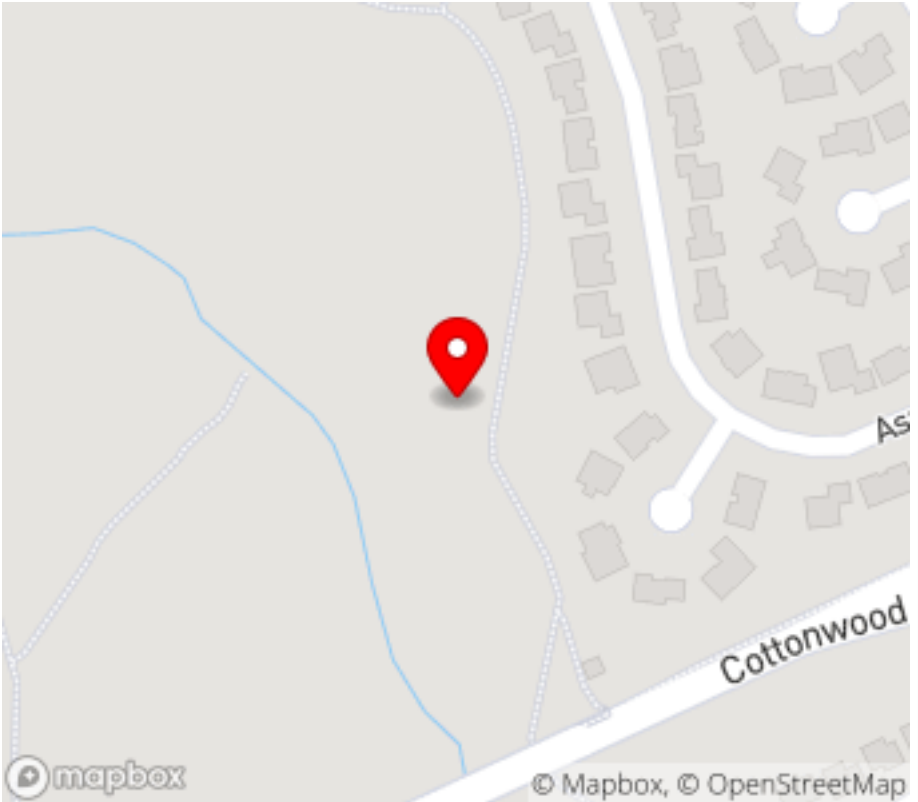
Calibrated Reading 6	21.00
Stage 7	0.00
Calibrated Reading 7	0.00
Slope	0.09071
Offset	0.01142
Effective Date	03/12/2020
Effective Time	08:46 AM (-6 GMT)
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Tipping bucket says to be programmed as 4 wire. Needs to be 2 wire
Depart Time	09:00 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Cc @ cottonwood
Station_ID	2870
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	01:00 PM (-6 GMT)
GPS Location	
	Lat: 39.557861328125 Long: -104.785475190826
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Tipping_bucket, Solar_panel, Funnel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-4.00
Error (%)	0.69
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.79
Charging Current (mA)	26.00
Battery Voltage Quiet (V)	13.17
Battery Voltage Transmitted (V)	13.09

Transmitter

Transmitter Checks	Bucket, Time, Program, Desiccant
--------------------	----------------------------------

Radio

Watts Forward	7.00
Watts Reflected	0.25
Standing Wave Ratio	1.4660
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.


Finishing Comments

Depart Time	01:29 PM (-6 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	Spruce Mountain Open Space
Station_ID	2890
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	11:10 AM (-7 GMT)
GPS Location	
	Lat: 39.16767591 Long: -104.8743054
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2890
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	4.00
Error (%)	-0.15
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.33
Charging Current (mA)	267.00
Battery Voltage Quiet (V)	12.83
Battery Voltage Transmitted (V)	12.73

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments


Final Comments	Calibrated tipping bucket. Left tipping bucket covered. Received test transmissions.
Depart Time	11:40 AM (-7 GMT)

Photos



Station Maintenance Form

Station Maintenance Form

Location	Spruce Mountain Open Space
Station_ID	2890
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	09:20 AM (-6 GMT)
GPS Location	
	Lat: 39.1677194 Long: -104.8744224
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent two tips. Received both.
Depart Time	09:28 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Russellville Gulch
Station_ID	2900
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	10:59 AM (-6 GMT)
GPS Location	
	Lat: 39.3489869 Long: -104.70232491
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2900
Tips During Calibration	13

Station Maintenance Form

Volume Added or Removed (mL)	-5.00
Error (%)	0.80
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.20
Charging Current (mA)	24.00
Battery Voltage Quiet (V)	12.70
Battery Voltage Transmitted (V)	12.46

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	24.00
Watts Reflected	1.00
Standing Wave Ratio	1.5130

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Replaced cable from transmitter to polyphaser for vhf. Everything working well. Received test transmissions.
Depart Time	11:23 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Russellville Gulch
Station_ID	2900
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	11:25 AM (-6 GMT)
GPS Location	
	Lat: 39.3489251 Long: -104.7023291
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both.
Depart Time	11:33 AM (-6 GMT)

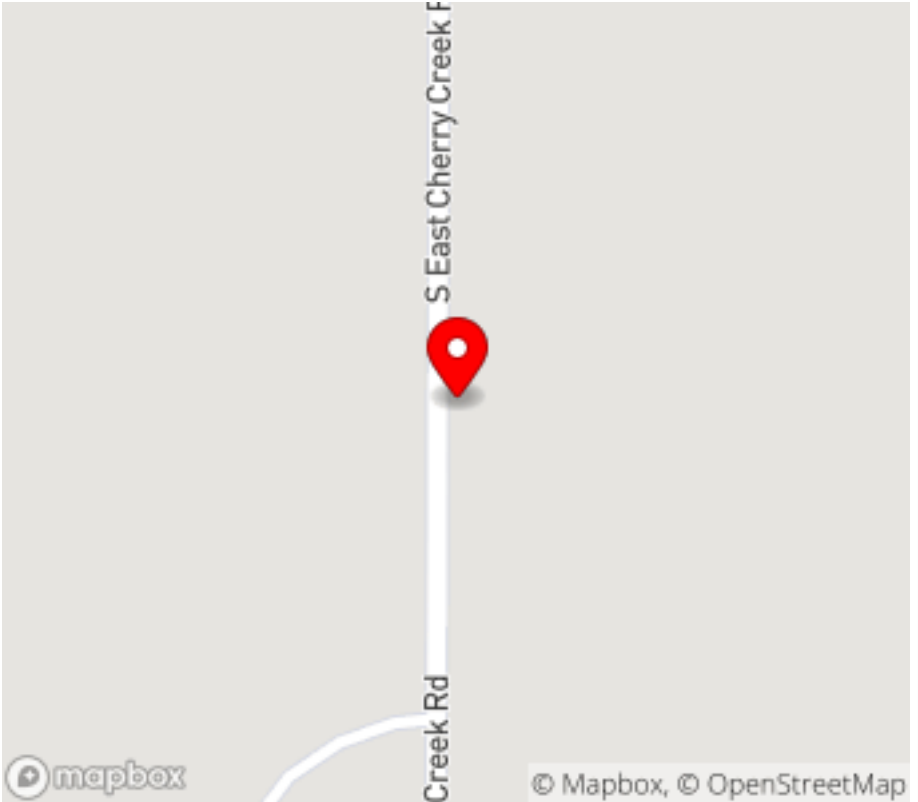
Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	East Cherry Creek
Station_ID	2910
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	09:19 AM (-7 GMT)
GPS Location	
	Lat: 39.1643604 Long: -104.68140046
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2910
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	3.00
Error (%)	-0.05
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	21.69
Charging Current (mA)	266.00
Battery Voltage Quiet (V)	12.79
Battery Voltage Transmitted (V)	12.67

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.50
Watts Reflected	0.10
Standing Wave Ratio	1.4068

Stream Station Maintenance

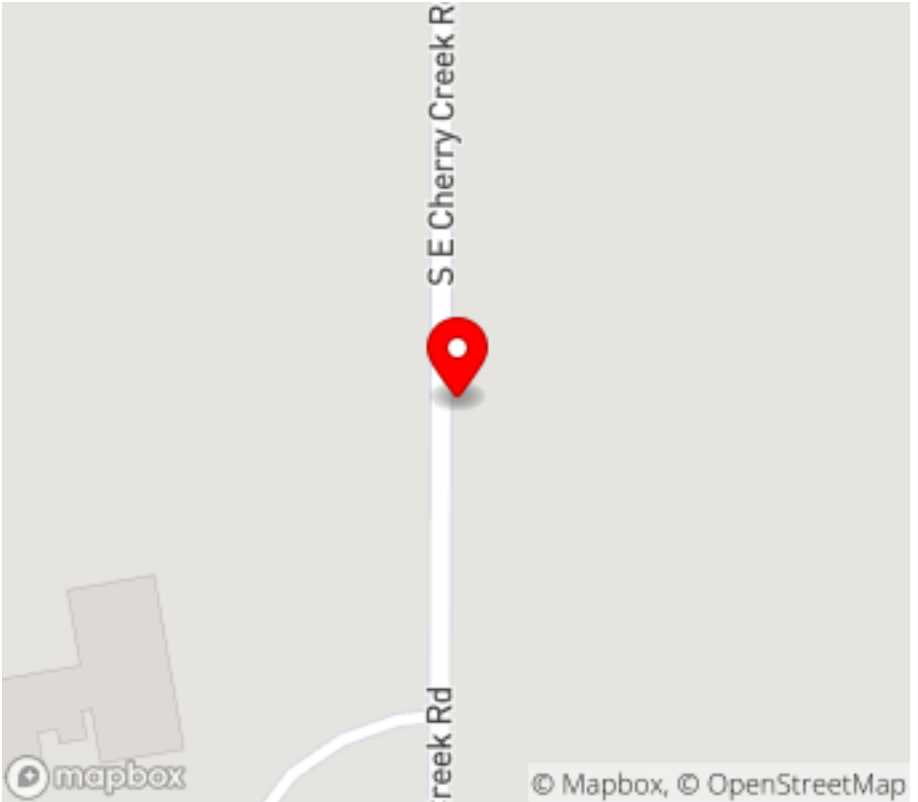
No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Start up. Calibrated tipping bucket. Left covered. Received test transmissions
Depart Time	09:19 AM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	East Cherry Creek
Station_ID	2910
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	10:06 AM (-6 GMT)
GPS Location	
	Lat: 39.1643514 Long: -104.6814132
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both
Depart Time	10:14 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	West Cherry Head
Station_ID	2920
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	08:29 AM (-7 GMT)
GPS Location	
	Lat: 39.1298068 Long: -104.80867941
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2920
Tips During Calibration	13

Station Maintenance Form

Volume Added or Removed (mL)	-8.00
Error (%)	1.11
Data Logger reads tips in both directions	checked

Power System

Battery Voltage Quiet (V)	13.07
Battery Voltage Transmitted (V)	12.96

Transmitter

Transmitter Checks	Desiccant, Program, Bucket, Time
--------------------	----------------------------------


Radio

Watts Forward	3.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	No solar. Watch radio. Start up. Calibrated tipping bucket but left covered
Depart Time	09:00 AM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	West Cherry Head
Station_ID	2920
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	09:46 AM (-6 GMT)
GPS Location	
	Lat: 39.1298136 Long: -104.8086154
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both.
Depart Time	09:52 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Spring Valley
Station_ID	2930
Technician(s)	ZJN
Date	08/05/2020
Time Arrive	12:13 PM (-6 GMT)
GPS Location	
	Lat: 39.1883259 Long: -104.7782538
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2930
Tips During Calibration	12
Volume Added or Removed (mL)	1.00
Error (%)	0.16
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	18.87
Charging Current (mA)	125.00
Battery Voltage Quiet (V)	13.95
Battery Voltage Transmitted (V)	13.90

Sensor Verification

Temperature (°C)	27.30
Relative Humidity (%)	24.60
Wind Speed (mph)	2.10
Temperature (°C)	27.70
Relative Humidity (%)	25.10
Wind Speed (mph)	2.30

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.50
Standing Wave Ratio	1.9250
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	12:35 PM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Spring Valley
Station_ID	2930
Technician(s)	ZJN,EJH
Date	11/10/2020
Time Arrive	11:36 AM (-7 GMT)
GPS Location	
	Lat: 39.188301 Long: -104.7780315
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
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Power System

Regulator Output Voltage (V)	15.10
Charging Current (mA)	297.00
Battery Voltage Quiet (V)	14.41
Battery Voltage Transmitted (V)	14.34

Sensor Verification

Temperature (°C)	2.40
Relative Humidity (%)	30.40
Wind Speed (mph)	10.00
Temperature (°C)	3.20
Relative Humidity (%)	32.80
Wind Speed (mph)	8.50


Transmitter

Transmitter Checks	Bucket, Time, Program, Desiccant
--------------------	----------------------------------

Radio


Watts Forward	4.75
Watts Reflected	0.30
Standing Wave Ratio	1.6713

Finishing Comments

Final Comments	Did not test tipping bucket. Left covered for winter. Everything working well. Received test transmission.
Depart Time	11:36 AM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Spring Valley Rd
Station_ID	2930
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	10:14 AM (-7 GMT)
GPS Location	
	Lat: 39.2552965 Long: -104.7092582
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2930
Tips During Calibration	12
Volume Added or Removed (mL)	12.00
Error (%)	-1.00
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.03
Charging Current (mA)	100.00
Battery Voltage Quiet (V)	13.63
Battery Voltage Transmitted (V)	13.54

Sensor Verification

Temperature (°C)	0.80
Relative Humidity (%)	35.50
Barometric Pressure (mBar)	798.00
Wind Speed (mph)	1.20
Temperature (°C)	1.10
Relative Humidity (%)	34.80
Barometric Pressure (mBar)	939.10
Wind Speed (mph)	1.50

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.10
Standing Wave Ratio	1.3624
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything running well. Reset tip count. Reprogrammed RH parameters
Depart Time	10:50 AM (-7 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Spring Valley Rd
Station_ID	2930
Technician(s)	ZJN,EJH
Date	06/09/2020
Time Arrive	01:46 PM (-6 GMT)
GPS Location	
	Lat: 39.1882831 Long: -104.7781354
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	2930
Tips During Calibration	13
Volume Added or Removed (mL)	-3.00
Error (%)	0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.96
Charging Current (mA)	144.00
Battery Voltage Quiet (V)	13.53
Battery Voltage Transmitted (V)	13.46

Sensor Verification

Temperature (°C)	10.20
Relative Humidity (%)	57.70
Barometric Pressure (mBar)	793.00
Wind Speed (mph)	16.00
Temperature (°C)	10.10
Relative Humidity (%)	55.90
Wind Speed (mph)	15.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.75
Watts Reflected	0.25
Standing Wave Ratio	1.5954
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Loosened wind direction sensor to spin better. Received test transmission.
Depart Time	02:10 PM (-6 GMT)

Station Maintenance Form


Photos





Station Maintenance Form

Station Maintenance Form

Location	Willow Creek
Station_ID	2940
Technician(s)	ZJN
Date	01/29/2020
Time Arrive	09:51 AM (-7 GMT)
GPS Location	
	Lat: 39.29447034 Long: -104.79353107
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	2940
Tips During Calibration	13

Station Maintenance Form

Volume Added or Removed (mL)	-10.00
Error (%)	1.32
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.24
Charging Current (mA)	66.00
Battery Voltage Quiet (V)	12.87
Battery Voltage Transmitted (V)	12.75

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.10
Standing Wave Ratio	1.3504

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---


Finishing Comments

Final Comments	Calibrated tipping bucket and left covered. Everything working well
Depart Time	10:26 AM (-7 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	Willow Creek
Station_ID	2940
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	12:00 PM (-6 GMT)
GPS Location	
	Lat: 39.294451 Long: -104.7935681
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both.
Depart Time	12:07 PM (-6 GMT)

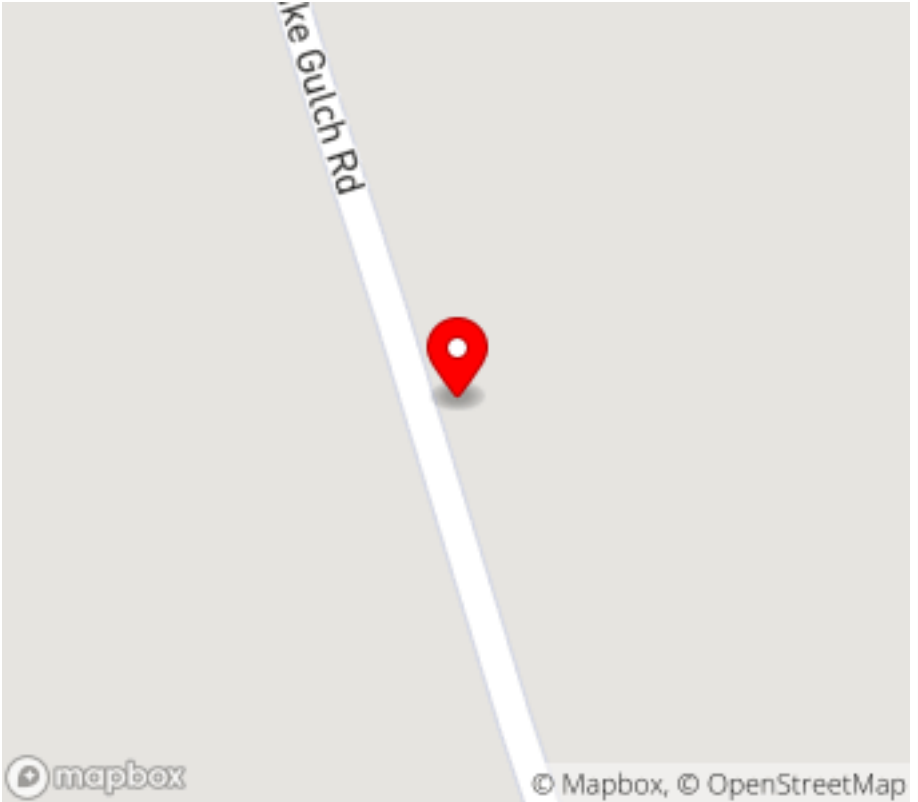
Station Maintenance Form

Photos



Station Repair Form

Station Maintenance Form

Location	Upper Sellers Gulch
Station_ID	10014
Technician(s)	ZJN,KGS
Date	06/30/2020
Time Arrive	12:55 PM (-6 GMT)
GPS Location	
	Lat: 39.3227816 Long: -104.8195838
Agency	Douglas County

Repair Comments

Item Replaced	Eprom
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Updated A2 board to 5.3.8 and upgraded Eprom to 5.9m
Depart Time	01:54 PM (-6 GMT)

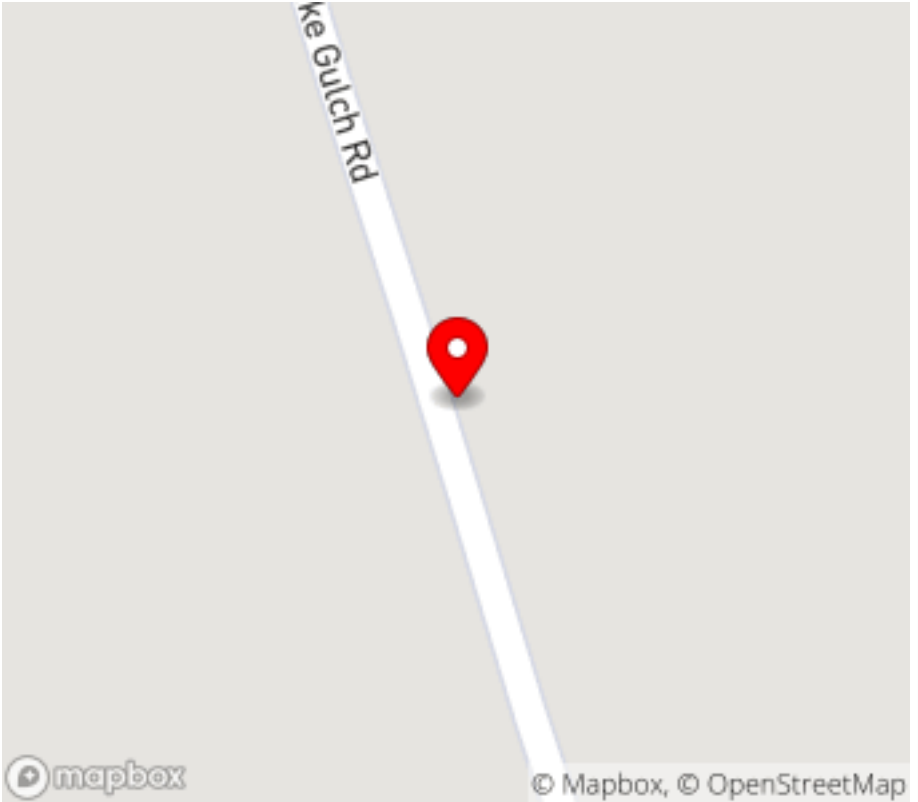
Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Upper Sellers Gulch
Station_ID	10014
Technician(s)	ZJN
Date	01/29/2020
Time Arrive	10:43 AM (-7 GMT)
GPS Location	
	Lat: 39.32277392 Long: -104.81965074
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	3.00
Error (%)	-0.05
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.68
Charging Current (mA)	60.00
Battery Voltage Quiet (V)	12.66
Battery Voltage Transmitted (V)	12.55

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760

Stream Station Maintenance

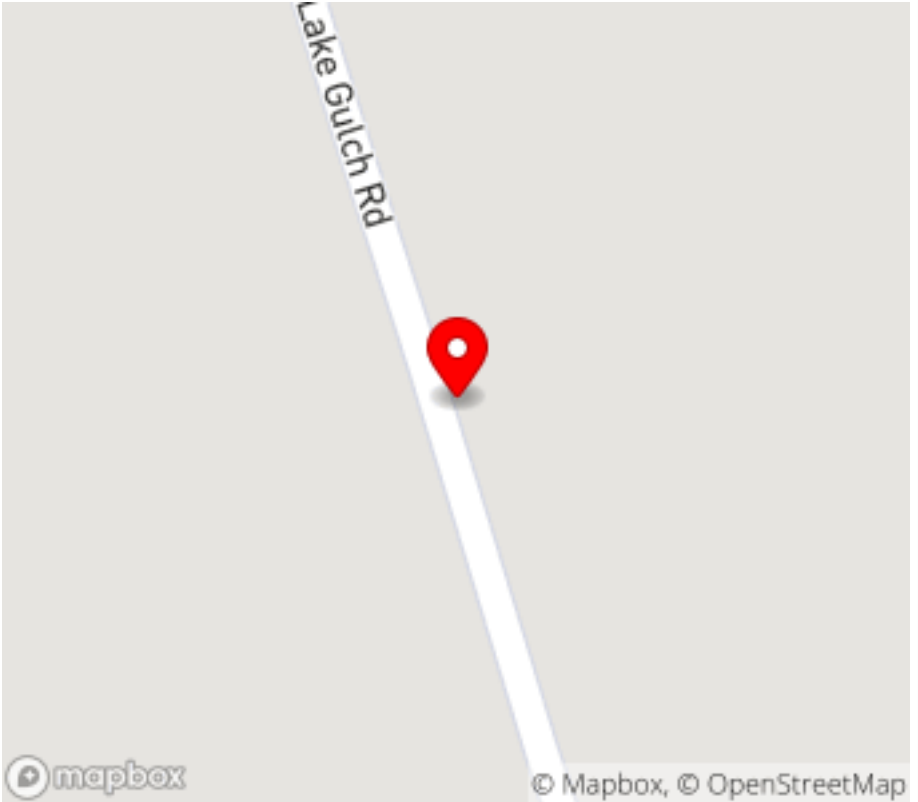
No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Calibrated tipping bucket. Left covered. Everything working well
Depart Time	11:09 AM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Upper Sellers Gulch
Station_ID	10014
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	12:10 PM (-6 GMT)
GPS Location	
	Lat: 39.3228846 Long: -104.8196953
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both
Depart Time	12:15 PM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Seller Gulch @ Haystack
Station_ID	10015
Technician(s)	ZJN
Date	08/12/2020
Time Arrive	01:44 PM (-6 GMT)
GPS Location	
	Lat: 39.3532097 Long: -104.8385749
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-5.00
Error (%)	0.80
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.33
Charging Current (mA)	372.00
Battery Voltage Quiet (V)	13.44
Battery Voltage Transmitted (V)	13.34

Transmitter

Transmitter Checks	Desiccant, Program, Bucket, Time
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.89
Raw Value 1	485.00
Stage 2	9.99
Raw Value 2	409.00
Stage 3	8.00
Raw Value 3	329.00
Stage 4	5.95
Raw Value 4	247.00
Stage 5	3.91
Raw Value 5	166.00

Station Maintenance Form


Stage 6	2.00
Raw Value 6	90.00
Stage 7	0.00
Raw Value 7	10.00
Multiplier	25.61633
Divisor	1023
Offset	-0.24716
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Note for next visit	bring wasp spray. living in riser
Final Comments	Everything working well. Received test transmission. A2 board turned off twice. May be due to power cable. Got lock
Depart Time	02:33 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Sellers Gulch @ Haystack
Station_ID	10015
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	04:05 PM (-6 GMT)
GPS Location	
	Lat: 39.35320604 Long: -104.83859116
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	0.00
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.44
Charging Current (mA)	106.00
Battery Voltage Quiet (V)	12.65
Battery Voltage Transmitted (V)	12.58

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.25
Standing Wave Ratio	1.6404
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.06
Raw Value 1	493.00
Stage 2	10.09
Raw Value 2	414.00
Stage 3	8.21
Raw Value 3	338.00
Stage 4	6.06
Raw Value 4	252.00
Stage 5	4.02
Raw Value 5	170.00

Station Maintenance Form


Stage 6	2.02
Raw Value 6	90.00
Stage 7	0.00
Raw Value 7	0.27
Multiplier	25.19300
Divisor	1023
Offset	-0.11651
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Items Replaced	solar regulator
Final Comments	Replaced solar regulator. Tested. Everything working well. Received test transmissions.
Depart Time	05:00 PM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form

Location	Sellers gulch @ haystack
Station_ID	10015
Technician(s)	Kgs,zjn
Date	06/30/2020
Time Arrive	02:37 PM (-6 GMT)
GPS Location	
	Lat: 39.3531799316406 Long: -104.838772947066
Agency	Douglas County

Repair Comments

Item Replaced	EPROM and updated A2
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	
Depart Time	02:43 PM (-6 GMT)


Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Sellers gulch @ haystack
Station_ID	10015
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	01:29 PM (-6 GMT)
GPS Location	
	Lat: 39.3532409667969 Long: -104.838566836067
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	3.00
Error (%)	-0.05
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.06
Charging Current (mA)	17.00
Battery Voltage Quiet (V)	13.53
Battery Voltage Transmitted (V)	13.46

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.70
Raw Value 1	518.00
Stage 2	10.16
Raw Value 2	417.00
Stage 3	8.26
Raw Value 3	341.00
Stage 4	6.08
Raw Value 4	254.00
Stage 5	3.94
Raw Value 5	169.00

Station Maintenance Form


Stage 6	1.91
Raw Value 6	88.00
Stage 7	0.00
Raw Value 7	11.00
Multiplier	25.63903
Divisor	1023
Offset	-0.28751
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Gps loses lock every visit.
Depart Time	02:17 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Plum Creek @ Sedalia
Station_ID	10029
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	09:59 AM (-6 GMT)
GPS Location	
	Lat: 39.43856457 Long: -104.98240094
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	14.00
Error (%)	-1.21
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	21.41
Charging Current (mA)	463.00
Battery Voltage Quiet (V)	13.47
Battery Voltage Transmitted (V)	13.38

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.00
Standing Wave Ratio	1.0000

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments


Final Comments	Everything working well. Received test transmissions
Depart Time	10:25 AM (-6 GMT)

Photos



Station Maintenance Form

Station Maintenance Form

Location	Plum Creek @ Sedalia
Station_ID	10029
Technician(s)	ZJN
Date	08/06/2020
Time Arrive	09:46 AM (-6 GMT)
GPS Location	
	Lat: 39.4385954 Long: -104.9817215
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	11.00
Error (%)	-0.89
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.96
Charging Current (mA)	466.00
Battery Voltage Quiet (V)	13.64
Battery Voltage Transmitted (V)	13.57

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.50
Watts Reflected	0.25
Standing Wave Ratio	1.5419

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments


Final Comments	Everything working well. Received test transmission
Depart Time	10:25 AM (-6 GMT)

Photos



Station Maintenance Form

Station Maintenance Form

Location	Plum creek near sedalia
Station_ID	10029
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	10:26 AM (-6 GMT)
GPS Location	
	Lat: 39.4386901855469 Long: -104.982380261742
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	4.00
Error (%)	-0.15
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.37
Charging Current (mA)	197.00
Battery Voltage Quiet (V)	14.03
Battery Voltage Transmitted (V)	13.95

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.10
Standing Wave Ratio	1.3624

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

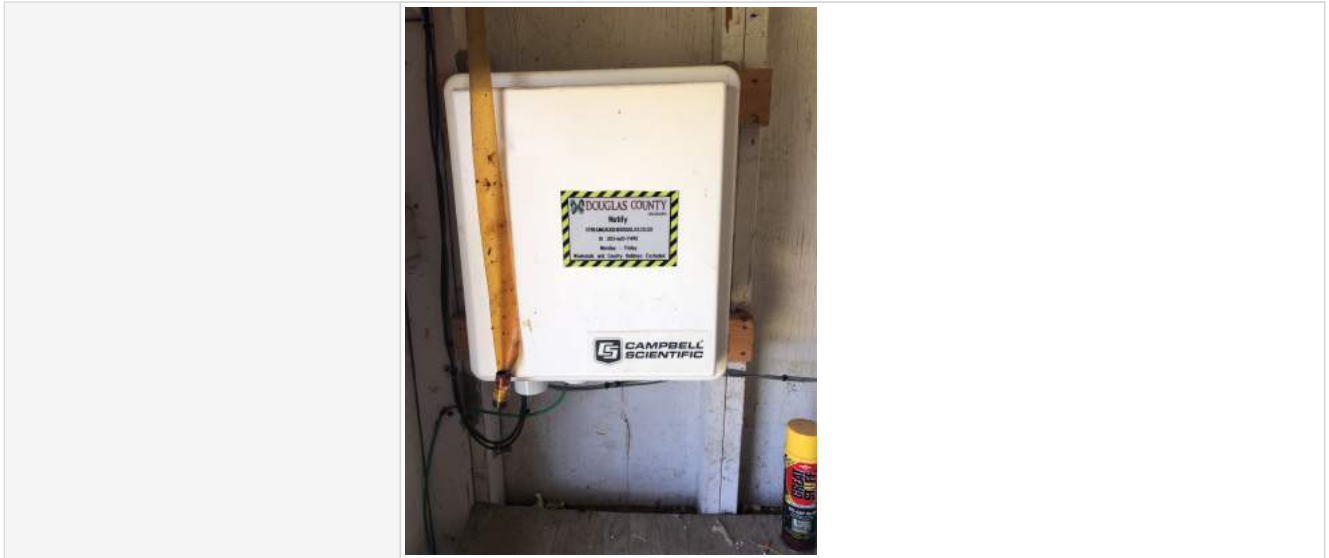
Finishing Comments

Final Comments	Stream construction close to finished DS of station.
Depart Time	10:52 AM (-6 GMT)

Photos




Station Maintenance Form



Station Maintenance Form

Station Maintenance Form

Location	West Creek WX
Station_ID	10037
Technician(s)	EJH/ZJN
Date	08/27/2020
Time Arrive	12:06 PM (-6 GMT)
GPS Location	
	Lat: 39.1743318 Long: -105.0342384
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	10037
Tips During Calibration	13
Volume Added or Removed (mL)	-7.00
Error (%)	1.01
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.02
Charging Current (mA)	291.00
Battery Voltage Quiet (V)	13.52
Battery Voltage Transmitted (V)	13.36

Sensor Verification

Temperature (°C)	74.50
Relative Humidity (%)	27.00
Wind Speed (mph)	0.50
Temperature (°C)	82.50
Relative Humidity (%)	21.50
Wind Speed (mph)	1.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Standing Wave Ratio	1.0000
Does the station have a stage sensor?	No

Finishing Comments

Depart Time	01:36 PM (-6 GMT)
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Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	West. CRook wx
Station_ID	10037
Technician(s)	Kgs
Date	06/03/2020
Time Arrive	09:03 AM (-6 GMT)
GPS Location	
	Lat: 39.1741913510851 Long: -105.034167515212
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	14.00
Error (%)	-1.21
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.33
Charging Current (mA)	310.00
Battery Voltage Quiet (V)	13.76
Battery Voltage Transmitted (V)	13.68

Sensor Verification

Temperature (°C)	55.00
Relative Humidity (%)	45.00
Wind Speed (mph)	0.00
Temperature (°C)	68.00
Relative Humidity (%)	41.00
Wind Speed (mph)	2.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	6.25
Watts Reflected	0.25
Standing Wave Ratio	1.5000
Does the station have a stage sensor?	No

Finishing Comments

Depart Time	09:41 AM (-6 GMT)
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Station Maintenance Form

Photos



Station Repair Form

Station Maintenance Form

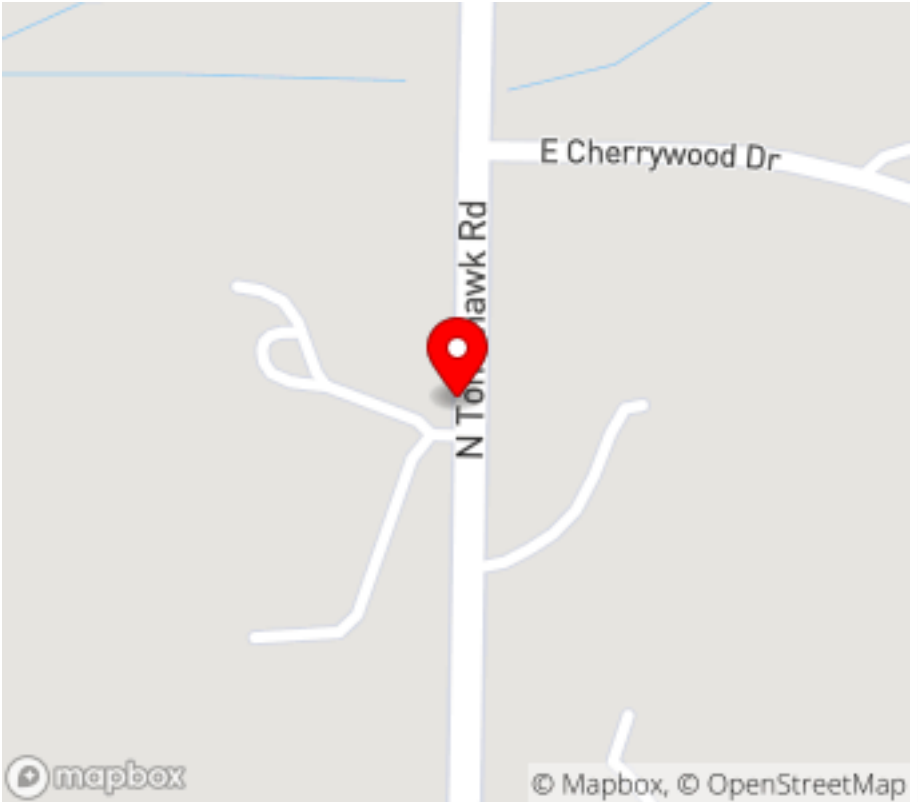
Location	Fire station #47
Station_ID	10039
Technician(s)	EJH/ZJN
Date	07/14/2020
Time Arrive	11:06 AM (-6 GMT)
GPS Location	
	Lat: 39.5313799 Long: -104.6999632
Agency	Douglas County

Repair Comments

Item Replaced	EPRM
Manufacturer	Hydrolynx
Model	
Serial Number	
Note for next visit	
Comments	
Depart Time	12:13 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Fire Station #47
Station_ID	10039
Technician(s)	ZJN
Date	01/28/2020
Time Arrive	03:40 PM (-7 GMT)
GPS Location	
	Lat: 39.5282073 Long: -104.6987818
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	12

Station Maintenance Form

Volume Added or Removed (mL)	6.00
Error (%)	-0.36
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	22.28
Charging Current (mA)	176.00
Battery Voltage Quiet (V)	12.53
Battery Voltage Transmitted (V)	12.41

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------


Radio

Watts Forward	4.75
Watts Reflected	0.30
Standing Wave Ratio	1.6713

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Received test transmissions. Calibrated tipping bucket. Left covered
Depart Time	04:05 PM (-7 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Fire Station #47
Station_ID	10039
Technician(s)	ZJN
Date	07/27/2020
Time Arrive	01:23 PM (-6 GMT)
GPS Location	
	Lat: 39.5314401 Long: -104.6999777
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both transmissions
Depart Time	01:29 PM (-6 GMT)

Station Maintenance Form


Photos





Station Repair Form

Station Maintenance Form

Location	Columbine Open Space
Station_ID	10044
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	10:58 AM (-6 GMT)
GPS Location	
	Lat: 39.2826966 Long: -104.8946785
Agency	Douglas County


Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Updated firmware on A2 encoder board. Received test transmission
Depart Time	11:28 AM (-6 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	Columbine open space
Station_ID	10044
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	11:21 AM (-6 GMT)
GPS Location	
	Lat: 39.2825927734375 Long: -104.894950557598
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	4.00
Error (%)	-0.15
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.05
Charging Current (mA)	579.00
Battery Voltage Quiet (V)	13.34
Battery Voltage Transmitted (V)	13.28

Transmitter

Transmitter Checks	Bucket, Time, Program, Desiccant
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1

Calibration Time	11:24 AM (-6 GMT)
Wire-Weight Reading (ft)	2.59
Radar Reading (ft)	2.61
Adjustment amount	0.00
Comments	Radar good

Finishing Comments

Depart Time	11:51 AM (-6 GMT)
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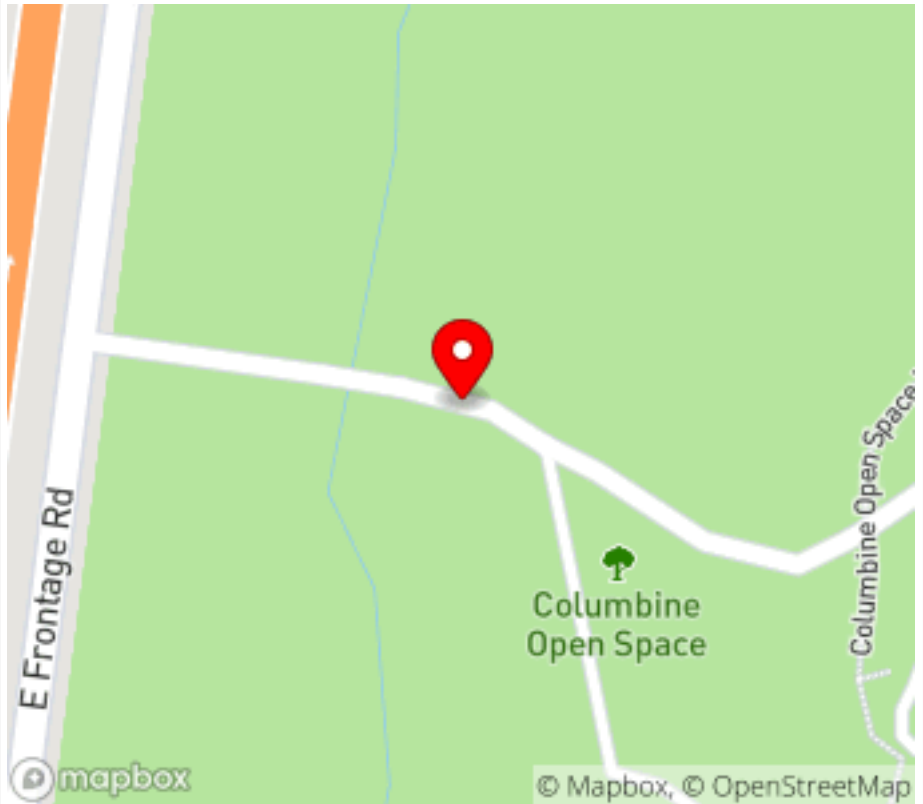
Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	East Plum Creek @ Columbine Open Space
Station_ID	10044
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	03:20 PM (-6 GMT)
GPS Location	
	Lat: 39.28273538 Long: -104.89476963
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-7.00
Error (%)	1.01
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	21.56
Charging Current (mA)	662.00
Battery Voltage Quiet (V)	12.63
Battery Voltage Transmitted (V)	12.59

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.75
Watts Reflected	0.00
Standing Wave Ratio	1.0000
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1

Calibration Time	03:21 PM (-6 GMT)
Wire-Weight Reading (ft)	2.89
Radar Reading (ft)	2.90

Finishing Comments

Final Comments	Everything working well. Received test transmissions.
Depart Time	03:42 PM (-6 GMT)

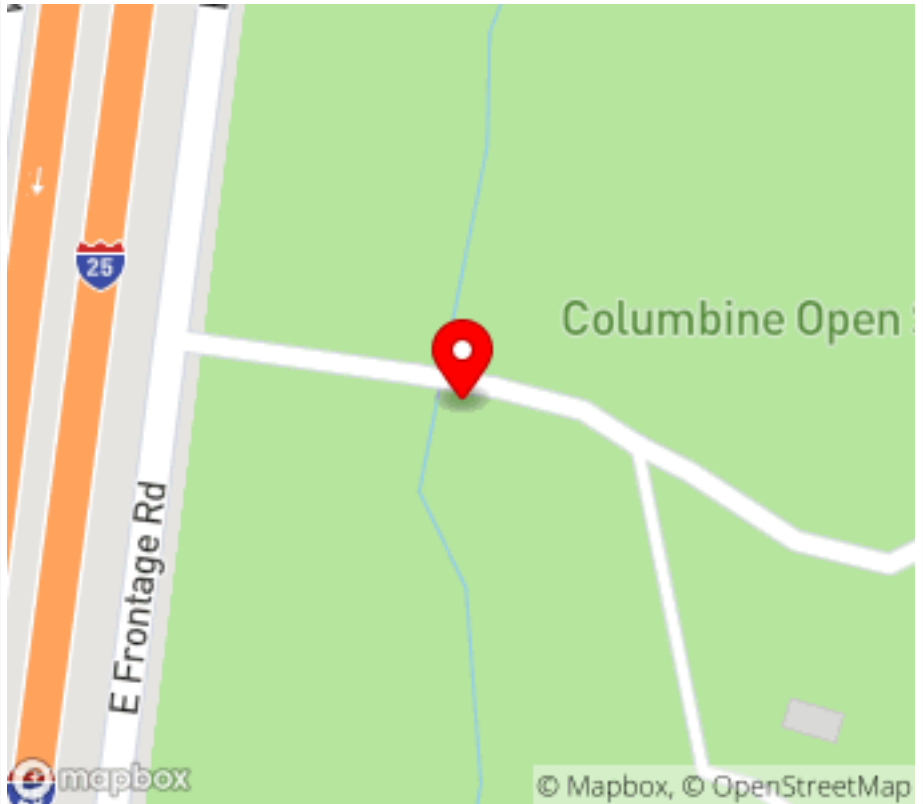
Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Plum Creek @ Columbine Open Space
Station_ID	10044
Technician(s)	ZJN
Date	08/05/2020
Time Arrive	10:59 AM (-6 GMT)
GPS Location	
	Lat: 39.2827334 Long: -104.8951365
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	5.00
Error (%)	-0.26
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.83
Charging Current (mA)	536.00
Battery Voltage Quiet (V)	13.04
Battery Voltage Transmitted (V)	12.95

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.30
Standing Wave Ratio	1.6488
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1

Calibration Time	11:02 AM (-6 GMT)
Wire-Weight Reading (ft)	2.55
Radar Reading (ft)	2.56

Finishing Comments

Final Comments	Everything working well. Radar spot on. Received test transmission
Depart Time	11:23 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	East/West Trailhead
Station_ID	10045
Technician(s)	EJH
Date	07/08/2020
Time Arrive	01:54 PM (-6 GMT)
GPS Location	
	Lat: 39.504049 Long: -104.9413437
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Depart Time	01:57 PM (-6 GMT)
-------------	-------------------


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	East/West Trailhead
Station_ID	10045
Technician(s)	ZJN
Date	07/28/2020
Time Arrive	09:00 AM (-6 GMT)
GPS Location	 <p>© Mapbox, © OpenStreetMap</p>
	Lat: 39.5040359 Long: -104.9412644
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Sent 2 tips. Received both transmissions
Depart Time	09:06 AM (-6 GMT)

Station Maintenance Form


Photos





Station Repair Form

Station Maintenance Form

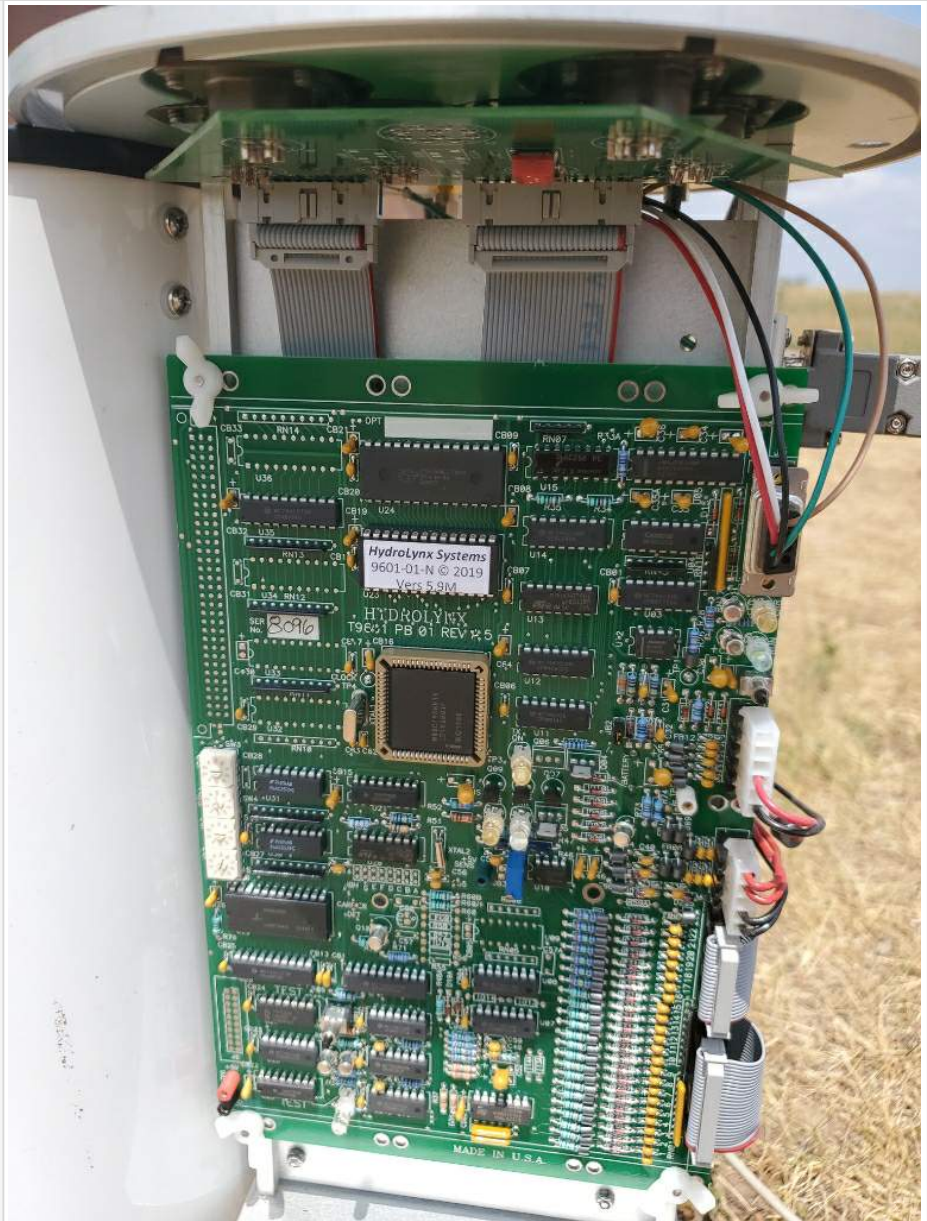
Location	East/West Trailhead
Station_ID	10045
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	12:33 PM (-6 GMT)
GPS Location	
	Lat: 39.528587 Long: -104.9164368
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new EPROM, updated firmware on A2 encoder board to 5.3.8. Received test transmission
Depart Time	01:15 PM (-6 GMT)


Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	East/West Trailhead
Station_ID	10045
Technician(s)	ZJN
Date	01/30/2020
Time Arrive	08:55 AM (-7 GMT)
GPS Location	
	Lat: 39.50406769 Long: -104.94125693
Agency	Douglas County

Station Type

What type of station?	Precipitation
-----------------------	---------------

Precipitation Station Maintenance

Precipitation Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Gage Calibration

Point ID	0
Tips During Calibration	13

Station Maintenance Form

Volume Added or Removed (mL)	-3.00
Error (%)	0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	22.54
Charging Current (mA)	269.00
Battery Voltage Quiet (V)	12.85
Battery Voltage Transmitted (V)	12.75

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------


Radio

Watts Forward	4.25
Watts Reflected	0.10
Standing Wave Ratio	1.3624

Stream Station Maintenance


No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Finishing Comments

Final Comments	Calibrated tipping bucket. Left covered. Everything working well
Depart Time	09:31 AM (-7 GMT)
Photos	

Station Repair Form

Station Maintenance Form

Location	Heritage Regional Park
Station_ID	10054
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	02:31 PM (-6 GMT)
GPS Location	
	Lat: 39.5413275 Long: -104.9208271
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new EPROM, updated firmware on A2 encoder board to 5.3.8, received test transmission
Depart Time	02:55 PM (-6 GMT)

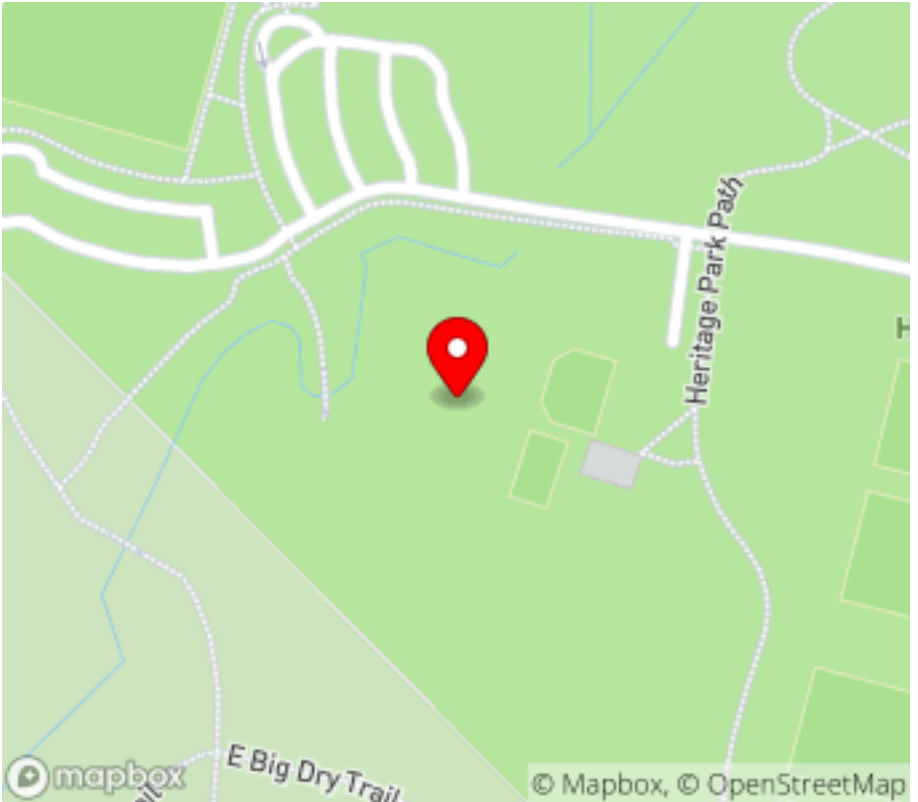
Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Heritage Regional Park
Station_ID	10054
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	08:09 AM (-6 GMT)
GPS Location	
	Lat: 39.54136172 Long: -104.92083342
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-6.00
Error (%)	0.90
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.94
Charging Current (mA)	28.00
Battery Voltage Quiet (V)	12.64
Battery Voltage Transmitted (V)	12.54

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.50
Watts Reflected	0.10
Standing Wave Ratio	1.4068
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.00
Raw Value 1	531.00
Stage 2	9.83
Raw Value 2	436.00
Stage 3	8.35
Raw Value 3	371.00
Stage 4	6.03
Raw Value 4	268.00
Stage 5	4.04
Raw Value 5	180.00

Station Maintenance Form


Stage 6	1.99
Raw Value 6	89.00
Stage 7	0.00
Raw Value 7	1.00
Multiplier	23.14148
Divisor	1023
Offset	-0.02819
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions
Depart Time	09:02 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Heritage regional park
Station_ID	10054
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	08:52 AM (-6 GMT)
GPS Location	
	Lat: 39.5413818359375 Long: -104.920848207646
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Solar_panel, Funnel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-10.00
Error (%)	1.32
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.97
Charging Current (mA)	163.00
Battery Voltage Quiet (V)	13.72
Battery Voltage Transmitted (V)	13.57

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.25
Standing Wave Ratio	1.6168
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration



5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.85
Raw Value 1	571.00
Stage 2	10.11
Raw Value 2	450.00
Stage 3	8.05
Raw Value 3	359.00
Stage 4	6.22
Raw Value 4	277.00
Stage 5	4.10
Raw Value 5	183.00

Station Maintenance Form


Stage 6	1.92
Raw Value 6	87.00
Stage 7	0.00
Raw Value 7	2.00
Multiplier	23.08809
Divisor	1023
Offset	-0.04080
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Trim willow by pt for easier access.
Depart Time	09:50 AM (-6 GMT)
Photos	
	

Station Maintenance Form

Station Maintenance Form

Location	Heritage Regional Park
Station_ID	10054
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	01:06 PM (-6 GMT)
GPS Location	
	Lat: 39.5413177 Long: -104.9208001
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-1.00
Error (%)	0.37
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.78
Charging Current (mA)	273.00
Battery Voltage Quiet (V)	13.33
Battery Voltage Transmitted (V)	13.19

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.50
Standing Wave Ratio	1.9250
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.14
Raw Value 1	538.00
Stage 2	9.89
Raw Value 2	439.00
Stage 3	8.04
Raw Value 3	357.00
Stage 4	5.99
Raw Value 4	266.00
Stage 5	4.00
Raw Value 5	178.00

Station Maintenance Form

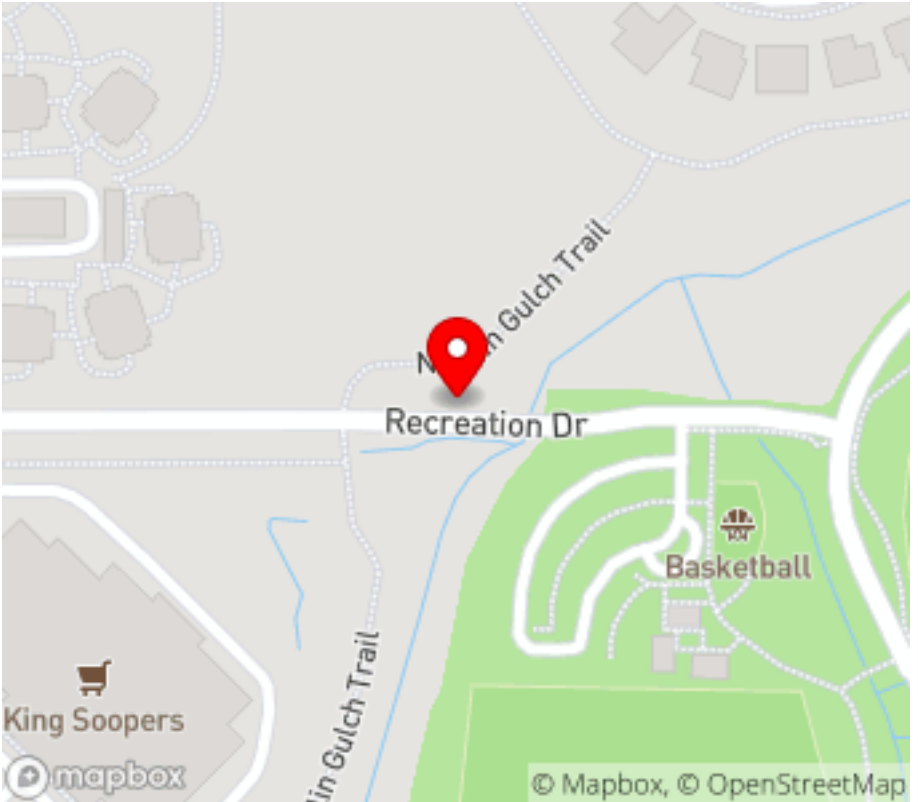
Stage 6	1.99
Raw Value 6	89.00
Stage 7	0.00
Raw Value 7	1.00
Multiplier	23.11432
Divisor	1023
Offset	-0.02240
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	01:50 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Newlin gulch
Station_ID	10055
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	01:44 PM (-6 GMT)
GPS Location	
	Lat: 39.536865234375 Long: -104.789204718643
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	7.00
Error (%)	-0.47
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.78
Charging Current (mA)	357.00
Battery Voltage Quiet (V)	13.67
Battery Voltage Transmitted (V)	13.55


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.10
Standing Wave Ratio	1.3294
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Station working well. Flashers triggered during last flood event. See pictures.
Depart Time	02:27 PM (-6 GMT)
Photos	

Station Maintenance Form




Station Maintenance Form



Station Maintenance Form

Station Maintenance Form

Location	Newlin Gulch @ Jordan
Station_ID	10055
Technician(s)	ZJN,KGS
Date	03/12/2020
Time Arrive	09:20 AM (-6 GMT)
GPS Location	
	Lat: 39.53688363 Long: -104.7892168
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	0.00
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.59
Charging Current (mA)	131.00
Battery Voltage Quiet (V)	12.55
Battery Voltage Transmitted (V)	12.47

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.50
Watts Reflected	0.25
Standing Wave Ratio	1.7295
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Slave 1 13.12 v Slave 2 13.26 v Everything working well. Received test transmissions. Lights activated and turned off
Depart Time	09:57 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Newlin Gulch
Station_ID	10055
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	02:17 PM (-6 GMT)
GPS Location	
	Lat: 39.5369172 Long: -104.7892298
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Tipping_bucket, Solar_panel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Tips During Calibration	13
Volume Added or Removed (mL)	-1.00
Error (%)	0.37
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.88
Charging Current (mA)	625.00
Battery Voltage Quiet (V)	13.20
Battery Voltage Transmitted (V)	13.12


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	5.00
Watts Reflected	0.50
Standing Wave Ratio	1.9250
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Depart Time	02:43 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	East cc @ Russellville
Station_ID	10056
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	09:13 AM (-6 GMT)
GPS Location	
	Lat: 39.2811279296875 Long: -104.688966879719
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-11.00
Error (%)	1.43
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.08
Charging Current (mA)	87.00
Battery Voltage Quiet (V)	13.81
Battery Voltage Transmitted (V)	13.75

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.75
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.91
Raw Value 1	470.00
Stage 2	10.00
Raw Value 2	395.00
Stage 3	7.37
Raw Value 3	291.00
Stage 4	5.75
Raw Value 4	227.00
Stage 5	4.21
Raw Value 5	165.00

Station Maintenance Form

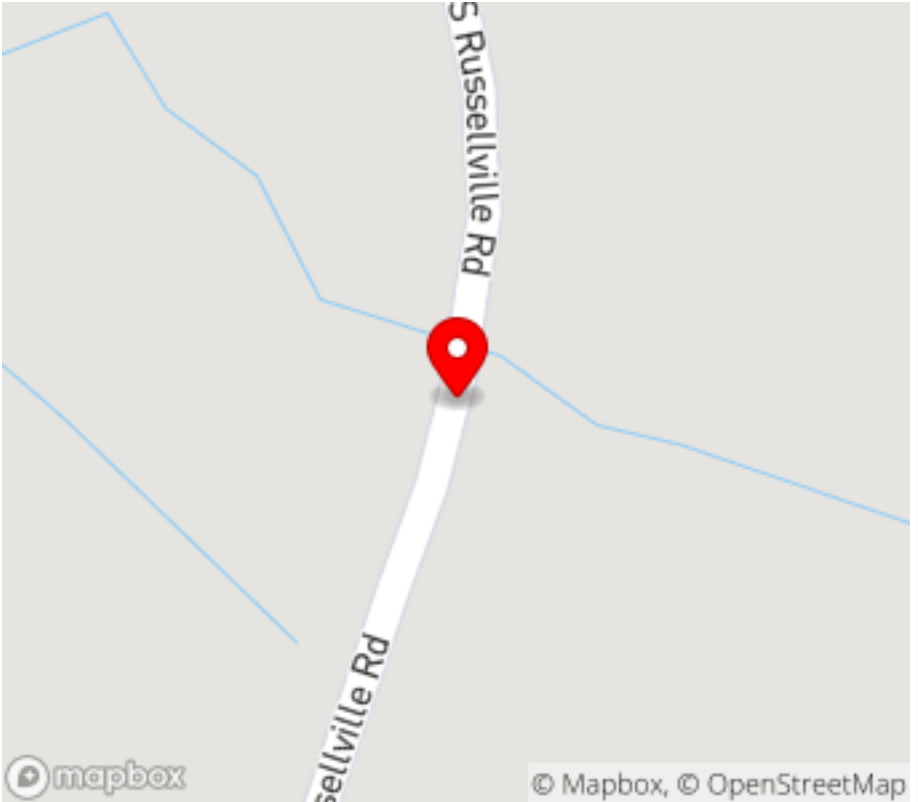
Stage 6	2.21
Raw Value 6	86.00
Stage 7	0.00
Raw Value 7	2.00
Multiplier	25.94478
Divisor	1023
Offset	-0.00591
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	09:55 AM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form

Location	East Cherry Creek @ Russellville
Station_ID	10056
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	09:00 AM (-6 GMT)
GPS Location	
	Lat: 39.2811489 Long: -104.6890264
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new eprom and new software on A2 decoder board. Received test transmission.
Depart Time	09:52 AM (-6 GMT)

Station Repair Form

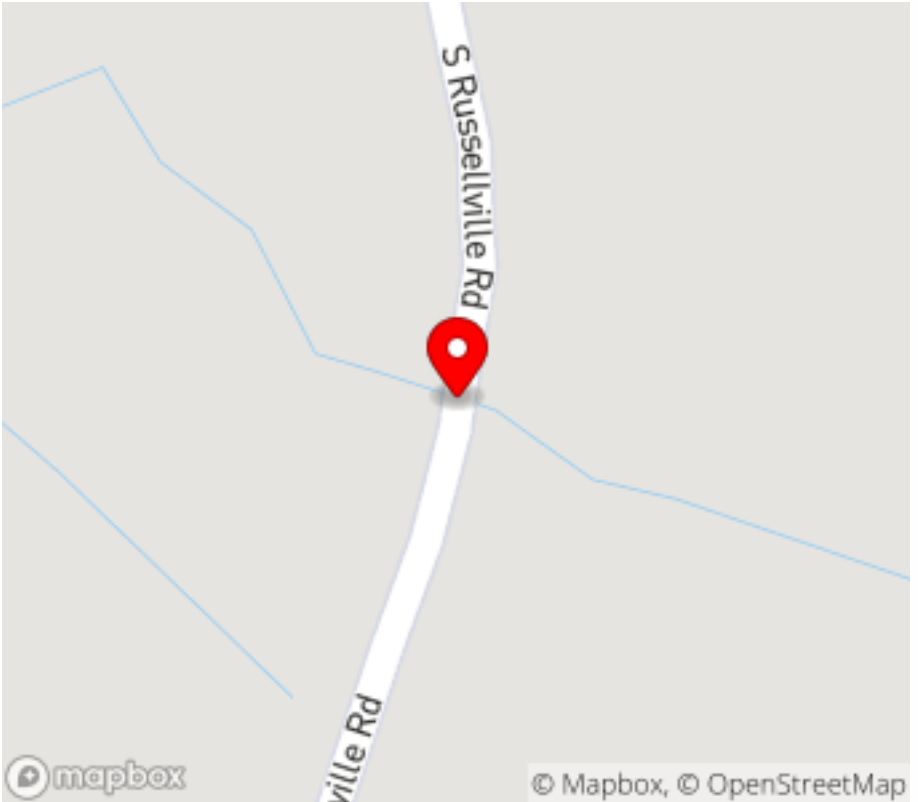
Photos





Station Maintenance Form

Station Maintenance Form

Location	East Cherry Creek @ Russellville
Station_ID	10056
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	10:20 AM (-6 GMT)
GPS Location	
	Lat: 39.28131733 Long: -104.68900683
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-4.00
Error (%)	0.69
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	21.83
Charging Current (mA)	192.00
Battery Voltage Quiet (V)	12.35
Battery Voltage Transmitted (V)	12.23

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	2.75
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.86
Raw Value 1	478.00
Stage 2	10.12
Raw Value 2	408.00
Stage 3	8.21
Raw Value 3	332.00
Stage 4	6.12
Raw Value 4	249.00
Stage 5	4.05
Raw Value 5	166.00

Station Maintenance Form


Stage 6	1.95
Raw Value 6	83.00
Stage 7	0.00
Raw Value 7	5.00
Multiplier	25.66957
Divisor	1023
Offset	-0.12487
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Left pt in winter position
Depart Time	10:51 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	East Cherry Creek @ Russellville
Station_ID	10056
Technician(s)	ZJN
Date	08/05/2020
Time Arrive	02:10 PM (-6 GMT)
GPS Location	
	Lat: 39.2807437 Long: -104.6890954
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-9.00
Error (%)	1.22
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.28
Charging Current (mA)	91.00
Battery Voltage Quiet (V)	13.75
Battery Voltage Transmitted (V)	13.69

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.30
Standing Wave Ratio	1.6488
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.47
Raw Value 1	497.00
Stage 2	10.41
Raw Value 2	416.00
Stage 3	8.14
Raw Value 3	325.00
Stage 4	6.32
Raw Value 4	253.00
Stage 5	3.99
Raw Value 5	160.00

Station Maintenance Form


Stage 6	1.98
Raw Value 6	80.00
Stage 7	0.00
Raw Value 7	3.00
Multiplier	25.76993
Divisor	1023
Offset	-0.05292
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	02:52 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Pine Cliff
Station_ID	10057
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	12:54 PM (-6 GMT)
GPS Location	
	Lat: 39.36900097 Long: -104.96534982
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-4.00
Error (%)	0.69
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.85
Charging Current (mA)	292.00
Battery Voltage Quiet (V)	12.99
Battery Voltage Transmitted (V)	12.91

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.75
Watts Reflected	0.00
Standing Wave Ratio	1.0000
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1


Calibration Time	12:54 PM (-6 GMT)
Wire-Weight Reading (ft)	2.67
Radar Reading (ft)	1.67
Comments	think wire weight is off by a foot. measured 0.7 feet with measuring tape. need to re-survey. didnt change numbers

Finishing Comments

Final Comments	Radar and wire weight are off by 1 foot from each other. Need to re-survey. Everything else working well. Received test transmissions
Depart Time	01:49 PM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Pine cliff
Station_ID	10057
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	11:14 AM (-6 GMT)
GPS Location	
	Lat: 39.3689880371094 Long: -104.96532727974
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Solar_panel, Funnel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-12.00
Error (%)	1.53
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.51
Charging Current (mA)	392.00
Battery Voltage Quiet (V)	13.57
Battery Voltage Transmitted (V)	13.42

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	6.00
Watts Reflected	0.10
Standing Wave Ratio	1.2965
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1

Calibration Time	11:25 AM (-6 GMT)
Wire-Weight Reading (ft)	1.43
Radar Reading (ft)	1.44

Finishing Comments

Depart Time	11:55 AM (-6 GMT)
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Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Pine Cliff
Station_ID	10057
Technician(s)	ZJN
Date	08/06/2020
Time Arrive	10:45 AM (-6 GMT)
GPS Location	
	Lat: 39.3690208 Long: -104.9653872
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-4.00
Error (%)	0.69
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	19.53
Charging Current (mA)	563.00
Battery Voltage Quiet (V)	12.92
Battery Voltage Transmitted (V)	12.84

Transmitter

Transmitter Checks	Bucket, Program, Desiccant, Time
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
No calibration form necessary	Check to see if PT is working properly.

Radar Calibration

Section 1

Calibration Time	10:46 AM (-6 GMT)
Wire-Weight Reading (ft)	1.00
Radar Reading (ft)	1.00
Comments	adjusted radar to 1.00 since no water in stream

Finishing Comments

Final Comments	No water in stream. Tightened screw on wire weight and set to 1.00 ft. Set radar to 1.00 ft. Everything working well. Received test transmission.
Depart Time	11:56 AM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Happy Canyon @ Surrey Ridge
Station_ID	10059
Technician(s)	ZJN,KGS
Date	03/10/2020
Time Arrive	06:08 PM (-6 GMT)
GPS Location	
	Lat: 39.5113785 Long: -104.868995
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	16.00
Error (%)	-1.42
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	12.66
Charging Current (mA)	6.00
Battery Voltage Quiet (V)	12.58
Battery Voltage Transmitted (V)	12.42

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	3.00
Watts Reflected	0.25
Standing Wave Ratio	1.8117
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.85
Raw Value 1	497.00
Stage 2	9.96
Raw Value 2	424.00
Stage 3	8.13
Raw Value 3	354.00
Stage 4	6.06
Raw Value 4	274.00
Stage 5	4.00
Raw Value 5	194.00

Station Maintenance Form


Stage 6	1.91
Raw Value 6	113.00
Stage 7	0.00
Raw Value 7	44.00
Multiplier	26.64991
Divisor	1023
Offset	-1.08377
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Note for next visit	bring bigger pt tester tube for pt
Final Comments	Everything working well. Received test transmissions.
Depart Time	06:43 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Happy canyon @ surrey ridge
Station_ID	10059
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	09:22 AM (-6 GMT)
GPS Location	
	Lat: 39.5098224934558 Long: -104.872054550894
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	16.00
Error (%)	-1.42
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.19
Charging Current (mA)	29.00
Battery Voltage Quiet (V)	12.97
Battery Voltage Transmitted (V)	12.84


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	3.25
Watts Reflected	0.10
Standing Wave Ratio	1.4255
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Station working well!
Depart Time	09:57 AM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form

Location	Happy Canyon
Station_ID	10059
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	01:44 PM (-6 GMT)
GPS Location	
	Lat: 39.509854 Long: -104.8720414
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new EPROM, updated firmware on A2 encoder board to 5.3.8, received test transmission
Depart Time	02:15 PM (-6 GMT)


Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Happy Canyon
Station_ID	10059
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	11:57 AM (-6 GMT)
GPS Location	
	Lat: 39.509803 Long: -104.8720437
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	12.00
Error (%)	-1.00
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.72
Charging Current (mA)	277.00
Battery Voltage Quiet (V)	13.13
Battery Voltage Transmitted (V)	13.02

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.75
Standing Wave Ratio	2.2642
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.13
Raw Value 1	509.00
Stage 2	9.95
Raw Value 2	424.00
Stage 3	8.05
Raw Value 3	351.00
Stage 4	6.06
Raw Value 4	274.00
Stage 5	3.96
Raw Value 5	193.00

Station Maintenance Form


Stage 6	1.85
Raw Value 6	111.00
Stage 7	0.00
Raw Value 7	39.00
Multiplier	26.42804
Divisor	1023
Offset	-1.01574
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Note for next visit	bring wasp spray. nest in mast
Final Comments	Everything working well. Received test transmission
Depart Time	12:49 AM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form


Location	Tomah Rd
Station_ID	10065
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	11:39 AM (-6 GMT)
GPS Location	
	Lat: 39.2950212 Long: -104.9228505
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new EPROM, updated firmware to 5.3.8 on A2 encoder board, received test transmission
Depart Time	12:10 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Tomah Rd
Station_ID	10065
Technician(s)	ZJN
Date	01/29/2020
Time Arrive	12:46 PM (-7 GMT)
GPS Location	
	Lat: 39.29509117 Long: -104.92286868
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	13.00
Error (%)	-1.10
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.63
Charging Current (mA)	162.00
Battery Voltage Quiet (V)	13.86
Battery Voltage Transmitted (V)	13.77

Sensor Verification

Temperature (°C)	0.60
Relative Humidity (%)	69.00
Barometric Pressure (mBar)	981.70
Wind Speed (mph)	0.00
Temperature (°C)	1.00
Relative Humidity (%)	67.50
Barometric Pressure (mBar)	948.80
Wind Speed (mph)	0.00

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	2.50
Watts Reflected	0.50
Standing Wave Ratio	2.6180
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Watch transmissions. Radio wattage is poor. Everything else working well. Received test transmissions
Depart Time	01:13 PM (-7 GMT)

Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Tomah Rd
Station_ID	10065
Technician(s)	ZJN,EJH
Date	06/09/2020
Time Arrive	12:01 PM (-6 GMT)
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	5.00
Error (%)	-0.26
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.17
Charging Current (mA)	171.00
Battery Voltage Quiet (V)	13.77
Battery Voltage Transmitted (V)	13.68

Sensor Verification

Temperature (°C)	11.00
Relative Humidity (%)	61.00
Wind Speed (mph)	1.00

Station Maintenance Form

Temperature (°C)	10.30
Relative Humidity (%)	58.00
Wind Speed (mph)	1.50

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	5.00
Watts Reflected	0.50
Standing Wave Ratio	1.9250
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Replaced radio. Was sending only 2.5 watts. Reprogrammed wind, rh, and temp to report every 15 min. Received test transmission. Everything working well
Depart Time	12:43 PM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Tomah Rd
Station_ID	10065
Technician(s)	ZJN
Date	08/12/2020
Time Arrive	12:44 PM (-6 GMT)
GPS Location	
	Lat: 39.2950053 Long: -104.9228554
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
-------------------------------	---

Weather Station Maintenance

Weather Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Station Maintenance Form

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-3.00
Error (%)	0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.72
Charging Current (mA)	58.00
Battery Voltage Quiet (V)	13.20
Battery Voltage Transmitted (V)	13.14

Sensor Verification

Temperature (°C)	28.90
Relative Humidity (%)	20.00
Wind Speed (mph)	1.00
Temperature (°C)	29.10
Relative Humidity (%)	25.00
Wind Speed (mph)	0.80

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.75
Standing Wave Ratio	2.3798
Does the station have a stage sensor?	No

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	01:14 PM (-6 GMT)


Station Maintenance Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Tomah Rd
Station_ID	10065
Technician(s)	ZJN,EJH
Date	11/10/2020
Time Arrive	12:42 PM (-7 GMT)
GPS Location	
	Lat: 39.2952836 Long: -104.9229292
Agency	Douglas County

Station Type

What type of station?	Weather
-----------------------	---------

Stream Station Maintenance

No calibration form necessary	Check to see if PT is working properly.
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Weather Station Maintenance

Weather Maintenance

Rain Gage Calibration

Error (%)	0.27
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Power System

Station Maintenance Form

Regulator Output Voltage (V)	14.75
Charging Current (mA)	396.00
Battery Voltage Quiet (V)	13.84
Battery Voltage Transmitted (V)	13.67

Sensor Verification

Temperature (°C)	7.20
Relative Humidity (%)	16.00
Wind Speed (mph)	5.00
Temperature (°C)	9.00
Relative Humidity (%)	18.00
Wind Speed (mph)	5.50


Transmitter

Transmitter Checks	Bucket, Program, Desiccant, Time
--------------------	----------------------------------

Radio

Watts Forward	3.25
Watts Reflected	0.10
Standing Wave Ratio	1.4255
Does the station have a stage sensor?	No


Finishing Comments

Final Comments	Did not test tipping bucket. Left covered for winter. Everything working well. Received test transmission.
Depart Time	12:57 PM (-7 GMT)
Photos	



Station Repair Form

Station Maintenance Form


Location	Sulphur Gulch
Station_ID	10066
Technician(s)	EJH/Zjn
Date	07/14/2020
Time Arrive	12:05 PM (-6 GMT)
GPS Location	
	Lat: 39.5170406 Long: -104.7459115
Agency	Douglas County

Repair Comments

Item Replaced	EPROM
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	updated EPROM was installed and the firmware was updated on the ALERT2 encoder board to 5.3.8.
Depart Time	12:55 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Sulphur Gulch
Station_ID	10066
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	03:29 PM (-6 GMT)
GPS Location	
	Lat: 39.51691233 Long: -104.74597423
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	12.00
Error (%)	-1.00
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.14
Charging Current (mA)	35.00
Battery Voltage Quiet (V)	12.69
Battery Voltage Transmitted (V)	12.60

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.25
Standing Wave Ratio	1.5760
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.01
Raw Value 1	532.00
Stage 2	10.34
Raw Value 2	458.00
Stage 3	8.21
Raw Value 3	364.00
Stage 4	6.41
Raw Value 4	284.00
Stage 5	4.08
Raw Value 5	181.00

Station Maintenance Form


Stage 6	2.04
Raw Value 6	91.00
Stage 7	0.00
Raw Value 7	0.00
Multiplier	23.10614
Divisor	1023
Offset	-0.00721
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Needs door kit
Depart Time	04:00 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Sulpher gulch
Station_ID	10066
Technician(s)	Kgs
Date	06/17/2020
Time Arrive	12:04 PM (-6 GMT)
GPS Location	
	Lat: 39.516887180544 Long: -104.745955690839
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Tipping_bucket, Solar_panel, Funnel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	8.00
Error (%)	-0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.91
Charging Current (mA)	169.00
Battery Voltage Quiet (V)	13.66
Battery Voltage Transmitted (V)	13.58

Transmitter

Transmitter Checks	Bucket, Time, Desiccant, Program
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.25
Standing Wave Ratio	1.6168
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.71
Raw Value 1	564.00
Stage 2	10.11
Raw Value 2	449.00
Stage 3	8.31
Raw Value 3	369.00
Stage 4	6.19
Raw Value 4	276.00
Stage 5	3.98
Raw Value 5	177.00

Station Maintenance Form

Stage 6	2.10
Raw Value 6	95.00
Stage 7	0.00
Raw Value 7	1.00
Multiplier	23.10700
Divisor	1023
Offset	-0.03092
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.


Finishing Comments

Final Comments	Trim bushes near pt for easier access.
Depart Time	12:50 PM (-6 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	Sulphur Gulch
Station_ID	10066
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	01:32 PM (-6 GMT)
GPS Location	
	Lat: 39.5168545 Long: -104.7458592
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Tips During Calibration	13
Volume Added or Removed (mL)	-5.00
Error (%)	0.80
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.11
Charging Current (mA)	237.00
Battery Voltage Quiet (V)	13.65
Battery Voltage Transmitted (V)	13.51

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.80
Watts Reflected	0.25
Standing Wave Ratio	1.5914
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.05
Raw Value 1	533.00
Stage 2	10.15
Raw Value 2	450.00
Stage 3	8.06
Raw Value 3	357.00
Stage 4	5.91
Raw Value 4	261.00
Stage 5	4.06
Raw Value 5	180.00
Stage 6	2.04

Station Maintenance Form


Raw Value 6	90.00
Stage 7	0.00
Raw Value 7	0.00
Multiplier	23.10274
Divisor	1023
Offset	0.00237
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	02:00 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Tallman Gulch
Station_ID	10067
Technician(s)	ZJN,EJH
Date	06/09/2020
Time Arrive	10:52 AM (-6 GMT)
GPS Location	
	Lat: 39.493175 Long: -104.7344659
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	12.00
Error (%)	-1.00
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	7.39
Charging Current (mA)	52.00
Battery Voltage Quiet (V)	13.79
Battery Voltage Transmitted (V)	13.61

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.75
Watts Reflected	0.10
Standing Wave Ratio	1.3394
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration


5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.13
Raw Value 1	487.00
Stage 2	10.01
Raw Value 2	402.00
Stage 3	8.05
Raw Value 3	323.00
Stage 4	6.05
Raw Value 4	243.00
Stage 5	4.02
Raw Value 5	162.00

Station Maintenance Form


Stage 6	2.00
Raw Value 6	81.00
Stage 7	0.00
Raw Value 7	2.00
Multiplier	25.57026
Divisor	1023
Offset	-0.03316
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Tipping bucket may have been a little clogged or stuck. Tipped both ways. Sent two tips and received them. Received test transmission
Depart Time	11:23 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Tallman Gulch
Station_ID	10067
Technician(s)	EJH/ZJN
Date	08/04/2020
Time Arrive	12:59 PM (-6 GMT)
GPS Location	
	Lat: 39.4931952 Long: -104.734426
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
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Rain Gage Calibration

Station Maintenance Form

Point ID	10067
Tips During Calibration	13
Volume Added or Removed (mL)	-15.00
Error (%)	1.85
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	14.04
Charging Current (mA)	50.00
Battery Voltage Quiet (V)	13.56
Battery Voltage Transmitted (V)	13.42

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	6.00
Watts Reflected	0.25
Standing Wave Ratio	1.5130
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.97
Raw Value 1	471.00
Stage 2	10.18
Raw Value 2	399.00
Stage 3	7.92
Raw Value 3	308.00
Stage 4	6.14
Raw Value 4	237.00
Stage 5	4.01
Raw Value 5	152.00

Station Maintenance Form


Stage 6	2.01
Raw Value 6	71.00
Stage 7	0.00
Raw Value 7	2.00
Multiplier	25.88126
Divisor	1023
Offset	0.10558
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	01:21 PM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form


Location	Tallman Gulch
Station_ID	10067
Technician(s)	ZJN,KGS
Date	03/17/2020
Time Arrive	08:40 AM (-6 GMT)
GPS Location	
	Lat: 39.49317232 Long: -104.73444471
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Added polyphaser. Replaced antenna cable. And cable from antenna to polyphaser and polyphaser to transmitter. Tested wattage 4.75 fwd 0.00 reflected.
Depart Time	09:24 AM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form


Location	Tallman Park
Station_ID	10067
Technician(s)	EJH/ZJN
Date	07/14/2020
Time Arrive	01:15 PM (-6 GMT)
GPS Location	
	Lat: 39.4930933 Long: -104.7344684
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	
Depart Time	01:54 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Tallman Park
Station_ID	10067
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	02:35 PM (-6 GMT)
GPS Location	
	Lat: 39.49313677 Long: -104.73447185
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	7.00
Error (%)	-0.47
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.69
Charging Current (mA)	300.00
Battery Voltage Quiet (V)	12.69
Battery Voltage Transmitted (V)	12.60

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.00
Watts Reflected	1.00
Standing Wave Ratio	3.0000
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.19
Raw Value 1	480.00
Stage 2	10.10
Raw Value 2	397.00
Stage 3	8.20
Raw Value 3	320.00
Stage 4	6.41
Raw Value 4	248.00
Stage 5	4.02
Raw Value 5	152.00

Station Maintenance Form


Stage 6	2.01
Raw Value 6	71.00
Stage 7	0.00
Raw Value 7	1.00
Multiplier	25.79715
Divisor	1023
Offset	0.12037
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Needs new cable from BNC to VHF for radio. Getting a lot of reflected
Depart Time	03:11 PM (-6 GMT)
Photos	

Station Repair Form

Station Maintenance Form

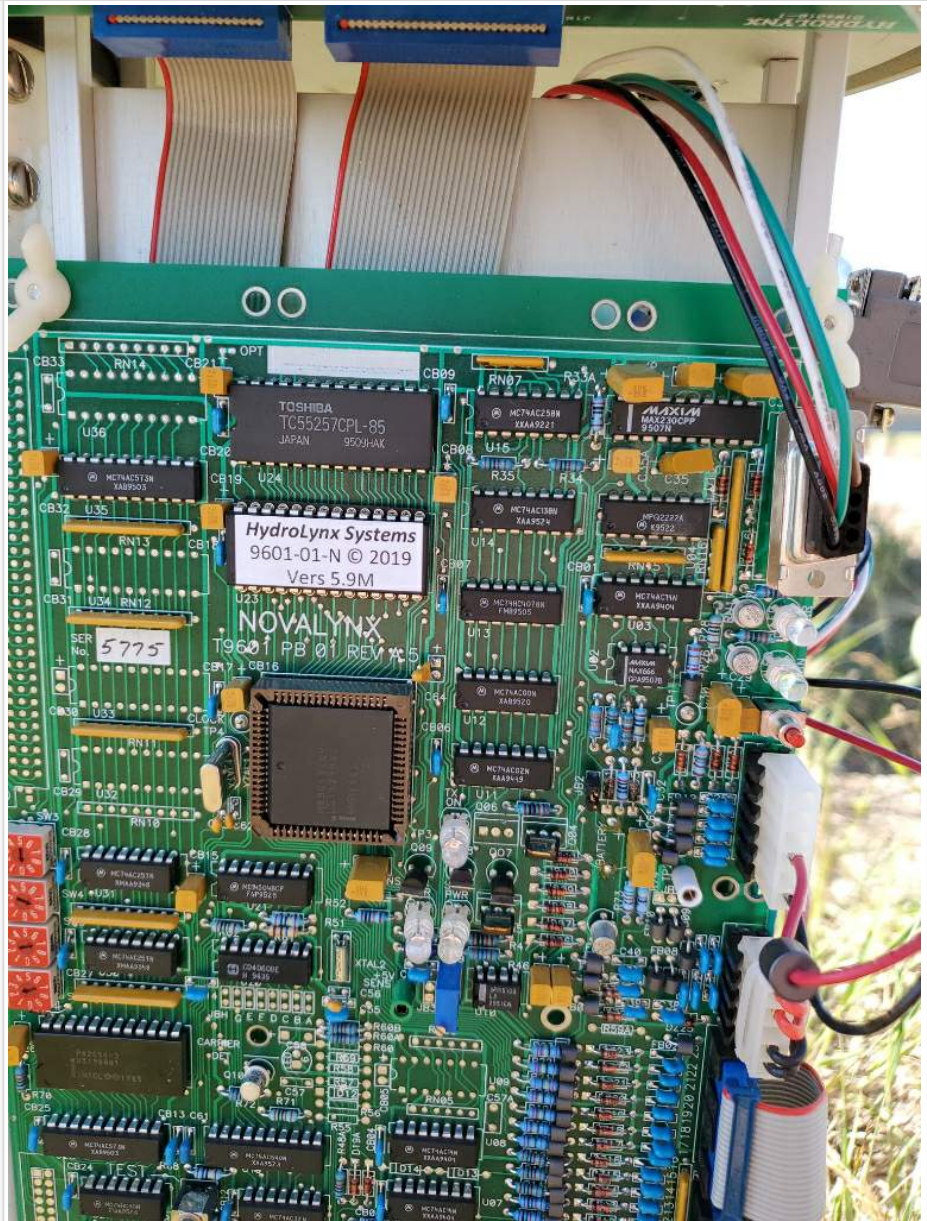
Location	Antelope Creek
Station_ID	10068
Technician(s)	ZJN
Date	07/15/2020
Time Arrive	10:01 AM (-6 GMT)
GPS Location	
	Lat: 39.2637876 Long: -104.7159695
Agency	Douglas County

Repair Comments

Item Replaced	
Manufacturer	
Model	
Serial Number	
Note for next visit	
Comments	Installed new EPROM, updated firmware on A2 encoder board. Received test transmission
Depart Time	10:35 AM (-6 GMT)


Station Repair Form

Photos



Station Maintenance Form

Station Maintenance Form

Location	Antelope Creek
Station_ID	10068
Technician(s)	ZJN,KGS
Date	03/11/2020
Time Arrive	09:02 AM (-6 GMT)
GPS Location	
	Lat: 39.26385717 Long: -104.71597814
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	0.00
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.56
Charging Current (mA)	33.00
Battery Voltage Quiet (V)	12.33
Battery Voltage Transmitted (V)	12.07

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.80
Watts Reflected	0.25
Standing Wave Ratio	1.5914
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	12.16
Raw Value 1	494.00
Stage 2	10.00
Raw Value 2	408.00
Stage 3	8.15
Raw Value 3	335.00
Stage 4	5.79
Raw Value 4	242.00
Stage 5	4.07
Raw Value 5	174.00

Station Maintenance Form


Stage 6	2.09
Raw Value 6	96.00
Stage 7	0.00
Raw Value 7	13.00
Multiplier	25.88697
Divisor	1023
Offset	-0.33248
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Left PT in winter position since riser and stream near riser is frozen
Depart Time	09:30 AM (-6 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Antelope creek
Station_ID	10068
Technician(s)	Kgs
Date	06/16/2020
Time Arrive	03:20 PM (-6 GMT)
GPS Location	
	Lat: 39.263916015625 Long: -104.716008408093
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	12
Volume Added or Removed (mL)	18.00
Error (%)	-1.63
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.62
Charging Current (mA)	14.00
Battery Voltage Quiet (V)	13.23
Battery Voltage Transmitted (V)	13.11

Transmitter

Transmitter Checks	Bucket, Time, Program, Desiccant
--------------------	----------------------------------

Radio

Watts Forward	6.25
Watts Reflected	0.50
Standing Wave Ratio	1.7888
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.81
Raw Value 1	473.00
Stage 2	10.29
Raw Value 2	412.00
Stage 3	8.21
Raw Value 3	330.00
Stage 4	6.30
Raw Value 4	254.00
Stage 5	3.99
Raw Value 5	164.00

Station Maintenance Form


Stage 6	2.09
Raw Value 6	89.00
Stage 7	0.00
Raw Value 7	5.00
Multiplier	25.87704
Divisor	1023
Offset	-0.14213
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Depart Time	03:58 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Antelope Creek
Station_ID	10068
Technician(s)	ZJN
Date	08/05/2020
Time Arrive	12:57 PM (-6 GMT)
GPS Location	
	Lat: 39.2638013 Long: -104.7159924
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Tips During Calibration	13
Volume Added or Removed (mL)	-3.00
Error (%)	0.58
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	13.52
Charging Current (mA)	22.00
Battery Voltage Quiet (V)	13.05
Battery Voltage Transmitted (V)	12.93

Transmitter

Transmitter Checks	Program, Time, Bucket, Desiccant
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.50
Standing Wave Ratio	1.9250
Is the PT an SDI-12?	No
No calibration form necessary	Check to see if PT is working properly.

5096 ALERT2 PT Calibration

5096 ALERT2 PT Calibration

REPROGRAM TRANSMITTER TO BASE VALUES	(25.5,1023,0)
How many different values are being tested?	7
Stage 1	11.67
Raw Value 1	465.00
Stage 2	9.92
Raw Value 2	397.00
Stage 3	8.08
Raw Value 3	324.00
Stage 4	5.99
Raw Value 4	242.00
Stage 5	4.15
Raw Value 5	167.00

Station Maintenance Form


Stage 6	2.16
Raw Value 6	89.00
Stage 7	0.00
Raw Value 7	6.00
Multiplier	25.91359
Divisor	1023
Offset	-0.11991
NOTICE	If offset is greater than 0.5ft adjust ZERO screw in signal conditioning box.

Finishing Comments

Final Comments	Everything working well. Received test transmission.
Depart Time	02:03 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Baldwin Gulch Dam
Station_ID	10077
Technician(s)	ZJN,KGS
Date	03/12/2020
Time Arrive	10:37 AM (-6 GMT)
GPS Location	
	Lat: 39.53358792 Long: -104.74713084
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	18.26
Charging Current (mA)	383.00
Battery Voltage Quiet (V)	13.76
Battery Voltage Transmitted (V)	13.66


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	4.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Everything working well. Received test transmissions
Depart Time	10:55 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Baldwin gulch
Station_ID	10077
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	03:47 PM (-6 GMT)
GPS Location	
	Lat: 39.5336303710938 Long: -104.747182047092
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	19.65
Charging Current (mA)	422.00
Battery Voltage Quiet (V)	13.96
Battery Voltage Transmitted (V)	13.89


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

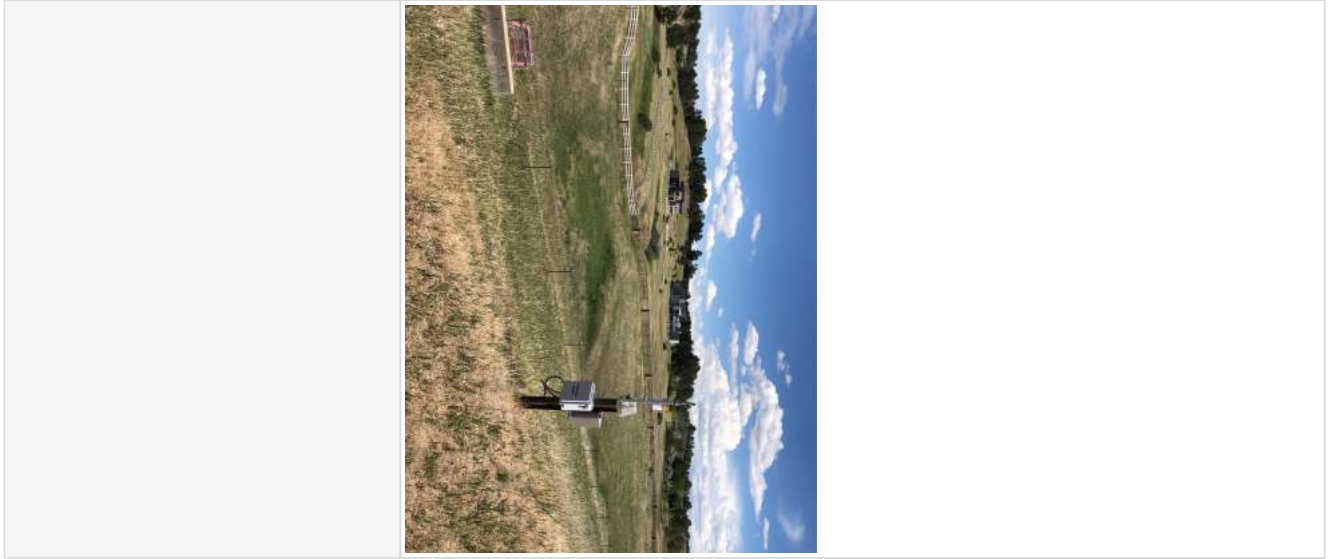
Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments


Final Comments	Suggest bird spikes.
Depart Time	02:32 PM (-6 GMT)
Photos	

Station Maintenance Form



Station Maintenance Form

Station Maintenance Form

Location	Baldwin Gulch
Station_ID	10077
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	08:31 AM (-6 GMT)
GPS Location	
	Lat: 39.5335672 Long: -104.7474999
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.73
Charging Current (mA)	401.00
Battery Voltage Quiet (V)	13.69
Battery Voltage Transmitted (V)	13.61


Transmitter

Transmitter Checks	Desiccant, Bucket, Time, Program
--------------------	----------------------------------

Radio


Watts Forward	5.50
Watts Reflected	0.25
Standing Wave Ratio	1.5419
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Everything working well. Tipped both ways. Received test transmission.
Depart Time	09:07 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	WCC-7
Station_ID	10080
Technician(s)	ZJN,KGS
Date	03/17/2020
Time Arrive	11:30 AM (-6 GMT)
GPS Location	
	Lat: 39.1379819 Long: -104.7656705
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	22.69
Charging Current (mA)	203.00
Battery Voltage Quiet (V)	13.92
Battery Voltage Transmitted (V)	13.84

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Changed pt from psi to feet
Depart Time	11:54 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	WCC-7
Station_ID	10080
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	11:32 AM (-7 GMT)
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Tipping_bucket, Solar_panel
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Point ID	0
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.21
Charging Current (mA)	319.00
Battery Voltage Quiet (V)	13.44
Battery Voltage Transmitted (V)	13.33

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.


Station Maintenance Form

Finishing Comments

Final Comments	Everything working well. Received test transmissions.
Depart Time	12:07 PM (-7 GMT)

Station Maintenance Form

Station Maintenance Form

Location	Wcc7
Station_ID	10080
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	01:09 PM (-6 GMT)
GPS Location	 <p>© Mapbox, © OpenStreetMap</p>
	Lat: 39.1418762207031 Long: -104.771660976209
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.32
Charging Current (mA)	466.00
Battery Voltage Quiet (V)	13.55
Battery Voltage Transmitted (V)	13.34


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.00
Watts Reflected	0.10
Standing Wave Ratio	1.3756
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments


Depart Time	01:33 PM (-6 GMT)
Photos	

Station Maintenance Form



Station Maintenance Form

Station Maintenance Form

Location	FP-P1 Dam
Station_ID	10081
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	09:20 AM (-6 GMT)
GPS Location	
	Lat: 39.5223767 Long: -104.7510529
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.66
Charging Current (mA)	246.00
Battery Voltage Quiet (V)	13.50
Battery Voltage Transmitted (V)	13.41

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	5.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.


Finishing Comments

Final Comments	Everything working well. Tipped both ways. Received test transmission.
Depart Time	09:45 AM (-6 GMT)
Photos	



Station Maintenance Form

Station Maintenance Form

Location	FP-P1
Station_ID	10081
Technician(s)	ZJN,KGS
Date	03/12/2020
Time Arrive	11:09 AM (-6 GMT)
GPS Location	
	Lat: 39.52277776 Long: -104.75133353
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	22.65
Charging Current (mA)	363.00
Battery Voltage Quiet (V)	13.69
Battery Voltage Transmitted (V)	13.59


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	3.75
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Read 2 tips for tipping bucket. Rubber band was still on so recorded 0 tips since install. Pt is not working correctly wont go above 2 ft. Kept reading 1.6ft . Reading 0 at 0. May need change the pt units
Depart Time	12:05 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Fpp1 dam
Station_ID	10081
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	03:05 PM (-6 GMT)
GPS Location	
	Lat: 39.522418649904 Long: -104.750981731438
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	19.33
Charging Current (mA)	357.00
Battery Voltage Quiet (V)	13.70
Battery Voltage Transmitted (V)	13.62

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	4.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Depart Time	03:31 AM (-6 GMT)
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Station Maintenance Form

Station Maintenance Form

Location	FP-S1 Dam
Station_ID	10082
Technician(s)	ZJN,KGS
Date	03/12/2020
Time Arrive	12:24 PM (-6 GMT)
GPS Location	
	Lat: 39.4842216 Long: -104.7452964
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	22.63
Charging Current (mA)	563.00
Battery Voltage Quiet (V)	12.58
Battery Voltage Transmitted (V)	12.51


Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	4.00
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Everything working well. Received test transmissions. Need to reprogram pt to be in ft. Currently reading in psi
Depart Time	12:41 PM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	FP-S1 Dam
Station_ID	10082
Technician(s)	ZJN
Date	08/13/2020
Time Arrive	10:11 AM (-6 GMT)
GPS Location	 <p>Franktown Parker FPS- 1 Reservoir</p> <p>mapbox © Mapbox, © OpenStreetMap</p>
	Lat: 39.480628 Long: -104.7467565
Agency	Douglas County

Station Type

What type of station?	Stream
-----------------------	--------

Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
--------------	-------------------------------------

Rain Sensor

Does the station have a rain sensor?	Yes
--------------------------------------	-----

Rain Gage Calibration

Station Maintenance Form

Point ID	0
Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.47
Charging Current (mA)	607.00
Battery Voltage Quiet (V)	13.21
Battery Voltage Transmitted (V)	13.13

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio


Watts Forward	5.50
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Final Comments	Calibrated pt using 7 point test. Entered offset of -0.59. Off more at lower values. 0 is calibrated to 0.18 with the offset. Everything else working well. Tipped both ways. Received test transmission
Depart Time	10:41 AM (-6 GMT)
Photos	

Station Maintenance Form

Station Maintenance Form

Location	Fps1
Station_ID	10082
Technician(s)	Kgs
Date	06/22/2020
Time Arrive	02:23 PM (-6 GMT)
GPS Location	 <p>Franktown Parker FPS- 1 Reservoir</p> <p>© mapbox © Mapbox, © OpenStreetMap</p>
	Lat: 39.480712890625 Long: -104.746486600586
Agency	Douglas County

Station Type

What type of station?	Stream
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Stream Station Maintenance

Stream Maintenance

Items Cleaned

Clean Checks	Funnel, Solar_panel, Tipping_bucket
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Rain Sensor

Does the station have a rain sensor?	Yes
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Rain Gage Calibration

Station Maintenance Form

Error (%)	0.27
Data Logger reads tips in both directions	checked

Power System

Regulator Output Voltage (V)	20.34
Charging Current (mA)	417.00
Battery Voltage Quiet (V)	13.83
Battery Voltage Transmitted (V)	13.77

Transmitter

Transmitter Checks	Desiccant, Program, Time, Bucket
--------------------	----------------------------------

Radio

Watts Forward	4.25
Watts Reflected	0.00
Standing Wave Ratio	1.0000
Is the PT an SDI-12?	Yes
No calibration form necessary	Check to see if PT is working properly.

Finishing Comments

Depart Time	02:51 PM (-6 GMT)
Photos	

Station Maintenance Form



8. APPENDIX B. DETAILED INVENTORY OF SPARE EQUIPMENT

Detailed inventory of spare Equipment

Asset	Accounted For	Date Inspected	Location of asset	Make/ Model Number	Serial Number	Notes
500 mA Wall Charger	X	11/21/2020	WET	D1730	12BC0500D-1	Removed from West creek
5096 Board	X	11/21/2020	WET	Hydrolynx 5096	6434	
ALERT 2 Encoder Board	X	11/21/2020	WET	Hydrolynx A2 Encoder Board	105	Good condition, but needs firmware upgrade
Antenna Cable	X	11/21/2020	WET	WET Antenna Cable	1	N (m) to UHF (M)
Antenna Cable	X	11/21/2020	WET	WET Antenna Cable	2	N (M) to N (M)
Antenna Cable	X	11/21/2020	WET	WET Antenna Cable	3	N (M) to N (M) 3.5'
Antenna Cable	X	11/21/2020	WET	WET Antenna Cable	4	N (M) to UHF (M)
Antenna Cable	X	11/21/2020	WET	WET Antenna Cable	5	N (M) to UHF (M)
Antenna Cable	X	11/21/2020	WET	WET Sutron Cable	1	Sutron
Antenna Top Section	X	11/21/2020	WET	N/A	N/A	Top section with antenna
Antenna Top Section	X	11/21/2020	WET	N/A	N/A	Top section with antenna
Antenna Top Section	X	11/21/2020	WET	N/A	N/A	Top section with antenna
Antenna Top Section	X	11/21/2020	WET	N/A	N/A	Top section with antenna
Antenna Top Section	X	11/21/2020	WET	N/A	N/A	Top section with antenna
Battery	X	11/21/2020	WET	Interstate 12V 12AH	N/A	Life strength (Weak)
GPS	X	11/21/2020	WET	N/A	N/A	Magnetic GPS

Lateral Antenna	X	11/21/2020	WET	N/A	N/A	
Lateral Antenna	X	11/21/2020	WET	N/A	N/A	
Lateral Antenna	X	11/21/2020	WET	N/A	N/A	
MasterLock	X	11/21/2020	WET	Masterlock	N/A	3210 keys
MasterLock	X	11/21/2020	WET	Masterlock	N/A	3210 keys
MasterLock	X	11/21/2020	WET	Masterlock	N/A	3210 keys
Misc. Wind Sensor parts	X	11/21/2020	WET	N/A	N/A	
Pressure Transducer	X	11/21/2020	WET	Keller Acculevel	106647	
Pressure Transducer	X	11/21/2020	WET	Keller Acculevel	151191	
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	k171200385	New. Programmed with all frequencies
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	k171200386	New. Programmed with all frequencies
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	k171200382	New. Programmed with all frequencies
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	k171200384	New. Programmed with all frequencies
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	k171200381	New. Programmed with all frequencies
Programmed Maxon VHF Radio	X	11/21/2020	WET	Maxon SD125EL V2	030303312	Fair Condtion (3Watts Forward, 0 Watts Reflected)
Radio Amplifier	X	11/21/2020	WET	PA3-1AB-HL	40005	

Repeater	X	11/21/2020	WET	Hydrolynx 50386	5026	Ritron Radio is installed
Repeater	X	11/21/2020	WET	Hydrolynx 50386	21269	ALERT 2 Encoder board (SN: 756RR), A@ Demodulator board, 2 ritron radios, and a maxon radio are installed in this transmitter.
Ritron Radio	X	11/21/2020	WET	Ritron DTX-145	A13925	Programmed
Signal Conditioning Board	X	11/21/2020	WET	Hydrolynx 6694V0	0545	
Signal Conditioning Board	X	11/21/2020	WET	Hydrolynx 6694V0	1019	
Signal Conditioning Box	X	11/21/2020	WET	Hydrolynx	N/A	
Signal Conditioning Box	X	11/21/2020	WET	Hydrolynx	N/A	
Signal Conditioning Box	X	11/21/2020	WET	Hydrolynx	N/A	
Signal Conditioning Box	X	11/21/2020	WET	High Sierra	N/A	
Signal Conditioning Box	X	11/21/2020	WET	High Sierra	N/A	
Solar panel	X	11/21/2020	WET	5W 21.6V	AP0910-SMS-003	
Solar Panel	X	11/21/2020	WET	Shell ST5	021445R1220478679	
Solar Panel	X	11/21/2020	WET	BP Solar SX310M	C1071008545258	Used but good condition
Solar panel	X	11/21/2020	WET	Solartech SPM010P	140725010440	
Solar Panel	X	11/21/2020	WET	Solarland SLP020-12U	N/A	

Solar Panel Mount for Standpipe	X	11/21/2020	WET	Hydrolynx	N/A	
Solar Regulator	X	11/21/2020	WET	Morningstar Sunguard	N/A	
Solar Regulator	X	11/21/2020	WET	Protech	N/A	
Tipping Bucket	X	11/21/2020	WET	Campbell Scientific TR525USW	41322-609	
Tipping Bucket	X	11/21/2020	WET	Hydrolynx 5050P-MS	N/A	With top section as well
Tipping Bucket	X	11/21/2020	WET	Hydrolynx 5050P-MS	N/A	Used but good condition
Tipping Bucket Metal Screen Set	X	11/21/2020	WET	Hydrolynx	N/A	
Tipping Bucket Metal Screen Set	X	11/21/2020	WET	Hydrolynx	N/A	
Tipping Bucket Metal Screen Set	X	11/21/2020	WET	Hydrolynx	N/A	
Tipping Bucket Metal Screen Set	X	11/21/2020	WET	Hydrolynx	N/A	
Transmitter	X	11/21/2020	WET	Hydrolynx 5096	7462	
Transmitter	X	11/21/2020	WET	Hydrolynx 5096	1001	ALERT 2 Encoder board (SN: 11) installed in transmitter
VHF Polyphaser	X	11/21/2020	WET	Polyphaser IS-B50LN-C2-MA	N/A	
VHF Polyphaser	X	11/21/2020	WET	Polyphaser IS-B50LN-C2-MA	N/A	
VHF Polyphaser	X	11/21/2020	WET	Polyphaser IS-B50LN-C2-MA	N/A	
VHF Polyphaser	X	11/21/2020	WET	Polyphaser IS-B50LN-C2-MA	N/A	

9. APPENDIX C. DETAILED INVENTORY OF DEPLOYED EQUIPMENT

Station ID	Station Location	Asset	Make/ Model Number	Serial Number
2710	Highlands Ranch WTP WX	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		Temp/RH Sensor	Vaisala	
		Wind Sensor	Young	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2730	Salisbury Park WX	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2750	Castle Rock WX	Enclosure	Nema	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		Temp/RH Sensor	Vaisala	
		Wind Sensor	Young	
		Tipping Bucket	Hydrolynx 5050P-MS	
2780	Antelope Creek	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	5775
		ALERT 2 Board	Hydrolynx A2 Encoder Board	A18021068
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2790	West Cherry Creek WX	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific AL200	1897

810/1005	Pine Cliff	Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Campbell Radar	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2820	Haskins Gulch	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	6642
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
840/1006	Sulphur Gulch	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	6338
		ALERT 2 Board	Hydrolynx A2 Encoder Board	788
		Radio	Maxon SD125EL V2	
		Antenna	N/A	
		PT/ Radar	Druck	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2850	Cherry Creek @ Bayou Gulch	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	7871
		Radio	Maxon SD125EL V2	
		Antenna	N/A	
		PT/ Radar	Keller Acculevel	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2860	Cherry Creek @ Stroh Road	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	6665
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2870	Cherry Creek @ Cottonwood	Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	6796
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Druck	
		Tipping Bucket	High Sierra 2400 Tipping Bucket	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	

2880	Happy Canyon Creek	Transmitter	Hydrolynx 5096	6667
		ALERT 2 Board	Hydrolynx A2 Encoder Board	A18021028
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
2890	Spruce Mountain Open Space	Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	5317
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
2900	Russellville Gulch	Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8097
		Radio	Maxon SD125EL V2	
		Amplifier	Mirage B-34	BA2008120101
		Antenna	PCTEL	
		PT/ Radar	N/A	
2910	East Cherry Creek	Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8099
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
2920	West Cherry Head	Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	N/A	
		Transmitter	Hydrolynx 5096	6878
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
2930	Spring Valley Road WX	Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	High Sierra Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		Temp/RH Sensor	Vailsala	
		Wind Sensor	Young	

		Tipping Bucket	High Sierra 2400 Tipping Bucket	
2940	Willow Creek	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	7870
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
2950	DC Public Works	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8100
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
2960	Indian Creek	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8093
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
2970	Rampart Range Road	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific CR800	23629
		Solar Regulator	Campbell Scientific CH100	8519
		Radio	Quake Q1000-RLM (Sutron)	1120-5004
		Antenna	N/A	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
2980	Dakan Road	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Druck	
		Tipping Bucket	Hydrolynx 5050P-MS	
2990	Tomah Road	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	

		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
3010	East Plum Creek @ HWY 105 WX	Enclosure	Nema	
		Solar Panel	Solarland	
		Transmitter	Campbell CR1000	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		Temp/RH Sensor	Vaisala	
		Wind Sensor	Young	
		PT/ Radar	Campbell Scientific PT	
		Tipping Bucket	Hydrolynx 5050P-MS	
3030	Bingham Lake Park WX	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		Temp/RH Sensor	Vaisala	
		Wind Sensor	Young	
		Tipping Bucket	Hydrolynx 5050P-MS	
3040	East Cherry Creek @ Russellville Road	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8098
		ALERT 2 Board	Hydrolynx A2 Encoder Board	787
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
		Tipping Bucket	Hydrolynx 5050P-MS	
3070	Newlin Gulch @ Jordan Road	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific CR800	20943
		ALERT 2 Encoder	Campbell Scientific AL200	
		Radio	Ritron DTX-145	
		Radio	Campbell Scientific RF450	8787724
		Antenna	PCTEL	
		PT/ Radar	Campbell Scientific PT	
		Tipping Bucket	Hydrolynx 5050P-MS	
080/1006	Tallman Gulch @ Heritage Regional	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	1018
		ALERT 2 Board	Hydrolynx A2 Encoder Board	A18021099
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	

		PT/ Radar	Keller Acculevel	
		Tipping Bucket	Hydrolynx 5050P-MS	
090/ 1005	Big Dry Creek @ Heritage Regional	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	1420
		ALERT 2 Board	Hydrolynx A2 Encoder Board	828
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Keller Acculevel	
		Tipping Bucket	Hydrolynx 5050P-MS	
3100	Castle Rock Repeater	Enclosure	Nema	
		Solar Panel	Solarland	
		Transmitter	5096	
		Radio	Maxon SD125EL V2	
		Antenna	N/A	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
10014	Upper Sellers Gulch	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	1203
		ALERT 2 Board	Hydrolynx A2 Encoder Board	11
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
10015	Sellers Gulch at Haystack	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	1201
		ALERT 2 Board	Hydrolynx A2 Encoder Board	5
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Druck	
		Tipping Bucket	Hydrolynx 5050P-MS	
10029	Plum Creek @ Sedalia	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	6648
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Sniffer	
		Tipping Bucket	Hydrolynx 5050P-MS	
		Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	

10039	Fire Station #47	Transmitter	Hydrolynx 5096	6681
		ALERT 2 Board	Hydrolynx A2 Encoder Board	570
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
10044	East Plum Creek @ Columbine Open Space	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 50386	21185
		ALERT 2 Board	Hydrolynx A2 Encoder Board	544
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	Campbell Scientific Radar	
		Tipping Bucket	Hydrolynx 5050P-MS	
10045	East/West Trailhead	Standpipe	Hydrolynx Standpipe	
		Solar Panel	Solarland	
		Transmitter	Hydrolynx 5096	8096
		ALERT 2 Board	Hydrolynx A2 Encoder Board	752
		Radio	Maxon SD125EL V2	
		Antenna	PCTEL	
		PT/ Radar	N/A	
		Tipping Bucket	Hydrolynx 5050P-MS	
10077	Baldwin Gulch Dam	Standpipe	Nema box with I-Beam	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific AL200	
		Radio	Maxon SD125EL V3	
		Antenna	PCTEL	
		PT/ Radar	Campbell CS451 SDI-12	
		Tipping Bucket	TE525-L 6 in. Rain Gage TE525-L	
10080	WCC-7 Dam	Standpipe	Nema box with I-Beam	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific AL201	
		Radio	Maxon SD125EL V4	
		Antenna	PCTEL	
		PT/ Radar	Campbell CS451 SDI-13	
		Tipping Bucket	TE525-L 6 in. Rain Gage TE525-L	
10081	FP-P1 Dam	Standpipe	Nema box with I-Beam	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific AL202	
		Radio	Maxon SD125EL V5	
		Antenna	PCTEL	
		PT/ Radar	Campbell CS451 SDI-14	

		Tipping Bucket	TE525-L 6 in. Rain Gage TE525-L	
10082	FP-S1 Dam	Standpipe	Nema box with I-Beam	
		Solar Panel	Solarland	
		Transmitter	Campbell Scientific AL203	
		Radio	Maxon SD125EL V6	
		Antenna	PCTEL	
		PT/ Radar	Campbell CS451 SDI-15	
		Tipping Bucket	TE525-L 6 in. Rain Gage TE525-L	