# 2023 ANNUAL HYDROLOGY REPORT

SENECA II-W MINE

PERMIT C-82-057

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Submitted To: Colorado Division of Reclamation, Mining and Safety
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# Table of Contents

## FIGURES



## APPENDICES

# 1.0 INTRODUCTION

This Annual Hydrology Report presents the hydrologic monitoring data collected during the 2023 water year (October 2022 – September 2023) at the Seneca Coal Company's (SCC) Seneca II-W Mine (SIIW). The AHR fulfills the reporting requirements under the Colorado Division of Reclamation, Mining, and Safety (CDRMS) Permit No. C-82-057.

## 1.1 BACKGROUND

SIIW is a surface coal mine located in Routt County, approximately 9 miles south of Hayden, Colorado (Figure 1). Mining began at SIIW in August 1990. Production ceased in 2005 and the last of the coal at SIIW was removed in January 2006. The mine has been reclaimed and vegetated for many years and SCC is actively pursuing bond release.

## 2.0 METEOROLOGICAL

Meteorological data for the 2023 water year is presented in Appendix A. The 2023 data was obtained from NOAA weather station USC00053867 located in Hayden, Colorado (www.ncdc.noaa.gov/cdo-wb/). A total of 20.99 inches of precipitation was measured in 2023, which is 2.78 inches greater than the 1981-2023 average of 18.21 inches. November, December, January, March, and June were wetter than normal, but the remaining months were drier than normal. Potential snowpack runoff, as estimated by totaling November through March precipitation, was 14.12 inches, which was 6.45 inches above the 1981-2023 average of 7.67 inches.

## 3.0 GROUNDWATER

The SIIW groundwater monitoring program includes 14 monitoring wells. The following table includes the wells monitored, the water bearing unit they are screened in, the frequency of monitoring, and the required parameters list. The monitoring well locations are shown on Figure 1. Groundwater monitoring was completed by experienced personnel using accepted monitoring practices. All samples were analyzed by ACZ Laboratories.

| Site | Unit | Monitoring Frequency | | Parameter List |
|---|---|---|---|---|
| | | Water Level | Water Quality | |
| DCAL-02 | Dry Creek Alluvium | A | A | GW Long |
| WHAL7-2 | Hubberson Gulch Alluvium | A | A | GW Long |
| WOV14 | Wadge Overburden | A | A | GW Long |
| WOV17 | Wadge Overburden | A | A | GW Short |
| WOV25 | Wadge Overburden | A | A | GW Long |
| WW14 | Wadge Coal | A | A | GW Long |
| WW17 | Wadge Coal | A | A | GW Short |
| WW25 | Wadge Coal | A | A | GW Long |
| WSOV25 | Sage Creek Overburden | A | A | GW Long |
| WSC25 | Sage Creek Coal | A | A | GW Long |
| WWCOV25 | Wolf Creek Overburden | A | A | GW Long |
| WWC17 | Wolf Creek Overburden | A | NR | NR |
| WWC25 | Wolf Creek Coal | A | A | GW Long |
| WWCU25 | Wolf Creek Underburden | A | A | GW Long |

**Note**
A: Annual
NR: Not Required
GW Long: Field conductivity, field pH, field temperature, fluoride, dissolved iron, dissolved manganese, nitrate, nitrite, dissolved selenium, sulfate, total dissolved solids
GW Short: Field conductivity, field pH, field temperature, dissolved iron, dissolved manganese, total dissolved solids

### 3.1 WATER LEVELS

The static water levels measured during the 2023 water year are included with the groundwater quality data in Appendix B. Water level hydrographs for each of the

wells are also provided in Appendix C. The static water level was measured at all wells except for WSC25, where the well casing was damaged, and a measurement could not be made. The water levels measured at the remaining wells this year were all within their respective historic range.

Water levels in the water bearing units at SIIW exhibit seasonal fluctuations. The water table in the shallow alluvial wells fluctuates in response to seasonal precipitation events, with the water table typically at its highest during the spring snowmelt seasons and then declining through late summer/early fall in response to the dry conditions. The water levels in the bedrock overburden and coal seams also fluctuate in response to recharge from seasonal precipitation but are partially influenced by interactions with groundwater in the reclaimed mine spoil. Due to the bedrock unit depths and lower hydraulic conductivity the water level fluctuations are typically muted relative to the fluctuations observed in the shallow alluvium.

### 3.2 Groundwater Quality

Monitoring well DCAL-02 serves as the Groundwater Point of Compliance (GWPOC) for SIIW (see Technical Revision 63). This well is screened within the Dry Creek Alluvium and is located downgradient of the mines permit boundary. Only a small portion of the SIIW mining area is located within the Sage Creek Watershed and a GWPOC for the Sage Creek Alluvium was deemed unnecessary because the spoil groundwater flows to the west along the dipping bedrock, away from the Sage Creek tributaries. GWPOC bedrock wells were also deemed unnecessary because of the limited potential for the mine to negatively impact the quality of bedrock groundwater. The low hydraulic conductivity of the bedrock units inhibits groundwater from migrating away from the mine and low permeable confining layers further isolate groundwater at the mine from the nearest aquifer, the Trout Creek Sandstone. Bedrock groundwater has not historically been used in this area because its ambient quality is marginal to unsuitable for both livestock and irrigation purposes and the yields are low.

Analytical results for the groundwater monitoring conducted in 2023 are provided in Appendix B. Table B.1 provides a comparison of the DCAL-02 samples to the Dry Creek Alluvial GWPOC water quality standards established in TR-63. Table B.2

includes the analytical results for the remaining monitoring wells, however a comparison to water quality standards is not made as these wells are not GWPOC's. The groundwater quality at well DCAL-02 met all applicable water quality standards.

Predictions for the expected TDS increases to be observed at various monitoring wells were made in the Probable Hydrologic Consequences (PHC, Tab 17) section of the SIIW Permit Application Package (PAP). The following table outlines these predictions along with this year's observed value.

| Well | Predicted TDS (mg/L) | This Years TDS (mg/L) |
|---|---|---|
| WHAL7-2 | 1299 | 696 |
| WOV14 | 4385 | 3520 |
| WOV17 | 4295 | 3990 |
| WOV25 | - | 1360 |
| WW14 | 2630 | 4680* |
| WW17 | 3002 | 494 |
| WW25 | - | 504 |

**Note**
*Indicates value above prediction

In 2023, the TDS at one of the seven wells exceeded the predicted TDS value. Its important to acknowledge that the TDS predictions were intended to demonstrate the potential average increase in postmining groundwater quality adjacent to the mine pits and were not intended to be compared to a singular well. This is illustrated through the application of the predicted Wadge Overburden TDS value (4295 mg/L) to WOV17. The 4295 mg/L value was calculated by multiplying the predicted 5.5% increase in TDS for this area to the pre-mine TDS average (4072 mg/L) measured at several Wadge Overburden Wells. However, the pre-mine average TDS at WOV17 was 8043 mg/L, which was already significantly greater than the predicted value. In this instance a more appropriate comparison would be to compare the 2022 WOV17 TDS to its baseline average times the estimated 5.5% increase (8043 + 5.5% = 8485 mg/L). Regardless, the well with TDS above the predicted post mine value is screened within the bedrock and the low hydraulic conductivity of these units will continue to limit the extent of the TDS changes only to groundwater in close proximity to the mine.

## 4.0 SURFACE WATER

SIIW lies within the Dry Creek and Sage Creek Watersheds. The majority of the permit area drains to the west towards Hubberson Gulch (a tributary to Dry Creek) and Dry Creek, which flows north to the Yampa River. The remainder of the permit area drains northeast towards Sage Creek, which flows north-northeast to the Yampa River. The following table includes the list of SIIW surface water monitoring points, the watershed they are located in, the frequency of monitoring, and the required parameters list. See Figure 1 for the location of the surface water monitoring points. Surface water monitoring was completed by experienced personnel using accepted monitoring practices. All samples were analyzed by ACZ Laboratories.

| Site | Type | Watershed | Monitoring Frequency | | Parameter List |
|---|---|---|---|---|---|
| | | | Flow | Water Quality | |
| WSH9 | Surface Water | Dry Creek | June/Sept | June/Sept | SW Short |
| NPDES17 | NPDES | Dry Creek | M | M | NPDES |
| NPDES16 | NPDES | Dry Creek | M | M | NPDES |
| WSH7* | Surface Water | Dry Creek | NR | NR | NR |
| NPDES6 | NPDES | Dry Creek | M | M | NPDES |
| WSHF1 | Surface Water | Dry Creek | SA | SA | SW Long |
| NPDES5 | NPDES | Dry Creek | M | M | NPDES |
| WSD5 | Surface Water | Dry Creek | SA | SA | SW Long |
| NPDES15 | NPDES | Sage Creek | M | M | NPDES |
| NPDES9 | NPDES | Sage Creek | M | M | NPDES |
| WSSF3 | Surface Water | Sage Creek | SA | SA | SW Long |

**Note**

*Monitoring at WSH7 was suspended per TR-69. However, since samples were collected in 2022 the location is retained on the monitoring list and the results have been reported.

SA: Semiannual during spring snowmelt and summer baseflow

NR: Not Required

M: Monthly

SW Long: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total mercury, ammonia, nitrate, nitrite, dissolved selenium, sulfate, sulfide, total dissolved solids, total suspended solids

SW Short: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total suspended solids, total dissolved solids

NPDES: See NPDES permit CO-0000221

The Colorado Water Quality Control Commission (CWQCC) has established segment specific aquatic life water quality standards (CDPHE, Reg. 33) for upper Dry Creek (Yampa River Segment 13d) and Sage Creek (Yampa River Segment 13e). Therefore, the following surface water quality discussion has been organized by drainage basin. The 2023 Water Year surface water quality data is provided in Appendix D. Samples from this year's stream points are compared to both the Colorado Department of Public Health & Environment (CDPHE) surface water agricultural use standards (CDPHE, Reg. 31) and the appropriate segment specific aquatic life water quality standards. Samples from NPDES outfalls are compared to NPDES discharge limits as well as the segment specific aquatic life standards. Additional discussion of the water quality in each stream segment follows.

### 4.1 Dry Creek

Analytical results for the 2023 surface water monitoring conducted at the four Dry Creek stream points is provided in Table D.1 of Appendix D and the results of the Dry Creek outfalls are included in Tables D.2 through D.5. There was a single exceedance of the 1 mg/L total recoverable iron NPDES monthly average discharge limit at Outfall 006 (NPDES6) in 2023. The sample, collected in April, did not exceed the Yampa Segment 13d chronic aquatic life total recoverable iron spring standard (Mar-Apr) of 3.040 mg/L. The Seneca Mine Complex CPDS permit has been on administrative extension since 2011 and no changes to the permit may occur until it is renewed. At that time, it is expected that the monthly average iron limit, which is based on surface water quality, will be updated to reflect the chronic aquatic life standard. There were no other exceedances of the NPDES discharge limits or Yampa Segment 13d water quality standard at the four Dry Creek NPDES Outfalls in 2023.

The stream points were compliant with all agricultural use standards and all Yampa Segment 13d aquatic life standards except for total recoverable iron, sulfide, and mercury. Total recoverable iron exceeded the Yampa Segment 13d chronic aquatic life standard once at steam point WSH9, twice at WSH7, and once at WSHF1. The exceedances occurred during the June and July monitoring events. During the June event only WSH7 exceeded the iron standard. WSH7 is located downstream of Outfalls 017 and 016, but upstream of Outfalls 006 and 005. The total recoverable iron

measured at Outfalls 017 and 016 in June was only 0.186 and 0.086 mg/L, and the iron never exceeded 0.377 mg/L at either of these outfalls in 2023. During the July monitoring event iron exceeded the chronic aquatic life standard at upstream point WSH9 and downstream points WSH7 and WSHF1. Monitoring completed at the outfalls during the same event indicated they were all compliant with total recoverable iron standard and that the iron was an order of magnitude less than the concentration measured at both the upstream and downstream points.

Table D.6 provides a statistical summary of the pre-mine total recoverable iron measured at Dry Creek stream points WSH7, WSHF1, and WSD5. None of the total recoverable iron exceedances in 2023 were outside of the range measured prior to mining. Total recoverable iron is strongly correlated with suspended solids at WSH9 ($r^2$: 0.89), WSH7 ($r^2$: 0.92), and WSHF1 ($r^2$: 0.97) (Appendix D Figure D.1). SIIW has been vegetated and stable for over a decade and TSS in the mine discharges is typically an order of magnitude less than the concentrations observed in stream. This suggests the iron measured in Dry Creek is unrelated to runoff from the reclaimed mine and is the result of natural erosion that is occurring in unaffected areas of the watershed.

The method detection limit for the sulfide analysis (MDL: 0.02 mg/L) conducted by SCC's lab exceeds the 0.002 mg/L CDPHE Yampa Segment 13d aquatic life standard for un-ionized sulfide ($H_2S$). All of the sulfide samples analyzed in 2023 were non-detect. The analytical method employed by the lab detects both dissolved sulfides and acid-soluble metallic sulfides that are present in suspended matter and provides a single cumulative concentration. Dissolved sulfide includes both the ionized ($HS^-$) and toxic un-ionized forms of hydrogen sulfide ($H_2S$). The distribution of sulfide between the un-ionized hydrogen sulfide and ionized form is dependent on the temperature and pH. At low pH most of the dissolved sulfide exists as the toxic un-ionized hydrogen sulfide. In alkaline waters, like those present at SIIW, most of the dissolved sulfide is present as non-toxic ionized sulfide. Therefore, it is not expected that these non detects represent exceedances of the sulfide aquatic life standard.

The method detection limit for mercury (0.2 ug/L) used by SCC's lab for stream points WSHF1 and WSD5 is above the 0.01 ug/L aquatic life standard for mercury. None of the samples collected during 2023 exceeded the labs method detection limit. The

CDPHE performed a reasonable potential analysis for the Seneca NPDES outfalls and mercury monitoring was dropped from all outfalls except Outfall 005, which did not have enough sample data for CDPHE to complete the analysis. Based on historic data its not expected that there were true exceedances of the mercury standard.

There was one exceedance of the Yampa Segment 13d agricultural use dissolved manganese standard at stream point WSD5. The 0.2 mg/L manganese standard is only applicable when irrigation water is applied to acidic soils (<6.0 pH). For alkaline soils, as are found in the SIIW area, a more appropriate standard would be 10 mg/L (EPA, 1976). Therefore, the July WSD5 sample was not considered to be exceeding the standard. The dissolved manganese in this sample was also significantly less than the Yampa Segment 13i acute and chronic manganese standards.

### 4.2 Sage Creek

Analytical results for the 2023 surface water monitoring conducted at Sage Creek stream point WSSF3 is provided in Table D.7 of Appendix D and the analytical results for the two outfalls that report to Sage Creek are included in Table D.8. There were no exceedances of the NPDES discharge limits or Yampa Segment 13e aquatic life standards at Outfalls 009 and 015 or the Yampa Segment 13e aquatic life standards and agricultural use standards at WSSF3. As discussed in Section 4.1, the lab used by SCC has a method detection limit for mercury and sulfide that are above the Segment 13e water quality standard. None of the samples collected from WSSF3 in 2023 exceed the labs mercury or sulfide method detection limit.

In the Probable Hydrological Consequences (PHC, Tab 17) section of the SIIW PAP, predictions were made for the expected TDS increases to be observed at several stream points. The table below outlines these predictions along with this year's average concentration. The 2023 annual average TDS at Dry Creek monitoring points WSHF1 and WSD5 were below the concentrations predicted in the SIIW PHC. The 2023 annual average TDS at Sage Creek WSSF3 exceeded the SIIW PHC predictions. Although the TDS at Sage Creek monitoring point WSSF3 exceeds the SIIW PHC prediction its important to recognize that this location also receives drainage from the Yoast Mine (C-1994-082). The Yoast Mine was permitted approximately 12 years

after SIIW and the contributions from Yoast were not considered at the time of the SIIW PHC predictions. Therefore, a more meaningful comparison of the current TDS at WSSF3 would be to the 2118 mg/L value predicted for WSSF3 in the Yoast Mine PHC. The 904 mg/L average TDS measured in 2023 is approximately 1200 mg/L less than the predicted post mine concentration and indicates that neither operation has had a significant impact on the potential use of these surface waters for agriculture or livestock purposes.

| Stream Point | Predicted TDS (mg/L) | Mean TDS (mg/L)* |
|---|---|---|
| WSHF1 | 2527 | 2263 |
| WSD5 | 2451 | 1890 |
| WSSF3 | 626** | 905 |

* Duplicates removed from average calculation

** Predicted TDS value does not account for later contributions from Yoast Mine (C-1994-082). Predicted TDS concentration at WSSF3 in Yoast Mine PHC is 2118 mg/L.

## 5.0 SPRINGS

The SIIW monitoring program includes nine spring sites. The following table includes the list of springs monitored, the frequency of monitoring, and the required parameters list. See Figure 1 for the location of the spring points. Spring monitoring was completed by experienced personnel using accepted monitoring practices. All samples were analyzed by ACZ Laboratories.

| Site | Type | Unit | Monitoring Frequency | | Parameter List |
|---|---|---|---|---|---|
| | | | Discharge | Water Quality | |
| S-46 (WSPG46) | Spring | Native | A | A | SW Long |
| S-47 (WSPG47) | Spring | Native | A | A | SW Short |
| S-50 (WSPG50) | Spring | Native | A | A | SW Long |
| S-7 (WSPG7) | Spring | Native | A | A | SW Long |
| Spoil Spring 1 (WSSPG1) | Spring | Spoils | A | A | SW Short |
| Spoil Spring 2 (WSSPG2) | Spring | Spoils | A | A | SW Long |
| Spoil Spring 3 (WSSPG3) | Spring | Spoils | A | A | SW Long |
| Spoil Spring 4 (WSSPG4) | Spring | Spoils | A | A | SW Long |
| Spoil Spring 5 (WSSPG5) | Spring | Spoils | A | A | SW Long |

**Note**
A: Annual
SW Long: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total mercury, ammonia, nitrate, nitrite, dissolved selenium, sulfate, sulfide, total dissolved solids, total suspended solids
SW Short: Field conductivity, field pH, field temperature, total recoverable iron, dissolved manganese, total suspended solids, total dissolved solids

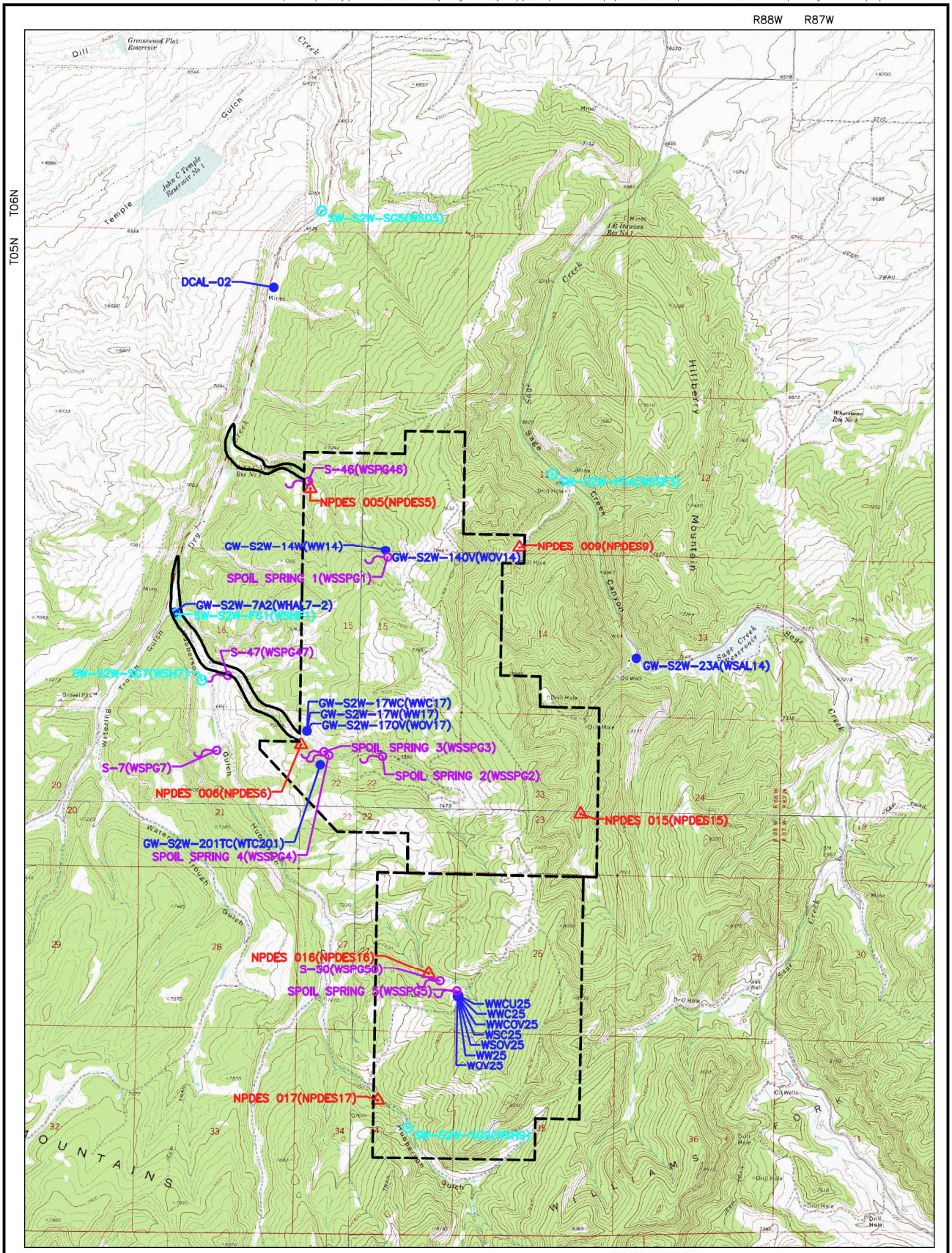
Four native springs and five spoil springs were monitored in 2023. The primary land use in this area, including the reclaimed mine parcels, is livestock grazing and wildlife habitat. Therefore, the water quality data collected from both the native and spoil springs are compared to the CWQCC agricultural use standards established in CDPHE Regulation 31.

Table E.1 in Appendix E includes the analytical results for the spring samples collected in 2023. As is described in the approved SIIW Hydrologic Monitoring Plan (see Tab 15, Appendix 15.3A) springs with flow less than 5 gpm should only be analyzed for field parameters. This is because it is often difficult to collect a

representative sample from diffuse flow without disturbing, and inadvertently collecting, sediments and organic matter that can produce false positive metal results. Water from non-flowing, pooled spring water, should also not be collected as stagnant water is often strongly influenced by bacteria and low oxygen conditions that alter the water chemistry. In 2023 two of the native springs (WSPG7, WSPG46) and one of the spoil springs (WSSPG2) had measured flows less than 5 gpm however water quality samples were inadvertently collected from these locations. Although these results should be considered unrepresentative, +all the spring samples were compared to the agricultural use water quality standards for discussion purposes. None of the agricultural use standards were exceeded at the native or spoil springs. The 0.2 mg/L manganese standard is only applicable when irrigation water is applied to acidic soils (<6.0 pH). For alkaline soils, as are found in the SIIW area, a more appropriate standard would be 10 mg/L (EPA, 1976). Therefore, none of the manganese results above 0.2 mg/L were considered exceedances of the standard.

## 6.0 SUMMARY

No significant hydrologic impacts attributable to the activities at the SIIW were noted during 2023. Groundwater levels in all monitoring wells were within their historic range. No exceedances of the groundwater quality standards were observed at the GWPOC. Exceedances of the total recoverable iron chronic aquatic life standard occurred during June and July in Dry Creek. However, the total recoverable iron measured at the mine outfalls during these events were an order of magnitude less than the instream and were compliant with the standard. Total recoverable iron is strongly correlated with suspended solids at stream points WSH9 ($r^2$: 0.89), WSH7 ($r^2$: 0.92), and WSHF1 ($r^2$: 0.97) (Appendix D Figure D.1). SIIW has been vegetated and stable for over a decade and TSS in the mine discharges is also typically an order of magnitude less than the concentrations observed at the stream points. This indicates the iron measured at the Dry Creek stream points is unrelated to runoff from the reclaimed mine and is the result of natural erosion that is occurring in unaffected areas of the watershed. No other exceedances of the surface water quality standards were observed at the Dry Creek or Sage Creek stream points in 2023.




GROUNDWATER
SURFACE WATER
NPDES
SPRING
PERMIT BOUNDARY

IMAGE SOURCE:
DIGITAL RASTER GRAPHIC COUNTY MOSAIC BY NRCS OF ROUTT COUNTY, COLORADO FROM GEOSPATIAL DATA GATEWAY (HTTPS://GDG.SC.EGOV.USDA.GOV) DOWNLOADED 10/16

0 3000'
SCALE

| | |
|---|---|
| DESIGNED BY: JAH | FIGURE 1<br>MONITORING SITE LOCATIONS |
| DRAWN BY: SDG | |
| CHECKED BY: TNS | SENECA II WEST MINE<br>PEABODY SAGE CREEK MINING, LLC<br>PEABODY ENERGY |
| DATE: 2019 | WWC ENGINEERING |

# APPENDIX A

# METEOROLOGICAL DATA

| PERIOD OF RECORD PRECIPITATION SUMMARY | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Water Year** | **OCT** | **NOV** | **DEC** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **TOTAL** |
| 2023 | 1.23 | 2.06 | 4.12 | 3.79 | 1.04 | 3.11 | 1.37 | 0.52 | 1.69 | 0.29 | 1.33 | 0.44 | 20.99 |
| 2022 | 1.82 | 0.62 | 2.79 | 1.18 | 0.85 | 1.43 | 2.07 | 3.14 | 0.61 | 1.14 | 0.99 | 2.1 | 18.74 |
| 2021 | 0.87 | 0.74 | 1.46 | 1.03 | 1.59 | 1.67 | 0.5 | 1.02 | 0.15 | 0.86 | 1.09 | 1.46 | 12.44 |
| 2020 | 1.90 | 1.37 | 2.60 | 2.53 | 2.40 | 1.67 | 1.75 | 1.63 | 0.77 | 0.71 | 0.43 | 0.43 | 18.19 |
| 2019 | 2.14 | 1.81 | 1.62 | 2.45 | 1.46 | 2.89 | 1.66 | 1.88 | 3.57 | 0.38 | 0.44 | 1.53 | 21.83 |
| 2018 | 2.45 | 1.31 | 1.36 | 1.65 | 1.92 | 1.90 | 2.95 | 0.85 | 0.15 | 0.15 | 1.33 | 0.17 | 16.19 |
| 2017 | 1.29 | 0.91 | 2.06 | 2.70 | 1.47 | 0.84 | 2.06 | 1.85 | 0.13 | 1.68 | 0.46 | 1.74 | 17.19 |
| 2016 | 1.39 | 1.90 | 2.55 | 2.65 | 1.16 | 1.40 | 3.02 | 1.94 | 0.40 | 0.81 | 0.19 | 1.02 | 18.43 |
| 2015 | 1.60 | 2.10 | 1.84 | 0.55 | 1.02 | 1.30 | 1.60 | 4.36 | 0.61 | 2.36 | 1.53 | 0.90 | 19.77 |
| 2014 | 2.69 | 1.75 | 1.42 | 2.02 | 0.78 | 1.96 | 1.19 | 2.58 | 0.72 | 1.50 | 3.77 | 0.87 | 21.25 |
| 2013 | 0.86 | 0.46 | 3.21 | 1.02 | 0.73 | 1.29 | 3.58 | 1.67 | 0.06 | 0.46 | 1.48 | 2.76 | 17.58 |
| 2012 | 1.41 | 1.65 | 0.36 | 0.87 | 1.97 | 0.50 | 1.13 | 0.22 | 0.15 | 2.43 | 0.55 | 1.56 | 12.80 |
| 2011 | 2.18 | 1.91 | 2.98 | 1.59 | 2.09 | 2.52 | 4.50 | 3.56 | 0.85 | 1.82 | 0.65 | 1.14 | 25.79 |
| 2010 | 1.22 | 0.77 | 1.24 | 0.75 | 0.90 | 0.73 | 1.98 | 2.80 | 1.34 | 1.19 | 1.56 | 0.62 | 15.10 |
| 2009 | 0.53 | 1.16 | 1.38 | 2.80 | 0.60 | 1.32 | 1.40 | 1.89 | 2.08 | 0.51 | 1.04 | 0.48 | 15.19 |
| 2008 | 1.41 | 0.13 | 3.36 | 2.51 | 1.70 | 1.64 | 0.94 | 1.68 | 0.37 | 0.57 | 0.75 | 0.91 | 15.97 |
| 2007 | 2.64 | 0.76 | 0.86 | 1.04 | 1.34 | 1.46 | 0.62 | 0.87 | 0.33 | 0.52 | 1.12 | 2.72 | 14.28 |
| 2006 | 2.27 | 2.04 | 2.01 | 1.78 | 0.58 | 1.06 | 0.95 | 0.93 | 0.24 | 1.48 | 2.71 | 2.75 | 18.80 |
| 2005 | 1.34 | 1.68 | 0.50 | 1.49 | 0.84 | 0.99 | 1.97 | 1.41 | 3.36 | 0.57 | 1.57 | 1.30 | 17.02 |
| 2004 | 0.44 | 2.90 | 1.58 | 0.74 | 1.64 | 0.40 | 1.57 | 1.26 | 0.86 | 1.00 | 1.44 | 2.76 | 16.59 |
| 2003 | 1.88 | 1.09 | 1.28 | 0.74 | 1.95 | 0.99 | 2.57 | 1.15 | 1.33 | 0.47 | 0.62 | 1.83 | 15.90 |
| 2002 | 1.14 | 1.17 | 0.54 | 0.88 | 0.92 | 1.06 | 1.39 | 0.40 | 0.37 | 0.78 | 1.26 | 1.94 | 11.85 |
| 2001 | 0.67 | 1.60 | 1.16 | 0.96 | 1.41 | 1.07 | 1.28 | 1.15 | 0.85 | 1.11 | 2.06 | 1.66 | 14.98 |
| 2000 | 0.43 | 0.61 | 1.66 | 1.66 | 1.68 | 1.46 | 1.84 | 1.94 | 0.54 | 0.75 | 2.38 | 2.00 | 16.95 |
| 1999 | 1.85 | 0.81 | 1.13 | 2.13 | 0.99 | 0.57 | 3.21 | 2.00 | 1.39 | 2.10 | 1.85 | 0.78 | 18.81 |
| 1998 | 2.37 | 1.08 | 0.95 | 1.34 | 1.93 | 1.77 | 1.77 | 0.62 | 2.51 | 1.50 | 0.48 | 1.50 | 17.82 |
| 1997 | 1.79 | 2.39 | 1.69 | 2.88 | 0.97 | 0.48 | 3.19 | 2.75 | 1.60 | 1.05 | 3.57 | 5.48 | 27.84 |
| 1996 | 1.32 | 2.20 | 1.26 | 3.60 | 2.19 | 0.99 | 1.34 | 2.10 | 1.00 | 1.33 | 0.35 | 1.37 | 19.05 |
| 1995 | 0.95 | 2.09 | 0.68 | 1.47 | 0.97 | 0.82 | 3.36 | 4.48 | 1.54 | 1.23 | 0.73 | 2.69 | 21.01 |
| 1994 | 3.02 | 1.61 | 1.16 | 0.69 | 1.13 | 0.56 | 1.85 | 1.07 | 0.43 | 0.24 | 0.98 | 0.72 | 13.46 |
| 1993 | 1.46 | 1.48 | 1.33 | 2.28 | 1.66 | 1.53 | 2.55 | 1.14 | 1.29 | 0.65 | 1.37 | 1.39 | 18.13 |
| 1992 | 1.18 | 2.79 | 0.85 | 0.88 | 1.16 | 1.20 | 1.66 | 3.08 | 1.15 | 4.38 | 0.95 | 0.98 | 20.26 |
| 1991 | 3.20 | 1.71 | 1.18 | 1.75 | 0.86 | 2.42 | 1.09 | 0.96 | 1.74 | 1.59 | 2.00 | 1.32 | 19.82 |
| 1990 | 0.77 | 1.38 | 2.08 | 0.65 | 1.64 | 1.54 | 1.36 | 1.12 | 1.38 | 1.14 | 0.51 | 1.22 | 14.79 |
| 1989 | 0.13 | 2.79 | 1.13 | 1.02 | 2.50 | 1.38 | 0.45 | 1.39 | 0.53 | 1.82 | 1.33 | 1.52 | 15.99 |
| 1988 | 1.27 | 1.22 | 2.32 | 2.80 | 0.70 | 1.31 | 0.83 | 1.85 | 1.93 | 0.60 | 1.03 | 2.31 | 18.17 |
| 1987 | 2.65 | 1.00 | 0.56 | 1.28 | 1.35 | 1.50 | 1.60 | 1.92 | 0.64 | 1.78 | 1.35 | 0.46 | 16.09 |
| 1986 | 3.51 | 4.19 | 1.34 | 0.79 | 3.01 | 1.59 | 2.70 | 0.99 | 1.00 | 1.65 | 1.96 | 2.12 | 24.85 |
| 1985 | 2.61 | 1.68 | 1.80 | 2.40 | 1.01 | 2.40 | 3.77 | 1.40 | 0.68 | 1.28 | 0.64 | 1.17 | 20.84 |
| 1984 | 2.16 | 2.82 | 5.03 | 0.59 | 0.43 | 2.31 | 2.68 | 1.33 | 2.36 | 1.84 | 2.61 | 1.31 | 25.47 |
| 1983 | 1.64 | 1.52 | 1.03 | 1.10 | 1.66 | 2.17 | 2.28 | 1.57 | 2.76 | 1.88 | 1.08 | 0.79 | 19.48 |
| 1982 | 3.76 | 0.78 | 2.51 | 1.71 | 0.62 | 2.64 | 1.92 | 0.97 | 0.46 | 1.60 | 1.19 | 2.64 | 20.80 |
| 1981 | 1.09 | 0.33 | 0.43 | 0.53 | 0.45 | 2.50 | 0.69 | 3.97 | 1.65 | 2.24 | 1.12 | 1.33 | 16.33 |
| AVG | 1.69 | 1.54 | 1.68 | 1.61 | 1.33 | 1.50 | 1.91 | 1.75 | 1.11 | 1.24 | 1.30 | 1.54 | 18.21 |

**Note**

Data from October 1980 to February 1982, and 2011 Water Year and later, from U.S. Department of Commerce - NOAA - Hayden Station. All other data from Seneca II Mine Meteorological Station with Belfort Weighing Bucket Rain Gage. Site relocated to USGS site on August 31, 1991. Precipitation recorded in inches.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

# Record of Climatological Observations

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Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2022 | 10 | 01 | 58 | 40 | 56 | 0.15 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 02 | 65 | 45 | 53 | 0.12 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 03 | 67 | 40 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 04 | 68 | 40 | 61 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 05 | 68 | 34 | 62 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 06 | 71 | 35 | 65 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 07 | 70 | 33 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 08 | 71 | 37 | 62 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 09 | 71 | 36 | 61 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 10 | 69 | 35 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 11 | 68 | 32 | 63 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 12 | 69 | 31 | 59 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 13 | 69 | 32 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 14 | 70 | 28 | 61 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 15 | 70 | 27 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 16 | 67 | 27 | 59 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 17 | 68 | 26 | 59 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 18 | 69 | 27 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 19 | 71 | 29 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 20 | 72 | 30 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 21 | 68 | 27 | 61 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 22 | 68 | 32 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 23 | 60 | 30 | 32 | 0.54 | | 0.5 | | 0.0 | | | | | | | | |
| 2022 | 10 | 24 | 37 | 26 | 33 | 0.01 | | T | | 0.0 | | | | | | | | |
| 2022 | 10 | 25 | 35 | 27 | 34 | 0.08 | | T | | 0.0 | | | | | | | | |
| 2022 | 10 | 26 | 44 | 29 | 34 | 0.15 | | 1.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 27 | 34 | 25 | 33 | 0.18 | | 1.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 28 | 51 | 20 | 40 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 29 | 53 | 24 | 45 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 30 | 54 | 27 | 46 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 10 | 31 | 56 | 23 | 47 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| Summary | | | 62 | 31 | | 1.23 | | 2.5 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

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National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2022 | 11 | 01 | 62 | 28 | 54 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 02 | 63 | 32 | 53 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 03 | 53 | 28 | 29 | 0.32 | | 2.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 04 | 35 | 16 | 30 | 0.09 | | 1.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 05 | 45 | 26 | 43 | 0.12 | | 0.5 | | 0.0 | | | | | | | | |
| 2022 | 11 | 06 | 43 | 27 | 32 | 0.36 | | 4.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 07 | 62 | 31 | 52 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 08 | 62 | 34 | 46 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 09 | 59 | 29 | 29 | 0.16 | | 2.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 10 | 32 | 19 | 25 | 0.04 | | 1.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 11 | 32 | 11 | 21 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 12 | 41 | 11 | 30 | 0.00 | | 0.0 | | 1.0 | | | | | | | | |
| 2022 | 11 | 13 | 45 | 15 | 30 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 14 | 34 | 14 | 24 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2022 | 11 | 15 | 28 | 9 | 18 | 0.23 | | 4.5 | | 3.0 | | | | | | | | |
| 2022 | 11 | 16 | 30 | 5 | 18 | 0.00 | | 0.0 | | 3.0 | | | | | | | | |
| 2022 | 11 | 17 | 31 | 11 | 24 | 0.02 | | 0.5 | | 3.0 | | | | | | | | |
| 2022 | 11 | 18 | 24 | 11 | 11 | T | | 0.5 | | 3.0 | | | | | | | | |
| 2022 | 11 | 19 | 32 | -3 | 19 | 0.00 | | 0.0 | | 3.0 | | | | | | | | |
| 2022 | 11 | 20 | 43 | 6 | 26 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 21 | 45 | 12 | 30 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 22 | 47 | 11 | 31 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 23 | 34 | 10 | 29 | 0.10 | | 1.3 | | 3.0 | | | | | | | | |
| 2022 | 11 | 24 | 38 | 19 | 29 | T | | T | | 3.0 | | | | | | | | |
| 2022 | 11 | 25 | 42 | 12 | 29 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 26 | 43 | 16 | 32 | 0.00 | | 0.0 | | 2.0 | | | | | | | | |
| 2022 | 11 | 27 | 37 | 27 | 29 | 0.11 | | 2.0 | | 3.0 | | | | | | | | |
| 2022 | 11 | 28 | 38 | 25 | 30 | T | | T | | 3.0 | | | | | | | | |
| 2022 | 11 | 29 | 30 | 11 | 11 | 0.51 | | 6.0 | | 8.0 | | | | | | | | |
| 2022 | 11 | 30 | 35 | 6 | 20 | 0.00 | | 0.0 | | 8.0 | | | | | | | | |
| | | Summary | 42 | 17 | | 2.06 | | 25.3 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation

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Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | At Obs. | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2022 | 12 | 01 | 46 | 7 | 41 | 0.00 | | 0.0 | | 7.0 | | | | | | | | |
| 2022 | 12 | 02 | 45 | 11 | 11 | 0.26 | | 4.0 | | 11.0 | | | | | | | | |
| 2022 | 12 | 03 | 27 | 1 | 27 | 0.00 | | 0.0 | | 11.0 | | | | | | | | |
| 2022 | 12 | 04 | 39 | 26 | 35 | T | | T | | 8.0 | | | | | | | | |
| 2022 | 12 | 05 | 39 | 28 | 28 | 0.52 | | 6.0 | | 13.0 | | | | | | | | |
| 2022 | 12 | 06 | 31 | 15 | 15 | 0.34 | | 5.0 | | 17.0 | | | | | | | | |
| 2022 | 12 | 07 | 23 | 2 | 17 | 0.07 | | 1.0 | | 17.0 | | | | | | | | |
| 2022 | 12 | 08 | 33 | 13 | 13 | 0.36 | | 5.0 | | 19.0 | | | | | | | | |
| 2022 | 12 | 09 | 24 | 5 | 15 | 0.00 | | 0.0 | | 19.0 | | | | | | | | |
| 2022 | 12 | 10 | 28 | 4 | 18 | 0.00 | | 0.0 | | 17.0 | | | | | | | | |
| 2022 | 12 | 11 | 29 | 13 | 24 | 0.00 | | 0.0 | | 17.0 | | | | | | | | |
| 2022 | 12 | 12 | 38 | 23 | 27 | T | | T | | 16.0 | | | | | | | | |
| 2022 | 12 | 13 | 27 | 13 | 16 | 0.34 | | 4.0 | | 19.0 | | | | | | | | |
| 2022 | 12 | 14 | 24 | 15 | 20 | 0.24 | | 4.5 | | 23.0 | | | | | | | | |
| 2022 | 12 | 15 | 20 | 10 | 11 | 0.11 | | 1.5 | | 23.0 | | | | | | | | |
| 2022 | 12 | 16 | 12 | -3 | 0 | 0.00 | | 0.0 | | 22.0 | | | | | | | | |
| 2022 | 12 | 17 | 14 | -7 | -1 | 0.00 | | 0.0 | | 21.0 | | | | | | | | |
| 2022 | 12 | 18 | 18 | -8 | 1 | 0.00 | | 0.0 | | 20.0 | | | | | | | | |
| 2022 | 12 | 19 | 15 | -10 | 4 | 0.00 | | 0.0 | | 20.0 | | | | | | | | |
| 2022 | 12 | 20 | 23 | -1 | 20 | 0.00 | | 0.0 | | 20.0 | | | | | | | | |
| 2022 | 12 | 21 | 35 | 16 | 30 | T | | T | | 19.0 | | | | | | | | |
| 2022 | 12 | 22 | 30 | -13 | -11 | 0.17 | | 2.5 | | 20.0 | | | | | | | | |
| 2022 | 12 | 23 | 17 | -15 | 17 | 0.00 | | 0.0 | | 19.0 | | | | | | | | |
| 2022 | 12 | 24 | 30 | 17 | 28 | 0.04 | | 1.5 | | 19.0 | | | | | | | | |
| 2022 | 12 | 25 | 36 | 14 | 32 | 0.00 | | 0.0 | | 18.0 | | | | | | | | |
| 2022 | 12 | 26 | 41 | 29 | 33 | 0.00 | | 0.0 | | 17.0 | | | | | | | | |
| 2022 | 12 | 27 | 40 | 16 | 32 | 0.26 | | 2.0 | | 19.0 | | | | | | | | |
| 2022 | 12 | 28 | 35 | 27 | 27 | 0.58 | | 5.0 | | 23.0 | | | | | | | | |
| 2022 | 12 | 29 | 29 | 14 | 19 | 0.03 | | 0.5 | | 21.0 | | | | | | | | |
| 2022 | 12 | 30 | 22 | 6 | 21 | 0.06 | | 1.0 | | 21.0 | | | | | | | | |
| 2022 | 12 | 31 | 39 | 21 | 31 | 0.74 | | 7.0 | | 28.0 | | | | | | | | |
| Summary | | | 29 | 9 | | 4.12 | | 50.5 | | | | | | | | | | |

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National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | At Obs. | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 01 | 01 | 40 | 31 | 37 | T | | T | | 27.0 | | | | | | | | |
| 2023 | 01 | 02 | 37 | 26 | 26 | 0.12 | | 1.5 | | 25.0 | | | | | | | | |
| 2023 | 01 | 03 | 26 | 20 | 23 | 0.19 | | 2.5 | | 27.0 | | | | | | | | |
| 2023 | 01 | 04 | 29 | 13 | 13 | 0.02 | | 0.5 | | 26.0 | | | | | | | | |
| 2023 | 01 | 05 | 29 | 5 | 19 | 0.00 | | 0.0 | | 25.0 | | | | | | | | |
| 2023 | 01 | 06 | 32 | 17 | 30 | 0.40 | | 6.0 | | 31.0 | | | | | | | | |
| 2023 | 01 | 07 | 38 | 19 | 19 | 0.16 | | 2.0 | | 30.0 | | | | | | | | |
| 2023 | 01 | 08 | 28 | 11 | 24 | 0.00 | | 0.0 | | 30.0 | | | | | | | | |
| 2023 | 01 | 09 | 38 | 13 | 33 | 0.00 | | 0.0 | | 29.0 | | | | | | | | |
| 2023 | 01 | 10 | 43 | 31 | 39 | 0.33 | | 4.0 | | 28.0 | | | | | | | | |
| 2023 | 01 | 11 | 39 | 28 | 28 | 0.28 | | 4.0 | | 32.0 | | | | | | | | |
| 2023 | 01 | 12 | 28 | 8 | 18 | 0.05 | | 1.5 | | 33.0 | | | | | | | | |
| 2023 | 01 | 13 | 33 | 13 | 23 | 0.00 | | 0.0 | | 30.0 | | | | | | | | |
| 2023 | 01 | 14 | 34 | 15 | 27 | 0.00 | | 0.0 | | 29.0 | | | | | | | | |
| 2023 | 01 | 15 | 38 | 26 | 34 | 0.10 | | 1.0 | | 29.0 | | | | | | | | |
| 2023 | 01 | 16 | 34 | 24 | 29 | 0.11 | | 2.0 | | 30.0 | | | | | | | | |
| 2023 | 01 | 17 | 30 | 16 | 25 | T | | T | | 30.0 | | | | | | | | |
| 2023 | 01 | 18 | 27 | 20 | 21 | 0.30 | | 4.0 | | 33.0 | | | | | | | | |
| 2023 | 01 | 19 | 21 | 0 | 12 | 0.00 | | 0.0 | | 32.0 | | | | | | | | |
| 2023 | 01 | 20 | 17 | 2 | 11 | 0.00 | | 0.0 | | 32.0 | | | | | | | | |
| 2023 | 01 | 21 | 20 | 7 | 11 | T | | 0.5 | | 31.0 | | | | | | | | |
| 2023 | 01 | 22 | 23 | 5 | 15 | 0.00 | | 0.0 | | 31.0 | | | | | | | | |
| 2023 | 01 | 23 | 21 | 3 | 10 | 0.00 | | 0.0 | | 30.0 | | | | | | | | |
| 2023 | 01 | 24 | 23 | 4 | 10 | T | | T | | 29.0 | | | | | | | | |
| 2023 | 01 | 25 | 20 | 7 | 11 | 0.02 | | 0.5 | | 29.0 | | | | | | | | |
| 2023 | 01 | 26 | 22 | 1 | 17 | 0.08 | | 1.5 | | 31.0 | | | | | | | | |
| 2023 | 01 | 27 | 25 | 17 | 23 | 0.67 | | 8.0 | | 39.0 | | | | | | | | |
| 2023 | 01 | 28 | 32 | 23 | 23 | 0.26 | | 3.0 | | 40.0 | | | | | | | | |
| 2023 | 01 | 29 | 27 | 8 | 8 | 0.37 | | 5.0 | | 44.0 | | | | | | | | |
| 2023 | 01 | 30 | 9 | -1 | 1 | 0.33 | | 4.5 | | 48.0 | | | | | | | | |
| 2023 | 01 | 31 | 7 | -26 | -4 | 0.00 | | 0.0 | | 47.0 | | | | | | | | |
| Summary | | | 28 | 12 | | 3.79 | | 52.0 | | | | | | | | | | |

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151 Patton Avenue
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Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 02 | 01 | 16 | -10 | 3 | 0.00 | | 0.0 | | 45.0 | | | | | | | | |
| 2023 | 02 | 02 | 21 | -5 | 10 | 0.00 | | 0.0 | | 44.0 | | | | | | | | |
| 2023 | 02 | 03 | 28 | -1 | 14 | 0.00 | | 0.0 | | 42.0 | | | | | | | | |
| 2023 | 02 | 04 | 29 | 6 | 17 | 0.00 | | 0.0 | | 41.0 | | | | | | | | |
| 2023 | 02 | 05 | 43 | 11 | 34 | 0.00 | | 0.0 | | 39.0 | | | | | | | | |
| 2023 | 02 | 06 | 34 | 23 | 24 | 0.23 | | 2.5 | | 42.0 | | | | | | | | |
| 2023 | 02 | 07 | 28 | 11 | 13 | 0.03 | | 1.0 | | 40.0 | | | | | | | | |
| 2023 | 02 | 08 | 27 | 4 | 23 | 0.10 | | 1.0 | | 41.0 | | | | | | | | |
| 2023 | 02 | 09 | 23 | 9 | 9 | 0.03 | | 1.0 | | 40.0 | | | | | | | | |
| 2023 | 02 | 10 | 23 | -1 | 16 | 0.00 | | 0.0 | | 40.0 | | | | | | | | |
| 2023 | 02 | 11 | 31 | 6 | 19 | 0.00 | | 0.0 | | 39.0 | | | | | | | | |
| 2023 | 02 | 12 | 34 | 9 | 20 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 13 | 26 | 7 | 20 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 14 | 28 | 9 | 15 | 0.03 | | 0.5 | | 38.0 | | | | | | | | |
| 2023 | 02 | 15 | 26 | 10 | 12 | T | | T | | 38.0 | | | | | | | | |
| 2023 | 02 | 16 | 15 | -9 | 6 | 0.08 | | 1.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 17 | 24 | -2 | 14 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 18 | 27 | -1 | 18 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 19 | 33 | 9 | 26 | 0.05 | | 1.0 | | 39.0 | | | | | | | | |
| 2023 | 02 | 20 | 40 | 21 | 36 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 02 | 21 | 42 | 13 | 35 | 0.00 | | 0.0 | | 36.0 | | | | | | | | |
| 2023 | 02 | 22 | 41 | 5 | 5 | 0.16 | | 3.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 23 | 24 | -3 | 20 | 0.11 | | 1.5 | | 39.0 | | | | | | | | |
| 2023 | 02 | 24 | 31 | 13 | 25 | 0.11 | | 1.5 | | 40.0 | | | | | | | | |
| 2023 | 02 | 25 | 34 | 7 | 24 | 0.00 | | 0.0 | | 39.0 | | | | | | | | |
| 2023 | 02 | 26 | 44 | 16 | 33 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 02 | 27 | 37 | 27 | 29 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 02 | 28 | 31 | 21 | 21 | 0.11 | | 1.5 | | 37.0 | | | | | | | | |
| | | Summary | 30 | 7 | | 1.04 | | 15.5 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

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U.S. Department of Commerce
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# Record of Climatological Observations

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Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 03 | 01 | 33 | 7 | 26 | T | | T | | 37.0 | | | | | | | | |
| 2023 | 03 | 02 | 31 | 21 | 21 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 03 | 03 | 32 | 10 | 23 | 0.13 | | 2.0 | | 40.0 | | | | | | | | |
| 2023 | 03 | 04 | 34 | 6 | 33 | 0.04 | | 0.5 | | 39.0 | | | | | | | | |
| 2023 | 03 | 05 | 36 | 22 | 22 | 0.27 | | 6.0 | | 45.0 | | | | | | | | |
| 2023 | 03 | 06 | 36 | 19 | 23 | 0.14 | | 2.0 | | 42.0 | | | | | | | | |
| 2023 | 03 | 07 | 30 | 6 | 20 | 0.00 | | 0.0 | | 42.0 | | | | | | | | |
| 2023 | 03 | 08 | 28 | 2 | 24 | 0.00 | | 0.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 09 | 35 | 13 | 28 | 0.08 | | 1.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 10 | 42 | 16 | 37 | 0.00 | | 0.0 | | 40.0 | | | | | | | | |
| 2023 | 03 | 11 | 43 | 24 | 24 | 0.19 | | 2.0 | | 39.0 | | | | | | | | |
| 2023 | 03 | 12 | 33 | 10 | 31 | 0.05 | | 1.0 | | 39.0 | | | | | | | | |
| 2023 | 03 | 13 | 41 | 18 | 33 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 03 | 14 | 48 | 22 | 42 | 0.00 | | 0.0 | | 38.0 | | | | | | | | |
| 2023 | 03 | 15 | 44 | 33 | 33 | 0.11 | | T | | 37.0 | | | | | | | | |
| 2023 | 03 | 16 | 34 | 19 | 29 | 0.16 | | 1.5 | | 37.0 | | | | | | | | |
| 2023 | 03 | 17 | 29 | 0 | 21 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 03 | 18 | 27 | -1 | 20 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 03 | 19 | 37 | 3 | 34 | 0.00 | | 0.0 | | 37.0 | | | | | | | | |
| 2023 | 03 | 20 | 39 | 23 | 34 | 0.13 | | 1.5 | | 37.0 | | | | | | | | |
| 2023 | 03 | 21 | 39 | 11 | 35 | 0.32 | | 4.0 | | 39.0 | | | | | | | | |
| 2023 | 03 | 22 | 40 | 29 | 29 | 0.56 | | 6.0 | | 42.0 | | | | | | | | |
| 2023 | 03 | 23 | 40 | 25 | 30 | 0.18 | | 2.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 24 | 40 | 19 | 31 | 0.00 | | 0.0 | | 40.0 | | | | | | | | |
| 2023 | 03 | 25 | 32 | 6 | 24 | 0.40 | | 4.5 | | 41.0 | | | | | | | | |
| 2023 | 03 | 26 | 29 | 4 | 22 | 0.00 | | 0.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 27 | 28 | 9 | 23 | 0.00 | | 0.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 28 | 36 | 5 | 30 | 0.00 | | 0.0 | | 41.0 | | | | | | | | |
| 2023 | 03 | 29 | 49 | 22 | 45 | 0.00 | | 0.0 | | 40.0 | | | | | | | | |
| 2023 | 03 | 30 | 46 | 30 | 35 | 0.10 | | 1.0 | | 40.0 | | | | | | | | |
| 2023 | 03 | 31 | 37 | 22 | 32 | 0.25 | | 3.0 | | 39.0 | | | | | | | | |
| | | Summary | 36 | 15 | | 3.11 | | 38.0 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

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Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 04 | 01 | 46 | 20 | 44 | 0.02 | | 0.5 | | 38.0 | | | | | | | | |
| 2023 | 04 | 02 | 50 | 36 | 37 | 0.00 | | 0.0 | | 36.0 | | | | | | | | |
| 2023 | 04 | 03 | 47 | 26 | 38 | 0.00 | | 0.0 | | 34.0 | | | | | | | | |
| 2023 | 04 | 04 | 38 | 21 | 27 | 0.40 | | 4.0 | | 35.0 | | | | | | | | |
| 2023 | 04 | 05 | 32 | 10 | 27 | 0.04 | | 0.5 | | 35.0 | | | | | | | | |
| 2023 | 04 | 06 | 35 | 11 | 34 | 0.00 | | 0.0 | | 34.0 | | | | | | | | |
| 2023 | 04 | 07 | 42 | 14 | 37 | 0.00 | | 0.0 | | 33.0 | | | | | | | | |
| 2023 | 04 | 08 | 46 | 26 | 43 | 0.00 | | 0.0 | | 31.0 | | | | | | | | |
| 2023 | 04 | 09 | 45 | 25 | 41 | 0.00 | | 0.0 | | 30.0 | | | | | | | | |
| 2023 | 04 | 10 | 46 | 29 | 43 | 0.00 | | 0.0 | | 27.0 | | | | | | | | |
| 2023 | 04 | 11 | 60 | 30 | 54 | 0.00 | | 0.0 | | 26.0 | | | | | | | | |
| 2023 | 04 | 12 | 64 | 31 | 55 | 0.00 | | 0.0 | | 22.0 | | | | | | | | |
| 2023 | 04 | 13 | 60 | 42 | 53 | 0.00 | | 0.0 | | 15.0 | | | | | | | | |
| 2023 | 04 | 14 | 53 | 27 | 38 | 0.47 | | 6.0 | | 14.0 | | | | | | | | |
| 2023 | 04 | 15 | 43 | 26 | 41 | 0.00 | | 0.0 | | 13.0 | | | | | | | | |
| 2023 | 04 | 16 | 53 | 23 | 52 | 0.00 | | 0.0 | | 9.0 | | | | | | | | |
| 2023 | 04 | 17 | 64 | 29 | 62 | 0.00 | | 0.0 | | 3.0 | | | | | | | | |
| 2023 | 04 | 18 | 62 | 34 | 51 | 0.00 | | 0.0 | | 1.0 | | | | | | | | |
| 2023 | 04 | 19 | 51 | 24 | 33 | 0.10 | | 0.5 | | T | | | | | | | | |
| 2023 | 04 | 20 | 40 | 16 | 31 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 21 | 32 | 19 | 31 | 0.15 | | 2.0 | | 2.0 | | | | | | | | |
| 2023 | 04 | 22 | 43 | 27 | 42 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 23 | 50 | 25 | 48 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 24 | 58 | 30 | 54 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 25 | 54 | 33 | 48 | 0.16 | | 0.5 | | 0.0 | | | | | | | | |
| 2023 | 04 | 26 | 60 | 31 | 56 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 27 | 60 | 33 | 51 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 28 | 55 | 29 | 54 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 29 | 70 | 31 | 69 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 04 | 30 | 73 | 33 | 69 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| | | Summary | 51 | 26 | | 1.37 | | 14.0 | | | | | | | | | | |

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National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 05 | 01 | 78 | 40 | 68 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 02 | 73 | 46 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 03 | 75 | 41 | 72 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 04 | 72 | 44 | 58 | 0.05 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 05 | 66 | 37 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 06 | 62 | 34 | 59 | 0.22 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 07 | 60 | 34 | 55 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 08 | 67 | 35 | 64 | T | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 09 | 74 | 36 | 69 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 10 | 74 | 42 | 63 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 11 | 63 | 44 | 56 | 0.13 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 12 | 62 | 45 | 59 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 13 | 69 | 39 | 65 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 14 | 72 | 43 | 62 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 15 | 74 | 43 | 62 | T | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 16 | 73 | 40 | 66 | 0.08 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 17 | 76 | 41 | 73 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 18 | 73 | 43 | 65 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 19 | 72 | 41 | 68 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 20 | 74 | 42 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 21 | 77 | 43 | 70 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 22 | 74 | 42 | 66 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 23 | 74 | 42 | 68 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 24 | 74 | 44 | 62 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 25 | 76 | 43 | 70 | T | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 26 | 80 | 40 | 73 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 27 | 73 | 42 | 62 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 28 | 72 | 41 | 61 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 29 | 77 | 40 | 73 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 30 | 79 | 37 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 05 | 31 | 76 | 42 | 64 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| | | Summary | 72 | 41 | | 0.52 | | 0.0 | | | | | | | | | | |

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National Centers for Environmental Information
151 Patton Avenue
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Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | At Obs. | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 06 | 01 | 69 | 43 | 60 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 02 | 60 | 47 | 50 | 0.29 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 03 | 68 | 47 | 63 | 0.04 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 04 | 68 | 44 | 65 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 05 | 76 | 46 | 65 | 0.13 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 06 | 82 | 45 | 65 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 07 | 69 | 44 | 58 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 08 | 76 | 46 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 09 | 79 | 42 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 10 | 75 | 43 | 69 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 11 | 76 | 44 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 12 | 73 | 51 | 57 | 0.09 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 13 | 65 | 42 | 56 | 0.09 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 14 | 74 | 45 | 60 | 0.23 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 15 | 66 | 42 | 55 | 0.30 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 16 | 68 | 42 | 65 | 0.39 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 17 | 68 | 42 | 60 | 0.13 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 18 | 78 | 44 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 19 | 83 | 47 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 20 | 81 | 44 | 79 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 21 | 83 | 42 | 81 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 22 | 84 | 43 | 81 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 23 | 81 | 43 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 24 | 76 | 38 | 74 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 25 | 85 | 43 | 83 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 26 | 85 | 44 | 84 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 27 | 84 | 50 | 82 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 28 | 83 | 39 | 82 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 29 | 82 | 43 | 66 | T | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 06 | 30 | 76 | 41 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| | | Summary | 76 | 44 | | 1.69 | | 0.0 | | | | | | | | | | |

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Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

# Record of Climatological Observations

**These data are quality controlled and may not be identical to the original observations.**

Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | At Obs. | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 07 | 01 | 82 | 44 | 76 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 02 | 86 | 47 | 85 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 03 | 87 | 47 | 78 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 04 | 81 | 47 | 64 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 05 | 81 | 49 | 78 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 06 | 78 | 53 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 07 | 84 | 50 | 74 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 08 | 84 | 50 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 09 | 88 | 50 | 86 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 10 | 88 | 51 | 83 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 11 | 89 | 49 | 87 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 12 | 91 | 50 | 87 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 13 | 91 | 52 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 14 | 89 | 47 | 85 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 15 | 86 | 47 | 85 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 16 | 91 | 45 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 17 | 96 | 51 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 18 | 89 | 55 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 19 | 89 | 55 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 20 | 85 | 56 | 78 | 0.05 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 21 | 87 | 48 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 22 | 90 | 48 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 23 | 89 | 53 | 85 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 24 | 94 | 52 | 92 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 25 | 92 | 57 | 87 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 26 | 88 | 56 | 77 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 27 | 88 | 54 | 84 | 0.16 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 28 | 92 | 60 | 88 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 29 | 93 | 56 | 88 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 30 | 92 | 59 | 87 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 07 | 31 | 87 | 62 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| Summary | | | 88 | 52 | | 0.29 | | 0.0 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

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# Record of Climatological Observations

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Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 08 | 01 | 81 | 56 | 67 | 0.19 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 02 | 81 | 59 | 77 | 0.22 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 03 | 79 | 54 | 75 | 0.30 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 04 | 83 | 49 | 78 | 0.05 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 05 | 84 | 48 | 78 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 06 | 82 | 43 | 76 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 07 | 76 | 48 | 71 | 0.07 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 08 | 80 | 46 | 69 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 09 | 81 | 41 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 10 | 85 | 45 | 77 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 11 | 86 | 51 | 78 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 12 | 85 | 52 | 78 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 13 | 82 | 52 | 79 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 14 | 85 | 47 | 82 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 15 | 91 | 46 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 16 | 92 | 51 | 83 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 17 | 92 | 52 | 89 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 18 | 90 | 60 | 69 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 19 | 88 | 56 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 20 | 92 | 57 | 90 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 21 | 91 | 55 | 88 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 22 | 88 | 57 | 61 | 0.23 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 23 | 85 | 51 | 79 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 24 | 81 | 58 | 75 | 0.13 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 25 | 77 | 55 | 67 | 0.06 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 26 | 85 | 51 | 83 | 0.02 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 27 | 88 | 56 | 82 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 28 | 84 | 50 | 81 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 29 | 87 | 52 | 82 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 30 | 90 | 53 | 85 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 08 | 31 | 89 | 46 | 85 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| Summary | | | 85 | 52 | | 1.33 | | 0.0 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

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# Record of Climatological Observations

**These data are quality controlled and may not be identical to the original observations.**

Generated on 02/23/2024

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 6467 ft. Lat: 40.4926° N Lon: 107.2548° W

Station: **HAYDEN, CO US USC00053867**

Observation Time Temperature: 1800 Observation Time Precipitation: 1800

| Year | Month | Day | Temperature (F) | | | Precipitation | | | | | Evaporation | | "Soil Temperature (F)" | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "24 Hrs. Ending at Observation Time" | | At Obs. | 24 Hour Amounts Ending at Observation Time | | | | At Obs. Time | | | 4 in. Depth | | | 8 in. Depth | | |
| | | | Max. | Min. | | Rain, Melted Snow, Etc. (in) | Flag | Snow, Ice Pellets, Hail (in) | Flag | Snow, Ice Pellets, Hail, Ice on Ground (in) | 24 Hour Wind Movement (mi) | Amount of Evap. (in) | Ground Cover (see *) | Max. | Min. | Ground Cover (see *) | Max. | Min. |
| 2023 | 09 | 01 | 85 | 50 | 81 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 02 | 84 | 50 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 03 | 80 | 50 | 72 | 0.15 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 04 | 72 | 53 | 57 | 0.07 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 05 | 76 | 40 | 70 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 06 | 85 | 43 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 07 | 82 | 40 | 77 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 08 | 83 | 41 | 79 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 09 | 84 | 42 | 80 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 10 | 81 | 55 | 74 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 11 | 76 | 44 | 70 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 12 | 78 | 42 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 13 | 78 | 40 | 68 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 14 | 68 | 50 | 58 | 0.04 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 15 | 72 | 39 | 62 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 16 | 77 | 38 | 72 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 17 | 78 | 41 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 18 | 78 | 42 | 58 | 0.03 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 19 | 73 | 42 | 54 | 0.05 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 20 | 76 | 41 | 73 | 0.04 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 21 | 76 | 47 | 73 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 22 | 73 | 40 | 57 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 23 | 67 | 30 | 63 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 24 | 73 | 31 | 67 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 25 | 78 | 35 | 70 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 26 | 80 | 38 | 76 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 27 | 82 | 39 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 28 | 82 | 41 | 76 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 29 | 80 | 37 | 75 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| 2023 | 09 | 30 | 82 | 39 | 71 | 0.00 | | 0.0 | | 0.0 | | | | | | | | |
| | | Summary | 78 | 42 | | 0.44 | | 0.0 | | | | | | | | | | |

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

"s" This data value failed one of NCEI's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

# APPENDIX B

# GROUNDWATER QULITY DATA

**Table B.1.** Groundwater analytical results for Point of Compliance (POC) well DCAL-02 during water year 2023.

| Location | Date | Static Water Level FT BTOC | SPC, Field N UMHOS/CM | pH, Field N S.U. | Temp., Field N DEG-C | Fluoride N MG/L | Iron D MG/L | Manganese D MG/L | Nitrate N. N MG/L | Nitrite N. N MG/L | Selenium D UG/L | Sulfates N MG/L | TDS, Lab N MG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DCAL-02 | 6/22/2023 | 9.54 | 2020 | 7.5 | 11.4 | 0.29 | 1.16 | 1.38 | 0.021 | < 0.01 | < 2 | 617 | 1540 |
| **Seneca II-W GWPOC Standards*** | | - | - | 6.5 - 8.5 | - | 2 | 8.06 | 2.55 | 10 | 1 | 20 | 1511 | 3195 |

**Notes**

* See Seneca II-W Mine Technical Revision 63 (TR-63) for GWPOC standards

**Bold** Exceeds groundwater quality standard

**Table B.2.** Groundwater analytical results for Non-Point of Compliance wells during water year 2023.

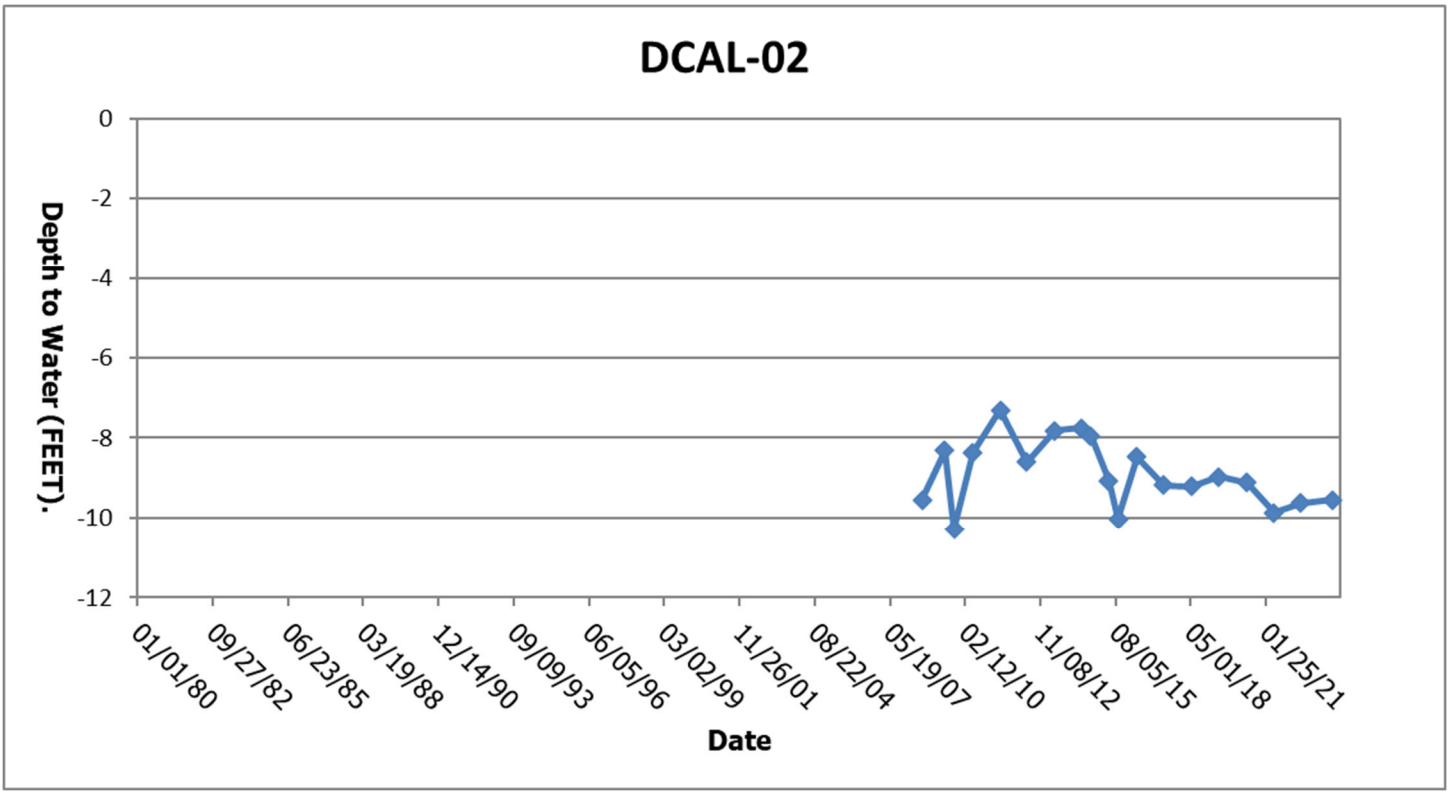
| Location | Date | Static Water Level FT BTOC | SPC, Field N UMHOS/CM | pH, Field N S.U. | Temp., Field N DEG-C | Fluoride N MG/L | Iron D MG/L | Manganese D MG/L | Nitrate N. N MG/L | Nitrite N. N MG/L | Selenium D UG/L | Sulfates N MG/L | TDS, Lab N MG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WHAL7-2 | 6/22/2023 | 5.14 | 1720 | 7.4 | 9.7 | 0.22 | 0.479 | 0.32 | 0.459 | < 0.01 | < 2 | 193 | 696 |
| WOV14 | 6/22/2023 | 10.23 | 3560 | 7.2 | 9.2 | 0.55 | 0.138 | 0.576 | 0.088 | 0.013 | < 2 | 2120 | 3520 |
| WOV17 | 6/22/2023 | 36.67 | 4890 | 7.8 | 11 | | 0.4 | 0.062 | | | | | 3990 |
| WOV25 | 6/22/2023 | 25.22 | 1740 | 7.6 | 10.3 | < 0.15 | 0.265 | 0.049 | < 0.02 | < 0.01 | < 2 | 609 | 1360 |
| WSC25* | 6/22/2023 | | 1210 | 7.2 | 9.9 | < 0.15 | 0.259 | < 0.01 | 0.063 | 0.013 | < 2 | 357 | 854 |
| WSOV25 | 6/22/2023 | 6.92 | 2010 | 7.1 | 10.1 | < 0.15 | 1.03 | 0.149 | 0.037 | < 0.01 | < 2 | 725 | 1630 |
| WW14 | 6/22/2023 | 8.12 | 4300 | 6.7 | 10.1 | 1.26 | 2.36 | 1.06 | 0.049 | 0.013 | < 2 | 2830 | 4680 |
| WW17 | 6/22/2023 | 23.19 | 980 | 7.8 | 10.8 | | 0.191 | 0.014 | | | | | 494 |
| WW25 | 6/22/2023 | 24.26 | 790 | 7.8 | 11 | 0.96 | < 0.06 | < 0.01 | 4.53 | < 0.01 | < 2 | 208 | 504 |
| WWC17 | 6/22/2023 | 8.13 | | | | | | | | | | | |
| WWC25 | 6/22/2023 | 2.31 | 1450 | 7.9 | 9.7 | 0.55 | 0.312 | < 0.01 | < 0.02 | < 0.01 | < 2 | 209 | 900 |
| WWCOV25 | 6/22/2023 | 88.81 | 2170 | 7 | 9.9 | 0.19 | 0.599 | 0.192 | < 0.02 | < 0.01 | < 2 | 871 | 1860 |
| WWCU25 | 6/22/2023 | 100.98 | 1110 | 8.5 | 10.6 | 1.22 | 0.078 | < 0.01 | 0.034 | < 0.01 | < 2 | 69 | 660 |

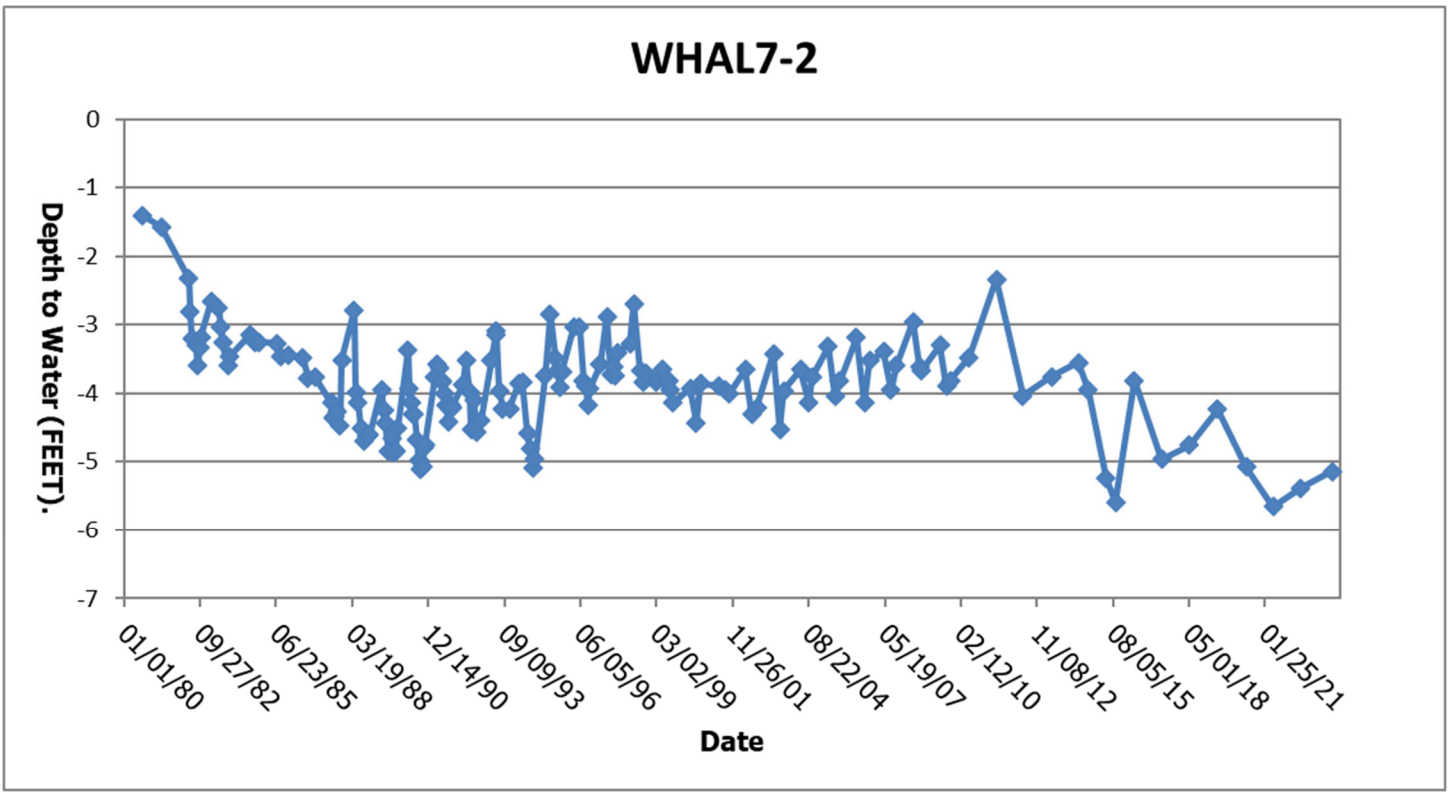
**Note**

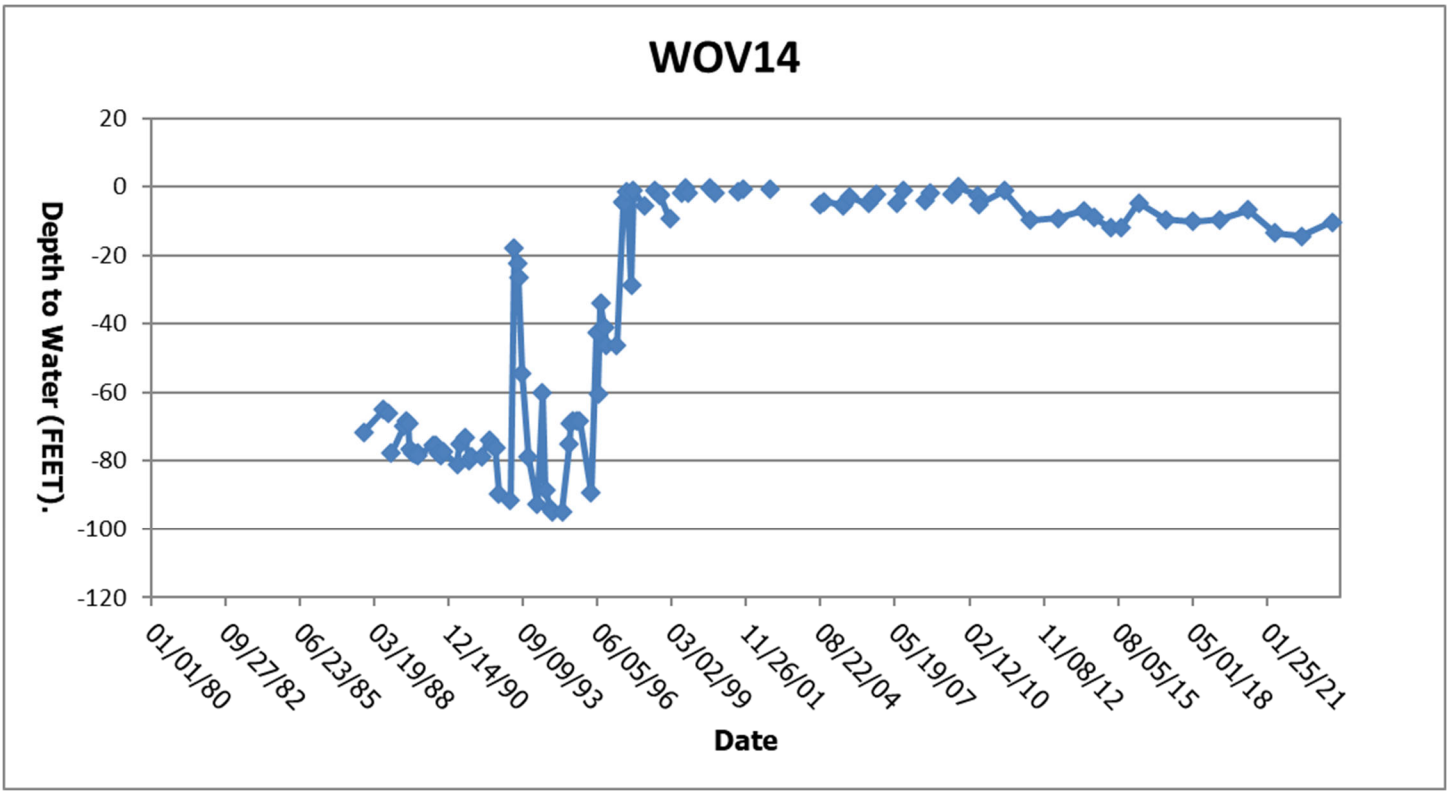
* The well casing at WSC25 is damaged and the static water level could not be measured

# APPENDIX C

# GROUNDWATER HYDROGRAPHS


DCAL-02
Depth to Water (FEET).
0
-2
-4
-6
-8
-10
-12
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WHAL7-2
Depth to Water (FEET).
0
-1
-2
-3
-4
-5
-6
-7
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WOV14
Depth to Water (FEET).
20
0
-20
-40
-60
-80
-100
-120
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
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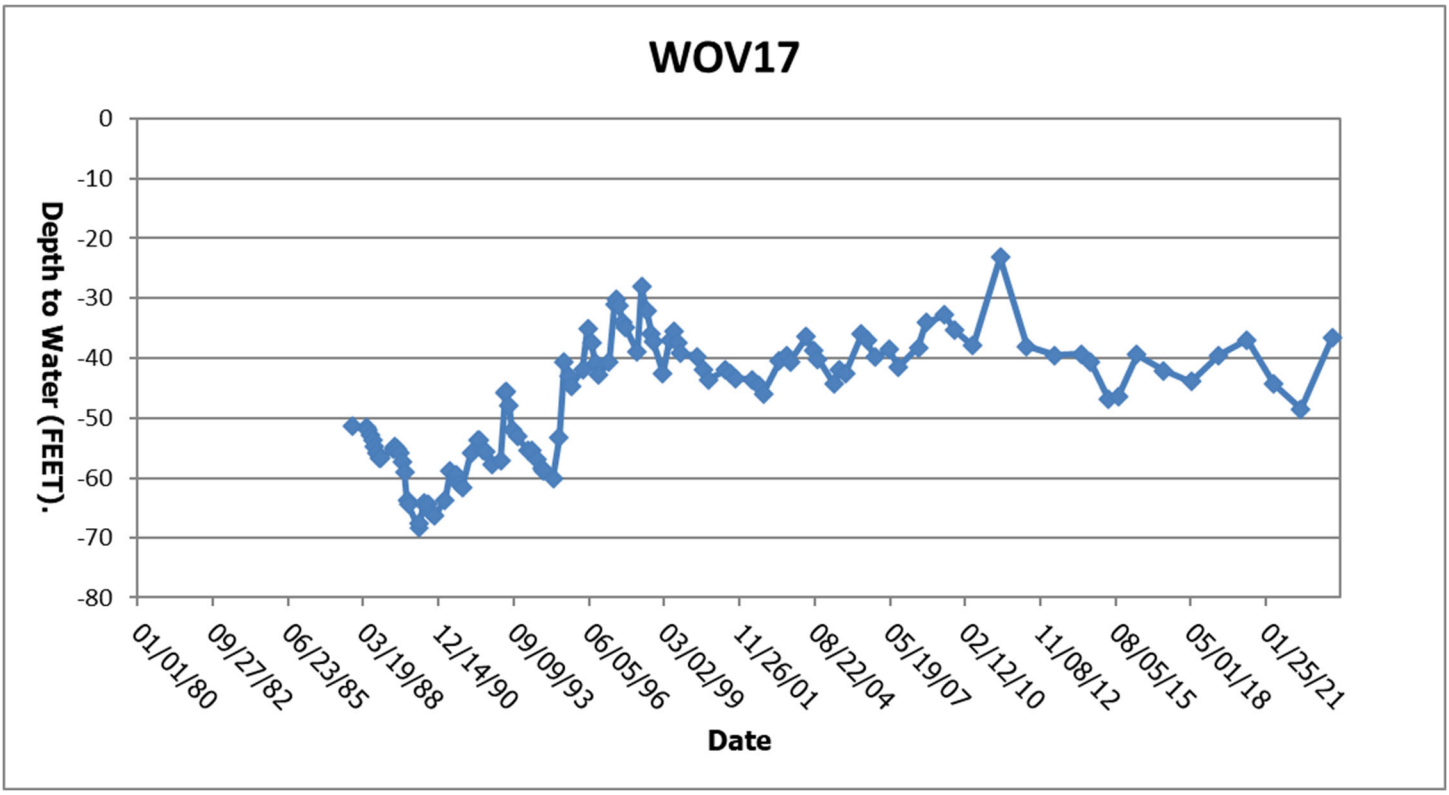
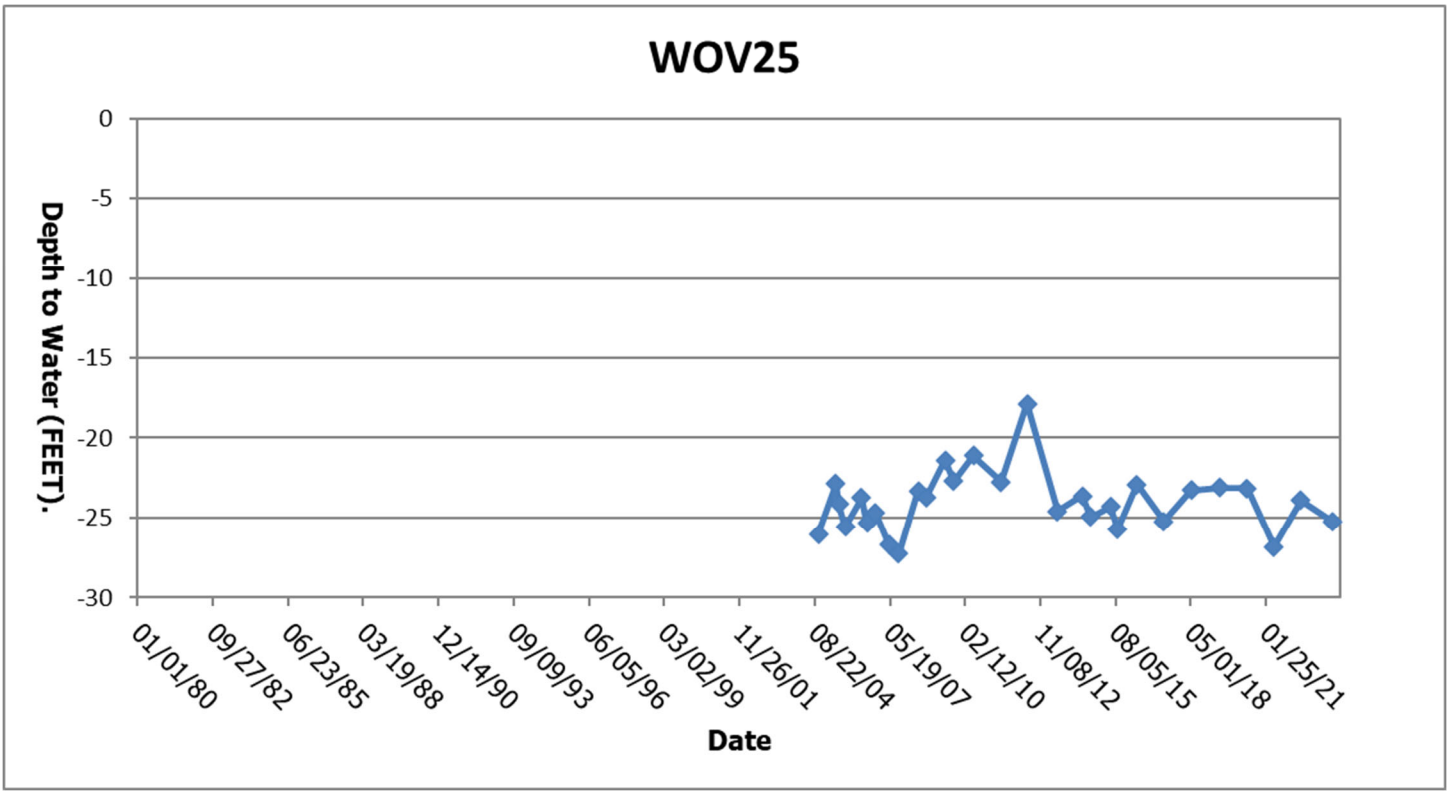
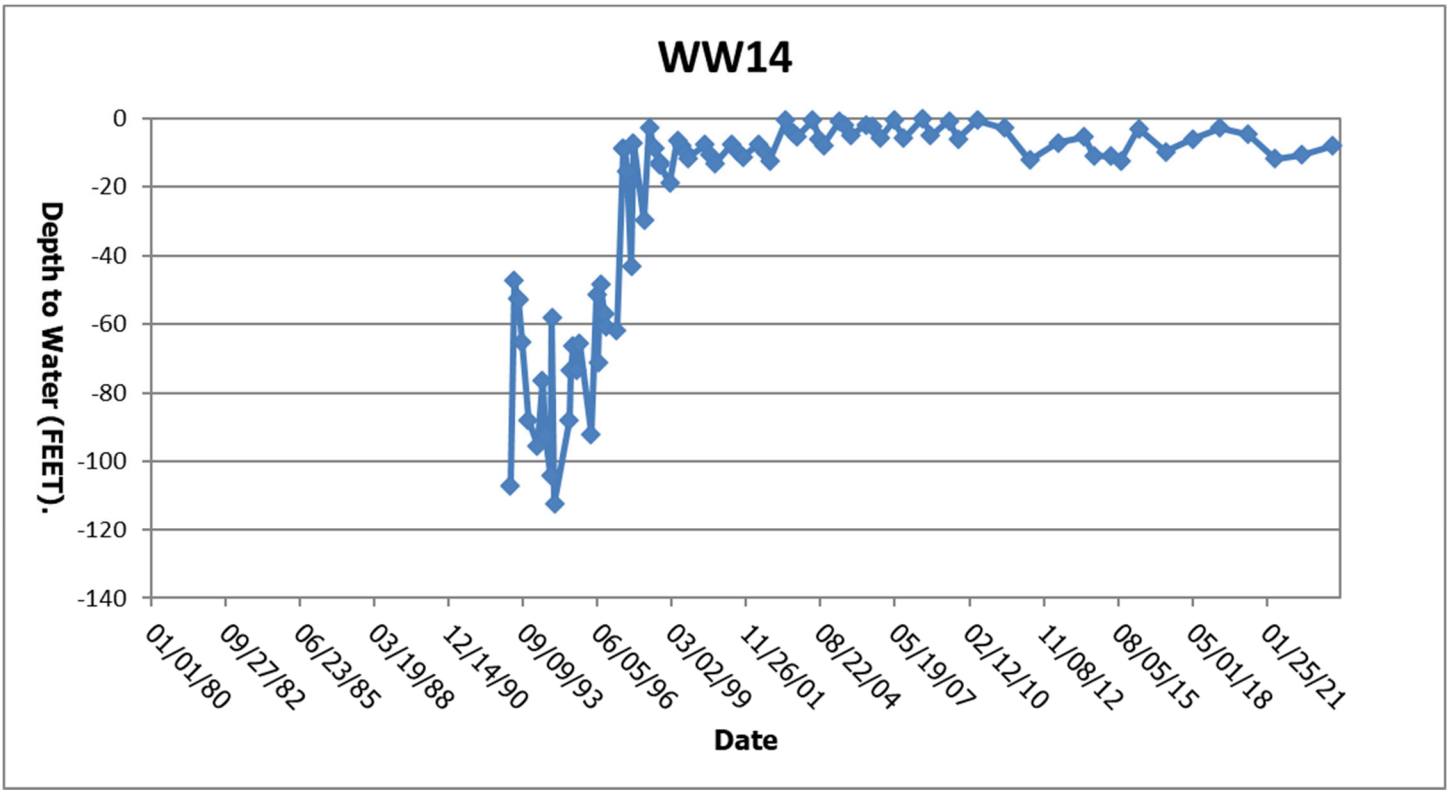
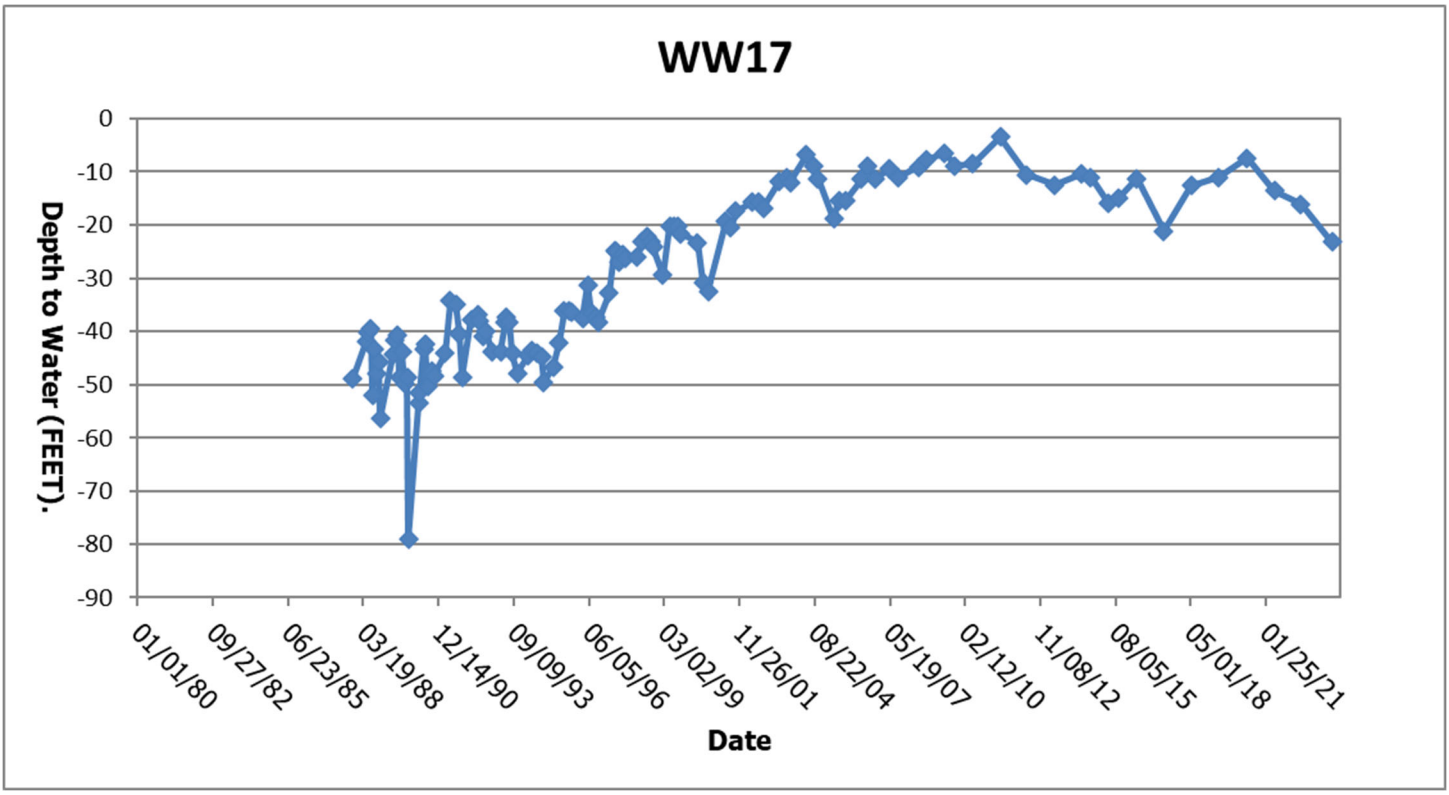
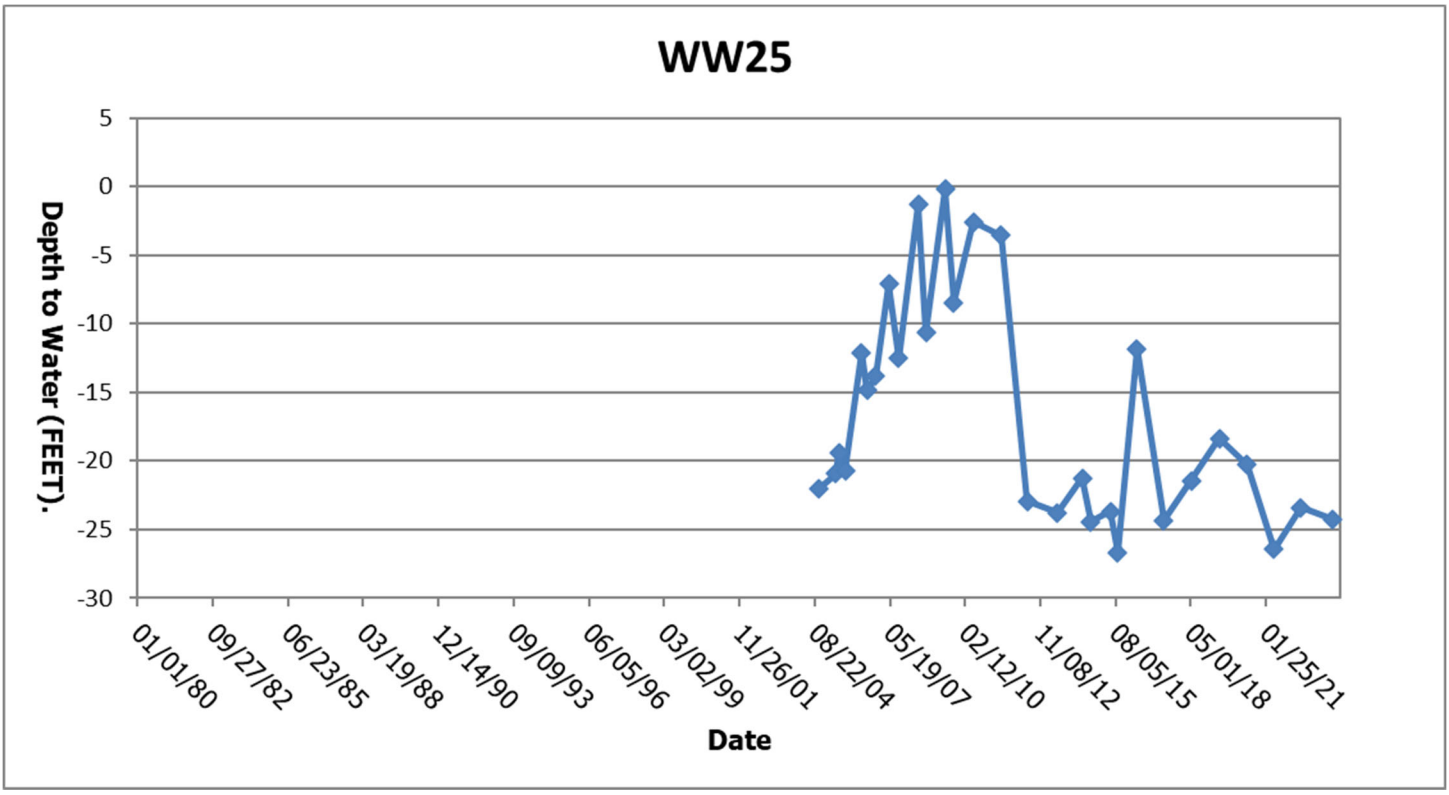
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

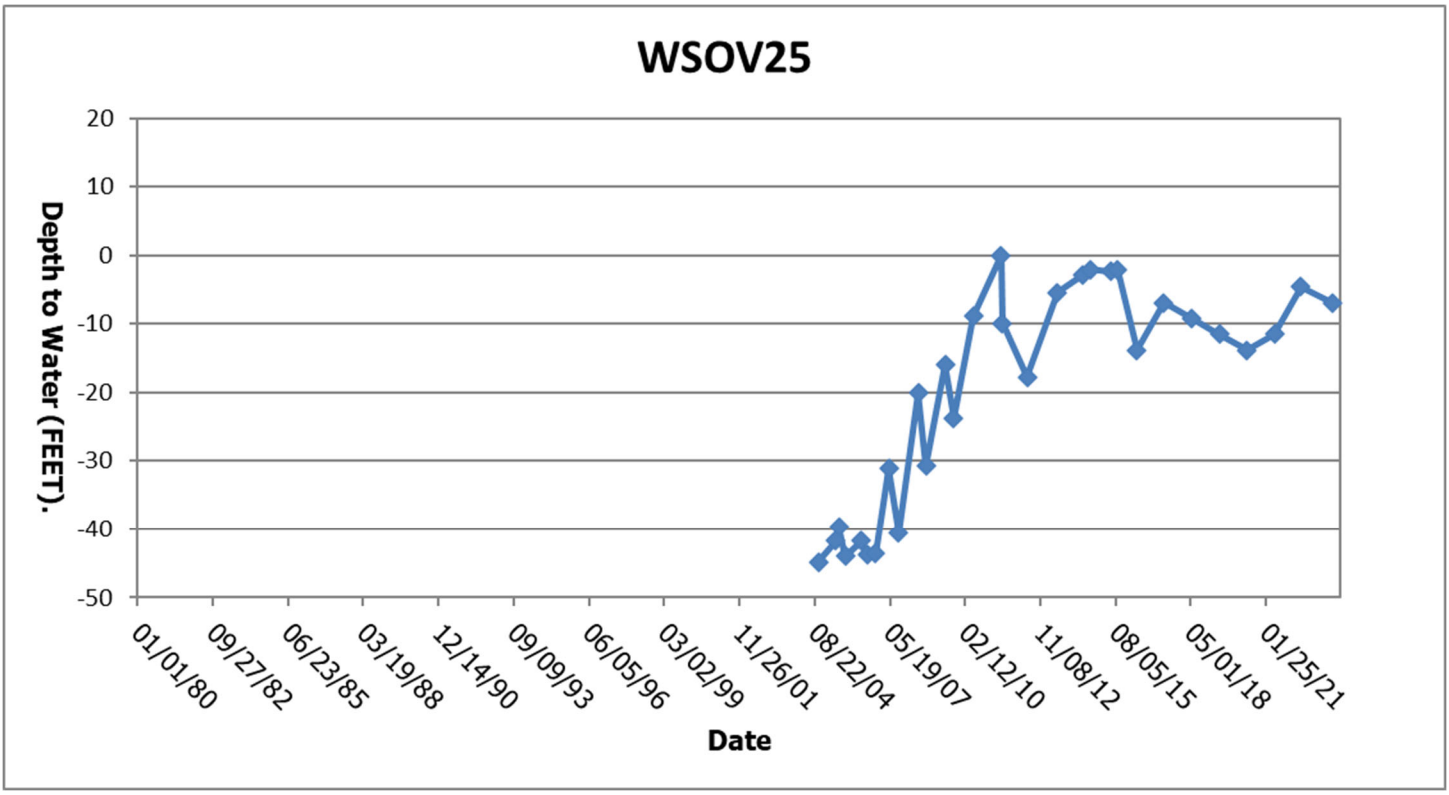

WOV17
Depth to Water (FEET).
0
-10
-20
-30
-40
-50
-60
-70
-80
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

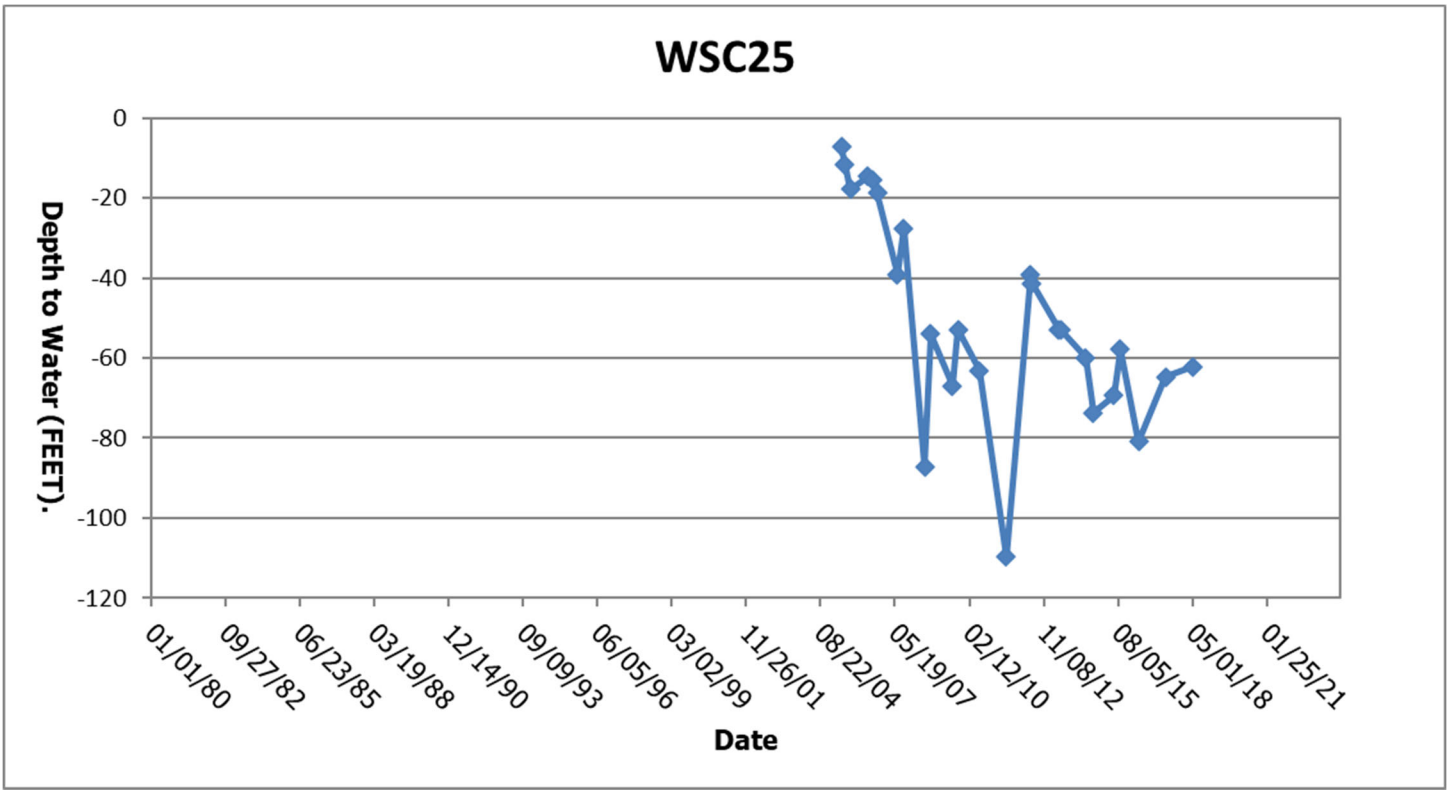

WOV25
Depth to Water (FEET).
0
-5
-10
-15
-20
-25
-30
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

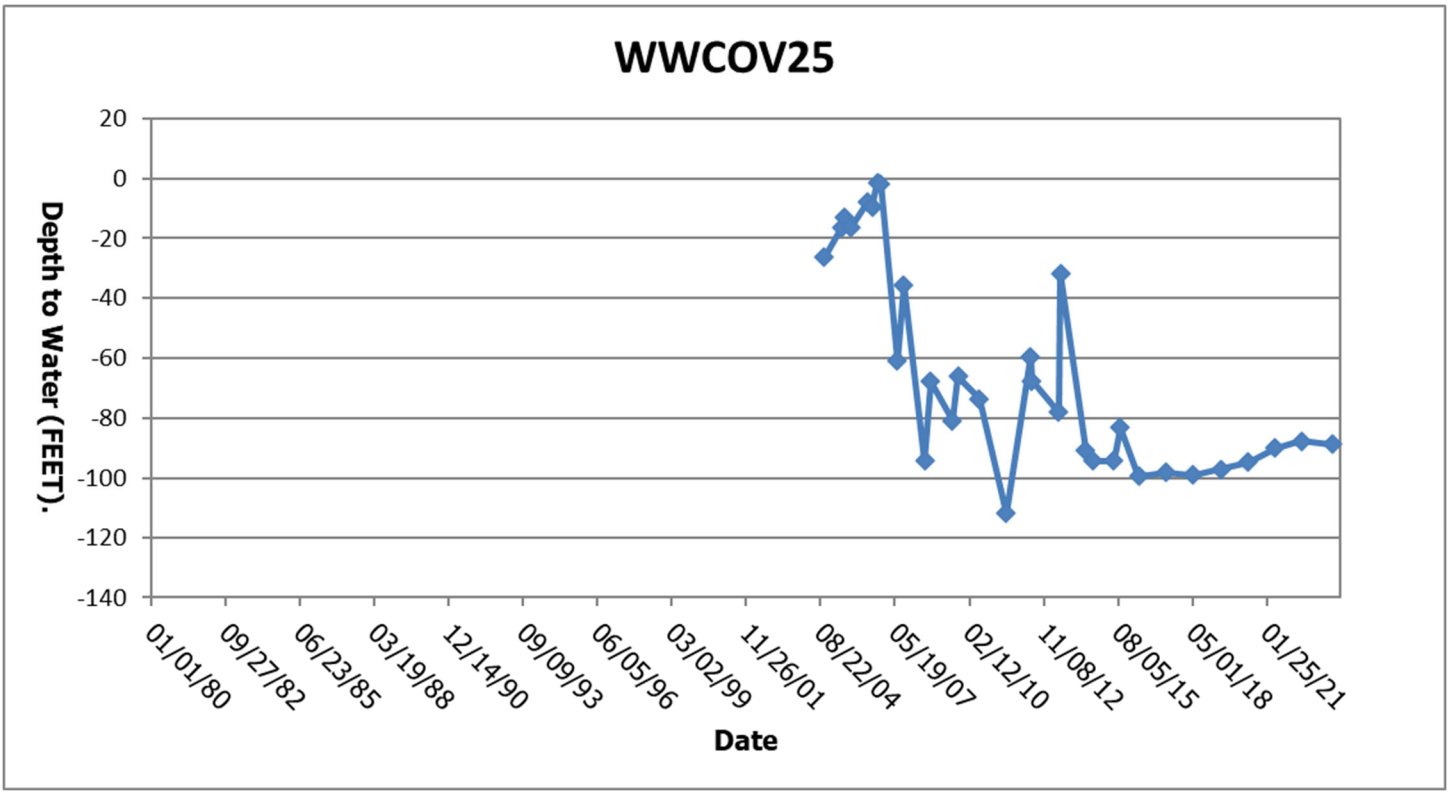

WW14
Depth to Water (FEET).
0
-20
-40
-60
-80
-100
-120
-140
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

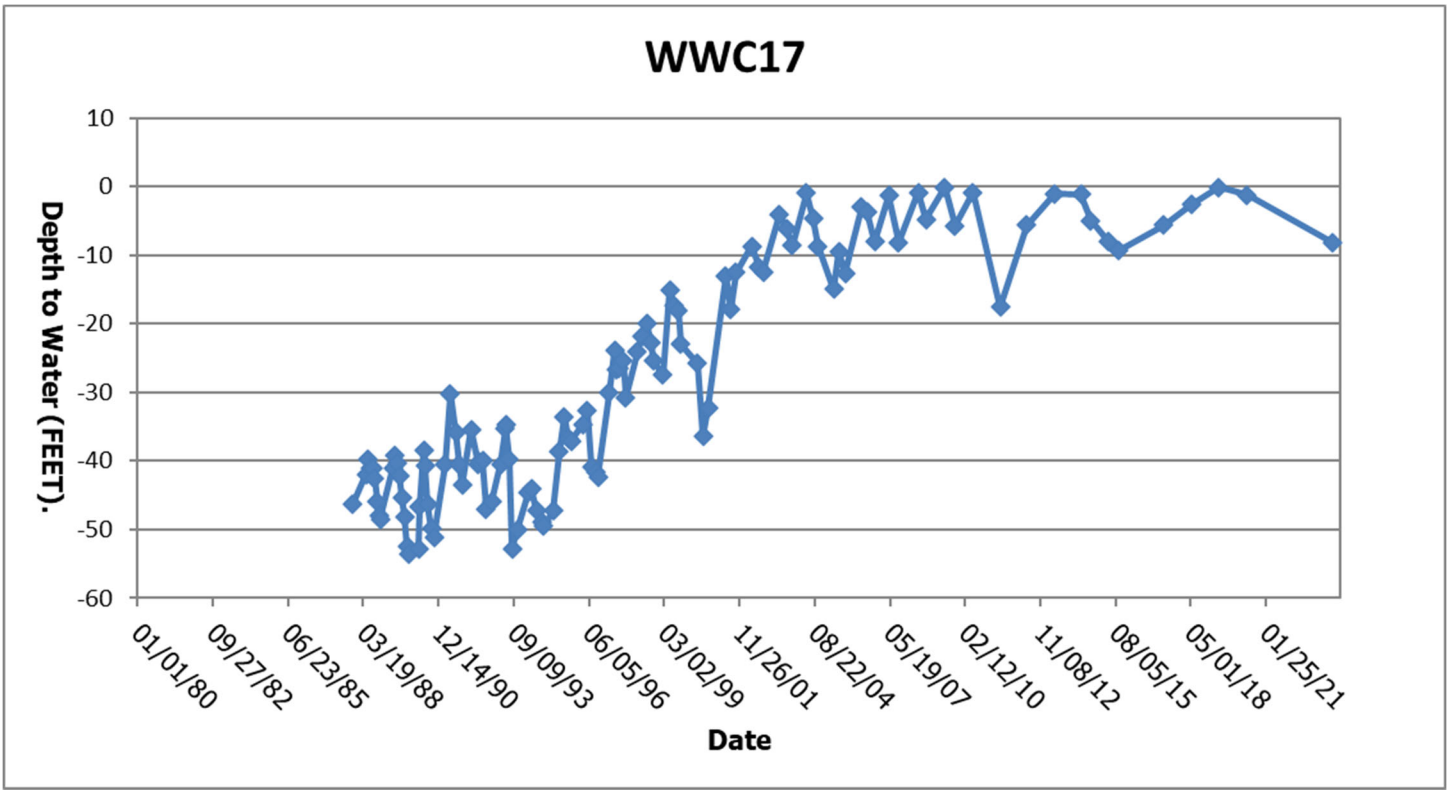

WW17
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
Depth to Water (FEET).
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

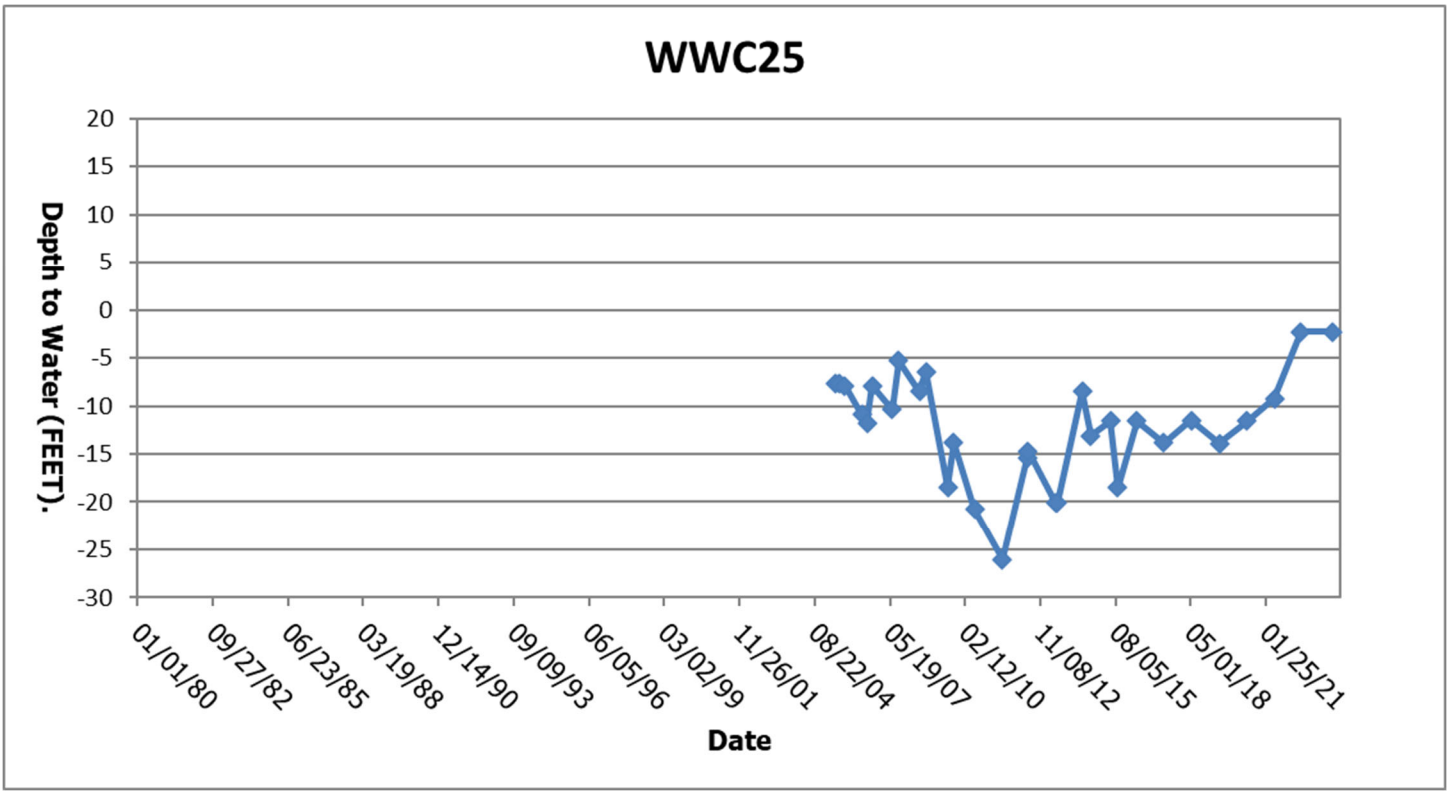

WW25
5
0
-5
-10
-15
-20
-25
-30
Depth to Water (FEET).
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

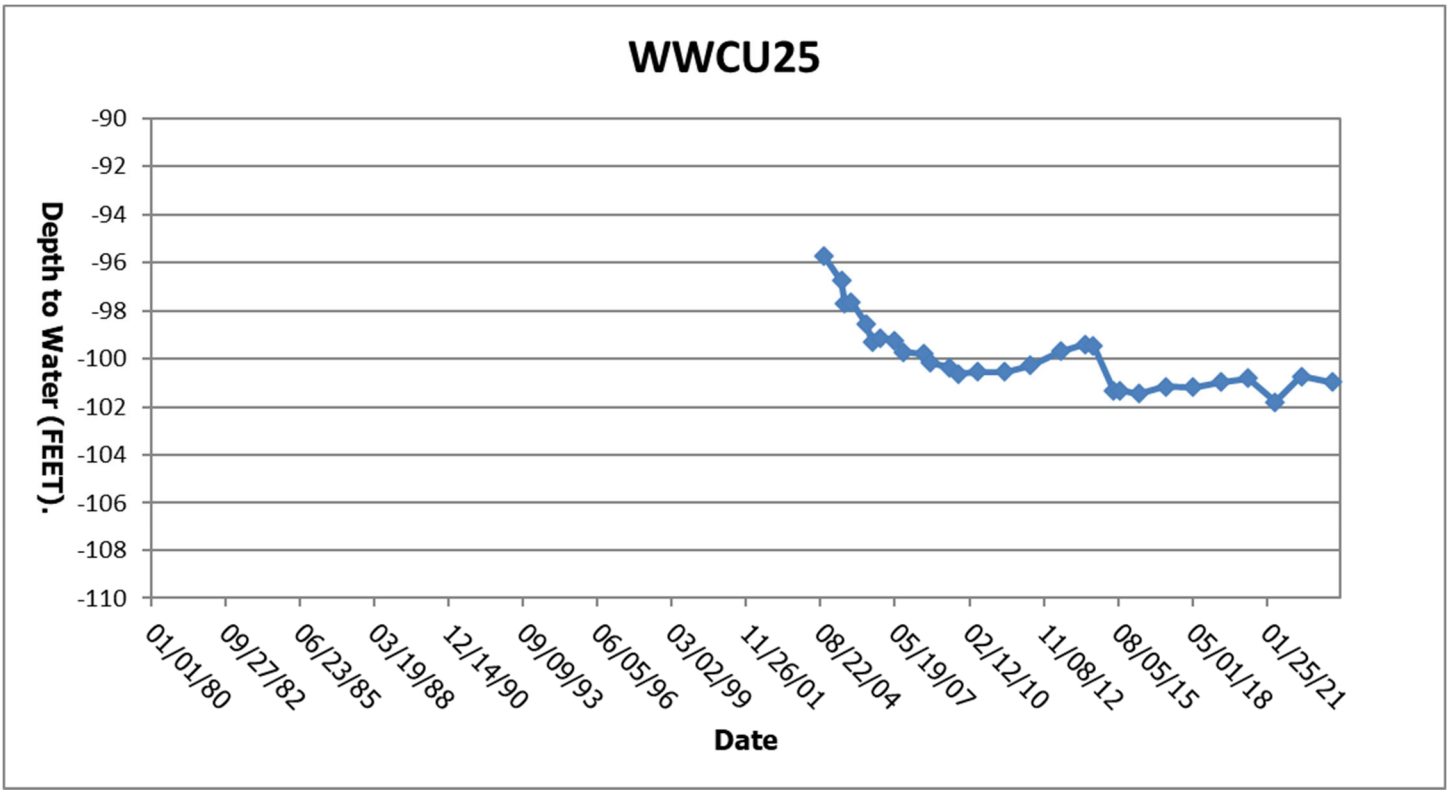

WSOV25
Depth to Water (FEET).
20
10
0
-10
-20
-30
-40
-50
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WSC25
Depth to Water (FEET).
0
-20
-40
-60
-80
-100
-120
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WWCOV25
Depth to Water (FEET).
20
0
-20
-40
-60
-80
-100
-120
-140
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WWC17
Depth to Water (FEET).
10
0
-10
-20
-30
-40
-50
-60
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WWC25
Depth to Water (FEET).
20
15
10
5
0
-5
-10
-15
-20
-25
-30
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date


WWCU25
Depth to Water (FEET).
-90
-92
-94
-96
-98
-100
-102
-104
-106
-108
-110
01/01/80
09/27/82
06/23/85
03/19/88
12/14/90
09/09/93
06/05/96
03/02/99
11/26/01
08/22/04
05/19/07
02/12/10
11/08/12
08/05/15
05/01/18
01/25/21
Date

# APPENDIX D

# SURFACE WATER QUALITY DATA

**Table D.1** Dry Creek Yampa Segment 13d stream point analytical data for water year 2023.

| Location | Date | Flow N MGD | SPC, Field N UMHOS/CM | pH, Field N S.U. | Temp., Field N C | Iron D MG/L | Iron PD MG/L | Iron TR MG/L | Manganese D MG/L | Mercury T UG/L | Ammonia N. N MG/L | Nitrate N. N MG/L | Nitrite N. N MG/L | Selenium D UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSH9 | 5/24/2023 | 0.469 | 393 | 8.4 | 15.4 | < 0.06 | 0.094 | 0.177 | | | | | | |
| WSH9 | 6/28/2023 | 0.02 | 715 | 8.1 | 13.9 | | | 0.402 | 0.0726 | | | | | 0.38 |
| WSH9 | 7/18/2023 | 0.011 | 802 | 7.8 | 15.2 | 0.14 | 0.711 | **1.13** | | | | | | |
| WSH9 | 9/7/2023 | 0 | | | | | | | | | | | | |
| WSH7 | 5/24/2023 | 3.31 | 1093 | 8.6 | 12.8 | 0.136 | 0.292 | 0.976 | 0.0238 | | | | | 0.75 |
| WSH7 | 6/28/2023 | 0.045 | 1678 | 8.3 | 13.5 | | | **1.64** | 0.0259 | | | | | 0.69 |
| WSH7 | 7/18/2023 | 0.003 | 1774 | 8.1 | 16.3 | 0.079 | 0.713 | **3.6** | | | | | | |
| WSH7 | 9/7/2023 | 0 | | | | | | | | | | | | |
| WSHF1 | 5/24/2023 | 1.43 | 1535 | 8.6 | 12.4 | < 0.06 | 0.254 | 0.802 | 0.0187 | **< 0.2** | < 0.05 | 0.127 | < 0.01 | 0.74 |
| WSHF1 | 6/28/2023 | 0.077 | 2563 | 8 | 13.5 | | | 0.962 | 0.078 | **< 0.2** | < 0.1 | 0.361 | < 0.01 | 0.59 |
| WSHF1 | 7/18/2023 | 0.015 | 2951 | 8.1 | 15.5 | 0.062 | 0.566 | **1.39** | | | | | | 0.37 |
| WSHF1 | 9/7/2023 | 0.012 | 2780 | 8.5 | 18.8 | | | 0.208 | 0.101 | | | | | 0.23 |
| WSD5 | 5/24/2023 | 3.07 | 1611 | 8.4 | 13.2 | 0.0375 | 0.166 | 0.276 | 0.0788 | **< 0.2** | < 0.05 | 0.227 | < 0.01 | 0.48 |
| WSD5 | 6/28/2023 | 0.054 | 2517 | 8 | 14.4 | | | 0.403 | 0.336 | **< 0.2** | < 0.1 | 0.03 | < 0.01 | 0.24 |
| WSD5 | 7/18/2023 | 0.002 | 2724 | 7.7 | 17.5 | 0.16 | 0.412 | 0.601 | | | | | | 0.23 |
| WSD5 | 9/7/2023 | 0 | | | | | | | | | | | | |
| Yampa Segment 13d Standards - Acute | | - | - | 6.5 - 9.0 | - | - | - | - | 4.738 | 0.01** | Varies*** | 100 | 0.05 | 18.4 |
| Yampa Segment 13d Standards - Chronic | | - | - | - | - | - | - | 1.11 (May-Feb)<br>3.04 (Mar-Apr) | 2.618 | - | - | - | - | 4.6 |
| Agricultural Use Standards | | - | - | - | - | - | - | - | 0.2* | - | - | 100 | 10 | 20 |

| Location | Date | Selenium PD UG/L | Selenium TR UG/L | Sulfates N MG/L | Sulfide N MG/L | TDS, Lab N MG/L | TSS N MG/L |
|---|---|---|---|---|---|---|---|
| WSH9 | 5/24/2023 | | | | | 250 | 8 |
| WSH9 | 6/28/2023 | 0.26 | 0.31 | | | 410 | 6 |
| WSH9 | 7/18/2023 | | | | | 494 | 18 |
| WSH9 | 9/7/2023 | | | | | | |
| WSH7 | 5/24/2023 | 0.78 | 0.86 | | | 910 | 41 |
| WSH7 | 6/28/2023 | 0.6 | 0.67 | | | 1200 | 61 |
| WSH7 | 7/18/2023 | | | | | 1390 | 75 |
| WSH7 | 9/7/2023 | | | | | | |
| WSHF1 | 5/24/2023 | 0.79 | 0.84 | 805 | **< 0.02** | 1420 | 26 |
| WSHF1 | 6/28/2023 | 0.52 | 0.51 | 1180 | **< 0.02** | 1980 | 28 |
| WSHF1 | 7/18/2023 | | 0.29 | 1410 | | 2610 | 37 |
| WSHF1 | 9/7/2023 | 0.28 | 0.22 | | | 3040 | 7 |
| WSD5 | 5/24/2023 | 0.55 | 0.53 | 846 | **< 0.02** | 1530 | 7 |
| WSD5 | 6/28/2023 | 0.29 | 0.25 | 1070 | **< 0.02** | 1880 | < 5 |
| WSD5 | 7/18/2023 | | 0.17 | 1070 | | 2260 | 9 |
| WSD5 | 9/7/2023 | | | | | | |
| Yampa Segment 13d Standards - Acute | | - | - | - | 0.002**** | - | - |
| Yampa Segment 13d Standards - Chronic | | - | - | - | - | - | - |
| Agricultural Use Standards | | - | - | - | - | - | - |

**Notes**

* The manganese agricultural use standard is only applicable where irrigation water is applied to soils with a pH value less than 6.0. The soils in this area are alkaline.

** Analytic detection limit is an order of magnitude greater than the 0.01 mg/L mercury standard.

*** Table value standard (TVS) for ammonia varies based on temperature and pH. See WQCC Regulation 33 for equation.

**** Analytic detection limit is an order of magnitude greater than 0.002 mg/L sulfide standard.

**Bold** Analyte exceeds the Yampa Segment 13d or Agricultural Use Standards

**Table D.2.** Dry Creek Segment 13d NPDES Outfall 017 analytical data for water year 2023.

| Location | Date | Flow N MGD | pH, Field N S.U. | Oil & Grease Y/N | Iron** D MG/L | Iron** PD MG/L | Iron TR MG/L | Selenium** D UG/L | Selenium PD UG/L | Selenium** TR UG/L | TSS** N MG/L | TDS, Lab N MG/L | Settleable Solids ML/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPDES17 | 10/22/2022 | 0 | | | | | | | | | | | |
| NPDES17 | 11/16/2022 | 0 | | | | | | | | | | | |
| NPDES17 | 12/12/2022 | 0 | | | | | | | | | | | |
| NPDES17 | 1/22/2023 | 0.001 | 8.47 | N | | | 0.143 | | 0.41 | 0.44 | | 1220 | < 0.1 |
| NPDES17 | 2/9/2023 | 0.017 | 7.4 | N | | | 0.165 | | 0.35 | 0.5 | | 1210 | < 0.1 |
| NPDES17 | 3/21/2023 | 0.020 | 7.8 | N | | | 0.213 | | 0.56 | 0.57 | | 1240 | < 0.1 |
| NPDES17 | 4/20/2023 | 0.564 | 7.9 | N | | | 0.375 | | 1.65 | 1.59 | | 540 | < 0.1 |
| NPDES17 | 5/24/2023 | 0.477 | 8.7 | N | < 0.06 | 0.087 | 0.185 | 0.73 | 0.72 | 0.6 | < 5 | 292 | < 0.1 |
| NPDES17 | 6/26/2023 | 0.021 | 8.5 | N | | | 0.186 | | 0.84 | 0.94 | | 574 | < 0.1 |
| NPDES17 | 7/18/2023 | 0.018 | 8.7 | N | < 0.06 | 0.13 | 0.158 | 1.2 | 1.15 | 1.2 | 8 | 890 | < 0.1 |
| NPDES17 | 8/21/2023 | 0.001 | 8.9 | N | | | 0.081 | | 1.09 | 1.13 | | 1020 | < 0.1 |
| NPDES17 | 9/7/2023 | 0.001 | 8.9 | N | | | 0.377 | | 1.23 | 1.16 | | 1190 | < 0.1 |
| NPDES Limit | Daily Max | | 6.5 - 9.0 | 10* | - | - | Report | - | Report | - | - | Report | 0.5 |
| | Monthly Avg. | | NA | NA | - | - | 1 | - | 4.6 | - | - | Report | Report |
| Yampa Segment 13d Standards - Acute | | | 6.5 - 9.0 | - | - | - | - | 18.4 | - | - | - | - | |
| Yampa Segment 13d Standards - Chronic | | | - | - | - | - | Mar-Apr 3.040<br>May-Feb 1.110 | 4.6 | - | - | - | - | |

**Note**

* Limit only applicable if presence of oil or grease is detected

** This outfall does not have an NPDES discharge monitoring requirement for this parameter

**Bold** Analyte exceeds the NPDES limit or Yampa Segment 13d Standard

**Table D.3.** Dry Creek Segment 13d NPDES Outfall 016 analytical data for water year 2023.

| Location | Date | Flow N MGD | pH, Field N S.U. | Oil & Grease Y/N | Iron** D MG/L | Iron** PD MG/L | Iron TR MG/L | Selenium** D UG/L | Selenium PD UG/L | Selenium** TR UG/L | TSS** N MG/L | TDS, Lab N MG/L | Settleable Solids ML/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPDES16 | 10/20/2022 | 0.034 | 8.59 | N | | | 0.079 | | 0.18 | 0.25 | | 2300 | < 0.1 |
| NPDES16 | 11/16/2022 | 0.033 | 8.53 | N | | | < 0.12 | | 0.27 | 0.49 | | 2400 | < 0.1 |
| NPDES16 | 12/5/2022 | 0.033 | 8.47 | N | | | < 0.12 | | 0.46 | 0.46 | | 2390 | < 0.1 |
| NPDES16 | 1/22/2023 | 0.032 | 8.42 | N | | | < 0.12 | | 0.8 | 0.89 | | 2430 | < 0.1 |
| NPDES16 | 2/9/2023 | 0.027 | 8 | N | | | < 0.12 | | 0.96 | 0.98 | | 2310 | < 0.1 |
| NPDES16 | 3/21/2023 | 0.018 | 7.9 | N | | | < 0.12 | | 1.33 | 1.26 | | 2290 | < 0.1 |
| NPDES16 | 4/20/2023 | 0.741 | 8 | N | | | 0.195 | | 1.12 | 0.98 | | 1150 | < 0.1 |
| NPDES16 | 5/24/2023 | 0.738 | 8.3 | N | < 0.06 | < 0.06 | < 0.06 | 0.87 | 0.96 | 0.83 | < 5 | 1930 | < 0.1 |
| NPDES16 | 6/26/2023 | 0.103 | 7.8 | N | | | 0.086 | | 1.01 | 0.98 | | 2110 | < 0.1 |
| NPDES16 | 7/18/2023 | 0.061 | 7.9 | N | 0.08 | 0.203 | 0.215 | 0.81 | 0.73 | 0.76 | 7 | 2410 | < 0.1 |
| NPDES16 | 8/21/2023 | 0.056 | 8.2 | N | | | 0.213 | | 0.55 | 0.51 | | 2420 | < 0.1 |
| NPDES16 | 9/7/2023 | 0.037 | 8.2 | N | | | 0.194 | | 0.61 | 0.53 | | 2380 | < 0.1 |
| NPDES Limit | Daily Max | | 6.5 - 9.0 | 10* | - | - | Report | - | Report | - | - | Report | 0.5 |
| | Monthly Avg. | | NA | NA | - | - | 1 | - | 4.6 | - | - | Report | Report |
| Yampa Segment 13d Standards - Acute | | | 6.5 - 9.0 | - | - | - | - | 18.4 | - | - | - | - | |
| Yampa Segment 13d Standards - Chronic | | | - | - | - | - | Mar-Apr 3.040<br>May-Feb 1.110 | 4.6 | - | - | - | - | |

**Note**

* Limit only applicable if presence of oil or grease is detected

** This outfall does not have an NPDES discharge monitoring requirement for this parameter

**Bold** Analyte exceeds the NPDES limit or Yampa Segment 13d Standard

**Table D.4.** Dry Creek Segment 13d NPDES Outfall 006 analytical data for water year 2023.

| Location | Date | Flow N MGD | pH, Field N S.U. | Oil & Grease Y/N | Iron** D MG/L | Iron** PD MG/L | Iron TR MG/L | Manganese PD MG/L | Selenium** D UG/L | Selenium PD UG/L | Selenium** TR UG/L | TSS** N MG/L | TDS, Lab N MG/L | Settleable Solids ML/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPDES6 | 10/20/2022 | 0.046 | 8.53 | N | | | < 0.06 | 0.00732 | | < 0.1 | 0.19 | | 4010 | < 0.1 |
| NPDES6 | 11/16/2022 | 0.043 | 8.51 | N | | | < 0.3 | | | < 0.1 | < 0.5 | | 4020 | < 0.1 |
| NPDES6 | 12/5/2022 | 0.039 | 8.46 | N | | | < 0.12 | | | < 0.1 | 0.11 | | 3870 | < 0.1 |
| NPDES6 | 1/22/2023 | 0.040 | 8.41 | N | | | < 0.12 | | | 0.22 | < 0.2 | | 3780 | < 0.1 |
| NPDES6 | 2/9/2023 | 0.039 | 7.9 | N | | | < 0.12 | | | < 0.2 | < 0.2 | | 3540 | < 0.1 |
| NPDES6 | 3/21/2023 | 0.055 | 7.7 | N | | | < 0.12 | 0.528 | | 0.28 | < 0.2 | | 3690 | < 0.1 |
| NPDES6 | 4/19/2023 | 0.947 | 8 | N | | | **1.32** | | | 2.12 | 2.05 | | 876 | < 0.1 |
| NPDES6 | 5/24/2023 | 0.645 | 8.3 | N | < 0.12 | 0.088 | 0.132 | | 1.13 | 1 | 0.99 | 6 | 3840 | < 0.1 |
| NPDES6 | 6/26/2023 | 0.124 | 7.9 | N | | | 0.149 | | | 0.2 | 0.31 | | 3960 | < 0.1 |
| NPDES6 | 7/18/2023 | 0.09 | 7.9 | N | < 0.12 | 0.189 | 0.166 | 0.045 | 0.23 | < 0.2 | 0.27 | 6 | 4200 | < 0.1 |
| NPDES6 | 8/21/2023 | 0.06 | 8 | N | | | < 0.12 | | | < 0.2 | < 0.2 | | 4380 | < 0.1 |
| NPDES6 | 9/7/2023 | 0.06 | 8.1 | N | | | < 0.3 | | | 0.25 | < 0.5 | | 4300 | < 0.1 |
| NPDES Limit | Daily Max | | 6.5 - 9.0 | 10* | - | - | Report | Report | - | Report | - | - | Report | 0.5 |
| | Monthly Avg. | | NA | NA | - | - | 1 | Report | - | 4.6 | - | - | Report | Report |
| Yampa Segment 13d Standards - Acute | | | 6.5 - 9.0 | - | - | - | - | 4.738 | 18.4 | - | - | - | - | |
| Yampa Segment 13d Standards - Chronic | | | - | - | - | - | Mar-Apr 3.040<br>May-Feb 1.110 | 2.618 | 4.6 | - | - | - | - | |

**Note**

* Limit only applicable if presence of oil or grease is detected

** This outfall does not have an NPDES discharge monitoring requirement for this parameter

**Bold** Analyte exceeds the NPDES limit or Yampa Segment 13d Standard

**Table D.5.** Dry Creek Segment 13d NPDES Outfall 005 analytical data for water year 2023.

| Location | Date | Flow N MGD | pH, Field N S.U. | Oil & Grease Y/N | Iron** D MG/L | Iron** PD MG/L | Iron TR MG/L | Selenium** D UG/L | Selenium PD UG/L | Selenium** TR UG/L | TDS, Lab N MG/L | Cadmium PD UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPDES5 | 10/22/2022 | 0 | | | | | | | | | | |
| NPDES5 | 11/16/2022 | 0 | | | | | | | | | | |
| NPDES5 | 12/6/2022 | 0 | | | | | | | | | | |
| NPDES5 | 1/23/2023 | 0 | | | | | | | | | | |
| NPDES5 | 2/9/2023 | 0 | | | | | | | | | | |
| NPDES5 | 3/21/2023 | 0 | | | | | | | | | | |
| NPDES5 | 4/20/2023 | 0.582 | 8.2 | N | | | 0.403 | | 1.49 | 1.29 | 1240 | < 0.05 |
| NPDES5 | 5/24/2023 | 0.496 | 8.4 | N | < 0.014 | 0.0343 | < 0.12 | 0.87 | 1 | | 3900 | |
| NPDES5 | 6/26/2023 | 0 | | | | | | | | | | |
| NPDES5 | 7/18/2023 | 0 | | | | | | | | | | |
| NPDES5 | 8/21/2023 | 0 | | | | | | | | | | |
| NPDES5 | 9/7/2023 | 0 | | | | | | | | | | |
| NPDES Limit | Daily Max | | 6.5 - 9.0 | 10* | - | - | Report | - | Report | - | Report | Report |
| | Monthly Avg. | | NA | NA | - | - | 1 | - | 4.6 | - | Report | Report |
| Yampa Segment 13d Standards - Acute | | | 6.5 - 9.0 | - | - | - | - | 18.4 | - | - | - | 9.2 |
| Yampa Segment 13d Standards - Chronic | | | - | - | - | - | Mar-Apr 3.040<br>May-Feb 1.110 | 4.6 | - | - | - | 1.2 |

| Location | Date | Chromium PD UG/L | Copper PD UG/L | Lead PD UG/L | Mercury T UG/L | Nickel PD UG/L | Silver PD UG/L | Zinc PD MG/L | Settleable Solids ML/L |
|---|---|---|---|---|---|---|---|---|---|
| NPDES5 | 10/22/2022 | | | | | | | | |
| NPDES5 | 11/16/2022 | | | | | | | | |
| NPDES5 | 12/6/2022 | | | | | | | | |
| NPDES5 | 1/23/2023 | | | | | | | | |
| NPDES5 | 2/9/2023 | | | | | | | | |
| NPDES5 | 3/21/2023 | | | | | | | | |
| NPDES5 | 4/20/2023 | < 0.5 | < 0.8 | 0.16 | 0.00258 | < 8 | < 0.1 | < 0.02 | < 0.1 |
| NPDES5 | 5/24/2023 | | | | | | | | < 0.1 |
| NPDES5 | 6/26/2023 | | | | | | | | |
| NPDES5 | 7/18/2023 | | | | | | | | |
| NPDES5 | 8/21/2023 | | | | | | | | |
| NPDES5 | 9/7/2023 | | | | | | | | |
| NPDES Limit | Daily Max | Report | Report | Report | Report | Report | Report | Report | 0.5 |
| | Monthly Avg. | Report | Report | Report | Report | Report | Report | Report | Report |
| Yampa Segment 13d Standards - Acute | | 1773 | 50 | 281 | - | 1513 | 22 | 0.565 | |
| Yampa Segment 13d Standards - Chronic | | 231 | 29 | 11 | 0.01 | 168 | 3.5 | 0.428 | |

**Note**

* Limit only applicable if presence of oil or grease is detected

** This outfall does not have an NPDES discharge monitoring requirement for this parameter

**Bold** Analyte exceeds the NPDES limit or Yampa Segment 13d Standard

**Table D.6.** Statistical summary of pre-mine total recoverable iron at SIIW stream monitoring points.

| Watershed | Dates | Location | Total Recoverable Iron (mg/L) | | | |
|---|---|---|---|---|---|---|
| | | | N | Mean | Min | Max |
| Dry Creek / Hubberson | Apr 1987 - Sept 1989 | WSH7 | 8 | 1.90 | 0.21 | 7.8 |
| | Apr 1979 - Sept 1989 | WSHF1 | 89 | 9.10 | 0.15 | 240 |
| | Mar 1983 - Sept 1989 | WSD5 | 46 | 6.18 | 0.21 | 106 |
| | | | | | | |
| Sage Creek | May 1991 - Sept 1995 | WSSF3 | 25 | 0.22 | < 0.02 | 1.09 |

Note
Non-detect value applied to all censored data for statistical calculations

**Table D.7.** Sage Creek Segment 13e stream point analytical data for water year 2023.

| Location | Date | Flow N MGD | SPC, Field N UMHOS/CM | pH, Field N S.U. | Temp., Field N C | Iron TR MG/L | Manganese D MG/L | Mercury T UG/L | Ammonia N. N MG/L | Nitrate N. N MG/L | Nitrite N. N MG/L | Selenium D UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSSF3 | 5/24/2023 | 8.85 | 876 | 8.3 | 10.5 | 0.228 | 0.039 | **< 0.2** | < 0.05 | < 0.02 | < 0.01 | 0.55 |
| WSSF3 | 6/28/2023 | 0.085 | 1410 | 8 | 10.5 | 0.29 | 0.0381 | **< 0.2** | < 0.1 | < 0.02 | < 0.01 | 0.41 |
| WSSF3 | 7/18/2023 | 0.013 | 1447 | 8.1 | 14.2 | | | | | | | 0.36 |
| WSSF3 | 9/7/2023 | 0 | | | | | | | | | | |
| Yampa Segment 13e Standards - Acute | | - | - | 6.5 - 9.0 | - | - | 4.738 | 0.01** | Varies*** | 100 | 0.05 | 18.4 |
| Yampa Segment 13e Standards - Chronic | | - | - | - | - | 1 | 2.618 | - | - | - | - | TM**** |
| Agricultural Use Standards | | - | - | - | - | - | 0.2* | - | - | 100 | 10 | 20 |

| Location | Date | Selenium PD UG/L | Selenium TR UG/L | Sulfates N MG/L | Sulfide N MG/L | TDS, Lab N MG/L | TSS N MG/L |
|---|---|---|---|---|---|---|---|
| WSSF3 | 5/24/2023 | 0.49 | 0.49 | 315 | **< 0.02** | 712 | 9 |
| WSSF3 | 6/28/2023 | 0.26 | 0.3 | 444 | **< 0.02** | 952 | 6 |
| WSSF3 | 7/18/2023 | | 0.33 | 411 | | 1050 | |
| WSSF3 | 9/7/2023 | | | | | | |
| Yampa Segment 13e Standards - Acute | | - | - | - | 0.002***** | - | - |
| Yampa Segment 13e Standards - Chronic | | - | - | - | - | - | - |
| Agricultural Use Standards | | - | - | - | - | - | - |

**Notes**

* The manganese agricultural use standard is only applicable where irrigation water is applied to soils with a pH value less than 6.0. The soils in this area are alkaline.

** Analytic detection limit is an order of magnitude greater than the 0.01 mg/L mercury standard.

*** Table value standard (TVS) for ammonia varies based on temperature and pH. See WQCC Regulation 33 for equation.

**** A current condtions temporary modification is in place for the Segment 13e chronic selenium standard.

***** Analytic detection limit is an order of magnitude greater than 0.002 mg/L sulfide standard.

**Bold** Analyte exceeds the Yampa Segment 13e or Agricultural Use Standards

**Table D.8.** Sage Creek Segment 13e NPDES Outfall 009 and 015 analytical data for water year 2023.

| Location | Date | Flow N MGD | pH, Field N S.U. | Oil & Grease Y/N | TDS, Lab N MG/L | Settleable Solids ML/L |
|---|---|---|---|---|---|---|
| NPDES9 | 10/22/2022 | 0 | | | | |
| NPDES9 | 11/16/2022 | 0 | | | | |
| NPDES9 | 12/5/2022 | 0 | | | | |
| NPDES9 | 1/22/2023 | 0 | | | | |
| NPDES9 | 2/10/2023 | 0 | | | | |
| NPDES9 | 3/21/2023 | 0 | | | | |
| NPDES9 | 4/19/2023 | 0 | | | | |
| NPDES9 | 5/24/2023 | 0.031 | 8.5 | N | 346 | < 0.1 |
| NPDES9 | 6/26/2023 | 0 | | | | |
| NPDES9 | 7/18/2023 | 0 | | | | |
| NPDES9 | 8/21/2023 | 0 | | | | |
| NPDES9 | 9/7/2023 | 0 | | | | |
| NPDES15 | 10/22/2022 | 0 | | | | |
| NPDES15 | 11/16/2022 | 0 | | | | |
| NPDES15 | 12/5/2022 | 0 | | | | |
| NPDES15 | 1/22/2023 | 0 | | | | |
| NPDES15 | 2/10/2023 | 0 | | | | |
| NPDES15 | 3/21/2023 | 0.029 | 7.3 | N | 574 | < 0.1 |
| NPDES15 | 4/19/2023 | 0.288 | 8.4 | N | 414 | < 0.1 |
| NPDES15 | 5/24/2023 | 0.217 | 8.1 | N | 314 | < 0.1 |
| NPDES15 | 6/26/2023 | 0.019 | 8.1 | N | 358 | < 0.1 |
| NPDES15 | 7/18/2023 | 0.003 | 8.5 | N | 338 | < 0.1 |
| NPDES15 | 8/21/2023 | 0.003 | 8.6 | N | 358 | < 0.1 |
| NPDES15 | 9/7/2023 | 0.002 | 8.1 | N | 390 | < 0.1 |
| NPDES Limit | Daily Max | | 6.5 - 9.0 | 10* | Report | 0.5 |
| | Monthly Avg. | | NA | NA | Report | Report |
| Yampa Segment 13e Standards - Acute | | | 6.5 - 9.0 | - | - | |
| Yampa Segment 13e Standards - Chronic | | | - | - | - | |

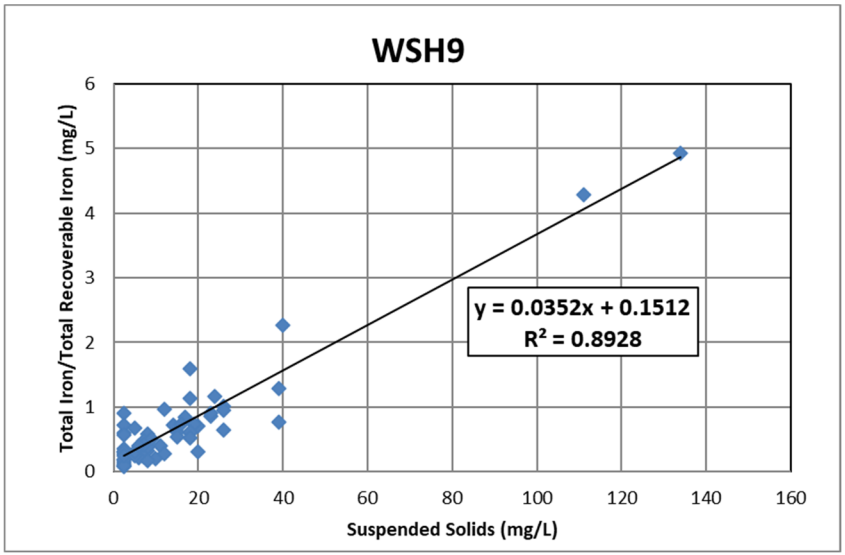
**Note**

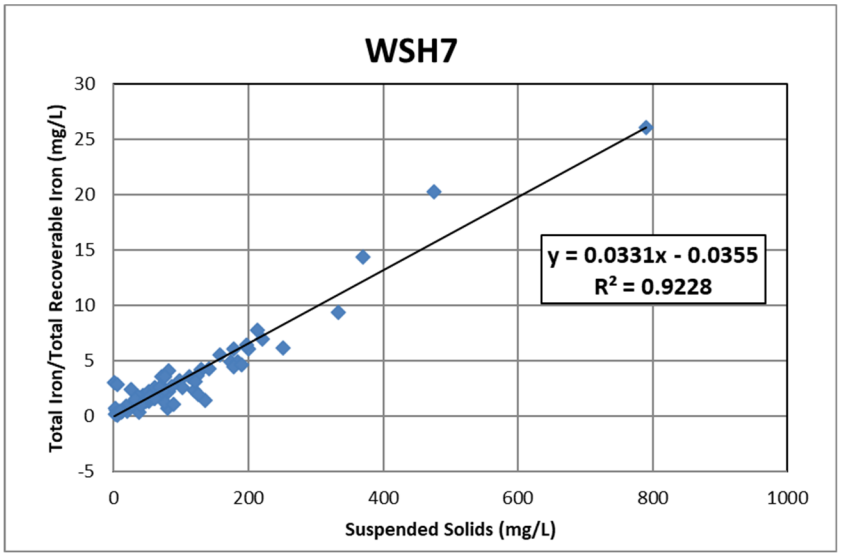
* Limit only applicable if presence of oil or grease is detected

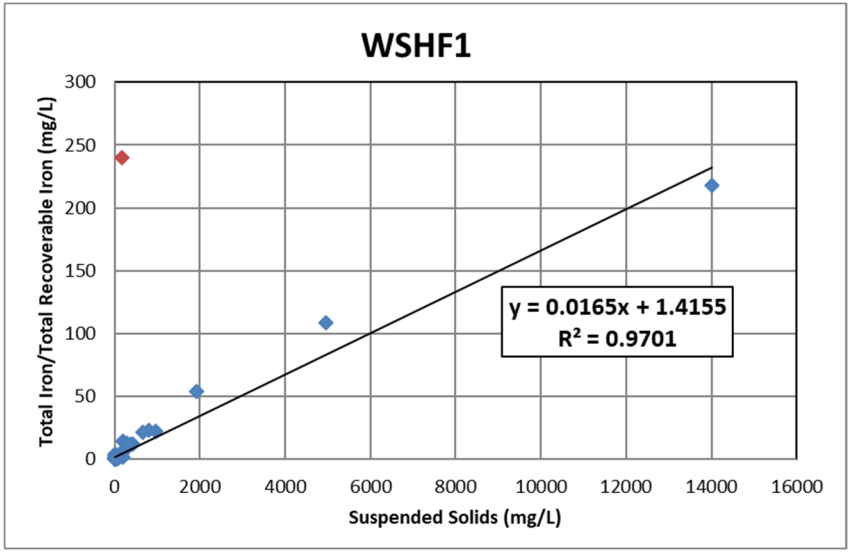
Settleable solids data only submitted to SCC database if result exceeds limit. No exceedances occurred during this time period.

**Bold** Analyte exceeds the NPDES limit or Yampa Segment 13d Standard

**Figure D.1.** Suspended solids vs total iron/total recoverable iron at Dry Creek stream points WSH9, WSH7, and WSHF1. Note that a single sample from WSHF1 collected on April 27, 1979 was determined to be a statistical outlier. This sample is designated in red on the WSHF1 plot and was not included in the correlation analysis.



# APPENDIX E

# SPRING WATER QUALITY DATA

**Table E.1. A**nalytical data for springs sampled during the 2023 water year.

| Location | Date | Flow N MGD | SPC, Field N UMHOS/CM | pH, Field N S.U. | Temp., Field N C | Iron TR MG/L | Manganese D MG/L | Mercury T UG/L | Ammonia N. N MG/L | Nitrate N. N MG/L | Nitrite N. N MG/L | Selenium D UG/L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSPG7 | 6/29/2023 | 0.006 | 1651 | 7 | 13.5 | 1.17 | 0.0219 | < 0.2 | < 0.1 | 0.076 | < 0.01 | 0.17 |
| WSPG46 | 6/29/2023 | 0 | 3917 | 7.8 | 16.4 | 10.4 | 0.0541 | < 0.2 | < 0.1 | 0.032 | < 0.01 | < 0.2 |
| WSPG47 | 6/29/2023 | 0.01 | 2251 | 7.2 | 12.7 | 1.82 | 0.2 | | | | | < 0.1 |
| WSPG50 | 6/28/2023 | 0.01 | 2717 | 7.1 | 12.9 | 0.229 | 1.33 | < 0.2 | 0.261 | 0.138 | < 0.01 | < 0.2 |
| WSSPG1 | 6/29/2023 | 0.011 | 4653 | 7.7 | 14.1 | 0.166 | 1.91 | | | | | < 0.2 |
| WSSPG2 | 6/29/2023 | 0.004 | 3272 | 7.8 | 17.2 | < 0.12 | 0.0124 | < 0.2 | < 0.1 | 1.42 | < 0.01 | 1.74 |
| WSSPG3 | 6/29/2023 | 0.018 | 4403 | 6.5 | 13.9 | 1.37 | 1.02 | < 0.2 | 0.637 | 0.075 | < 0.01 | < 0.2 |
| WSSPG4 | 6/29/2023 | 0.036 | 4350 | 7.8 | 17 | 0.347 | 0.303 | < 0.2 | < 0.1 | 0.175 | < 0.01 | < 0.2 |
| WSSPG5 | 6/28/2023 | 0.085 | 2604 | 6.9 | 12.7 | 0.188 | 1.33 | < 0.2 | 0.266 | 0.129 | < 0.01 | < 0.2 |
| Agricultural Use Standards | | - | - | - | - | - | 0.2* | - | - | 100 | 10 | 20 |

| Location | Date | Selenium PD UG/L | Selenium TR UG/L | Sulfates N MG/L | Sulfide N MG/L | TDS, Lab N MG/L | TSS N MG/L |
|---|---|---|---|---|---|---|---|
| WSPG7 | 6/29/2023 | < 0.1 | 0.16 | 501 | < 0.02 | 1170 | 6 |
| WSPG46 | 6/29/2023 | 3.23 | 0.23 | 2080 | < 0.02 | 3600 | 484 |
| WSPG47 | 6/29/2023 | < 0.1 | < 0.1 | | | 1690 | 7 |
| WSPG50 | 6/28/2023 | < 0.1 | < 0.2 | 1060 | < 0.02 | 2040 | 5 |
| WSSPG1 | 6/29/2023 | < 0.2 | < 0.2 | | | 4590 | 8 |
| WSSPG2 | 6/29/2023 | 3.5 | 1.77 | 1450 | < 0.02 | 2790 | 9 |
| WSSPG3 | 6/29/2023 | < 0.2 | < 0.2 | 2320 | < 0.02 | 4040 | 10 |
| WSSPG4 | 6/29/2023 | < 0.2 | < 0.2 | 2370 | < 0.02 | 4060 | 6 |
| WSSPG5 | 6/28/2023 | < 0.1 | < 0.2 | 1040 | < 0.02 | 2030 | < 5 |
| Agricultural Use Standards | | - | - | - | - | - | - |

**Notes**

* The manganese agricultural use standard is only applicable where irrigation water is applied to soils with a pH value less than 6.0. The soils in this area are alkaline.

**Bold** Analyte exceeds the Agricultural Use Water Quality Standard