November 8, 2023

Mr. Mike Harvie
Manager of Engineering and Geology
Montana Resources, LLC
600 Shields Avenue
Butte, Montana
USA, 59701

Knight Piésold Ltd.
Suite 1400 - 750 West Pender Street
Vancouver, British Columbia
Canada, V6C 2T8
T +1 604 685 0543
E vancouver@knightpiesold.com
www.knightpiesold.com

Dear Mike,

RE: Q3 2023 – YDTI Quarterly Piezometric and Deformation Monitoring Update

1.0 INTRODUCTION

1.1 GENERAL

Montana Resources, LLC (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from ore processing are stored within the Yankee Doddle Tailings Impoundment (YDTI), which is a valley-fill style impoundment contained within rockfill embankments. Knight Piésold Ltd. (KP) supports MR to routinely monitor hydrogeological and geotechnical conditions as part of their operational surveillance plan for the tailings facility, as described in the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2022). Monitoring data are comprehensively reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections.

Piezometric conditions within the YDTI embankments, tailings mass, and surrounding areas are an important indicator of facility performance. Near real-time piezometric data from instrumentation at select monitoring sites have designated Quantitative Performance Parameters (QPPs) within the TOMS Manual and are regularly evaluated relative to piezometric 'trigger elevations' to pre-emptively identify and respond to changing conditions.

MR and KP commenced an embankment deformation monitoring program, with data collection beginning in 2020 to characterize and monitor surface and subsurface deformations using in-situ instrumentation and satellite-based remote sensing. Observed deformation rates, magnitudes and the spatial distribution thereof are an important indicators of embankment performance and are regularly reviewed by KP. The TOMS Manual does not yet include deformation based QPPs; however, these will be considered for future revisions. KP evaluated and presented available deformation data on a quarterly or more frequent basis throughout 2021 and 2022 to regularly monitor for changes in deformation behavior and evaluate incorporation of deformation instrumentation for QPP monitoring in the future; a practice that will continue through 2023.

This letter provides a quarterly summary of piezometric and deformation monitoring data collected during the third quarter (Q3) of 2023 for key monitoring sites.

1.2 SUMMARY OF ACTIVE CONSTRUCTION

MR substantially completed construction of the El. 6,450 ft crest raise of the YDTI embankments in March 2023. Only minor construction activities occurred during Q3 2023, including infilling and regrading areas along the EL. 6,450 ft crest. KP and MR operated a supplemental construction monitoring program from June 2021 through August 2023, that included focused weekly and monthly monitoring of construction related piezometric and deformation responses (KP, 2021) to North-South and East-West Embankment construction. Construction significantly influenced monitored surface deformations in areas within and localized around embankment construction, as expected. Only minor construction-related pore water pressure influence was observed. KP considers the construction monitoring program to have been highly valuable for tracking embankment conditions and evaluating associated risks, while large-scale construction loading was active (June 2021 through March 2023). The supplementary construction monitoring program was deactivated following substantial completion of construction, and KP is satisfied that YDTI conditions can be appropriately monitored within the existing dam safety/performance monitoring programs.

2.0 PIEZOMETRIC MONITORING

2.1 OVERVIEW OF PIEZOMETRIC MONITORING NETWORK

Piezometric data are available to KP via a Remote Monitoring System (RMS) and data from QPP sites are reviewed weekly by KP and MR. This letter presents trends and conditions based on data collection from the QPP sites during Q3 2023, with select additional data from non-QPP monitoring sites, when useful to support the key findings. Comprehensive analysis of data from the remaining non-QPP monitoring sites is completed annually and will next be presented in the 2023 Data Analysis Report. The active piezometric monitoring network and a summary of Q3 2023 piezometric conditions are presented in the following sections.

Pore pressures are monitored at 115 active instrumentation locations at the YDTI, the West Ridge, and Horseshoe Bend (HsB) areas. Locations of the piezometric monitoring sites are shown on Figure 1. These sites include 39 standpipe piezometers/monitoring wells, 76 drillholes with active vibrating wire piezometers (VWPs) and two active Elexon Geo4Sight (Geo4Sight) installations. Most existing standpipe piezometers and monitoring wells have been outfitted for continuous monitoring by suspending a VWP sensor within the PVC riser and connecting the sensor via radiotelemetry to the RMS.

Eighteen (18) standpipe piezometers and drillhole VWP sensors have designated QPPs within the TOMS Manual and are used to routinely assess the performance of the YDTI. The QPPs include a piezometric ‘trigger elevation’ at or above which the QPP is exceeded and a Level 1 Unusual Occurrence would be triggered, as specified in Table 5.1 of the TOMS Manual (MR/KP, 2022). Trigger elevations assigned to each QPP site are reviewed by KP on an annual basis. A summary of the piezometric QPPs that are currently in use at the YDTI is included in Table 1.

Piezometric data availability via the RMS has typically been highly reliable, except for minor outages including battery depletion, minor hardware problems, and temporary loss of communication with the local network. Minor outages have continued to be regularly identified during weekly monitoring reviews and corrective measures carried out, with minor issues typically remedied within one week of identification. Several notable QPP outages occurred during Q3 2023, as summarized below:

- **DH15-S5 VW2** has recorded erroneous readings since April 15, 2023 due to suspected VWP cable damage. This sensor will be abandoned and replacement QPPs will be adopted using sensors from drillhole DH23-S1, which was installed to replace DH15-S5 during the 2023 Site Investigation Program.
- **DH18-S1 VW2, VW3, and VW4** were disconnected during North-South EL. 6,450 ft Embankment lift construction (since March 8, 2023) but were damaged during construction and have been abandoned. KP plans to prioritize replacement of these sensors during the 2024 Site Investigation Program.
- **MW12-05** stopped recording on August 8, 2023 due to suspected cable or sensor damage. MW12-05 comprises a VWP sensor installed within a standpipe piezometer; however, the VWP can not be replaced since the standpipe collar is now buried within the embankment. KP may consider replacement of the instrumentation at MW12-05 as part of upcoming site investigation programs over the next several years.

2.2 SUMMARY OF Q3 2023 PIEOZOMETRIC CONDITIONS

2.2.1 GENERAL

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during Q3 2023. A high-level summary of QPP piezometric data and instrumentation status is provided in Table 1. Piezometric data recorded at QPP sites within the East-West, North-South, and West Embankments are shown relative to the trigger elevations on Figures 2 through 6. Piezometric conditions and quarterly change in piezometric elevation for instruments installed along Section 8+00W of the East-West Embankment are presented graphically on Figure 7.

2.2.2 EAST-WEST EMBANKMENT

QPP sites within the East-West Embankment exhibited relatively constant piezometric elevations during Q3 2023. Notable piezometric trends observed within the East-West Embankment are summarized below.

QPP sensors installed within basal rockfill near the East-West Embankment toe on Section 0+00 and 8+00W observed relatively constant pore water pressures during Q3 2023. Supporting monitoring findings include:

- QPP monitoring site DH15-S3 observed relatively constant pore water pressure (approximately 0.1 ft decrease).
- QPP monitoring site DH17-S1 monitored a very minor pore water pressure increase (approximately 0.5 ft increase) during Q3 2023.
- QPP monitoring sites MW94-11 and MW94-08 observed slightly decreasing pore water pressures (approximately 0.3 ft at both sites).

Pore water pressures monitored by QPP and non-QPP sensors installed beneath East-West Embankment downstream slope, crest, and surcharge load generally decreased slightly during Q3 2023. Key findings include:

- QPP sensor DH19-S7 VW1 (Section 0+00) continued to monitor decreasing pore water pressures (approximately 3 ft) within the basal saturated zone.

- QPP sensor DH15-S4 VW2 (Section 8+00W) observed slightly increasing pore pressures (approximately 0.6 ft) during Q3 2023.
- Non-QPP Geo4Sight instrumentation within drillholes DH20-S2 and DH21-S1 (beneath the rockfill surcharge on Sections 8+00W and 0+00, respectively) monitored relatively stable pore pressures during Q3 2023.
- QPP sensor DH18-S3 VW3, installed beneath the East-West Embankment crest on Section 28+00NW monitored relative constant piezometric conditions during Q3 2023.
- No data are available from QPP (DH15-S5 VW1) and non-QPP (DH15-S5 and DH17-S2) sites beneath the East-West Embankment crest within the Central Pedestal Area, following damage resulting from construction. Installation of replacement instrument installations at these locations is presently underway as part of the 2023 Site Investigation program. Data from these sites will be incorporated into subsequent quarterly monitoring letters.

Two sensors installed within the East-West Embankment near Section 0+00, within or in proximity to the historical 1982 embankment lift continued to monitor fluctuating water levels during Q3 2023:

- Non-QPP sensor DH19-S7 VW7 observed a minor overall quarterly pore water pressure decrease (approximately 1 ft) during Q3 2023; however, a significant fluctuation was observed during the monitoring period between July 10th and August 17th, 2023 (approximately 27 ft) followed by a rapid return to conditions observed prior to the fluctuation. The cause of this trend is uncertain and additional monitoring is recommended to determine whether it may be an instrumentation issue. Slightly decreasing pore pressures were observed through the end of Q3 2023.
- Non-QPP sensor DH19-S7 VW5, installed within the 1989 lift, observed steadily decreasing pore water pressures (approximately 6.7 ft) during Q3 2023.

The relatively constant pore water pressure trends within the East-West Embankment during Q3 2023 are generally consistent with preceding monitoring periods and no significant increases have been observed following substantial completion of EL. 6,450 ft embankment construction.

2.2.3 NORTH-SOUTH EMBANKMENT

QPP sites within the rockfill of the North-South Embankment monitored relatively constant or slightly increasing pore water pressures during Q3 2023, interpreted to be associated with alluvial placement along the upstream North-South Embankment and/or related to local tailings discharge. Key findings include:

- QPP sensor DH18-S2 VW2, installed within the basal saturated zone, monitored relatively constant pore water pressure during Q3 2023. A minor decrease in pore water pressure was monitored between July 10th and September 27th, 2023 (approximately 0.5 ft) followed by a return in conditions observed prior to the fluctuation. This sensor previously observed increasing pore water pressures resulting from nearby EL. 6,450 ft lift construction during mid- to late- 2022, and conditions at the end of Q3 remained slightly elevated (approximately 5 ft) from pre-construction pore water pressures. It is anticipated that pore water pressures will begin to dissipate with time following completion of construction activities.

- Monitoring well MW12-01 did not record any data between June 6th and September 29th, 2023, due to a datalogger issue. Comparison of data collected on these dates indicate that pore water pressure increased slightly during Q3 2023 (approximately 2.5 ft). MW12-01 was previously inundated by the rising tailings beach (tailings flowed into the well riser in September 2022) and subsequent water levels appear to be increasing (by approximately 20 ft) due to influence of local tailings discharge. Nearby tailings discharge point NS-01 was inactive during Q3 2023; however, discharge from the 12-inch diameter lines were active and may have caused the increase in piezometric conditions observed at MW12-01. Current elevations remain approximately 9.5 ft below the QPP threshold elevation. The QPO threshold elevation should be revisited and adjusted, if warranted, to reflect the recent change in behavior.
- Monitoring well MW12-05 has historically been unsaturated and remained unsaturated through August 8, 2023, after which the sensor stopped recording due to suspected cable or sensor damage.
- No data are available from QPP instrument DH18-S1 VW2 during Q3 2023. This instrument was damaged during EL. 6,450 ft lift construction and has been abandoned (as discussed previously in Section 2.1).

2.2.4 WEST EMBANKMENT AND DRAIN

Slightly increasing pore pressures were observed within the West Embankment and West Embankment Drain (WED) during Q3 2023 (ranging from approximately 0.3 to 0.8 ft), that are attributed to active tailings discharge from the 12-inch lines throughout Q3 2023. Key findings include:

- QPP sensors in drillhole DH15-12 (VW1, VW2, and VW3), installed within the West Embankment foundation, monitored slightly increasing pore water pressures (approximately 0.2 to 0.5 ft). Sensors VW1, VW2, and VW3 remained approximately 20 ft below their QPP trigger thresholds.
- Pore water pressures monitored by QPP sensors installed in WED Drain Pods 1 and 2 (VWP-DP1 and VWP-DP2, respectively) indicate constant or slightly increasing pore pressures (decrease of 0.3 and increase 0.9 ft, respectively). The sensors remain approximately 30 ft below their respective QPP trigger thresholds.
- The piezometric elevation monitored by the non-QPP sensor in the WED Extraction Basin (VWP-EB1) monitored a minor pore water pressure increase (approximately 0.5 ft).

2.2.5 TAILINGS MASS

Pore water pressure instrumentation installed within the tailings mass upstream of the East-West Embankment Central Pedestal Area generally monitored increasing pore water pressures during Q3 2023. Key findings include:

- Pore pressures within the central tailings mass upstream of the rockfill surcharge at non-QPP sites SCPT15-04 VW2 and SCPT15-05 VW2 monitored minor increases in piezometric elevation (approximately 5 ft). Nearby tailings discharge from the 12-inch diameter lines is inferred to be the cause of the piezometric increase.
- Non-QPP sites DH17-S3 VW2 and SCPT15-03 VW1, installed beneath the central rockfill surcharge, monitored increasing piezometric elevations of approximately 2 and 3 ft, respectively.

- Non-QPP sensors SCPT21-S5 VW2 and VW3 were unsaturated throughout Q2 2023 but became saturated near the start of Q3 2023 and remained saturated throughout the quarter. Steady increases in piezometric elevation (approximately 3 ft and 9 ft, respectively) were observed, while nearby tailings discharge from the 12-inch diameter lines was active.

Instrumentation installed within the tailings beach adjacent to the North-South and East-West Embankments outside the Central Pedestal Area generally monitored mixed piezometric responses during Q3 2023. Key findings include:

- Non-QPP sensor SCPT15-06 VW2 monitored a pore water pressure increase of approximately 10 ft during Q3 2023. Non-QPP sensor SCPT15-06 VW1 has recorded erroneous data since June 16, 2023 and appears to have been damaged.
- Non-QPP sensor DH19-S6 VW6, installed upstream of the North-South Embankment near Section 56+00N, observed increasing pore water pressures (approximately 8 ft). The increase in Q3 2023 is inferred to result from the active discharge from the 12-inch diameter lines nearby.
- Non-QPP sensor SCPT21-S2 VW2 monitored a slight increase in pore water pressure (approximately 1 ft) during Q3 2023. This site is installed within the upper tailings mass and has previously monitored influence from the nearby discharge . This effect is inferred to have continued in Q3 2023.

There are presently no QPPs designated for pore water pressures within the tailings mass.

3.0 DEFORMATION MONITORING

3.1 OVERVIEW OF DEFORMATION MONITORING NETWORK

Surface and subsurface deformation data are regularly reviewed by KP. A summary of the deformation monitoring programs and key monitoring trends from Q3 2023 are provided in the following sections. Quarterly monitoring generally observed continued constant rate surface deformations within regions of historical rockfill outside of construction recent influence, with no observation of progressive (accelerating) deformation rates in these areas. Slightly elevated deformation rates continued to be observed within and localized around regions of recent construction (East-West and North-South Embankment El. 6,450 ft lift construction). Deformation rates have continued to slow with time following the substantial completion of rockfill placement in Q1 2023.

Surface and subsurface deformations of the YDTI embankments are actively monitored using in-situ instrumentation and remote sensing techniques. The instrumentation and remote sensing techniques incorporated into the monitoring program are summarized in the 2022 Data Analysis Report (KP, 2023), and within monthly construction monitoring and quarterly monitoring documents. A list of the available techniques is provided below:

- **Global Navigational Satellite System** (GNSS) **instrumented survey-Monuments** at four locations (DH19-S3, DH19-S4, DH19-S5, and DH19-S7) within the Central Pedestal Area of the East-West Embankment
- **Manual survey-monuments** at 15 locations along the East-West Embankment and four locations along the North-South Embankment, surveyed using Differential Global Positioning System (DGPS) and a manually operated total station.

- **Satellite-based interferometric Synthetic Aperture Radar** (inSAR) Bulletin and SqueeSAR analyses with coverage throughout the YDTI embankments. Data collection is active from approximately April through October annually, while snow-free conditions persist. Nine (9) short-term inSAR bulletins were available for review in Q3 2023. No SqueeSAR data are available.
- **In-Place-Inclinometer** (IPI) instruments co-located with the GNSS instrumentation in drillholes DH19-S3, DH19-S4, DH19-S5, and DH19-S7 within the Central Pedestal Area of the East-West Embankment.
- **Geo4Sight deformation instruments** within drillholes DH20-S2 (Section 8+00W) and DH21-S4 (Section 0+00), installed through the rockfill surcharge, tailings, and upstream slope of the East-West Embankment in the Central Pedestal Area.

Data from instrumentation sites were readily available via the RMS. Trends and conditions observed in the monitoring data during Q3 2023 using available instrumentation and remote sensing data are summarized in the following sections. More comprehensive analysis of available deformation data will be presented in the 2023 Data Analysis Report to be issued in 2024. No deformation related QPPs are presently active; however, KP is evaluating the data and are considering incorporation of deformation related QPPs for future revisions of the TOMS Manual.

3.2 OVERVIEW OF OBSERVED DEFORMATION TRENDS

3.2.1 GENERAL

Only minor embankment construction activities were active in Q3 2023, predominantly comprising regrading along the El. 6,450 ft crest. Increasing deformation rates were not anticipated or observed as a result of these activities. Deformation rates throughout the East-West and North-South Embankments remain slightly elevated following construction of the EL. 6,450 ft crest raise but continue to slow with time and are approaching pre-construction (June 2021) rates. Findings from Q3 2023 do not indicate development of unexpected deformations within the downstream embankment shell nor evidence of progressive (accelerating) deformation following construction. Key findings are discussed by embankment in the following sections.

3.2.2 EAST-WEST EMBANKMENT DEFORMATIONS

East-West Embankment construction along the EL. 6,450 ft lift was completed in August 2022 and deformation monitoring data collected since (including during Q3 2023) have monitored slowing surface and subsurface deformation rates. A high-level summary of monitored Q2 2023 deformations is provided below:

- InSAR bulletins continue to observe elevated deformation rates within and localized around areas of recent El. 6,450 ft lift construction, with rates slowing with time following rockfill placement. Monitoring during July, August, and September indicate that deformation rates remain slightly elevated within the Central Pedestal Area, predominantly in the area of most recent construction (January 2023), where the East-West and North-South Embankments join (around Section 0+00). Deformation rates in this area have remained constant or slowed in sequential Q3 2023 bulletins.

- GNSS and manual survey-monuments have continued to monitor relatively constant or slowing surface deformation rates within the East-West Embankment since completion of the El. 6,450 ft lift:
  - Survey-monuments (GNSS DH19-S7, DS-1, DS-2, DS-3, and DS-4) installed along the central Tailings Pipeline Ramp have monitored slowing vertical and lateral (predominantly southward) deformations since August 2022. Relatively constant or slightly slowing deformation rates were observed during Q3 2023.
  - Survey-monuments (MS-1, MS-2, and MS-3) installed along the El. 6,150 ft bench exhibited relatively minor influence from construction (compared to the tailings pipeline ramp) and displacement rates have generally slowed since completion of El. 6,450 ft lift construction. Relatively constant or slightly slowing deformation rates were observed during Q3 2023.
  - Survey-monuments (GNSS DH19-S3, GNSS DH19-S4, SB-1, SB-2, and SB-3) installed along the Seep 10 Bench have previously observed slightly elevated surface deformation rates interpreted as construction influence. Monitoring during Q3 2023 appear to continue to indicate stable or slowing deformation rates.
- Seep 10 Bench inclinometers DH19-S3 and DH19-S4 (Sections 0+00 and 8+00W, respectively) indicate that deformation rates have generally remained constant or have slowed slightly since mid-2022 with very minor rate and directional fluctuations interpreted to result from ongoing settlement.
- Geo4Sight instrumentation within drillholes DH20-S2 and DH21-S4, installed beneath the surcharge on Sections 8+00W and 0+00, respectively, has continued to monitor minimal deformation rates following completion of the surcharge and embankment lift construction. These sites previously monitored elevated subsurface deformation rates due to local central embankment lift construction in late-2021 and early-2022.

3.2.3 NORTH-SOUTH EMBANKMENT DEFORMATIONS

North-South Embankment El. 6,450 ft lift construction was substantially completed in March 2023 and deformation monitoring data collected since then (including during Q3 2023) have monitored slowing surface and subsurface deformation rates. A high-level summary of monitored Q3 2023 conditions is provided below:

- InSAR bulletins continue to observe elevated deformation rates within and localized around areas of recent EL. 6,450 ft lift construction along the North-South Embankment. Observed rates continue to slow with time following construction. Monitoring in Q3 2023 also indicates continued elevated deformation rates where the East-West and North-South Embankments join, as noted in Section 3.2.1.
- Manual survey-monuments (NS-01, NS-02, NS-03, NS-04, NS-05, and NS-06) are installed along the North-South Embankment and have monitored deformations during and following EL. 6,450 ft crest construction using a total station. Available data indicate slightly elevated, generally slowing deformation rates following the substantial conclusion of EL. 6,450 ft lift construction in Q1 2023. The highest deformation rates are observed near to where the East-West and North-South Embankment join (NS-01) in the region where construction was most relatively recently active (January 2023). It is anticipated that these rates will continue to slow in Q4 2023.

KP expects deformation rates will continue to slow and stabilize with time given no further large-scale embankment construction activities are upcoming. This expectation continues to be regularly demonstrated through available deformation monitoring data.

4.0 CONCLUSIONS

KP supports MR with routine monitoring of the hydrogeological and geotechnical conditions, as part of their operational surveillance plan for the tailings facility, as described in the TOMS Manual (MR/KP, 2022). Piezometric, surface deformation, and subsurface deformation data are available in near real-time using the RMS. Formal analysis and reporting of monitoring data are completed on a quarterly basis to evaluate the performance of the YDTI. The quarterly evaluations along with an assessment of conditions and trends at all piezometric monitoring sites will be included in a comprehensive annual Data Analysis Report, to be issued in 2024. Additional monthly piezometric and deformation data analyses for conditions associated with active embankment construction were completed during EL. 6,450 ft embankment lift construction (June 2021 through March 2023) for the East-West and North-South Embankments. Influence from construction (localized elevated pore water pressures and elevated surface/subsurface deformation rates) has continued to dissipate with time following completion of construction. The focused construction monitoring program was deactivated following substantial completion of construction, and KP is satisfied that YDTI conditions can be appropriately monitored within the existing dam safety/performance monitoring programs.

Piezometric conditions are monitored within the YDTI embankments, tailings mass, and surrounding areas and are an important indicator of facility performance. A subset of piezometric monitoring sites have designated QPPs within the TOMS Manual and are regularly evaluated relative to piezometric ‘trigger elevations’ to pre-emptively identify and respond to changing conditions. There were no piezometric QPP exceedances during Q3 2023. Minor, isolated elevated pore pressures associated with construction are anticipated to dissipate with time following substantial completion of EL. 6,450 ft lift placement within the North-South and East-West Embankments.

Slightly elevated surface and subsurface deformations continue to be observed within and localized around areas of recent North-South and East-West Embankment construction. Monitored deformation rates within the Central Pedestal Area continued to decrease during Q3 2023 and findings do not indicate development of unexpected or progressive deformations following construction. KP anticipates that elevated deformation rates resulting from construction will continue to slow and stabilize with time.

Please do not hesitate to contact the undersigned should you have any questions or if you would like any additional information.

Yours truly,
Knight Piésold Ltd.

Prepared:

Cameron Ng, EIT
Junior Engineer

Reviewed:

Kevin Davenport, P.Eng.
Senior Engineer

Reviewed:

Daniel Fontaine, P.E.
Specialist Engineer | Associate
YDTI Engineer-of-Record

KNIGHT PIÉSOLD LTD.
PERMIT NUMBER
1001011
EGBC PERMIT TO PRACTICE

Approval that this document adheres to the Knight Piésold Quality System: DDF

Attachments:

Table 1 Rev 0	Summary of Piezometric Quantitative Performance Parameter (QPP) Monitoring
Figure 1 Rev 0	Active Piezometric Instrumentation and Monitoring Site
Figure 2 Rev 0	Summary of Measured vs. QPP Trigger Piezometric Elevations East-West Embankment
Figure 3 Rev 0	Summary of Measured vs. QPP Trigger Piezometric Elevations East-West Embankment
Figure 4 Rev 0	Summary of Measured vs. QPP Trigger Piezometric Elevations North-South Embankment
Figure 5 Rev 0	Summary of Measured vs. QPP Trigger Piezometric Elevations West Embankment
Figure 6 Rev 0	Summary of Measured vs. QPP Trigger Piezometric Elevations West Embankment
Figure 7 Rev 0	Piezometric Conditions Along East-West Embankment Section 8+00W (Looking West)
Figure 8 Rev 0	Comparison of Cumulative Vertical GNSS Displacement Magnitudes
Appendix A	GNSS and DGPS Deformation Plots

Appendix B Inclinometer Deformation Plots
Appendix C Geo4Sight Deformation Plots
Appendix D InSAR Bulletins

References:

Knight Piésold Ltd. (KP, 2021). Monthly El. 6,450 Construction Progress and Monitoring Summary - MP#1 (Jun 22 to Jul 31, 2021) (KP Reference No. VA21-01362), dated September 30, 2021.

Knight Piésold Ltd. (KP, 2023). 2022 Data Analysis Report (KP Reference No. VA101-126/27-4 Rev 0), dated June 8, 2023.

Montana Resources and Knight Piésold (MR/KP, 2022). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated January 2022.

Copy To: Mark Thompson, Amanda Griffith (Montana Resources)

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Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLC
YANKEE DOODLE TAILINGS IMPOUNDMENT

YDTI PIEZOMETRIC AND DEFORMATION MONITORING UPDATE (Q3 2023)
SUMMARY OF PIEZOMETRIC QUANTITATIVE PERFORMANCE PARAMETER (QPP) MONITORING

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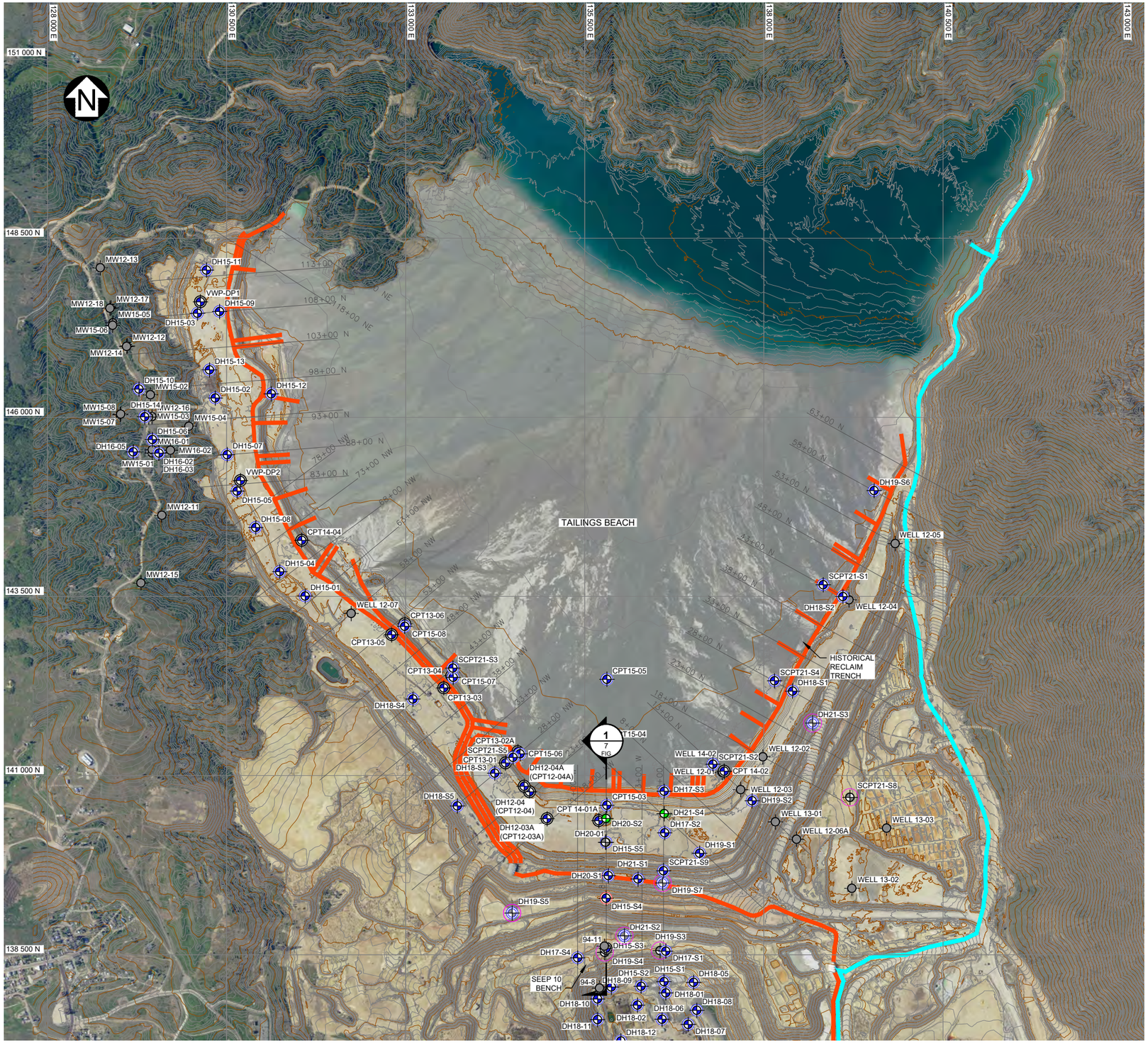
Monitoring Region	QPP Instrumentation Site	Monitoring Site Type [1]	Piezometric Trigger Elevation (ft)	Maxiumum Piezometric Elevation Recorded Q3 2023 (ft)	End of Q3 2023 Piezometric Elevation (ft)	Exceeded Trigger Elevation During Q3 2023 (Yes/No)	Pore Pressure Change Q3 2023 (ft)	Comments
East-West Embankment	MW94-08	VWP Sensor	5,680	5,668	5,668	No	-0.28	
	MW94-11	VWP Sensor	5,693	5,672	5,672	No	-0.27	
	DH15-S3 VW1	VWP Sensor	5,690	5,664	5,664	No	-0.06	
	DH15-S4 VW1	VWP Sensor	5,740	5,710	5,710	No	0.15	
	DH15-S4 VW2	VWP Sensor	5,800	5,767	5,767	No	0.56	
	DH15-S5 VW2	VWP Sensor	5,890	-	-	-	-	Damaged by construction on April 15, 2023 and subsequently abandoned. To be replaced with DH23-S1 QPP(s).
	DH17-S1 VW2	VWP Sensor	5,741	5,714	5,714	No	0.46	
	DH18-S3 VW3	VWP Sensor	6,044	6,022	6,022	No	0.13	
	DH19-S7 VW1	VWP Sensor	5,770	5,729	5,727	No	-2.72	
North-South Embankment	MW12-01	VWP Sensor	5,940	5,931	5,930	No	2.45	
	MW12-05	VWP Sensor	6,200	-	-	-	-	Damaged by construction on August 8, 2023 and subsequently abandoned.
	DH18-S1 VW2	VWP Sensor	6,010	-	-	-	-	Damaged by construction and subsequently abandoned. No data available after March 8, 2023.
	DH18-S2 VW2	VWP Sensor	6,029	6,011	6,011	No	0.11	
West Embankment	VWP-DP1	VWP Sensor	6,374	6,342	6,342	No	-0.20	
	VWP-DP2	VWP Sensor	6,366	6,339	6,339	No	0.90	
	DH15-12 VW1	VWP Sensor	6,372	6,351	6,351	No	0.54	
	DH15-12 VW2	VWP Sensor	6,372	6,353	6,352	No	0.20	
	DH15-12 VW3	VWP Sensor	6,372	6,352	6,352	No	0.21	

\\knightpiesold.local\VA-Prj$\1\01\00126\29\A\Correspondence\VA23-01703 - Q3 2023 Piezometric and Deformation Monitoring Summary\Tables\[QPP Compliance Figures and Table Q3.xlsm]Table 1 - QPP Evaluation

NOTES:
1. PIEZOMETRIC DATA FROM VWP SITES ARE COLLECTED HOURLY USING DATA LOGGERS AND A REMOTE MONITORING SYSTEM.
2. THE SPECIFIED QPP TRIGGER ELEVATION FOR MW12-05 WAS UPDATED FROM 6,195 ft. TO 6,200 ft. IN THE 2018 REVISION OF THE TOMS MANUAL (MR/KP, 2018).
3. THE PIEZOMETRIC QPP NETWORK WAS EXPANDED TO INCLUDE ADDITIONAL SENSORS DURING THE 2020 TOMS UPDATE (MR/KP, 2020).
4. DH17-S2 VW2 WAS DAMAGED ON MARCH 19, 2021 AND DATA THEREAFTER ARE INTERPRETED TO BE ERRONEOUS. THIS SENSOR WAS RETIRED FROM THE QPPS AND REPLACED WITH THE NEARBY DH19-S7 VW1.
5. SENSOR DH15-S5 VW2 WAS DAMAGED BY CONSTRUCTION ON APRIL 15, 2023 AND ABANDONED. REPLACEMENT QPP(S) WILL BE ADOPTED BASED ON SENSORS INSTALLED IN DH23-S1.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER VA23-01703	CNN	KTD



NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS BASED ON ANACONDA MINE GRID.
2. QPP = QUANTITATIVE PERFORMANCE PARAMETER.
3. RK-3 TAILINGS DISCHARGE POINT WAS RELOCATED NORTH IN OCTOBER 2017.
4. THE AERIAL PHOTO SHOWN IS FROM JULY, 2023.
5. TOPOGRAPHY PROVIDED BY MONTANA RESOURCES, LLC IN SEPTEMBER, 2023.
6. NO PORE WATER PRESSURE DATA ARE AVAILABLE FROM DH20-S1 AS THE INSTRUMENTS ARE NOT FUNCTIONAL.

LEGEND:

- EXISTING DRILLHOLE WITH NESTED VIBRATING WIRE PIEZOMETERS AND GEO4SIGHT INSTRUMENTATION
- EXISTING GEOPHYSICAL CASING
- EXISTING INCLINOMETER
- EXISTING INCLINOMETER WITH NESTED VIBRATING WIRE PIEZOMETERS
- EXISTING NESTED VIBRATING WIRE PIEZOMETERS
- EXISTING SINGLE VIBRATING WIRE PIEZOMETER
- EXISTING THERMISTOR WITH VIBRATING WIRE PIEZOMETER
- EXISTING INSTRUMENTED MONITORING WELL OR STANDPIPE
- TAILINGS PIPELINE

SCALE A 500 0 500 1000 1500 2000 2500 ft

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MONTANA RESOURCES, LLC

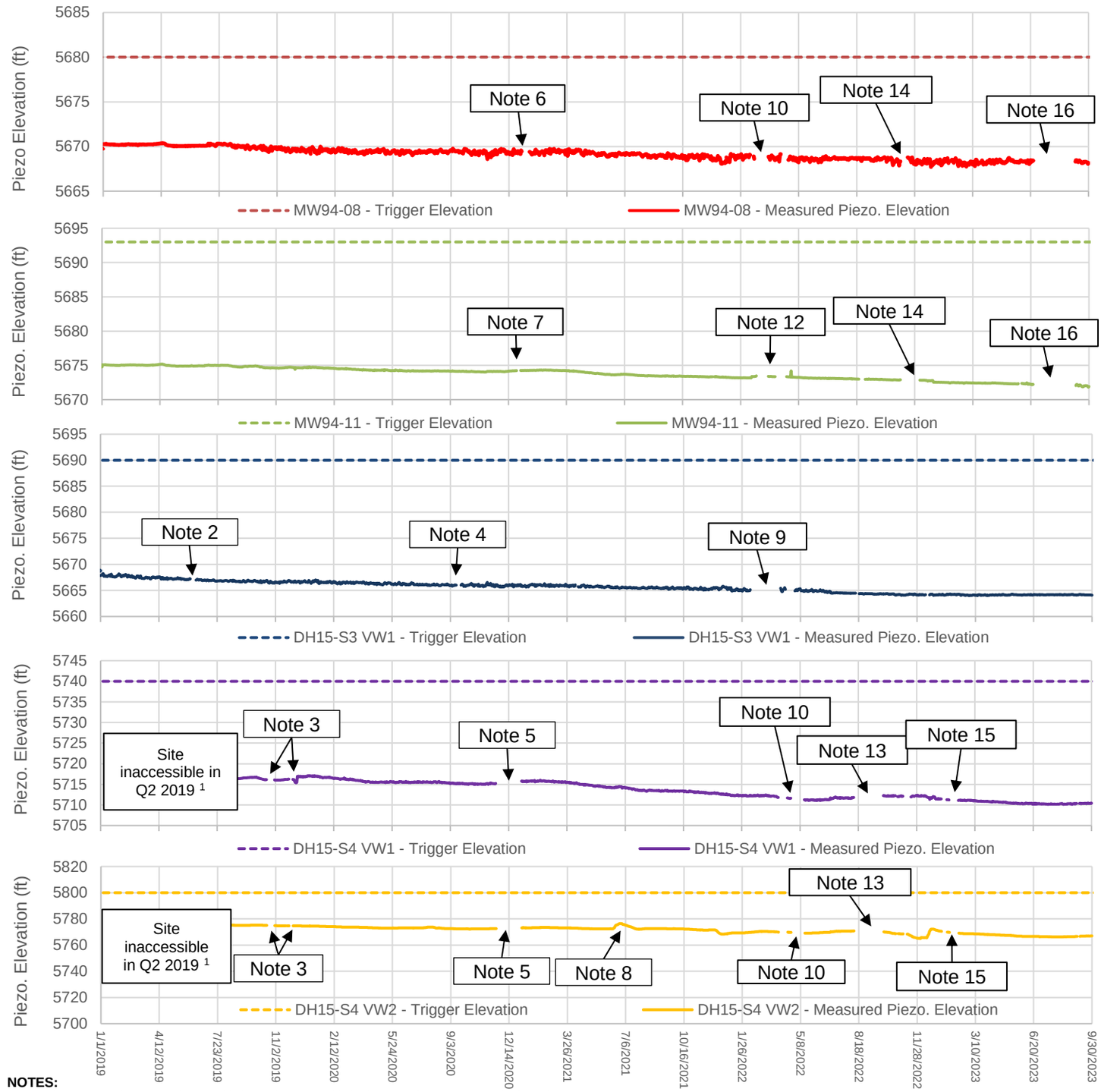
YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITE

Knight Piésold CONSULTING

P/A NO. VA101-126/29 | REF NO. VA23-01703

FIGURE 1 | REV 0



NOTES:

1. NO DATA ARE SHOWN FROM DEC 20, 2017 TO JULY 25, 2019 FOR DH15-S4 VW1 AND VW2 AS MR STAFF WERE UNABLE TO CONNECT THE INSTRUMENTATION WITH THE REMOTE MONITORING SYSTEM DUE TO SITE INACCESSIBILITY.
2. NO DATA WERE COLLECTED BY DH15-S3 VW1 FROM JUNE 7, 2019 TO JUNE 16, 2019 DUE TO INSUFFICIENT BATTERY VOLTAGE
3. NO DATA WERE COLLECTED BY DH15-S4 VW1 AND VW2 DUE TO POWER SUPPLY ISSUES OCTOBER 19 TO 31 AND NOVEMBER 27, 2019 TO DECEMBER 3, 2019. SENSORS MOVED NEW LOGGER.
4. NO DATA WERE COLLECT BY DH15-S3 VW1 FROM SEPTEMBER 15 TO SEPTEMBER 21, 2020 DUE TO DEPLETED GEONET BATTERY WHICH WAS SUBSEQUENTLY REPLACED.
5. NO DATA WERE COLLECTED BY DH15-S4 VW1 AND VW2 DUE TO SUSPECTED LOGGER ISSUE FROM NOVEMBER 22, 2020. FUNCTIONALITY WAS RESTORED USING A REPLACEMENT LOGGER IN Q1 2021.
6. NO DATA WERE COLLECTED BY MW94-08 FROM JANUARY 7 TO 19, 2021 DUE TO A DEPLETED BATTERY WHICH WAS SUBSEQUENTLY REPLACED.
7. NO DATA WERE COLLECTED BY MW94-11 FROM DECEMBER 30, 2020 TO JANUARY 4, 2021 DUE TO A DEPLETED BATTERY WHICH WAS SUBSEQUENTLY REPLACED.
8. PIEZOMETRIC ELEVATION INCREASED IN RESPONSE TO OBSERVED INFILTRATION OF TAILINGS SLURRY WATER INTO THE CENTRAL ROCKFILL SURCHARGE FROM JUNE 14 TO JUNE 28, 2021 AS DESCRIBED IN VA21-01320.
9. SENSOR DH15-S3 VW1 WENT OFFLINE ON FEBRUARY 9, 2022 DUE TO A SUSPECTED RMS CONNECTIVITY ISSUE. CONNECTIVITY WAS RE-ESTABLISHED ON APRIL 20, 2022.
10. SENSORS DH15-S4 VW1 AND VW2 WERE TEMPORARILY DISCONNECTED BETWEEN APRIL 1 AND MAY 17, 2022 DUE TO A SUSPECTED RMS CONNECTIVITY ISSUE.
11. SENSOR MW94-8 WAS TEMPORARILY DISCONNECTED BETWEEN FEBRUARY 19 AND APRIL 21, 2022 DUE TO A SUSPECTED LOGGER VOLTAGE ISSUE.
12. SENSOR MW94-11 WAS TEMPORARILY DISCONNECTED BETWEEN MARCH 6 AND APRIL 18, 2022 DUE TO A SUSPECTED RMS CONNECTIVITY ISSUE.
13. SENSORS DH15-S4 VW1 AND VW2 COLLECTED ERRONEOUS READINGS STARTING ON AUGUST 9, 2022 DUE TO SUSPECTED LOGGER ISSUE. VALUES HAVE BEEN OMITTED FOR CLARITY. TROUBLESHOOTING IS CURRENTLY IN PROGRESS.
14. SENSORS 94-8 AND 94-11 WERE TEMPORARILY DISCONNECTED BETWEEN NOVEMBER 3 AND DECEMBER 9, 2022 DUE TO A SUSPECTED LOGGER VOLTAGE ISSUE.
15. SENSORS DH15-S4 VW1 AND VW2 COLLECTED MINIMAL DATA BETWEEN JANUARY 11 AND FEBRUARY 8, 2023 DUE TO A SUSPECTED DATA LOGGER ISSUE.
16. SENSORS 94-8 AND 94-11 STOPPED RECORDING BETWEEN JUNE 30 AND SEPTEMBER 7, 2023 DUE TO A DATALOGGER HARDWARE ISSUE.

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

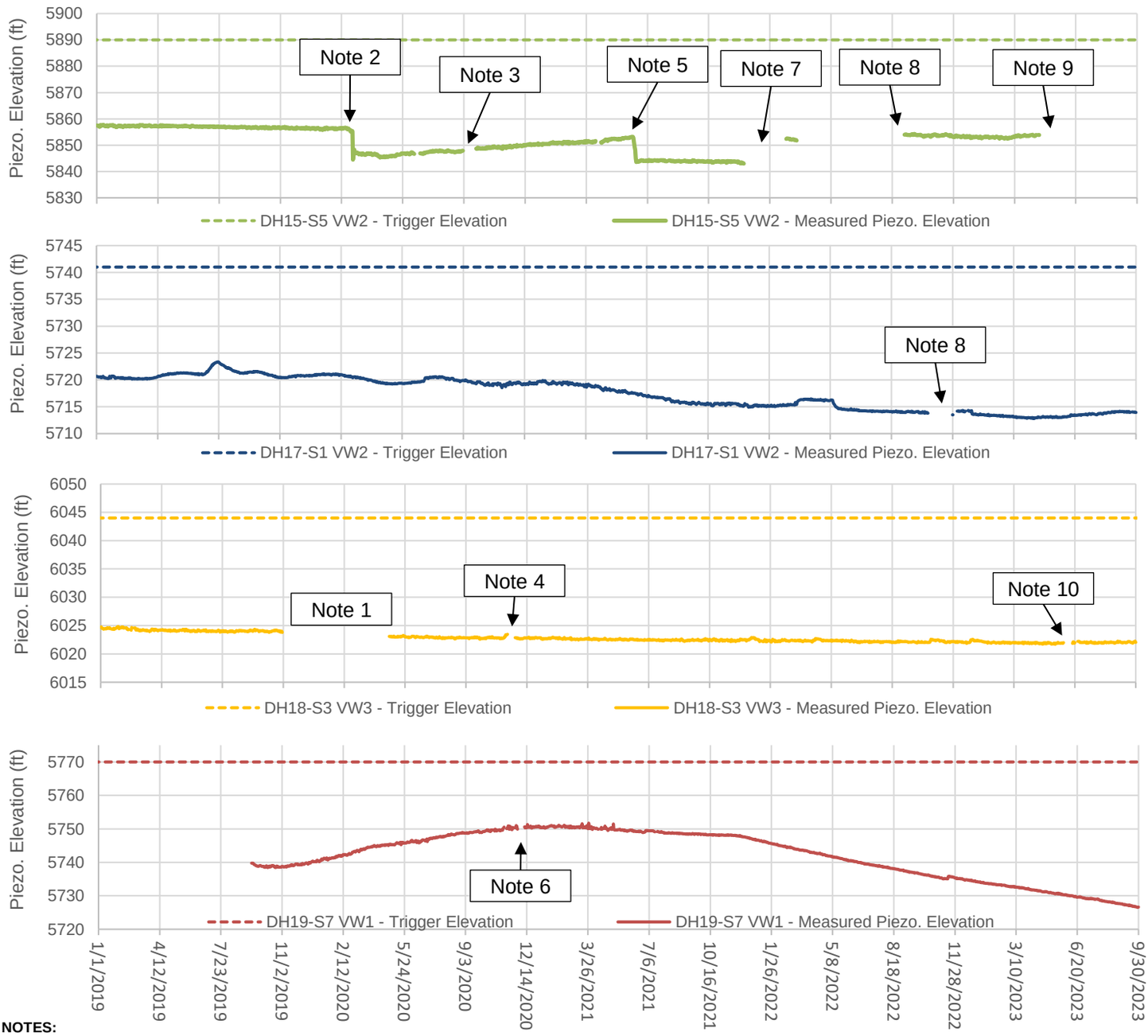
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/29	VA23-01703

FIGURE 2

REV 0



NOTES:

1. NO DATA WERE COLLECTED BY DH18-S3 VW1 FROM NOVEMBER 1, 2019 TO FEBRUARY 3, 2020 AND FEBRUARY 4 TO APRIL 30, 2020 DUE TO SUSPECTED HARDWARE DAMAGE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW2 DUE TO LOGGER POWER SUPPLY ISSUES FROM JUNE 13 TO 23, 2020.
3. NO DATA WERE COLLECTED BY DH15-S5 VW2 DUE TO WATER DAMAGED LOGGER FROM SEPTEMBER 2 TO 24, 2020. THE LOGGER WAS SUBSEQUENTLY REPLACED.
4. NO DATA WERE COLLECTED BY DH18-S3 DUE TO A DEPLETED DATA LOGGER BATTERY FROM NOVEMBER 12 TO 25, 2020.
5. NO DATA WERE COLLECTED BY DH15-S5 VW2 FROM APRIL 11 TO APRIL 20, 2021 DUE TO A DEPLETED DATA LOGGER BATTERY.
6. NO DATA WERE COLLECTED BY DH19-S7 VW1 FROM NOVEMBER 30 TO DECEMBER 10, 2020 DUE TO AN UNKNOWN HARDWARE ISSUE.
7. SENSORS IN DH15-S5 WERE TEMPORARILY DISCONNECTED BETWEEN DECEMBER 14, 2021 AND FEBRUARY 24, 2022 TO FACILITATE A COLLAR RAISE IN ADVANCE OF THE EL. 6,450 ft CREST CONSTRUCTION. SENSOR WAS TEMPORARILY RECONNECTED AND BECAME DISCONNECTED ON MARCH 12, 2022 DUE TO A SUSPECTED RMS CONNECTIVITY ISSUE. SENSOR BECAME RECONNECTED AND REMAINED OFFLINE UNTIL SEPTEMBER 8, 2022 TO FACILITATE THE PLANNED COLLAR RAISE.
8. THE DATA LOGGER AT DH17-S1 WAS DAMAGED AND NO DATA WERE RECORDED BETWEEN OCTOBER 18, 2022 AND DECEMBER 9, 2022. FUNCTIONALITY HAS SUBSEQUENTLY BEEN RESTORED.
9. SENSOR DH15-S5 VW2 HAS COLLECTED ERRONEOUS DATA SINCE APRIL 15, 2023 DUE TO SUSPECTED CABLE DAMAGE. THESE VALUES HAVE BEEN OMITTED FOR CLARITY AND THE SENSOR WAS SUBSEQUENTLY ABANDONED.
10. SENSOR DH18-S3 VW3 COLLECTED ERROENOUS DATA BETWEEN JUNE 21 AND 24, 2023. THESE VALUES HAVE BEEN OMITTED FOR CLARITY.

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MONTANA RESOURCES, LLC

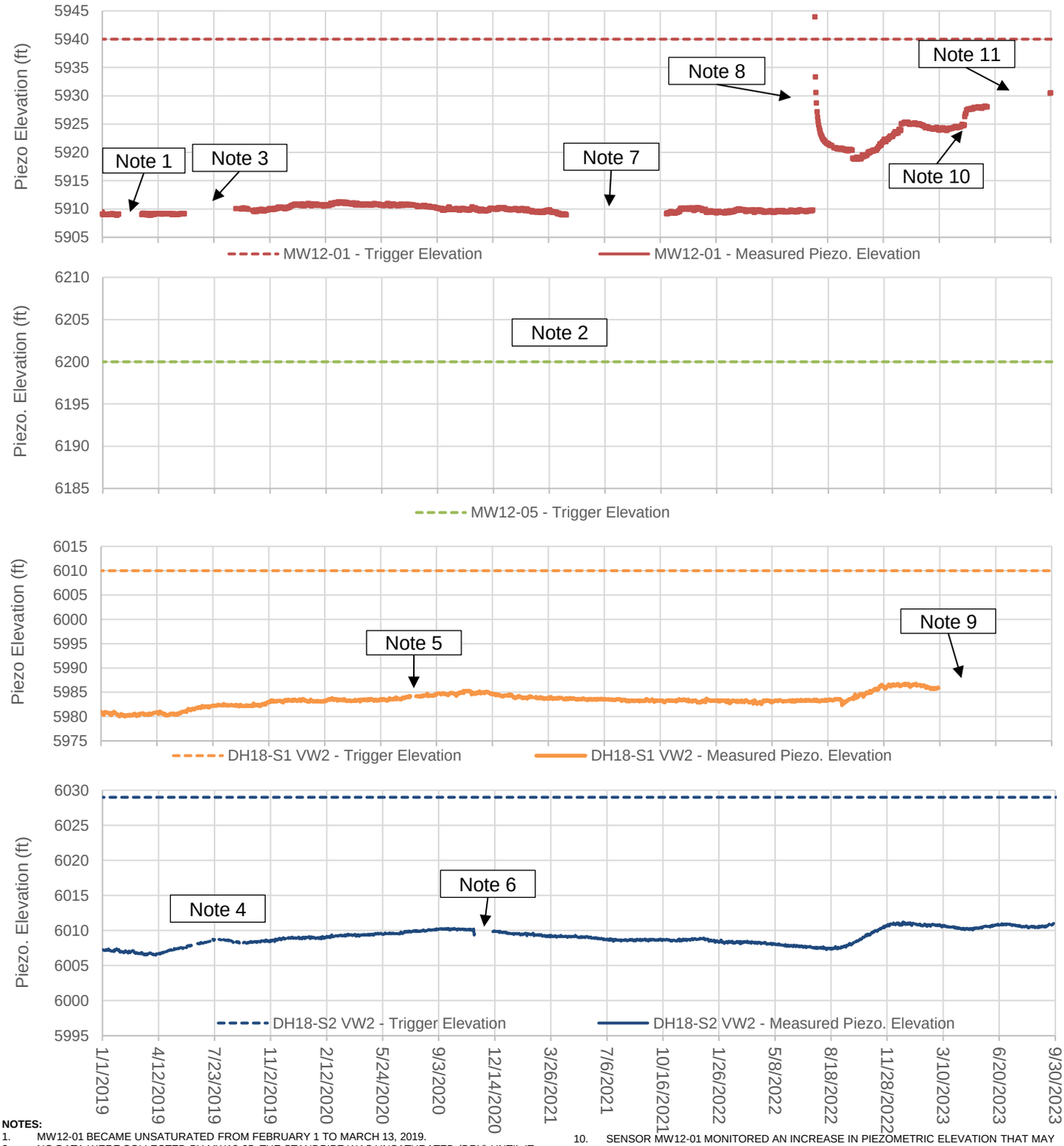
YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/29	VA23-01703

FIGURE 3 REV 0



NOTES:

1. MW12-01 BECAME UNSATURATED FROM FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. THE STANDPIPE WAS UNSATURATED (DRY) UNTIL IT BECAME DAMAGED ON MARCH 8, 2023 BY CONSTRUCTION.
3. NO DATA WERE COLLECTED BY MW12-01 FROM MAY 31 TO SEPTEMBER 11, 2019 DUE TO DATA LOGGER FAILURE.
4. ERRONEOUS NOISE WAS RECORDED IN THE DATA BY DH18-S2 VW2. THESE DATA HAVE BEEN OMITTED FOR CLARITY.
5. NO DATA WERE COLLECTED BY DH18-S1 VW2 FROM JULY 27 TO 29, 2020 DUE TO UNKNOWN SENSOR ISSUE.
6. NO DATA WERE COLLECTED BY DH18-S2 VW2 FROM NOVEMBER 8 TO DECEMBER 12, 2020 WHILE THE SENSORS WERE REROUTED TO A NEW MONITORING HUB LOCATION.
7. SENSOR MW12-01 VW1 WAS UNSATURATED BETWEEN APRIL 28 AND OCTOBER 28, 2021. DATA HAVE BEEN OMITTED FROM PLOT FOR CLARITY. THE SENSOR RESATURATED ON OCTOBER 18, 2021 AND REMAINED SATURATED THEREAFTER.
8. THE MW12-01 STANDPIPE WAS INUNDATED BY THE RISING TAILINGS BEACH ON JULY 22, 2022 AND HAS SUBSEQUENTLY RECORDED HIGHER PIEZOMETRIC ELEVATIONS. RECENT READINGS MAY BE INFLUENCED BY LOCAL TAILINGS DISCHARGE.
9. SENSOR DH18-S1 VW2 WAS DISCONNECTED IN PREPARATION FOR EL. 6,450 FT LIFT CONSTRUCTION (ON MARCH 8, 2023) BUT WAS SUBSEQUENTLY DAMAGED AND HAS BEEN ABANDONED.
10. SENSOR MW12-01 MONITORED AN INCREASE IN PIEZOMETRIC ELEVATION THAT MAY HAVE RESULTED FROM RISING TAILINGS LEVEL OR ALLUVIAL FACING.
11. SENSOR MW12-01 STOPPED COLLECTING DATA BETWEEN JUNE 6 AND SEPTEMBER 29, 2023 DUE TO HARDWARE CONNECTION ISSUE.

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS NORTH-SOUTH EMBANKMENT

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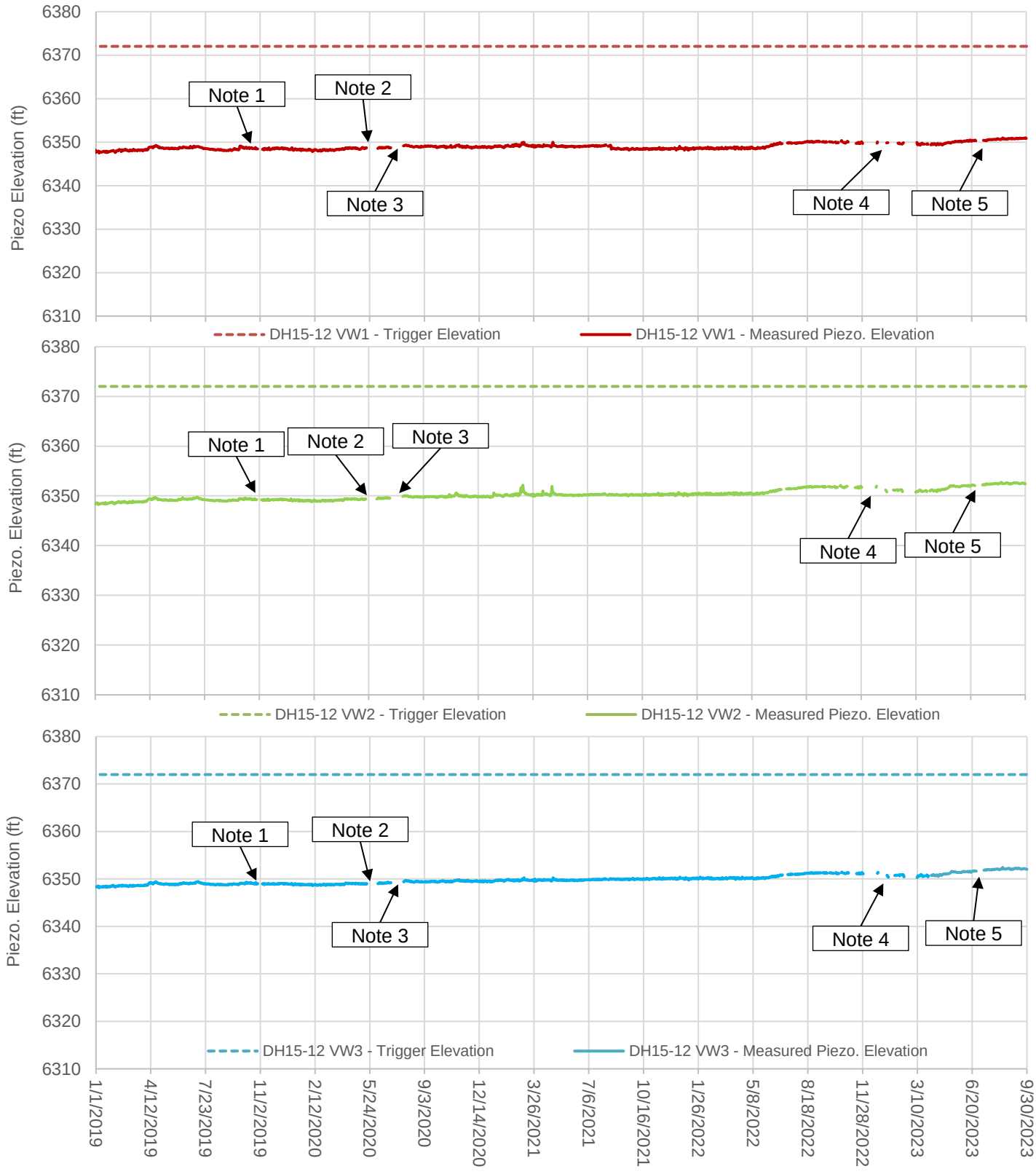
FIGURE 4 REV 0



NOTES:

1. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 FROM OCTOBER 30, 2019 TO NOVEMBER 6, 2019 DUE TO A CONNECTIVITY ISSUE.
2. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 FROM MAY 19 TO JUNE 9, 2020 DUE TO A SUSPECTED LOGGER CONNECTIVITY ISSUE.
3. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 FROM JULY 3 TO JULY 26, 2020 DUE TO A CONNECTIVITY ISSUE.
4. ALL SENSORS IN DRILLHOLE DH15-12 EXPERIENCED INTERMITTENT OUTAGES BETWEEN NOVEMBER 2, 2022 AND APRIL 15, 2023.
5. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2 AND VW3 FROM JUNE 29 TO JULY 12, 2023 DUE TO A CONNECTIVITY ISSUE.

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

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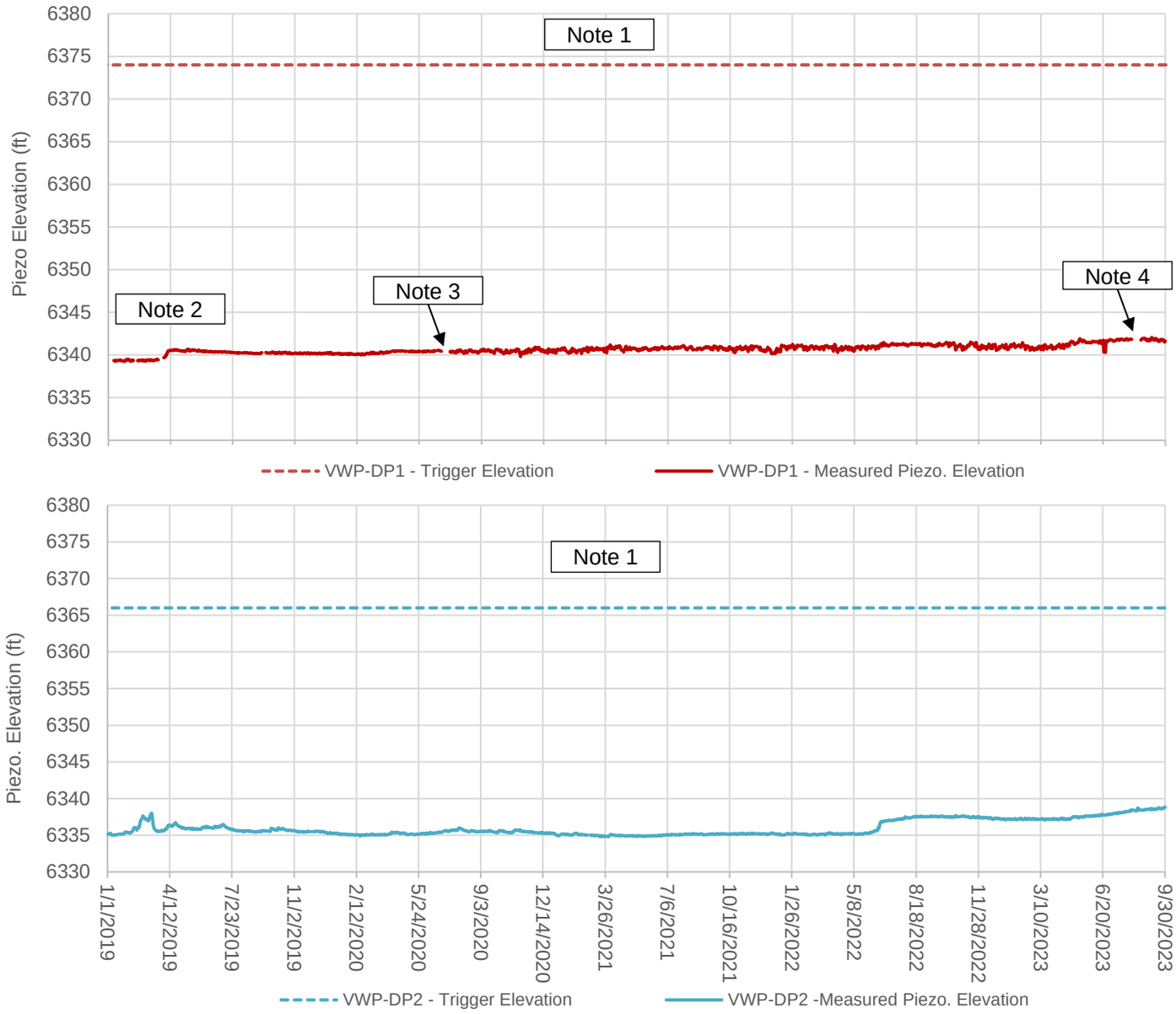
REF. NO. VA23-01703

FIGURE 5

REV 0



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE.
2. PERIODIC OUTAGES OCCURED AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.
3. NO DATA WERE RECORDED BY VWP-DP1 FROM JULY 1 TO 14, 2020 DUE TO A DATALOGGER ISSUE. A REPLACEMENT DATALOGGER WAS SUBSEQUENTLY INSTALLED TO RESOLVE THE ISSUE.
4. NO DATA WERE RECORDED BY VWP-DP1 FROM AUGUST 7 TO 20, 2023 DUE TO A CONNECTIVITY ISSUE.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

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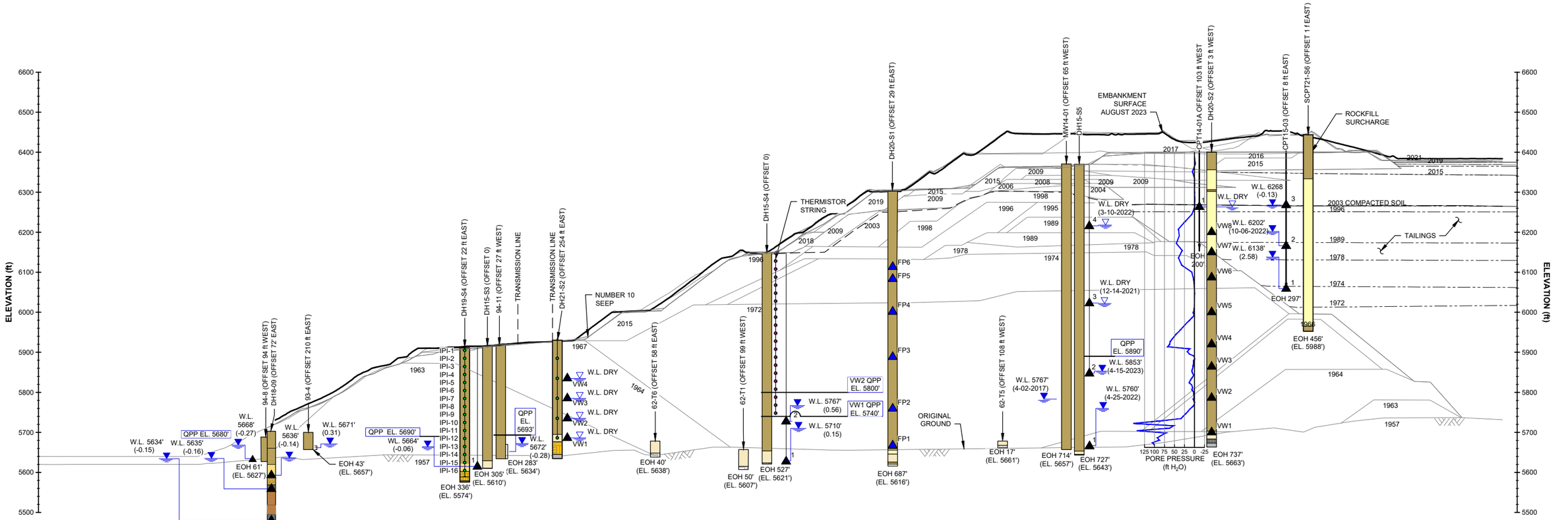
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE 6

REV 0



1 SECTION
1 FIG
STATION 8+00 W
SCALE A

NOTES:

1. COORDINATE SYSTEM IS ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC LEVELS (W.L.) SHOWN USING END OF Q3 2023 READINGS (SEPTEMBER 30, 2023), UNLESS OTHERWISE INDICATED.
4. CHANGE IN WATER LEVEL FOR QPP SITES IS RELATIVE TO END OF Q2 2023.
5. MONITORING WELL MW14-01 ABANDONED DUE TO RISER BLOCKAGE DURING Q4 2019, RESULTING IN ERRONEOUS DATA. DATA OMITTED FOR CLARITY.
6. QPP STANDS FOR QUANTITIVE PERFORMANCE PARAMETER.
7. NO PORE WATER PRESSURE DATA ARE AVAILABLE FROM DH20-S1 AS THE INSTRUMENTATION IS NOT FUNCTIONAL.
8. SENSORS DH15-S5 VWP1, VWP2, VWP3, AND VWP4 WERE DAMAGED DURING COLLAR RAISE AND HAVE BEEN ABANDONED. REPLACEMENT QPP(S) WILL BE ADOPTED BASED ON SENSORS INSTALLED IN DH23-S1.

LEGEND:

- TAILINGS
- EMBANKMENT FILL
- ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- BEDROCK

- W.L. XXX — QUARTERLY PIEZOMETRIC ELEVATION CHANGE (±X.X feet) SINCE LAST QUARTER
- VIBRATING WIRE PIEZOMETER
- THERMISTOR
- IN-PLACE INCLINOMETER SENSOR
- SOL — SETTING OUT LINE
- 1972 — HISTORICAL TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE

SCALE A: 125 0 125 250 375 500 625 ft

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG EAST-WEST EMBANKMENT SECTION 8+00W (LOOKING WEST)

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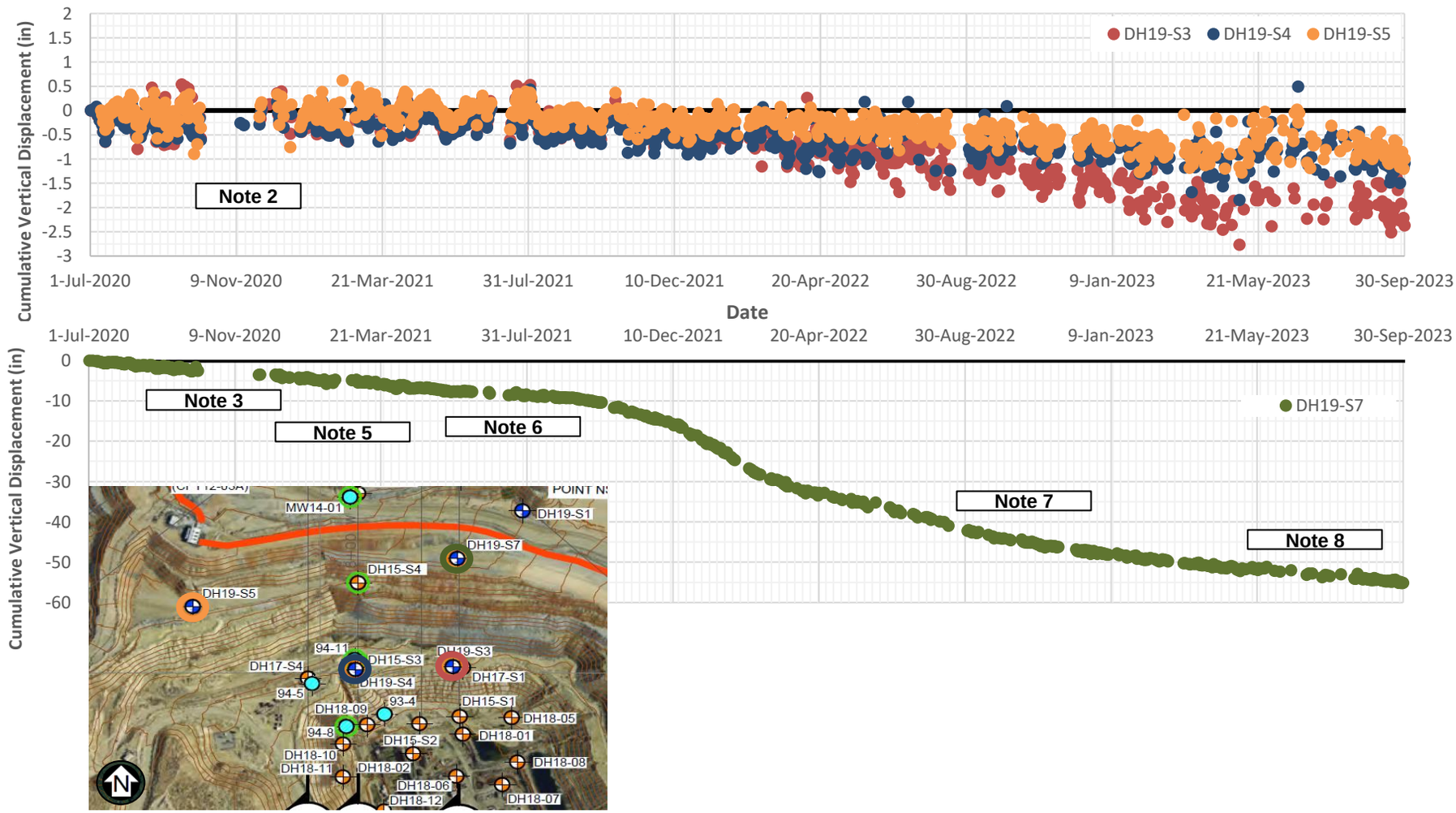
FIGURE 7 REV 0

SAVED: \\KPLVA-Prj\$\101\101126\29\A\Acad\FIGS\B35, 10/30/2023 10:41:46 AM , RMCLELLAN PRINTED: 11/8/2023 2:04:47 PM, FIG 7, NDHALIWAL
XREF FILES: Sections IMAGE FILES:



NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTEDFROM DH19-S2 AND DH19-S5 BETWEEN OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NO DATA WERE COLLECTED FROM DH19-S3 AND DH19-S7 BETWEEN OCTOBER 7 TO NOVEMBER 13, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
4. NEGATIVE VERTICAL DISPLAEMENTS INDICATE DOWNWARD DISPLACEMENT.
5. NO DATA WERE COLLECTED FROM FEBRUARY 9 TO 21, 2021 DUE TO A DEPLETED DATA LOGGER BATTERY.
6. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
7. NO DATA WERE COLLECTED FROM AUGUST 16 TO SEPTEMBER 2, 2022, NOVEMBER 23 TO DECEMBER 10, 2022, AND MARCH 2 TO 16, 2023 DUE TO A HARDWARE ISSUE.
8. LIMITED DATA WERE COLLECTED FROM MAY 31 TO AUGUST 17, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

COMPARISON OF CUMULATIVE VERTICAL GNSS DISPLACEMENT MAGNITUDES (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

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REF. NO. VA23-01703

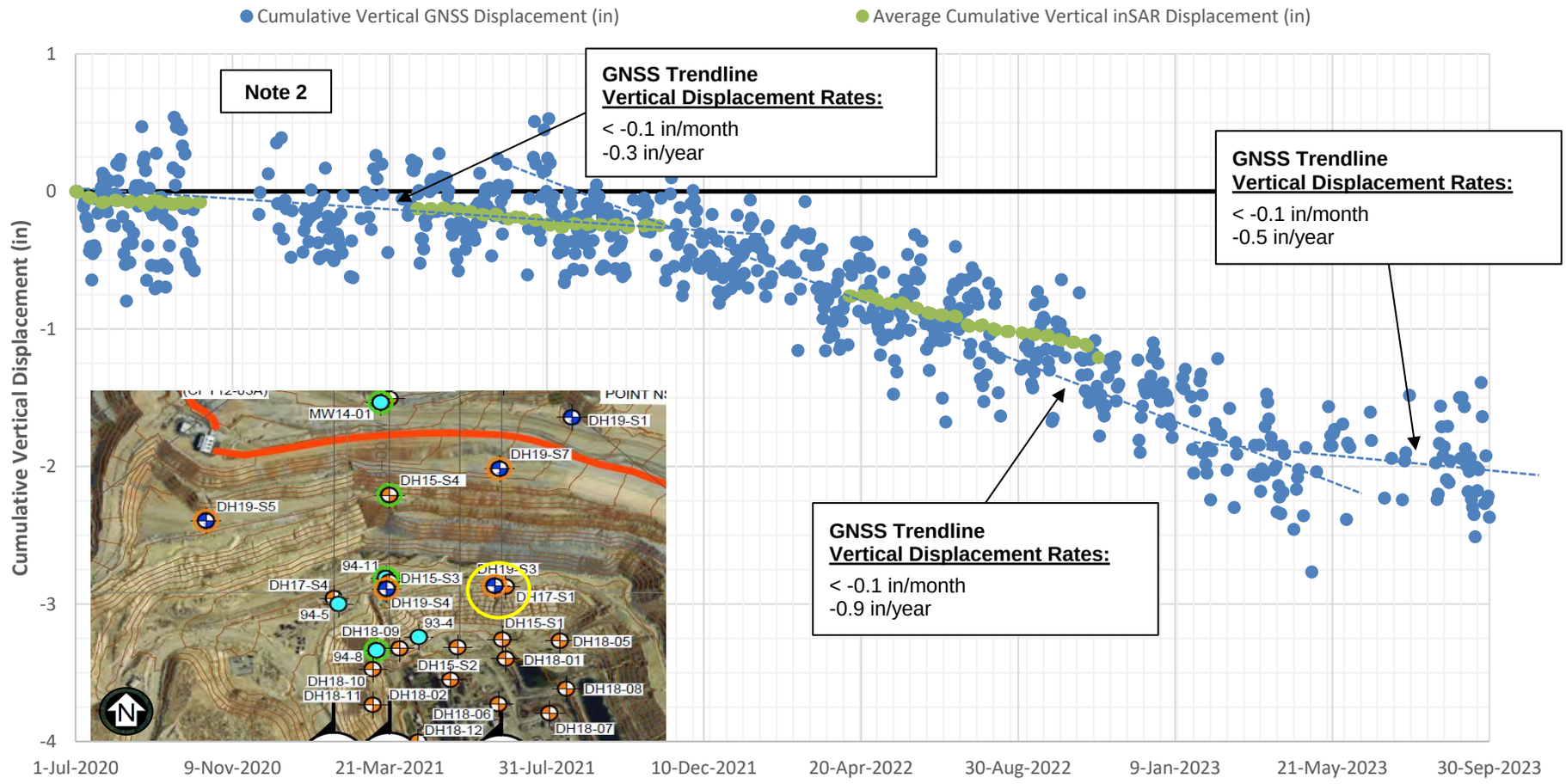
FIGURE 8

REV 0

APPENDIX A

GNSS and DGPS Deformation Plots

(Figures A.1 to A.23)



NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. THE AVERAGE CUMULATIVE VERTICAL INSAR DISPLACEMENT IS CALCULATED BY AVERAGING TIME-SERIES DISPLACEMENTS FROM NINE INSAR DATA POINTS LOCATED ADJACENT TO DH19-S3.
5. NO LONG-TERM (SQUEESAR) INSAR DATA ARE AVAILABLE FROM OCTOBER 2, 2020 TO APRIL 13, 2021, NOVEMBER 3, 2021 TO APRIL 13, 2022, AND NOVEMBER 6 TO MARCH 31, 2023 DUE TO THE ONSET OF WINTER CONDITIONS.
6. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
7. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
8. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE A PROCESSING SERVER ISSUE.
9. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
10. NO DATA WERE COLLECTED FROM JUNE 5 TO JUNE 23, 2023 DUE TO A HARDWARE ISSUE.
11. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S3 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

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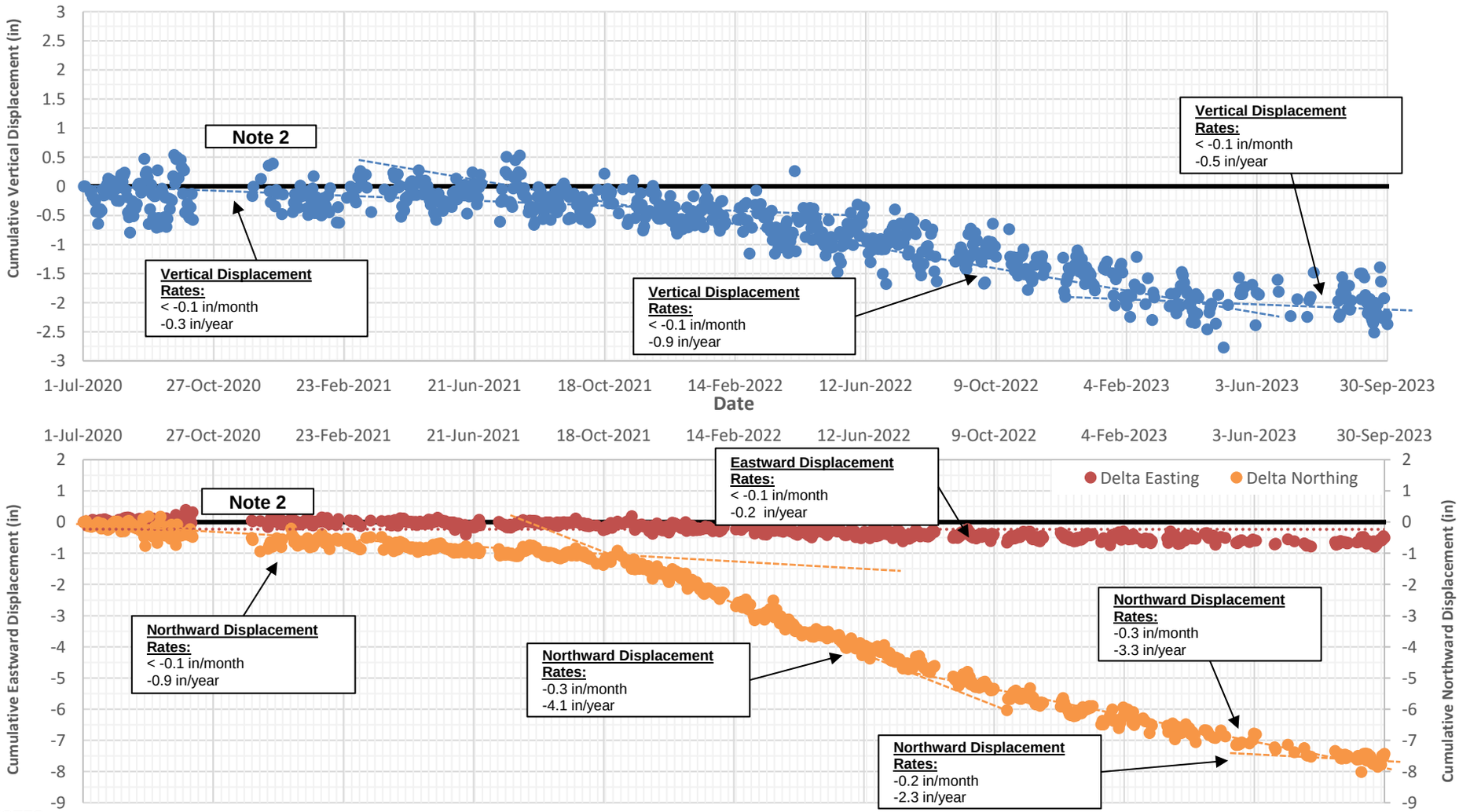
P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.1

REV 0



NOTES:

1. CUMULATIVE VERTICAL AND LATERAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
5. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
6. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE A PROCESSING SERVER ISSUE.
7. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
8. NO DATA WERE COLLECTED FROM JUNE 5 TO JUNE 23, 2023 DUE TO A HARDWARE ISSUE.
9. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S3 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

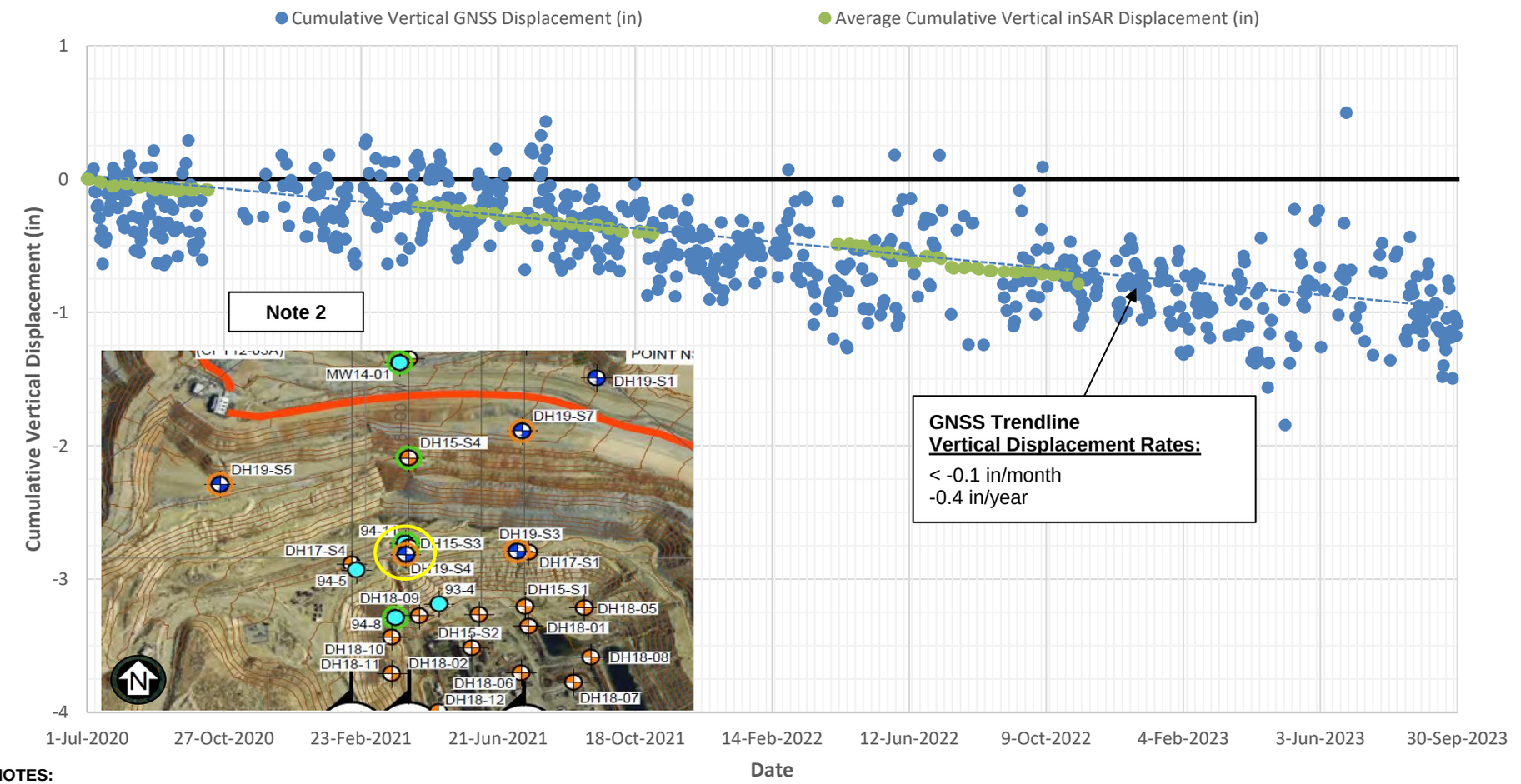
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.2

REV 0



NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. THE AVERAGE CUMULATIVE VERTICAL INSAR DISPLACEMENT IS CALCULATED BY AVERAGING TIME-SERIES DISPLACEMENTS FROM NINE INSAR DATA POINTS LOCATED ADJACENT TO DH19-S4.
5. NO LONG-TERM (SQUEESAR) INSAR DATA ARE AVAILABLE FROM OCTOBER 2, 2020 TO APRIL 13, 2021, NOVEMBER 3, 2021 TO APRIL 13, 2022, AND NOVEMBER 6 TO MARCH 31, 2023 DUE TO THE ONSET OF WINTER CONDITIONS.
6. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
7. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
8. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE TO A PROCESSING SERVER ISSUE.
9. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
10. NO DATA WERE COLLECTED FROM JUNE 7 TO JUNE 19, 2023 DUE TO A HARDWARE ISSUE.

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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S4 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

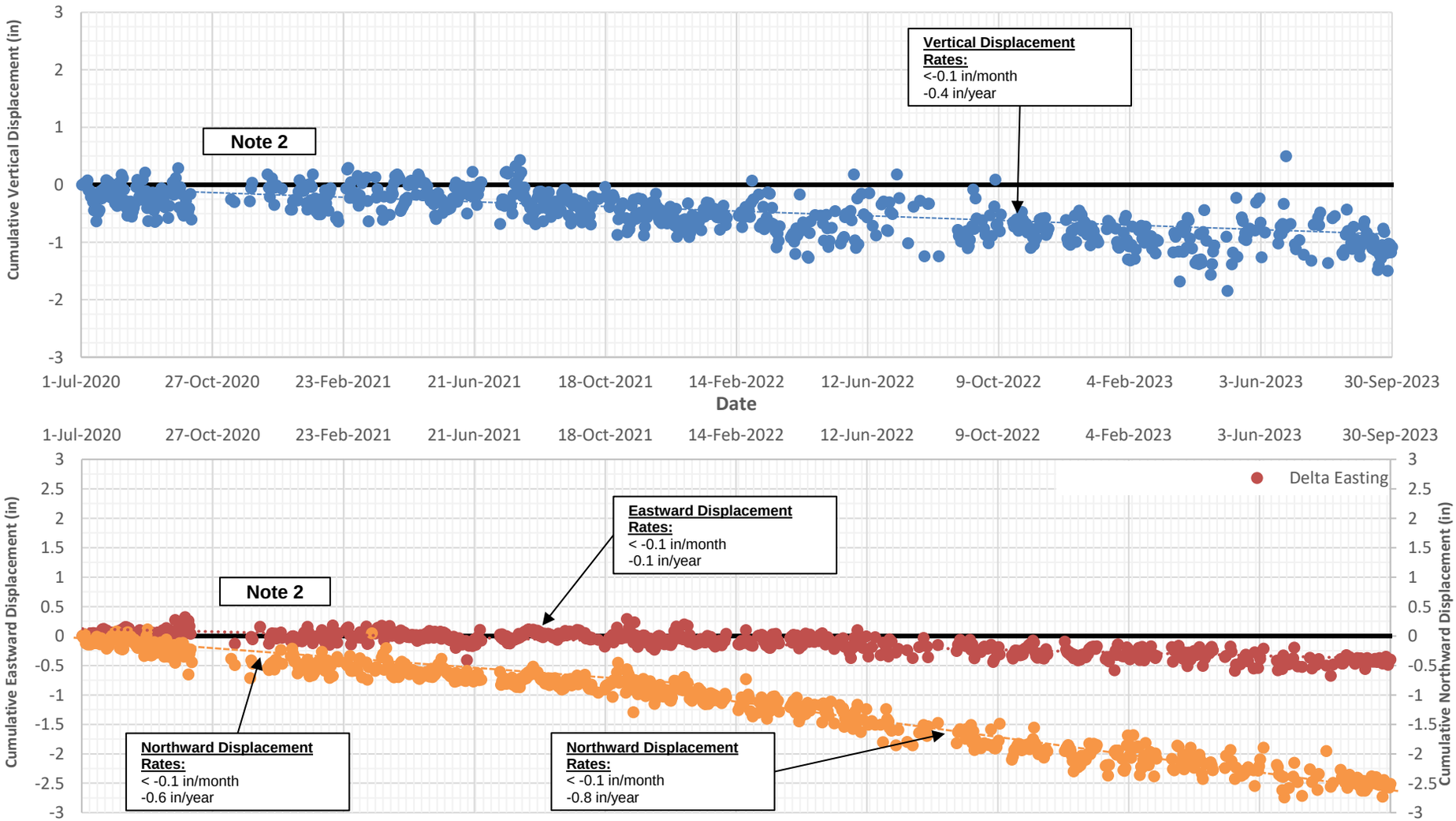
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.3

REV 0



NOTES:

1. CUMULATIVE VERTICAL AND LATERAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
5. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
6. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE TO A PROCESSING SERVER ISSUE.
7. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
8. NO DATA WERE COLLECTED FROM JUNE 7 TO JUNE 19, 2023 DUE TO A HARDWARE ISSUE.
9. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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0	03OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S4 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

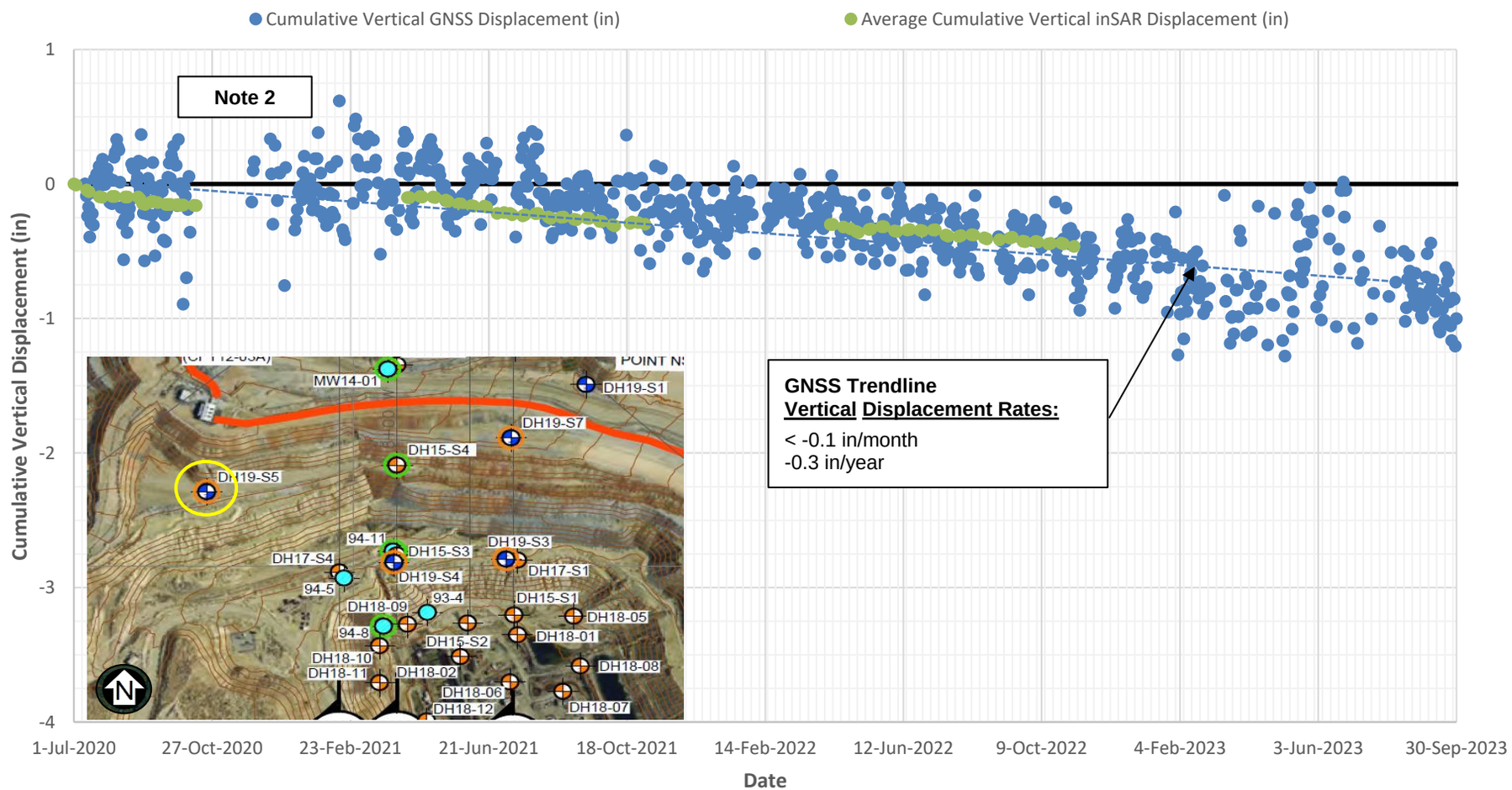
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.4

REV 0



NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. THE AVERAGE CUMULATIVE VERTICAL INSAR DISPLACEMENT IS CALCULATED BY AVERAGING TIME-SERIES DISPLACEMENTS FROM NINE INSAR DATA POINTS LOCATED ADJACENT TO DH19-S5.
5. NO LONG-TERM (SQUEESAR) INSAR DATA ARE AVAILABLE FROM OCTOBER 2, 2020 TO APRIL 13, 2021, NOVEMBER 3, 2021 TO APRIL 13, 2022, AND NOVEMBER 6 TO MARCH 31, 2023 DUE TO THE ONSET OF WINTER CONDITIONS.
6. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
7. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
8. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8 DUE A PROCESSING SERVER ISSUE.
9. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
10. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S5 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

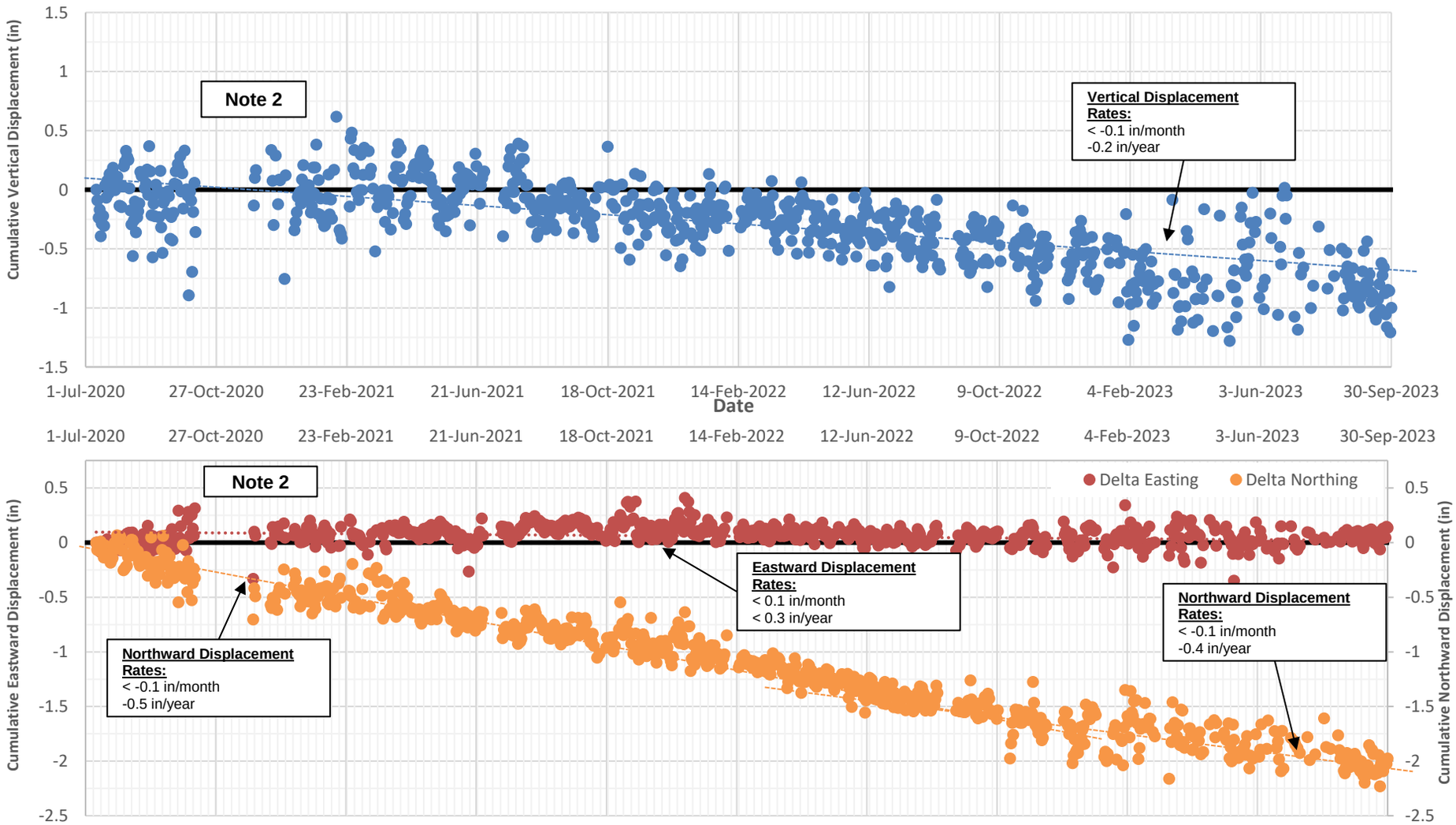
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.5

REV 0



NOTES:

1. CUMULATIVE VERTICAL AND LATERAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
5. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
6. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE TO A PROCESSING SERVE ISSUE.
7. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE
8. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S5 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

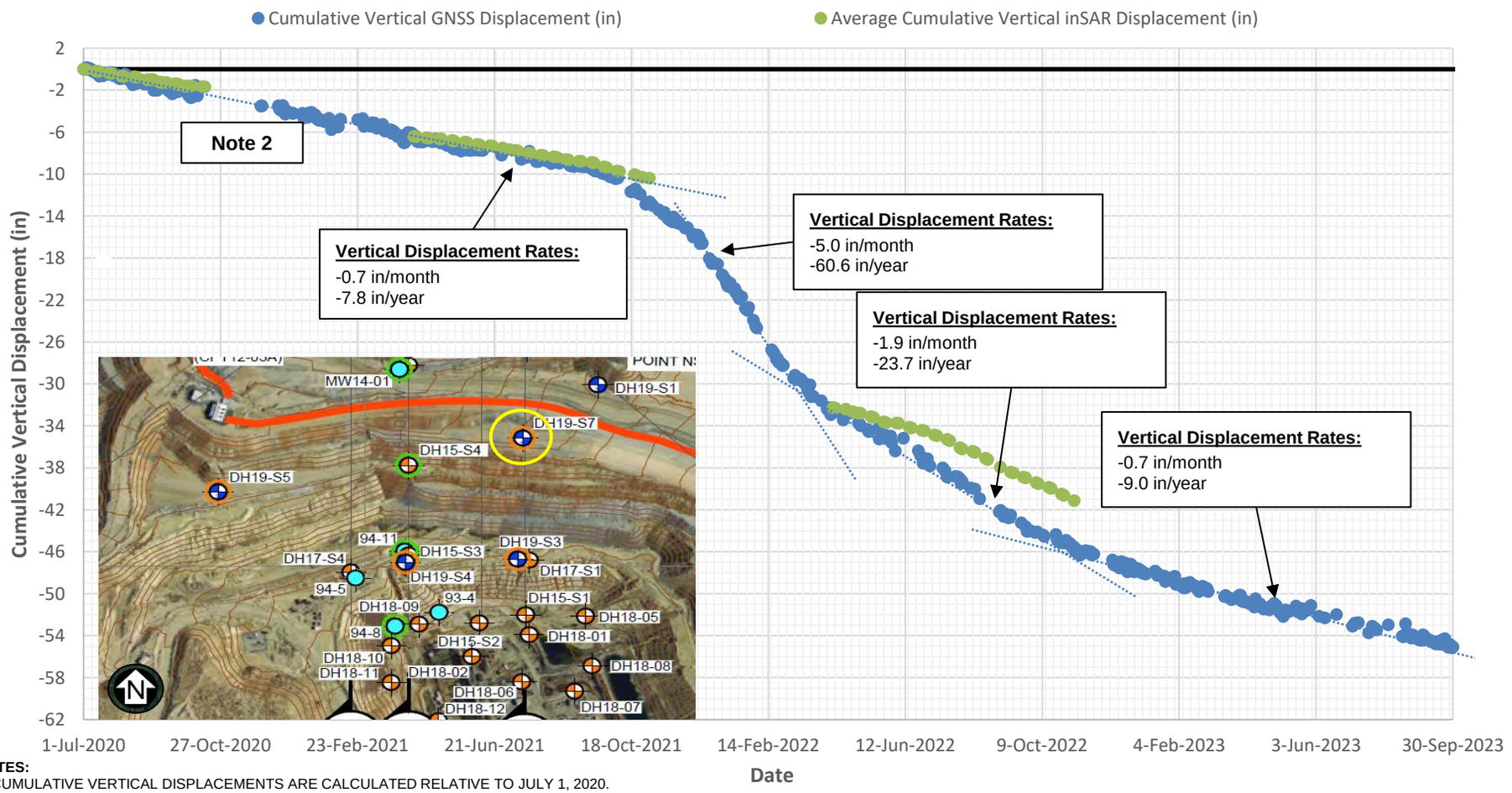
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.6

REV 0



NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. THE AVERAGE CUMULATIVE VERTICAL INSAR DISPLACEMENT IS CALCULATED BY AVERAGING TIME-SERIES DISPLACEMENTS FROM NINE INSAR DATA POINTS LOCATED ADJACENT TO DH19-S7.
5. NO LONG-TERM (SQUEESAR) INSAR DATA ARE AVAILABLE FROM OCTOBER 2, 2020 TO APRIL 13, 2021, NOVEMBER 3, 2021 TO APRIL 13, 2022, AND NOVEMBER 6 TO MARCH 31, 2023 DUE TO THE ONSET OF WINTER CONDITIONS.
6. NO DATA WERE COLLECTED FROM FEBRUARY 9 TO 21, 2021 DUE TO A DEPLETED DATA LOGGER BATTERY.
7. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
8. THE -1 STD. DEV. SERIES IS THE AVERAGE INSAR DEFORMATION RATE MINUS THE STANDARD DEVIATION OF DATA POINTS LOCAL TO THE INSTRUMENTATION SITE.
9. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
10. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE TO A PROCESSING SERVER ISSUE.
11. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
12. LIMITED DATA WERE COLLECTED FROM JUNE 6 TO JUNE 30, 2023 DUE TO A HARDWARE ISSUE.
13. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S7 (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

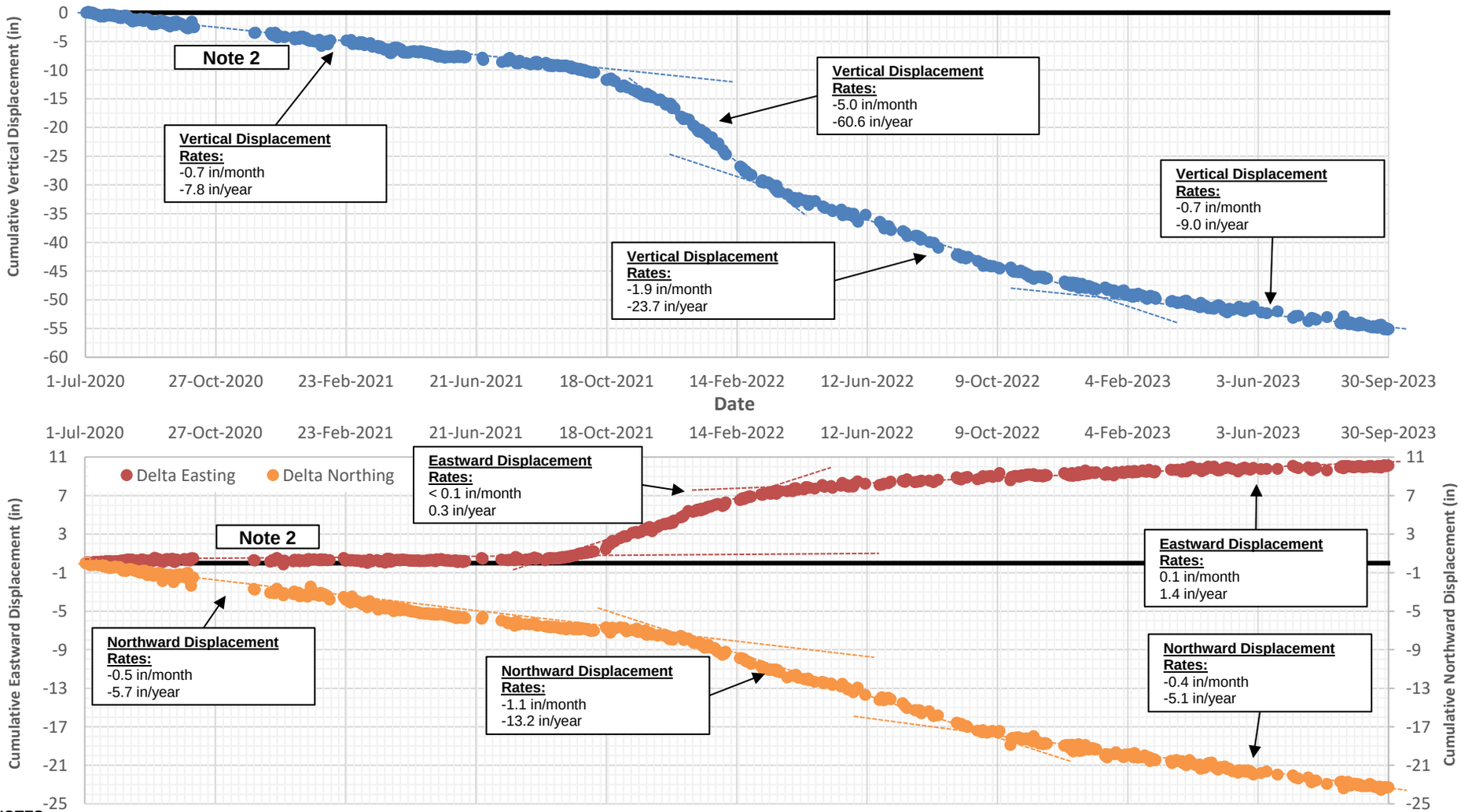
Knight Piésold CONSULTING

P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.7

REV 0



NOTES:

1. CUMULATIVE VERTICAL AND LATERAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM OCTOBER 7 TO DECEMBER 2, 2020 DUE TO A POWER MANAGEMENT SCHEDULE ISSUE AT THE GNSS REFERENCE STATION (DH16-04).
3. NEGATIVE VERTICAL DISPLACEMENTS INDICATE DOWNWARD DISPLACEMENT.
4. NO DATA WERE COLLECTED FROM FEBRUARY 9 TO 21, 2021 DUE TO A DEPLETED DATA LOGGER BATTERY.
5. NO DATA WERE COLLECTED FROM JUNE 12 TO JULY 15, 2021 DUE TO A TELEMETRY HARDWARE OUTAGE.
6. NO DATA WERE COLLECTED FROM AUGUST 17 TO SEPTEMBER 2, 2022 DUE TO A SATELLITE UPDATE REQUIRING THE SENSORS TO HARD RESET.
7. NO DATA WERE COLLECTED FROM NOVEMBER 24 TO DECEMBER 8, 2022 DUE TO A PROCESSING SERVER ISSUE.
8. NO DATA WERE COLLECTED FROM MARCH 3 TO MARCH 15, 2023 DUE TO A HARDWARE ISSUE.
9. LIMITED DATA WERE COLLECTED FROM JUNE 6 TO JUNE 30, 2023 DUE TO A HARDWARE ISSUE.
10. LIMITED DATA WERE COLLECTED FROM JUNE 23 TO AUGUST 16, 2023 DUE TO A HARDWARE CONNECTION ISSUE.

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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S7 (JULY 1, 2020 SEPTEMBER 30, 2023)

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P/A NO. VA101-00126/29

REF. NO. VA23-01703

FIGURE A.8

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Upstream - Vertical Def.
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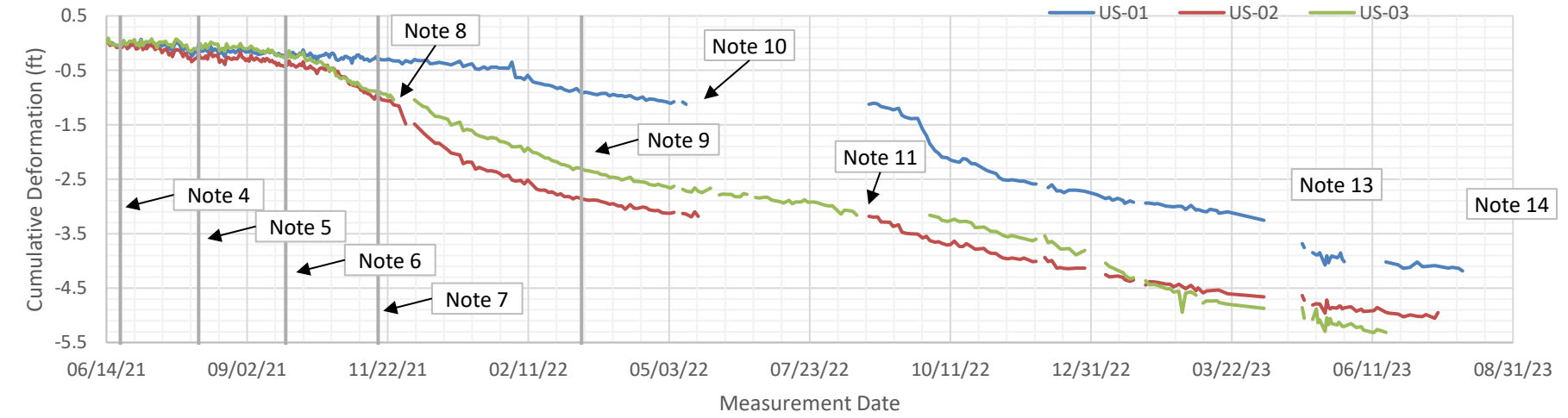

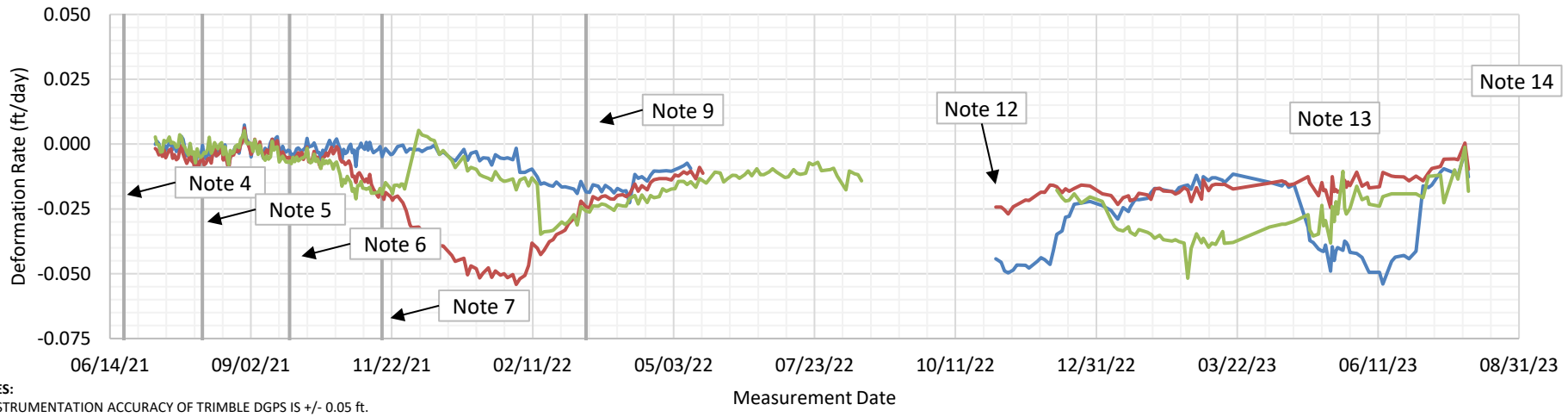

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. MONUMENT WAS RELOCATED DUE TO ONGOING CONSTRUCTION.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENTS US-01 AND US-02 WERE REMOVED BETWEEN MAY 20 TO AUGUST 26, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
11. MONUMENT US-03 WAS REMOVED BETWEEN AUGUST 17 TO SEPTEMBER 28, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
12. ELEVATED VERTICAL DEFORMATION RATES FOLLOW REINSTALLATION OF MONUMENTS ON RECENTLY PLACED EL. 6,450 FT LIFT AND REPRESENT SETTLEMENT OF NEWLY PLACED ROCKFILL.
13. MINIMAL SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 30, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
14. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

UPSTREAM SURVEY MONUMENTS VERTICAL DEFORMATION

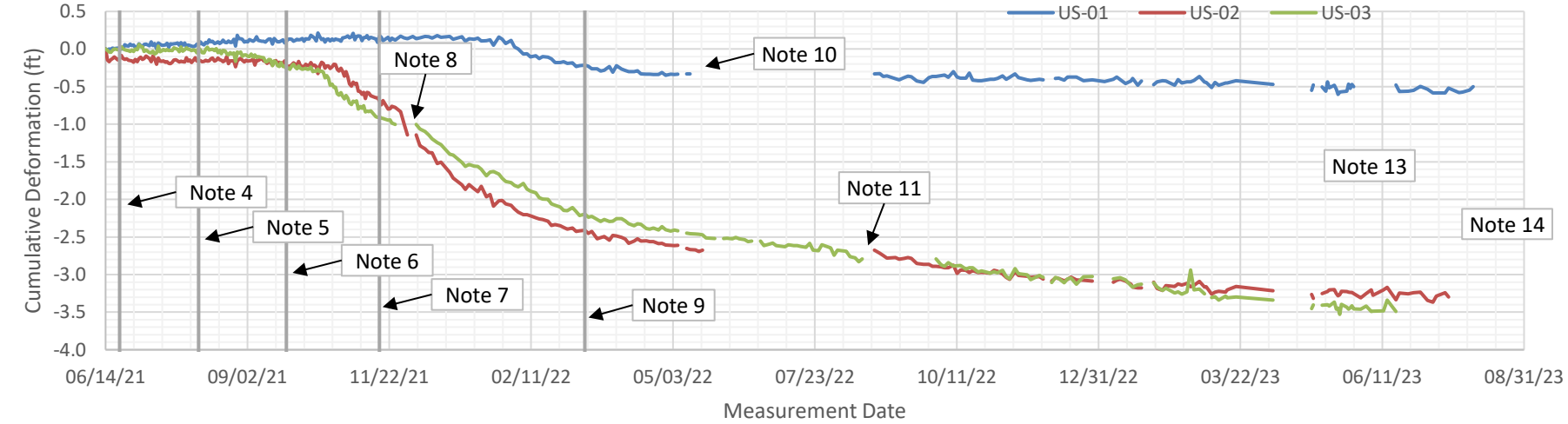
Knight Piésold CONSULTING

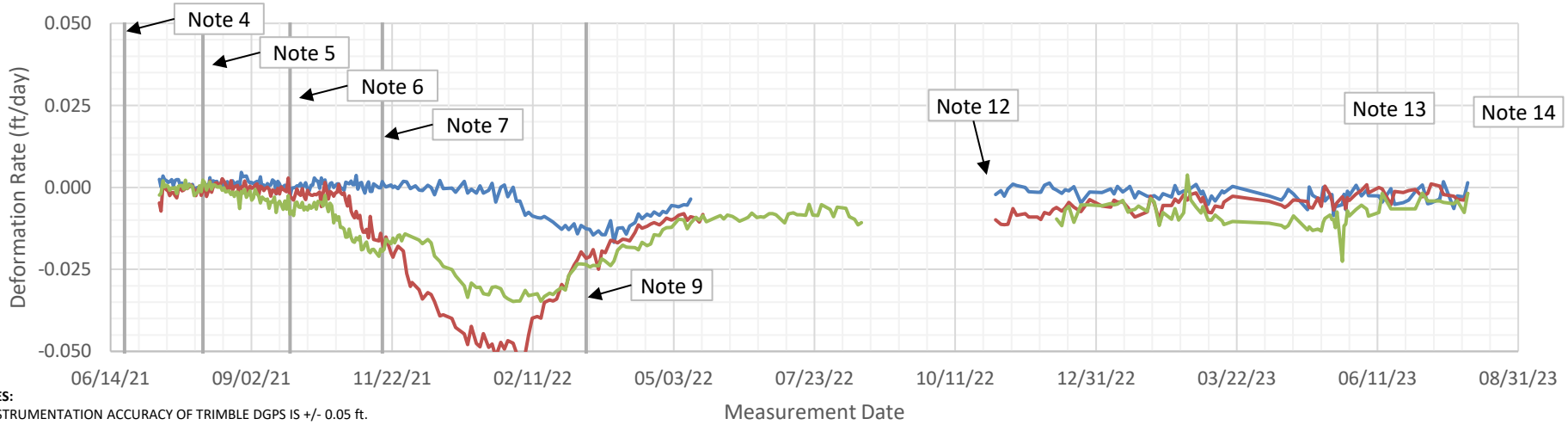
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.9

REV 0





NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. MONUMENT WAS RELOCATED DUE TO ONGOING CONSTRUCTION.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENTS US-01 AND US-02 WERE REMOVED BETWEEN MAY 20 TO AUGUST 26, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
11. MONUMENT US-03 WAS REMOVED BETWEEN AUGUST 17 TO SEPTEMBER 28, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
12. ELEVATED VERTICAL DEFORMATION RATES FOLLOW REINSTALLATION OF MONUMENTS ON RECENTLY PLACED EL. 6,450 FT LIFT AND REPRESENT SETTLEMENT OF NEWLY PLACED ROCKFILL.
13. MINIMAL SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 30, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
14. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

UPSTREAM SURVEY MONUMENTS NORTH-SOUTH DEFORMATION

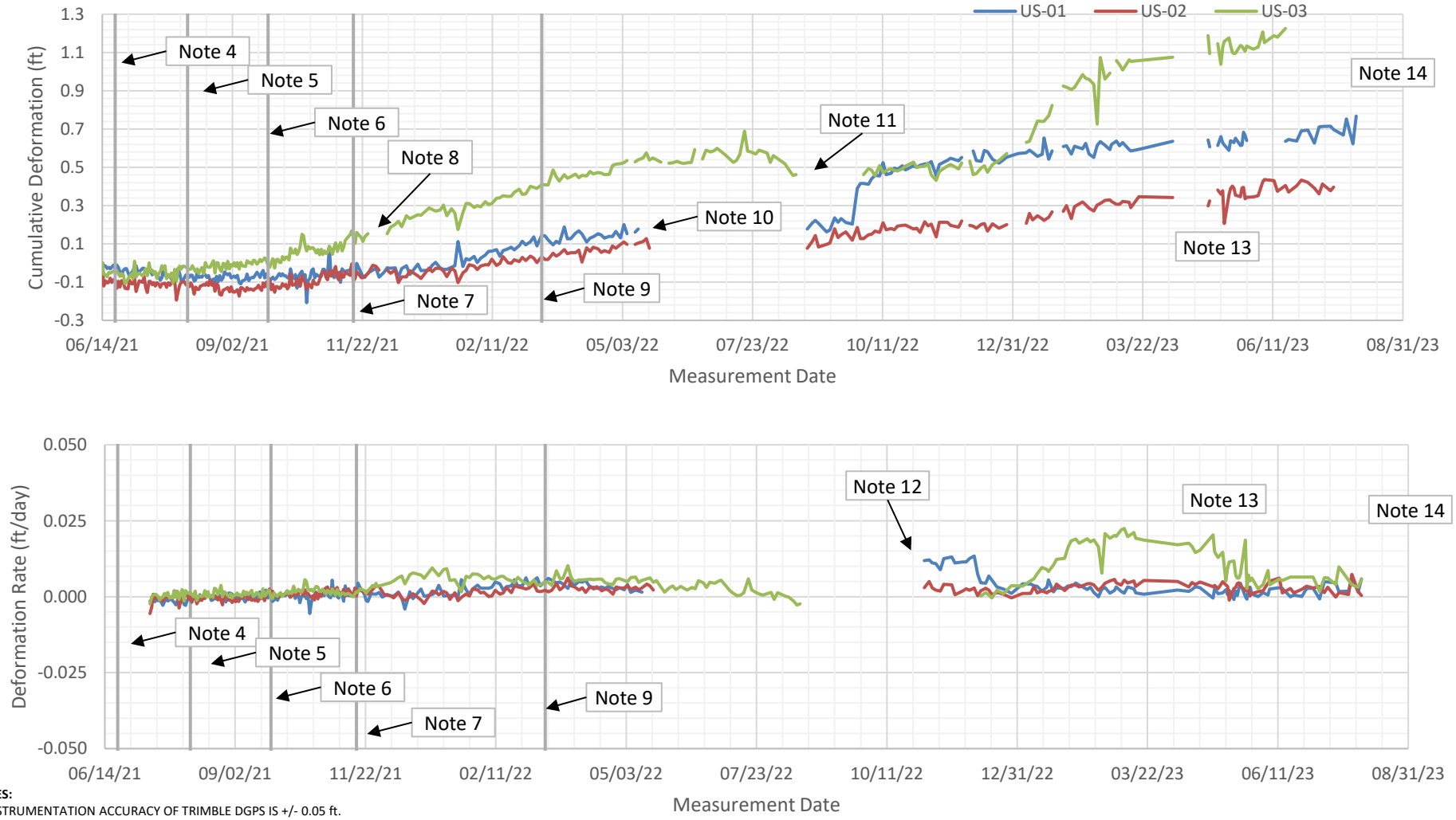
Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.10

REV 0



NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. MONUMENT WAS RELOCATED DUE TO ONGOING CONSTRUCTION.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENTS US-01 AND US-02 WERE REMOVED BETWEEN MAY 20 TO AUGUST 26, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
11. MONUMENT US-03 WAS REMOVED BETWEEN AUGUST 17 TO SEPTEMBER 28, 2022 TO AVOID CONSTRUCTION DISTURBANCE.
12. ELEVATED VERTICAL DEFORMATION RATES FOLLOW REINSTALLATION OF MONUMENTS ON RECENTLY PLACED EL. 6,450 FT LIFT AND REPRESENT SETTLEMENT OF NEWLY PLACED ROCKFILL.
13. MINIMAL SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 30, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
14. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

UPSTREAM SURVEY MONUMENTS EAST-WEST DEFORMATION

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P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.11

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Downstream - Vertical Def.

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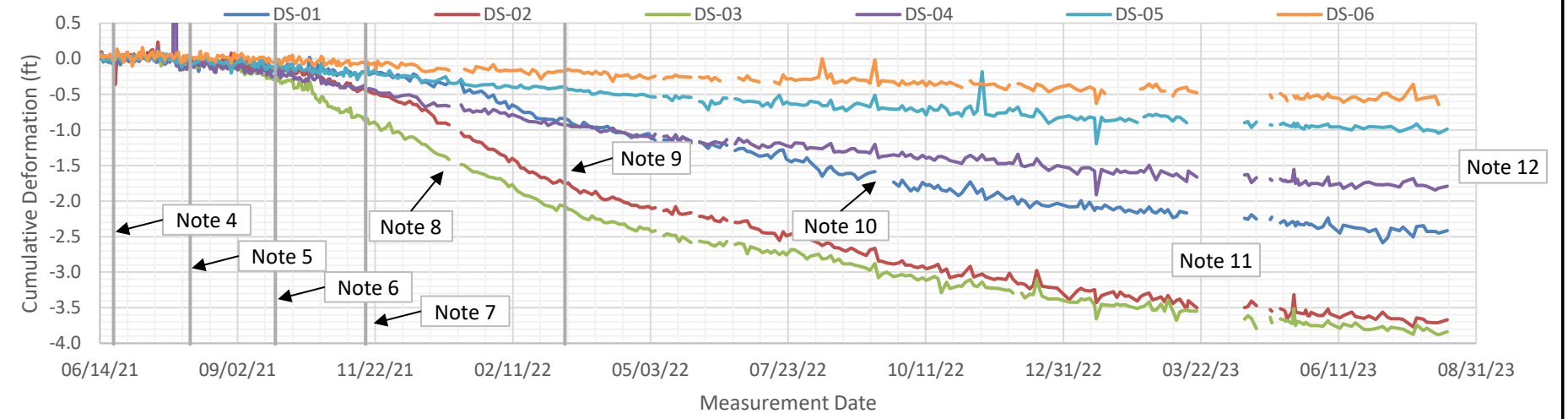

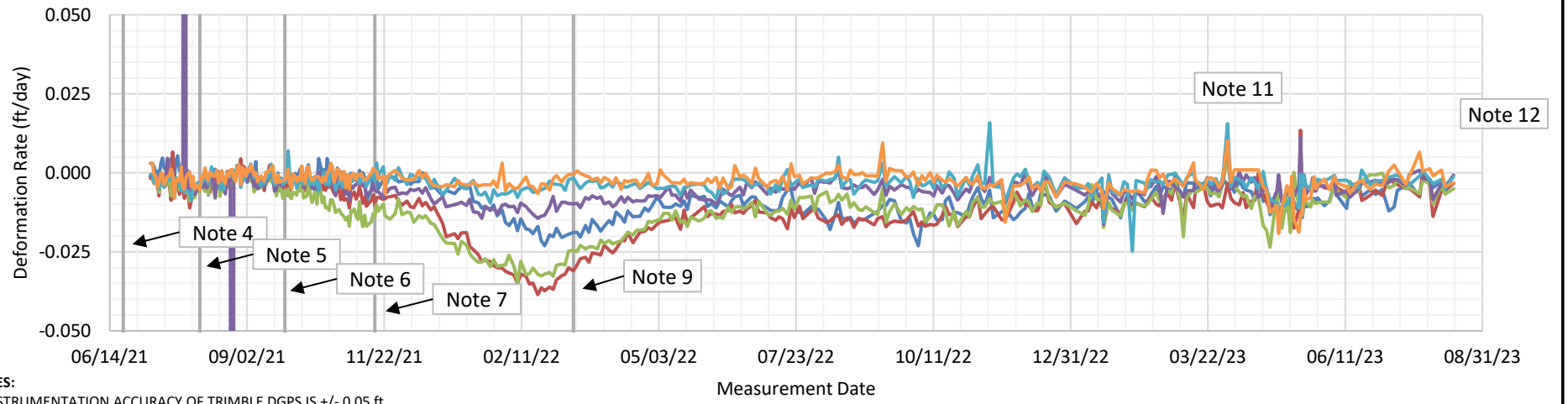

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 10, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENT DS-01 WAS INACCESSIBLE BETWEEN SEPTEMBER 12 TO 26, 2022 DUE TO OBSTRUCTION FROM NEARBY DRILLING.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 17, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

DOWNSTREAM SURVEY MONUMENTS VERTICAL DEFORMATION

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P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.12

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Downstream - N-S Def.
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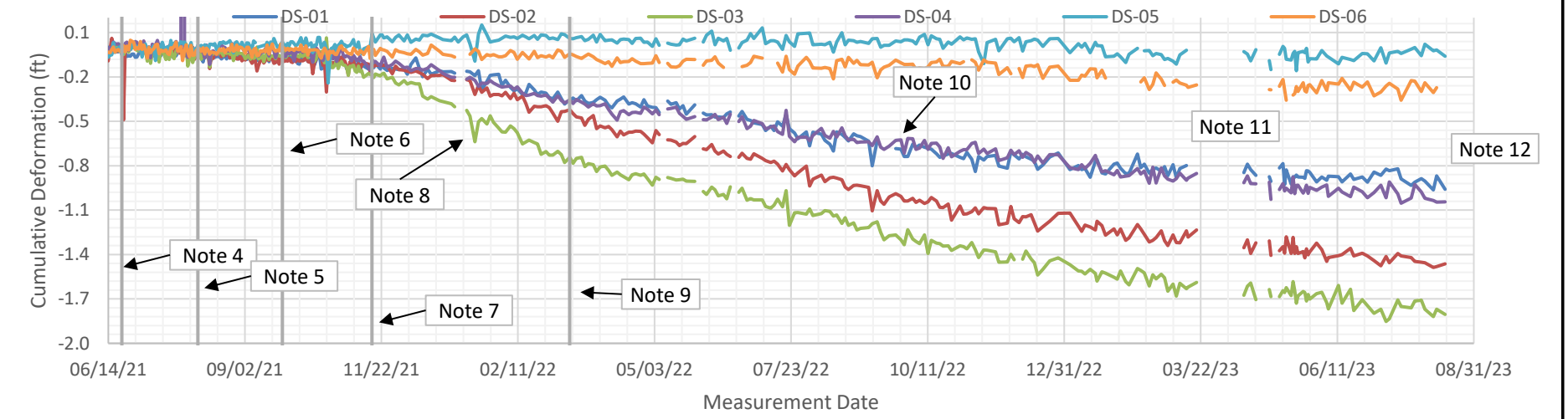

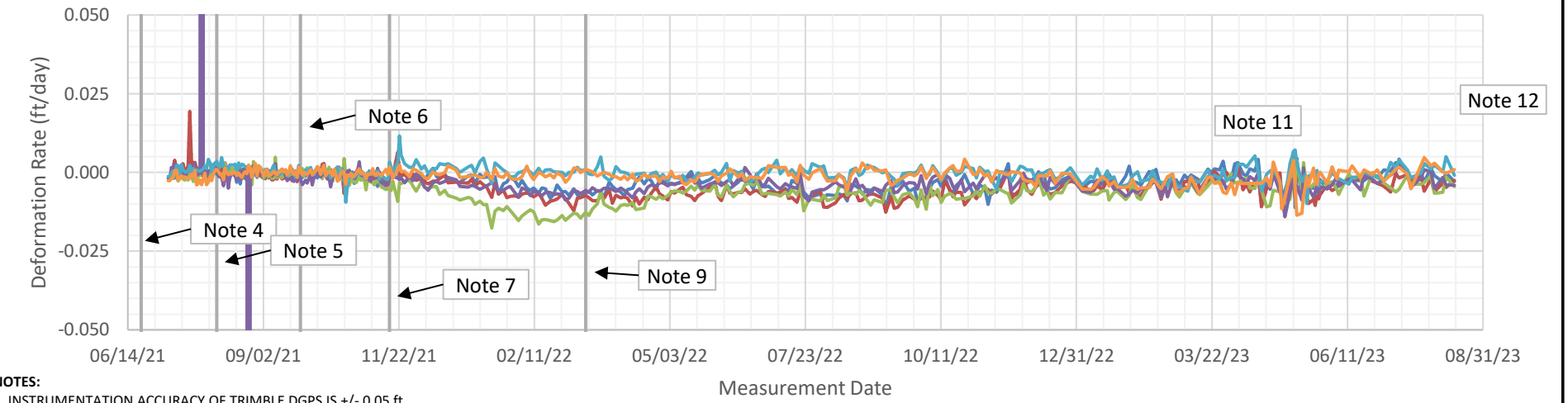

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 10, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENT DS-01 WAS INACCESSIBLE BETWEEN SEPTEMBER 12 TO 26, 2022 DUE TO OBSTRUCTION FROM NEARBY DRILLING.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 17, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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DOWNSTREAM SURVEY MONUMENTS NORTH-SOUTH DEFORMATION

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REF. NO. VA23-01703

FIGURE A.13

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Downstream - E-W Def.
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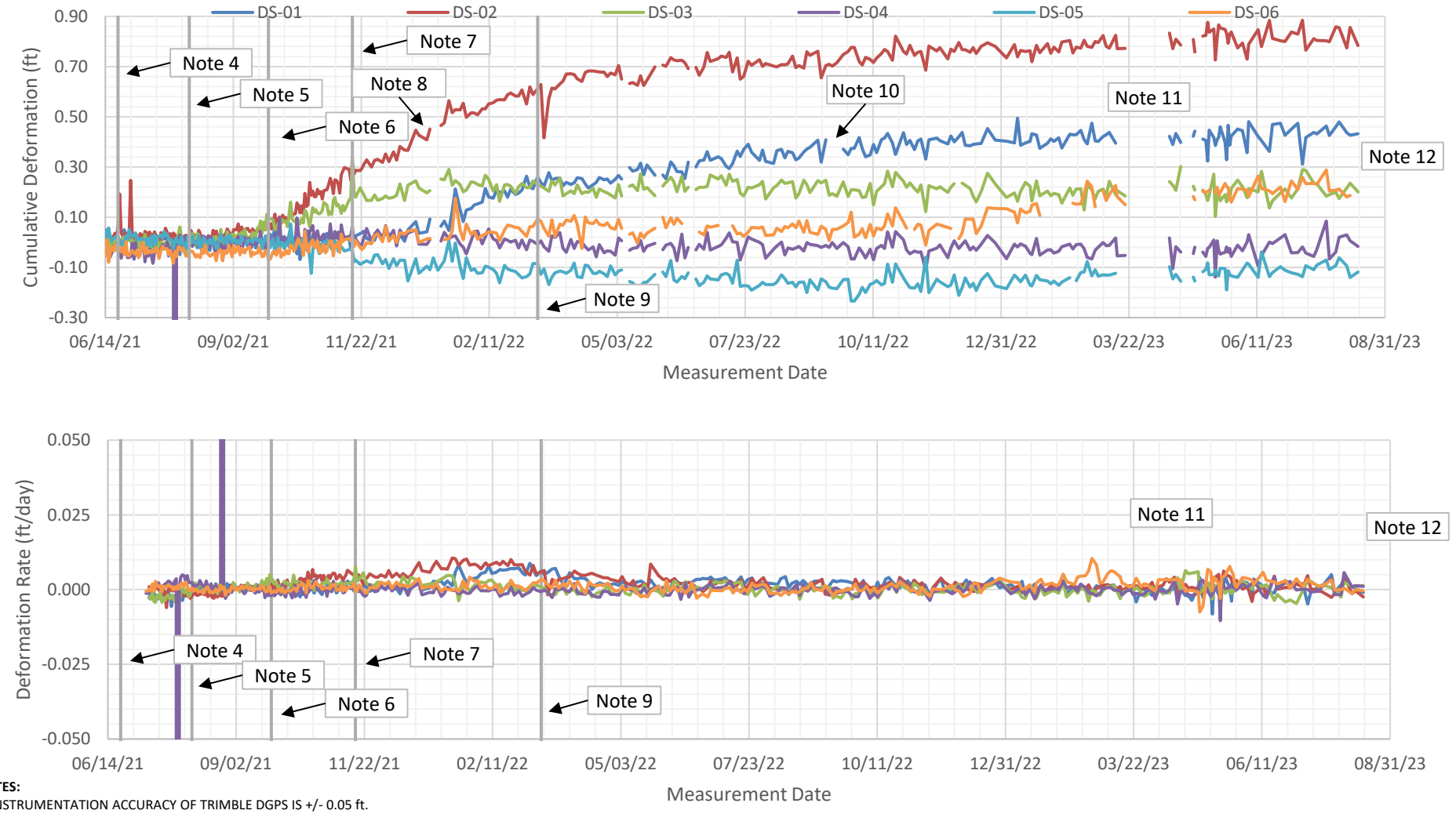

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 10, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. MONUMENT DS-01 WAS INACCESSIBLE BETWEEN SEPTEMBER 12 TO 26, 2022 DUE TO OBSTRUCTION FROM NEARBY DRILLING.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 17, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

DOWNSTREAM SURVEY MONUMENTS EAST-WEST DEFORMATION

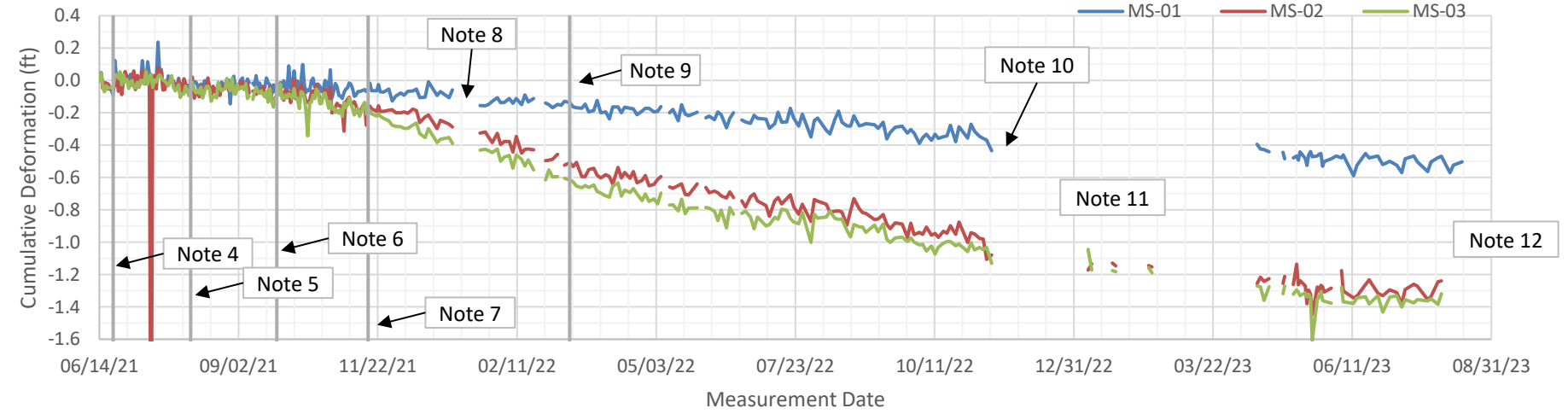
Knight Piésold CONSULTING

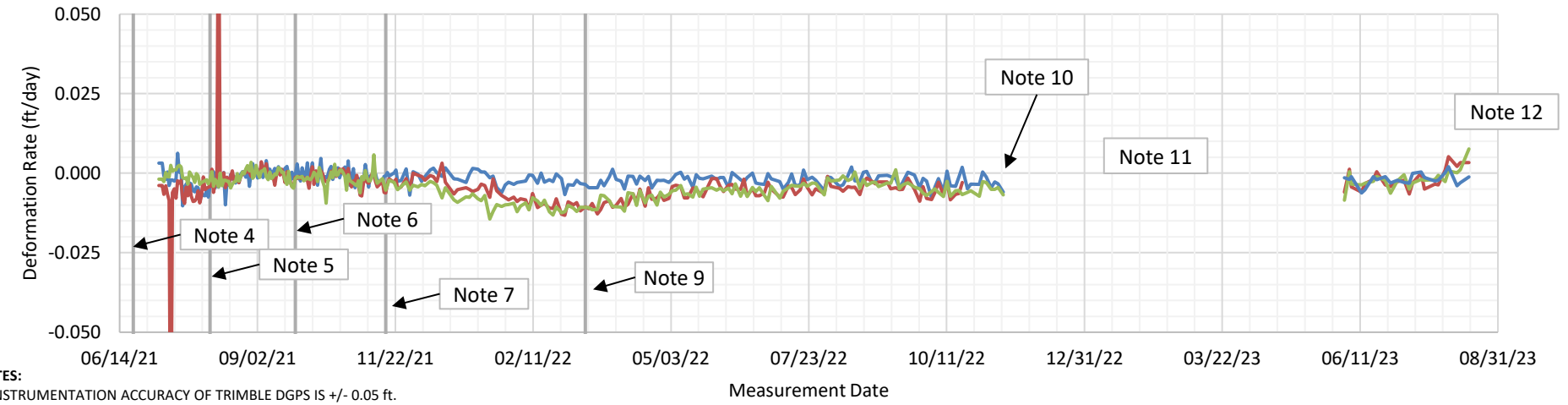
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.14

REV 0





NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
4. CONSTRUCTION OF EL. 6,250 ft LIFT BEGAN ON JUNE 22, 2021.
5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 14, 2022 AND JANUARY 19 TO 21, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA RECORDED BETWEEN NOVEMBER 14, 2022 AND JANUARY 8, 2023 WHILE THE MONUMENTS WERE INACCESSIBLE DUE TO SNOW COVERAGE.
11. LIMITED TO NO SURVEY DATA RECORDED BETWEEN JANUARY 9 AND APRIL 10, 2023 FROM ALL MONUMENTS DUE TO LACK OF ACCESSIBILITY OF AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

EL 6,150 FT BENCH SURVEY MONUMENTS VERTICAL DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.15

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Midslope - N-S Def.
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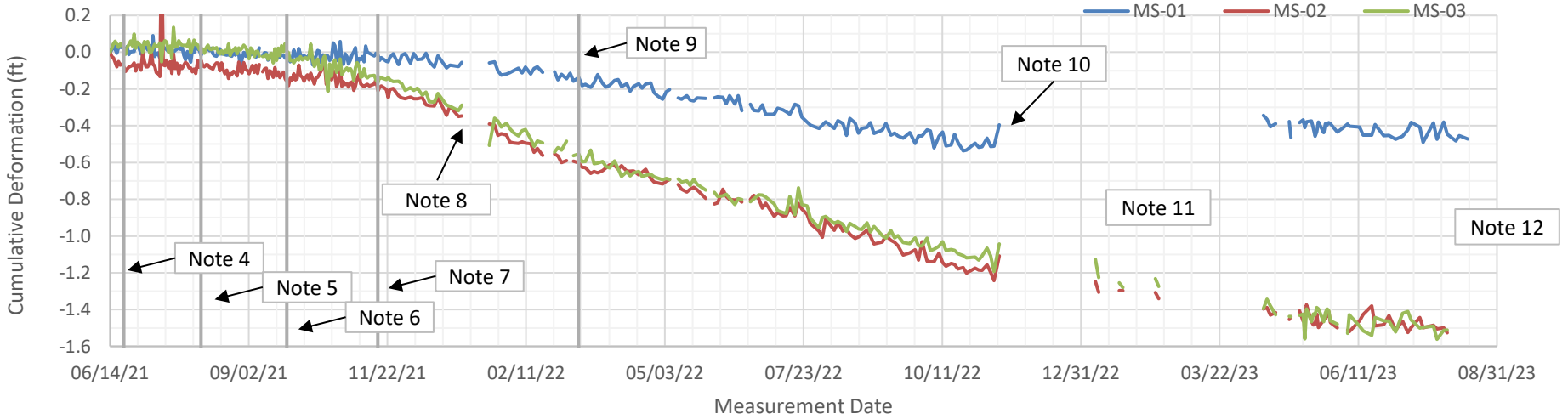

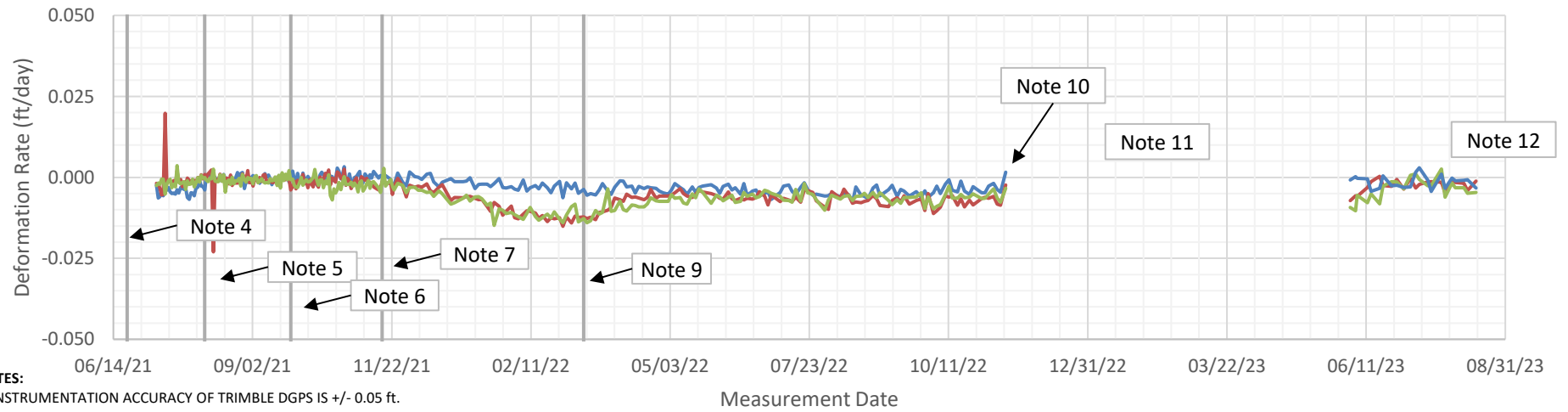

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
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5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 14, 2022 AND JANUARY 19 TO 21, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA RECORDED BETWEEN NOVEMBER 14, 2022 AND JANUARY 8, 2023 WHILE THE MONUMENTS WERE INACCESSIBLE DUE TO SNOW COVERAGE.
11. LIMITED TO NO SURVEY DATA RECORDED BETWEEN JANUARY 9 AND APRIL 10, 2023 FROM ALL MONUMENTS DUE TO LACK OF ACCESSIBILITY OF AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

EL 6,150 FT BENCH SURVEY MONUMENTS NORTH-SOUTH DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.16

REV 0

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
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7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 14, 2022 AND JANUARY 19 TO 21, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA RECORDED BETWEEN NOVEMBER 14, 2022 AND JANUARY 8, 2023 WHILE THE MONUMENTS WERE INACCESSIBLE DUE TO SNOW COVERAGE.
11. LIMITED TO NO SURVEY DATA RECORDED BETWEEN JANUARY 9 AND APRIL 10, 2023 FROM ALL MONUMENTS DUE TO LACK OF ACCESSIBILITY OF AND STAFF.
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REV	DATE	DESCRIPTION	PREP'D	RVW'D
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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

EL 6,150 FT BENCH SURVEY MONUMENTS EAST-WEST DEFORMATION

Knight Piésold CONSULTING

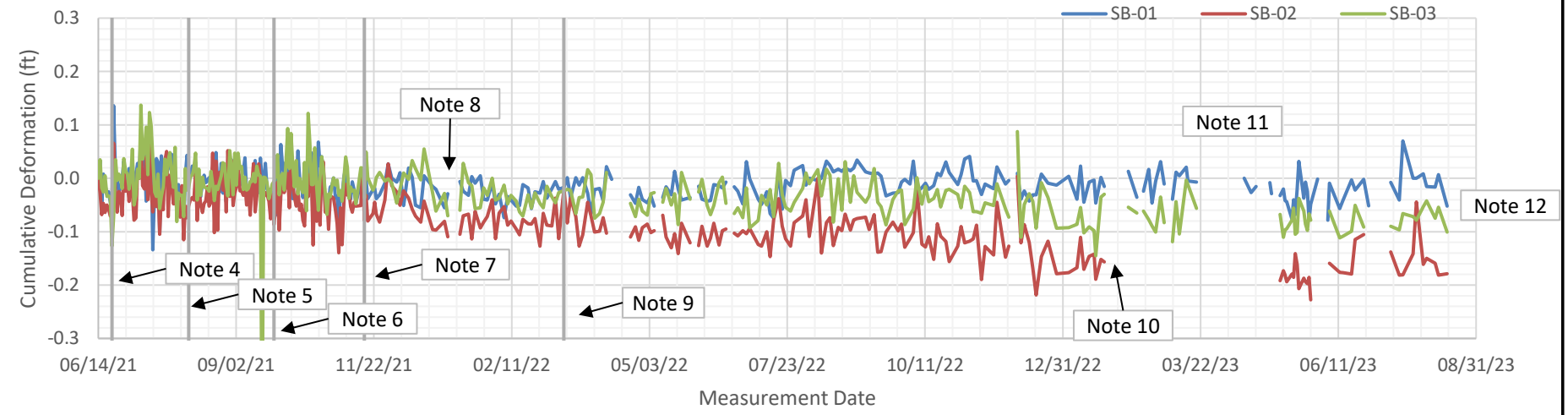
P/A NO. VA101-126/29

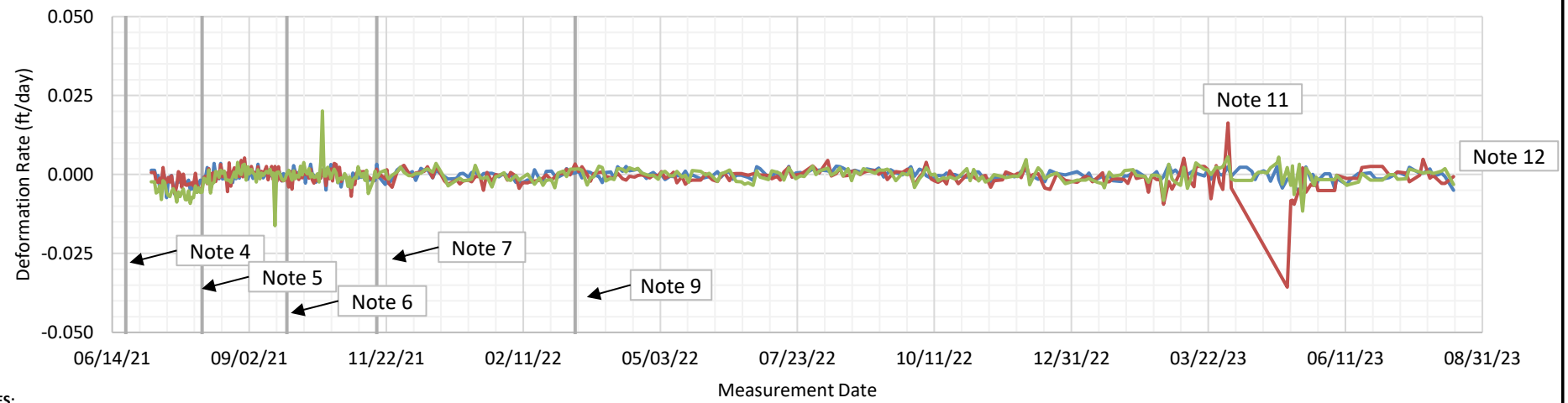
REF. NO. VA23-01703

FIGURE A.17

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Seep 10 - Vertical Def.
Print 11/8/2023 10:20 AM





NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
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6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 10, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA WERE COLLECTED AT SB-02 FROM JANUARY 20, 2023 TO MAY 8, 2023.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 10, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SEEP 10 BENCH SURVEY MONUMENTS VERTICAL DEFORMATION

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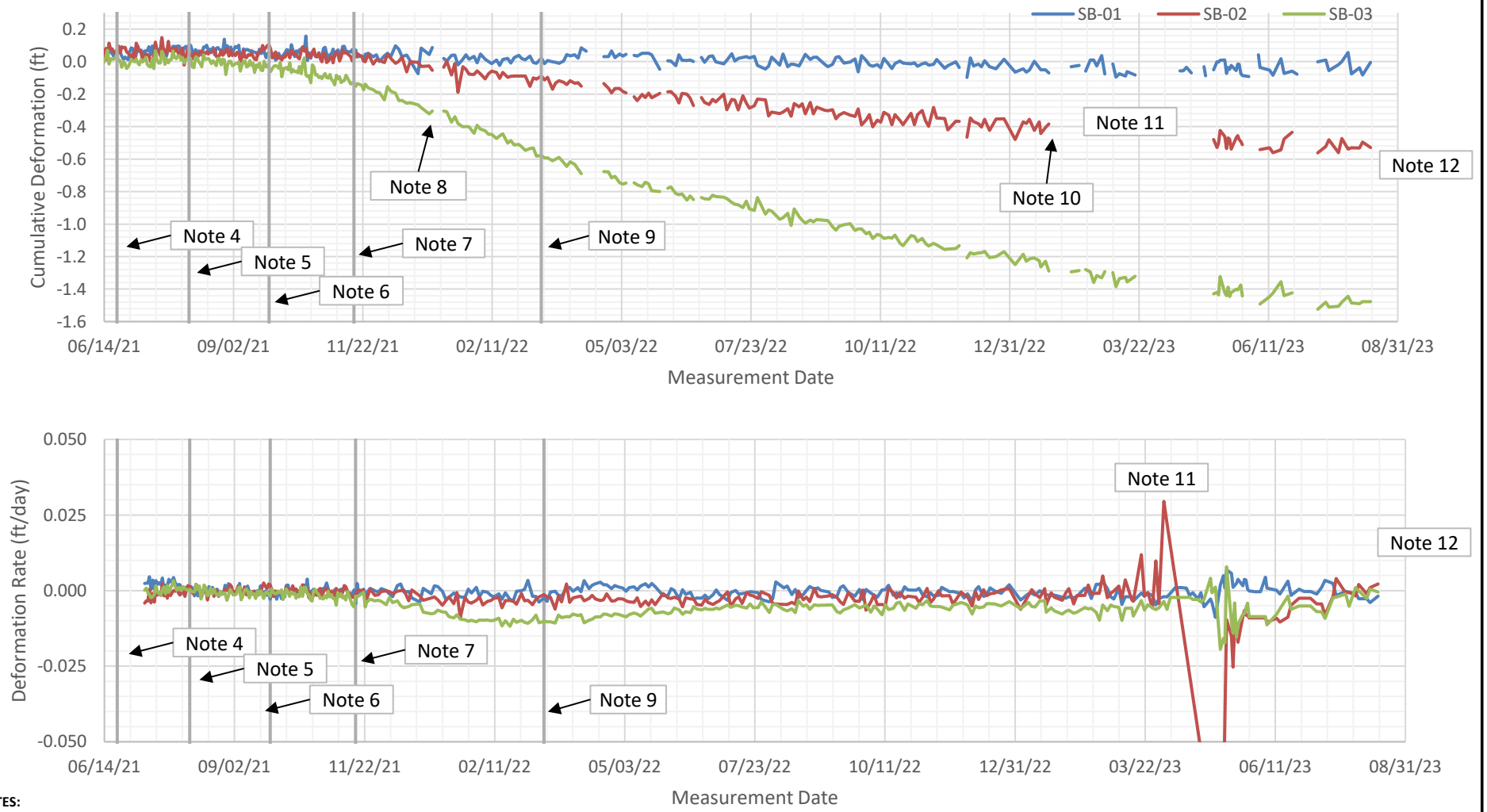
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.18

REV 0



NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
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8. NO SURVEY DATA RECORDED BETWEEN JANUARY 7 TO 10, 2022 DUE TO LACK OF ACCESSIBLITY OF MONUMENT SITES DUE TO SNOW COVERAGE.
9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA WERE COLLECTED AT SB-02 FROM JANUARY 20, 2023 TO MAY 8, 2023.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 10, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SEEP 10 BENCH SURVEY MONUMENTS NORTH-SOUTH DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.19

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\1 - DGPS Manual Survey (GNSS Rover)\[YDTI 6,450 Manual DGPS Survey-Deformation Monitoring - Master]Seep 10 - E-W Def.
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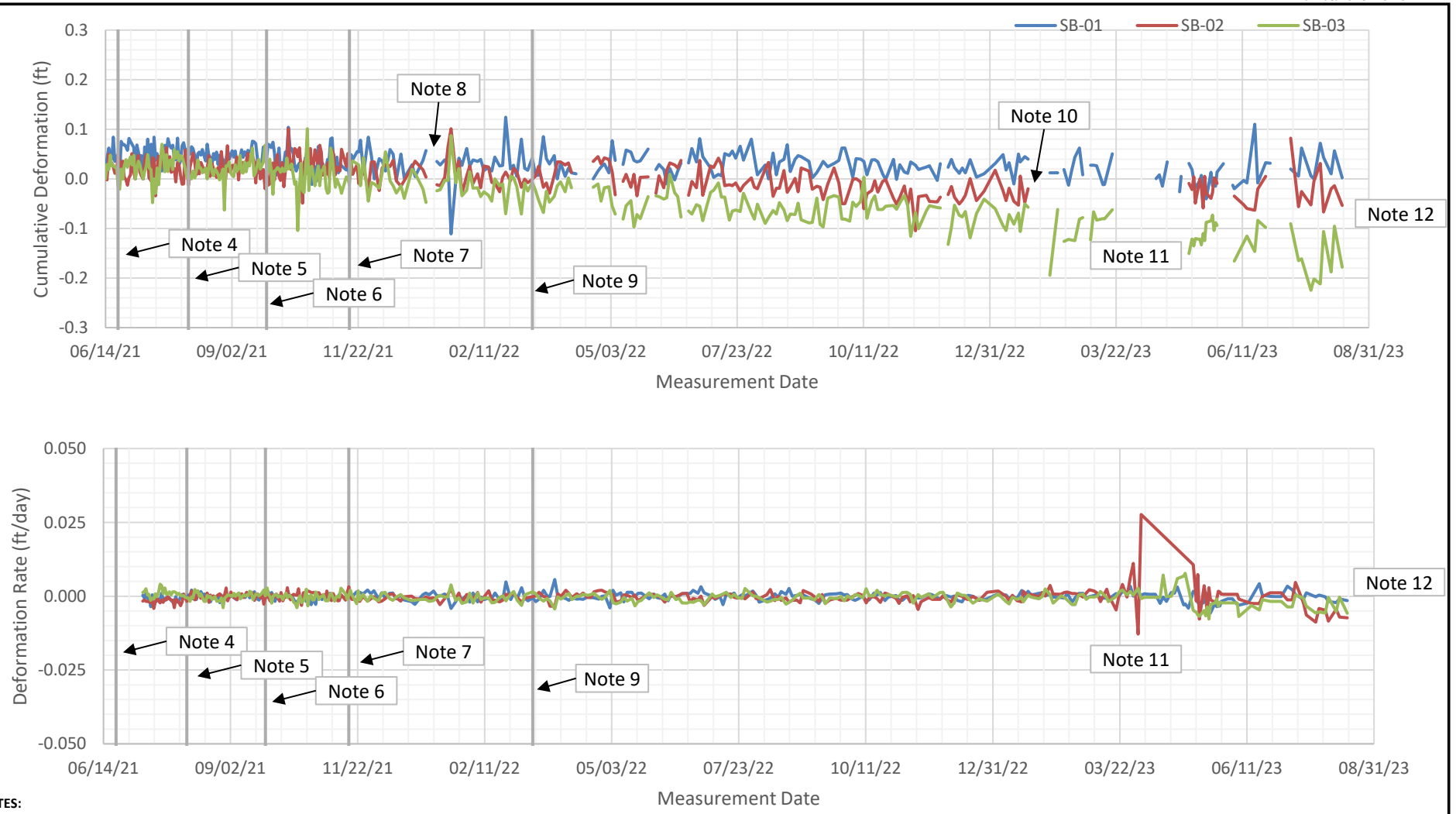

NOTES:

1. INSTRUMENTATION ACCURACY OF TRIMBLE DGPS IS +/- 0.05 ft.
2. DATA GAPS PRESENT WHERE INSUFFICIENT DEFORMATION MEASUREMENTS ARE AVAILABLE FOR THE MOVING AVERAGE.
3. DGPS READINGS WERE COLLECTED DAILY FROM JUNE 14, 2021 TO NOVEMBER 24, 2021 AND THREE TIMES PER WEEK (MONDAY, WEDNESDAY, AND FRIDAY) THEREAFTER.
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5. CONSTRUCTION OF EL. 6,300 ft LIFT BEGAN ON AUGUST 6, 2021.
6. CONSTRUCTION OF EL. 6,350 ft LIFT BEGAN ON SEPTEMBER 25, 2021.
7. CONSTRUCTION OF EL. 6,400 ft LIFT BEGAN ON NOVEMBER 17, 2021.
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9. CONSTRUCTION OF EL. 6,450 ft CENTRAL EMBANKMENT LIFT BEGAN ON MARCH 14, 2022.
10. NO SURVEY DATA WERE COLLECTED AT SB-02 FROM JANUARY 20, 2023 TO MAY 8, 2023.
11. NO SURVEY DATA RECORDED BETWEEN MARCH 20 TO APRIL 10, 2023 DUE TO LACK OF ACCESSIBILITY AND STAFF.
12. DGPS SURVEY ENDED ON AUGUST 14, 2023, AND TRANSITIONED TO USING TOTAL STATION SURVEY. TOTAL STATION DATA TO BE PRESENTED IN Q4.

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MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SEEP 10 BENCH SURVEY MONUMENTS
EAST-WEST DEFORMATION

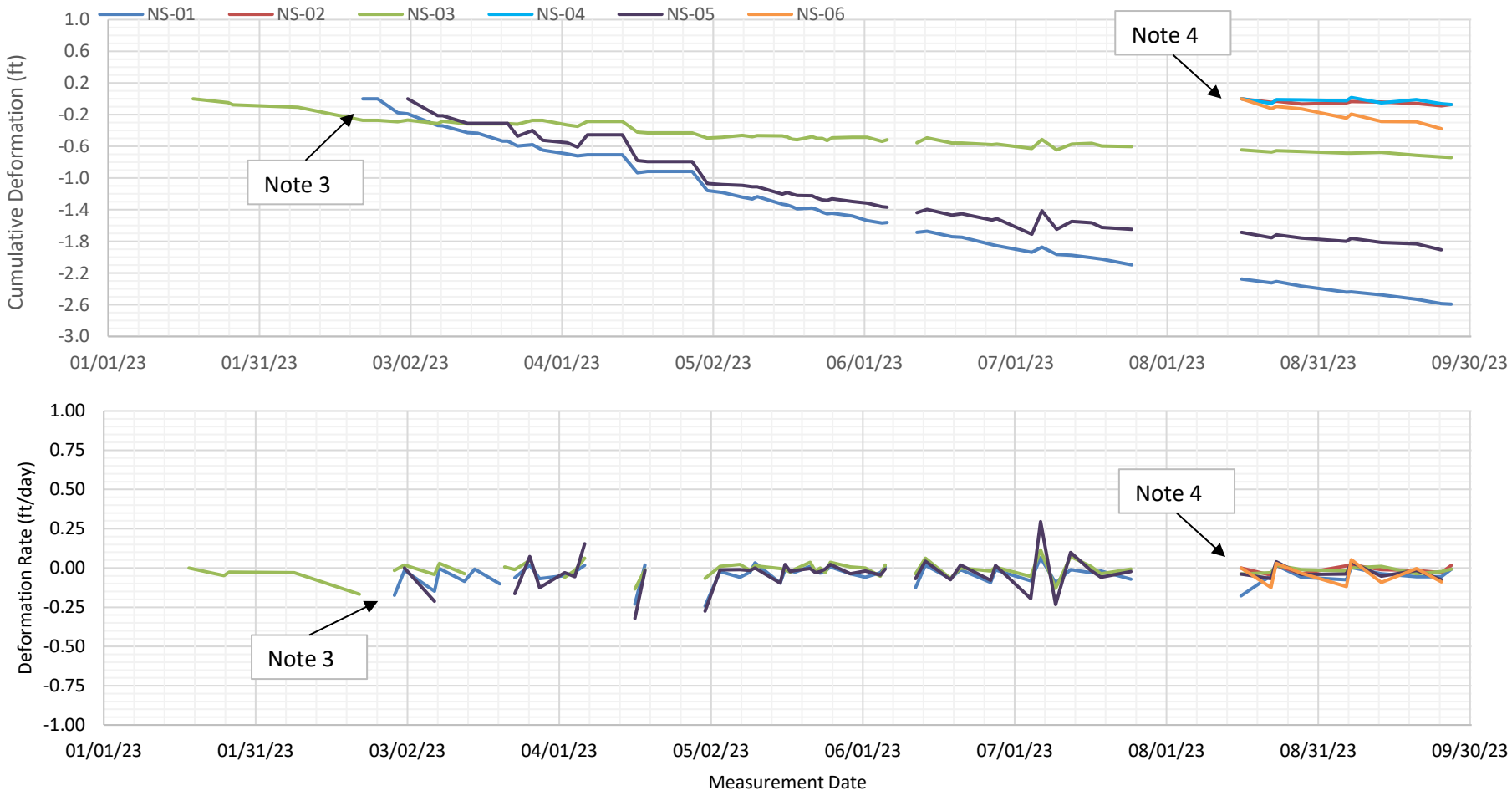
Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.20

REV 0



NOTES:

1. DATA COLLECTED USING A TOTAL STATION AND SURVEY PRISMS.
2. DATA GAPS PRESENT DUE TO SITE ACCESSIBILITY ISSUES.
3. NS-01, AND NS-05 MONUMENTS ACTIVATED ON FEBRUARY 21 AND MARCH 2, 2023, RESPECTIVELY.
4. NS-02, NS-04, AND NS-06 MONUMENTS ACTIVATED ON AUGUST 16, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

NS EMBANKMENT SURVEY MONUMENTS VERTICAL DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

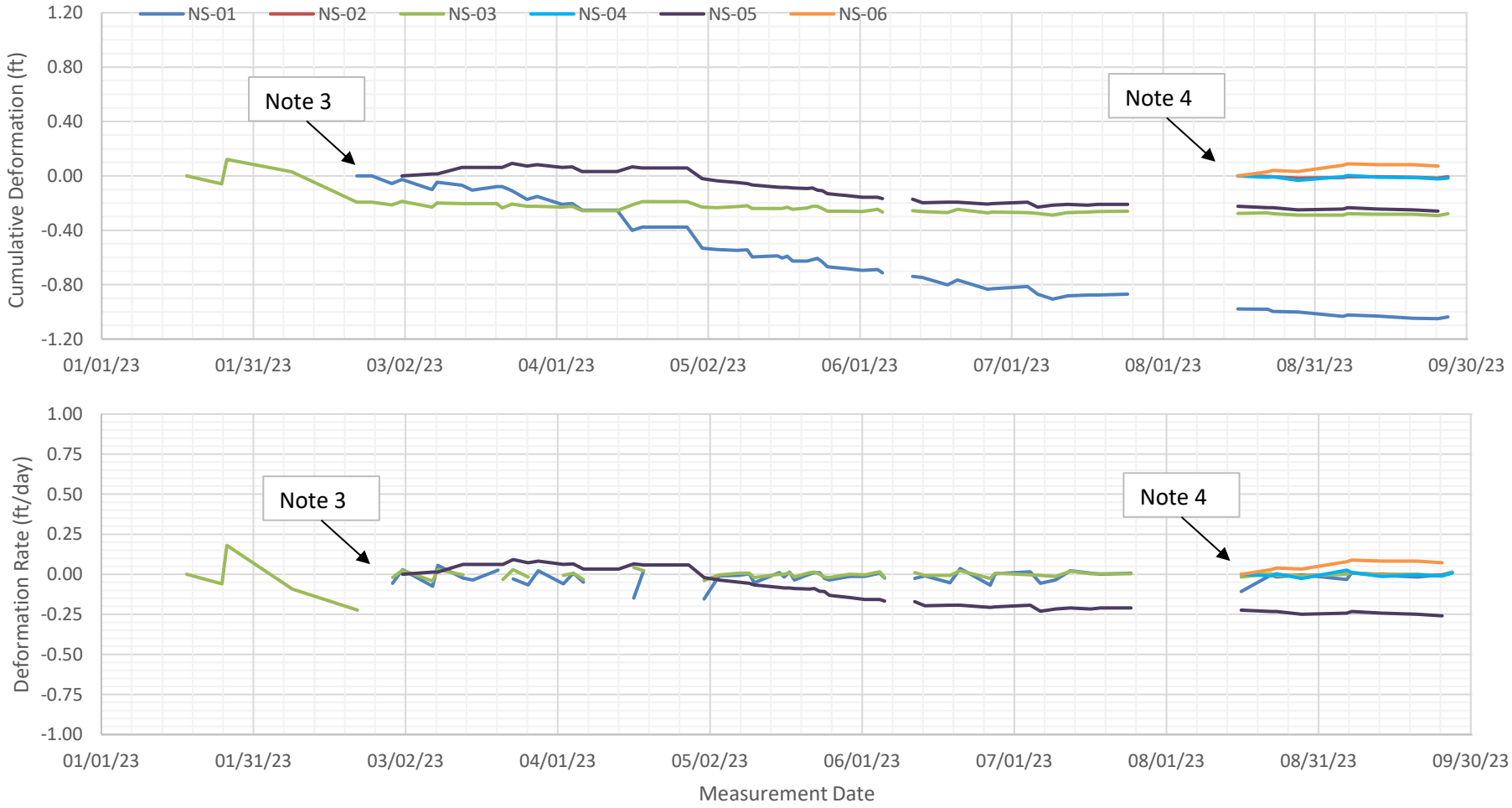
REF. NO. VA23-01703

FIGURE A.21

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\2 - Total Station\[YDTI 6,450 Total Station Survey-Deformation Monitoring - Master (Corrected)]NS - N-S Def.

Print 11/8/2023 10:16 AM



NOTES:

1. DATA COLLECTED USING A TOTAL STATION AND SURVEY PRISMS.
2. DATA GAPS PRESENT DUE TO SITE ACCESSIBILITY ISSUES.
3. NS-01, AND NS-05 MONUMENTS ACTIVATED ON FEBRUARY 21 AND MARCH 2, 2023, RESPECTIVELY.
4. NS-02, NS-04, AND NS-06 MONUMENTS ACTIVATED ON AUGUST 16, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

NS EMBANKMENT SURVEY MONUMENTS NORTH-SOUTH DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE A.22

REV 0

M:\1\01\00126\29\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\2 - Total Station\[YDTI 6,450 Total Station Survey-Deformation Monitoring - Master (Corrected)]NS - E-W Def.

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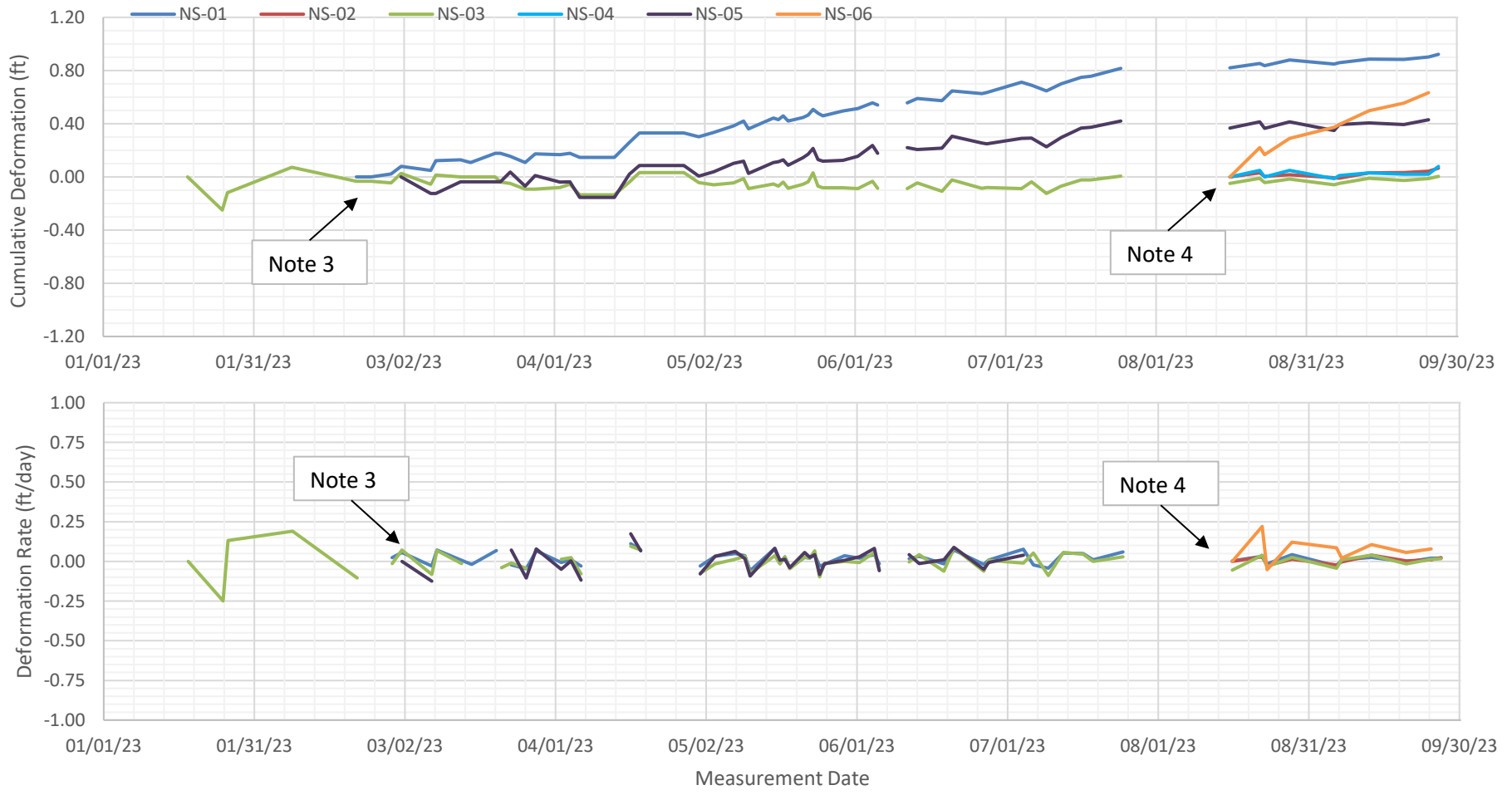


NOTES:

1. DATA COLLECTED USING A TOTAL STATION AND SURVEY PRISMS.
2. DATA GAPS PRESENT DUE TO SITE ACCESSIBILITY ISSUES.
3. NS-01, AND NS-05 MONUMENTS ACTIVATED ON FEBRUARY 21 AND MARCH 2, 2023, RESPECTIVELY.
4. NS-02, NS-04, AND NS-06 MONUMENTS ACTIVATED ON AUGUST 16, 2023.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

NS EMBANKMENT SURVEY MONUMENTS EAST-WEST DEFORMATION

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

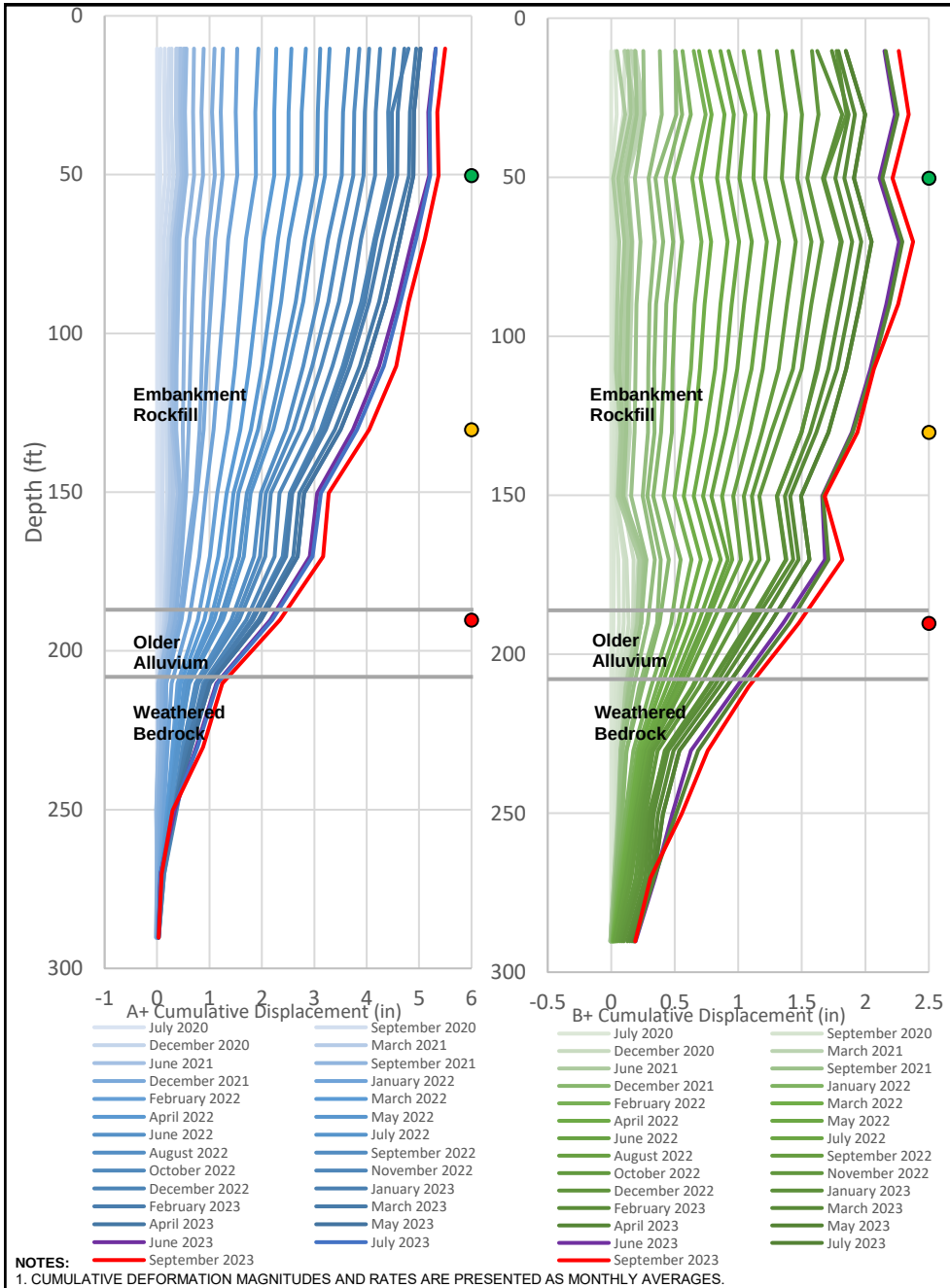
FIGURE A.23

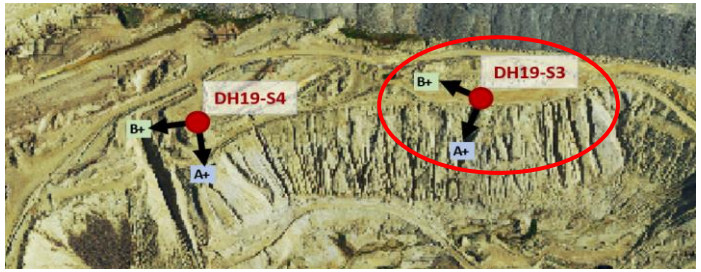
REV 0

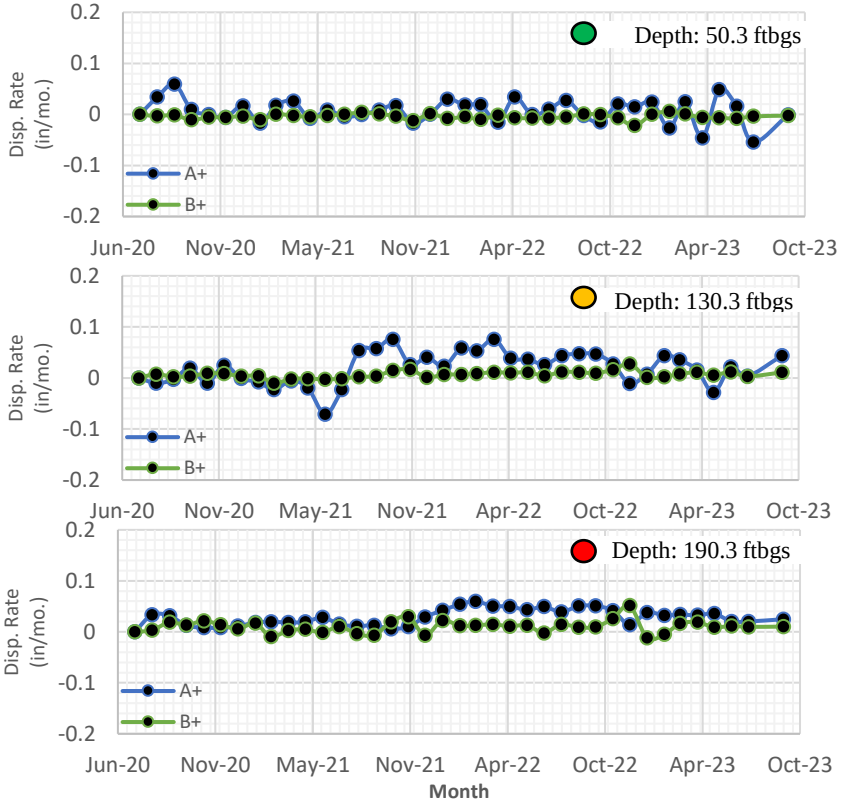
APPENDIX B

Inclinometer Deformation Plots

(Figures B.1 to B.14)







NOTES:
1. CUMULATIVE DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE CUMULATIVE SUBSURFACE DEFORMATION DRILLHOLE DH19-S3 (JULY 2020 THROUGH SEPTEMBER 2023)

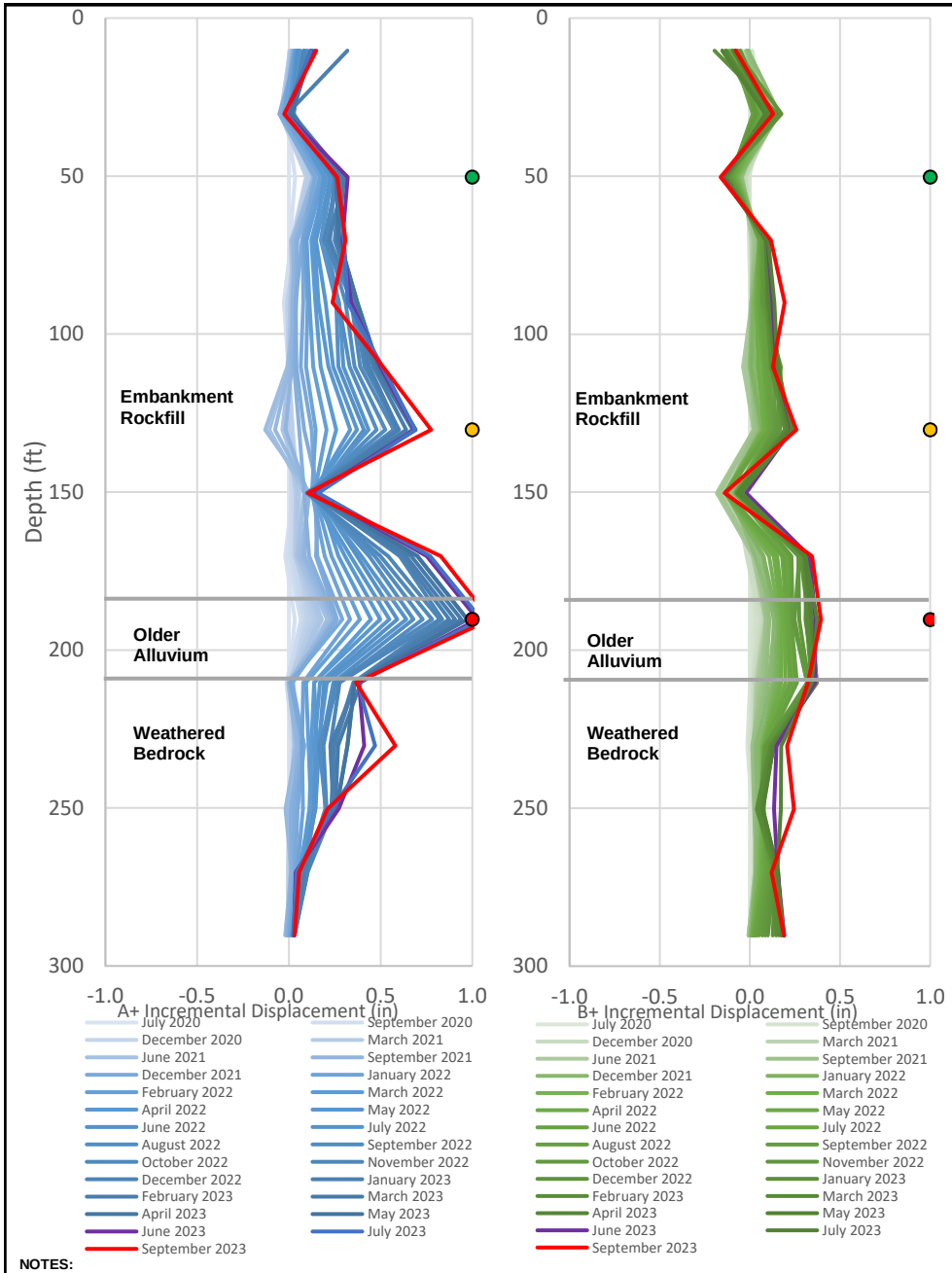
Knight Piésold CONSULTING

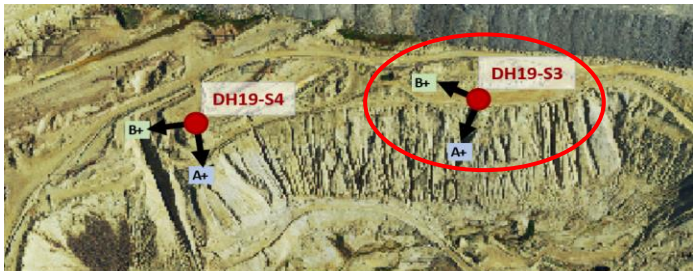
P/A NO. VA101-126/29

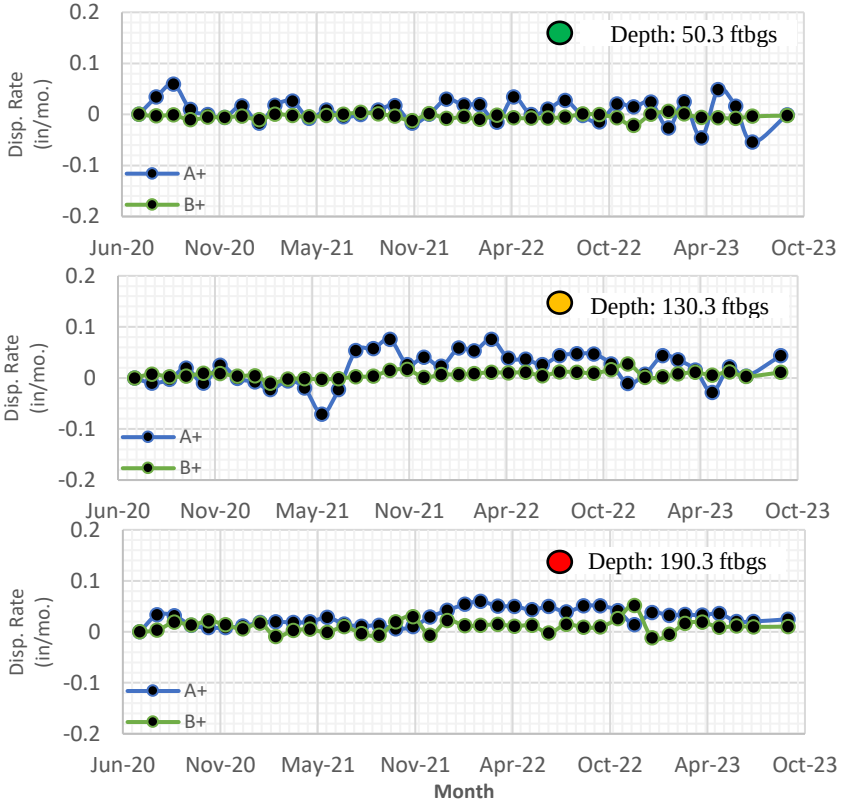
REF. NO. VA23-01703

FIGURE B.1

REV 0







NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.

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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH19-S3 (JULY 2020 THROUGH SEPTEMBER 2023)

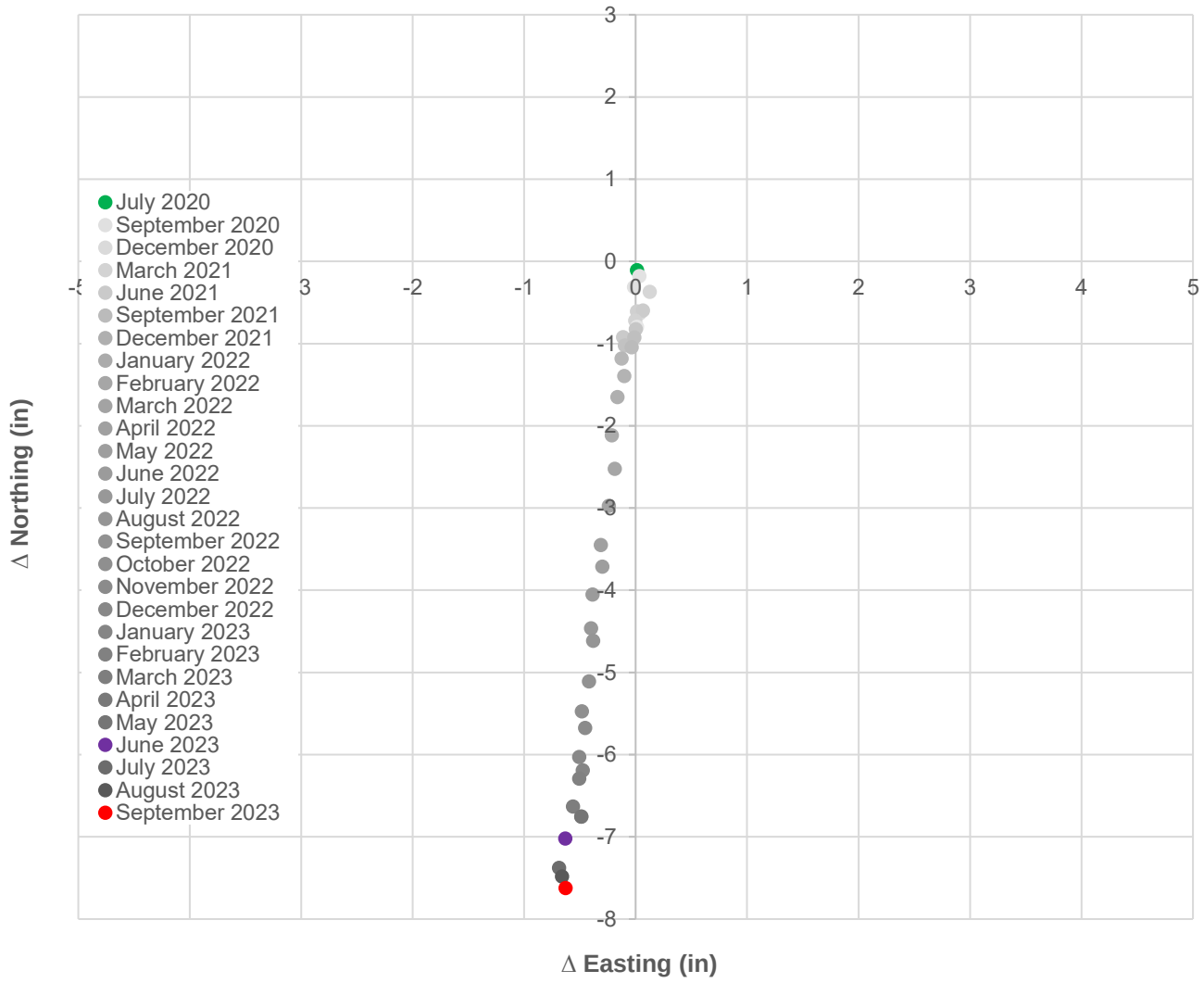
Knight Piésold CONSULTING

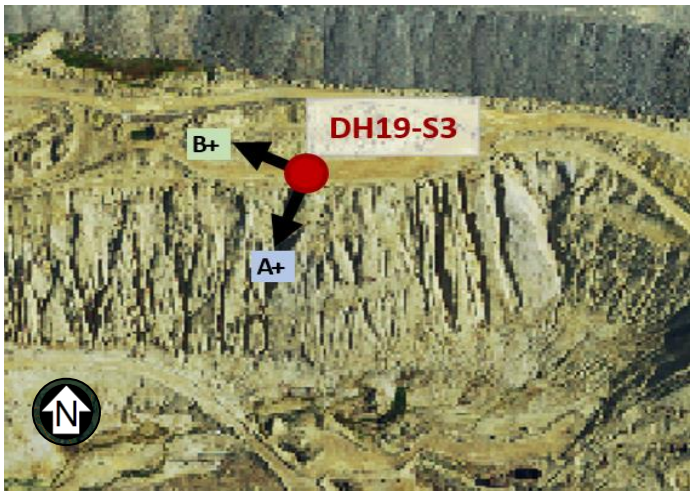
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE B.2

REV 0





NOTES:
1. COLLAR WANDER IS MONITORED USING GNSS INSTRUMENTATION INSTALLED AT THE INCLINOMETER COLLAR LOCATION.
2. THE PLOT ABOVE PRESENTS COLLAR POSITION BASED ON NORTH AND EAST CHANGE RELATIVE TO A JULY 1, 2020 BASELINE GNSS SURVEY.
3. NO DATA ARE AVAILABLE FOR NOVEMBER, 2020 WHILE THE INSTRUMENTATION WAS OFFLINE DUE TO A POWER MANAGEMENT ISSUE.

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S3 GNSS-BASED INCLINOMETER COLLAR WANDER (JULY 1, 2021 THROUGH SEPTEMBER 30, 2023)

Knight Piésold CONSULTING

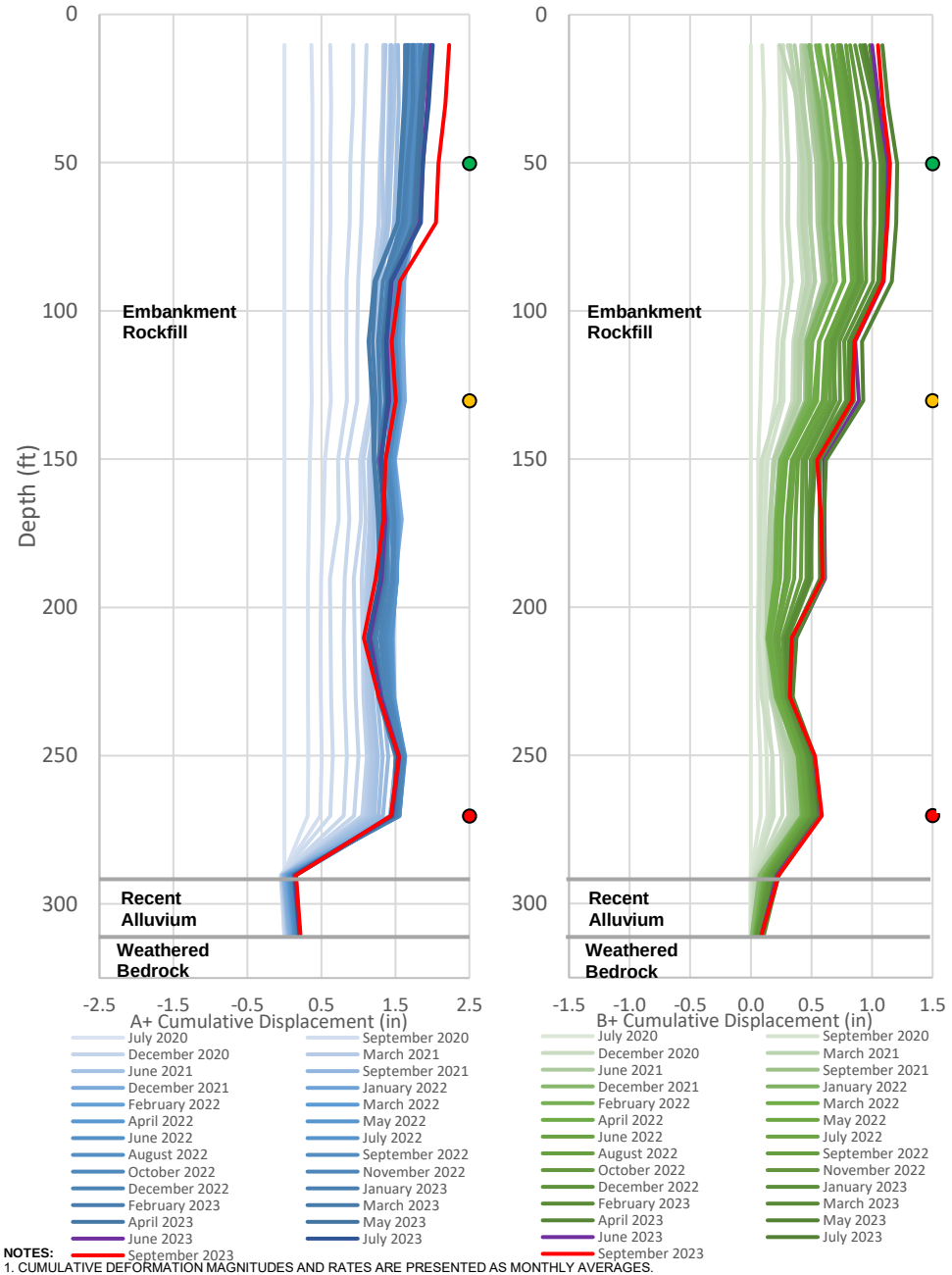
P/A NO. VA101-126/29

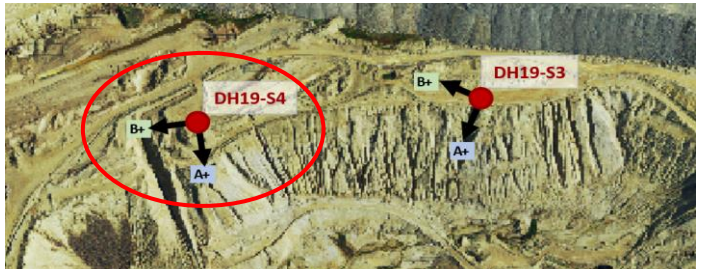
REF. NO. VA23-01703

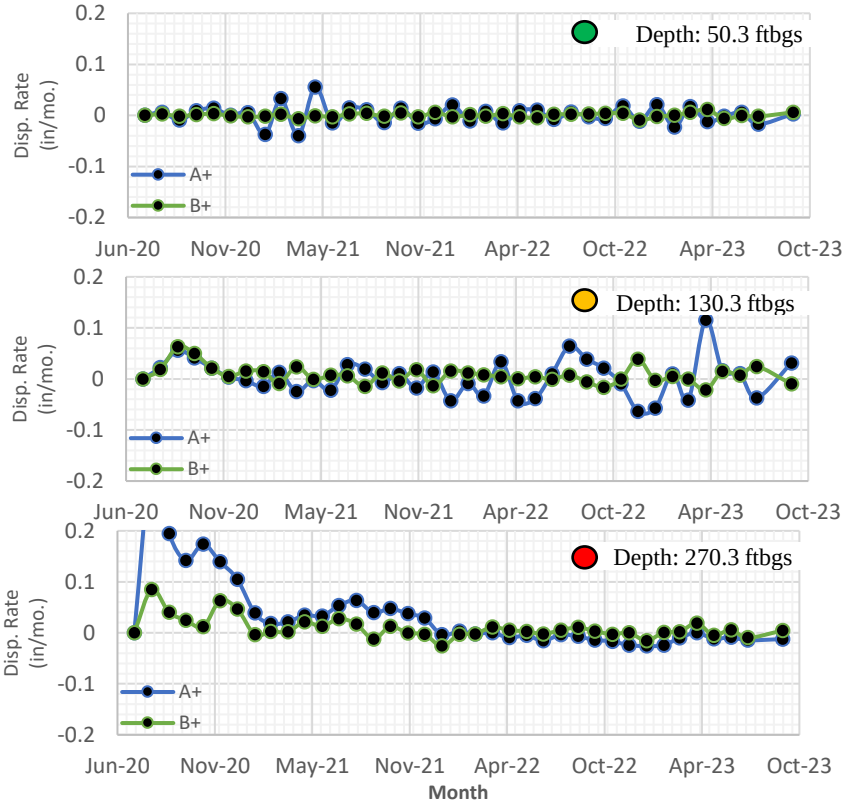
FIGURE B.3

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD







NOTES:
1. CUMULATIVE DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION MAGNITUDE BETWEEN 290 FTBG AND 310 FTBG IS INTEPRETED TO BE AN OVERESTIMATE DUE TO IPI CONNECTING ROD FLEXION.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

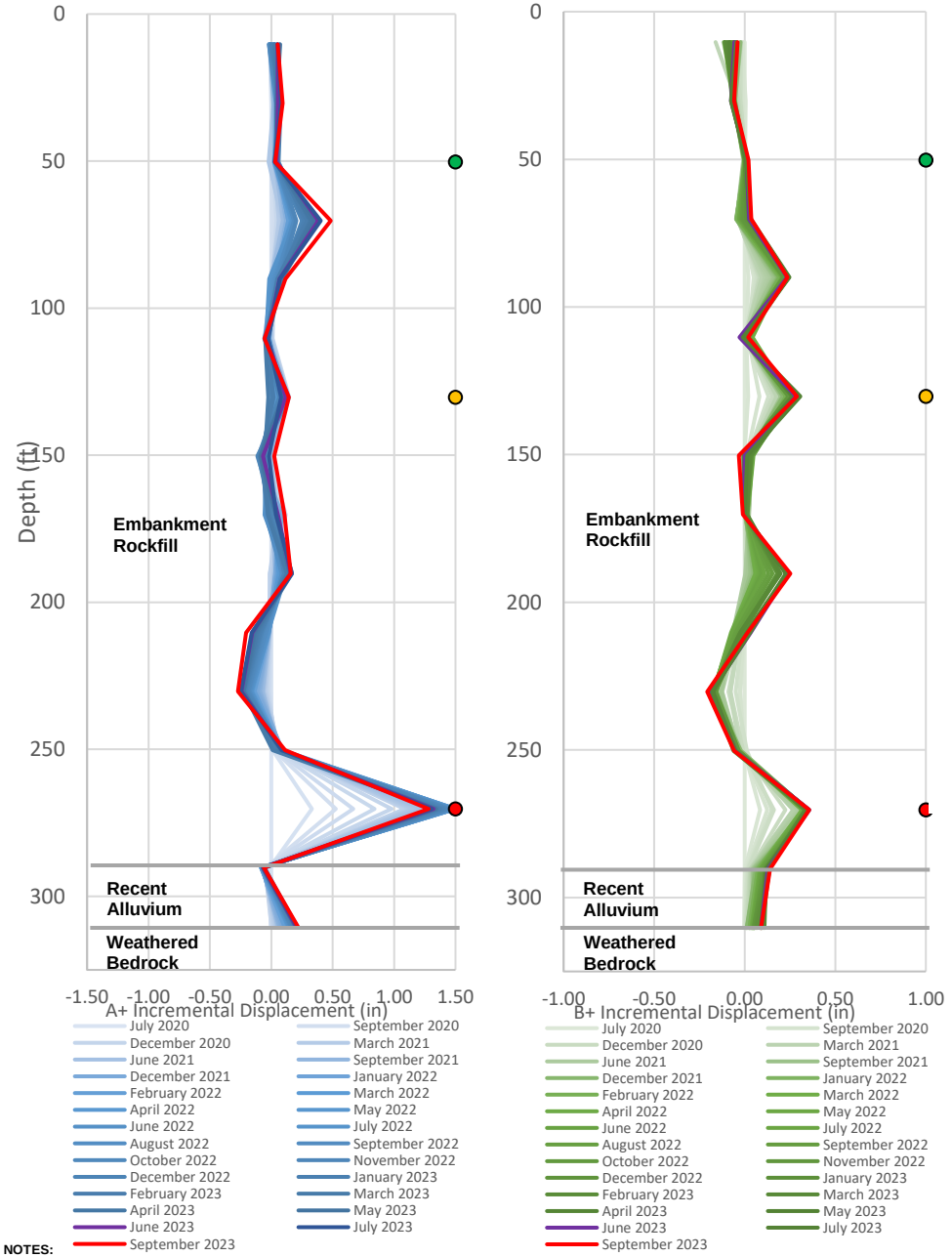
YANKEE DOODLE TAILINGS IMPOUNDMENT

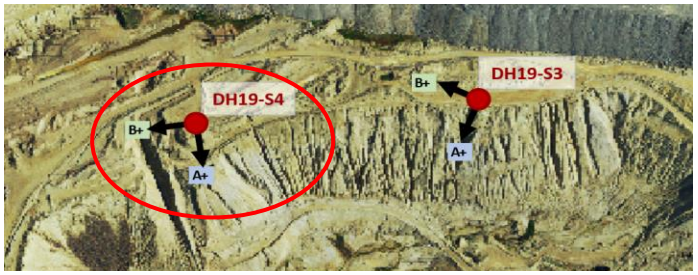
MONTHLY AVERAGE CUMULATIVE SUBSURFACE DEFORMATION DRILLHOLE DH19-S4 (JULY 2020 THROUGH SEPTEMBER 2023)

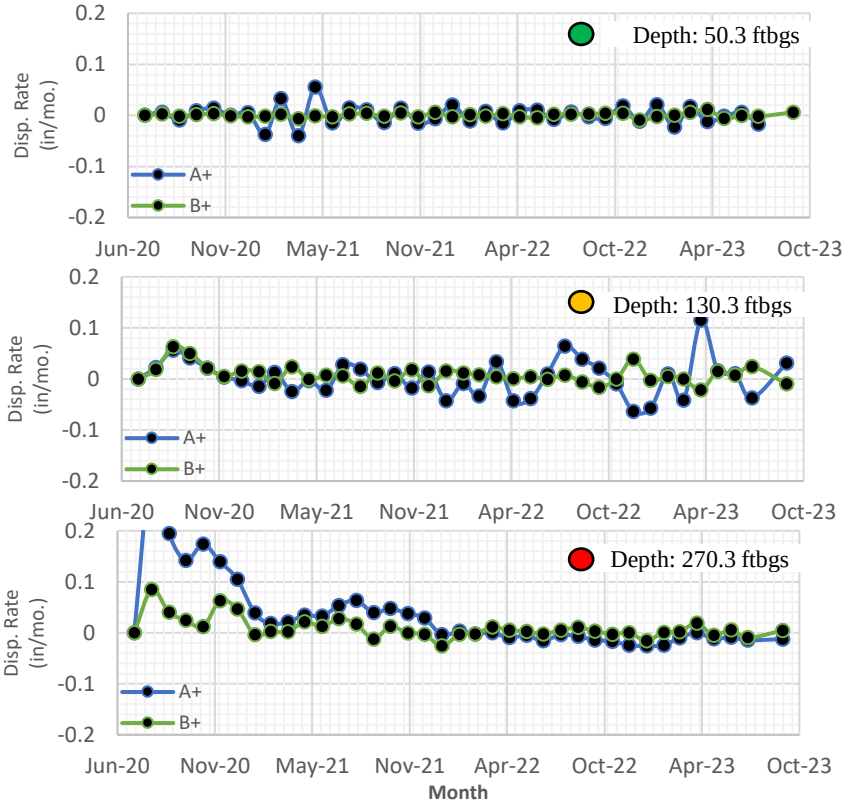
Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/29	VA23-01703

FIGURE B.4 REV 0







NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION MAGNITUDE BETWEEN 250 FTBG TO 290 FTBG IS INTERPRETED TO BE AN OVERESTIMATE DUE TO IPI CONNECTING ROD FLEXION.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH19-S4 (JULY 2020 THROUGH SEPTEMBER 2023)

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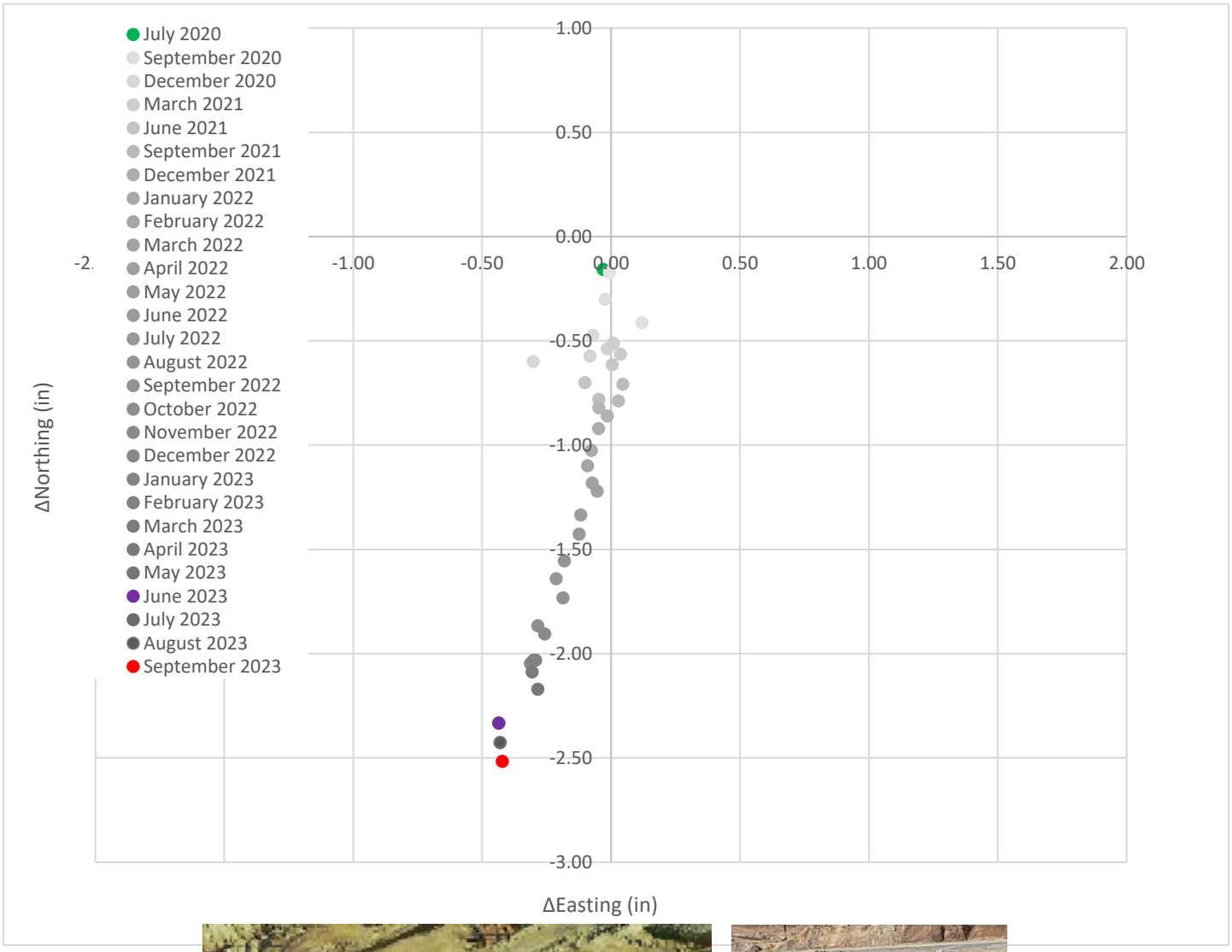
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE B.5

REV 0



NOTES:
1. COLLAR WANDER IS MONITORED USING GNSS INSTRUMENTATION INSTALLED AT THE INCLINOMETER COLLAR LOCATION.
2. THE PLOT ABOVE PRESENTS COLLAR POSITION BASED ON NORTH AND EAST CHANGE RELATIVE TO A JULY 1, 2020 BASELINE GNSS SURVEY.
3. NO DATA ARE AVAILABLE FOR NOVEMBER, 2020 WHILE THE INSTRUMENTATION WAS OFFLINE DUE TO A POWER MANAGEMENT ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S4 GNSS-BASED INCLINOMETER COLLAR WANDER (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

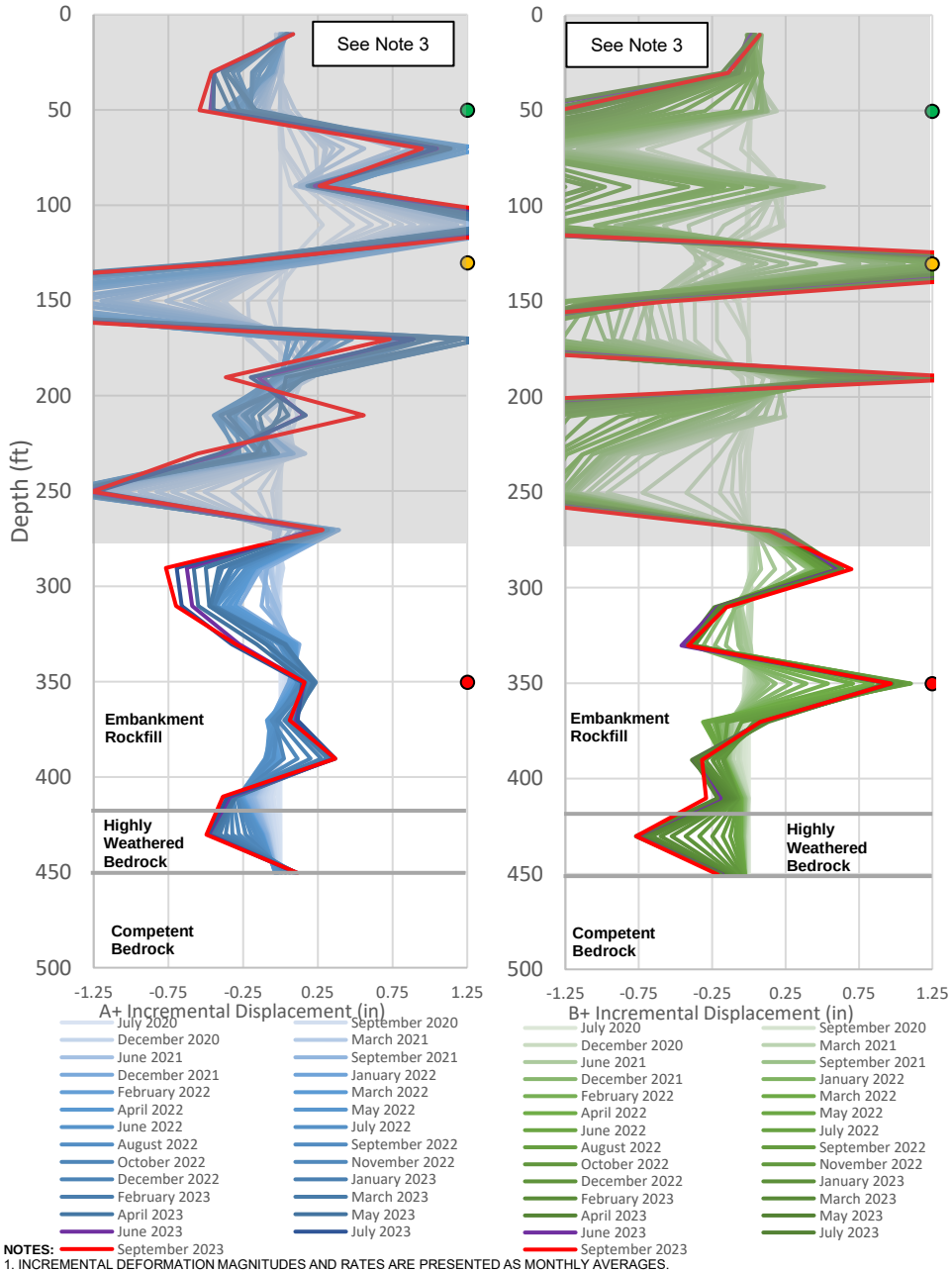
Knight Piésold CONSULTING

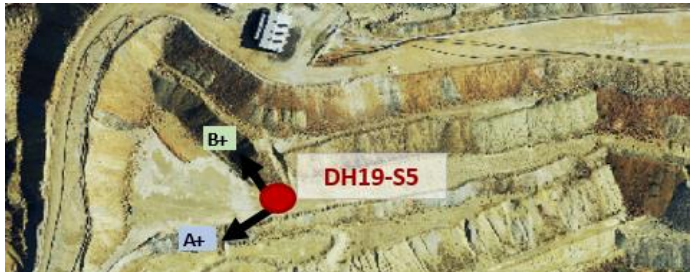
P/A NO. VA101-126/29

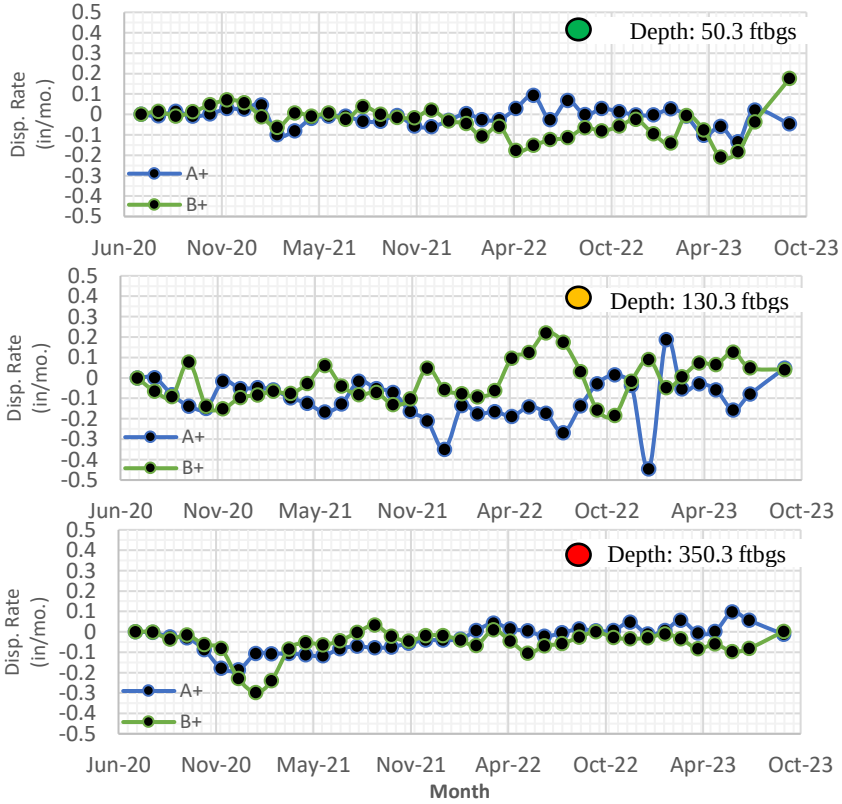
REF. NO. VA23-01703

FIGURE B.6

REV 0







NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION DATA WITHIN THE UPPER 275 FTBG ARE INTERPRETED TO RESULT PREDOMINANTLY FROM SETTLEMENT-DERIVED CASING DISTORTION WITHIN HISTORICALLY LEACHED ROCKFILL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH19-S5 (JULY 2020 THROUGH SEPTEMBER 2023)

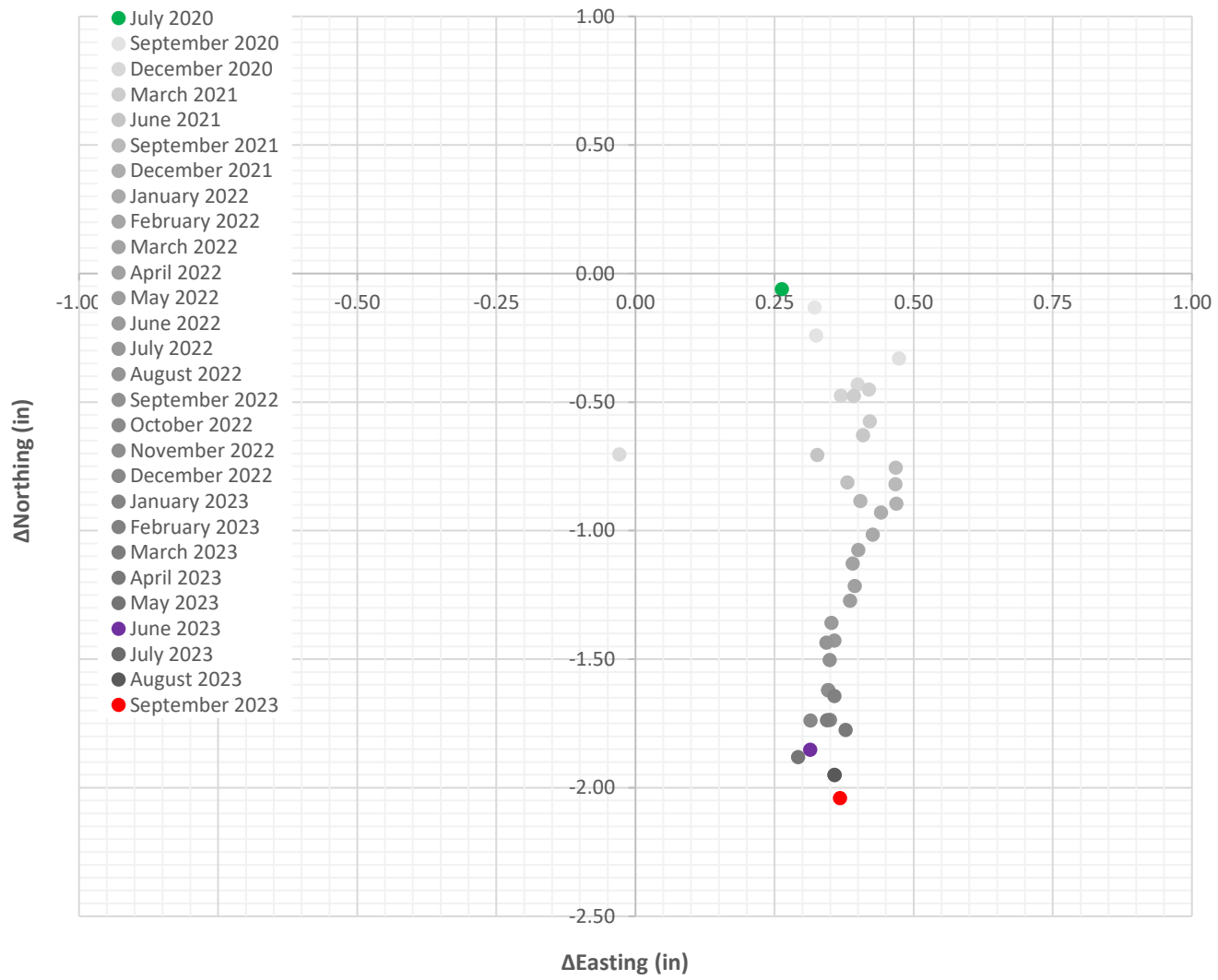
Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE B.7

REV 0



NOTES:
1. COLLAR WANDER IS MONITORED USING GNSS INSTRUMENTATION INSTALLED AT THE INCLINOMETER COLLAR LOCATION.
2. THE PLOT ABOVE PRESENTS COLLAR POSITION BASED ON NORTH AND EAST CHANGE RELATIVE TO A JULY 1, 2020 BASELINE GNSS SURVEY.
3. NO DATA ARE AVAILABLE FOR NOVEMBER, 2020 WHILE THE INSTRUMENTATION WAS OFFLINE DUE TO A POWER

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S5 GNSS-BASED INCLINOMETER COLLAR WANDER (JULY 1, 2020 THROUGH SEPTEMBER 30, 2022)

Knight Piésold CONSULTING

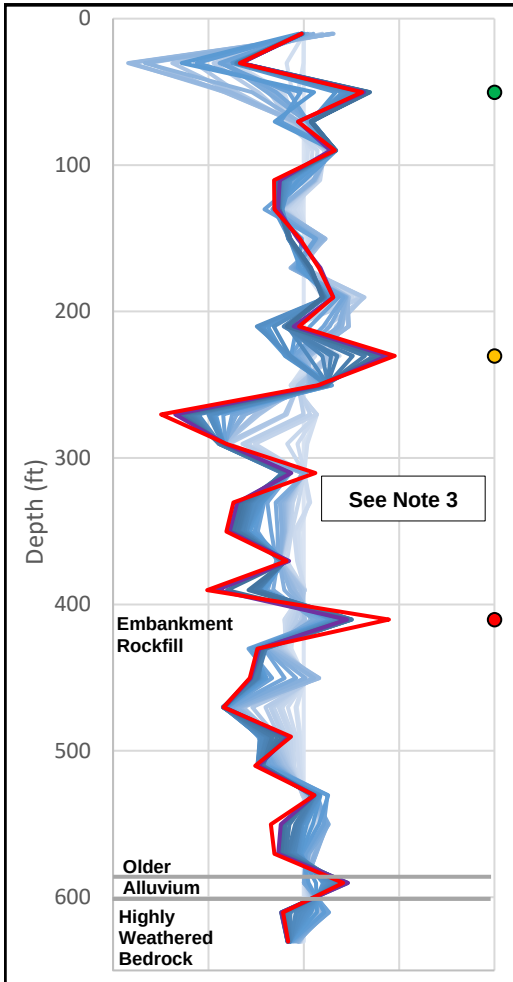
P/A NO. VA101-126/29

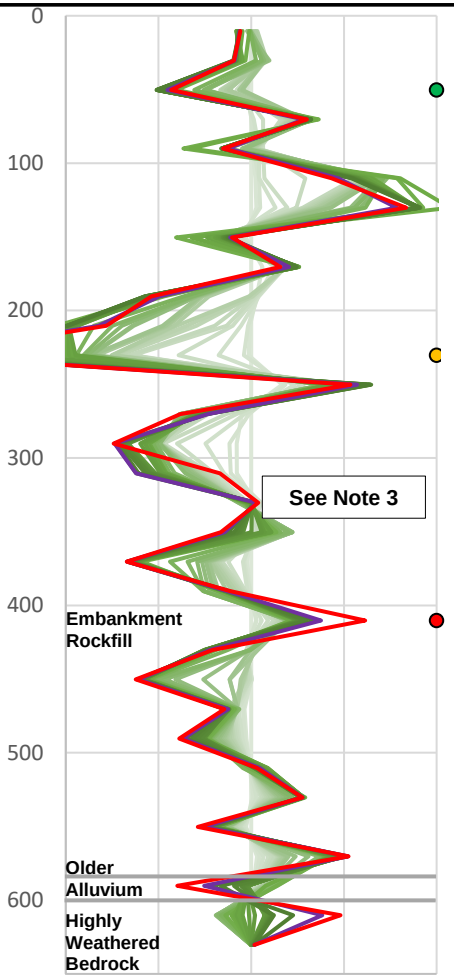
REF. NO. VA23-01703

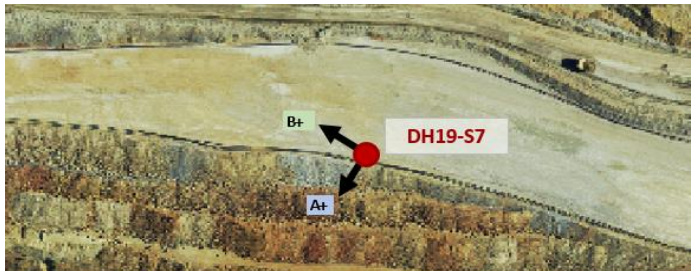
FIGURE B.8

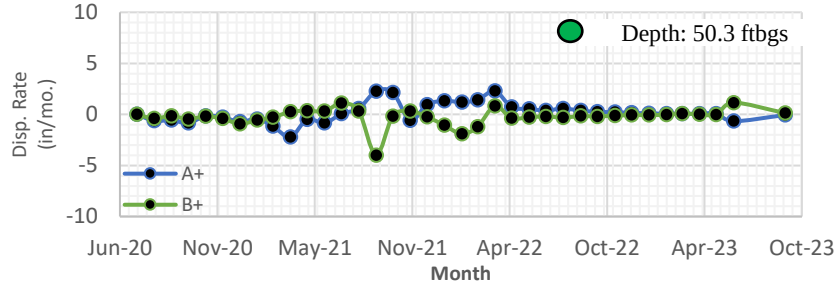
REV 0

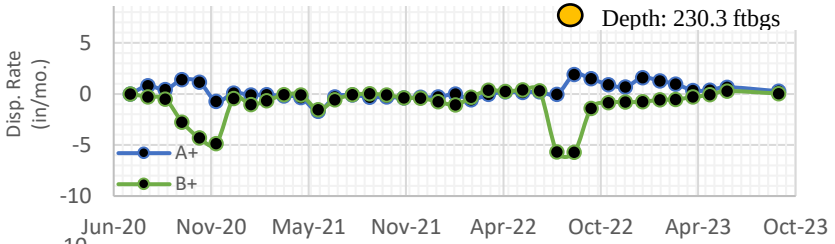
REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD

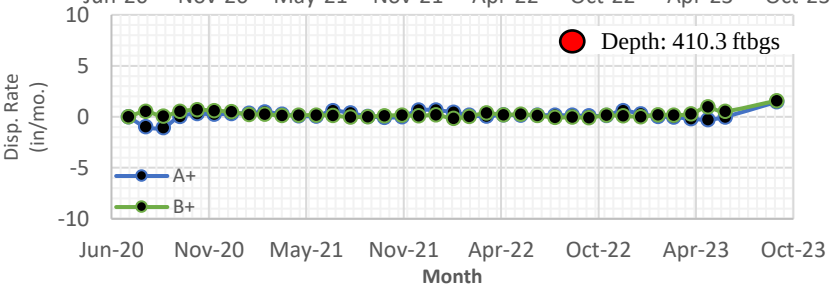












NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION DATA THROUGHOUT THE EMBANKMENT ROCKFILL ARE INTTERPRETED TO RESULT PREDOMINANTLY FROM SETTLEMENT-DERIVED CASING DISTORTION WITHIN THE ROCKFILL AND ARE NOT REPRESENTATIVE OF IN-SITU LATERAL DISPLACEMENT.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH19-S7 (JULY 2020 THROUGH SEPTEMBER 2023)

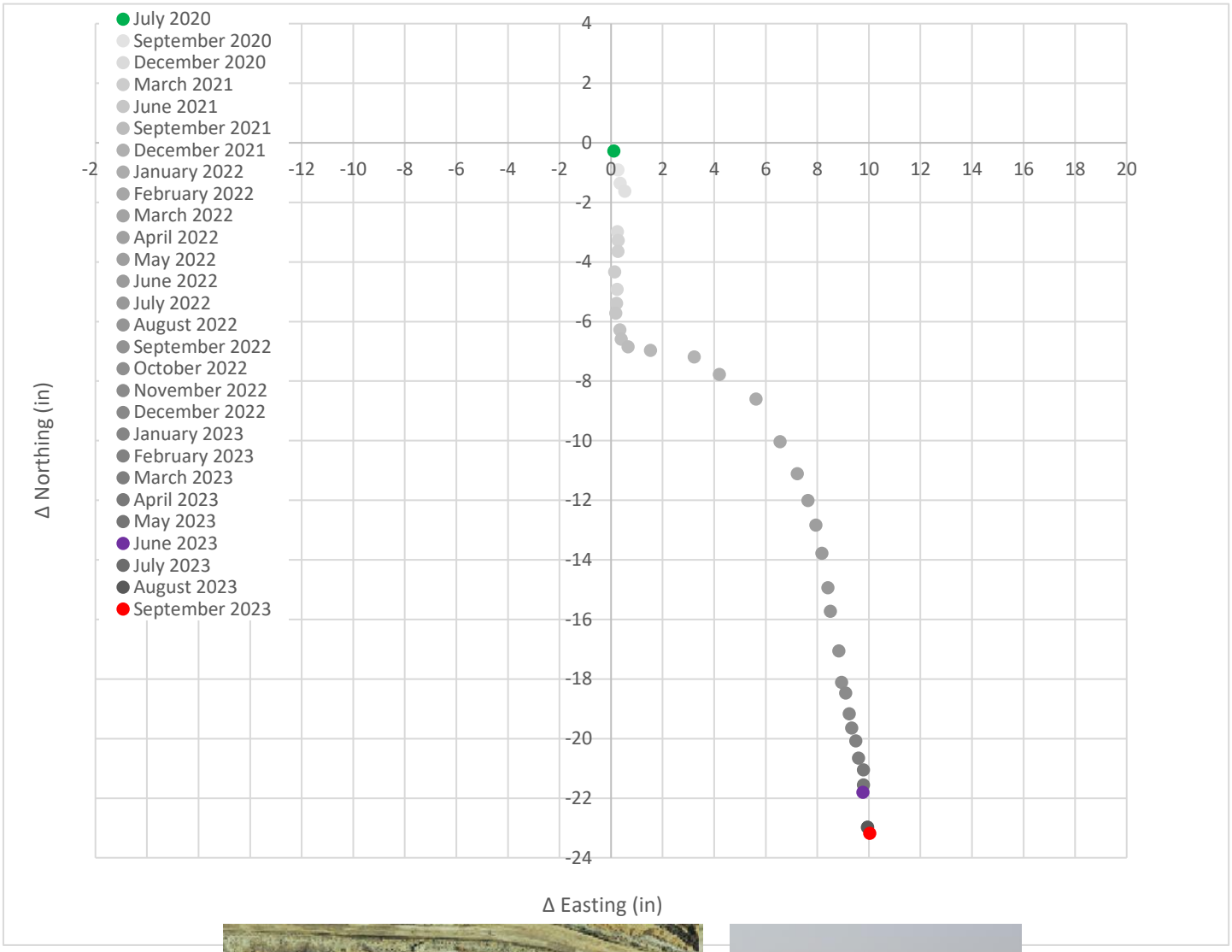
Knight Piésold CONSULTING

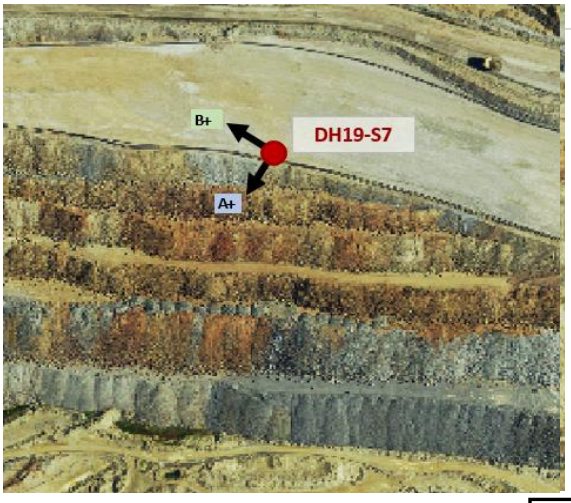
P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE B.9

REV 0





NOTES:
1. COLLAR WANDER IS MONITORED USING GNSS INSTRUMENTATION INSTALLED AT THE INCLINOMETER COLLAR LOCATION.
2. THE PLOT ABOVE PRESENTS COLLAR POSITION BASED ON NORTH AND EAST CHANGE RELATIVE TO A JULY 1, 2020 BASELINE GNSS SURVEY.
3. NO DATA ARE AVAILABLE FOR NOVEMBER, 2020 WHILE THE INSTRUMENTATION WAS OFFLINE DUE TO A POWER MANAGEMENT ISSUE.

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S7 GNSS-BASED INCLINOMETER COLLAR WANDER (JULY 1, 2020 THROUGH SEPTEMBER 30, 2023)

Knight Piésold CONSULTING

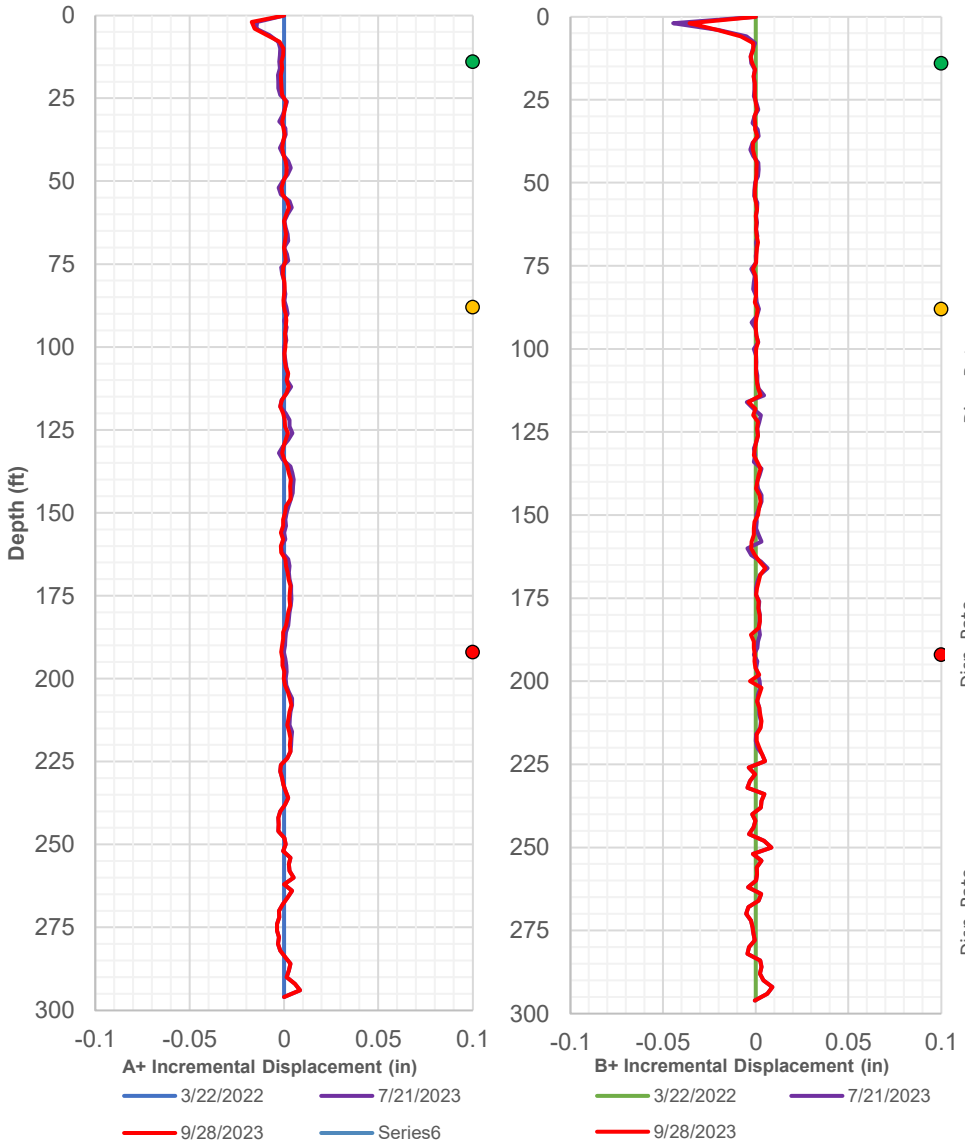
P/A NO. VA101-126/29

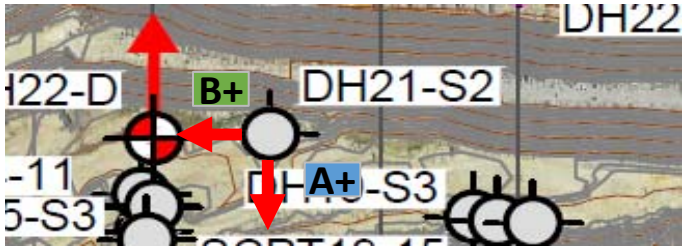
REF. NO. VA23-01703

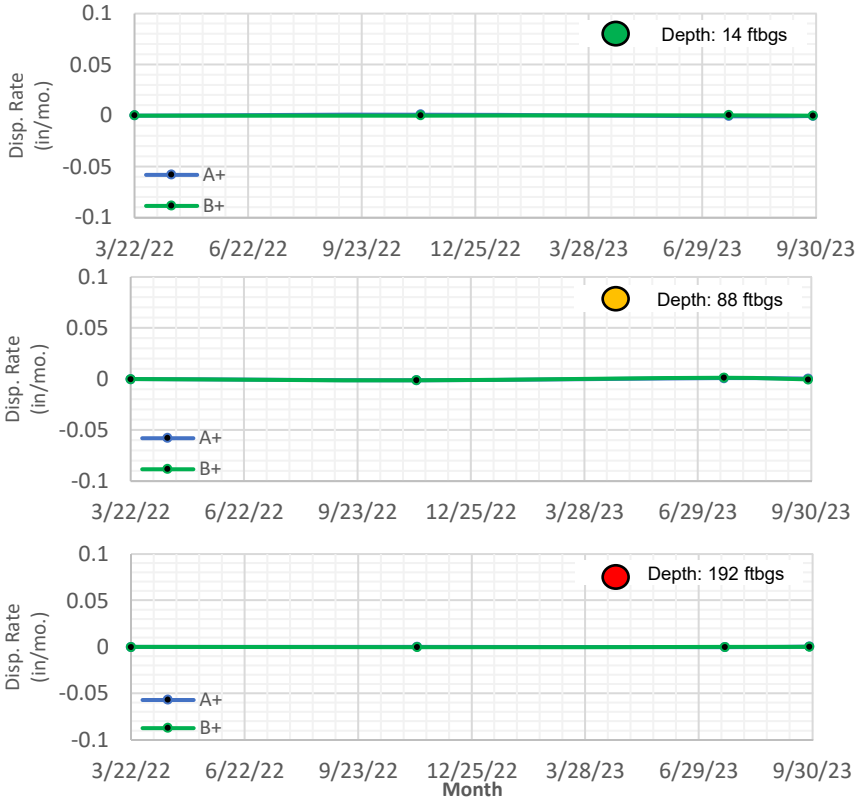
FIGURE B.10

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04OCT'23	ISSUED WITH LETTER	CNN	KTD







NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION DATA WITHIN THE UPPER 275 FTBG ARE INTERPRETED TO RESULT PREDOMINANTLY FROM SETTLEMENT-DERIVED CASING DISTORTION WITHIN HISTORICALLY LEACHED ROCKFILL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH21-S2 (MARCH 2022 THROUGH SEPTEMBER 2023)

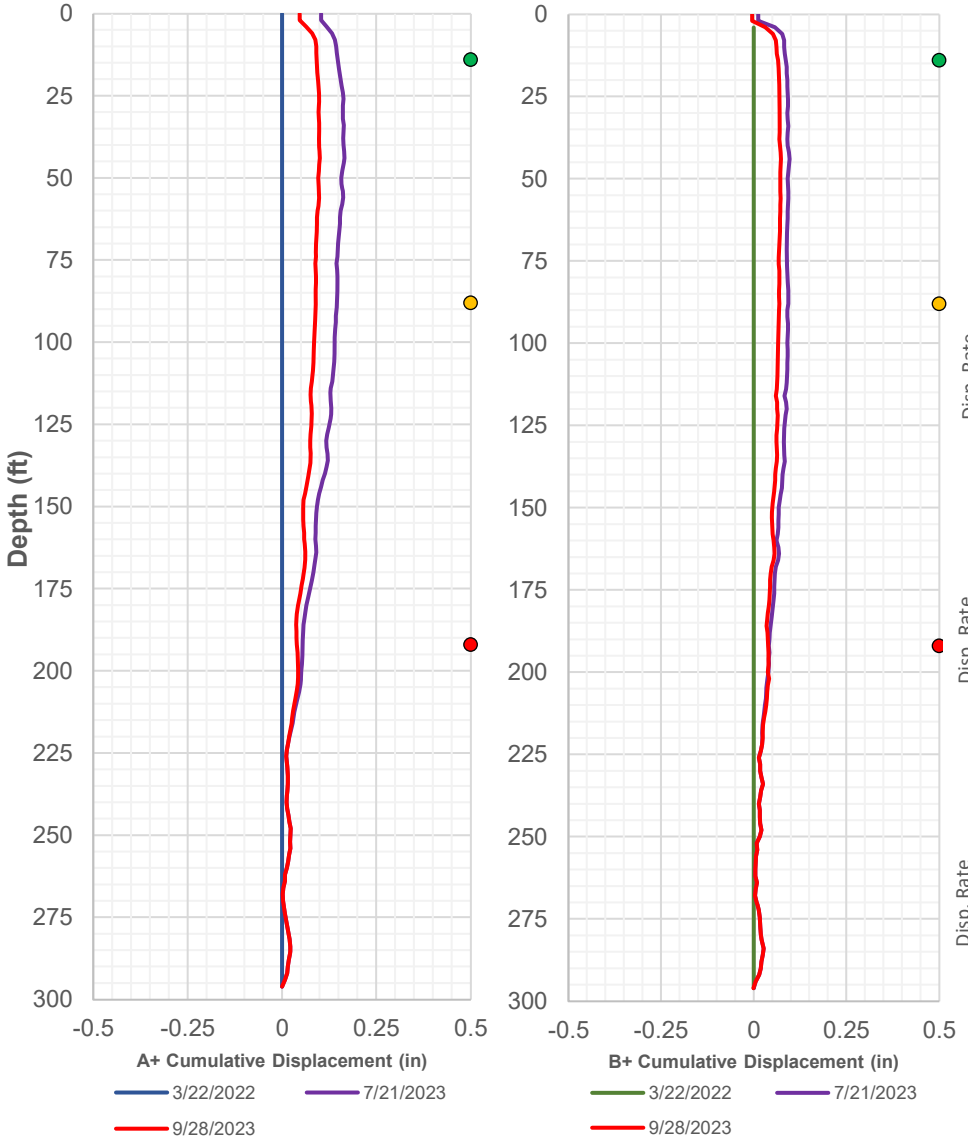
Knight Piésold CONSULTING

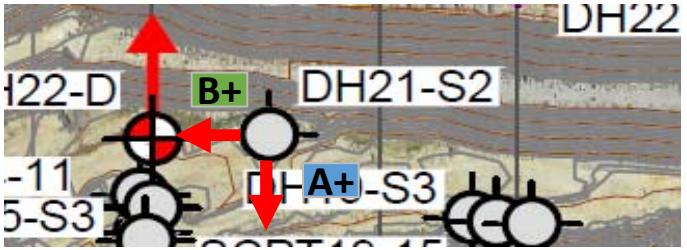
P/A NO. VA101-126/29

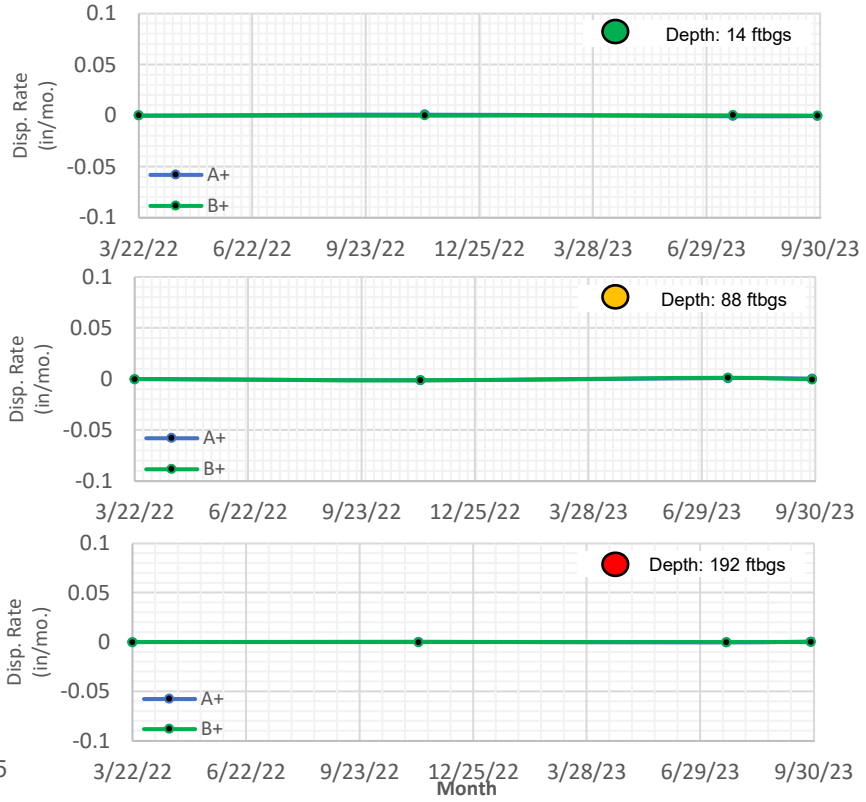
REF. NO. VA23-01703

FIGURE B.11

REV 0







NOTES:
1. CUMULATIVE DEFORMATION MAGNITUDES AND RATES ARE PRESENTED.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.
3. DEFORMATION DATA WITHIN THE UPPER 275 FTBG ARE INTERPRETED TO RESULT PREDOMINANTLY FROM SETTLEMENT-DERIVED CASING DISTORTION WITHIN HISTORICALLY LEACHED ROCKFILL.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE SUBSURFACE DEFORMATION DRILLHOLE DH21-S2 (MARCH 2022 THROUGH SEPTEMBER 2023)

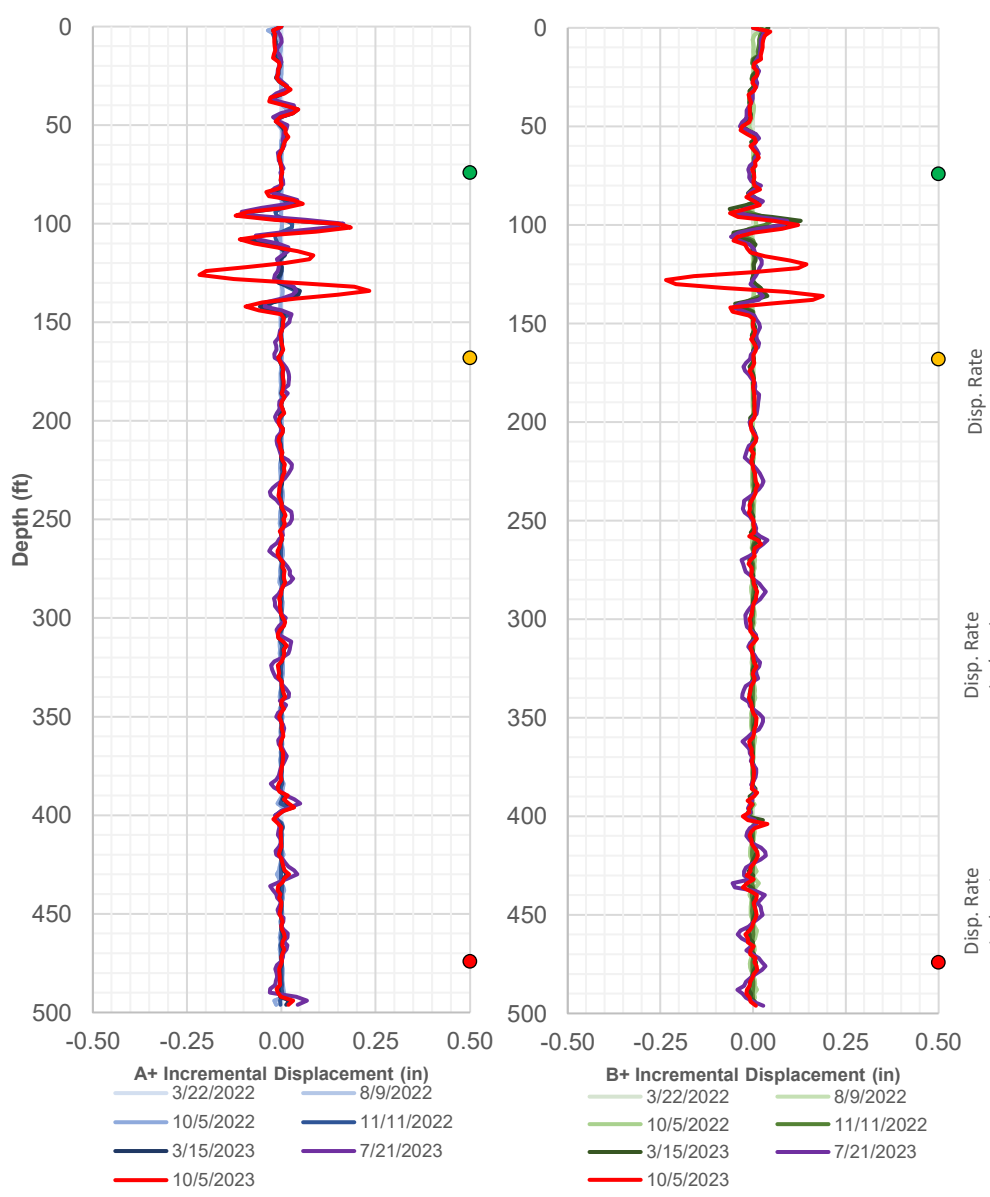
Knight Piésold CONSULTING

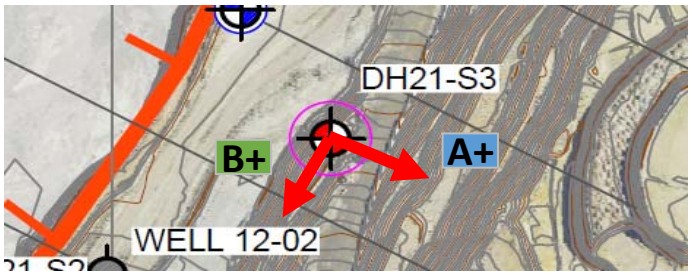
P/A NO. VA101-126/29

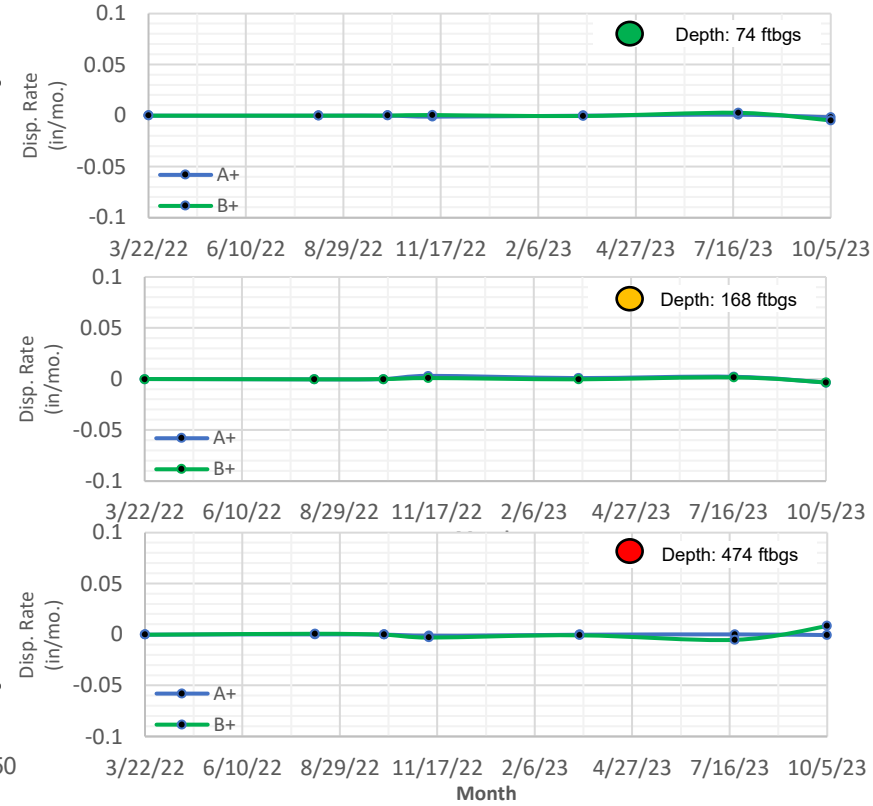
REF. NO. VA23-01703

FIGURE B.12

REV 0







NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHEASTWARD AND SOUTHWESTWARD DISPLACEMENTS, RESPECTIVELY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

INCREMENTAL SUBSURFACE DEFORMATION DRILLHOLE DH21-S3 (MARCH 2022 THROUGH SEPTEMBER 2023)

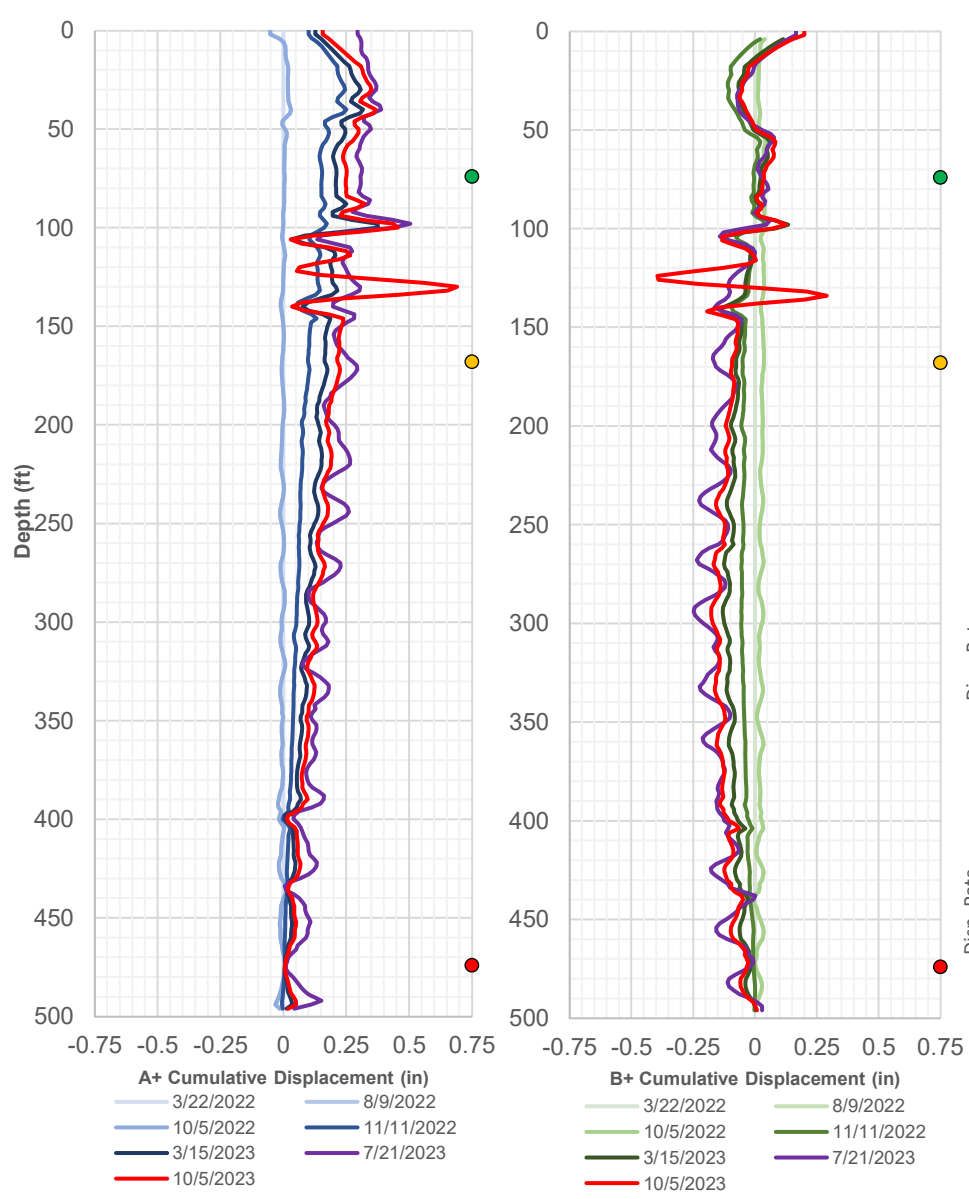
Knight Piésold CONSULTING

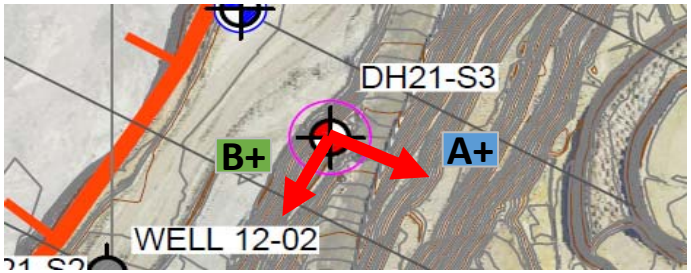
P/A NO. VA101-126/29

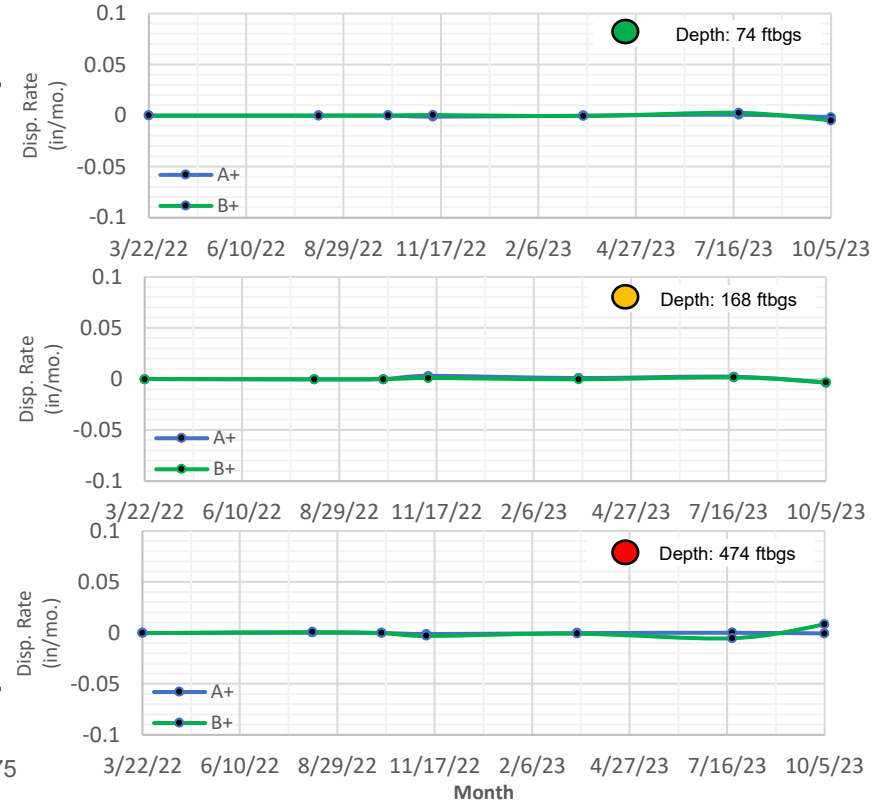
REF. NO. VA23-01703

FIGURE B.13

REV 0







NOTES:
1. CUMULATIVE DEFORMATION MAGNITUDES AND RATES ARE PRESENTED.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHEASTWARD AND SOUTHWESTWARD DISPLACEMENTS, RESPECTIVELY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	06NOV'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE SUBSURFACE DEFORMATION DRILLHOLE DH21-S3 (MARCH 2022 THROUGH SEPTEMBER 2023)

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

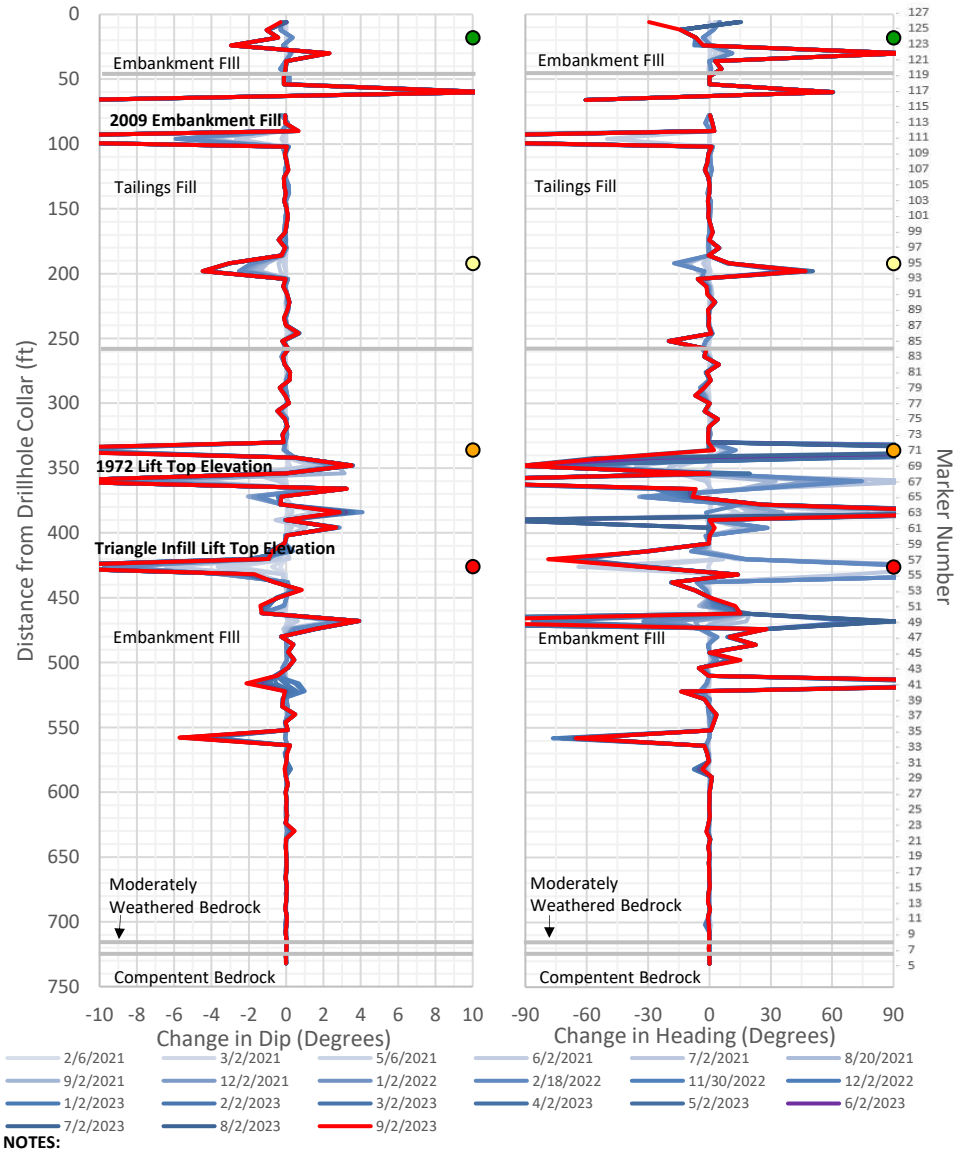
FIGURE B.14

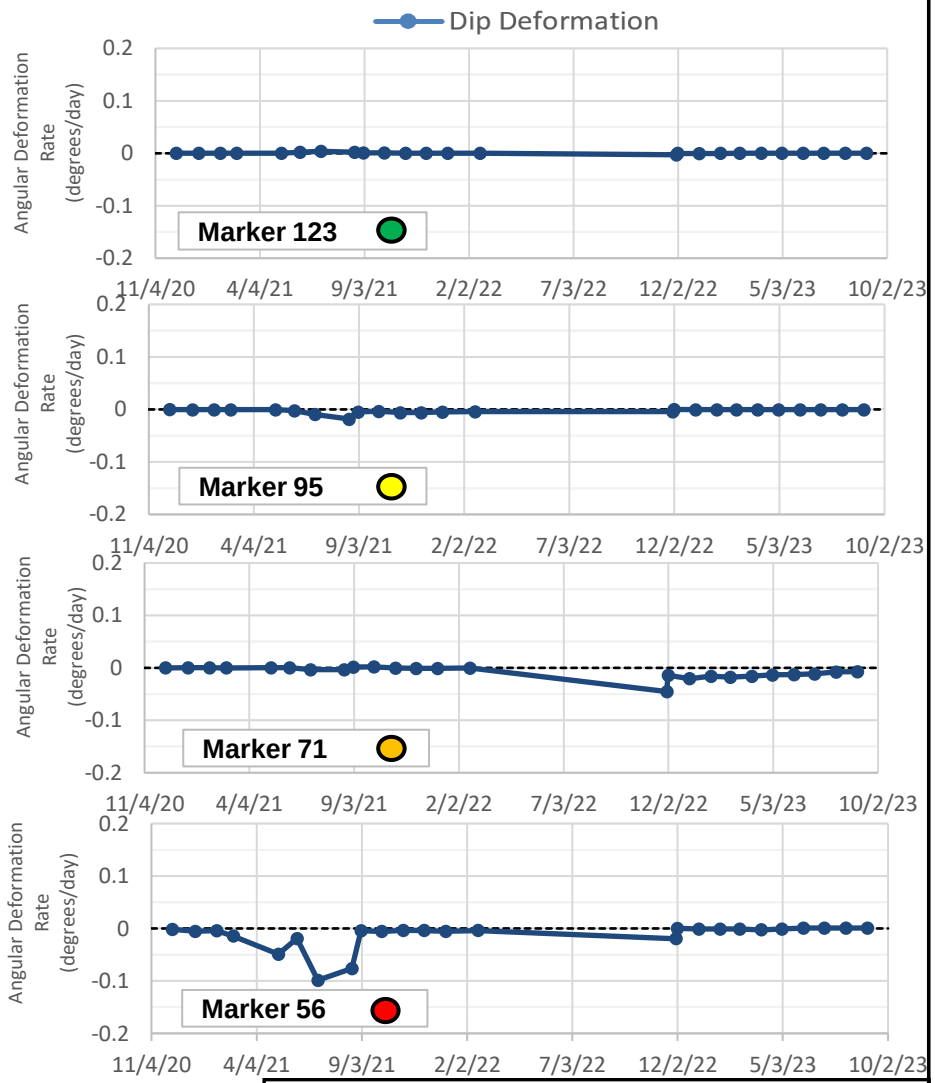
REV 0

APPENDIX C

Geo4Sight Deformation Plots

(Figures C.1 to C.2)





NOTES:

1. MONTHLY AVERAGE DEFORMATIONS ARE PRESENTED AND ARE RELATIVE TO A MONTHLY AVERAGE BASELINE FROM NOVEMBER 24, 2020 TO SEPTEMBER 26, 2023.
2. DIP IS MEASURED FROM THE HORIZONTAL GROUND SURFACE TO THE SENSOR'S Y-AXIS. NEGATIVE CHANGE-IN-DIP INDICATES A STEEPENING SENSOR ORIENTATION.
3. HEADING IS MEASURED CLOCKWISE (CW) FROM THE MAGNETIC NORTHING. POSITIVE CHANGE-IN-HEADING INDICATES CW ANG. DEFORMATION.
4. GEO4SIGHT INSTRUMENTATION IN DH20-S2 WAS OFFLINE BETWEEN MARCH 3 AND NOVEMBER 30, 2022 DUE TO A WATER DAMAGED DATALOGGER.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH20-S2 GEO4SIGHT DIP AND HEADING ANGULAR DEFORMATION MAGNITUDES AND RATES (NOVEMBER 2020 TO SEPTEMBER 2023)

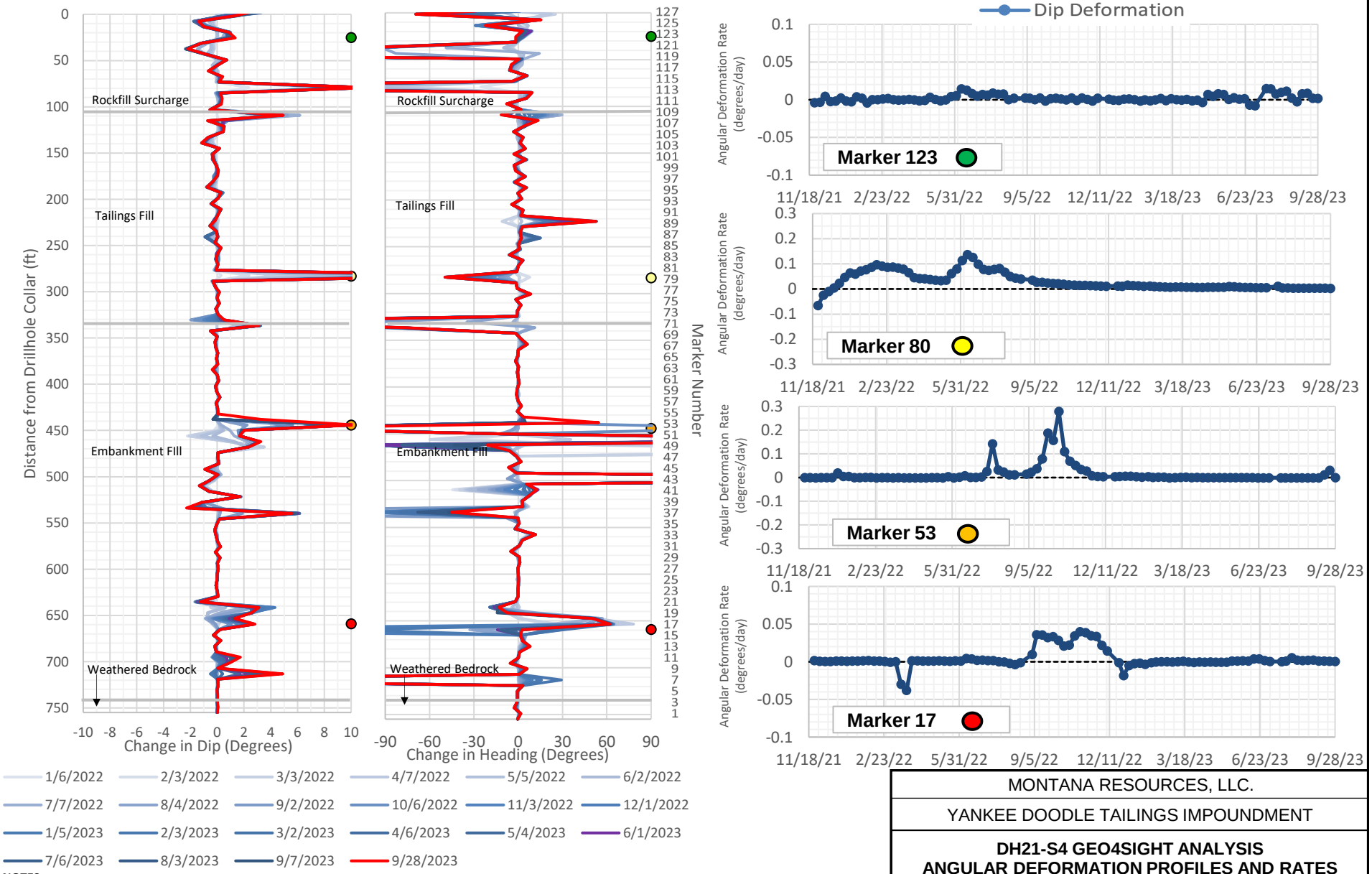
Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

FIGURE C.1

REV 0



NOTES:

1. MONTHLY AVERAGE DEFORMATIONS ARE PRESENTED AND ARE RELATIVE TO A WEEKLY AVERAGE BASELINE FROM NOVEMBER 18, 2021 TO SEPTEMBER 28, 2023.
2. DIP IS MEASURED FROM THE HORIZONTAL GROUND SURFACE TO THE SENSOR'S X-AXIS. NEGATIVE CHANGE-IN-DIP INDICATES A STEEPENING SENSOR ORIENTATION.
3. HEADING IS MEASURED CLOCKWISE (CW) FROM THE MAGNETIC NORTHING. POSITIVE CHANGE-IN-HEADING INDICATES CW ANG. DEFORMATION.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27OCT'23	ISSUED WITH LETTER	CNN	KTD

MONTANA RESOURCES, LLC.

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH21-S4 GEO4SIGHT ANALYSIS
ANGULAR DEFORMATION PROFILES AND RATES
(NOVEMBER 2021 TO SEPTEMBER 2023)

Knight Piésold CONSULTING

P/A NO. VA101-126/29

REF. NO. VA23-01703

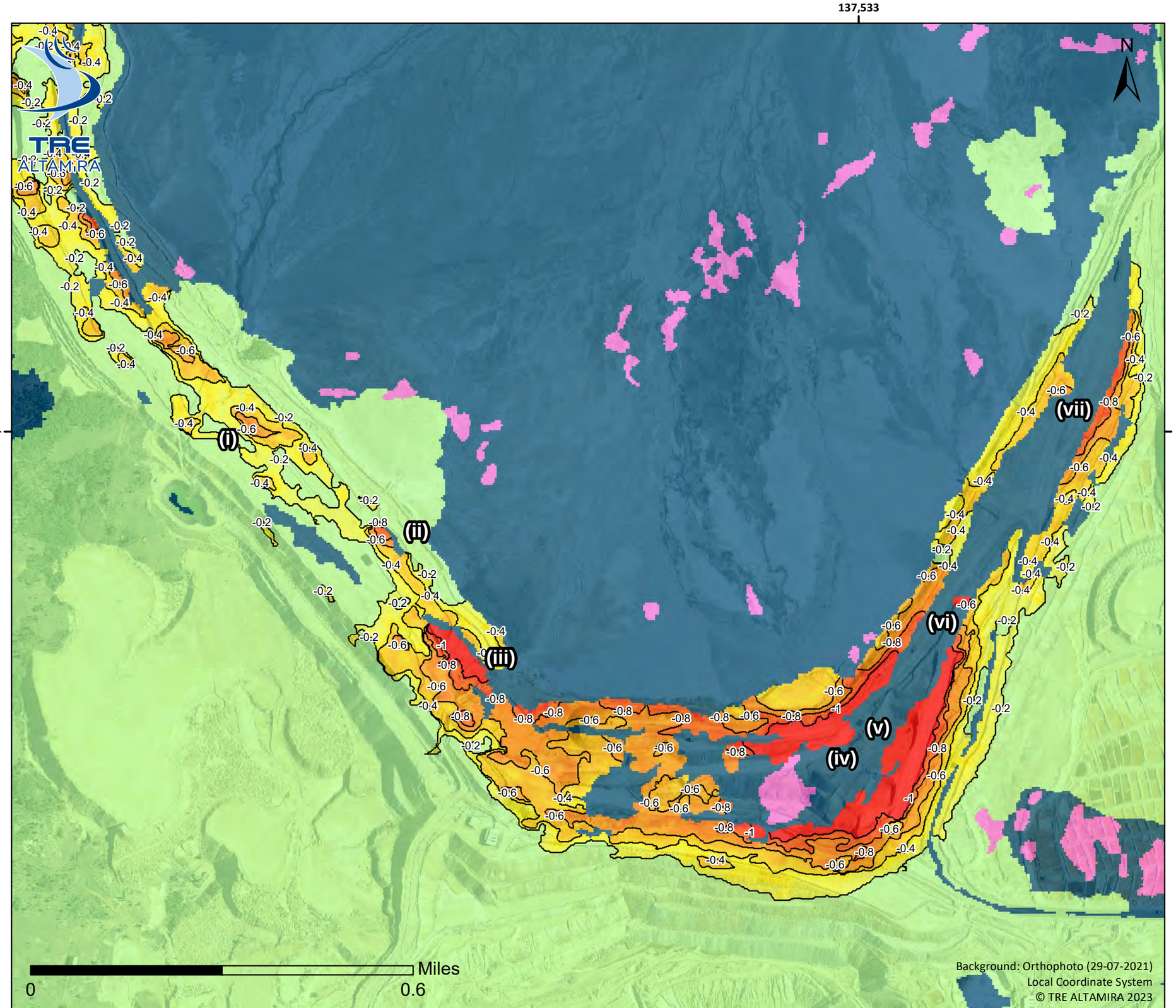
FIGURE C.2

REV 0

APPENDIX D

InSAR Bulletins

(Pages D-1 to D-9)



InSAR Bulletin

Yankee Doodle Tailings Impoundment

14 Jun 2023 - 06 Jul 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.8 inches, **(ii)** -1.0 inches, and **(iii)** -1.5 inches

East-West Embankment Up to **(iv)** -2.2 inches and **(v)** -2.0 inches in the eastern region

East Embankment Up to **(vi)** -1.6 inches in the southern region and **(vii)** up to -1.0 inches in the northern region

PROCESSING DATA

Date range (UTC)	14 Jun 2023 - 06 Jul 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	299 [ft]

LEGEND

LOS Displacement [in]

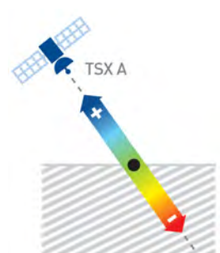
≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

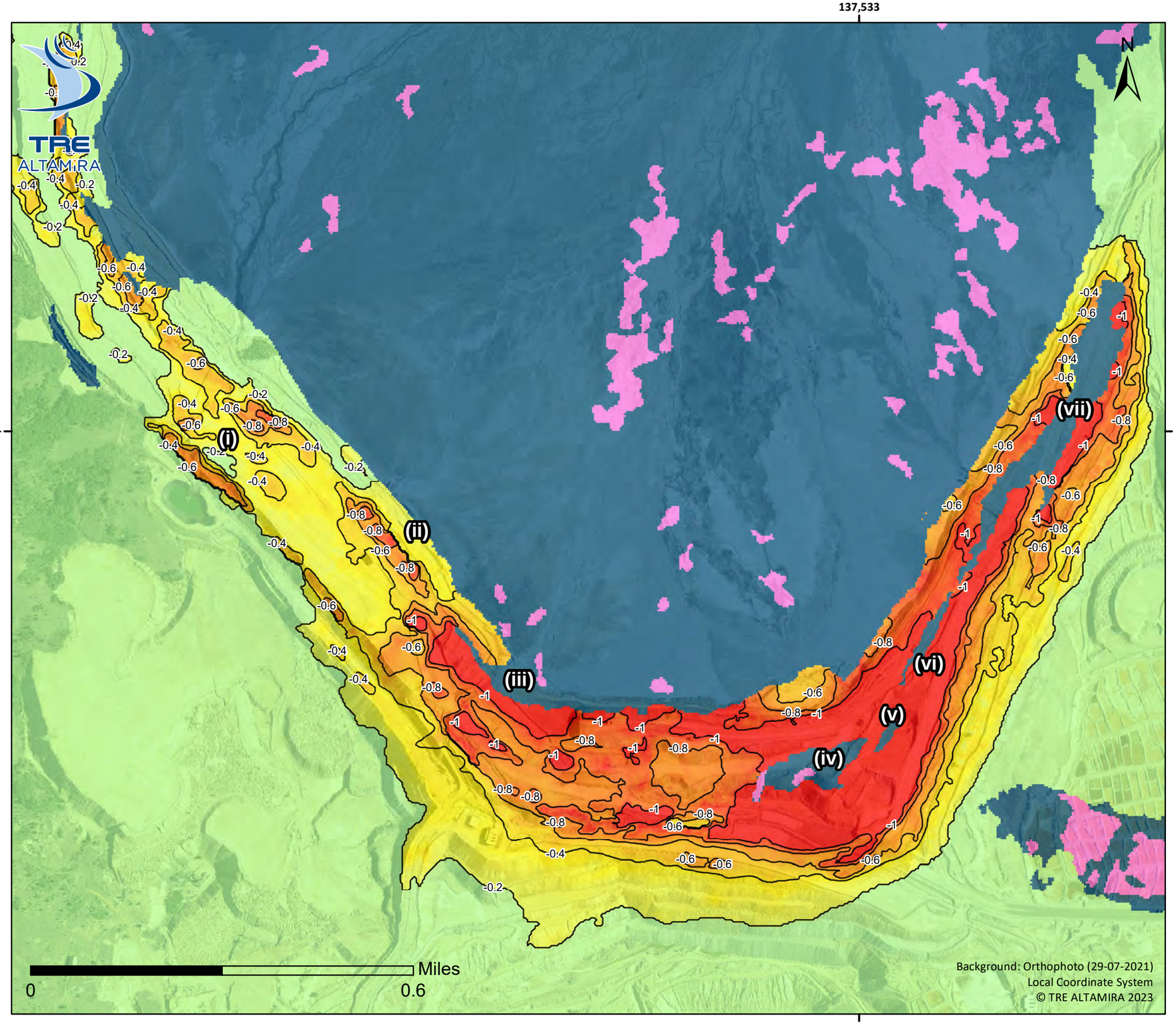
Displacement contour lines

Visibility

- Surface variation
- No Information
- Possible motion

Movement Detection Threshold: ±0.2 in





InSAR Bulletin

Yankee Doodle Tailings Impoundment

25 Jun 2023 - 17 Jul 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -1.0 inches, **(ii)** -1.0 inches, and **(iii)** -1.6 inches

East-West Embankment Up to **(iv)** -3.5 inches and **(v)** -2.0 inches in the eastern region

East Embankment Up to **(vi)** -2.3 inches in the southern region and **(vii)** up to -1.9 inches in the northern region

PROCESSING DATA

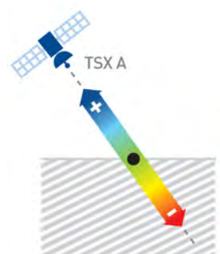
Date range (UTC)	25 Jun 2023 - 17 Jul 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	52 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

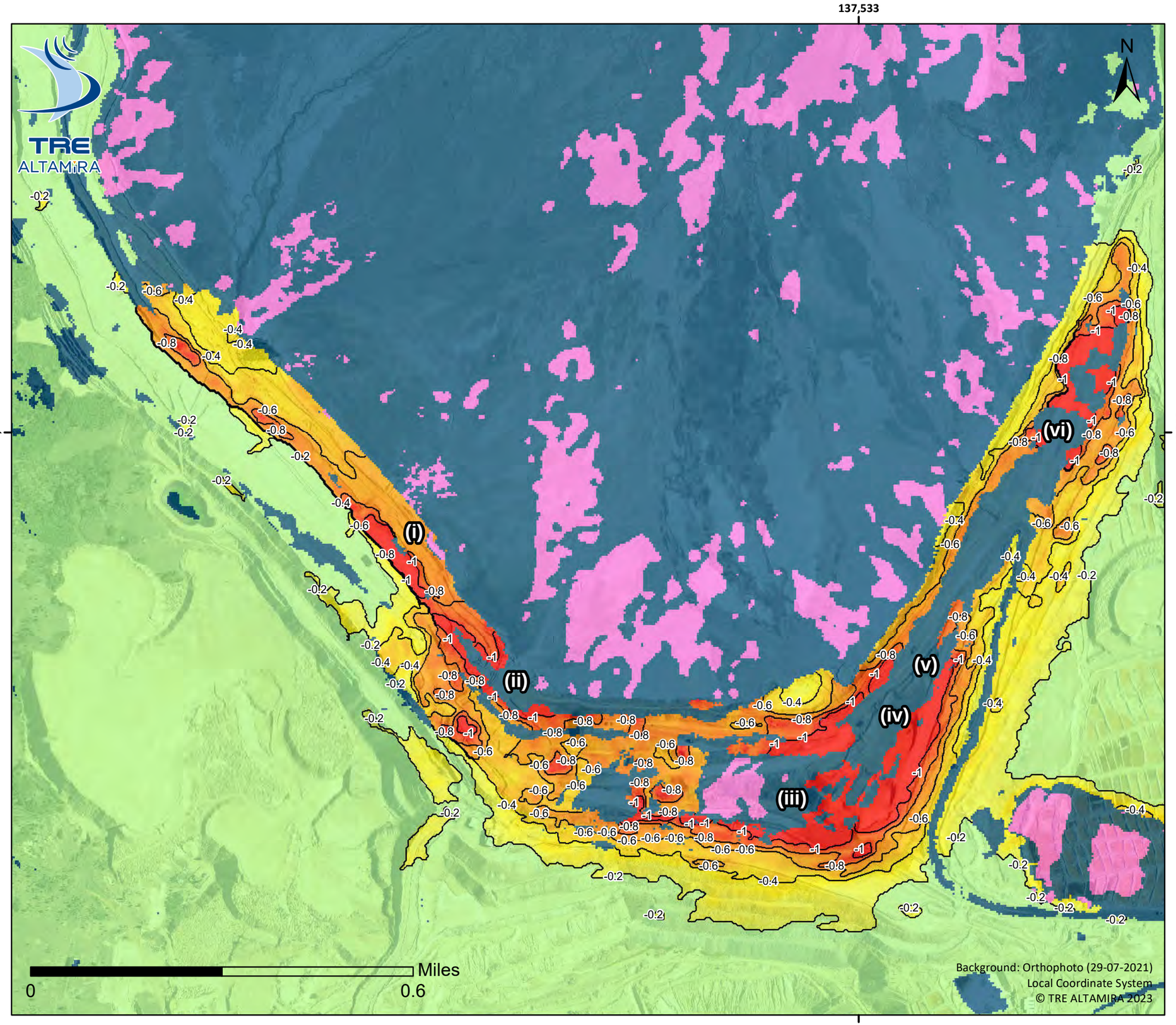
Displacement contour lines



Visibility

- Surface variation
- No Information
- Possible motion

Movement Detection Threshold: ±0.2 in



InSAR Bulletin

Yankee Doodle Tailings Impoundment

06 Jul 2023 - 28 Jul 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -1.0 inches and **(ii)** -1.6 inches

East-West Embankment Up to **(iii)** -2.1 inches and **(iv)** -1.6 inches in the eastern region

East Embankment Up to **(v)** -1.2 inches in the southern region and **(vi)** up to -2.2 inches in the northern region

PROCESSING DATA

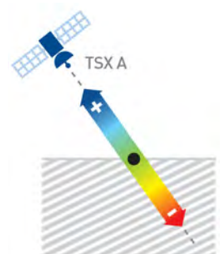
Date range (UTC)	06 Jul 2023 - 28 Jul 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	371 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines



Visibility

- Surface variation
- No Information
- Possible motion

Movement Detection Threshold: ±0.2 in

137,533

143,058

N

(i) (ii) (iii) (iv) (v) (vi)

0 Miles 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System

137,533

InSAR Bulletin

Yankee Doodle Tailings Impoundment

17 Jul 2023 - 08 Aug 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.3 inches

East-West Embankment Up to **(ii)** -1.3 inches and **(iii)** -1.7 inches

East Embankment Up to **(iv)** -2.0 inches, **(v)** -0.8 inches in the southern region and **(vi)** up to -1.6 inches in the northern region

PROCESSING DATA

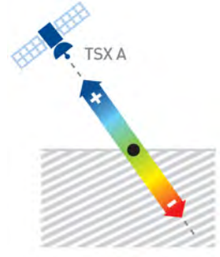
Date range (UTC)	17 Jul 2023 - 08 Aug 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	322 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines



Visibility

- Surface variation
- No Information
- Possible motion

Movement Detection Threshold: ±0.2 in

137,533

143,058

(i) (ii) (iii) (iv) (v) (vi)

N

TRE ALTAMIRA

0 Miles 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System

137,533

InSAR Bulletin

Yankee Doodle Tailings Impoundment

28 Jul 2023 - 19 Aug 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.8 inches

East-West Embankment Up to **(ii)** -0.9 inches, **(iii)** -1.7 inches, and **(iv)** -1.5 inches

East Embankment Up to **(v)** -1.4 inches in the southern region and **(vi)** up to -0.7 inches in the northern region

PROCESSING DATA

Date range (UTC)	28 Jul 2023 - 19 Aug 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	528 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines

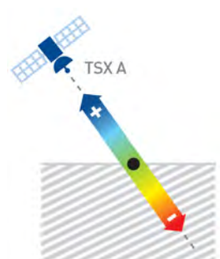
Visibility

Surface variation

No Information

Possible motion

Movement Detection Threshold: ±0.2 in



137,533

143,058

N

(i)

(ii)

(iii)

(iv)

(v)

(vi)

(vii)

(viii)

(ix)

Miles

0 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System

137,533

InSAR Bulletin

Yankee Doodle Tailings Impoundment

08 Aug 2023 - 30 Aug 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.8 inches, **(ii)** -0.9 inches, and **(iii)** -1.2 inches

East-West Embankment Up to **(iv)** -1.3 inches, **(v)** -1.3 inches, and **(vi)** -1.6 inches

East Embankment Up to **(vii)** -1.7 inches in the southern region, **(viii)** up to -1.2 inches and **(ix)** up to -1.6 inches in the northern region

PROCESSING DATA

Date range (UTC)	08 Aug 2023 - 30 Aug 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	52 [ft]

LEGEND

LOS Displacement [in]

≤ -1 -0.5 0 +0.5 ≥ +1

Displacement contour lines

TSX A

Visibility

Surface variation

No Information

Possible motion

Movement Detection Threshold: ±0.2 in

137,533

143,058

N

(i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix)

Miles
0 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System

137,533

143,058

InSAR Bulletin

Yankee Doodle Tailings Impoundment

19 Aug 2023 - 10 Sep 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.7 inches, **(ii)** -0.7 inches, and **(iii)** -0.7 inches

East-West Embankment Up to **(iv)** -1.3 inches, **(v)** -1.3 inches, and **(vi)** -1.1 inches

East Embankment Up to **(vii)** -1.4 inches in the southern region, and **(viii)** up to -1.2 inches, and **(ix)** up to -2.3 inches in the northern region

PROCESSING DATA

Date range (UTC)	19 Aug 2023 - 10 Sep 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	-558 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines

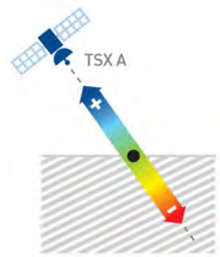
Visibility

Surface variation

No Information

Possible motion

Movement Detection Threshold: ±0.2 in



137,533

143,058

N

(i)

(ii)

(iii)

(iv)

(v)

(vi)

(vii)

(viii)

0 Miles 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System

137,533

InSAR Bulletin

Yankee Doodle Tailings Impoundment

10 Sep 2023 - 02 Oct 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.5 inches, **(ii)** -1.3 inches, and **(iii)** -0.8 inches

East-West Embankment Up to **(iv)** -0.9 inches, **(v)** -1.0 inch, and **(vi)** -1.7 inches

East Embankment Up to **(vii)** -1.3 inches in the southern region, and **(viii)** up to -1.7 inches in the northern region

PROCESSING DATA

Date range (UTC)	10 Sep 2023 - 02 Oct 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	39 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines

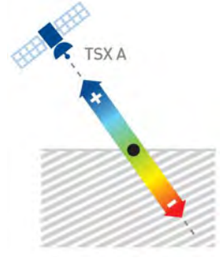
Visibility

Surface variation

No Information

Possible motion

Movement Detection Threshold: ±0.2 in



137,533

143,058

143,058

137,533

N

(i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix) (x)

Miles

0 0.6

Background: Orthophoto (29-07-2021)
Local Coordinate System
© TRE ALTAMIRA 2023

InSAR Bulletin

Yankee Doodle Tailings Impoundment

21 Sep 2023 - 13 Oct 2023

COMMENTS

Main areas of movement detected during the current 22-day period:

West Embankment Up to **(i)** -0.5 inches, and **(ii)** -1.3 inches

East-West Embankment Up to **(iii)** -1.1 inches, **(iv)** -1.5 inches, **(v)** -1.3 inches, and **(vi)** -1.8 inches

East Embankment Up to **(vii)** -2.4 inches in the southern region, **(viii)** -1.3 inches, **(ix)** -1.7 inches, and **(x)** up to -1.4 inches in the northern region

Further possible motion observed

PROCESSING DATA

Date range (UTC)	21 Sep 2023 - 13 Oct 2023
Interval	22 days
Satellite (resolution)	TSX (10x10 ft)
Orbit (angle)	Ascending (θ=29°)
Normal Baseline	-256 [ft]

LEGEND

LOS Displacement [in]

≤ -1 | -0.5 | 0 | +0.5 | ≥ +1

Displacement contour lines

Visibility

Surface variation

No Information

Possible motion

Movement Detection Threshold: ±0.2 in