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YANKEE DOODLE TAILINGS IMPOUNDMENT
2020 DATA ANALYSIS REPORT

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Knight Piésold CONSULTING

EXECUTIVE SUMMARY

Montana Resources, LLP (MR) operates an open pit copper-molybdenum mine adjacent to the city of Butte, in Silver Bow County, Montana. MR has owned and operated the mine since the 1980's and is currently mining the Continental Pit at a nominal Concentrator throughput rate of approximately 49,000 tons per day. Tailings produced from ore processing are stored in the Yankee Doodle Tailings Impoundment (YDTI). The YDTI was originally constructed in 1963 and the embankments have been continuously constructed using rockfill from the Berkeley Pit (until 1982) and from the Continental Pit (beginning in 1986). The YDTI comprises a valley-fill style impoundment created by a continuous rockfill embankment that, for descriptive purposes, is divided into three sections: the North-South Embankment, the East-West Embankment, and the West Embankment.

This Data Analysis Report (DAR) was prepared by Knight Piésold Ltd. (KP) and provides supplemental information related to the monitoring and performance of the YDTI for the 2020 calendar year to be considered in conjunction with observations made by Mr. Allen Gipson (P.E. in Colorado and Wyoming) during the annual inspection, which occurred on October 15, 2020. Mr. Gipson completed the annual inspection on behalf of Mr. Ken Brouwer, P.E., the Engineer of Record (EOR), due to travel restrictions associated with the COVID-19 pandemic. The DAR includes the following items:

- A description of the 2020 construction activities providing context for interpretation of the monitoring and performance data.
- A description of the 2020 tailings and water management monitoring activities and data.
- A description and interpretation of the 2020 piezometric and embankment deformation instrumentation and monitoring data.

Embankment construction is a continuous process for the YDTI. KP typically conducts quarterly construction field reviews of the impoundment to observe construction progress, discuss construction practices, and provide recommendations for priority actions. Construction of the downstream step-out of the North-South Embankment was largely completed to EL. 6,400 ft in 2020 with the exception on the southern end where deactivation of the current mine haul ramp is required prior to advancing construction further. Fill placement for the EL. 6,450 ft embankment lift was advanced and realignment of the new pipeline ramp was completed along the East-West Embankment in 2020. Construction completion of the EL. 6,400 ft lift and commencement of EL. 6,450 ft lift construction occurred along the West Embankment in 2020. Construction of the EL. 6,450 ft lift commenced in Q2 and continued throughout 2020.

Tailings discharge practices throughout 2020 continued to focus on maintaining extensive tailings beaches adjacent to all three of the embankments. A new discharge location, NS-4, was added at the northern end of the North-South Embankment in August 2020. There are currently ten tailings discharge locations. The beach surveys and aerial photography indicate that the YDTI beach is transitioning from a deltaic fan shape to a 'U-shape' following the changes to the tailings discharge practices initiated in 2016.

The estimated supernatant pond volume from the 2020 bathymetric survey was approximately 32,100 acre-ft, which is 7% (2,300 acre-ft) smaller than the volume estimated in 2019. This decrease was largely attributed to operation of the Berkeley Pit Pilot Project (the Pilot Project), which was developed as part of the Superfund Butte Mine Flooding Operable Unit (BMFOU) activities on site.

MR committed to reducing (starting in Q4 2020) and eventually ceasing recirculation of flows from the Precipitation Plant to the rock disposal sites (RDSs) directly adjacent to the YDTI embankments over the next several years. This activity is aligned with the recommendations of the 2020 EOR Annual Inspection Report (KP, 2021). Flows through the Precipitation Plant overflow weir and HsB Weir are therefore expected to increase for a short period due to this commitment.

Pore water pressures within the YDTI embankments/foundations, tailings mass and areas surrounding the facility (i.e. Horseshoe Bend Area, West Ridge) continue to be regularly monitored and reviewed by KP and MR. Selected YDTI piezometric monitoring sites have been assigned piezometric 'trigger elevation' thresholds as Quantitative Performance Parameters (QPP) in the TOMS Manual to facilitate rapid assessment of YDTI performance. No exceedances of the QPP specified piezometric 'trigger elevations' occurred in 2020. Key piezometric trends and conditions observed during 2020 include:

- Piezometric conditions within the basal embankment rockfill of the East-West Embankment Central Pedestal Area (between Section 0+00 and 12+00W, inclusive) generally exhibited slightly decreasing basal piezometric elevations throughout 2020, continuing the trend observed from 2017 through to 2019.The magnitude of basal pore pressure decrease observed in 2020 was less than monitored in 2019, suggesting that conditions continued to stabilize. The majority of the piezometric monitoring sites in this area showed stable conditions during Q4 2020.
- Piezometric monitoring sites within the embankment rockfill at the North-South Embankment have previously indicated stable or increasing piezometric elevations since 2017 and this trend generally continued through 2020.
- Piezometric elevations monitored within the West Embankment foundation, Drain Pods and Extraction Basin generally monitored stable conditions during 2019 and 2020, following a multiple year increase. This stabilization illustrates the draining influence of the WED on pore pressures beneath the West Embankment.
- Piezometric elevations within the tailings beach upstream of the East-West Embankment observed a minor increase (between 1 and approximately 10 ft) during 2020 following the gradual decreasing trend observed since 2017. Pore water pressures upstream of the Central Pedestal Area remain well below conditions monitored prior to implementation of multiple-point tailings discharge in late 2016.
- Piezometric monitoring between the West Embankment and West Ridge continues to indicate that hydrodynamic containment (eastward flow gradient from the West Ridge towards the YDTI) remains present as of December 31, 2020 within both critical monitoring areas (the Deep Isolated Fracture System and West Ridge Potentiometric Low). Comparison of West Ridge piezometric data and YDTI pond elevation indicates that the WED is not presently required to maintain hydrodynamic containment; however, it does enhance the security of the hydrodynamic seepage containment system along the West Ridge.

MR and KP commenced an embankment deformation monitoring program with data collection beginning in 2019 and 2020 to characterize and monitor surface and subsurface deformations using in-situ instrumentation and satellite-based remote sensing. Data from instrumentation sites (GNSS and inclinometers) are available via the RMS and inSAR remote-sensing data are reported by the service provider twice per year. KP plans to evaluate and present available deformation data on a quarterly basis during 2021. The TOMS Manual does not currently include deformation based QPPs; however, these will be considered for future revisions. An overview of the surface and subsurface deformation monitoring programs and key findings from 2020 are presented in the following sections. Key deformation monitoring trends from 2020 include:

- Surface deformation data from the East-West Embankment central pedestal area (between Section 0+00 and 12+00W, inclusive) generally indicate the occurrence of settlement and downslope (southward) creep at relatively constant rates. The highest deformation rates are present within recently placed rockfill material of the relocated central tailings pipeline ramp with relatively low and moderate deformations observed within historical rockfill and the rockfill surcharge area (rockfill overlying tailings upstream of the embankment crest), respectively. No progressive (accelerating) surface deformations were observed during 2020.
- Surface deformations observed throughout the North-South Embankment indicate relatively high settlement and downslope (eastward) creep magnitudes associated with recent rockfill placement during step-out construction. No progressive (accelerating) deformations were observed during 2020. The average vertical deformation rates (settlements) of the recently constructed step-out lifts ranged between 4 and 10 in/yr, as of October 2020, with higher rates (10 in/yr) observed in the most recent El. 6,350 ft lift with sequentially lower deformations observed within the El. 6,300 ft (6 in/yr) and El. 6,250 ft (4 in/year) lifts. Settlement rates have slowed significantly throughout the inSAR monitoring period.. Similar eastward deformation trends are present with these deformations occurring at rates between approximately 3 to 6 in/year.
- Inclinometer data collected to date exhibit varying degrees of settlement influence. Inclinometers DH19-S3 and DH19-S4 within the Seep 10 Bench exhibit minor settlement influence and provide useful lateral deformation data. Much stronger settlement influence is observed at drillholes DH19-S5 and DH19-S7 completed through the Historical Western Leach Area and newly constructed tailings pipeline ramp, respectively, which precludes assessment of lateral deformation over a portion (DH19-S5) and all (DH19-S7) of the vertical profile.
- Lateral displacements monitored beneath the Seep 10 Bench indicate southward lateral displacements within the basal rockfill (DH19-S4) and alluvial foundation materials (DH19-S3) ranging between approximately 0.4 and 1 inches since July 2020. No progressive (accelerating) deformations were observed in these intervals.

KP recommends that monitoring using the existing piezometric and deformation instrumentation be continued during 2021 and that existing piezometric QPPs be retained. Refinements and additions to the surface and subsurface deformation monitoring programs are recommended to improve spatial coverage and data availability for operational monitoring. These include:

- Installation of additional settlement-protected inclinometers during 2021,
- Implementation of a manual-survey based surface deformation monitoring program to supplement inSAR and GNSS coverage
- Testing of shorter-term inSAR analyses (so-called Bulletin analyses) to provide more regular inSAR data to the operational monitoring programs, and
- Trialing the use of Maptek I-Site laser scanning of the East-West Embankment central pedestal area as a method of monitoring lateral (southward) surface displacement.

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ABBREVIATIONS

ACC	Anaconda Copper Company
AIR	Annual Inspection Report
ARCO	Atlantic Richfield Company
BMFOU	Butte Mine Flooding Operable Unit
BPPS	Berkeley Pit Pumping System
DAR	Data Analysis Report
EL	elevation
ft	feet
EOR	Engineer of Record
GNSS	Global Navigation Satellite System
GPD	gallons per day
gpm	gallons per minute
GPS	Global Positioning System
HsB	Horseshoe Bend
HsBCS	Horseshoe Bend Capture System
HsB WTP	Horseshoe Bend Water Treatment Plant
inSAR	Interferometric Synthetic Aperture Radar
IPI	In-Place Inclinometer
IRP	Independent Review Panel
KP	Knight Piésold Ltd.
M	million
MCA	Montana Code Annotated
MDEQ	Montana Department of Environmental Quality
MR	Montana Resources, LLP
QPP	Quantitative Performance Parameter
RMS	remote monitoring system
SLWS	Silver Lake Water System
t	short ton
TAC	The Anaconda Company
TOMS	Tailings Operation, Maintenance and Surveillance
WED	West Embankment Drain
YDTI	Yankee Doodle Tailings Impoundment

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine adjacent to the city of Butte, in Silver Bow County, Montana. The mine produces copper sulfide concentrate, molybdenum disulfide concentrate, and copper precipitate (cement copper). MR has owned and operated the mine site since the 1980's, after acquiring the property and operations from Atlantic Richfield Company (ARCO) and the former Anaconda Copper Company (ACC) who had operated the mine since 1955. MR is currently mining the Continental Pit at a nominal Concentrator throughput rate of approximately 49,000 tones per day. MR also operates small scale leaching operations on historically placed mine rock piles. The project arrangement is shown on Figure 1.1.

The key components of the MR facilities include the:

- Yankee Doodle Tailings Impoundment (YDTI)
- Continental Pit
- Mill and processing facilities (the Concentrator)
- Leach facilities and Precipitation Plant

The YDTI was originally constructed in 1963 to store mine tailings. The embankments have been continuously constructed to elevation (EL.) 6,400 ft using rockfill from the Berkeley Pit (until 1982) and from the Continental Pit (beginning in 1986). The YDTI comprises a valley-fill style impoundment created by a continuous rockfill embankment with a current maximum embankment height of approximately 750 ft along the southern end of the impoundment upstream of the Horseshoe Bend (HsB) area. The HsB area contains infrastructure related to YDTI seepage collection and mine leach operations along with miscellaneous mine buildings, including the truck maintenance workshop. The continuous rockfill embankment is divided into three embankments for descriptive purposes according to the general geometry of each limb of the embankment. These embankments are the:

- North-South Embankment – The North-South Embankment forms the eastern to southeastern limb of the YDTI and runs approximately north to south in orientation. The North-South Embankment abuts onto the base of Rampart Mountain, forming the eastern limit of the Montana Resources mine site.
- East-West Embankment – The East-West Embankment forms the western limb of the YDTI and runs approximately east to west in orientation. The East-West Embankment is situated immediately upstream of the HsB area and Berkeley Pit.
- West Embankment – The West Embankment forms the western limb of the YDTI and runs approximately north to south in orientation. The West Embankment is constructed along the side of the West Ridge and forms the western limit of the facility.

The tailings beach is formed by the discharge and deposition of tailings slurry from nine discharge locations along the YDTI embankments. The drained tailings beach is considered part of the impoundment containment system, which collectively with the rockfill embankment, contains the supernatant pond along the north side of the facility.

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PROJECT ARRANGEMENT

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	RMM	DDF

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 1.1 — REV 0

SAVED: M:\1\01\00126\23\A\Acad\FIGS\A14, 6/29/2021 2:51:09 PM , RMCLELLAN PRINTED: 6/30/2021 2:38:08 PM, FIG 1.1, RMCLELLAN

XREF FILE(S): 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo

The jurisdiction for the YDTI resides with the Montana Department of Environmental Quality (MDEQ). The YDTI is not subject to a dam hazard potential classification within the State (Montana Code Annotated (MCA) 85-15-209) as embankments for tailings impoundments and water reservoirs subject to permits issued by MDEQ are specifically exempt from provisions of the Montana Dam Safety Act (MCA 85-15-107). MR currently holds four MDEQ operating permits, two of which apply specifically to the YDTI area. An amendment to the operating permit was approved in August 2019 to allow for continued use of the YDTI, which will be facilitated by continued construction of the embankment to a crest elevation of 6,450 ft and commencing operation of the West Embankment Drain (WED). The MR facilities, mine operations, and YDTI operational procedures relevant to 2020 are described in additional detail in the MR Report titled '*Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual'* (MR/KP, 2020).

1.2 INDEPENDENT REVIEW PANEL (IRP)

An Independent Review Panel (IRP) for the YDTI has been approved by MDEQ. The IRP consists of three independent review engineers or specialists, as stipulated by MCA Title 82 Chapter 4 Part 3 Section 76 (MCA 82-4-376). The members of the MR IRP are:

- Dr. Dirk Van Zyl
- Dr. Leslie Smith
- Mr. Jim Swaisgood

Dr. Peter K. Robertson, a tailings and geotechnical specialist, was also engaged in May 2019 as a fourth international expert to provide additional YDTI oversight and review. He participates with the IRP and Engineer of Record (EOR) in update meetings and reviews documents concerning the YDTI.

1.3 ENGINEER OF RECORD

The requirement for an EOR for the YDTI is described in MCA 82-4-375. The EOR is required to be a suitably qualified Professional Engineer licensed in the State of Montana. The EOR for the YDTI is currently Mr. Ken Brouwer, P.E., of Knight Piésold Ltd.

The EOR is responsible for the following:

- Review the design and other documents pertaining to the tailings storage facility.
- Certify and seal designs or other documents pertaining to the tailings storage facility submitted to the MDEQ.
- Complete an annual inspection of the tailings storage facility.
- Notify the operator when credible evidence indicates the tailings storage facility is not performing as intended.
- Immediately notify the operator and the MDEQ when credible evidence indicates that the tailings storage facility presents an imminent threat or a high potential for imminent threat to human health or the environment.

1.4 SCOPE OF REPORT

This is the fourth Data Analysis Report (DAR) prepared by Knight Piésold Ltd. (KP) for the EOR of the YDTI. The DAR includes the following items:

- A description of the 2020 construction activities providing context for interpretation of the monitoring and performance data.
- A description of the 2020 tailings and water management monitoring activities and data.
- A description of and interpretation of the 2020 piezometric and deformation monitoring instrumentation data, including review of the West Ridge hydrodynamic containment.

The DAR provides supplemental information related to the monitoring and performance of the YDTI for the 2020 calendar year to be considered in conjunction with observations made by Mr. Allen Gipson (P.E. in Colorado and Wyoming) during the annual inspection, which occurred on October 15, 2020. Mr Gipson, accompanied by Mr. Mike Harvie (Manager of Engineering and Geology) of MR, completed the annual inspection on behalf of Mr. Brouwer due to public health restrictions relating to travel associated with the COVID-19 pandemic. The 2020 Annual Inspection Report (AIR) was prepared to provide an overview of the observations of the YDTI facilities and discussions with MR staff at the time of the inspection (KP, 2021).

1.5 COORDINATE SYSTEM

The design of the YDTI references the site coordinate system known as the ‘Anaconda Mine Grid’ established by The Anaconda Company (TAC) in 1957. The Anaconda Mine Grid is based on the Anaconda Copper Company (ACC) Datum established in 1915. All elevations are stated in Anaconda Mine Grid coordinates with respect to the ACC Vertical Datum unless specifically indicated otherwise. The Montana Resources GPS Site Coordinate System is based on the Anaconda Mine Grid and utilizes International Feet.

1.6 QUANTITATIVE PERFORMANCE PARAMETERS

The Quantitative Performance Parameters (QPPs) are intended to be easily measured and evaluated onsite without complex calculation. QPPs are therefore a good reference to quickly assess the performance of the YDTI. The QPPs for the 2020 calendar year are outlined in the MR TOMS Manual (MR/KP, 2020). The QPPs are summarized in Table 1.1 below.

Table 1.1 Quantitative Performance Parameters

Location	QPP	Value
YDTI Supernatant Pond	Total Freeboard	> 22 ft
YDTI Tailings Beach	Minimum beach length	> 200 ft
YDTI Embankments	Downstream Overall Slope	No steeper than 2H:1V
	Minimum Crest Width	> 200 ft
East-West Embankment Piezometers	Water level: MW94-08	< 5,680 ft
	Water level: MW94-11	< 5,693 ft
	Water level: DH15-S3 VW1	< 5,690 ft
	Water level: DH15-S4 VW1	< 5,740 ft
	Water level: DH15-S4 VW2	< 5,800 ft
	Water level: DH15-S5 VW1	< 5,785 ft
	Water level: DH17-S1 VW2	< 5,741 ft
	Water level: DH17-S2 VW2	< 5,869 ft
	Water level: DH18-S3 VW3	< 6,044 ft
North-South Embankment Piezometers	Water level: MW12-01	< 5,940 ft
	Water level: MW12-05	< 6,200 ft
	Water level: DH18-S1 VW2	< 6,010 ft
	Water level: DH18-S2 VW2	< 6,029 ft
West Embankment Piezometers	Water level: VWP-DP1	< 6,374 ft
	Water level: VWP-DP2	< 6,366 ft
	Water level: DH15-12 VW1	< 6,372 ft
	Water level: DH15-12 VW2	< 6,372 ft
	Water level: DH15-12 VW3	< 6,372 ft

Note:

1. Table 1.1 above reproduced from Table 5.1 of the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020).

2.0 EMBANKMENT CONSTRUCTION ACTIVITIES

2.1 GENERAL

Embankment construction is a continuous process for the YDTI. Quarterly construction reviews of the impoundment are completed to observe construction progress, review construction practices, and provide recommendations for priority actions. The field review is intended to satisfy the quarterly inspection frequency as outlined in the Earthworks Inspection and Test Plan in Table 3.4 of the Construction Management Plan (CMP) (KP, 2018a). The field reviews include visual inspections and are not considered to be supervision of the construction nor to present any guarantee that all deficient or non-conforming works have been identified. 2020 quarterly field reviews were completed by Mike Harvie of MR as a designate of the EOR due to travel restrictions related to the COVID-19 pandemic. A collection of photos and videos, along with a summary checklist were provided to KP for each quarterly review. KP reviewed the provided information and issued summary letters of the quarterly site visits which are included in Appendix A. Annual construction progress is also detailed in the 2020 AIR (KP, 2021), and a summary of the YDTI embankment construction activities in 2020 is included in the subsequent sections.

2.2 NORTH-SOUTH AND EAST-WEST EMBANKMENTS

Construction of the downstream step-out of the North-South Embankment was largely completed to EL. 6,400 ft except on the southern end where deactivation of the current mine haul ramp is required prior to advancing construction further. The surface of the EL. 6,350 ft lift was scarified prior to placement of the EL. 6,400 ft lift. Minor settlement cracking was observed along the downstream edge of the EL. 6,400 ft North-South Embankment crest and is similar to what was previously identified during the 2019 construction of the lower downstream step-out lifts. Along the crest of the North-South Embankment, regrading of the tailings discharge corridor was completed to facilitate local modifications to the pipeline, including realignment of discharge location NS-3, and the extension of Line 3 to include a new discharge location (NS-4). Along the north abutment of the North-South Embankment, construction work commenced, including widening the access road to allow for realignment of the Reclaim Water Pipeline in 2021.

Fill placement for the EL. 6,450 ft embankment lift was advanced and realignment of the new pipeline ramp was completed along the East-West Embankment in 2020. Minor settlement cracking was observed along the downstream edge of the pipeline ramp and was also observed along the over-steepened slope adjacent to the Terramac access road along the East-West Embankment. The cracking in these locations is similar to what was previously identified during the 2019 construction of the lower North-South Embankment downstream step-out lifts.

2.3 WEST EMBANKMENT

Construction completion of the EL. 6,400 ft lift and commencement of EL. 6,450 ft lift construction occurred along the West Embankment in 2020. Construction of the EL. 6,450 ft lift commenced in Q2 and continued throughout 2020 and the associated construction completion report for the EL. 6,400 ft lift is in progress. Mungas completed various minor works along the West Embankment in Q3, including topsoil and vegetation removal and extensions of secondary seepage collection drains; otherwise, construction materials were provided and placed predominantly by MR mine equipment during 2020. Ongoing fill placement along the West Embankment included selective placement of materials in 5 ft thick lifts in Zone D1 at the former temporary extraction pond location.

2.4 WEST EMBANKMENT DRAIN

Construction of the West Embankment Drain (WED) was completed in 2019. In 2020, construction of the EL. 6,450 ft embankment required the temporary shut down of components of the WED including the Extraction Pond Dewatering System and the relocation of the Extraction Pond pipeline. The welding and placement of the emergency overflow pipelines from the Extraction Pond was completed in Q4; however, additional large boulders for energy dissipation are to be placed at the emergency overflow discharge structure at the outlet of the emergency overflow pipelines. Additional WED works in 2020 included MR filling in the area of the temporary sump (approximately Stn. 48+00 of the WED) with Zone U, and the installation of the next lift of the Extraction Basin well riser pipes.

3.0 TAILINGS AND WATER MANAGEMENT REVIEW

3.1 TAILINGS MANAGEMENT

3.1.1 GENERAL

Tailings from the MR mine operations are stored in the YDTI. The YDTI consists of a rockfill embankment (three sections), a drained tailings beach, and a water reservoir (supernatant pond). The extensive drained tailings beaches are formed by continuous discharge of tailings slurry from the crest of the YDTI embankments.

Tailings discharge in 2020 continued to be focused on maintaining extensive tailings beaches adjacent to the embankments. The tailings delivery system consists of three pipelines (two operational and one standby) and four pump houses to convey tailings from the Concentrator to the YDTI. Tailings discharge into the YDTI occurs from a maximum of two discharge locations at any time. MR has a total of ten discharge locations, including a new location commissioned in August 2020. The new tailings discharge location, NS-4, is located at the northern end of the North-South Embankment. Tailings discharge from NS-4 promotes the establishment of a more extensive tailings beach along the northern end of the North-South Embankment. The tailings delivery system and discharge points are located along the East-West, North-South, and West Embankments, as shown on Figure 3.1.

3.1.2 ANNUAL TAILINGS PRODUCTION

The total mass of tailings solids discharged into the YDTI in 2020 was calculated based on the Concentrator production data minus the concentrate produced. The tailings discharge mass typically represents 99% of the total Concentrator throughput. The average Concentrator throughput was 45,300 tons per day during 2020. This equates to an average production of 44,900 tons of tailings per day and a total annual tailings production of 16.4 million tons (Mt). The 2020 production rate was the lowest annual production total since 2004. The total annual tailings production has varied between 16.4 and 18.2 Mt since 2004. The production rate is determined by the mine operations and is dependent on ore quality, operations schedule, rock hardness, and other operational factors.

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	RMM	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

TAILINGS DELIVERY SYSTEM GENERAL ARRANGEMENT

Knight Piésold CONSULTING

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FIGURE 3.1 | REV 0

SAVED: M:\1\01\00126\23\A\Acad\FIGS\A26, 6/29/2021 1:36:20 PM , CTETZLAFF PRINTED: 6/30/2021 2:40:48 PM, FIG 3.1, RMCLELLAN
XREF FILE(S): 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo

3.1.3 SURVEY OF TAILINGS SURFACES

Surveys of the sub-aerial and sub-aqueous tailings surfaces were undertaken in 2020. The survey of the sub-aerial tailings surface (orthophoto) was undertaken on July 9 and the sub-aqueous (bathymetric) survey on June 22 through July 9 2020 (Appendix B). The orthophoto and bathymetric surveys were completed prior to the addition of the new tailings discharge point NS-4, and therefore do not reflect the effect of tailings discharge from NS-4 on the YDTI tailings beach.

The general shape of the tailings beach has changed since the introduction of the multiple point tailings discharge system in 2017. The beach has transitioned from a deltaic fan shape to a ‘U-shape’ as shown on Figure 3.2.

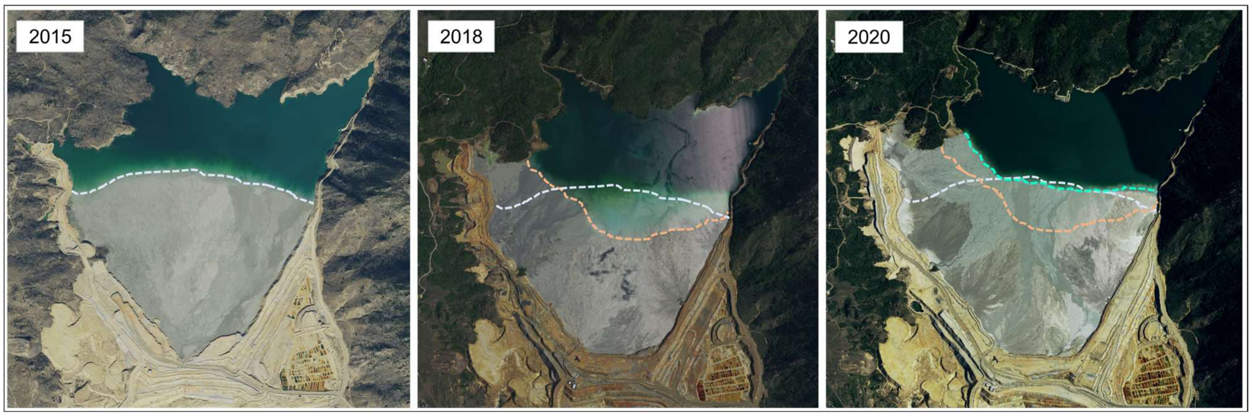
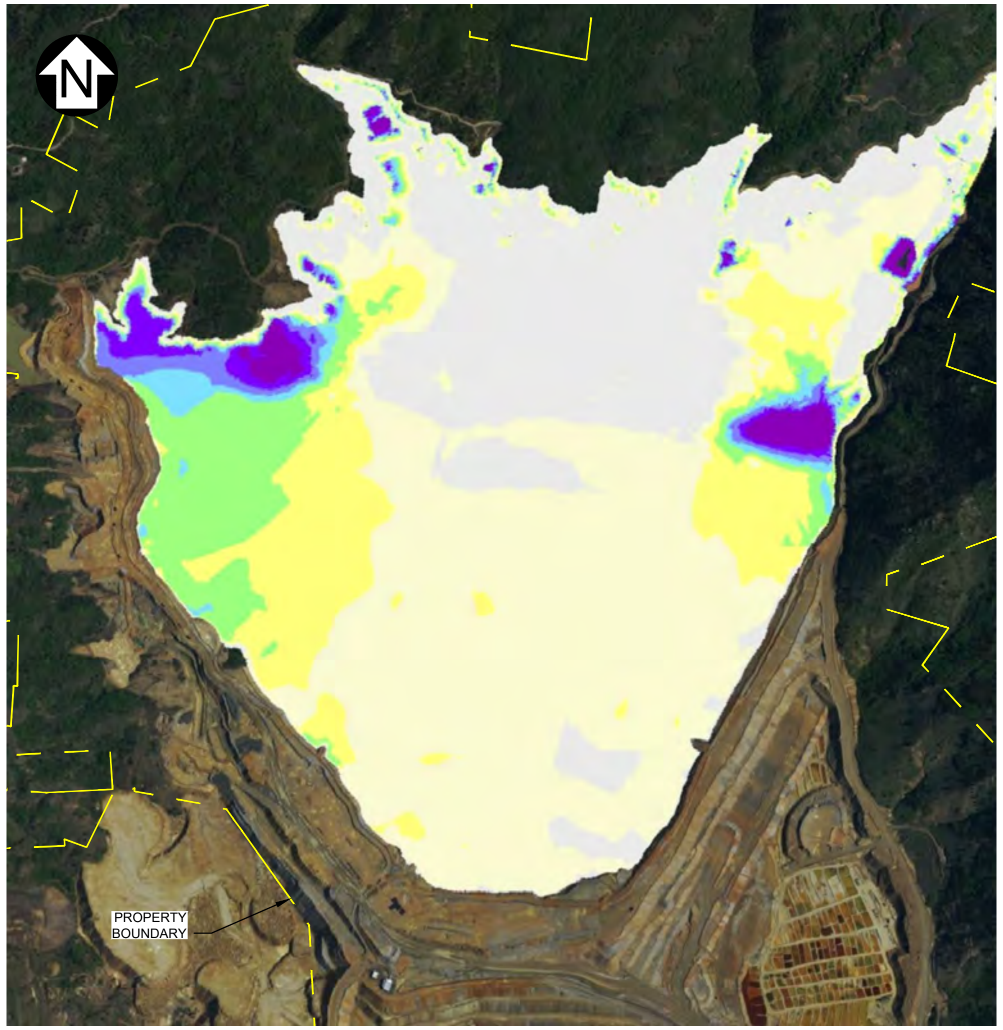


Figure 3.2 Tailings Beach Development 2015 to 2020

The 2020 surveys indicate the following:

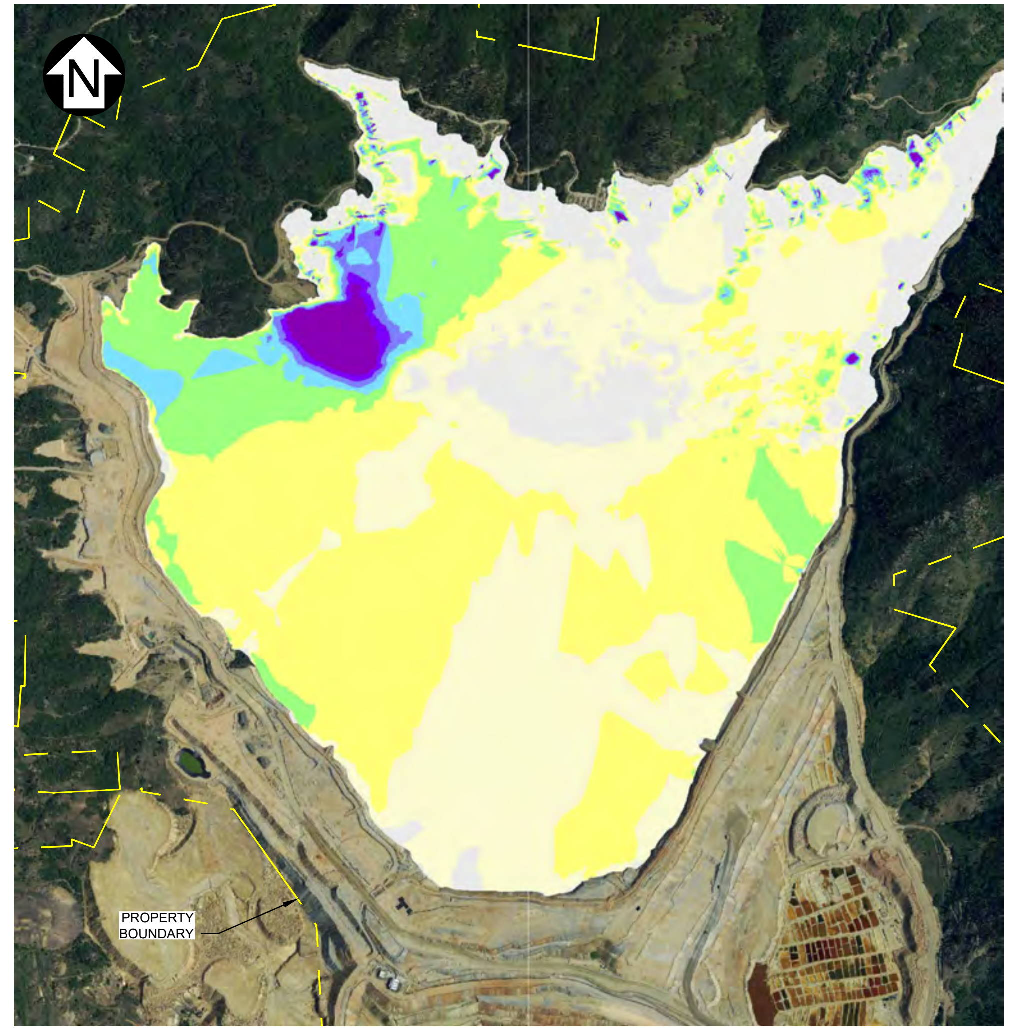
- The surveyed total YDTI area (beach and pond surface area) of 1,530 acres was approximately 2% (30 acres) larger than the area surveyed in 2019.
- The sub-aerial beach area of 920 acres was approximately 200 acres larger than the sub-aerial beach in 2019 (730 acres). The pond area was approximately 160 acres (21%) smaller than the pond area in 2019 (770 acres).
- The beach-to-pond ratio increased to 60% sub-aerial beach to 40% pond in 2020, compared with the 48% sub-aerial beach: 52% pond ratio measured in 2019.This increased beach area is largely attributed to a change in water management strategy resulting in a reduced supernatant pond volume, as discussed in Section 3.2.2.
- The sub-aerial (above-water) beach slope ranged from 0.4% to 0.5%, excluding discharge point NS-3. The sub-aerial beach slope became more uniform in 2020 (ranged from 0.3% to 0.7% in 2019) which is an indicator of a more evenly developed tailings beach.
- The sub-aqueous (below-water) beach slope ranged from 4% to 6%, excluding discharge point NS-3. The average sub-aqueous beach slope is slightly steeper than that of 2019.
- The sub-aerial and sub-aqueous beach slope at NS-3 was 0.7% and 7.8%, respectively. The beach slopes are steeper than the beach slopes observed at the other discharge locations due to the proximity of the discharge location to the supernatant pond. Similar ‘over-steepened’ beach slopes are expected to be observed at the new NS-4 discharge location during the 2021 surveys.

The YDTI tailings accumulation in 2020 was evaluated by comparing the 2019 and 2020 contour surfaces to generate an isopach map, which is presented on Figure 3.3. This figure includes a comparison of the tailings deposition depths for the last three years. The majority of the tailings beach recorded an elevation change of less than 6 ft since the 2019 survey. Increased deposition was observed at the interface of the supernatant pond and the tailings beach near the northern end of the West Embankment.



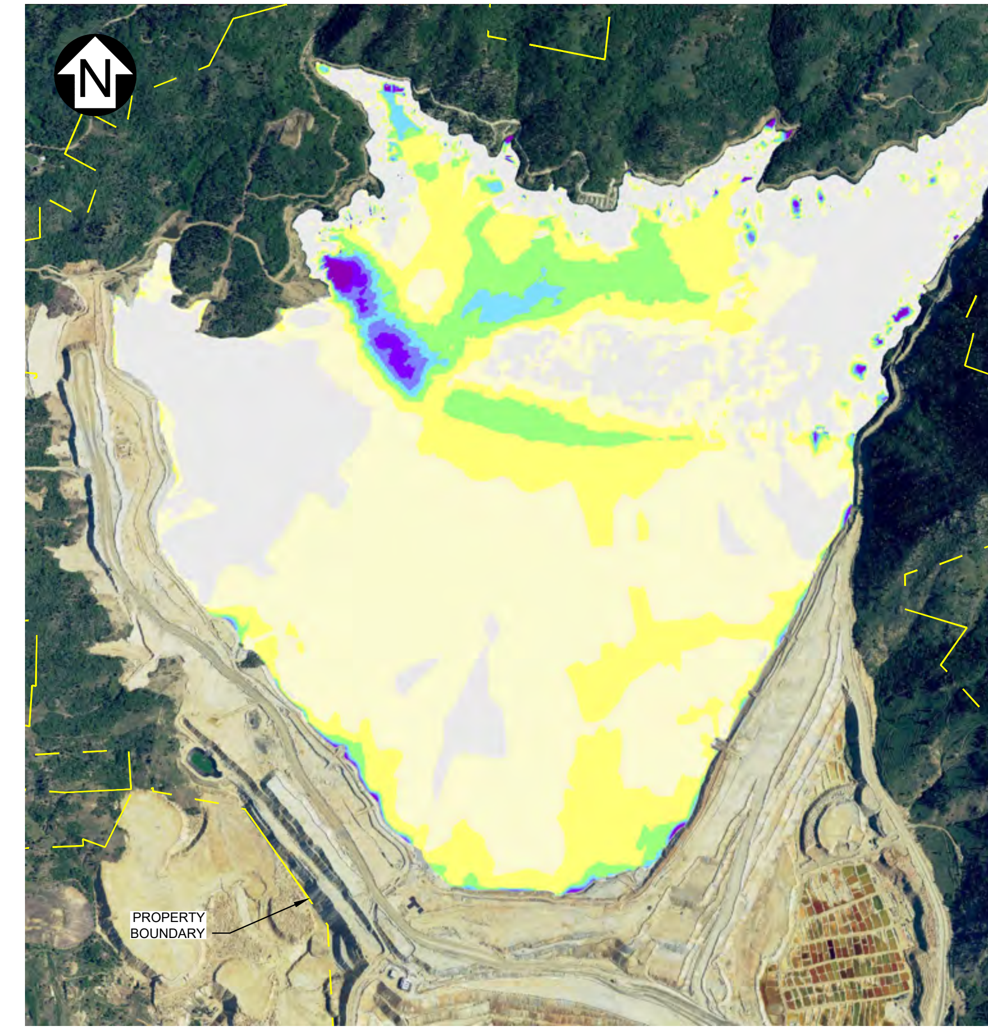
AIRPHOTO 2018

2017 - 2018



AIRPHOTO 2019

2018 - 2019



AIRPHOTO 2020

2019 - 2020

NOTES:

1. 2017 TOPOGRAPHY/BATHYMETRY PROVIDED BY MONTANA RESOURCES, LLP JUNE 2017.
2. 2018 TOPOGRAPHY/BATHYMETRY PROVIDED BY MONTANA RESOURCES, LLP JUNE 2018.
3. 2018 AIRPHOTO PROVIDED BY MONTANA RESOURCES, LLP.
4. 2019 TOPOGRAPHY/BATHYMETRY PROVIDED BY MONTANA RESOURCES, LLP OCTOBER 2019.
5. 2019 AIRPHOTO PROVIDED BY MONTANA RESOURCES, LLP.
6. 2020 TOPOGRAPHY/BATHYMETRY PROVIDED BY MONTANA RESOURES, LLP JULY 2020.
7. 2020 AIRPHOTO PROVIDED BY MONTANA RESOURCES, LLP.

LEGEND:

ELEVATION DIFFERENCE

- 0' TO 3'
- 3' TO 6'
- 6' TO 9'
- 9' TO 12'
- 12' TO 15'
- 15' TO 18'
- 18' TO 21'
- 21' TO 40'

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

BASIN FILLING ISOPACH MAPS

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 3.3 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KS1	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B30, 6/29/2021 1:42:58 PM , CTETZLAFF PRINTED: 6/29/2021 1:43:26 PM, FIG 3.3, CTETZLAFF
XREF FILE(S): Aerial_201706 IMAGE FILE(S): 2016-2017 ISOPACH 2017-2018 ISOPACH 2018-2019 ISOPACH 2020 Isopach

The tailings discharge system was operated in 2020 with the objective to maintain an extensive tailings beach adjacent to all three YDTI embankments. The elevations of the tailings beach adjacent to the active discharge locations are surveyed weekly. The increase in elevation of the beach at discharge locations in 2020 ranged between 0.2 ft and 6.9 ft, and the average increase in elevation was 4.4 ft.

The elevation difference between the highest and lowest tailings discharge locations ranged between approximately 9.3 ft and 15.8 ft throughout the year, excluding discharge location NS-4. An elevation difference of 23.1 ft was measured between NS-4 and the highest discharge location when NS-4 was commissioned in August 2020. This difference decreased to approximately 18.1 ft at the end of 2020. The elevation differences between discharge locations at the end of 2020 are more widespread compared to previous years. This can be attributed to development of the new discharge location, NS-4 and embankment construction impacts on the West Embankment impacting discharge to RK-3 and RK-4. A plot of the surveyed tailings discharge elevations from September 2018 through 2020 is shown on Figure 3.4.

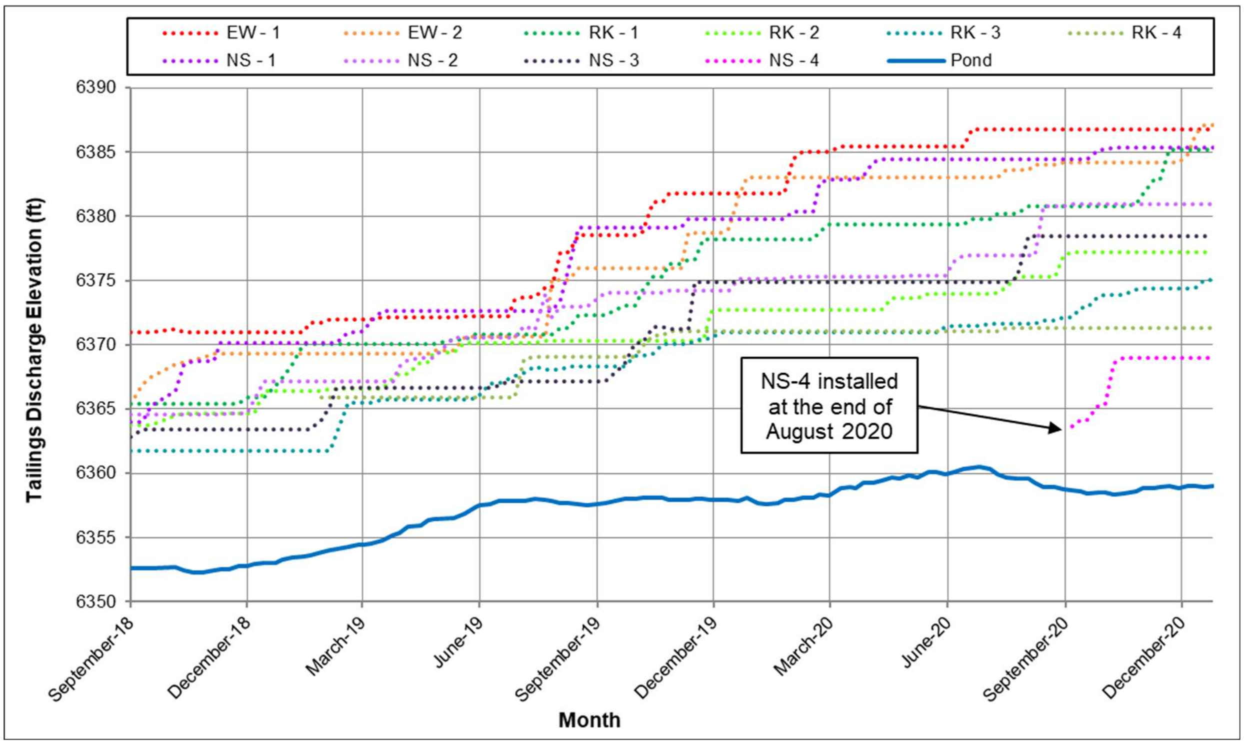


Figure 3.4 Tailings Discharge Elevations

The elevation difference between the lowest discharge point (NS-4) and the pond surface was approximately 10 ft at the end of 2020. The location of the lowest discharge point identifies the general area of the facility where the pond may initially contact the embankment in the event the pond water surface elevation increases due to a large increase in water volume (e.g. flooding).

Satellite-based imagery from the Sentinel-2 satellite is reviewed approximately twice per month to remotely observe the shape of the tailings beach and position of the supernatant pond relative to the embankments. The tailings beach length adjacent to the embankment is visually estimated. The shortest beach length was typically observed near the northern end of the North-South Embankment, near discharge location NS-3 from Q1 through Q3, and near location NS-4 after its installation in Q3 2020. The estimated beach length increased from approximately 1,200 ft to 1,400 ft along the north end of the North-South Embankment during the year. This can be attributed to the installation and use of discharge location NS-4 and a reduced supernatant pond volume, which is discussed in Section 3.2. The month-end Sentinel-2 beach length assessment figures are presented in the Quarterly Water Data Summary Reports, included in Appendix A2.

3.2 WATER MANAGEMENT

3.2.1 GENERAL

Water management for the MR mine operations involves several integrated water management systems. The performance evaluation presented in this report includes consideration of changes in elevation and flowrates for the following systems involved in water management at the site:

- YDTI Supernatant Pond
- Silver Lake Water System
- Water Reclaim System
- Horseshoe Bend (HsB) Systems, including Seep 10 and the Precipitation Plant Overflow
- WED Extraction Pond Dewatering System

Further discussion of the specific systems and their integration with the existing site water management systems is included in the following sections.

3.2.2 BERKELEY PIT PILOT PROJECT

The interaction between several water management systems and routing of flows around the site changed significantly in Q3 2019 with the commissioning of the Berkeley Pit Pilot Project (the Pilot Project), which was developed as part of the Superfund Butte Mine Flooding Operable Unit (BMFOU) activities on site. The Pilot Project consists of four primary components:

1. Berkeley Pit Pumping System (BPPS)
2. Horseshoe Bend Capture System (HsBCS)
3. YDTI supernatant pond
4. Polishing Plant

The off-site discharge of water from the Polishing Plant is a BMFOU activity and outside of the direct purview of the YDTI EOR. One goal of the Pilot Project is to reduce the supernatant pond volume to approximately 15,000 acre-ft over the next 3 to 5 years, provided there is no detrimental impact to operations. The Pilot Project is not entirely within MR’s control and a variety of factors and interruptions are possible that could impact the timeline. The Pilot Project systems and Polishing Plant data are discussed in this report due to the effects these activities have on other mine water management systems, including the YDTI pond volume, pond elevation, and water reclaim system rates. A general arrangement of the Pilot Project components and other site water management systems relevant to this report are shown on Figure 3.5.

Approximately 1,340 million gallons (4,100 ac-ft) of Berkeley Pit water was treated and introduced to the YDTI in 2020, and approximately 2,000 million gallons (6,160 ac-ft) of water was removed from the YDTI and discharged offsite during the same period. These two system flows resulted in a YDTI supernatant pond volume deficit of approximately 670 million gallons (2,060 ac-ft) in 2020. The Pilot Project has resulted in a net volume deficit of approximately 770 million gallons (2,370 ac-ft) since it was commissioned in September 2019. The Pilot Project’s net volume deficit at the end of 2020 represents approximately 12% of the Pilot Project’s target total YDTI volume deficit to reduce the supernatant pond volume to the target of 15,000 acre-ft. This is calculated using the estimated pond volume from the bathymetric survey conducted in July 2019. The quarterly YDTI water volume deficits are summarized in Table 3.1.

Table 3.1 Effect of Pilot Project Operations on the YDTI

Period	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Quarterly YDTI Water Deficit (million gallons)	100	88	270	219	94
Cumulative YDTI Net Water Deficit (million gallons)	100	188	458	677	771
Cumulative YDTI Net Water Deficit (ac-ft)	306	577	1,405	2,077	2,366

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KS1	RMM	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

WATER MANAGEMENT SYSTEMS
GENERAL ARRANGEMENT

Knight Piésold CONSULTING

P/A NO. VA101-126/23 | REF NO. 5

FIGURE 3.5 REV 0

SAVED: M:\1\01\00126\23\A\Acad\FIGS\A27, 6/29/2021 1:50:29 PM , CTETZLAFF PRINTED: 6/29/2021 1:50:47 PM, FIG 3.5, CTETZLAFF
XREF FILE(S): 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo

3.2.3 SUPERNATANT POND

The YDTI supernatant pond is located along the northern side of the YDTI and is constrained by natural topography to the north and east, and the tailings beach to the south and west. The pond provides a source of water to support continuous mill operations and the pond surface elevation typically rises six to seven feet per year as the volume of tailings stored in facility increased. Minor changes in pond elevation occur due to climatic/seasonal changes in pond volume (e.g. precipitation/runoff, evaporation, development/melt of winter ice). The rate of change of the pond is also affected by the Pilot Project, which is currently operating in a 'supernatant pond drawdown' phase as detailed in Section 3.2.2.

The supernatant pond water elevation was recorded weekly during 2020. The monthly average pond elevation changes observed from 2015 through 2020 are shown on Figure 3.6. The trends illustrate the seasonal fluctuations at the site, with higher rates of rise in the spring and lower rates of rise or elevation decreases observed in the summer. The lower-than-usual elevation change observed during Q2 and Q3 are attributed to a delayed spring freshet in 2020 and operation of the Pilot Project. The elevation increase observed in November 2020 was greater than that of the previous year due to warmer-than-usual temperatures melting early season snowfall.

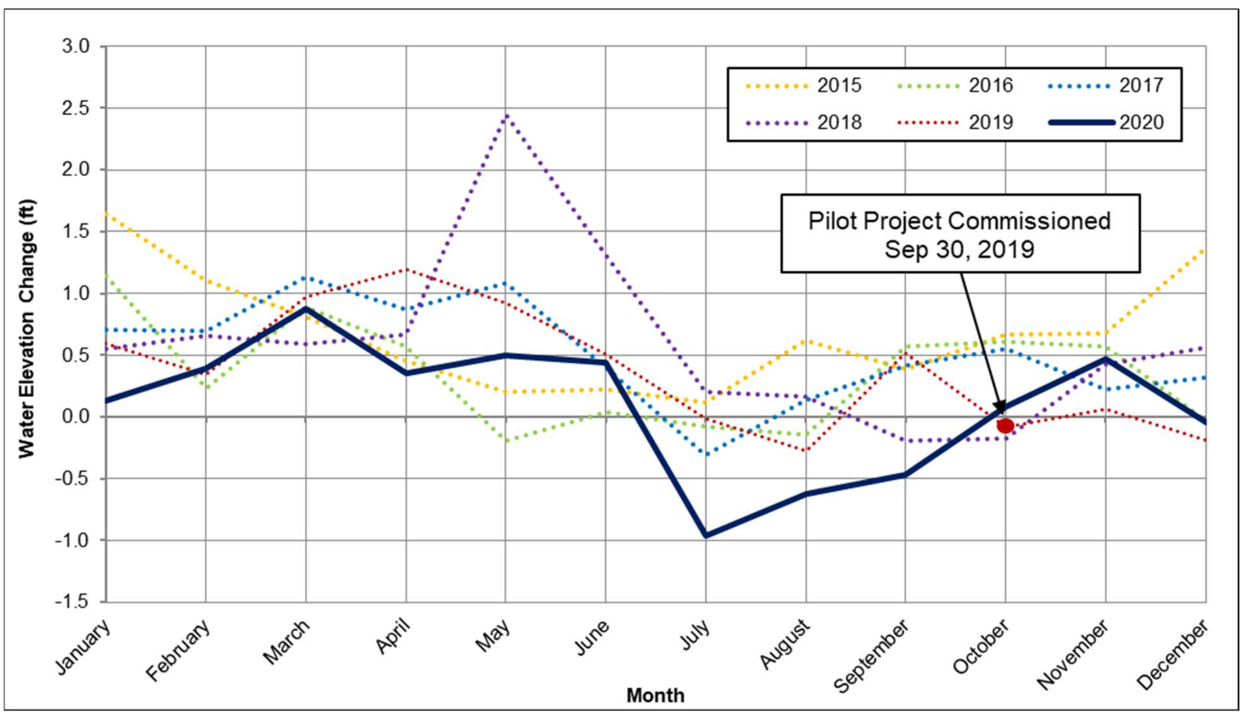


Figure 3.6 Monthly Supernatant Pond Elevation Change

The monthly pond elevations observed from 2015 through 2020 are shown on Figure 3.7. The supernatant pond elevation increased by approximately 1.2 ft in 2020, which was 81% less than the average annual pond rise measured during the previous five years. This net reduction in elevation was expected and is largely attributed to the operation of the Pilot Project and the associated off-site water discharge.

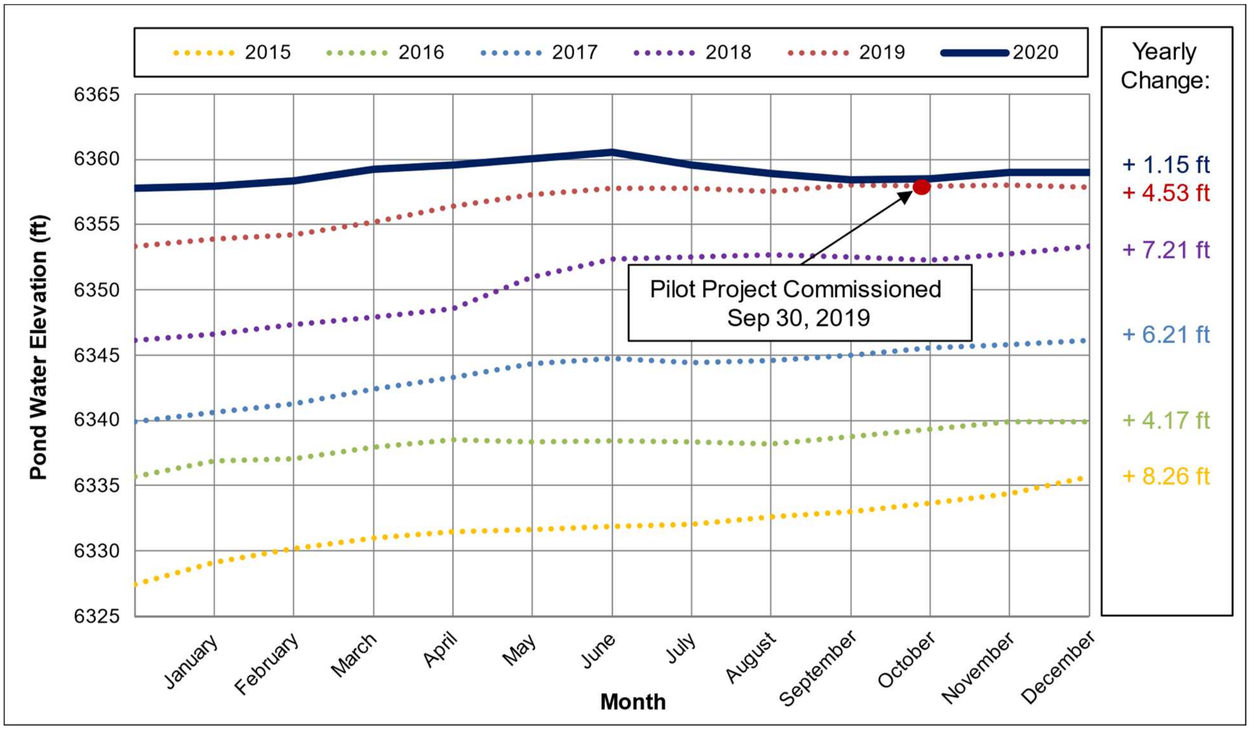


Figure 3.7 Monthly Supernatant Pond Elevation

The 2020 bathymetric survey, included in Appendix B, was completed in July 2020. The estimated pond volume based on the survey data was approximately 32,100 acre-ft, which is 7% (2,300 acre-ft) smaller than the volume estimated from the 2019 bathymetric survey. The pond volume reduction is attributed to the Pilot project and a conscious effort to reduce water imports to site from the Silver Lake Water System as detailed in Section 3.2.4.

3.2.4 SILVER LAKE WATER SYSTEM (SLWS) FLOWRATES

Water from the SLWS is used to meet both the operational freshwater and make-up water requirements. MR implemented changes to their SLWS use practices in April 2016, which immediately reduced the daily make-up water flowrates by more than 50%. MR has continued to operate with reduced freshwater and make-up water demands during 2020. The Pilot Project Polishing Plant requires SLWS flows as a freshwater supply for the treatment process. The water introduced to the Polishing Plant is released with the effluent to Silver Bow Creek. The flows are recorded by a separate totalizing flowmeter and are excluded from the summary of MR's 2020 SLWS usage analysis below.

The average monthly flowrates from the SLWS from 2015 through 2020 are shown on Figure 3.8. The average 2020 flowrate for the SLWS was 770 gpm (1.1 MGPD). This is slightly higher than the target annual average of 1 MGPD and is attributed to increased water demand from dusting events in January, March, and April 2020, and from maintenance activities in September and December 2020.

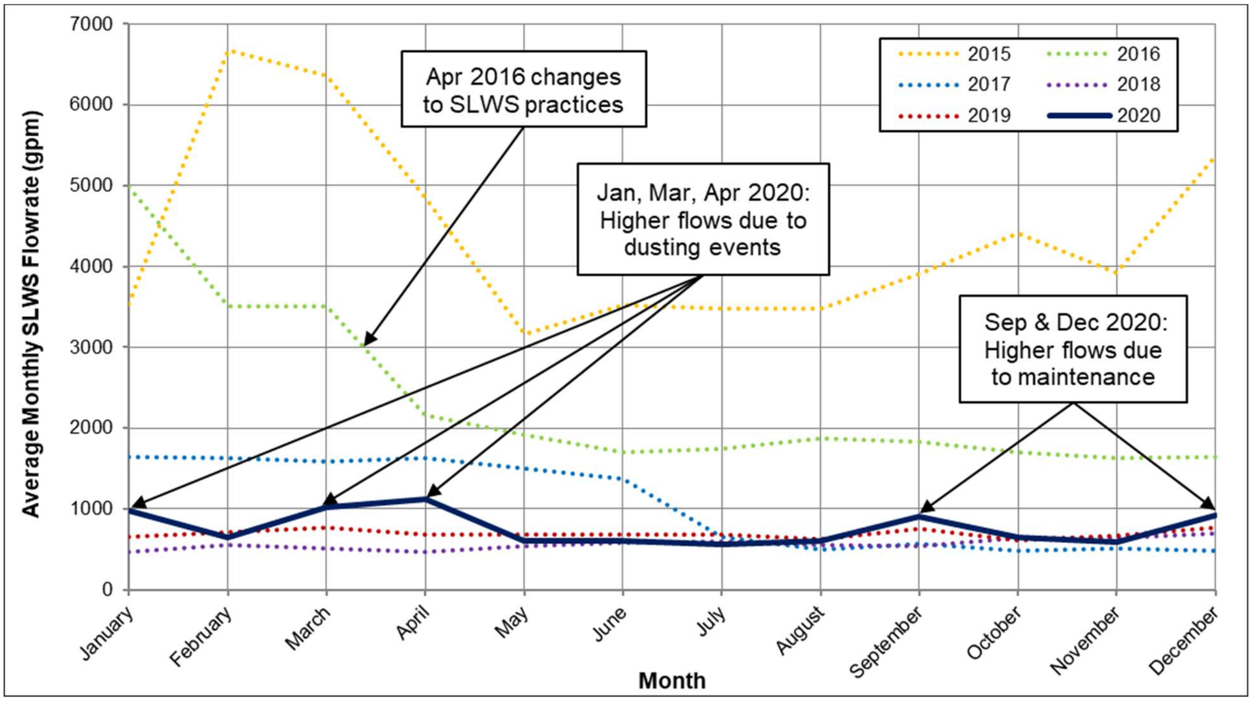


Figure 3.8 Average Monthly SLWS Flowrate

3.2.5 WATER RECLAIM SYSTEM FLOWRATES

The Water Reclaim System consists of a pumped and gravity pipeline fed by two floating reclaim pump stations. The primary purpose of the reclaim system is to supply process water to the Concentrator at a rate of 14 to 16 million gallons per day (MGPD). The reclaim piping network was expanded in 2019 with the construction of a new water off-take from the existing reclaim pipeline near the McQueen Booster Pump House to supply reclaim water to the Polishing Plant for treatment prior to release off-site. The new off-take and pipeline to the Polishing Plant were commissioned in late September 2019 and supplies reclaim water to the plant at a design rate of up to 10 MGPD.

The average monthly Water Reclaim System flowrates from February 2017 to December 2020 are shown on Figure 3.9. Erroneous data due to flowmeter malfunction from December 2018 through April 2019 is omitted. The average flowrate increased in August 2019 following commissioning of the Polishing Plant water off-take. The 2020 average flowrate was approximately 21 MGPD. The lower-than-usual averages measured in April and May 2020 were due to maintenance-related activities.

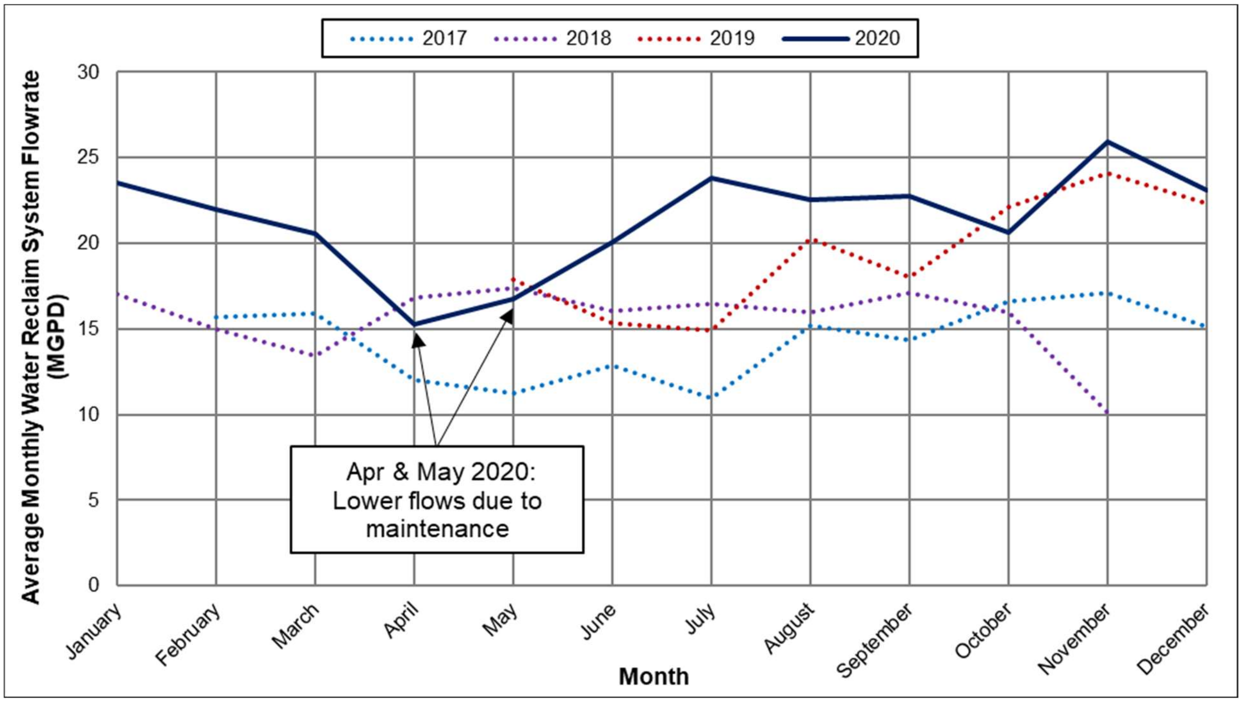


Figure 3.9 Average Monthly Water Reclaim Flowrates

3.2.6 HORSESHOE BEND (HSB) AREA FLOWRATES

HsB is an area located downstream (south) of the YDTI that receives runoff from the surrounding disturbed and undisturbed catchment areas and seepage from the YDTI. Flowrates in the HsB area have been measured regularly since 1996 using a weir plate and level meter (HsB Weir) located at the south end of the HsB Pond. The current weir was established and is still maintained by the Montana Bureau of Mines and Geology (MBMG).

The monthly average flowrates measured at the HsB Weir from 2015 through 2020 are shown on Figure 3.10. The 2020 average annual flowrate was 2,840 gpm (4.1 MGPD), which is very similar to the 2019 annual average flowrate of 2,830 gpm, excluding data affected by the commissioning of the Pilot Project from September to November 2019.

MR committed to reducing (starting in Q4 2020) and eventually ceasing recirculation of flows from the Precipitation Plant to the rock disposal sites (RDSs) directly adjacent to the YDTI embankments over the next several years. This activity is aligned with the 2020 EOR Annual Inspection Report (KP, 2021) recommendations. The changes expected from this commitment include:

- A short-term increase of flows through the Precipitation Plant overflow weir
- A short-term increase of flows through the HsB Weir

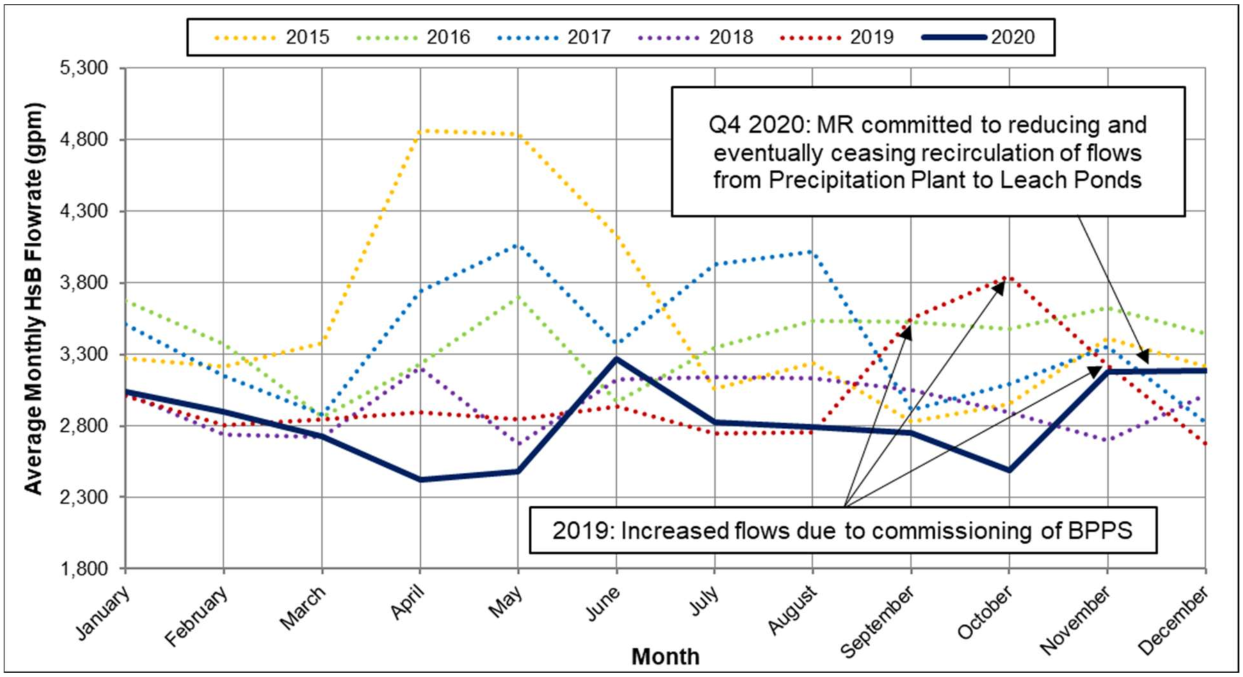


Figure 3.10 Monthly Average HsB Weir Flowrate

3.2.7 SEEP 10 FLOWRATES

Several smaller seeps daylight above the main HsB Seep area, approximately 250 ft above the downstream toe of the embankment. These localized perched seepage flows, known as Number 10 Seep (Seep 10), have been attributed to a buried historical haul ramp, which conveys some tailings seepage that migrates as perched flows through the embankment to the collection facilities. Seepage discharge at this location began in approximately 1989 and flow measurement began in 1991. An underdrain was installed in mid-2012 to capture the flows from Seep 10. Seepage flows are collected along the top of the EL. 5,900 ft lift and conveyed to a small surface pond before discharging into a pipe that conveys the flows to the HsB seepage collection area. The Seep 10 flowrates were historically calculated using a calibrated V-notch weir and manual staff gauge readings near the weir at the outlet of the pond. An ultrasonic level sensor was installed to automatically measure the stilling pond level near the weir and connected to a remote monitoring system (RMS) in 2019.

The Seep 10 monthly average flowrates from 2015 through 2020 are shown on Figure 3.11. The average measured flowrate at Seep 10 was 95 gpm in 2020, which is 11% (12 gpm) lower than the 2019 average. The average annual seepage flowrates have been generally decreasing since July 2017, which is attributed to the transition from a single tailings discharge point to a multi-point discharge strategy in the YDTI. The trend generally has lower flowrates during Q1 and Q4, and higher flowrates during Q2 and Q3. This trend is likely attributed to the increased flows during the freshet and the onset of warmer temperatures. The flows at Seep 10 are expected to continue to follow this trend in 2021.

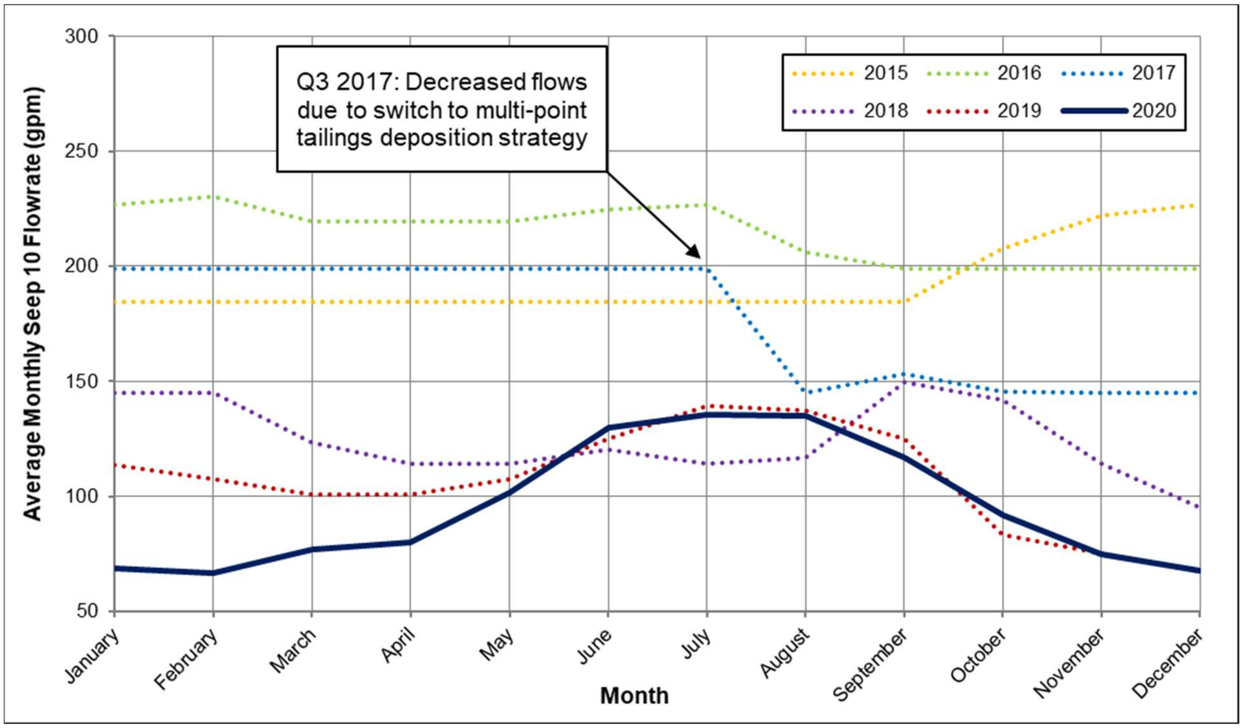


Figure 3.11 Monthly Average Seep 10 Flowrate

3.2.8 PRECIPITATION PLANT OVERFLOW FLOWRATES

The Precipitation Plant overflow is generated at the Precipitation Plant pump house after flows have been discharged form the ‘tin can’ processing cells. Processed water is directed to the Precipitation Plant recirculation pumps, and any flow greater than the capacity of the pumps is directed out of the system via the Precipitation Plant overflow pipeline into the HsB Pond. The Precipitation Plant overflow discharge rate is determined by:

- Inflows (leach water, seepage, precipitation)
- Outflows (recirculation pump station flowrate)

The discharge flowrate is measured using a calibrated overflow weir plate with water level measurement. The average monthly Precipitation Plant overflow flowrates from February 2017 through Q4 2020 are presented on Figure 3.12. The average annual overflow flowrate was 250 gpm in 2020. The overflow flowrates observed throughout 2020 were lower than those in the previous three years.

The general reduction in flows can be attributed to changes to the water management strategy around the Precipitation Plant. A portion of the water reporting to Hooligan Pond is currently by-passing the Precipitation Plant via a weir and pipe (Photo 3.1a) and discharging unmeasured into two locations at the southern end of the HsB Pond. This diversion results in fewer inflows contributing to the recirculation pump house head tanks, and therefore lower overflow flowrates. Water was also observed overflowing from the Precipitation Plant recirculation pump house head tank and draining to the adjacent HsB Pond intermittently since Q4 2019 (Photo 3.1b). This unmeasured flow also reduces contributing flows to the Precipitation Plant recirculation pumps and overflow.

The increase in flows during November and December 2020 are attributed to MR's commitment to reducing recirculation to the Leach Ponds, as mentioned in Section 3.2.6. This results in a larger proportion of the inflow water being directed to the HsB Pond via the overflow pipeline.

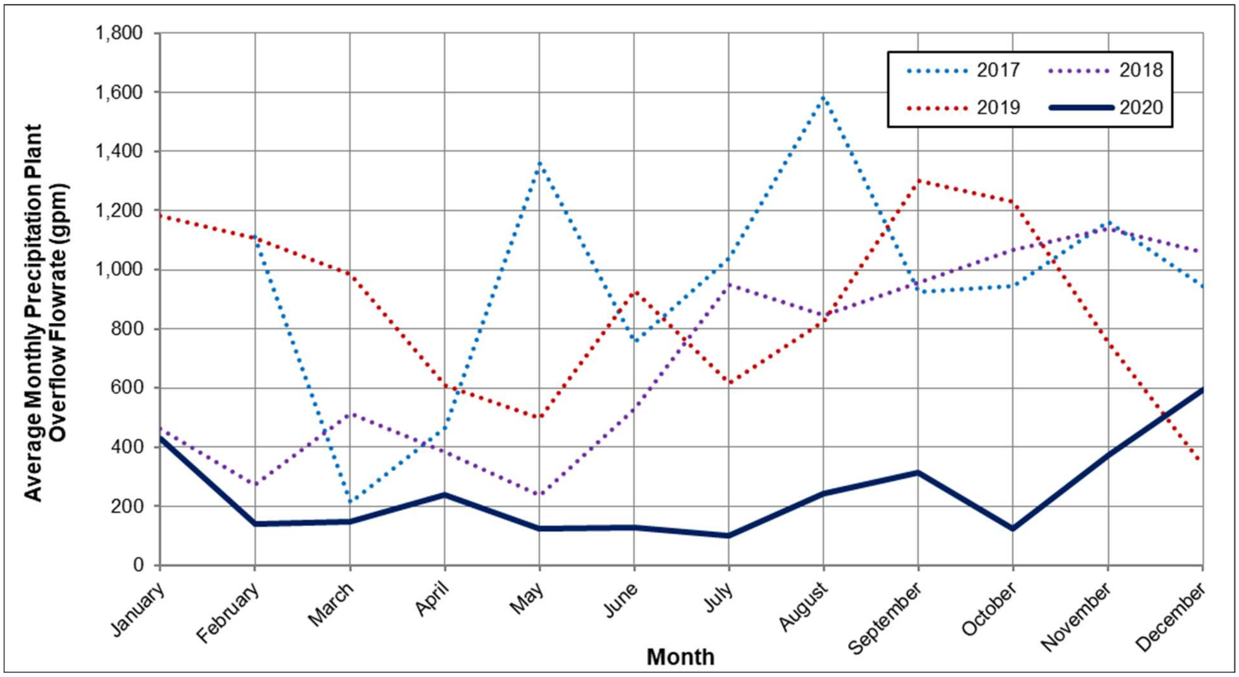


Figure 3.12 Monthly Average Precipitation Plant Overflow Flowrate

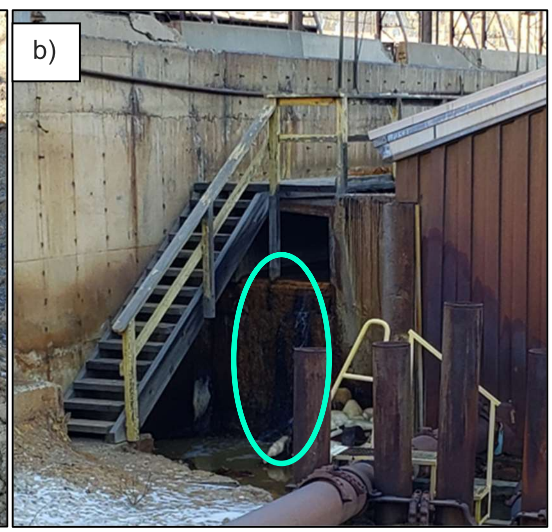


Photo 3.1 a) Hooligan Pond and By-passing Flow Through Weir (Dec 10, 2020)
b) Precipitation Plant Recirculation Pump House – water overflowing from head tank under the stairs (Dec 10, 2020)

3.2.9 EXTRACTION POND FLOWRATES

The WED and several other seepage control features have been included in the West Embankment to maintain hydrodynamic containment of the YDTI seepage as the supernatant pond elevation rises above the groundwater elevation at the Potentiometric Low in the West Ridge. Hydrodynamic containment will be achieved by keeping piezometric elevations along the west side of the YDTI below the Potentiometric Low in the West Ridge in order to preclude migration of seepage across the ridgeline.

The Extraction Pond forms the gravity outlet of the WED, and the Extraction Pond Dewatering System conveys water from the pond to the YDTI via a pipeline that discharges at tailings discharge location RK-1. The returned flows are measured using an inline totalizing flowmeter. The Extraction Pond and Extraction Pond Dewatering System, which includes a floating barge and pump system, was commissioned on November 20, 2019. The average weekly flowrates for the Extraction Pond Dewatering System since it began operating are presented on Figure 3.13. A period of erroneous data in March and April 2020 is omitted from the system flow analysis. The Extraction Pond Dewatering System recorded average weekly flowrates between 250 gpm and 450 gpm. A longer period of data collection is required before any trends or seasonal changes can be determined.

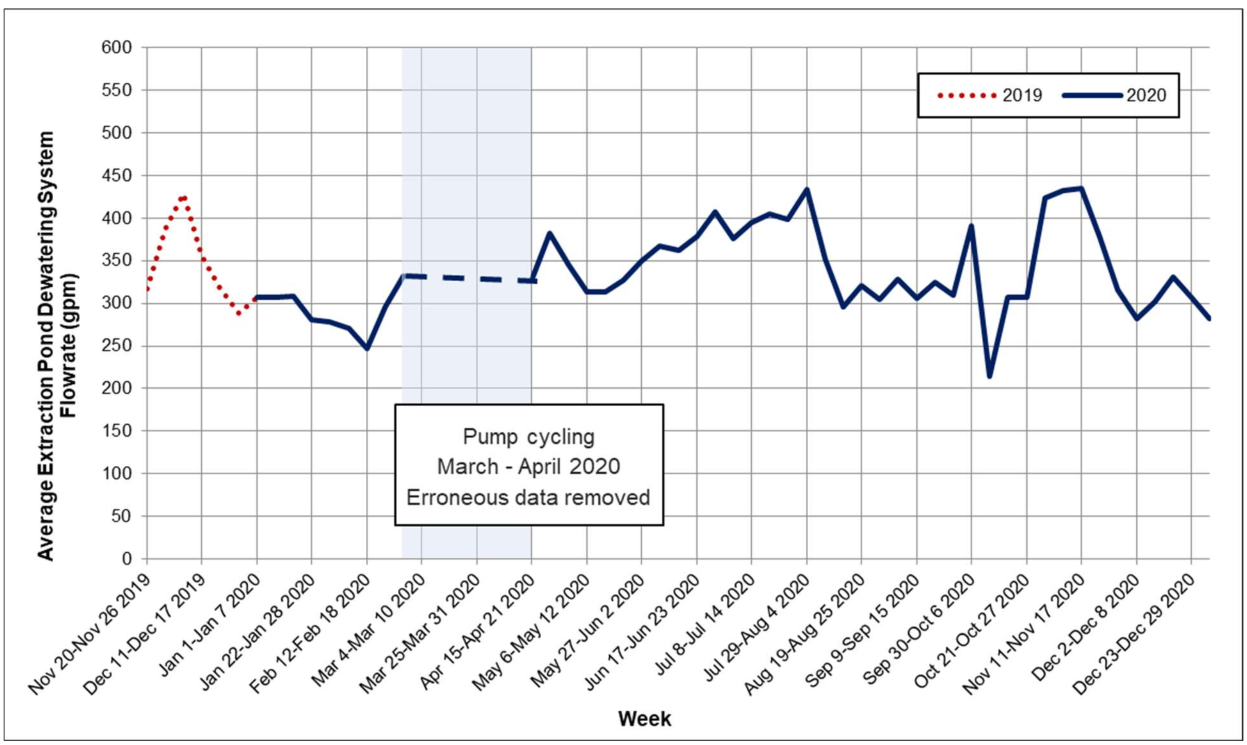


Figure 3.13 Extraction Pond Dewatering System Weekly Flowrate

4.0 PIEZOMETRIC INSTRUMENTATION AND MONITORING

4.1 PIEZOMETRIC MONITORING NETWORK

Pore pressures within the YDTI embankments, tailings mass, foundation materials, and areas around the YDTI are actively monitored using an extensive network of piezometric monitoring instruments. Real-time piezometric data from these sites are available to MR and KP via a remote monitoring system (RMS), which was implemented during 2018. Piezometric monitoring is presently performed within standpipes and monitoring wells and vibrating wire piezometers (VWPs). Standpipe piezometers and monitoring wells were installed by MR and Hydrometrics between the early 1990s and 2016 and were retrofitted with VWPs for continuous time-series monitoring beginning in 2018. VWPs have been installed in drillholes by KP throughout the YDTI embankments, tailings mass, and foundation materials as part of phased site investigation programs completed from 2016 through 2019.

The 2020 investigation program included installation of Elexon Geo4Sight instrumentation (multi-node pore water pressure and deformation monitoring instruments) within one drillhole (DH20-S2) completed through the upstream shell of the East-West Embankment on Section 8+00W. The objective of the instrumentation is to characterize and monitor a detailed pore water pressure profile (6 ft sensor spacing) within the rockfill at this location. Data are logged using a Reader (data logger) installed at the drillhole collar and are downloaded manually via Bluetooth. Initial readings were collected during Fall 2020, with the installation running on a temporary battery. Permanent batteries will be installed in Q2 2021 to commence long-term data collection. Sufficient data are available to characterize pore water pressure and saturation conditions at the drillhole location. Additional data will be collected and presented in the quarterly monitoring letters during 2021.

Active piezometric monitoring sites are shown on Figure 4.1. A detailed description of the RMS and the integration process is provided in Section 4.2.

4.2 INTEGRATION WITH THE REMOTE MONITORING SYSTEM

Piezometric monitoring sites installed within the YDTI embankments, tailings mass, and areas adjacent to the YDTI, including the West Ridge and HsB areas were integrated into an RMS beginning in the summer of 2018. The RMS, developed and operated by Sensemetrics (www.sensemetrics.com), allows real-time access to piezometric data from both QPP and non-QPP pore pressure monitoring sites via a radio and cellular mesh telemetry network. MR and KP are responsible for the upkeep and maintenance of the RMS. One-hundred and eight (108) monitoring sites have presently been integrated with the system.

Two types of piezometric monitoring sites were integrated with the RMS: standpipe piezometers/monitoring wells and drillholes with pre-existing grouted in-place VWPs. Existing standpipes and monitoring wells were retrofitted by suspending a VWP within the PVC well casing and connecting the sensor to the RMS with surface mounted GeoKon GeoNet Node transceivers. Existing drillholes with grouted in-place VWPs were integrated with the RMS by retrofitting the logic board of their GeoKon LC2-4 (4 channel) and LC2-16 (16 channel) dataloggers to allow for connection with Sensemetrics THREAD radio and/or cellular transceivers. VWPs installed as part of site investigations completed following RMS implementation (investigations completed in 2018 and 2019) were integrated with the RMS immediately following installation using GeoKon GeoNet equipment.

The RMS allows real-time piezometric data from QPP sites to be continuously compared against the TOMS specified ‘trigger elevation’ for each site (KP/MR, 2020). The system is set up such that relevant MR and KP personnel would automatically receive an email notification from the RMS should measured pore pressures at a given QPP site exceed the trigger elevation. Monitoring and reporting protocols continue to be progressively updated to take advantage of the automation capabilities of the RMS.

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 9, 2020.
5. TOPOGRAPHY PROVIDED BY MONTANA RESOURCES, LLP IN JANUARY 2021.
6. NO PORE WATER PRESSURE DATA ARE AVAILABLE FROM DH20-S1 AND DH20-S2 AS THE INSTRUMENTATIONS ARE NOT FUNCTIONAL.

LEGEND:

- DRILLHOLE WITH NESTED FIBER-OPTIC PIEZOMETERS AND GEOPHYSICAL CASING
- GEO4SIGHT AND NESTED VIBRATING WIRE PIEZOMETERS
- MONITORING WELL/ STAND PIPE - VIBRATING WIRE PIEZOMETER
- 2019 DRILLHOLE - VIBRATING WIRE PIEZOMETER
- 2019 DRILLHOLE - VIBRATING WIRE PIEZOMETER AND IN-PLACE INCLINOMETER
- DRILLHOLE - VIBRATING WIRE PIEZOMETER
- ANGLED DRILLHOLE
- DRY MONITORING WELL
- QPP MONITORING SITES
- TAILINGS PIPELINE
- PROPERTY LINE

SCALE A 500 0 500 1000 1500 2000 2500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES

Knight Piésold CONSULTING

P/A NO.	REF NO.
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FIGURE 4.1 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
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SAVED: M:\1\01\00126\23\A\Acad\FIGS\B37, 6/28/2021 4:27:45 PM , RMCLELLAN PRINTED: 6/29/2021 1:32:30 PM, FIG 4.1, RMCLELLAN

4.3 SUMMARY OF PIEZOMETRIC CONDITIONS IN 2020

4.3.1 EMBANKMENT PIEZOMETRIC CONDITIONS

The conceptual hydrogeological model for the YDTI embankments presented in the Site Characterization Report (KP, 2017b) suggests that a basal saturated zone exists deep within the base of the embankment rockfill and that isolated perched saturated zones exist within the overlying rockfill. Perched saturated zones are typically encountered within inter-bedded dipping layers of fine-grained material resulting from end-dumping of rockfill and above historical haulage routes or pipeline alignment surfaces. Pore pressure monitoring data from embedded VWPs and standpipe piezometers continued to corroborate this conceptual hydrogeological model and piezometric trends monitored during 2020 are indicative of stable or slightly decreasing embankment piezometric conditions.

Newly added Elexon Geo4Sight instrumentation were installed within the upstream embankment shell on Section 8+00W during the 2020 embankment geotechnical site investigation program. These instruments provide detailed (6 ft vertical spacing) pore water pressure data within the rockfill and support characterization of the basal saturated zone within the upstream extent of the embankment. A characterization based on monitored conditions at this site is presented in Section 4.3.2.

4.3.2 EAST-WEST EMBANKMENT

Piezometric elevation plots from the instrumentation sites within the East-West Embankment are provided in Appendix C1. Measurements recorded on December 31, 2020 are shown along East-West Embankment Sections 0+00, 8+00W, 12+00W, 28+00NW, and 43+00NW on Figure 4.2 to Figure 4.6.

Pore pressure monitoring sites installed within basal embankment rockfill of the central pedestal area (between Section 0+00 and 12+00W, inclusive) generally exhibited slightly decreasing basal piezometric elevations throughout 2020, continuing the trend observed from 2017 through to 2019.The magnitude of basal pore pressure decrease was less than monitored in 2019, suggesting that conditions have continued to stabilize. The majority of the sites within the central pedestal area monitored stable conditions during Q4 2020. Key 2020 monitoring findings include:

- Instrumentation installed within the basal system on Section 8+00W (the maximum embankment section) in drillholes DH15-S3 (VW1), DH15-S4 (VW1 & VW2), DH15-S5 (VW1 & VW2) and standpipe piezometers 94-8, 94-11 all recorded minor annual pore pressure decreases ranging from approximately 1 to 2 ft. An example pore pressure trend for drillhole DH15-S5 is provided on Figure 4.7.
- The majority of basal rockfill sites along Section 0+00 in drillholes DH17-S1, DH17-S2 and DH19-S7 observed decreasing pore water pressures during 2020.
    - DH17-S2 (VW1) monitored a decrease of approximately 1 ft.
    - DH17-S1 (VW1) monitored a substantial annual decrease of approximately 8 ft from Q1 to Q4 and became unsaturated in November 2020.
    - DH19-S7 (VW2) continued to monitor unsaturated conditions during 2020.
- Drillhole DH19-S7 (VW1) showed an increasing trend beginning in Q1 2020 and has monitored an increase of approximately 10 ft during 2020. The rate of increase has slowed throughout 2020. This sensor is installed at the embankment-alluvium contact within a historical topographical low and beneath the newly constructed tailings pipeline ramp. Pore pressure trends monitored at DH19-S7 VW1

may be a response to construction (completed in Q3 2020) or to changes in drainage within the foundation.
- Sensors installed along Section 12+00W (94-5, DH17-S4 (VW1)) all monitored stable conditions or minor decreases during 2020.

Piezometric monitoring sites outside of the central pedestal area along Sections 28+00NW and 43+00NW monitored stable piezometric elevations during 2020 within the basal system and continue to indicate a basal saturated zone within the bottom 50 to 100 ft of the embankment rockfill (KP, 2020b). Key monitoring findings include:

- Instrumentation along Section 28+00NW in drillholes DH18-S3 (VW2) and DH18-S5 (VW2) monitored stable or very slightly decreasing pore water pressures throughout 2020.
- VWPs installed in drillhole DH18-S4 (VW2) on Section 43+00NW also monitored stable or very slightly decreasing pore pressures.

Seepage and groundwater within the basal saturated zone of the East-West Embankment are expected to flow to the southeast along the alignment of the embankment towards the central, maximum embankment section (Section 8+00W). Piezometric data collected during 2020 continue to support this characterization. Basal drainage flow is inferred to be influenced by the historical topography underlying the embankment footprint, with drainage flowing down gradient and concentrating within historical surface drainage features that have been buried within the embankment footprint. The drainage at the historical surface flows generally towards the historical alignment of the Sliver Bow Creek channel below the central pedestal area of the East-West Embankment. Comparison of measured piezometric elevations from Sections 43+00NW, 28+00NW and 8+00W indicates a southeastward hydraulic gradient with drainage towards Section 8+00W. Gradients calculated using December 31, 2020 data are similar to those observed in previous years and are summarized below:

- The measured piezometric elevation at drillhole DH18-S4 (Section 43+00NW; VW1, 6,142 ft) is approximately 180 ft above the piezometric elevation measured at drillhole DH18-S5 on (Section 28+00NW; VW2, 5,966 ft). This yields an approximate hydraulic gradient of 0.1 towards Section 28+00NW.
- The piezometric elevation measured at drillhole DH18-S3 on Section 28+00NW (VW2, 5,966 ft, December 2020) is approximately 90 ft above the piezometric elevation measured at drillhole DH15-S5 on Section 8+00W (VW1, 5,763 ft, December 2020). This also results in an estimated hydraulic gradient of approximately 0.1 towards Section 8+00W.

The rockfill above the basal saturated zone within the East-West Embankment is inferred to be predominantly unsaturated with the exception of isolated perched saturated zones associated with finer-grained dipping rockfill and macro-scale drainage features such as buried haul roads, historical lift tops, and/or pipeline corridors (KP, 2017b). Numerous VWPs have been installed to monitor conditions within perched saturated zones and unsaturated rockfill within the central pedestal area above the basal saturated zone. These instruments generally showed stable or decreasing pore pressures during 2020. Key findings include:

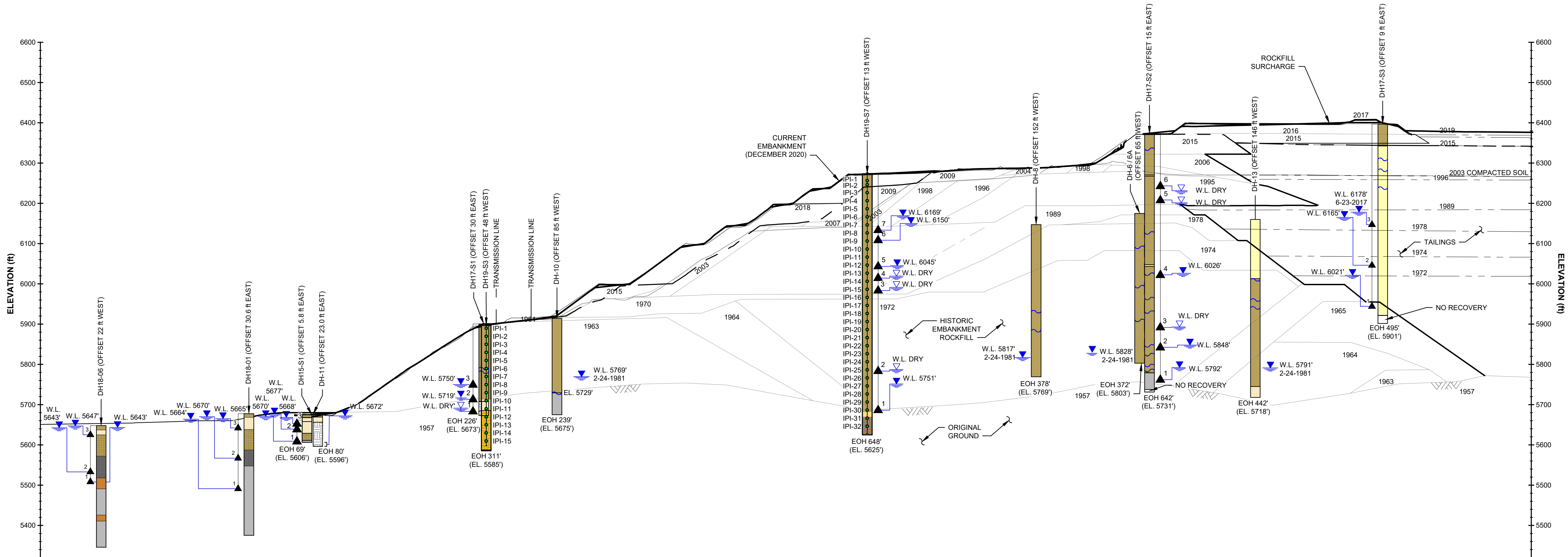
- Sensors DH17-S1 (VW2, VW3), DH19-S7 (VW5, VW6, VW7) generally exhibited decreasing pore pressure trends ranging from approximately 1 ft to 10 ft.
- Sensors DH15-S5 (VW3), DH17-S2 (VW3, VW5, VW6) remained unsaturated throughout 2020.

The long-term (2017 through Q3 2020) decreasing pore pressure trends and subsequent stabilization in Q4 2020 monitored by majority of East-West Embankment central pedestal area instruments are interpreted to result from continued use of multiple-point tailings discharge during 2020. This strategy differs from the historical (pre-2016) practice of using a single, central discharge location and has continued to develop extensive tailings beaches along all embankments. The slowing rate of decrease and apparent stabilization at numerous monitoring sites suggests that pore pressure may have reached a new steady-state condition after the implementation of the new discharge strategy.

Newly installed Elexon Geo4Sight pore pressure instrumentation within drillhole DH20-S2 has provided detailed piezometric data within the upstream shell of the Section 8+00W East-West Embankment. This instrumentation records pore pressures at 6 ft and 18 ft vertical spacing within the rockfill and tailings materials, respectively. Data from Q4 2020 are shown on Figure 4.8 and support the existing conceptual hydrogeological model that a basal saturated zone exists deep within the embankment with predominantly unsaturated rockfill above. Key observations from the Geo4Sight instrumentation include:

- Predominantly unsaturated rockfill exist within the upper 150 ft of the rockfill shell. Data from this interval indicate the following two identifiable zones:
    - A zone of saturated rockfill was monitored directly underlying the tailings mass between 260 and 310 ftbgs. This zone is interpreted to result due to drainage from the adjacent saturated tailings material.
    - An unsaturated rockfill zone is present between approximately 310 and 400 ftbgs. The existence of this zone constrains the upper extent of the basal saturated zone.
- A basal saturated zone (predominantly saturated rockfill materials) is present within the bottom 300 ft of the embankment fill. Three distinct zones are apparent in this region, as follow:
    - A significant hydrostatic zone is present between approximately 400 and 500 ftbgs and is situated just above and downstream of the crest of the historical upstream starter dam. The pore water pressures monitored within rockfill above the crest may represent a seepage front caused by the relatively low permeability of the starter dam materials as compared with general YDTI rockfill or due to the presence of finer-grained rockfill materials within the top of the 'triangle-infill' area between the upstream and downstream starter dams.
    - A sub-hydrostatic zone is present from approximately 500 to 625 ftbgs, within rockfill overlying the downstream shell of the historical upstream starter dam. Piezometric data from this interval indicate saturated rockfill and a series of hydrostatic pressure layers with minimal pressure between.
    - Predominantly hydrostatic conditions are present within the downstream shell of the historical upstream starter dam (below approximately 625 ftbgs). The starter dam was intended as a water retaining dam and fill material present in this interval is finer-grained than general YDTI rockfill.

Additional Geo4Sight data will be collected during 2021 to refine the characterization and operationally monitor pore water pressures within the upstream shell.



1 (4.1 FIG) **SECTION**
STATION 0+00
SCALE A

LEGEND:

- TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020
- IN-PLACE INCLINOMETER (IPI) SENSOR

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A: 125 0 125 250 375 500 625 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

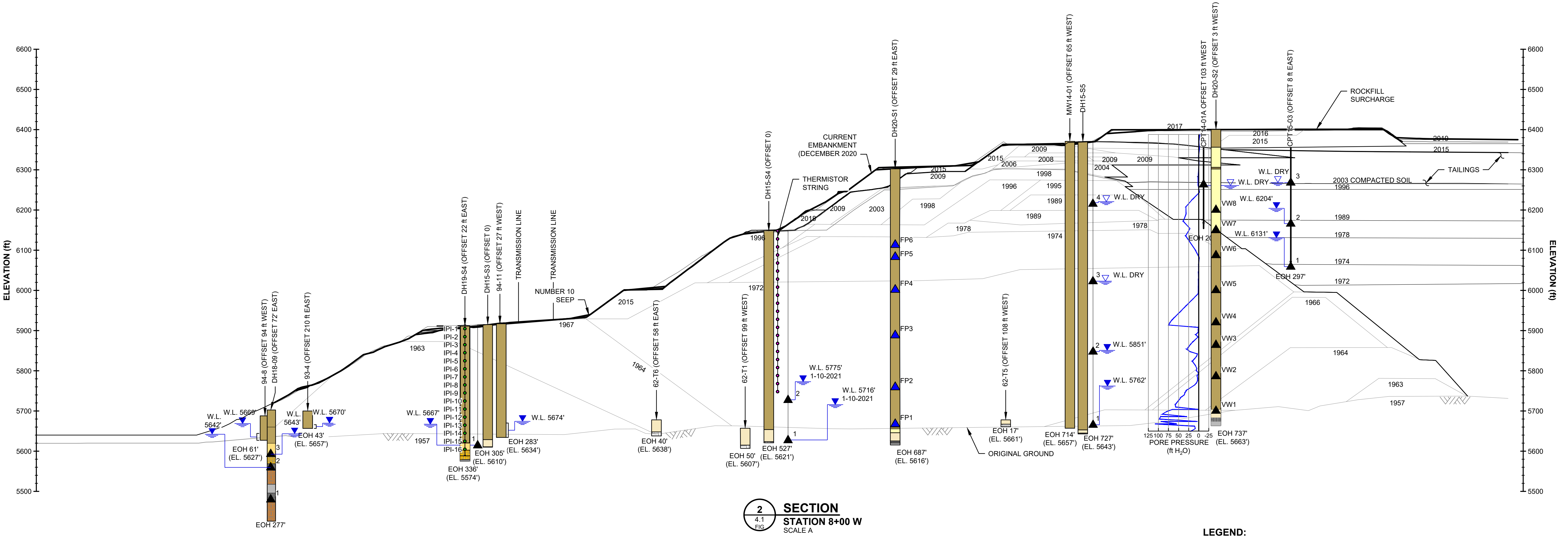
PIEZOMETRIC CONDITIONS ALONG EAST-WEST EMBANKMENT SECTION 0+00 (LOOKING WEST)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.2 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD



2 SECTION
STATION 8+00 W
SCALE A

LEGEND:

	TAILINGS
	FILL
	OLDER ALLUVIUM
	RECENT ALLUVIUM
	HIGHLY ALTERED BEDROCK
	HIGHLY WEATHERED BEDROCK
	MODERATELY WEATHERED BEDROCK
	COMPETENT BEDROCK
W.L. XXX	PIEZOMETRIC ELEVATION (FEET)
	VIBRATING WIRE PIEZOMETER (VWP)
1972	HISTORIC TAILINGS SURFACE
1972	DATE OF EMBANKMENT RAISE
	DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
	EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020
	IN-PLACE INCLINOMETER (IPI) SENSOR

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.
4. NO PORE WATER PRESSURE DATA ARE AVAILABLE FROM DH20-S1 AND DH20-S2 AS THE INSTRUMENTATION IS NOT FUNCTIONAL.
5. GEO4SIGHT MARKERS ARE MULTI-NODE WIRELESS DEFORMATION AND PORE WATER PRESSURE MONITORING INSTRUMENTS. DRILLHOLE DH20-S2 CONTAINS 123 MARKERS, 78 OF WHICH INCLUDE PORE PRESSURE INSTRUMENTATION. PORE PRESSURE DATA ARE AVAILABLE AT 6 FT AND 18 FT VERTICAL INTERVALS WITHIN ROCKFILL AND TAILINGS, RESPECTIVELY.

SCALE A 125 0 125 250 375 500 625 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.3 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B39, 6/28/2021 10:51:10 AM , RMCLELLAN PRINTED: 6/29/2021 1:38:57 PM, FIG 4.3, RMCLELLAN
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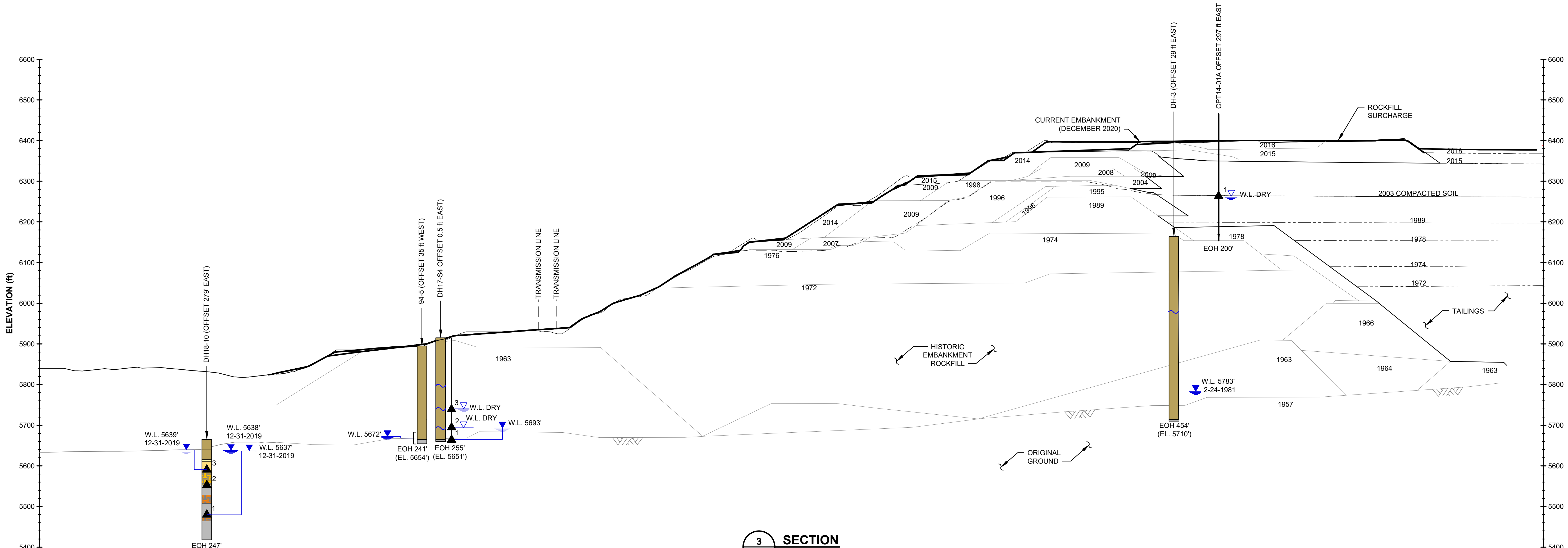

3 / 4.1 FIG — SECTION
STATION 12+00 W
SCALE A

LEGEND:

- HISTORICAL MILL TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A: 125 0 125 250 375 500 625 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG EAST-WEST EMBANKMENT SECTION 12+00 W (LOOKING WEST)

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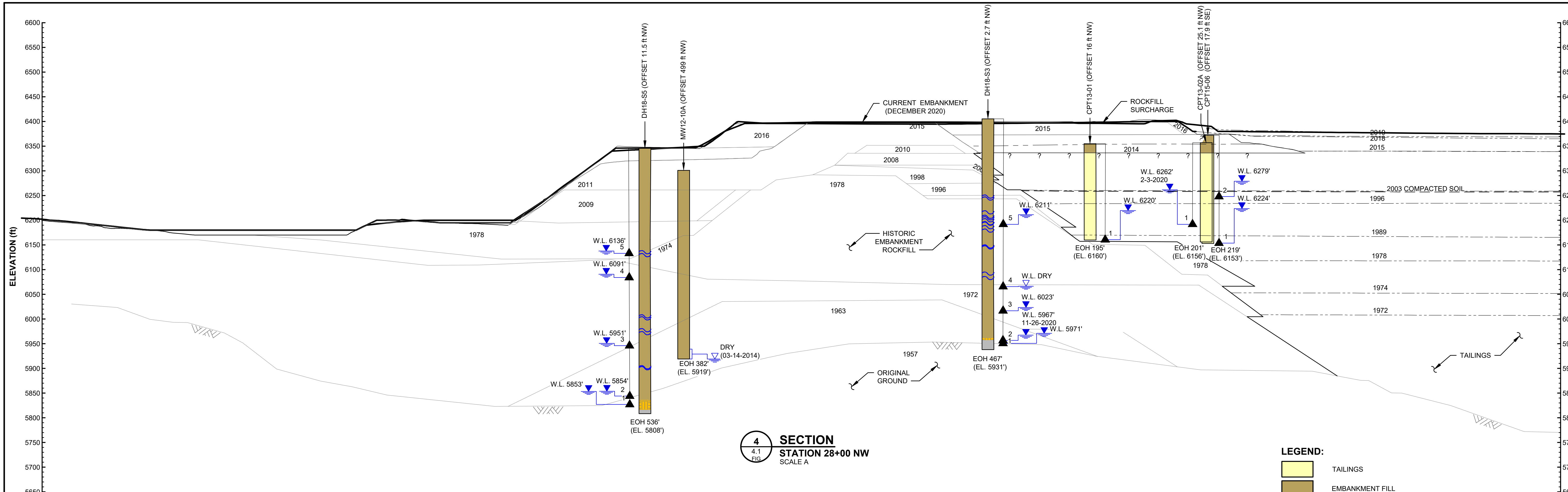
P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.4 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD



4 / 4.1 FIG

SECTION
STATION 28+00 NW
SCALE A

LEGEND:

- TAILINGS
- EMBANKMENT FILL
- OLDER ALLUVIUM
- HIGHLY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING

NOTES:

1. COORDINATE GRID AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC LEVELS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.
4. MW12-10A BECAME INACCESSIBLE IN MARCH 2014 AND WAS NOTED TO BE BROKEN AT 74' ON JULY 10, 2015. WELL ABANDONED.

SCALE A: 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG EAST-WEST EMBANKMENT SECTION 28+00 NW (LOOKING NORTHWEST)

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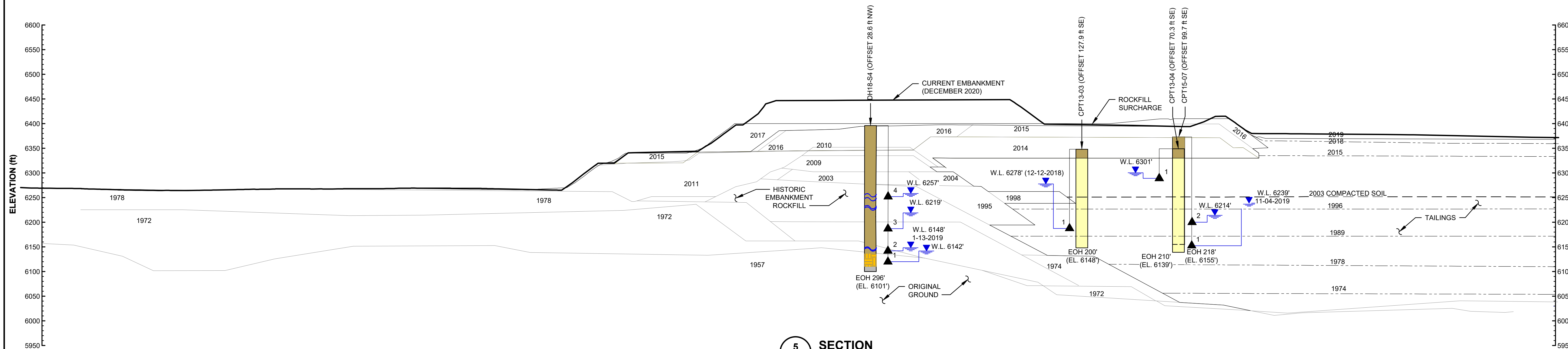
P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.5 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B41, 6/28/2021 10:46:54 AM , RMCLELLAN PRINTED: 6/29/2021 1:47:00 PM, FIG 4.5, RMCLELLAN
XREF FILE(S): Sections IMAGE FILE(S):



5 / 4.1 FIG

SECTION

STATION 43+00 NW

SCALE A

LEGEND:

- TAILINGS
- EMBANKMENT FILL
- OLDER ALLUVIUM
- HIGHLY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING

NOTES:

1. COORDINATE GRID AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. SOL STANDS FOR SETTING OUT LINE.
4. PIEZOMETRIC LEVELS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.
5. THE PIEZOMETRIC ELEVATION FOR VW2 AT DH18-S4 IS BASED ON THE LAST RECORDED MEASUREMENT ON JANUARY 13, 2019. SENSOR HAS REPORTED ERRONEOUS DATA SINCE THEN DUE TO A HARDWARE ISSUE.
6. THE PIEZOMETRIC ELEVATION FOR VW1 AT CPT13-03 IS BASED ON THE LAST RECORDED MEASUREMENT ON DECEMBER 12, 2018. SENSOR HAS NOT RECORDED VALUES SINCE DUE TO A HARDWARE ISSUE.

SCALE A: 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG EAST-WEST EMBANKMENT SECTION 43+00 NW (LOOKING NORTHWEST)

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P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.6 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B42, 3/16/2021 12:00:25 PM , RMCLELLAN PRINTED: 6/29/2021 1:52:49 PM, FIG 4.6, RMCLELLAN

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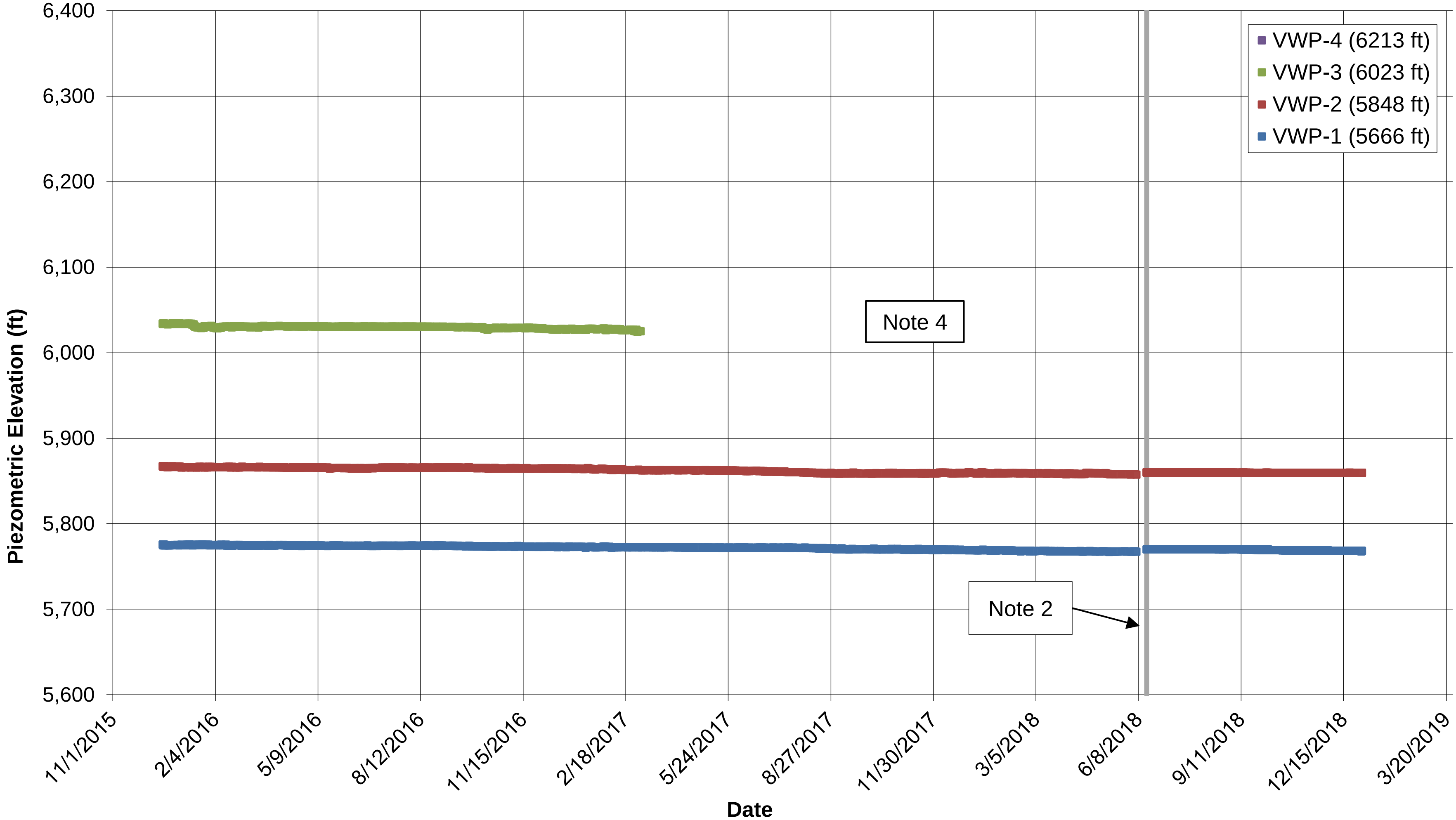


NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONTIORING SYSTEM ON JUNE 15, 2018.
3. NO PIEZOMETRIC DATA ARE SHOWN FOR VWP-4 BECAUSE THE SENSOR WAS UNSATURATED (DRY).
4. NO PIEZOMETRIC DATA ARE SHOWN FOR VWP-3 AFTER MARCH 3, 2017 BECAUSE THE SENSOR WAS UNSATURATED (DRY).

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

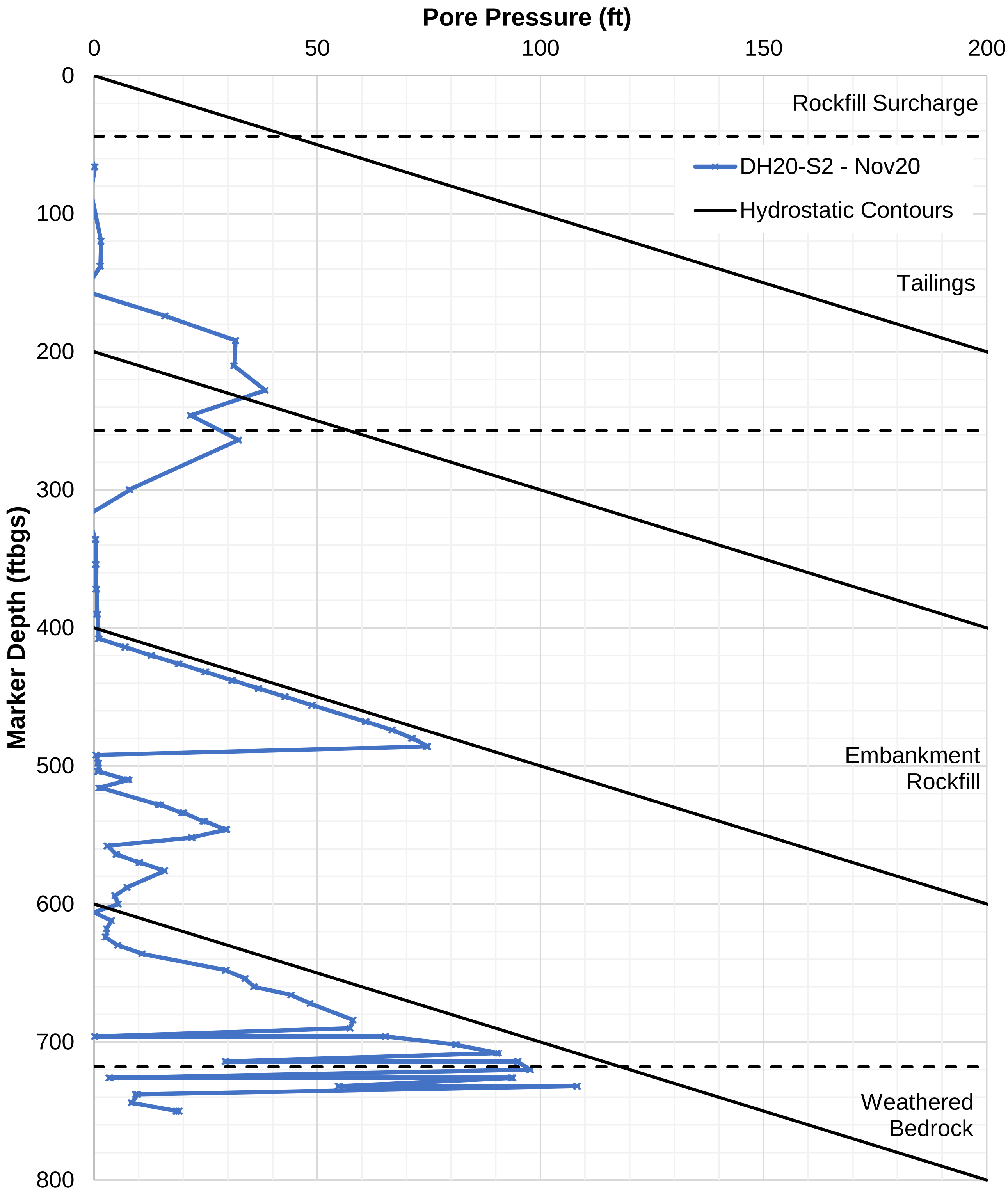
DH15-S5 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-00126/23 | REF. NO. 5

FIGURE 4.7 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD



NOTES:

1. DATA PRESENTED ABOVE ARE FROM ELEXON MINING GEO4SIGHT INSTRUMENTATION RECORDED ON NOVEMBER 30, 2020.

2. PORE PRESSURES HAVE BEEN CORRECTED FOR LOCAL BAROMETRIC PRESSURE RECORDED ON SURFACE AT DH17-S2.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 YDTI GEOTECHNICAL INVESTIGATION
GEO4SIGHT PORE WATER PRESSURE PROFILE
DRILLHOLE DH20-S2

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE 4.8 REV 0

4.3.3 NORTH-SOUTH EMBANKMENT

Piezometric monitoring within the North-South Embankment was historically limited to manual water level measurements recorded at approximately ten active standpipe piezometers prior to 2018. Five drillholes with nested VWPs (DH18-S1, DH18-S2, DH19-S1, DH19-S2, and DH19-S6) were completed during 2018 and 2019 to expand the spatial coverage of the monitoring network and collect data within the embankment fill and foundation materials. Piezometric elevation plots from the monitoring sites within the North-South Embankment are provided in Appendix C2. Several historical monitoring sites (Wells 05-04, 12-02, 12-03, and 12-06A) are inaccessible or abandoned; however, their historical records are included where available. Two wells (Wells 13-02 and 13-03) are in an area of active leaching downstream of the embankment where piezometric conditions are associated with leach pad loading rather than embankment related seepage conditions. Piezometric levels from December 31, 2020 are shown on Sections 13+00N, 28+00N, 43+00N, and 58+00N on Figures 4.9, 4.10, 4.11, and 4.12, respectively.

Piezometric monitoring sites within the embankment rockfill at the North-South Embankment have previously indicated stable or increasing piezometric elevations since 2017 and this trend generally continued through 2020. Key monitoring findings include:

- Pore pressures monitored in drillholes DH18-S1 (Section 28+00N; VW2), and DH19-S2 (Section 13+00N; VW1, VW3) generally exhibited increasing piezometric elevations ranging from approximately 1 ft to 5 ft within the rockfill during 2020.
- Pore pressures monitored in drillholes DH18-S2 (Section 43+00N; VW2), DH19-S2 (Section 13+00N; VW4, VW5) exhibited stable pore pressure conditions.

Piezometric conditions recorded within the North-South Embankment continue to indicate that a basal saturated zone exists within the bottom 0 to 100 ft of the embankment rockfill. The thickness of the saturated zone depends on foundation topography (historical surface topography) and location along the embankment, with relatively thicker basal saturation present in historical topographic lows and with increasing proximity to the central pedestal area (KP, 2020c). Hydraulic gradients calculated based on December 31, 2020 piezometric elevations within the basal saturated zone continue to indicate presence of a southwestward flow gradient that drives seepage flow from the abutment towards the central embankment section. The following calculated gradients based on December 31, 2020 piezometric elevations (unless otherwise noted) illustrate this condition and are similar to previous monitoring periods:

- Drillhole DH18-S2 (VW2; Section 43+00N) recorded a piezometric elevation of 6,009 ft. Drillhole DH18-S1 (VW2) along section 28+00N measured a piezometric elevation of 5,991 ft (December 31, 2020). This yields a hydraulic gradient of approximately 0.01 towards Section 28+00N.
- Piezometric elevations measured at drillholes DH19-S2 VW2 (Section 13+00N) and DH17-S2 VW2 (Section 0+00) were 5,854 ft and 5,847 ft, respectively. This yields a hydraulic gradient of approximately <0.1 towards Section 0+00.

Numerous sensors are installed within isolated perched saturated zones and unsaturated rockfill above the inferred North-South Embankment basal saturated zone. Pore water pressures monitored within interpreted perched zones during 2020 generally remained stable. Key monitoring findings from 2020 include:

- Drillhole DH18-S2 (VW3, VW4, and VW5) installed in the perched zones at Section 43+00W have recorded generally stable pore pressures with approximately 5 ft of pressure head monitored by each sensor.

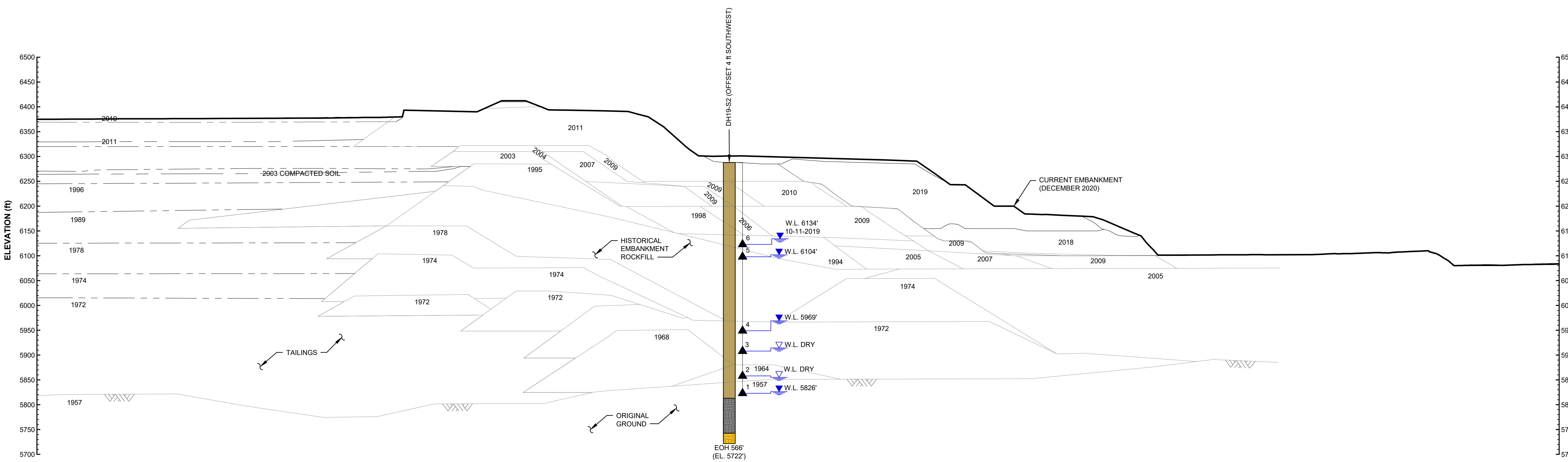
- Pore pressures recorded at DH18-S1 (VW4) at Section 28+00N are inferred to be associated with a perched saturated zone in the rockfill above the basal saturated zone and remained generally stable during 2020.
- Sensors DH19-S2 VW4, VW5 at Section 13+00 N placed within the perched zones above the basal saturated zones all remained saturated and monitored stable pore pressures throughout 2020.

Construction related pore pressure responses were observed in basal saturated zone and foundation of the North-South Embankment during 2019 in response to construction of four North-South Embankment step-out lifts from mid-2019 through Q1 2020, as described in KP (2020). The final lift up to EL. 6,400 ft was completed in April 2020. The largest pore pressure response to construction was observed in the alluvial foundation material at drillhole DH18-S1 (VW1) on Section 28+00N (non-QPP site). The EL. 6,400 ft lift resulted in a construction induced pore pressure increase of approximately 25 ft and subsequent partial dissipation at this site. Pore water pressures at VW1 (DH18-S1) began to dissipate following the 6,400 lift placement and pore pressure dissipation at this site continued throughout 2020. Minor pore pressure dissipation following 6,400 lift construction was observed at DH18-S1 (VW2), DH18-S2 (VW2), and MW12-01 (VW1) within the basal system, with magnitudes of decrease ranging between 0.2 and 0.5 ft. The geometry and timing of the North-South Embankment step-out construction is shown relative to piezometric monitoring sites on Figure 4.13.

KP closely monitored the post-construction pore pressure dissipation during 2020 and results were presented in quarterly piezometric monitoring summary letters. Pore pressures have continued to dissipate at drillhole DH18-S1 (VW1) throughout 2020 as shown on Figure 4.14. The minor responses observed in the basal system are no longer apparent. The status of dissipation at DH18-S1 (VW1) as of December 2020 is summarized below:

- Pore pressure dissipation continued throughout 2020 with an average dissipation rate of 4.3 ft/month. The rate of dissipation decreased over time and was approximately 3.3 ft/month at the end of December 2020.
- Monitored pore pressures on December 31, 2020 had dissipated to approximately 15 ft above pre-EL. 6,350 lift placement conditions or approximately 35 ft above pore pressures monitored prior to the start of step-out construction.

It is inferred that an association between tailings discharge at locations NS-2, NS-3, and NS-4 and pore pressures monitored nearby within the North-South Embankment rockfill may exist. Tailings discharge records indicate that the NS-2, NS-3, and NS-4 were used frequently during 2020. No pore pressure increases were observed directly corresponding to these periods in drillhole sites installed within North-South Embankment rockfill. Data from monitoring sites installed in the crest including DH18-S1, DH18-S2, MW12-04, and MW12-05 indicate relatively constant piezometric elevations throughout this period (MW12-05 remained unsaturated throughout). Drillhole DH19-S2, installed just downstream of the crest on Section 13+00N, also did not monitor a response since installation of sensors during 2019 Sensors installed in drillhole DH19-S6 within the embankment rockfill (VW2 and VW4) on Section 58+00N monitored constant piezometric elevations while the overlying VW6 sensor within the tailings recorded an increase of approximately 30 ft in response to discharge from NS-4. This finding continues to suggest that the rockfill is generally sufficiently permeable to convey any additional recharge from tailings slurry water without building significant pore pressure increase at the sensor locations. No data were available for MW05-3, MW12-02, MW12-03, MW12-05, MW12-06A, MW14-02, but based on past trends and local pore pressure trends, it is anticipated that the trends would be stable and similar to other monitoring instruments in the area.



SECTION 6 (4.1 FIG)

STATION 13+00 N

SCALE A

LEGEND:

- TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A: 100 0 100 200 300 400 500 ft

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B43, 6/29/2021 1:19:57 PM , RMCLELLAN PRINTED: 6/29/2021 1:54:25 PM, FIG 4.9, RMCLELLAN ACAD VERSION: 23.0S (LMS TECH)
XREF FILE(S): Sections IMAGE FILE(S):

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0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG NORTH-SOUTH EMBANKMENT SECTION 13+00 N (LOOKING NORTHEAST)

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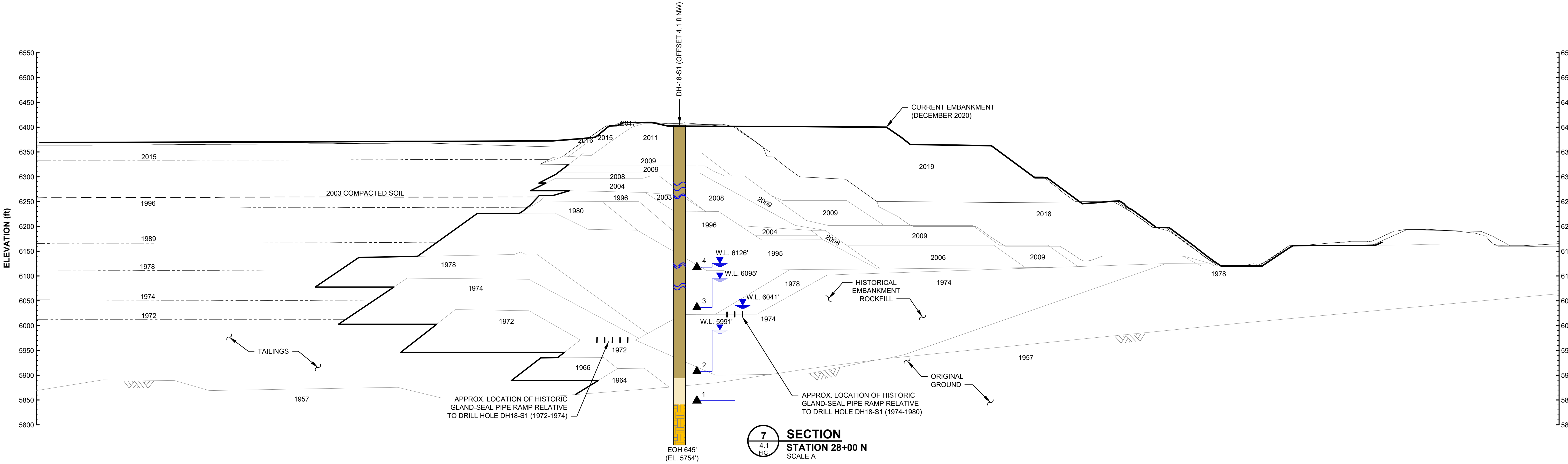
P/A NO. VA101-126/23 | REF NO. 5

FIGURE 4.9 | REV 0



7 / 4.1 FIG **SECTION** STATION 28+00 N SCALE A

LEGEND:

- EMBANKMENT FILL
- OLDER ALLUVIUM
- HIGHLY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020

NOTES:

1. COORDINATE GRID AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC LEVELS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG NORTH-SOUTH EMBANKMENT SECTION 28+00 N (LOOKING NORTHEAST)

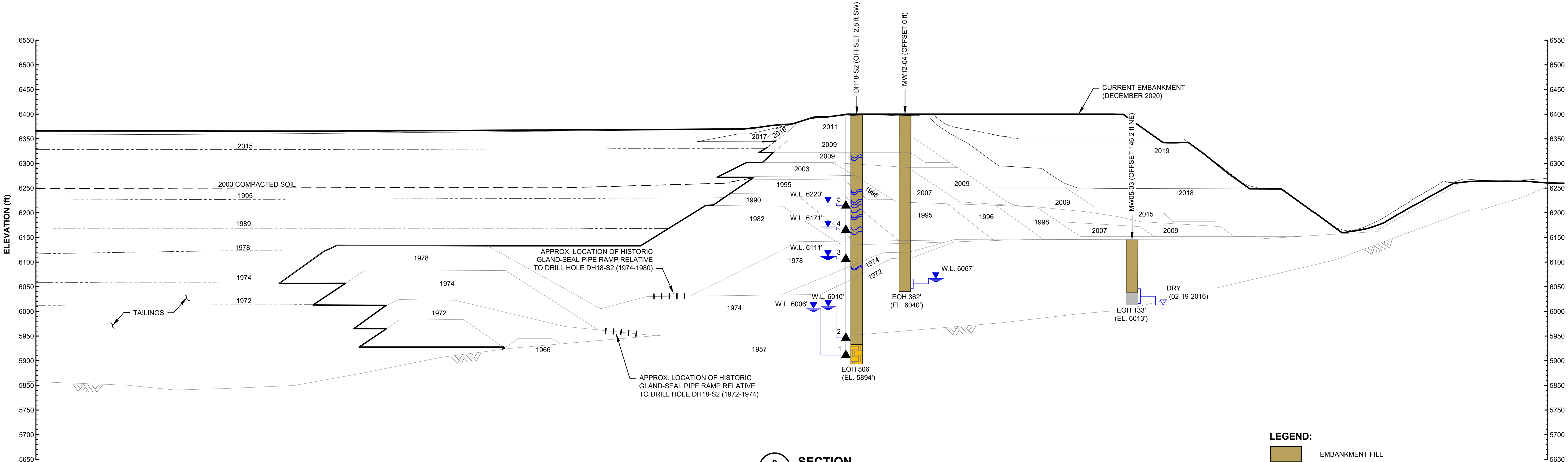
Knight Piésold CONSULTING

P/A NO. VA101-126/23 | REF NO. 5

FIGURE 4.10 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B44, 5/14/2021 8:44:45 AM , RMCLELLAN PRINTED: 6/29/2021 1:55:58 PM, FIG 4.10, RMCLELLAN
XREF FILE(S): X-C-EMBK-EAST-6450-DESG Sections IMAGE FILE(S):



8 4.1 FIG — **SECTION**
STATION 43+00 N
SCALE A

LEGEND:

- EMBANKMENT FILL
- HIGHLY WEATHERED BEDROCK
- COMPETENT BEDROCK
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE
- DISCONTINUOUS PERCHED WET ZONE OBSERVED DURING DRILLING
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020

NOTES:

1. COORDINATE GRID AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. SOL STANDS FOR SETTING OUT LINE.
4. PIEZOMETRIC LEVELS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.
5. MW05-03 BECAME BLOCKED IN EARLY 2016. A VWP SENSOR WAS SUSPENDED IN THE WELL AT EL. 6052.4' IN AUGUST 2018, BUT WAS DAMAGED AND THE WELL WAS ABANDONED.

SCALE A: 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

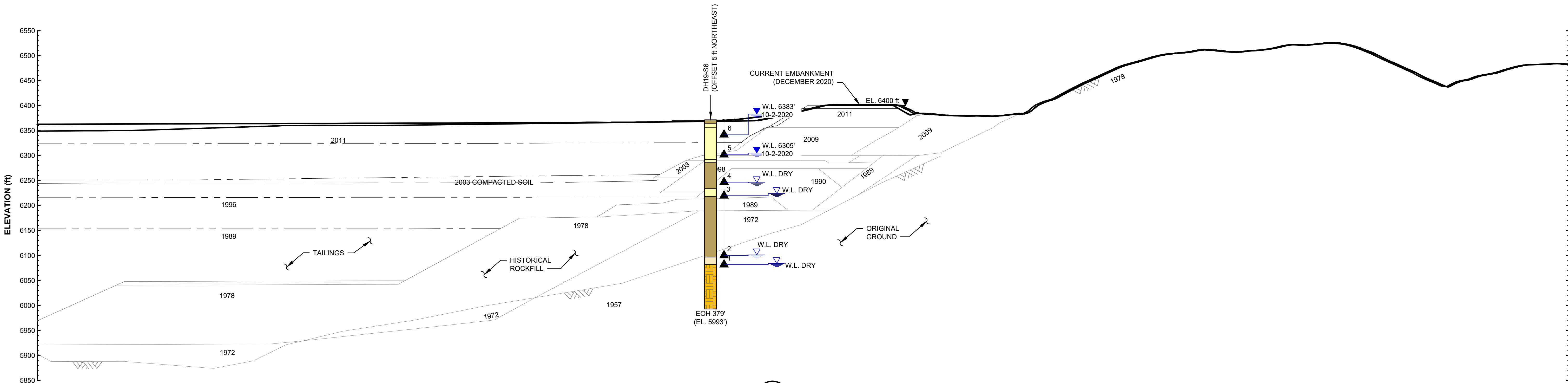
PIEZOMETRIC CONDITIONS ALONG NORTH-SOUTH EMBANKMENT SECTION 43+00 N (LOOKING NORTHEAST)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.11 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD



9 SECTION
4.1 FIG

STATION 58+00 N

SCALE A

LEGEND:

- TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- EMBANKMENT TOPOGRAPHY AS OF DECEMBER 2020
- 2019 SURVEY (TAILINGS)
- 1972 HISTORIC TAILINGS SURFACE
- 1972 DATE OF EMBANKMENT RAISE

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG NORTH-SOUTH EMBANKMENT SECTIONS 58+00 N (LOOKING NORTHEAST)

Knight Piésold CONSULTING

P/A NO.	REF NO.	
VA101-126/23	5	
FIGURE 4.12		REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B46, 6/29/2021 1:19:52 PM , RMCLELLAN PRINTED: 6/29/2021 1:58:46 PM, FIG 4.12, RMCLELLAN ACAD VERSION: 23.0S (LMS TECH)
XREF FILE(S): Sections IMAGE FILE(S):

AUGUST 4, 2019	SEPTEMBER 3, 2019	NOVEMBER 22, 2019	DECEMBER 6, 2020

NOTES:

1. IMAGES DOWNLOADED FROM SENTINEL-2 L1C IMAGERY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

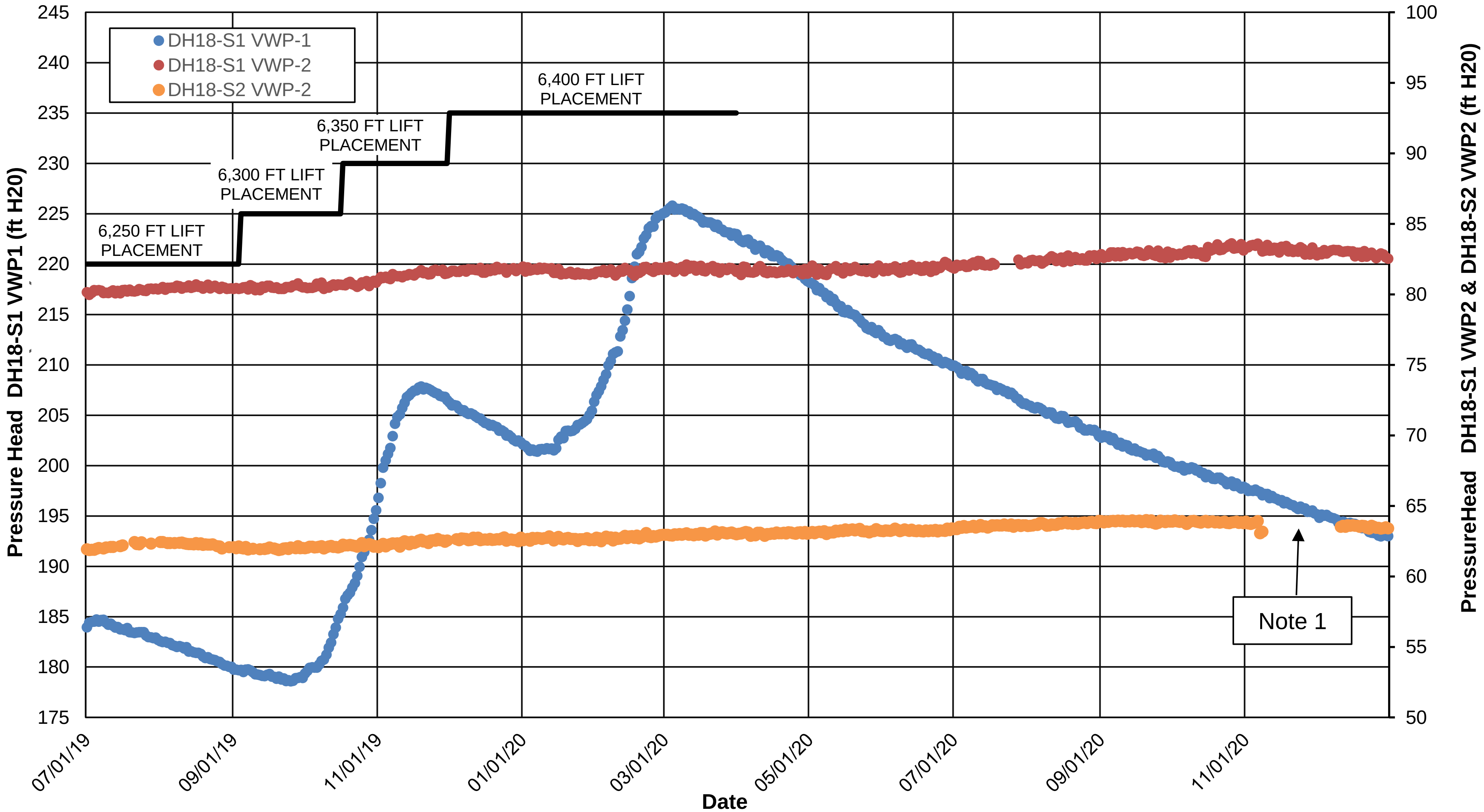
YANKEE DOODLE TAILINGS IMPOUNDMENT

SATELLITE PHOTOGRAPHS OF NORTH-SOUTH EMBANKMENT CONSTRUCTION

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 4.13 REV 0



NOTES:

1. NO DATA COLLECTED FOR VWP-2 FROM NOVEMBER 9 TO DECEMBER 2, 2020 DUE TO SENSOR ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

EXAMPLE PORE PRESSURE RESPONSE TO NORTH-SOUTH EMBANKEMNT STEP-OUT CONSTRUCTION (DRILLHOLE DH18-S1 & DH18-S2)

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE 4.14

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	BQN	KTD

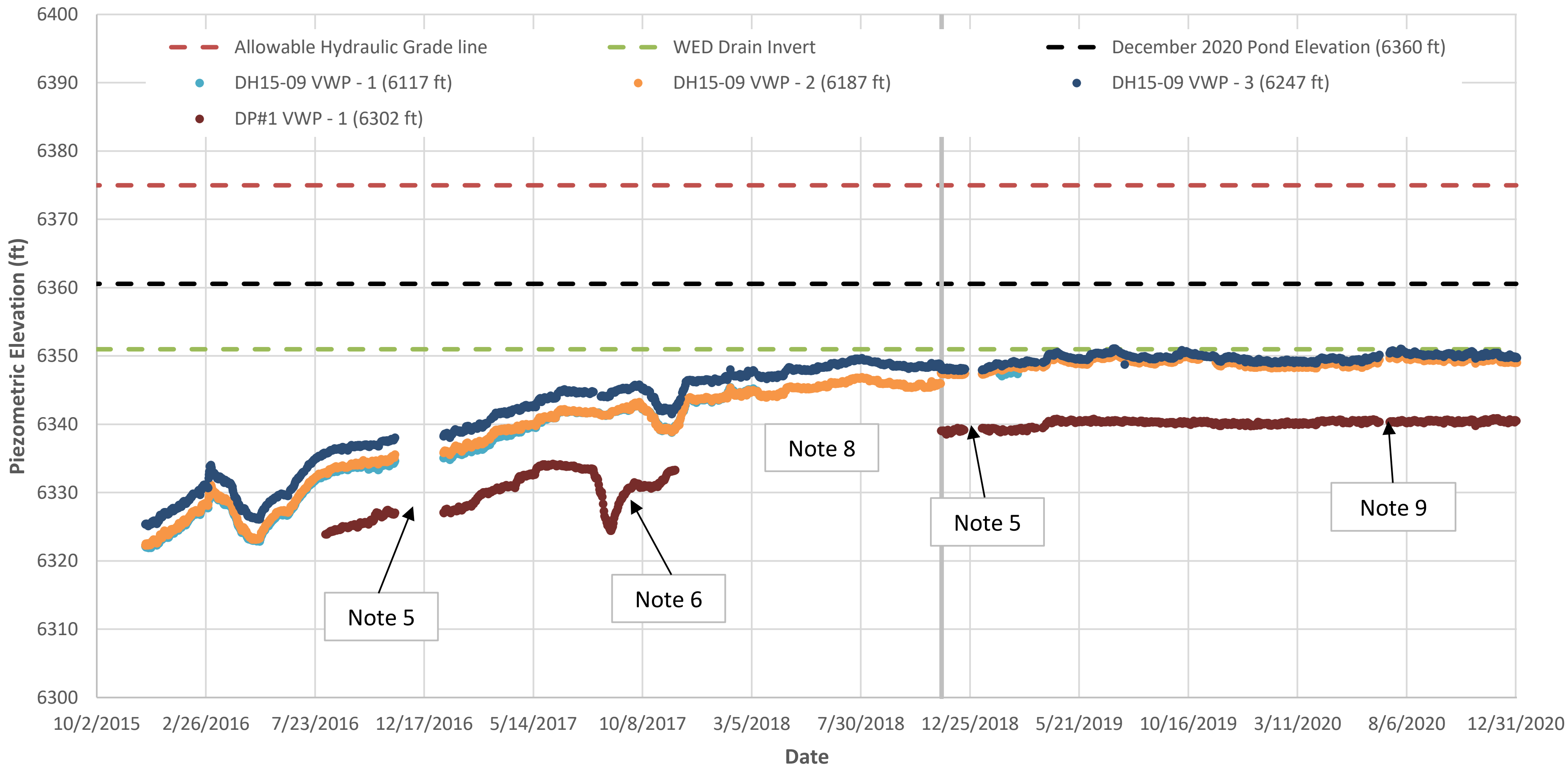
4.3.4 WEST EMBANKMENT

Piezometric elevation plots for the monitoring sites located within the West Embankment foundation and WED (at Drain Pod 1, Drain Pod 2, and the Extraction Basin) are provided in Appendix C3. The YDTI supernatant pond elevation has been higher than the WED invert elevation along the entire length since 2019. This indicates that a hydraulic gradient between the YDTI and the WED exists and seepage discharge from the YDTI into the WED is active.

Piezometric elevations monitored within the foundation, drain pods and Extraction Basin generally monitored stable conditions during 2019 and 2020, following a multiple year increase. This stabilization illustrates the draining influence of the WED on pore pressures beneath the West Embankment. Key monitoring findings from 2020 include:

- Piezometric elevations recorded by several sites (DH15-03, DH15-09, DH15-11, and DH15-12) installed within the natural foundation materials underlying the embankment monitored a continuation of the stable trends observed in 2019.
- Pore pressures within and around Drain Pod 1 and the Extraction Basin monitored minor annual increases of approximately 1 ft, as shown on Figure 4.15 and Figure 4.17, respectively.
- Instrumentation within and around Drain Pod 2 monitored a minor decrease of approximately 1 ft during 2020, as shown on Figure 4.16.
- Piezometric elevations measured in Drain Pod 1, Drain Pod 2, and the Extraction Basin at the end of 2020 were all more than 30 ft below the TOMS defined QPP ‘trigger elevation’ (KP, 2020c).

The piezometric data from monitoring sites up-gradient of the WED and within the east-facing hillslope from the West Ridge (DH15-01, DH15-02, DH15-04, DH15-07, and DH15-08) all continue to show seasonal trends associated with spring snowmelt and precipitation. These sites are located within the ultimate footprint area of the West-Embankment (crest elevation of 6,450 ft). Pronounced increases in the measured pore pressures were observed in mid-March, May, June, and July. The magnitude of the seasonal peak was approximately half of the increase monitored in 2019. The lower peak may result from comparably drier climate conditions or changes to drainage or recharge conditions due to ongoing West Embankment construction. Similar seasonal trends are apparent in the West Ridge area, as discussed in Section 4.3.7.



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. DP#1 VWP-1 IS INSTALLED IN THE BOTTOM OF DRAIN POD 1.
3. THE DH15-09 VWPS ARE INSTALLED IN A DRILLHOLE APPROXIMATELY 250 ft SW OF DP#1.
4. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM NOVEMBER 15 AND 16, 2018.
5. VWPs STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
6. THE WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED PUMPING AT DRAIN POD.
7. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS A 10 ft INCREASE IN HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN OF THE WEST EMBANKMENT DRAIN AT DRAIN POD #1
8. NO DATA REPORTED BETWEEN NOVEMBER 21, 2017 TO NOVEMBER 16, 2018 AND DECEMBER 17, 2018 ONWARDS DUE TO A HARDWARE ISSUE.
9. NO DATA REPORTED BETWEEN JUNE 31 TO JULY 14, 2020 DUE TO HARDWARE ISSUE.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DRAIN POD #1 AREA PIEZOMETRIC ELEVATION RELATIVE TO WEST EMBANKMENT DRAIN AND MAXIMUM ALLOWABLE HYDRAULIC GRADE LINE

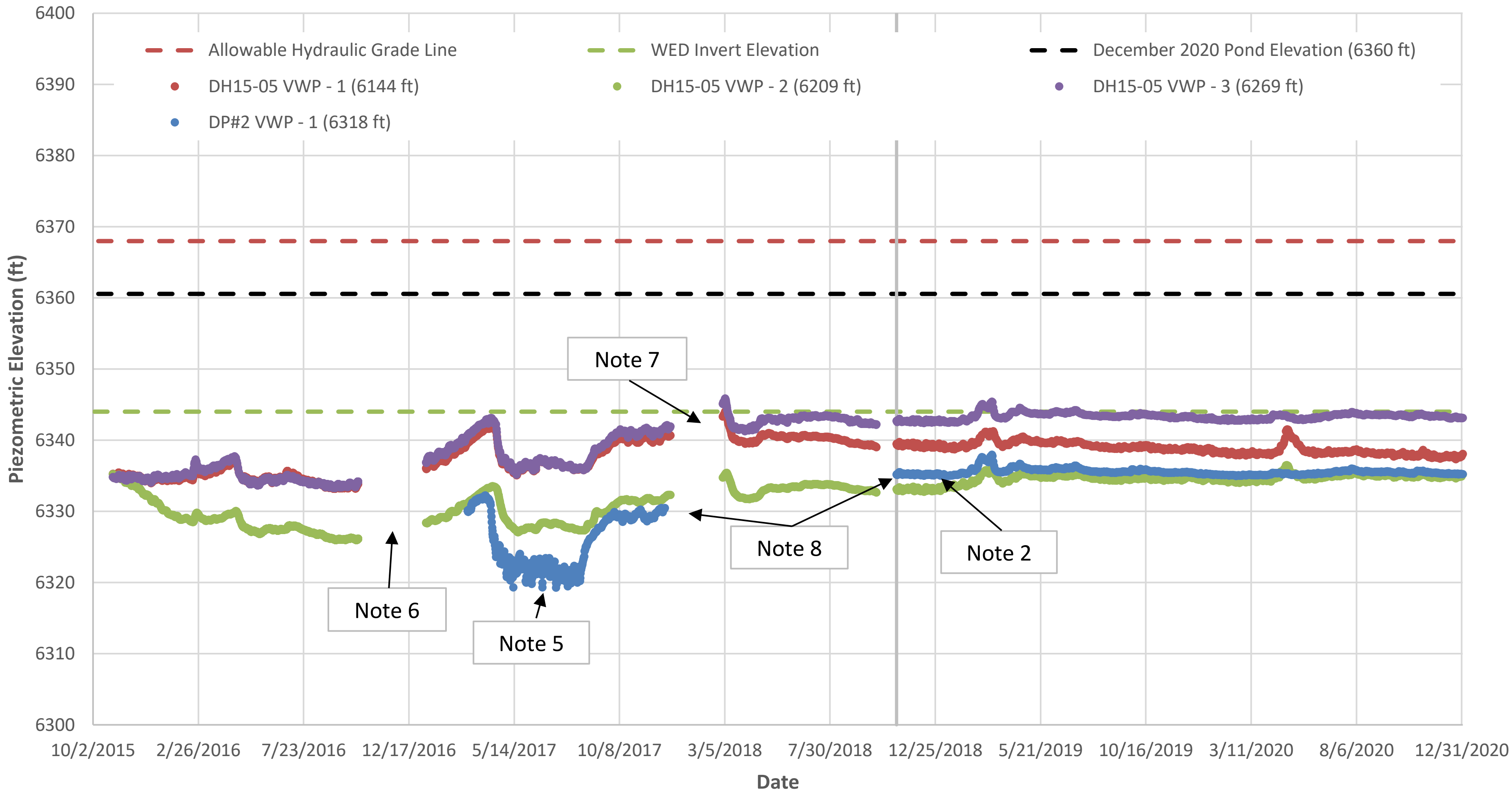
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 4.15

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. DP#2 VWP-1 IS INSTALLED IN THE BOTTOM OF DRAIN POD 2.
3. THE DH15-05 VWPS ARE INSTALLED IN A DRILLHOLE APPROXIMATELY 200 ft S OF DP#2.
4. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM BETWEEN NOVEMBER 1 AND 16, 2018.
5. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED DEWATERING OF THE SOUTH POND AREA AND FROM THE WEST EMBANKMENT DRAIN.
6. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS A 10 ft INCREASE IN HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN OF THE WEST EMBANKMENT DRAIN AT DRAIN POD #2.
7. NO DATA RECORDED FROM DECEMBER 19, 2017 TO NOVEMBER 16, 2018 DUE TO A CONNECTIVITY ISSUE.
8. SENSORS STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DRAIN POD #2 AREA PIEZOMETRIC ELEVATION RELATIVE TO WEST EMBANKMENT DRAIN AND MAXIMUM ALLOWABLE HYDRAULIC GRADE LINE

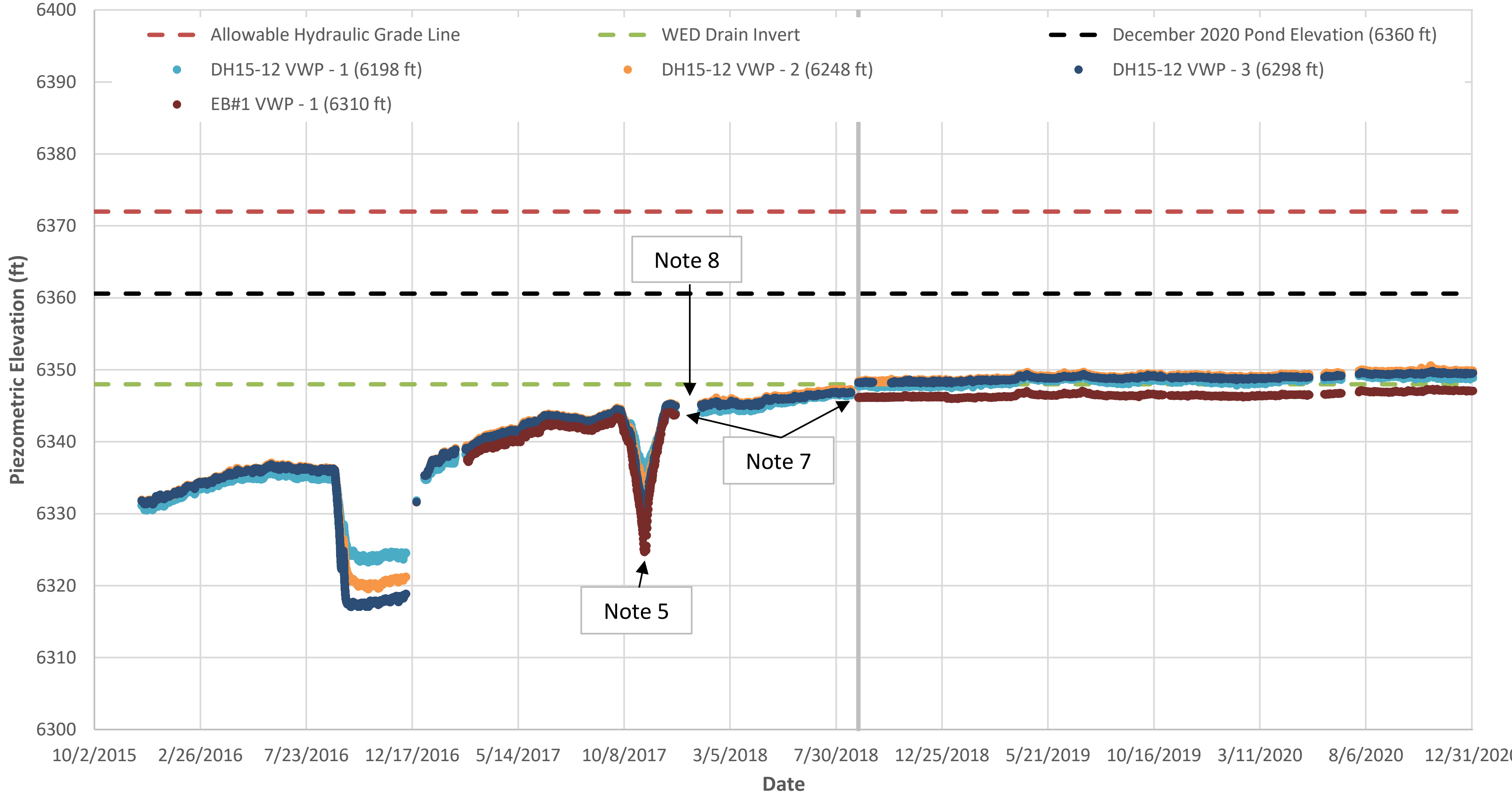
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 4.16

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS INTEGRATED TO THE REMOTE MONITORING SYSTEM BETWEEN NOVEMBER 15 AND 16, 2018.
3. EB#1 VWP-1 IS INSTALLED INTO THE BOTTOM OF OF EXTRACTION BASIN #1.
4. THE DH15-12 VWPS ARE INSTALLED IN A DRILLHOLE APPROXIMATELY 200 ft SW OF EB#1.
5. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED PUMPING AT EXTRACTION BASIN 1.
6. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS A 10 ft OF HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN OF THE WEST EMBANKMENT DRAIN AT THE EXTRACTION BASIN.
7. NO DATA RECORDED FOR EB#1 VWP -1 BETWEEN DECEMBER 19, 2017 TO NOVEMBER 16, 2018 DUE TO A CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

EXTRACTION BASIN AREA PIEZOMETRIC ELEVATION RELATIVE TO WEST EMBANKMENT DRAIN AND MAXIMUM ALLOWABLE HYDRAULIC GRADE LINE

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE 4.17

REV 0

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REV	DATE	DESCRIPTION	PREP'D	RVW'D

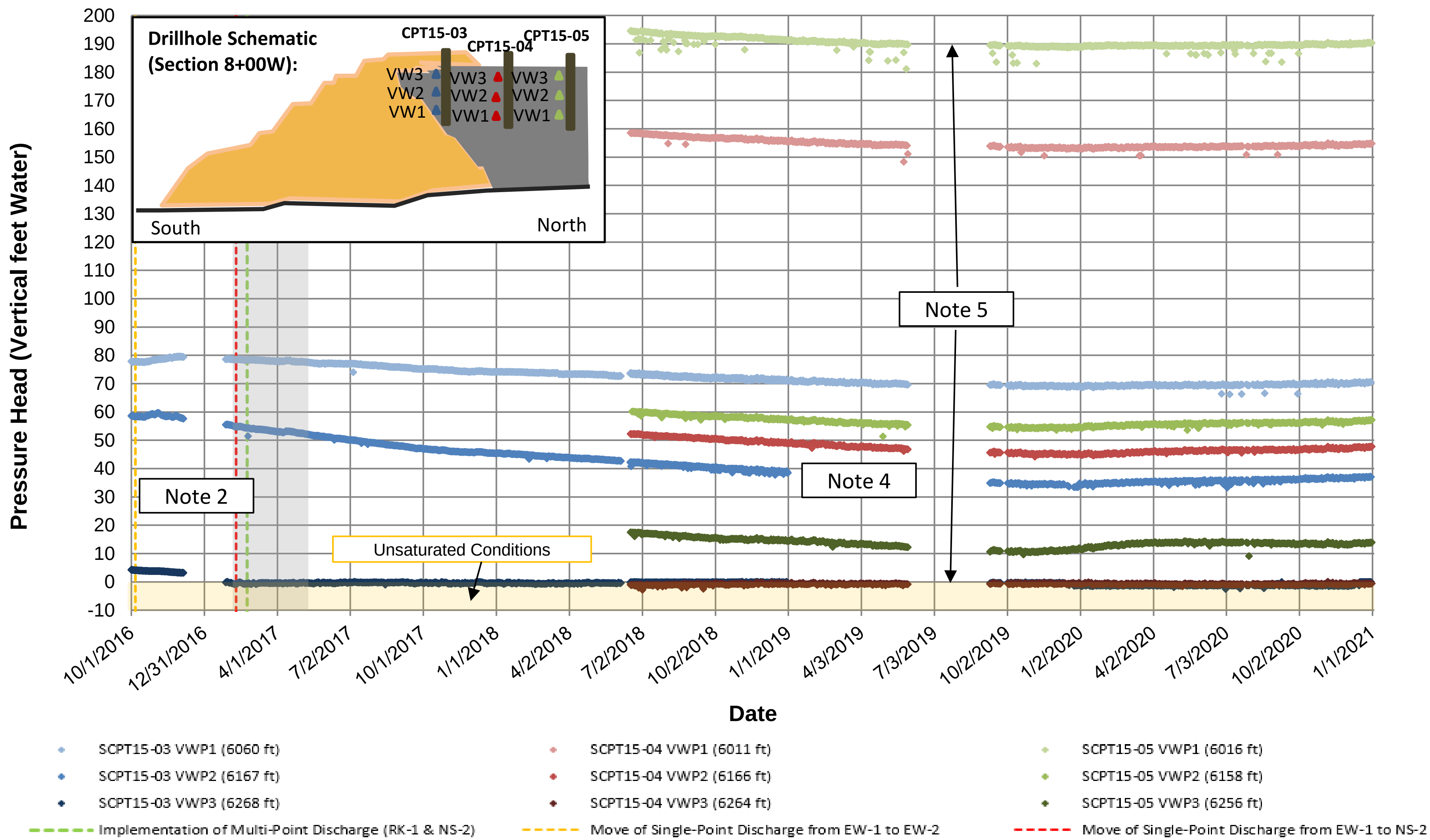
4.3.5 TAILINGS MASS

Piezometric elevation plots for monitoring sites within the tailings are provided in Appendix C4. Piezometric conditions in the tailings mass recorded on December 31, 2020 are shown upstream of East-West Embankment Sections 0+00, 8+00W, 28+00NW, and 43+00NW on Figure 4.2, 4.3, 4.5, and 4.6, respectively.

Piezometric elevations within the tailings beach upstream of the East-West Embankment increased throughout 2020 following the gradual decreasing trend observed since 2017 but remain well below pore pressures monitored prior to 2017 (before implementation of multiple-point tailings discharge)

- VWPs installed within the tailings mass upstream of the central pedestal area at CPT15-04 and CPT15-05 monitored annual piezometric increases of between approximately 1 to 3 ft.
- Instrumentation within the tailings beneath the central pedestal area rockfill surcharge on Sections 8+00W and 0+00 observed stable or increasing trends during 2020. Drillhole DH17-S3 VW1 monitored a 2 ft decrease and DH17-S3 VW2 monitored stable pore pressures during 2020. Instrumentation at CPT15-03 monitored minor pore pressure increases of approximately 2 ft (VW2) and 1 ft (VW1)
- Pore pressures monitored beneath the East-West Embankment rockfill surcharge (at CPT15-06, CPT15-07, CPT15-08, CPT13-01, CPT13-02A, CPT13-03, CPT13-04, CPT13-05 and CPT13-06) from Sections 28+00NW to 53+00NW (inclusive) increased by approximately 2 to 7 ft during 2020 VWP sensors placed below 6,160 ft observed minor piezometric elevation increases of 2 ft while shallower sensors that are located above 6,160 ft typically observed greater increases.

Piezometric elevations upstream of the North-South Embankment near the north abutment also monitored increasing conditions during 2020. VWPs installed in drillhole DH19-S6 (Section 58+00N) monitored annual pore pressure increases of 6 ft and 23 ft at VW5 and VW6, respectively. Sensor VW5 showed a continuous increase in pore pressure during 2020 and is installed within fine tailings material at approximately EL. 6,304 ft. Sensor VW6 is installed nearer to surface at EL. 6,344 ft within more recent coarse tailings and showed increasing pressures through Q3 2020 followed by subsequent stabilization and minor decreases observed in Q4 2020. Increasing pore water pressures are inferred to result from predominant operation of the NS-3 and NS-4 tailings discharge in the second half of 2020. Pore pressures upstream of the North-South Embankment at its southern end (Section 13+00N, CPT14-02 VW1) recorded stable pore pressure trends during 2020.



NOTES:
1. SENSOR DEPTHS SHOWN IN LEGEND ARE VERTICAL DEPTHS BELOW GROUND SURFACE.
2. A DATA GAP EXISTS BETWEEN JUNE 8, 2016 AND JULY 1, 2016 DURING WHICH TIME THE DATA LOGGER WAS NON-FUNCTIONAL.
3. VW3 BECOMES UNSATURATED BEGINNING ON JANUARY 27, 2017.
4. DATA GAP FROM DECEMBER 26, 2018 TO SEPTEMBER 11, 2019 CAUSED BY HARDWARE OUTAGE AT MONITORING HUB 5.
5. NO DATA WERE RECORDED BETWEEN JUNE 1 AND SEPTEMBER 10, 2020 DUE TO HARDWARE ISSUE. SENSORS WERE CONNECTED TO MH-5 TEMPORARY LOGGER SEPTEMBER 11, 2019.

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REV	DATE	DESCRIPTION	PREP'D	CHK'D

MONTANA RESOURCES, LLP

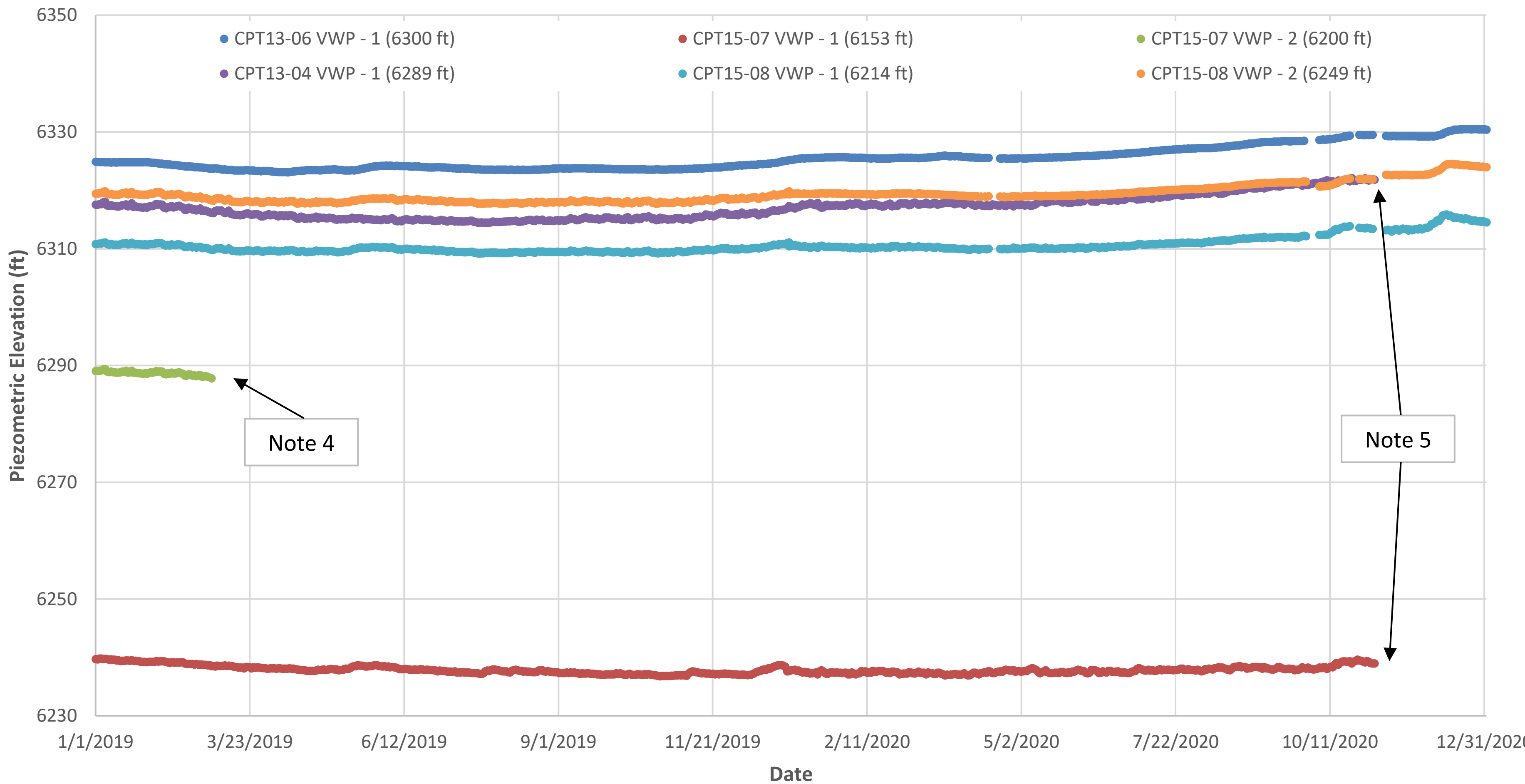
YANKEE DOODLE TAILINGS IMPOUNDMENT

EFFECT OF TAILINGS DISCHARGE STRATEGY ON PORE WATER PRESSURE WITHIN THE CENTRAL TAILINGS MASS AT SCPT15-03, SCPT15-04, SCPT15-05

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE 4.18 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONITORING SYSTEM ON SEPTEMBER 4, 2018.
3. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. DATA THEREAFTER HAS BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
4. ERRONEOUS DATA WERE RECORDED BY CPT15-07 FOLLOWING MARCH 3, 2019 DUE TO A MALFUNCTIONING EMBEDDED SENSOR.
5. ERRONEOUS DATA RECORDED AFTER NOVEMBER 4, 2020 DUE TO A HARDWARE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

EFFECT OF TAILINGS DISCHARGE STRATEGY ON PIEZOMETRIC CONDITIONS IN THE TAILINGS MASS

Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 4.19

REV 0

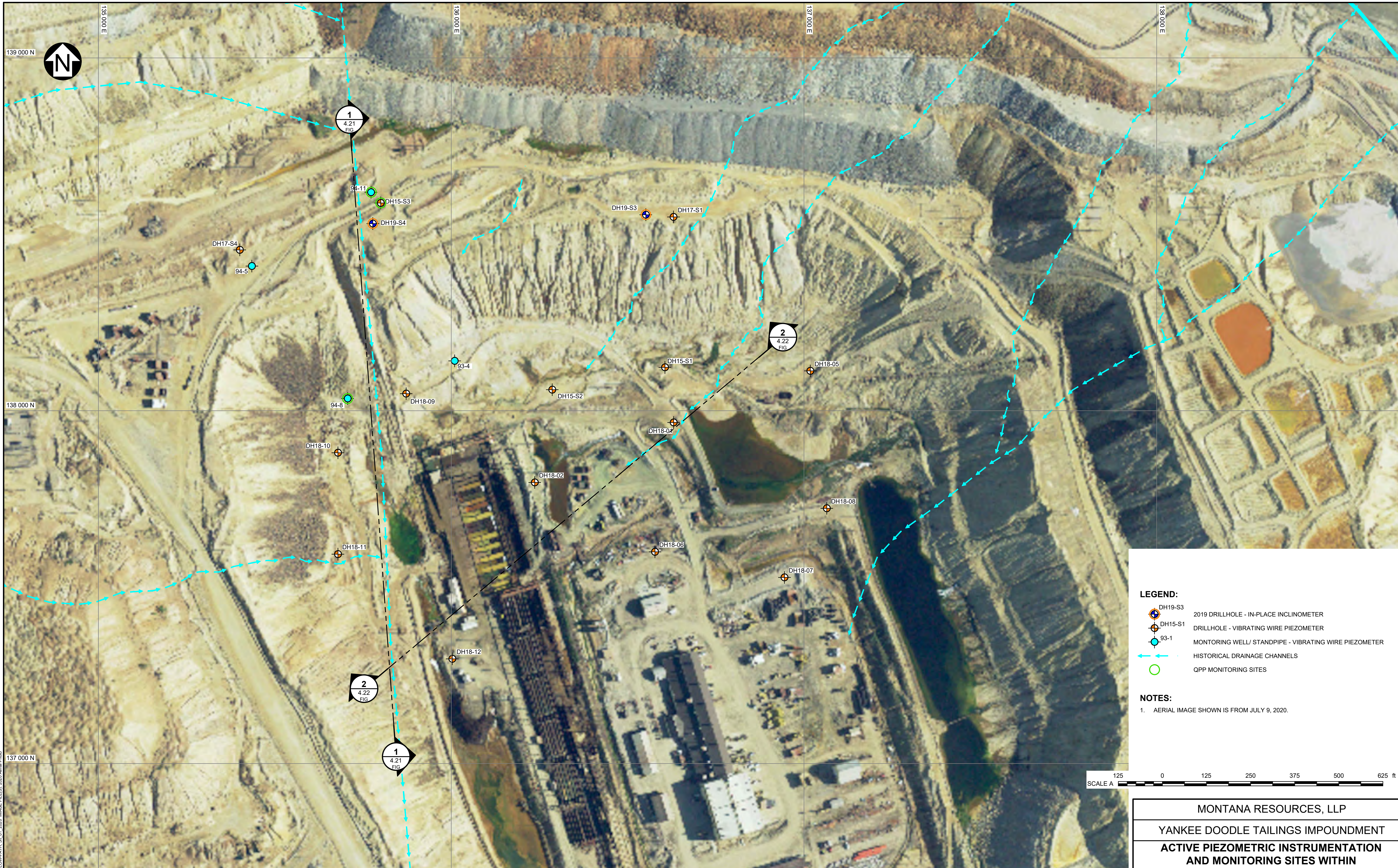
4.3.6 HORSESHOE BEND AREA

The 2018 HsB site investigation program included the installation of 30 VWPs, installed in ten drillholes, throughout the HsB area to monitor pore pressures within fill, alluvial soil, weathered bedrock, and competent bedrock materials. The monitoring locations are shown on Figure 4.20 Active Piezometric Instrumentation and Monitoring Sites Within Horseshoe Bend (HsB) Area4.20. Piezometric data from these sites are presented in Appendix C5 and are shown graphically on two cross-sections through the HsB area on Figure 4.21 Piezometric Conditions Along Historical Silver Bow Diversion (HsB Section 1)and Figure 4.22 Piezometric Conditions Along Historical Tributary to Silver Bow Creek (HsB Section 2)4.22. Piezometric elevations measured by VWPs in the HsB area are indicative of a relatively shallow water table that resides within near-surface fill, natural soil, and weathered bedrock materials at depth ranging from 1 to 16 ftbgs with an average of approximately 9 ftbgs. Most sites monitored relatively stable or slightly increasing piezometric trends throughout the HsB area during 2020, with some seasonal influence visible.

Piezometric conditions within the HsB area are inferred to be largely controlled by conditions associated with the YDTI and the water level in the nearby Berkeley Pit, but are also probably affected by seasonal recharge, seepage from the YDTI, and collection of pregnant leach solution from the rockfill dump leaching activities. Several of the monitoring sites in the HsB area, including VWPs installed in drillholes DH18-01, DH18-06, DH18-07, DH18-08, and DH18-12, recorded water level fluctuations throughout 2020. The magnitude of the fluctuations was minor for all sensors from January to October 2020, where it varied between approximately 1 ft to 2 ft. These minor fluctuations are inferred to be seasonal trends. Piezometric elevations for all sensors increased by 1 to 2 ft between October and November 2020 followed by stable trends until the end of 2020. Numerous HsB monitoring sites were offline from October to November due to data logger hardware outages. Data during this period were not recorded; however, similar increases were monitored at most sites in 2018 and 2019.

Pore pressure monitoring records at sites surrounding the HsB area, including drillholes DH15-S1, DH15-S2, DH18-05, DH18-09, DH18-10, and DH18-11 suggests that these areas are impacted by the seasonal variation but to a lesser extent. Pore pressures at these sites were generally stable with minor increases and decreases observed during 2020 by some of the sensors. These sites show small fluctuations in pore pressure of approximately 1 ft to 3 ft throughout the year, which may indicate these sites are influenced by seepage from the YDTI and the rockfill dump leaching circuit. Observations of seasonal influence are present for sites installed within alluvial material (DH15-S1 VW3, DH18-11 VW3, DH18-12 VW3). Additional data are required to further evaluate the trends at these sites.

Measured piezometric elevations from the nested VWP sensors continue to indicate that flow gradients within the HsB area are predominantly horizontal with only slight vertical gradients observed. Measured piezometric elevations are highest near the YDTI embankment toe at the northern extent of the HsB area, and gradually decrease with distance southward. An example is shown for the north-south trending section along the historical Silver Bow Creek diversion channel on Figure 4.21 where the piezometric elevations gradually decrease southward following the historical ground surface. This trend suggests that the predominant groundwater flow direction continues to be from north to south within the HsB area towards Berkeley Pit, which acts as the regional groundwater sink (KP, 2017b). The natural topography underlying and surrounding the HsB area also drives groundwater flow from the historical hillslopes around the HsB area towards the historical alignment of Silver Bow Creek, shown on Figure 4.20. An example of piezometric elevations indicating this condition is present on Figure 4.22. VWPs installed in drillholes on northeast-southwest trending section record relatively high piezometric elevations to the east and gradually decreasing westwards towards the historical Silver Bow Creek alignment. Groundwater flow towards the historical Silver Bow Creek alignment is expected to follow several historical (now buried) surficial drainage channels as shown on Figure 4.20.



LEGEND:

DH19-S3	2019 DRILLHOLE - IN-PLACE INCLINOMETER
DH15-S1	DRILLHOLE - VIBRATING WIRE PIEZOMETER
93-1	MONITORING WELL/ STANDPIPE - VIBRATING WIRE PIEZOMETER
	HISTORICAL DRAINAGE CHANNELS
	QPP MONITORING SITES

NOTES:

1. AERIAL IMAGE SHOWN IS FROM JULY 9, 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES WITHIN HORSESHOE BEND (HSB) AREA

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.20 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
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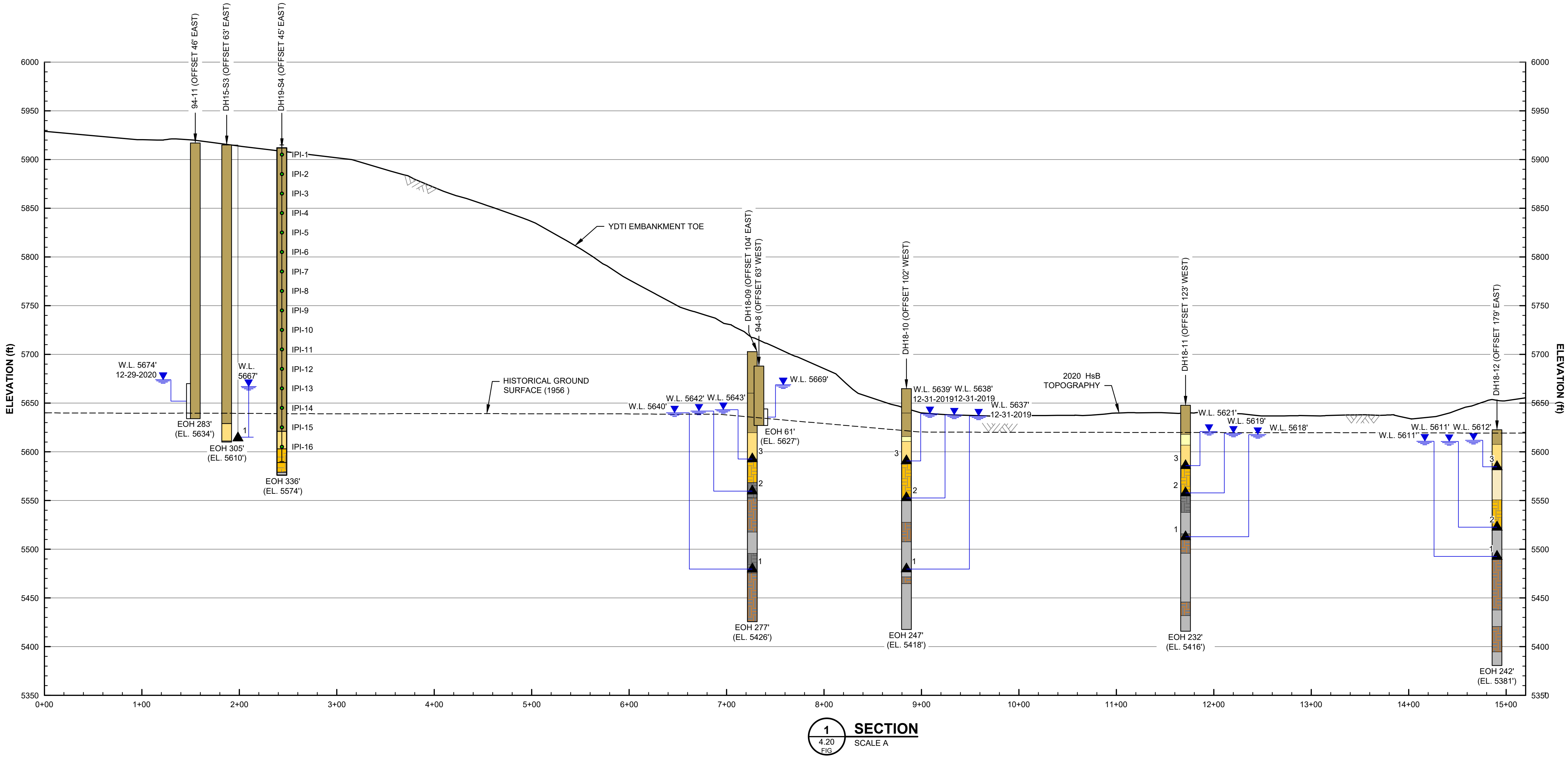
SAVED: M:\1\01\00126\23\A\Acad\FIGS\B47, 5/14/2021 8:46:06 AM , RMCLELLAN PRINTED: 6/29/2021 2:02:23 PM, FIG 4.20, RMCLELLAN
XREF FILE(S): V-HYDRO-FLOW-PATH; 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo



1 4.20 FIG **SECTION**
SCALE A

LEGEND:

- HISTORICAL MILL TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- VIBRATING WIRE PIEZOMETER (VWP)
- W.L. XXX PIEZOMETRIC ELEVATION (FEET)
- IN-PLACE INCLINOMETER (IPI) SENSOR

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A 50 0 50 100 150 200 250 300 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG HISTORICAL SILVER BOW CREEK DIVERSION (HsB SECTION 1)

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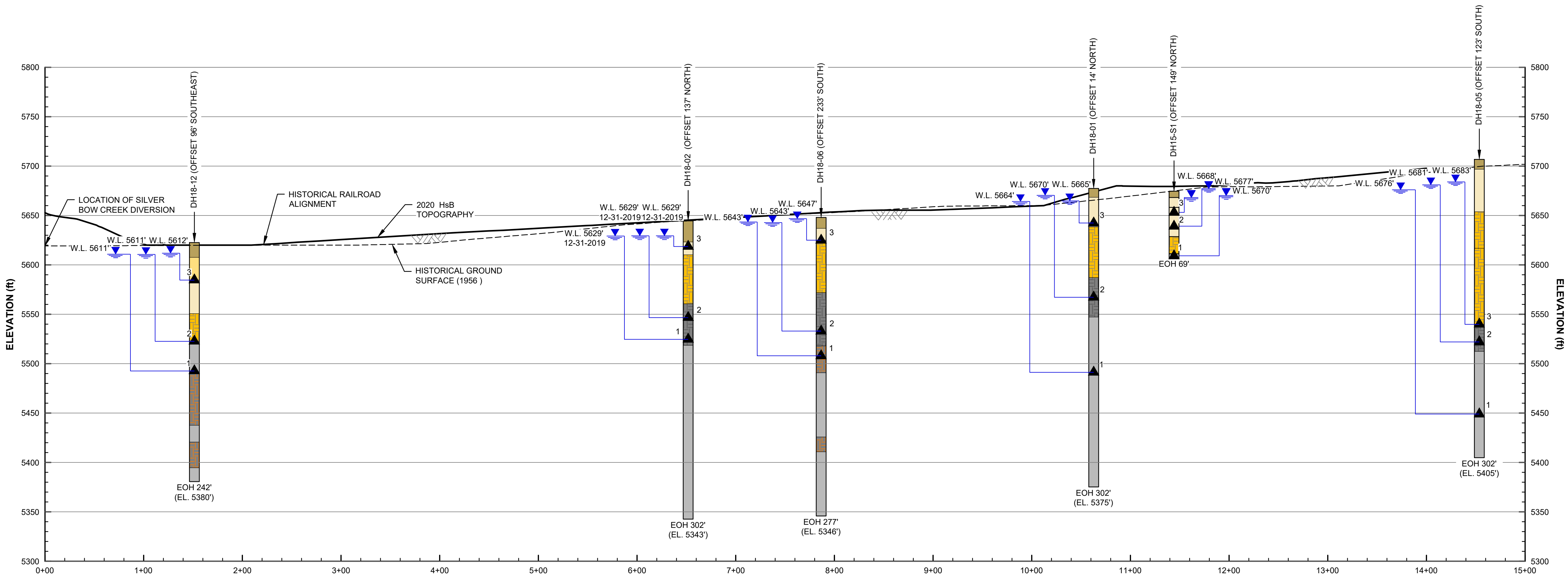
P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.21 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B48, 5/14/2021 8:48:04 AM , RMCLELLAN PRINTED: 6/29/2021 2:05:33 PM, FIG 4.21, RMCLELLAN
XREF FILE(S): IMAGE FILE(S):



SECTION
2 / 4.20 FIG

SCALE A

LEGEND:

- HISTORICAL MILL TAILINGS
- FILL
- OLDER ALLUVIUM
- RECENT ALLUVIUM
- HIGHLY ALTERED BEDROCK
- HIGHLY WEATHERED BEDROCK
- MODERATELY WEATHERED BEDROCK
- COMPETENT BEDROCK
- ▲ VIBRATING WIRE PIEZOMETER (VWP)
- W.L. XXX ▼ PIEZOMETRIC ELEVATION (FEET)

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS NOTED OTHERWISE.
3. PIEZOMETRIC ELEVATIONS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.

SCALE A: 50 0 50 100 150 200 250 300 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

PIEZOMETRIC CONDITIONS ALONG HISTORICAL TRIBUTARY TO SILVER BOW CREEK (HsB SECTION 2)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.22 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B49, 5/14/2021 8:47:32 AM , RMCLELLAN PRINTED: 6/29/2021 2:06:57 PM, FIG 4.22, RMCLELLAN
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4.3.7 WEST RIDGE

The West Embankment and WED are designed to maintain hydrodynamic containment of YDTI seepage by keeping piezometric elevations along the west side of the YDTI below those within the West Ridge, to preclude migration of seepage across the ridgeline. An initial assessment of hydrodynamic containment was presented in the West Ridge Hydrological Evaluation Report (Hydrometrics, 2017). This assessment identified the following two regions of locally depressed piezometric levels as the critical sections for monitoring West Ridge hydrodynamic containment:

- The Deep Isolated Fracture System located within the West Ridge approximately coincident with the West Embankment Section 88+00N
- The West Ridge Potentiometric Low present within the West Ridge along an east-west section approximately coincident with West Embankment Section 93+00N

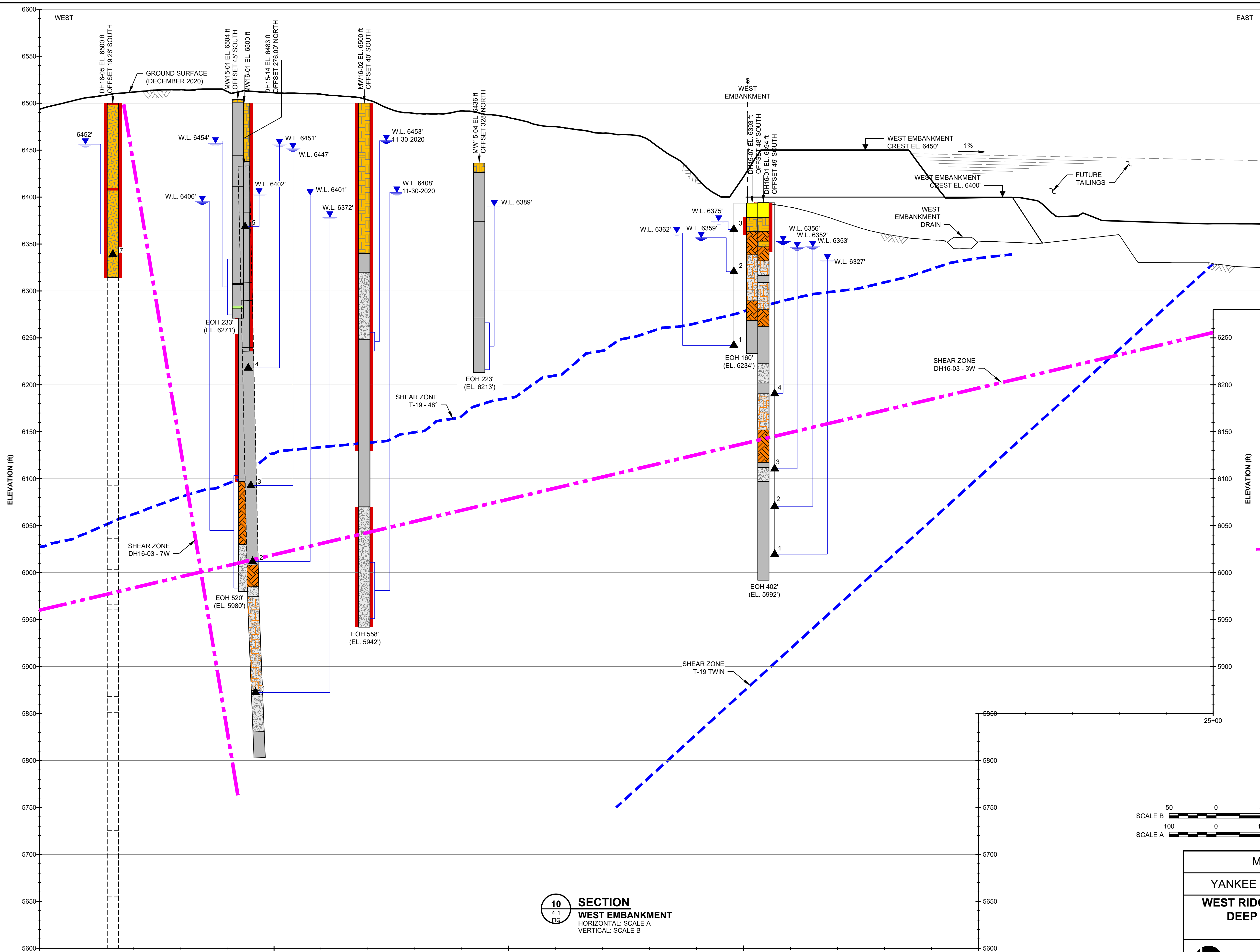
The initial assessment concluded that positive (eastward) gradients were present to hydrodynamically contain seepage from the YDTI. Piezometric elevation plots from the monitoring sites for the West Ridge are provided in Appendix C5. Hydrodynamic monitoring findings from 2020 are discussed below.

Piezometric monitoring within the Deep Isolated Fracture System indicates that hydrodynamic containment remains present as of December 31, 2020. Piezometric elevations monitored near the ridgeline at DH15-14, MW16-01 and MW16-02D are regularly compared to those observed in proximity to the WED in drillholes DH15-07 and DH16-01 to assess ongoing containment. The following data and observations from December 31, 2020 support the assessment of continued hydrodynamic containment within the system:

- Pore pressures measured in DH15-14, MW16-01, and MW16-02D along the ridgeline decreased slightly (between 0.5 and 3 ft decrease) during 2020 and piezometric elevations range between 6,400 and 6,450 ft. Minor seasonal fluctuations associated with snowmelt and spring freshet were observed.
- Pore pressures monitored in near the WED remained within approximately 10 feet of December 2019 conditions:
  - Piezometric elevations monitored in drillhole DH15-07 increased by between approximately 1 to 2 ft during 2020 and range between approximately 6,355 and 6,375 ft.
  - Piezometric elevations monitored in drillhole DH16-01 (VW2, VW3, VW4) monitored slight increases (1 to 2 ft) during 2020 and range between approximately 6,340 and 6,350 ft.
- Comparison of piezometric data at the ridgeline (DH15-14, MW16-01, and MW16-02D) and near the WED (DH15-07 and DH16-01) indicate that the eastward (positive) flow gradient towards the YDTI remains present and the Deep Isolated Fracture System continues to provide hydrodynamic containment for seepage from the YDTI. This can be illustrated through calculation of a gradient between DH15-14 VW4 (6,450 ft) and DH15-07 VW1 (6,362 ft) resulting in a hydraulic gradient of 0.05 from the ridgeline towards the WED.

Piezometric elevations monitored within the West Ridge Potentiometric Low are shown on Figure 4.23 and indicate the persistence of hydrodynamic containment along this critical section Piezometric elevations near the ridgeline are recorded in drillholes DH15-06 and DH15-10 and by monitoring wells MW12-16 and MW15-03. Piezometric elevations within the system at its discharge near the YDTI are recorded in drillhole DH15-12 and within the Extraction Basin (VWP-EB1). The following key findings support the conclusion that hydrodynamic containment continues:

- Pore pressures measured in DH15-06, DH15-10, MW12-16 and MW15-03 along the ridgeline monitored stable conditions during 2020 and piezometric elevations range between 6,385 and 6,410 ft.
- Pore pressures monitored in near the WED in DH15-12 monitored stable conditions throughout 2020 with piezometric elevations ranging between 6,348 and 6,350 ft.
- Conditions monitored within the Extraction Basin (VWP-EB1) monitored a slight increase of less than 1 ft during 2020 and a piezometric elevation of approximately 6,349 ft.
- Comparison of piezometric data at the ridgeline (DH15-06, DH15-10, MW12-16 and MW15-03) and near the WED (DH15-12 and Extraction Basin) indicate that the eastward (positive) flow gradient towards the YDTI remains present and the Deep Isolated Fracture System continues to provide hydrodynamic containment for seepage from the YDTI. This can be illustrated through calculation of a gradient between DH15-06 VW4 (6,410 ft) and DH15-02 VW2 (6,382 ft), indicating a hydraulic gradient of 0.03 from the ridgeline towards the WED.



10 4.1 FIG **SECTION**
WEST EMBANKMENT
HORIZONTAL: SCALE A
VERTICAL: SCALE B

LEGEND:

- SURFICIAL MATERIAL
- BUTTE QUARTZ MONZONITE (BQM), COMPETENT
- APLITE DYKE
- QUARTZ / CHALCEDONY VEIN
- SHEAR ZONES
- FRACTURED BEDROCK
- WEATHERED BEDROCK
- ALTERED BEDROCK
- ALTERED AND HIGHLY FRACTURED BEDROCK
- IRON OXIDIZATION ZONE
- SHEAR ZONE PROJECTION INFERRED FROM TRENCH
- SHEAR ZONE PROJECTION INFERRED FROM SUBSURFACE GEOLOGY
- W.L. XXX PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- MONITORING WELL SCREEN INTERVAL

NOTES:

1. COORDINATE GRID AND ELEVATIONS ARE RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET UNLESS OTHERWISE NOTED.
3. PIEZOMETRIC LEVELS (W.L.) SHOWN USING DECEMBER 31, 2020 READINGS UNLESS OTHERWISE INDICATED.
4. PROJECTION OF THE T-19 SHEAR ZONE WAS INTERPOLATED USING THE LOCATION OF SHEAR ZONES ENCOUNTERED IN SURFACE TRENCH T-19 AND SUBSURFACE CONTACTS ENCOUNTERED IN DH15-07, DH15-14 AND MW16-01.
5. PROJECTION OF THE DH16-03-3W SHEAR BASED ON CONTACTS ENCOUNTERED IN SURFACE TRENCH T-20 AND SUBSURFACE CONTACTS IN DH16-01 AND MW16-01.

SCALE B: 50 0 50 100 150 200 250 ft
SCALE A: 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

WEST RIDGE HYDRODYNAMIC CONTAINMENT DEEP ISOLATED FRACTURE SYSTEM (LOOKING NORTH)

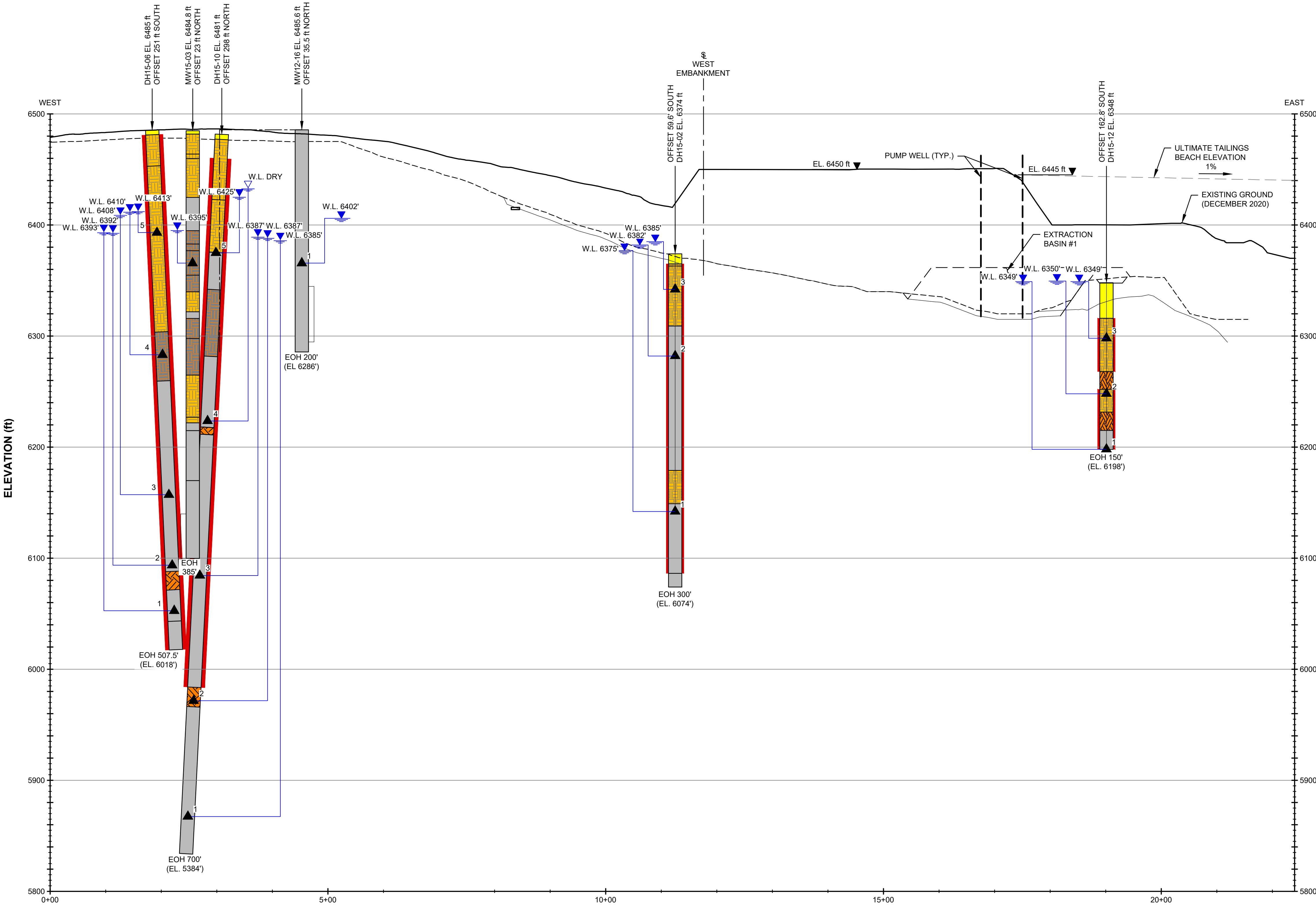
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.23 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B50, 5/14/2021 8:49:01 AM , RMCLELLAN PRINTED: 6/29/2021 2:08:26 PM, FIG 4.23, RMCLELLAN
XREF FILE(S): IMAGE FILE(S):



11
4.1
FIG

SECTION
HORIZONTAL: SCALE A
VERTICAL: SCALE B

LEGEND:

- SURFICIAL MATERIAL
- BUTTE QUARTZ MONZONITE (BQM), COMPETENT
- APLITE DIKE
- SHEAR ZONES
- FRACTURED BEDROCK
- WEATHERED BEDROCK
- ALTERED BEDROCK
- ALTERED AND HIGHLY FRACTURED BEDROCK
- IRON OXIDIZATION ZONE
- EOH — END OF HOLE AT EACH DRILLHOLE (DOWN HOLE LENGTH)
- W.L. XXX — PIEZOMETRIC ELEVATION (FEET)
- VIBRATING WIRE PIEZOMETER (VWP)
- MONITORING WELL SCREEN INTERVAL

NOTES:

1. CO-ORDINATE SYSTEM AND ELEVATIONS RELATIVE TO ANACONDA MINE GRID.
2. DIMENSIONS AND ELEVATIONS ARE IN FEET, UNLESS OTHERWISE NOTED.
3. PIEZOMETRIC ELEVATIONS FROM DECEMBER 2020 UNLESS OTHERWISE NOTED.

SCALE B: 50 0 50 100 150 200 250 ft
SCALE A: 100 0 100 200 300 400 500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

WEST RIDGE HYDRAULIC CONTAINMENT POTENTIOMETRIC LOW (LOOKING NORTH)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE 4.24 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	SY3	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B51, 5/14/2021 8:49:41 AM , RMCLELLAN PRINTED: 6/29/2021 2:10:29 PM, FIG 4.24, RMCLELLAN
XREF FILE(S): IMAGE FILE(S):

It is important to note that the WED is presently not required to maintain hydrodynamic containment along the West Ridge since the current (December 2020) supernatant pond elevation remains below the piezometric elevations monitored along the ridgeline (ranging between approximately 6,385 and 6,450 ft) within both systems. A comparison of the historical and current YDTI supernatant pond elevations and West Ridge water levels measured in monitoring well MW12-16 are shown on Figure 4.25. This comparison indicates that the current YDTI pond level remains well below the design-basis water table within the Potentiometric Low (6,380 ft measured in MW12-16). The water table within the Potentiometric Low has increased by approximately 23 ft after the selection of the design basis level, resulting in a water table at approximately EL. 6,405 ft in December 2020. The December 2020 YDTI supernatant pond elevation is approximately 6,360 ft, which is approximately 45 ft below the current piezometric elevation at the ridge.

Extrapolation of the current YDTI pond elevation trend suggests that the WED will not be required until January 2027 for the purpose of hydrodynamic containment so long as continued water management associated with the Berkeley Pit Pilot Project continues. Discontinuation of the Pilot Project may result in the need for the WED by January 2024 to maintain containment. However, it is also noted that the WED is currently operational, thus, it will continue to enhance the security of the hydrodynamic seepage containment system along the West Ridge during current and future operations.

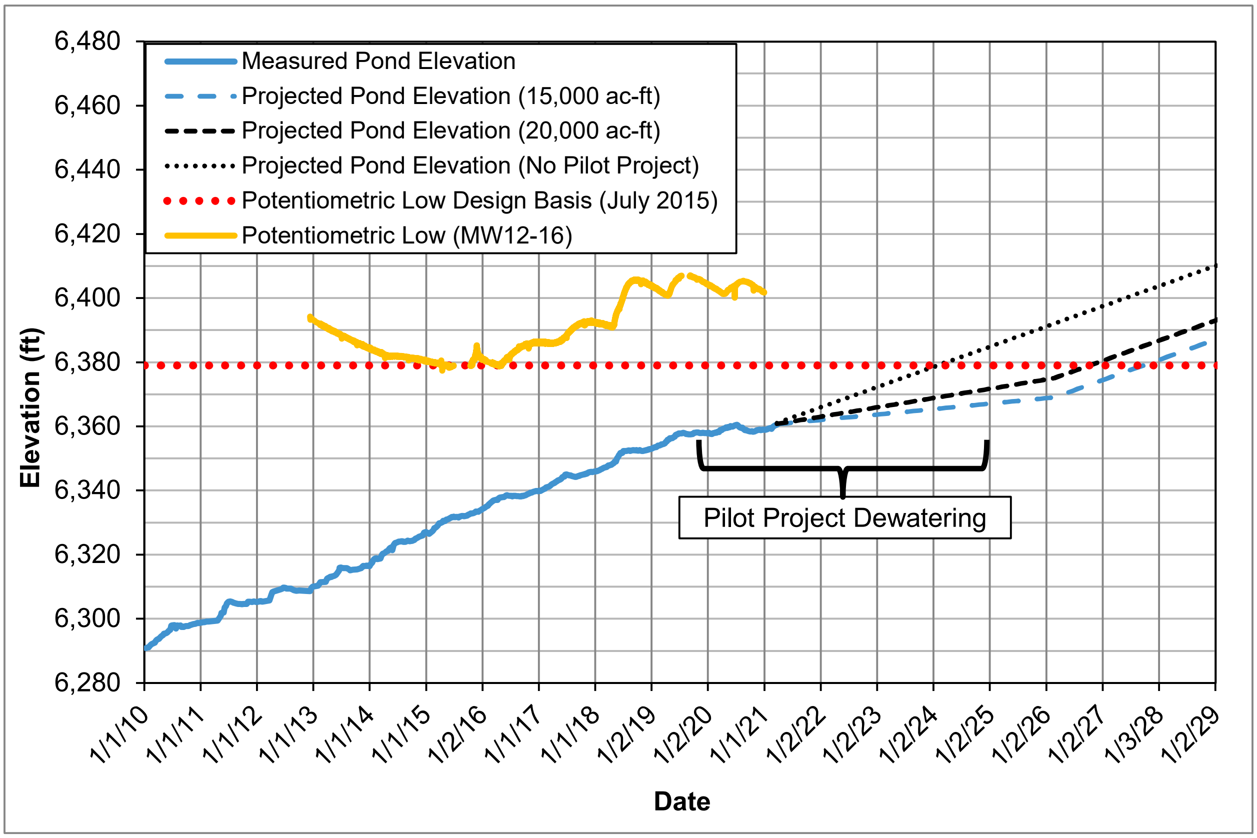


Figure 4.25 YDTI Pond Elevation vs. Piezometric Conditions within Potentiometric Low

4.4 TOMS QUANTITATIVE PERFORMANCE PARAMETERS

Selected YDTI piezometric monitoring sites have been assigned as QPPs in the TOMS Manual to facilitate rapid assessment of YDTI performance. The QPPs specify a piezometric 'trigger elevation' at or above which a Level 1 Unusual Occurrence would be trigger as specified in Table 5.2 from the TOMS Manual (MR/KP, 2020). Real-time piezometric records of the QPP sites are available to KP and MR via the RMS, which will alert the involved parties if any QPP 'trigger elevation' is exceeded. These records are formally reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections. Trigger elevations assigned to each QPP site are also evaluated by KP during annual updates to the TOMS Manual.

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during 2020. A summary of the piezometric QPPs that are presently in use at the YDTI is included in Table 4.1. Further discussion of the QPPs and monitoring procedures are presented in the TOMS Manual (MR/KP, 2020). Piezometric data recorded at QPP sites within the East-West, North-South, and West Embankments are shown relative to the trigger elevations on Figure 4.26, 4.27, 4.28, 4.29, and 4.30, respectively.

Table 4.1 2020 Piezometric Quantitative Performance Parameters

Monitoring Region	QPP Instrumentation Site	Trigger Piezometric Elevation (ft)	Maximum 2020 Piezometric Elevation (ft)	Exceeded Trigger Elevation During 2020 (Yes/No)
East-West Embankment	MW94-08	5,680	5,670	No
	MW94-11	5,693	5,675	No
	DH15-S3 VW1	5,690	5,668	No
	DH15-S4 VW1	5,740	5,717	No
	DH15-S4 VW2	5,800	5,774	No
	DH15-S5 VW1	5,785	5,764	No
	DH17-S1 VW2	5,741	5,722	No
	DH17-S2 VW2	5,969	5,849	No
	DH18-S3 VW3	6,044	6,025	No
North-South Embankment	MW12-01	5,940	5,911	No
	MW12-05	6,200	6,199	No
	DH18-S1 VW2	6,010	5,992	No
	DH18-S2 VW2	6,029	6,010	No
West Embankment	VWP-DP1	6,374	6,341	No
	VWP-DP2	6,366	6,336	No
	DH15-12 VW1	6,372	6,349	No
	DH15-12 VW2	6,372	6,351	No
	DH15-12 VW3	6,372	6,350	No

M:\1\01\00126\23\A\Report\5 - 2020 YDTI Data Analysis Report\Figures\Section 4\Excel Files\[QPP Compliance Figures and Table 2020]Figure 2 - QPP East-West
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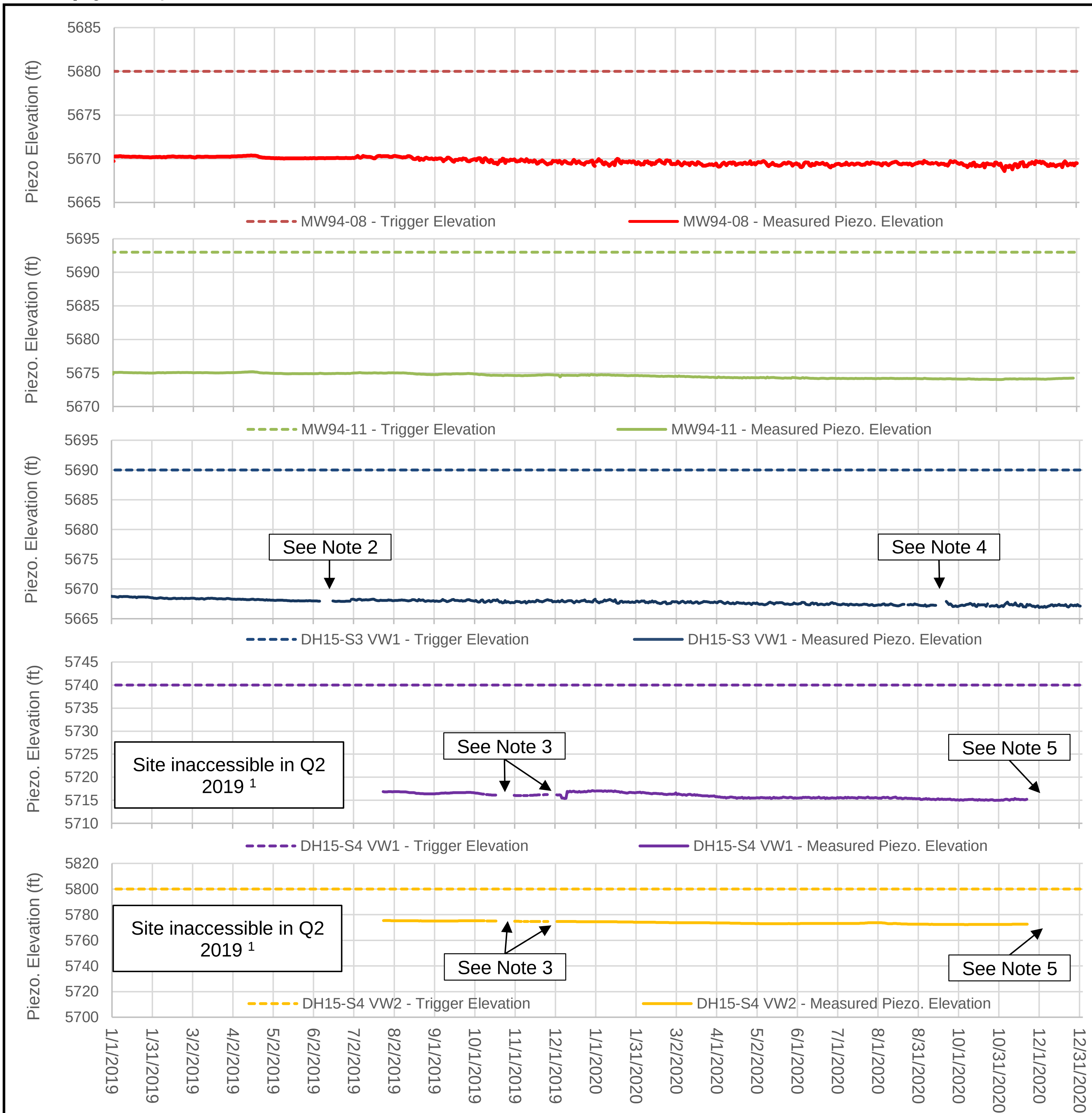

NOTES:

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.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

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P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 4.26 REV 0

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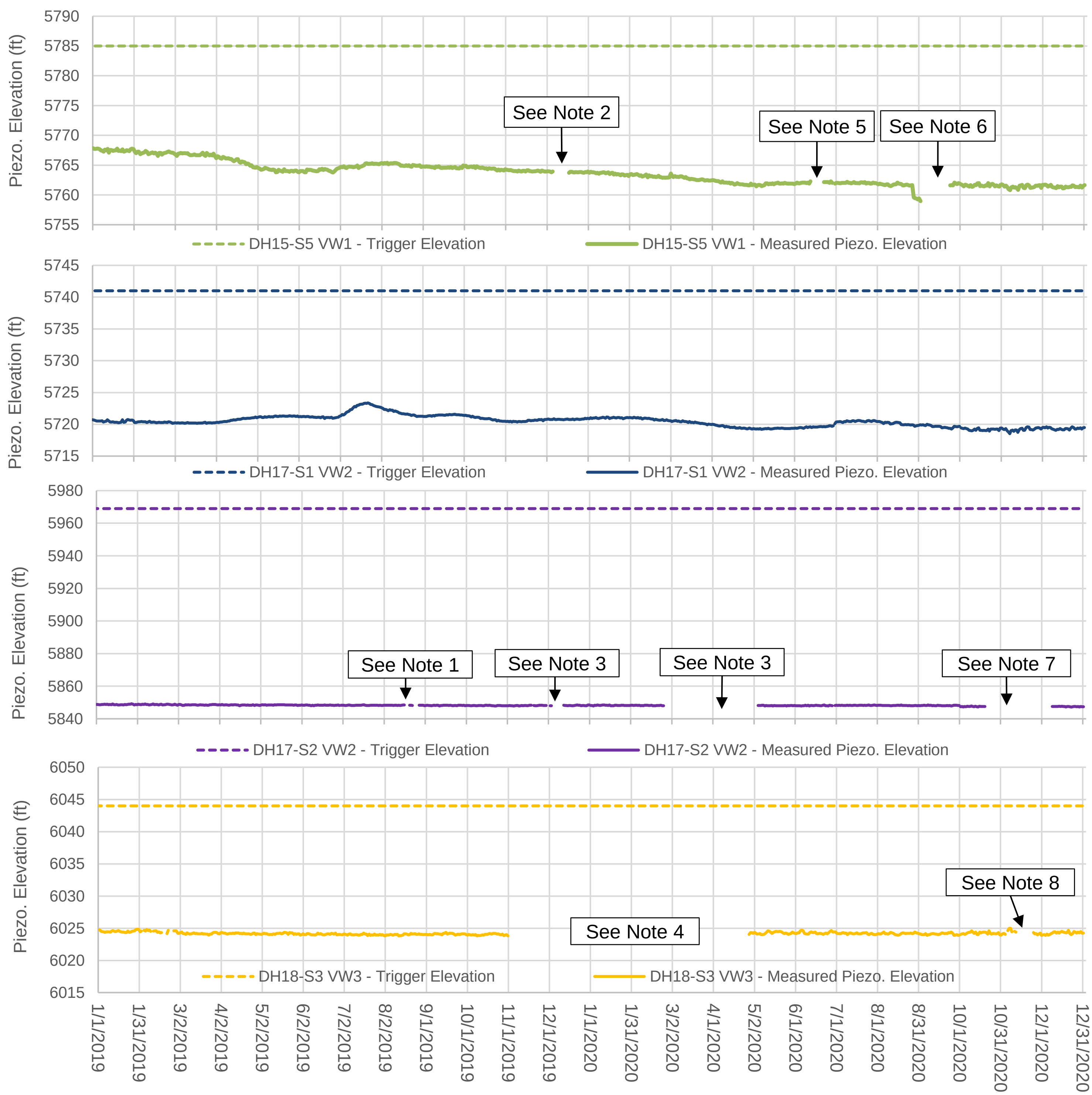
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. NO DATA WERE COLLECTED BY DH17-S2 VW2 FROM AUGUST 17 TO 29, 2019 DUE TO AN UNKNOWN HARDWARE ISSUE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW1 FROM DECEMBER 7 TO 17, 2019 DUE TO A DATA LOGGER ISSUE. THE DATA LOGGER WAS SUBSEQUENTLY REPLACED.
3. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO THREAD POWER SUPPLY ISSUES FROM FROM DECEMBER 1 TO 12, 2019 AND FEBRUARY 25, 2020 TO MAY 7, 2020.
4. 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.
5. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO LOGGER POWER SUPPLY ISSUES FROM JUNE 13 TO 23, 2020.
6. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO WATER DAMAGED LOGGER FROM SEPTEMBER 2 TO 24, 2020. THE LOGGER WAS SUBSEQUENTLY REPLACED.
7. NO DATA WERE COLLECTED BY DH17-S2 DUE TO A DEPLETED DATA LOGGER BATTERY FROM OCTOBER 20 TO DECEMBER 8, 2020.
8. NO DATA WERE COLLECTED BY DH18-S3 DUE TO A DEPLETED DATA LOGGER BATTERY FROM NOVEMBER 12 TO 25, 2020.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 4.27 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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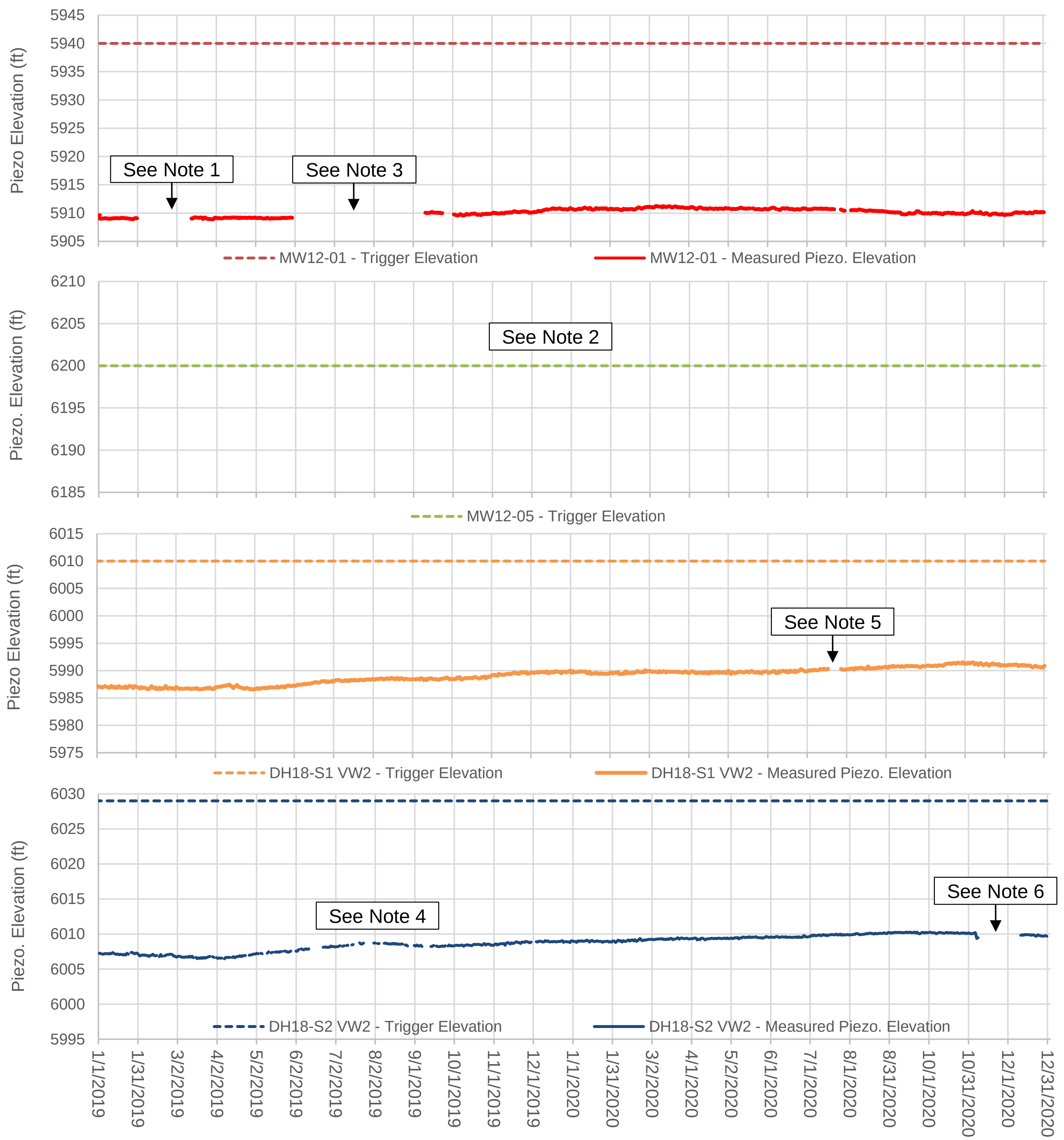


NOTES:

1. MW12-01 BECAME UNSATURATED FROM FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. THE STANDPIPE WAS AND REMAINS UNSATURATED (DRY).
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.

0	29JUN'21	ISSUED WITH LETTER	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

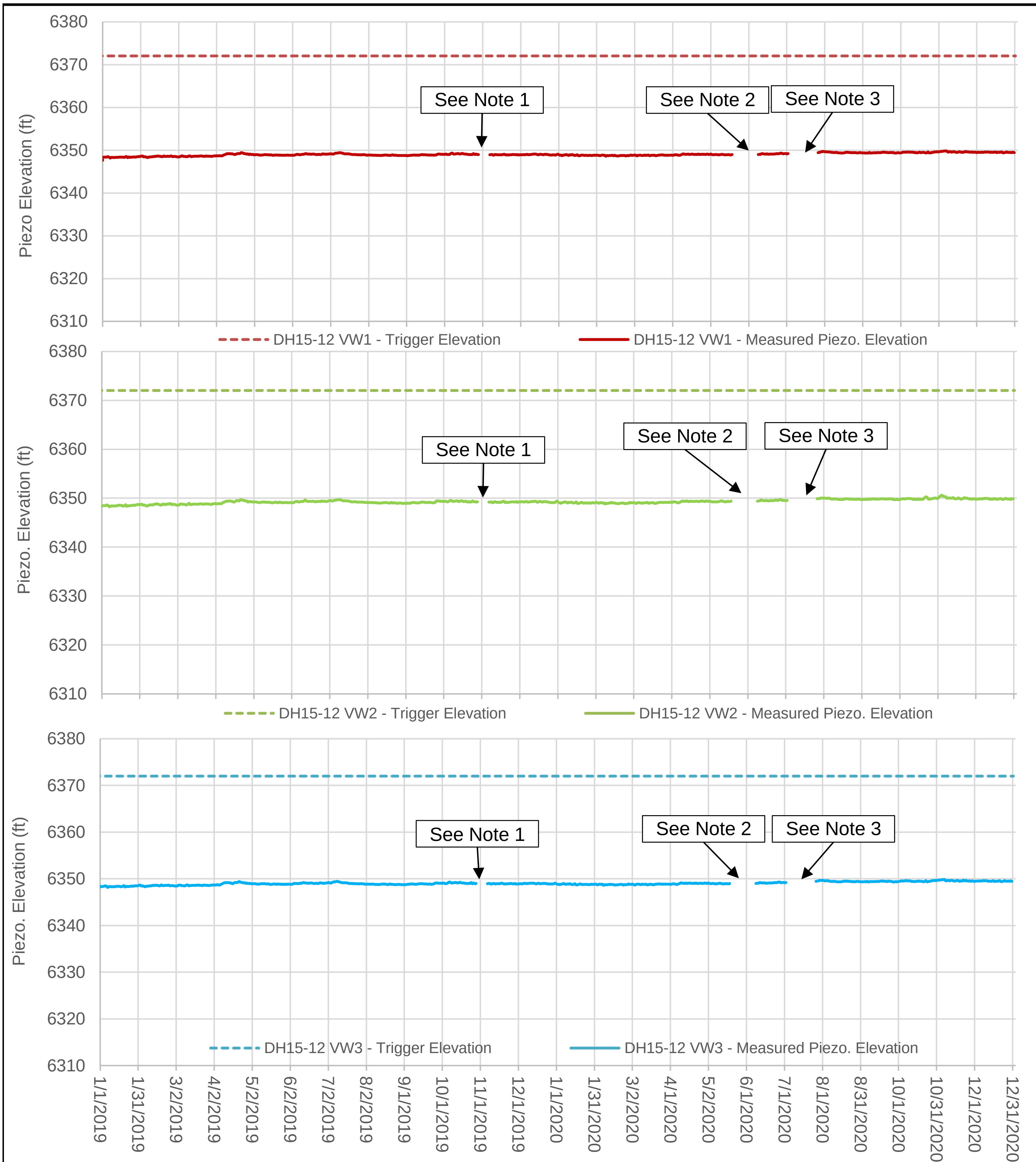
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE 4.28		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 DUE TO JULY 26, 2020 DUE TO A CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

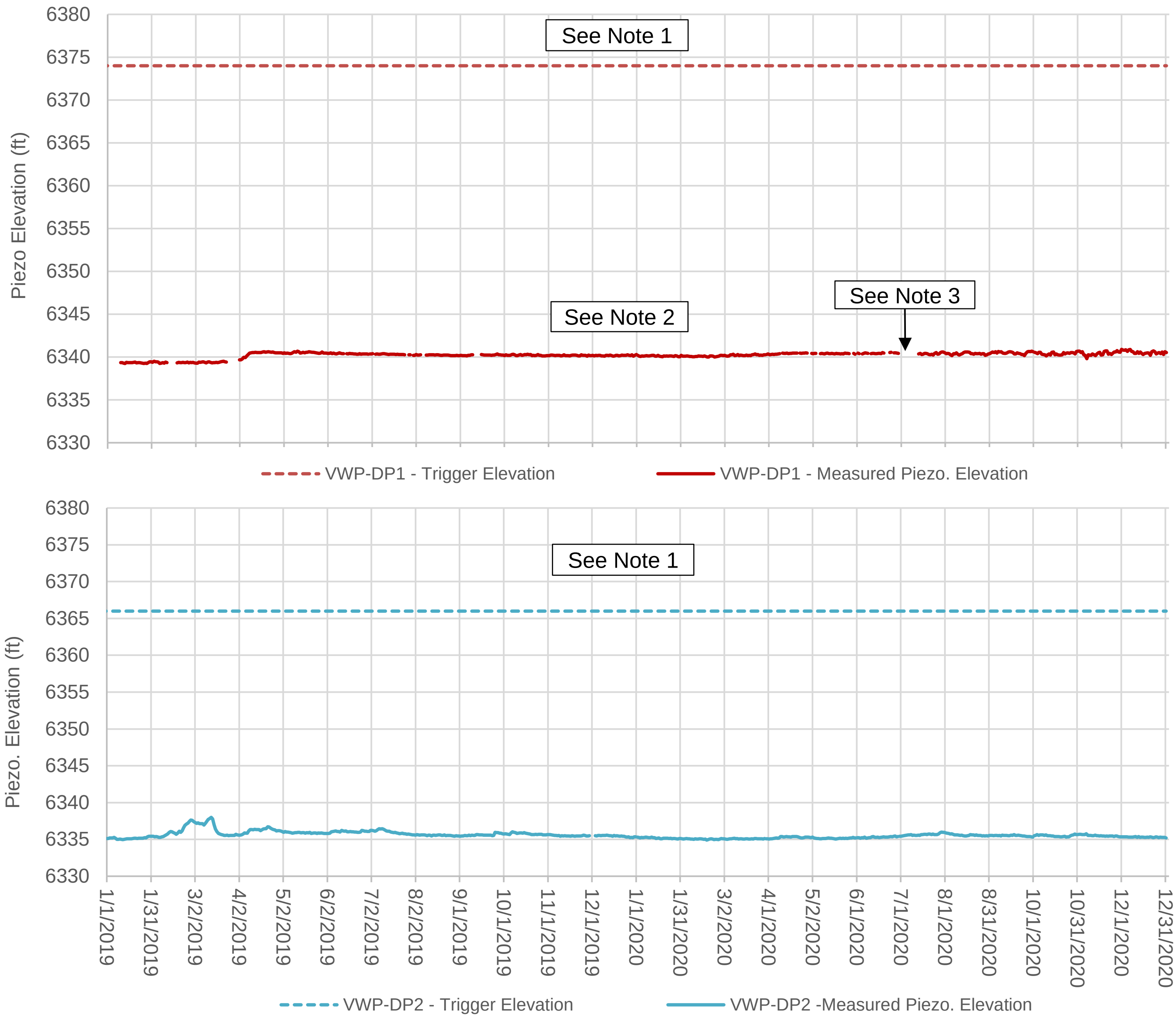
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 4.29 REV 0

0	29JUN'21	ISSUED WITH LETTER	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE.
2. PERIODIC DATA OUTAGES OCCURED AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.
3. NO DATA RECORDED BY VWP-DP1 FROM JULY 1 TO 14, 2020 DUE TO COMMUNICATION OUTAGE AT DATA LOGGER. REPLACEMENT EQUIPMENT HAS BEEN INSTALLED.

0	29JUN'21	ISSUED WITH LETTER	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 4.30 REV 0

4.5 PIEZOMETRIC QPP RECOMMENDATIONS

KP and MR expanded the piezometric QPP monitoring network to include seven additional monitoring sites prior to 2020, in order to expand the spatial coverage outside of the East-West Embankment maximum section and to incorporate coverage within the WED drain pods (VWP-DP1 and VWP-DP2). These additional QPPs provided good coverage of the facility and remain functional as of December 31, 2020. KP recommends that use of the current piezometric QPPs be continued for 2021.

KP and MR are in the process of completing a multi-year phased site investigation program at the YDTI. Additional programs are planned for 2021 and include installation of pore water pressure monitoring instrumentation to supplement the existing network. KP recommends that newly installed piezometric monitoring sites be considered for use as potential future QPPs and that trigger elevations continue to be re-evaluated annually as part of the TOMS update.

5.0 DEFORMATION INSTRUMENTATION AND MONITORING

5.1 OVERVIEW OF DEFORMATION MONITORING PROGRAMS

MR and KP commenced an embankment deformation monitoring program with data collection beginning in 2019 and 2020 to monitor surface and subsurface deformations using in-situ instrumentation and satellite-based remote sensing. Monitored deformation rates, magnitudes and spatial distribution are important indicators of embankment performance and are regularly reviewed by KP. Data from instrumentation sites are available via the RMS and remote-sensing data are reported by the service provider twice per year, as described in Section 5.1.3. The TOMS Manual does not currently include deformation based QPPs; however, these will be considered for future revisions. KP plans to evaluate and present available deformation data on a quarterly basis during 2021 to regularly monitor for changes in deformation behavior and evaluate incorporation of deformation instrumentation for QPP monitoring in future.

An overview of the surface and subsurface deformation monitoring programs and key findings from 2020 are presented in the following sections.

5.1.1 SURFACE DEFORMATION MONITORING METHODS

Surface deformations of the YDTI embankments are actively monitored using the in-situ instrumentation and remote sensing techniques described below.

Satellite-based interferometric synthetic aperture radar (inSAR) provides a comprehensive spatial and temporal assessment of surface displacements, with sub-millimeter measurement accuracy and coverage throughout all YDTI embankments. The MR inSAR program utilizes data from two satellites (so-called two-dimensional inSAR) and allows for assessment of vertical deformation (settlement) and east-west lateral deformation components in addition to conventional line-of-sight displacement (movement towards or away from the satellite). InSAR data collection is active at MR from April through October, while snow-free conditions persist. Pre-existing, lower resolution inSAR datasets allow for a backwards looking assessment of historical deformation trends at the YDTI. The currently active high-resolution inSAR imaging facilitates ongoing operational monitoring of the facility. Operational deformation analyses were completed twice during 2020, with reports issued by TRE-Altamira in July and October. The following inSAR analyses have been completed to date:

- Historical backward looking inSAR analysis of deformations from mid-2017 through mid-2019 using relatively low-resolution Sentinel inSAR data
- Operational inSAR analysis from June 2019 through October 2019 using high-resolution Terra-SAR-X inSAR Strip-Map data. Deformations were calculated relative to a June 2019 baseline corresponding to the start of Terra-SAR-X data collection at the YDTI
- Operational inSAR analysis from April 2020 through October 2020 using high-resolution Terra-SAR-X StripMap and PAZ inSAR data. The baseline date was reset to April 2020 to restore coverage over the recently constructed central tailings pipeline ramp and North-South Embankment step-out construction

The inSAR technique has several limitations that reduce utility for monitoring of an active embankment such as YDTI or in the climatic conditions present at the MR site. These include:

- Coverage becomes obstructed by any embankment construction activity that alters the ground surface characteristics or topography. Coverage can be re-established following construction by updating the baseline date to after the conclusion of construction and restarting the inSAR analysis thereafter.
- InSAR is not usable during the winter months while snowpack is present onsite (approximately November through April) since snow precludes ground-based radar reflections.
- Two-dimensional inSAR generally allows line-of-sight inSAR deformations to be divided into vertical (settlement) and east-west lateral displacement components. InSAR is not capable of assessing north-south lateral displacement due to the orientation of this component relative to the satellite flight path. This limitation precludes assessment of what is anticipated to the primary lateral deformation direction within the East-West Embankment central pedestal area.

Global Navigational Satellite System (GNSS) instruments are installed on the embankment surface to monitor surface deformation at four locations (DH19-S3, DH19-S4, DH19 S5, and DH19-S7) within the East-West Embankment central pedestal area, as shown on Figure 4.1. Surface deformation data (vertical and lateral deformation components) from GNSS instrumentation are available in near real-time via the RMS throughout the year. The GNSS data exhibit relatively high noise levels typical of this type of instrumentation and are considered suitable for assessment of long-term deformation trends and to monitor for changes in deformation rates and/or behavior on a monthly or longer timestep. GNSS data provide valuable deformation data for comparison with inSAR monitoring results and maintain coverage during the snow-season, while inSAR data collection is inactive.

5.1.2 SUBSURFACE DEFORMATION MONITORING METHODS

Subsurface deformations are measured within the embankments at four inclinometer sites (DH19-S3, DH19-S4, DH19-S5, and DH19-S7), which are co-located with the GNSS surface displacement instrumentation discussed in Section 5.1.1. The inclinometers are instrumented with in-place-inclinometer (IPI) sensors at 10- to 20-ft vertical intervals and monitor deformations oriented in the so-called A and B axes. The A+ direction is typically oriented towards the embankment toe (generally to the south for the YDTI central pedestal area), while the B+ direction is oriented at 90 degrees clockwise (approximately to the west) from the A+ direction. The IPI instrumentation exhibits relatively high noise unless temporal-averaging is applied. KP typically analyzes IPI deformation data using monthly averaging applied to both the baseline and monitoring readings to remove noise and better monitor for long-term deformation trends. Deformations are presented relative to July 2020 monthly average baseline readings. GNSS-based assessments of collar wander (northing and easting displacement at the inclinometer collar) were also completed for comparison with cumulative inclinometer displacements.

The 2020 site investigation program included installation of Elexon Geo4Sight instrumentation (multi-node wireless deformation monitoring instruments at one location (DH20-S2) within the upstream embankment shell on East-West Embankment Section 8+00W. This instrumentation will monitor angular deformation within tailings, rockfill and foundation materials, similar to an inclinometer. Set up of the Geo4Sight Reader (data logger) was still underway at the time of writing and no deformation data are available. Geo4Sight deformation data will be presented during quarterly instrumentation letters during 2021 and in the 2021 DAR report.

5.1.3 REMOTE MONITORING SYSTEM INTEGRATION AND DATA COLLECTION STATUS

The GNSS and IPI deformation instruments are integrated with the remote monitoring system and can be regularly accessed via the online Sensemetrics platform. KP monitors these instruments on a monthly basis and any instrumentation issues are addressed and resolved to maintain continuity of data collection. The following is a high-level summary of deformation data availability via the RMS during 2020:

- The four GNSS instruments were functional throughout the majority of 2020, except for an outage that occurred between October 7 and December 2, 2020. All GNSS instruments were offline, and no data were collected during this period due to a power management issue with the GNSS reference station (DH16-04). The issue was resolved with assistance from Sensemetrics and the GNSS instruments were reactivated.
- Data collection and analysis from the IPI instruments was initiated on July 1, 2020 and no significant outages or hardware issues were encountered during 2020.

InSAR deformation data are provided by a third-party (TRE-Altamira) in periodic reports. These data are not amenable to direct incorporation with the RMS and are accessed and reported separately.

5.2 SUMMARY OF MONITORED SURFACE DEFORMATION

5.2.1 GENERAL

Surface deformation data from 2020 generally indicate settlement and downslope creep at relatively constant rates. Surface deformation rates are generally highest in newly placed rockfill and diminish with time following construction. Monitored deformations within historical rockfill are relatively low and maintain constant deformation rates. No progressive (accelerating) surface deformations were observed during 2020. Findings from inSAR and GNSS monitoring are generally consistent, and these data are presented in Appendix D1 and D2, respectively. Observed surface deformations at the East-West, North-South and West Embankments are presented in the following sections.

5.2.2 EAST-WEST EMBANKMENT

Surface deformation data from the East-West Embankment central pedestal area (between Section 0+00 and 12+00W, inclusive) generally indicate the occurrence of settlement and downslope (southward) creep at relatively constant rates. The highest deformation rates are present within recently placed rockfill material of the central tailings pipeline ramp with relatively low and moderate deformations observed within historical rockfill and the rockfill surcharge area (rockfill overlying tailings upstream of the embankment crest), respectively. No progressive (accelerating) surface deformations were observed during 2020.

The monitored spatial distribution of 2020 surface deformation rate throughout the YDTI embankments is presented on Figure 5.1. A detailed profile view of deformations along Section 8+00W is provided as Figure 5.2. Cumulative vertical GNSS displacements at the four sites are presented on Figure 5.3. Additional results of inSAR and GNSS monitoring of the East-West Embankment are presented in Appendix D. Key surface deformation findings are discussed below:

- Relatively low magnitude, consistent rate settlements and southward creep were observed within the historical rockfill material of the Seep 10 Bench and Historical Western Leach Area during 2020 at rates of approximately 0.5 in/yr and 1 in/yr, respectively. InSAR data indicate that the settlement rates have remained relatively constant from 2017 through October 2020 and consistent with available GNSS settlement data from Q3/Q4 2020 (Figures D2.2, D2.4, and D2.6). Long-term inSAR assessment of southward creep is not possible due to the orientation of the central pedestal area relative to the satellite path (see limitations in Section 5.1.1). GNSS measured southward deformations indicate relatively constant deformation rates since the start of monitoring in July 2020. No significant eastward or westward deformations have been monitored by GNSS or inSAR within these areas.
- The highest surface deformation rates observed during 2020 occurred within recently placed rockfill materials at the central tailings pipeline ramp. Monitored settlement rates of up to 7 in/yr were observed by both GNSS and inSAR techniques. The GNSS data also indicates downslope (southward) creep at similar rates up to 7 in/yr; however, monitoring of southward deformation by inSAR is not possible for comparison with the GNSS data. Comparison of the 2019 and 2020 operational inSAR analyses (Figures D1.4 and D1.6, respectively) shows some slowing of settlement and downslope deformations within the rockfill of the central tailings pipeline ramp over this period. This finding suggests that deformation rates are slowing slightly with time following construction, as expected. A similar finding was observed within the North-South Embankment as discussed in Section 5.2.3.
- Moderate settlement rates (approximately 3 to 6 in/yr) were observed throughout the rockfill surcharge areas upstream of the East-West Embankment crest. These higher deformation rates as compared to the embankment crest are interpreted to result from tailings consolidation due to rockfill loading. Comparison of the 2019 and 2020 operational inSAR analyses (Figures D1.4 and D1.6, respectively) shows that surcharge settlement rates are decreasing with time following rockfill placement, as expected. No in-situ deformation monitoring instrumentation is present within the surcharge area for comparison with inSAR.

5.2.3 NORTH-SOUTH EMBANKMENT

No in-situ deformation instruments are currently active within the North-South Embankment. Surface deformations are monitored using inSAR; however, coverage of large portions of the embankment crest and downstream slope were obstructed by construction of the North-South Embankment step-out lifts (El. 6,250 ft, 6,300 ft, 6,350 ft and 6,400 ft lifts) completed during 2019 and Q1 2020 and due to the geometry of the adjacent Rampart Mountain. The 2019 inSAR analysis (Figure D1.4) provides no data for the North-South Embankment, while the 2020 analysis (Figure D1.6) provides limited coverage along the upstream embankment crest and within the southern extent of the North-South Embankment in proximity to where it abuts with the East-West Embankment.

Surface deformations observed in 2020 indicate relatively high settlement and downslope creep magnitudes associated with recent rockfill placement during step-out construction. No progressive (accelerating) deformations were observed during 2020. InSAR data are available with coverage of the El. 6,250 ft, 6,300 ft and 6,350 ft lift surfaces where they daylight between approximately Section 0+00 and 18+00N, inclusive. Key findings from 2020 monitoring of the North-South Embankment step-out lifts include:

- The North-South Embankment step-out lifts have settled by between approximately 4 and 7 inches since April 2020. The average vertical deformation rates (settlements) for the lifts range between 4 and 10 in/yr, as of October 2020. Higher rates (10 in/yr) are observed in the most recent El. 6,350 lift with sequentially lower deformations observed within the El. 6,300 (6 in/yr) and El. 6,250 (4 in/year) lifts. Settlement rates have slowed significantly since establishing inSAR coverage. Rates monitored during 2020 are significantly higher than settlements observed along the downstream shell of the North-South Embankment prior to step-out construction (Figure D1.2), which ranged between approximately 0.5 to 5 in/year. This is consistent with the expectation that newly placed rockfill will exhibit higher settlement rates immediately following construction, and that rockfill settlement rates will diminish over time.
- Eastward lateral displacements of the step-out lifts were observed during 2020, with cumulative eastward deformations ranging between 2 and 6 inches since April 2020. The average eastward deformation rates for the step-out lifts ranged between approximately 3 and 6 in/yr, as of October 2020. Higher rates (6 in/yr) are observed in the most recent El. 6,350 lift with sequentially lower deformations observed within the El. 6,300 (4 in/yr) and El. 6,250 (3 in/year) lifts. Representative downslope (along the fall line of the embankment) deformation magnitudes and rates are likely to be somewhat larger than reflected by the eastward deformation component, since a portion of the resultant deformation is oriented towards the south and cannot be monitored using inSAR. Eastward rates monitored during 2020 are significantly higher than observed along the downstream shell of the North-South Embankment prior to step-out Construction, which ranged between approximately 0 to 2 in/yr.

InSAR monitoring also provides coverage along the upstream crest of the North-South Embankment. Monitoring of this area in 2020 indicates:

- Observed settlement rates ranging between 2 and 10 in/yr, which is consistent with expectations for recently placed rockfill material. Settlements generally become larger with distance from the north abutment, as the rockfill becomes thicker and as the conclusion of placement becomes more recent. Time-series settlement plots indicate gradual deceleration since the establishment of coverage in April 2020.
- Minor eastward deformations were monitored along the upstream crest during 2020, with cumulative deformations ranging between 0 and approximately 0.5 inches since April 2020. Deformation rates generally slowed from April 2020 through August 2020 with little to no incremental deformation occurring subsequently.

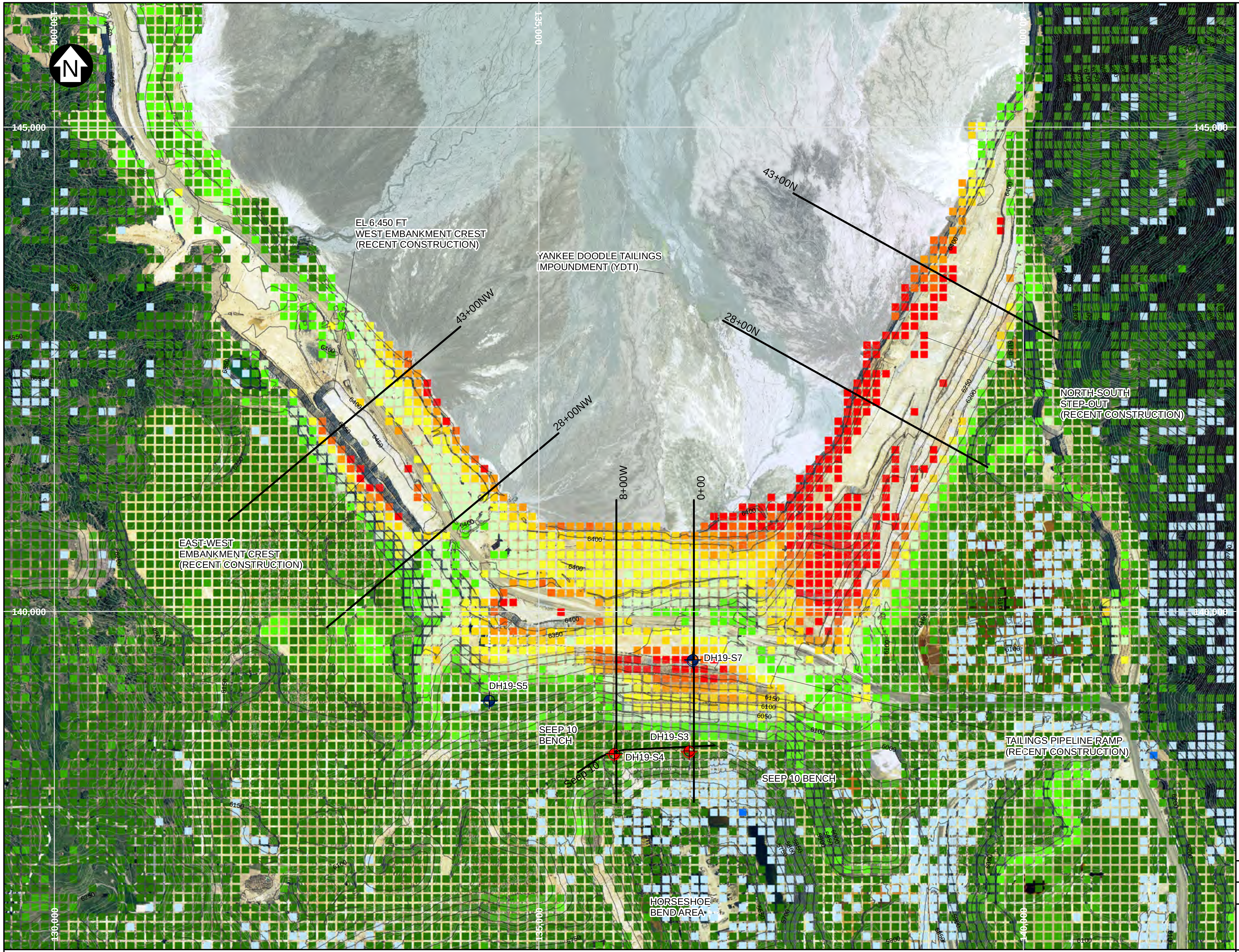
No additional North-South Embankment crest construction is planned for 2021 (excepting south of Section 18+00N) and maintenance of the existing inSAR coverage is expected. KP will continue to monitor post-construction deformation rates within the North-South Embankment and anticipates continued slowing of surface deformations with time following El. 6,400 lift construction.

5.2.4 WEST EMBANKMENT

InSAR coverage of the West Embankment during 2020 is limited to the upstream slope due to active construction of the El. 6,450 ft embankment crest. Furthermore, coverage in 2019 and from 2017 to 2019 was very limited due to construction during these periods. No progressive (accelerating) surface deformations were observed at the West Embankment during 2020. Key 2020 findings include:

- Minor settlements were observed along the West Embankment with cumulative magnitudes ranging from 0 to 0.5 inches since April 2020. Settlement rates appear consistent or slowing.

- No significant eastward or westward deformations were observed during 2020.



LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50 FT
- ELEVATION CONTOUR 10 FT

VERTICAL DISPLACEMENT RATE (in/yr)

- < -7.00
- -7 - -6
- -6 - -5
- -5 - -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.5
- -0.5 - 0
- 0 - 0.5
- 0.5 - 1
- 1 - 2

NOTES:

1. BASE MAP: AERIAL IMAGERY AND TOPOGRAPHY ARE FROM JULY 2020.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST, WEST EMBANKMENT CREST AND PORTION OF THE NORTH-SOUTH EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

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YANKEE DOODLE TAILINGS IMPOUNDMENT

AVERAGE VERTICAL InSAR SURFACE DEFORAMTION RATES (APRIL 17, 2020 TO OCTOBER 12, 2020)

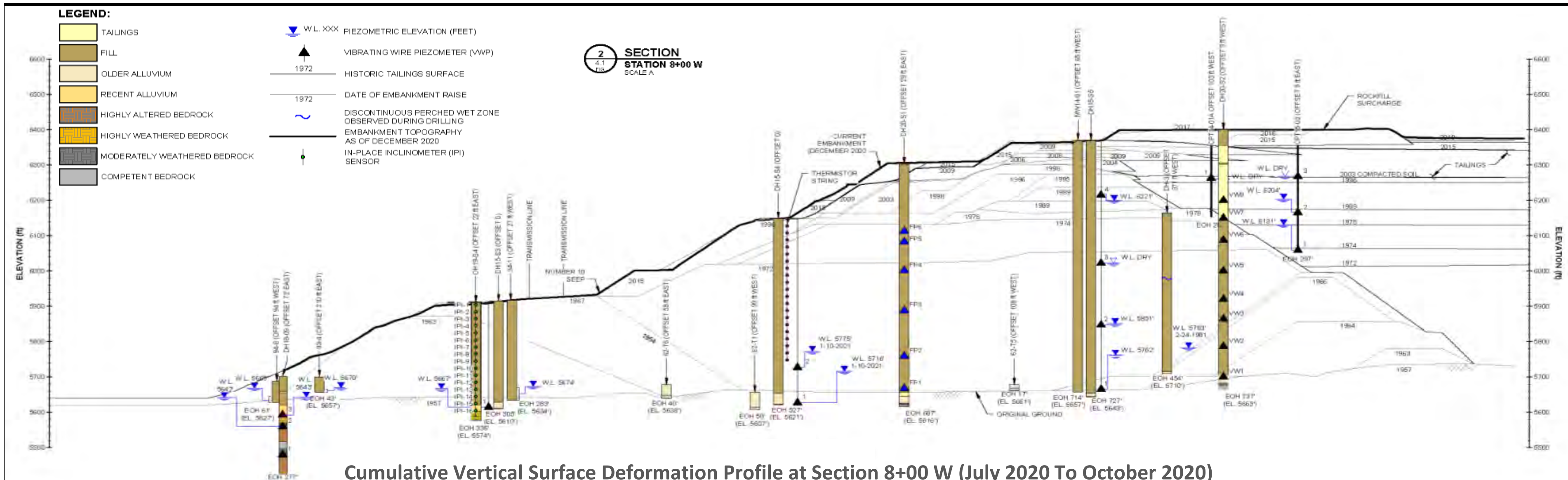
Knight Piésold CONSULTING

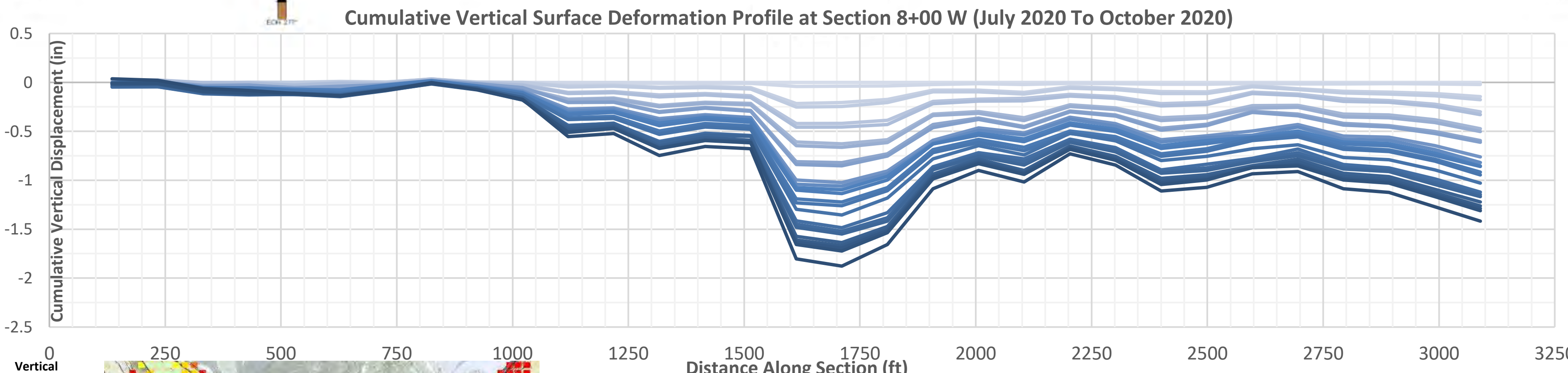
P/A NO.	REF NO.
VA101-126/23	5
FIGURE 5.1	REV 0

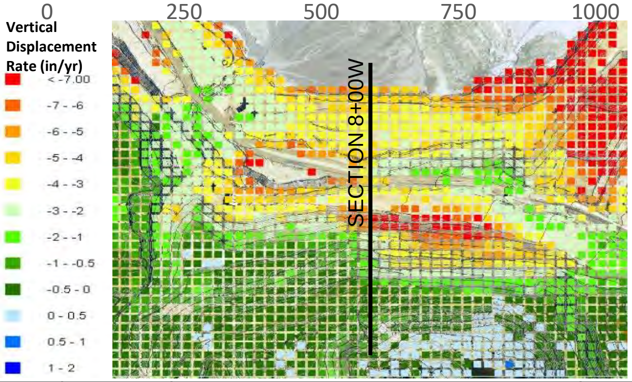
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\GIS\Figs\Report 5 - 2020 YDTI Data Analysis Report\Rev0\Fig5-1_AverageVerticalInSARSurfaceDeformationRates_Apr2020ToOctober2020_r0.mxd; Jun 29, 2021 4:32 PM; bhedji

M:\1\01\00126\25\A\Data\Task 320 - YDTI Monitoring & Instrumentation\3. Deformation Monitoring\Surface Deformation\GNSS\[YDTI GNSS and InSAR Displacement Plots (July 1 to December 31, 2020)]Figure 5.X - Section 8+00WPrint 6/29/2021 6:25 PM







NOTES:

1. THE SERIES SHOWN ABOVE REPRESENT CUMULATIVE DISPLACEMENTS AT EACH INSAR SURVEY BETWEEN JULY 1, 2020 AND OCTOBER 12, 2020. MORE INCREASINGLY RECENT SERIES ARE DISPLAYED WITH SEQUENTIALLY DARKER LINETYPE.
2. PIEZOMETRIC ELEVATIONS SHOWN ON THE CROSS-SECTION ARE FROM DECEMBER 31, 2020.

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CUMULATIVE VERTICAL inSAR DISPLACEMENTS MONITORED ALONG SECTION 8+00W (JULY 1 TO OCTOBER 2020)

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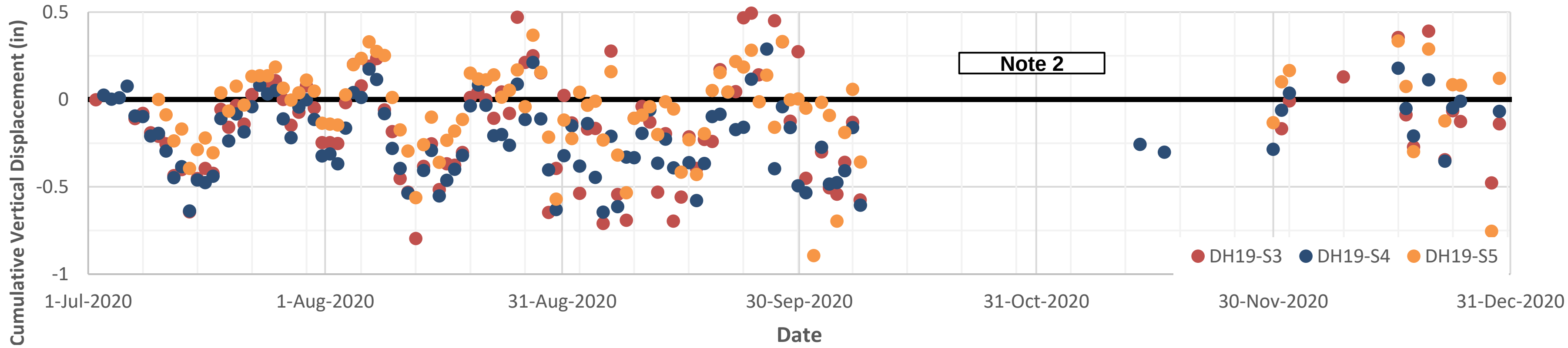
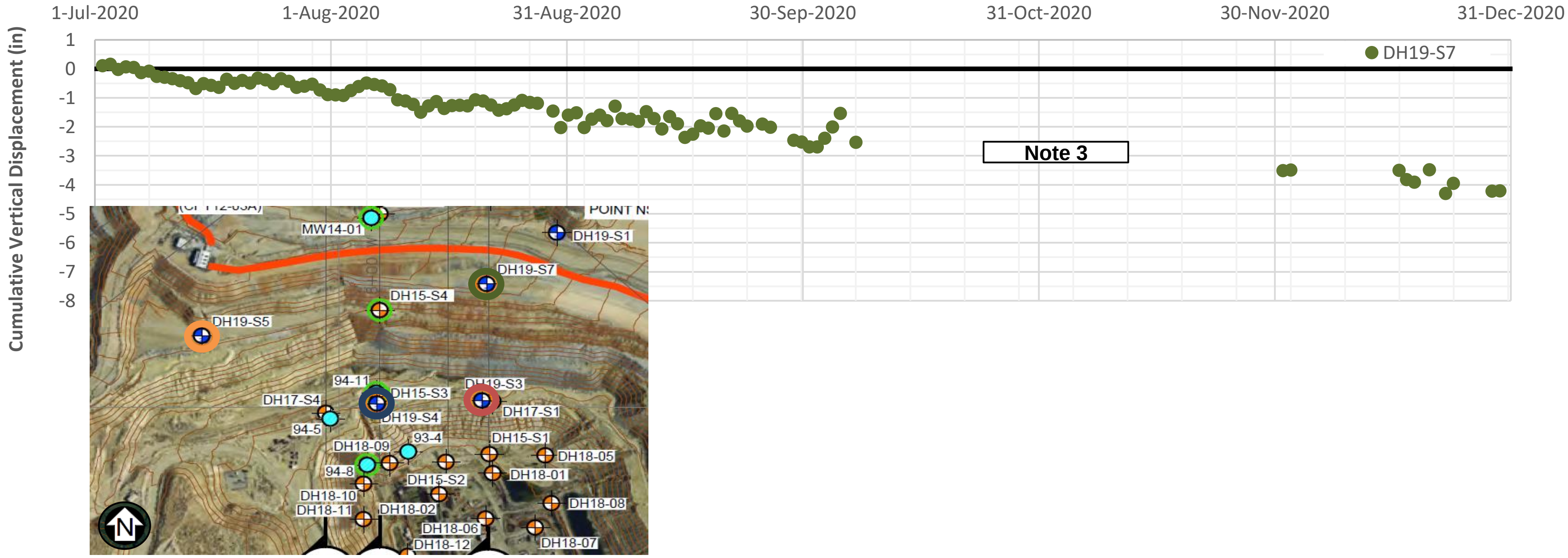
P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 5.2

REV 0





NOTES:

1. CUMULATIVE VERTICAL DISPLACEMENTS ARE CALCULATED RELATIVE TO JULY 1, 2020.
2. NO DATA WERE COLLECTED FROM 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.

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COMPARISON OF GNSS CUMULATIVE VERTICAL DISPLACEMENTS AND RATES (JULY 1, 2020 TO DECEMBER 31, 2020)

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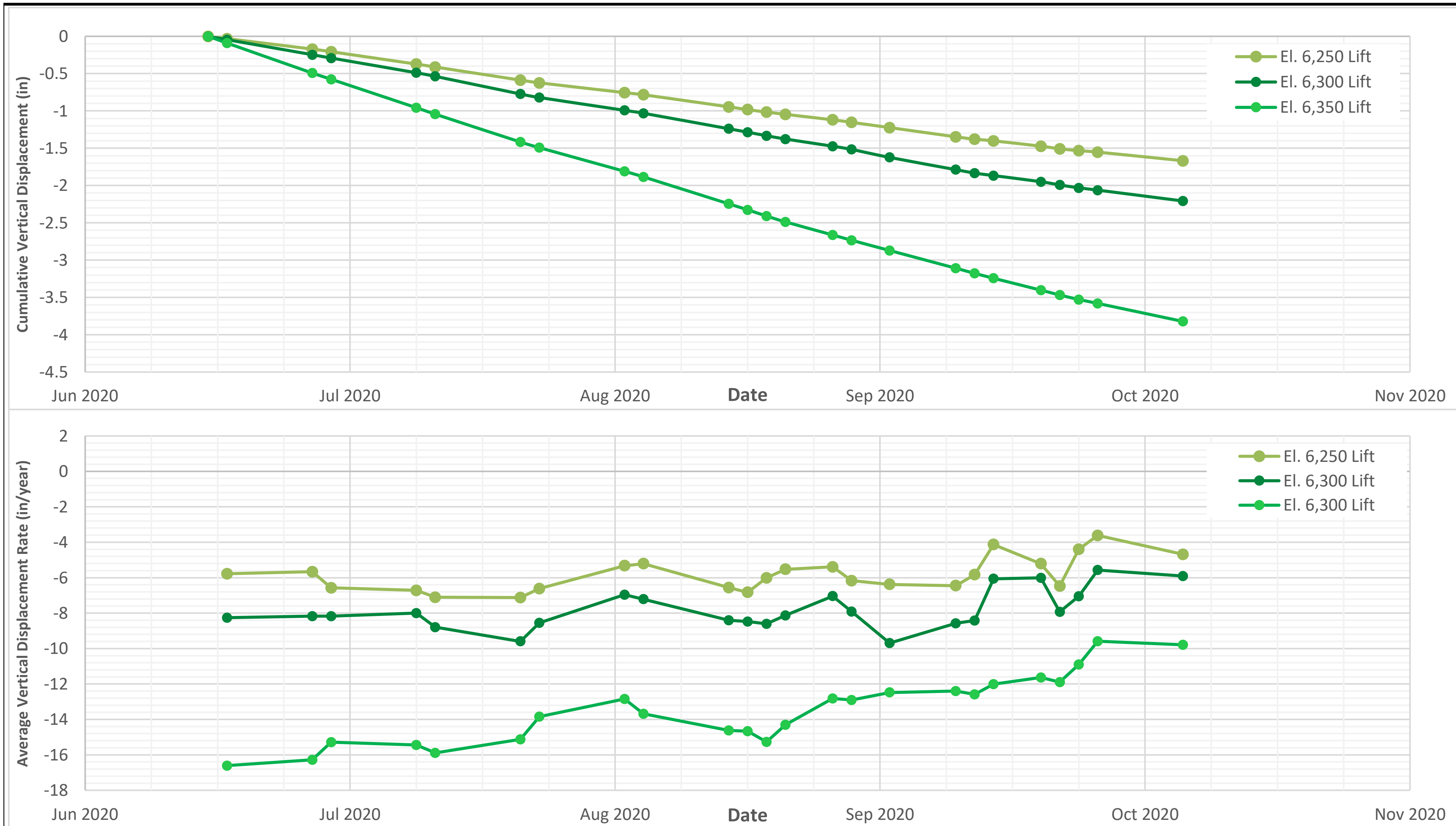
P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 5.3

REV 0



NOTES:

1. INSAR DEFORMATION DATA PRESENTED ABOVE ARE TWO-DIMENSIONAL TERRA-SAR-X DATA PROCESSED BY TRE-ALTAMIRA.
2. PLOTTED TIME-SERIES CUMULATIVE DEFORMATION AND DEFORMATION RATES ARE CALCULATED AS THE AVERAGE OF ALL INSAR RETURNS WITHIN THE NORTH-SOUTH STEP OUT LIFTS. MONITORING AREAS SHOWN ON FIGURE 5.1.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS AT NORTH-SOUTH STEP OUT LIFTS (JULY TO OCTOBER , 2020)

Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE 5.4

REV 0

5.3 SUMMARY OF MONITORED SUBSURFACE DEFORMATION

Subsurface deformations were measured at four inclinometer sites (DH19-S3, DH19-S4, DH19-S5, and DH19-S7) within the East-West Embankment central pedestal area during 2020. Incremental and cumulative deformation plots from the inclinometers are presented relative to a monthly average July 2020 baseline in Appendix D3.

Inclinometer data collected to date exhibit varying degrees of influence from the settlements occurring within the embankment rockfill (Section 5.2). IPI instrumentation within drillholes DH19-S3 and DH19-S4 are completed within historical rockfill at the Seep 10 Bench and exhibit only minor settlement influence due to the relatively older rockfill age. Lateral deformation data from these sites are usable and are generally interpreted to be representative of in-situ conditions (except where noted below). Much stronger settlement influence is observed at drillholes DH19-S5 and DH19-S7 completed through the Historical Western Leach Area and newly constructed tailings pipeline ramp, respectively. Incremental deformations monitored at these sites exhibit substantial settlement influence (s-shaped deformations) that preclude assessment of lateral deformation over a portion (DH19-S5) or all (DH19-S7) of the vertical profile.

A high-level summary of the subsurface displacement trends monitored during 2020 and settlement influence at each inclinometer site is provided below.

5.3.1 SEEP 10 BENCH (DH19-S3 AND DH19-S4)

Subsurface displacement monitoring within drillholes DH19-S3 (Section 0+00) and DH19-S4 (Section 8+00W) within the Seep 10 Bench monitored minor southward lateral displacements predominantly within the alluvial foundation and basal embankment fill materials, respectively, during 2020. Deformation rates remained relatively consistent throughout the year and no progressive (acceleration) lateral deformations were observed. Key observations from 2020 are presented below.

DH19-S3 (Seep 10 Bench; Section 0+00) showed the following deformation trends during 2020:

- Predominantly southward (A+) lateral deformation was observed with the most significant incremental deformation occurring within the Older Alluvium foundation material (at approximately 200 ftbgs).
  - Displacement rates were relatively consistent throughout 2020.
  - Cumulative displacement magnitudes are largest near to surface and decrease with depth, as shown on Figure D3.1.
  - Cumulative near-surface southward deformation is approximately 0.4-inches and is generally consistent with GNSS-based collar wander data for the same period (Figure D3.3).
- Minor settlement influence is apparent within the embankment rockfill (s-shapes on incremental deformation plot; Figure D3.2). Agreement between collar wander and cumulative near-surface displacement suggests settlements are not sufficiently large to impede IPI performance, suggesting that monitored lateral deformation magnitudes at DH19-S3 remain representative.

DH19-S4 (Seep 10 Bench; Section 8+00W) monitored the following deformation trends during 2020:

- Predominantly southward (A+) lateral deformation was observed with most significant incremental deformation occurring within basal embankment fill (at approximately 275 ftbgs). The deformations at this sensor are interpreted to be occurring within a historical Older Alluvium Soil Stockpile present at depth within the embankment foundation on Section 8+00W, as described in KP (2020b)

- Inclinometer data indicates a cumulative near-surface southward deformation of approximately 1.4-inches, as shown on Figure D3.4. This magnitude is interpreted to overestimate actual deformation due to settlement or installation derived casing distortion. This interpretation is supported by the fact that the near-surface inclinometer deformation overestimates the southward deformation monitored by GNSS-based collar wander (Figure D3.6), which indicates approximately 0.5-inches southward movement.
- KP infers that the IPI sensor at 270 ftbgs is the likely cause of the erroneous deformation magnitudes. It is thought that this sensor is experiencing rod-flexion (bending of the connecting rods over the inclination monitoring segment) due either to ongoing settlement or installed casing deviation.
- Incremental deformations above the 270 ftbgs sensor are interpreted to be representative and deformation rates were relatively consistent throughout 2020 (Figure D3.5).

- Minor settlement influence is apparent within the embankment rockfill (s-shapes on incremental deformation plot; Figure D3.5). This is consistent with GNSS monitored vertical settlement at the instrument location.

5.3.2 HISTORICAL WESTERN LEACH AREA (DH19-S5)

An inclinometer (DH19-S5) was installed within the Historical Western Leach Area (a region of historically leached rockfill located within the East West Embankment to the west of Section 12+00W and south of the No. 3 Booster Pump House) as part of the 2019 investigation program with the objectives of monitoring subsurface deformations within historically leached rockfill and at depth within basal rockfill and foundation materials. Deformation data from DH19-S5 exhibits substantial settlement influence within the upper 250 ftbgs, as shown on Figure D3.7. These axial deformations preclude representative assessment of the lateral deformation trends within the upper 300 ft of drillhole DH19 S5. As a result, no cumulative deformation plot is presented herein.

- Strong settlement (axial deformation) signature is present within the historically leached rockfill above the elevation of the Seep 10 Bench, with only minor observable settlement influence below. This influence is evident on the incremental deformation plot (Figure D3.7) as sequential s-shaped deformation behavior within the upper 300 ftbgs.
- A significant mismatch between calculated near-surface displacement and GNSS collar wander (Figure D3.8) indicates that the settlement observed at DH19-S5 precludes calculation of cumulative or representative incremental deformation within the aforementioned depth range.
- The lateral incremental deformation data from between approximately 300 and 450 ftbgs (below the major settlement influence) indicate a cumulative displacement of up to 0.25-inches within the basal rockfill in the downslope direction (the B- direction in this inclinometer). These data do not exhibit significant settlement influence and are likely to be representative. Lateral displacement rates within this interval have remained relatively constant throughout 2020.

5.3.3 TAILINGS PIPELINE RAMP (DH19-S7)

Deformation data from IPI instrumentation installed within DH19-S7 exhibits substantial settlement influence throughout the entire vertical profile, as shown on Figure D3.9, due to its location within the newly constructed central tailings pipeline ramp. Construction was active during late 2018 through fall 2019. Settlement-derived axial deformations observed at the site following construction preclude representative assessment of the cumulative deformation at DH19-S7. As a result, a cumulative deformation plot is not presented.

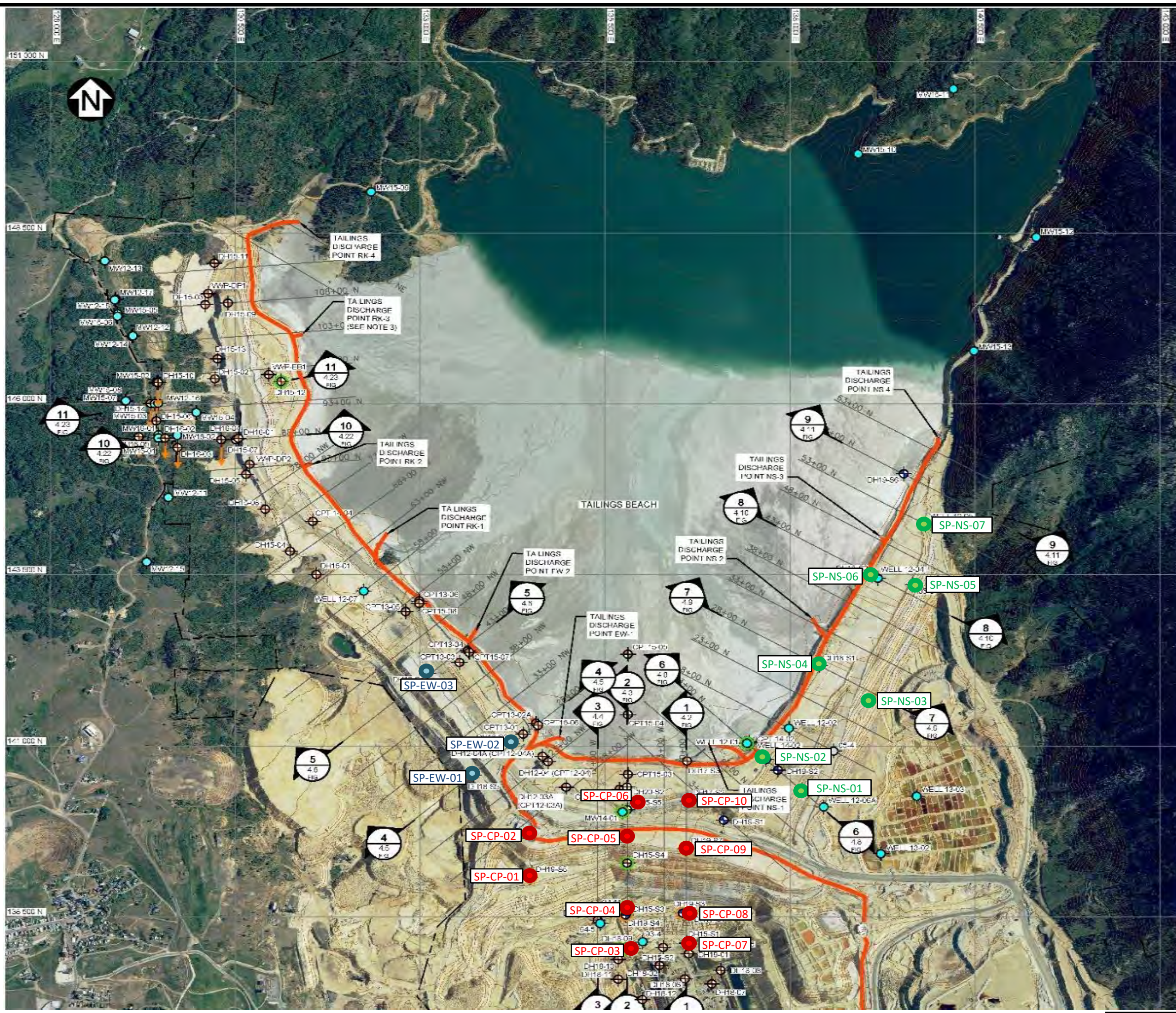
- Inclinometer DH19-S7 is installed within relatively newly placed rockfill of the central tailings pipeline ramp. As noted in Section 5.2, settlement is occurring at this location at approximately 9 in/yr. Associated axial distortion of the inclinometer casing results in strong s-shaped deformations indicative of settlement.
- Apparent settlements are largest between approximately 100 and 300 ftbgs and lessen within the rockfill interval from 300 to approximately 650 ftbgs.

5.4 DEFORMATION MONITORING RECOMMENDATIONS

The existing deformation monitoring network is comprised of GNSS/inSAR and IPI inclinometers for surface and subsurface displacement data collection, respectively. Data collected during 2020 have proven valuable for characterization of deformation magnitudes and rates throughout the YDTI embankments. KP supports the continued use of these instruments and monitoring methods and recommends that the following refinements, modifications, or additions be implemented during 2021:

- InSAR has provided widespread deformation monitoring coverage useful for characterization of spatial and temporal surface deformation trends and KP recommends the program be continued during 2021. The utility of InSAR data for operational monitoring during construction is limited somewhat by the frequency of reporting (twice per year) and the inability to monitor southward lateral deformations within the central pedestal area. KP recommends the following supplemental analyses be investigated during 2021:
  - Shorter-term inSAR 'bulletin' analyses should be trialed to determine whether these provide useful line-of-sight inSAR deformation data more frequently between scheduled long-term deformation reports.
  - Trial monitoring of lateral deformations within the central pedestal area using MR's Maptek I-Site laser scanner. KP recommends that the scanner be sited south of the HsB Area with an orthogonal view of the downstream embankment face. This configuration is expected to provide detailed coverage of the majority of the central pedestal area and line-of-sight data representative of the downslope (southward) deformation component.
- GNSS surface deformation instrumentation provided both settlement and lateral deformation data more regularly than the inSAR technique and is capable of monitoring during the winter months. The spatial coverage of these instruments; however, is limited to four locations within the central pedestal area. KP recommends that MR implement a manual survey-monitoring program (DGPS surveyed monuments) to provide additional coverage within the East-West and North-South Embankments. Monthly surveys of the monument locations will provide year-round vertical and lateral displacement data for comparison with GNSS and inSAR monitored deformations. A proposed arrangement for the manual survey locations is shown on Figure 5.5.

- Inclinometers installed within the Seep 10 Bench (DH19-S3 and DH19-S4) have monitored minor deformations within the basal embankment fill and/or alluvial foundation materials and exhibit only slight settlement influence. Elsewhere, inclinometers installed within the Historical Western Leach Area (DH19-S5) and central tailings pipeline ramp (DH19-S7) are more heavily influenced by settlement, which precludes detection of lateral settlements within the rockfill and/or foundation materials and will shorten their service lifespan. KP recommends that additional inclinometers be installed to supplement the existing network and attempt to overcome some of the settlement-related challenges, including:
  - Installation of an additional inclinometer through the Seep 10 Bench between Sections 0+00 and 8+00W to further investigate the nature and spatial extent of deformations monitored at DH19-S3 and DH19-S4 in 2020.
  - Installation of an inclinometer within downstream shell of the North-South Embankment along Section 28+00N to initiate lateral deformation monitoring in that embankment and to monitor deformations associated with planned North-South Embankment El. 6,450 ft lift construction.
  - Inclusion of settlement-protection measures in future inclinometers to minimize inclinometer casing distortion in response to the settlements present within the YDTI embankments.
- Elexon Geo4Sight instrumentation was installed during 2020 in drillhole DH20-S2; however, no deformation data were available at the time of writing. KP recommends these data be incorporated into the quarterly deformation data review process during 2021.



LEGEND

- Potential East-West Limb Embankment Manual Survey Point
- Potential Central Pedestal Area Manual Survey Point
- Potential North-South Embankment Manual Survey Point

NOTES:

1. IMAGERY PROVIDED BY MONTANA RESOURCES OF MID-2020 CONDITIONS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2021 YDTI OPERATIONAL MONITORING MANUAL EMBANKMENT SURVEY PROGRAM

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE 5.5 REV 0

6.0 CONCLUSIONS AND RECOMMENDATIONS

Field observations and the monitoring data confirm the facility continues to be operated and constructed in a manner consistent with the design intent and performance objectives. Embankment construction is a continuous process for the YDTI. Construction of the downstream step-out of the North-South Embankment was largely completed to EL. 6,400 ft except on the southern end where deactivation of the current mine haul ramp is required prior to advancing construction further. Fill placement for the EL. 6,450 ft embankment lift was advanced and realignment of the new pipeline ramp was completed along the East-West Embankment in 2020. Construction completion of the EL. 6,400 ft lift and commencement of EL. 6,450 ft lift construction occurred along the West Embankment in 2020. Construction of the EL. 6,450 ft lift commenced in Q2 and continued throughout 2020.

Tailings discharge practices throughout 2020 continued to focus on maintaining extensive tailings beaches adjacent to all three of the embankments. MR discharged a total of 16.4 Mt of tailings into the YDTI, resulting in an average beach rate of rise of 4.4 ft in 2020. The tailings beach and deposition pattern in 2020 was similar to previous years, with the greatest accumulation of tailings occurring at the northern end of the West Embankment. Several water management changes were observed around the Precipitation Plant area, including a commitment to reducing and eventually ceasing recirculation of flows from the Precipitation Plant to the Leach Ponds starting in Q4 2020.

Piezometer data from the vibrating wire piezometers and standpipe piezometers generally recorded decreasing or stable trends within the East-West and North-South Embankments during 2020. These data suggest that pore water pressures have reached or are approaching a steady-state condition associated with the revised tailings deposition strategy implemented beginning in 2016. Construction related pore pressure dissipation continued to be monitored (DH18-S1 VW1) during 2020 within the alluvial foundation of the North-South Embankment. Piezometric elevations within the tailings beach upstream of the East-West Embankment observed a minor increases (between 1 and approximately 10 ft) during 2020 following the gradual decreasing trend observed since 2017. Pore water pressures upstream of the central pedestal area remain well below conditions monitored prior to implementation of multiple-point tailings discharge system in late 2016. Piezometric elevations monitored within the West Embankment foundation, drain pods and Extraction Basin generally monitored stable conditions during 2019 and 2020, following a multiple year increase. This stabilization illustrates the draining influence of the WED on pore pressures beneath the West Embankment.

The eastward flow gradient from the West Ridge towards the YDTI continued to be present during 2020. The flow gradient at the West Ridge continues to provide hydrodynamic containment for YDTI seepage at the West Ridge Potentiometric Low and within the Deep Isolated Fracture System. The YDTI pond elevation is higher than the WED invert elevation along the entire length and the WED is now controlling piezometric conditions within and beneath the West Embankment. Comparison of West Ridge piezometric data and YDTI pond elevation indicates that the WED is not presently required to maintain hydrodynamic containment; however, it does enhance the security of the hydrodynamic seepage containment system along the West Ridge.

Surface and subsurface deformation monitoring programs were initiated throughout the YDTI embankments and generally indicate the presence of vertical settlement and downslope creep displacements that are consistent with expectations for end-dumped rockfill material. The largest monitored deformations have occurred in regions of recently placed rockfill materials (i.e. central tailings pipeline ramp, North-South Embankment step-out lifts) and time-series data indicate that deformation rates continue to slow following construction. Lower magnitude, constant-rate deformations are observed within areas of historical rockfill including the Seep 10 Bench and Historical Western Leach Area. Inclinometers installed through the Seep 10 Bench have monitored minor downslope (southward) lateral deformations within basal rockfill and foundational soils on Sections 0+00 and 8+00W. Elsewhere, inclinometers are significantly influenced by settlement and are not usable for cumulative lateral deformation monitoring within the tailings pipeline ramp or Historical Western Leach Area. KP recommends that additional surface deformation monitoring techniques be trialed during 2021 to supplement the active programs and that installation of settlement-protected inclinometers be included during the next site investigation program (2021) in an attempt to overcome the settlement influence experienced at the existing sites.

7.0 REFERENCES

Hydrometrics Inc. (Hydrometrics, 2017). Hydrologic Evaluation of the Yankee Doodle Tailings Impoundment West Ridge Area Silver Bow County, Montana. July 21. Helena, Montana. Rev. 3., 2017

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Knight Piésold Ltd. (KP, 2018a). Construction Management Plan (KP Reference No. VA101-126/12-5 Rev 3), dated May 1, 2018.

Knight Piésold Ltd. (KP, 2020a). 2019 Annual Inspection Report, Ref. No. VA101-126/21-2 Rev 0, dated January 31, 2020.

Knight Piésold Ltd. (KP, 2020b). 2019 Embankment Geotechnical Site Investigation Report, Ref. No. VA101-126/21-1 Rev A, dated July 16, 2020.

Knight Piésold Ltd. (KP, 2020c). 2019 Data Analysis Report, Ref. No. VA101-126/21-3 Rev 0, dated August 28, 2020.

Knight Piésold Ltd. (KP, 2021). Yankee Doodle Tailings Impoundment – 2020 Annual Inspection Report, dated February 2021.

Montana Code Annotated (MCA), 2015. Title 82: Minerals, Oil, and Gas, Chapter 4: Reclamation, Part 3: Metal Mine Reclamation. Accessed: March 2016. Available at: http://leg.mt.gov/bills/mca/82/4/82-4-381.htm

Montana Resources and Knight Piésold (MR/KP, 2019), 2019. Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 3, dated January 2019.

Montana Resources and Knight Piésold (MR/KP, 2020), 2020. Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 13, 2020.

8.0 CERTIFICATION

This report was prepared and reviewed by the undersigned.

Prepared:

Roanna Dalton, P.Eng.
Specialist Engineer | Associate

Prepared:

Kevin Davenport, P.Eng.
Senior Engineer

MONTANA
2021-06-30
DANIEL DYLAN
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2021-06-30

Reviewed:

Ken Brouwer, P.E.
Principal Engineer | Engineer of Record

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

APPENDIX A

Quarterly Monitoring Summaries

APPENDIX A1

Construction Inspection Letters

(Pages A1-1 to A1-95)

May 7, 2020

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: 2020 Q1 Construction Field Review Summary

1.0 INTRODUCTION

A construction field review of the Yankee Doodle Tailings Impoundment (YDTI) was completed for the first quarter (Q1) of 2020 by Mr. Mike Harvie from the Mining Engineering Department of Montana Resources, LLP (MR) on March 30 and March 31, 2020. The quarterly construction field review is intended to observe construction progress, review construction practices, and provide recommendations for priority actions. The field review is a visual inspection and should not be considered to be supervision of construction or a guarantee that all deficient or non-conforming works have been identified. The field review is completed on a quarterly basis to satisfy the Engineer quarterly inspection frequency as outlined in the Earthworks Inspection and Test Plan in Table 3.4 of the Construction Management Plan (CMP) (KP, 2018).

The Q1 field review was completed by Mr. Harvie as the official designate of the Engineer of Record (EOR) due to the ongoing COVID-19 pandemic and travel restrictions. Knight Piésold Ltd. (KP) provided a variety of directions and resources to Mr. Harvie prior to the field review, and this letter has been produced by KP to summarize the findings and subsequent discussions. Mr. Harvie provided photos, videos, and other documents which were reviewed by KP to inform the opinions and conclusions provided herein. A summary checklist from the field review is included in Table 1, and photos from the field review are included in the attached Photo Log with locations shown on Figure 1. Snow accumulation was present sporadically around the YDTI during the field review as observed in the photos.

2.0 FIELD OBSERVATIONS

2.1 NORTH-SOUTH EMBANKMENT

Construction of the downstream step-out of the North-South Embankment continued throughout Q1 on the elevation (EL.) 6,400 ft lift, as shown on Photo 1 and outlined in Figure 2. The step-out at this elevation is nearing completion at the southern end of the embankment as shown on Photo 2. The previous EL. 6,350 ft lift surface was scarified prior to the placement of the advancing EL. 6,400 ft lift as shown on Photo 3.

Cracking along the North-South Embankment crest was previously identified in late 2019, as summarized in the 2019 Q4 Field Review Letter (KP, 2019) and 2019 EOR Annual Inspection Report (AIR) (KP, 2020a). The embankment crest was bladed during construction of the EL. 6,400 ft lift of the downstream step-out, and the previous cracking is no longer visible. No new cracking has been observed along the embankment since the surface was bladed and the downstream step-out now buttresses the locations of the previous cracking. Routine inspections of this area are to continue to monitor for any future cracking.

The upstream crest of the embankment generally appears to be in good condition with some dormant cracking located along the tailings discharge corridor, as shown on Photo 4.

The tailings beach appears to be well-drained along the North-South Embankment and tailings discharge locations in this area were not active at the time of the field review. Tailings discharge records indicate that all locations along the North-South Embankment were active since the previous field review. The elevation difference between NS-1 and NS-3 was approximately 8.2 ft which is less than the 8.6 ft at the time of the 2019 Q4 field review. The supernatant pond location is shown on Photo 5. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are as follows:

- NS-1: EL. 6,383.1 ft (increase of 3.3 feet from EL. 6,379.8 ft)
- NS-2: EL. 6,375.3 ft (increase of 1.1 feet from EL. 6,374.2 ft)
- NS-3: EL. 6,374.9 ft (increase of 3.7 feet from EL. 6,371.2 ft)

Reconfiguration of the tailings discharge locations along North-South embankment to create additional discharge flexibility and enhance beach development, as recommended in the 2019 EOR AIR, is planned to be completed this year.

2.2 EAST-WEST EMBANKMENT

The majority of fill placement along the downstream side of the East-West Embankment for the tailings pipeline ramp relocation was completed by the end of Q4 2019. Small quantities of fill were placed in March 2020 along the pipe ramp. The tailings pipelines have not yet been relocated as additional dozer work is needed above Booster Station #2. The completed pipeline ramp is shown on Photo 6.

The over steepened cut slopes for the old Terramac access ramp along the tailings discharge corridor are shown on Photo 7. This area is still to be rectified as noted in the 2019 EOR AIR and previous quarterly field reviews. Dormant settlement cracking is also present at this location upstream of the tailings pipelines.

The discharge location EW-1 was active at the time of the field review. Records indicate that discharge locations EW-1 and EW-2 were both in operation since the last field review. The elevation difference between these two discharge locations was approximately 2.4 ft, which is less than the difference of 3.2 ft recorded during the 2019 Q4 field review. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are as follows:

- EW-1: EL. 6,385.4 ft (increase of 3.6 feet from EL. 6,381.8 ft)
- EW-2: EL. 6,383.0 ft (increase of 4.3 feet from EL. 6,378.7 ft)

2.3 WEST EMBANKMENT

The majority of the West Embankment is constructed to EL. 6,400 ft and the West Embankment Drain (WED) has been completed. An overview of the West Embankment area as viewed from a topsoil stockpile on the West Ridge is shown on Photo 8. Mungas Construction Co. (Mungas) has completed their scope of work and are no longer on site.

The area surrounding the Temporary Extraction Pond was filled in with Zone U material by MR as shown on Photo 9. The Zone D1 lifts along the western edge of this area still need to be placed. The MR haul fleet has continued to place Zone D1 in 5 ft lifts near the Drain Pod 1 area (Bumtown), which has reached approximately EL. 6,395 ft as shown in Photo 10. Areas of active construction along the West Embankment during Q1 are shown on Figure 3.

The Extraction Pond pumps installed on the floating barge (Photo 11) are operating and were discharging at approximately 700 gpm at the time of the field review. The welding and placement of the emergency overflow pipelines from the Extraction Pond is still to be completed as shown on Photo 12. The emergency overflow discharge structure at the outlet of the emergency overflow pipelines has been constructed; however, additional large boulders for energy dissipation need to be placed after the pipeline installation is complete.

Tailings discharge records indicate that discharge locations RK-1, RK-2, and RK-3 were used since the last field review. Discharge location RK-2 was active at the time of the field review and RK-4 has been idle since the last field review. The elevation difference between RK-1 and RK-4 was approximately 8.4 ft, which is greater than the difference of 5.6 ft at the time of the 2019 Q4 field review. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are as follows:

- RK-1: EL. 6,379.3 ft (increase of 2.6 feet from EL. 6,376.7 ft)
- RK-2: EL. 6,372.7 ft (increase of 2.3 feet from EL. 6,370.4 ft)
- RK-3: EL. 6,371 ft (increase of 0.9 feet from EL. 6,370.1 ft)
- RK-4: EL. 6,371.1 ft (increase of 0.0 feet from EL. 6,371.1 ft)

Tailings Line 1 was inoperable from RK-2 to RK-4 from early January 2020 until mid March 2020 due to construction of a new pipe bench to raise the pipeline above current beach elevations. The line is now fully functional, as shown in Photo 13.

2.4 SEEP 10 AREA AND HORSESHOE BEND

The condition of the Seep 10 flow paths, surface collection ditches, and stilling pond appear consistent with previous field reviews as shown in Photos 14 and 15. The ultrasonic lookdown level sensor installed at the Seep 10 weir was operating normally and the reading on the staff gauge at the time of the field review was approximately 0.38 as shown in Photo 16.

Horseshoe Bend (HsB) seepage flow paths and collection ditches at the toe of the East-West Embankment were generally consistent with previous field reviews as shown in Photos 17 and 18.

Various overflow or seepage flows were identified at the Precipitation Plant area during previous field review and EOR Annual Inspection, and corrective measures have been taken. Repairs were made to cracks in the bulkhead at the Precipitation Plant where the discharge pipelines exit the #5 and #6 Cells as shown in Photo 19. The water level at the Cell 10 pump located downstream of the HsB Upper Pond was lower than observed during previous field reviews as shown on Photo 20. The Cell 10 pump was replaced and effectively handles all incoming flows.

2.5 OTHER ITEMS

Outstanding weekly and monthly quality reports were discussed with MR throughout the remote Q1 process and during reoccurring weekly meetings between KP and MR. The weekly report, completed by MR, was implemented during Q4 of 2019 to replace the Daily Construction Report that has previously been issued by Mungas and is required to satisfy the inspection requirements outlined in the CMP (KP, 2018). Weekly reports were generally completed by MR each week. Monthly Quality Reports are outstanding by several months. The competition of future monthly reports is expected to be expedited with Mungas no longer on site and contributing to the reporting.

Monitoring for embankment movement and piezometric levels within the YDTI embankments is being completed by KP and MR in accordance with the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020) using several concurrent monitoring programs. These programs include real-time monitoring of piezometric levels and in-place inclinometer instrumentation data via the Sensemetrics application, periodic review of beach development using Sentinel-2 satellite images, and collection of high resolution Interferometric Synthetic Aperture Radar (InSAR) data. The 2020 Q1 Piezometric Monitoring Update has been issued by KP (KP, 2020b) and provides a summary of the piezometric data collected at key monitoring sites during the first quarter of 2020.

The monitoring network and protocols for the YDTI are being progressively upgraded and updated to take advantage of the automation capabilities of the remote monitoring system. It is important to note that the March 31, 2020 earthquake occurring near Challis, Idaho did not result in any observed embankment deformation or increased pore pressures within the YDTI monitoring network.

3.0 SUMMARY AND RECOMMENDATIONS

The 2020 Q1 Construction Field Review was completed by Mr. Mike Harvie of MR as the EOR designate due to the COVID-19 travel restrictions preventing KP travel. Various documents and directives were provided to Mr. Harvie by KP throughout the Q1 review process. This letter provides a summary and description of the construction activities and conditions based on the information (photos, videos, and descriptions) provided by MR.

Construction of the downstream step-out of the North-South Embankment on the EL. 6,350 ft lift was completed and the EL 6,400 ft is nearing completion. Settlement cracking previously identified along the EL. 6,400 ft crest was bladed and the crest buttressed by the downstream step-out construction. MR should continue to monitor the crest for any new cracks and update KP if any cracking is observed. The dormant cracking observed previously along the North-South Embankment tailings discharge corridor remains to be bladed as described in the Corrective Action Plan (CAP) (MR, 2019).

The Temporary Extraction Pond area has been filled with Zone U material by MR and the majority of the West Embankment is now constructed to EL 6,400. MR continued to place 5 ft lifts of Zone D1 material in the Drain Pod 1 area (Bumtown) and raised the tailings discharge corridor between RK-2 and RK-4 during Q1 2020. The Extraction Pond pumps are operating continuously; however, installation of the overflow pipelines from the pond is still incomplete.

The new tailings pipeline ramp along the East-West Embankment is complete; however, the pipelines have not been relocated because additional dozer work is required above Booster Station #2. The over steepened cut slopes for the old Terramac access ramp along the tailings discharge corridor along the rockfill surcharge and the dormant settlement cracking in the area are still to be rectified by MR. Ongoing monitoring of seepage around Seep 10 and Horseshoe Bend is to be continued throughout 2020.

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Tailings beach development continues to be managed well. The addition of a fourth discharge point along the North-South Embankment and extension of Line 2 to NS-1 was recommended in the 2019 EOR AIR (KP, 2020a) and is expected to be completed this year. Weekly tailings beach survey records provided to KP continue to be helpful to monitor tailings beach development.

Yours truly,
Knight Piésold Ltd.

PROFESSIONAL PROVINCE OF J. R. R. GILLESPIE # 42239 BRITISH COLUMBIA ENGINEER 2020-05-07

Prepared:

Jason Gillespie, P.Eng.
Senior Engineer

MONTANA 2020-05-07 DANIEL DYLAN FONTAINE No. 59785 PE LICENSED PROFESSIONAL ENGINEER

Reviewed:

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MONTANA KEN J. BROUWER 50020 PE REGISTERED PROFESSIONAL ENGINEER 2020-05-07

Reviewed:

Ken Brouwer, P.E.
Principal

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

Attachments:

Table 1 Rev 0	2020 Q1 Construction Field Review – Checklist
Figure 1 Rev 0	2020 Q1 Construction Field Review – General Arrangement and Photo Location Map
Figure 2 Rev 0	2020 Q1 Construction Field Review – North-South Embankment Construction Areas
Figure 3 Rev 0	2020 Q1 Construction Field Review – West Embankment Construction Areas
Photo Log	

References:

Knight Piésold Ltd. (KP, 2018). Yankee Doodle Tailings Impoundment: Construction Management Plan (KP Reference No. VA101-126/12-5 Rev. 3). May 1, 2018.

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Knight Piésold Ltd. (KP, 2020a). Yankee Doodle Tailings Impoundment 2019 Annual Inspection Report (KP Reference No. VA101-126/21-2 Rev. 0). January 31, 2020.

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Copy To: Mike Harvie

/jg

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TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q1 CONSTRUCTION FIELD REVIEW CHECKLIST

Date: 3/30/20 & 3/31/20 **Time:**

Inspectors:
Name: Mike Harvie Title: Manager of Engineering & Geology Signature:

Inspection Type: DAILY WEEKLY MONTHLY OTHER EVENT (Specify): Q1 CONSTRUCTION REVIEW

Weather Conditions: Precipitation (24 hr.): Zero Wind Speed: **0-5**
Temperature (°F): 40 Sky (circle): Clear Partly Cloudy Cloudy

Instrumentation Data Collected: Yes No **Details:**

Samples Collected: Yes No **Details:**

WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor		X	X	
Downstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	Bumtown Area - 6390 - 5 foot lift of D1
		Surface Preparation	X			6385 lift within Specifications

EAST-WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X	X	
		Lateral Deformation		X	X	
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor	X		X	Past Cracking at Terramac Access still evident, no remedial measures taken to date
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Seep 10 Bench	✓	Overview of HsB Photo	X		X	
	✓	Seep 10 Stilling Basin	X		X	
	✓	Seep 10 V-Notch Weir	X		X	
	✓	Seep 10 Inflows	X		X	
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	Ramp to 6450 E-W started
		Surface Preparation	X		X	6400 lift ripped
Pipe Ramp Construction	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Survey Stake Locations for Expansion		X		1st Tailings pipeline moved to YDTI Toe Line, limited space available

NORTH-SOUTH EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	Previous cracking has been bladed during construction of the downstream step-out
		Erosion		X	X	
		Lateral Deformation		X	X	
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor	X		X	Past cracking along pipeline between 3-2 and 3-3 still evident, no movement noticeable since last inspection
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X	X	
		Seeps, Damp or Soft areas		X	X	
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	6400 Embankment near South End
		Surface Preparation	X		X	6350 lift ripped

Montana Resources

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TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q1 CONSTRUCTION FIELD REVIEW CHECKLIST

YANKEE DOODLE TAILINGS IMPOUNDMENT						
LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT		PHOTO	COMMENTS
			YES	NO		
General	✓	Pond Elevation and Location Reviewed	X		X	Pond Elev: 6359.24
	✓	Lowest Crest Elevation Determined	X			Lowest Crest near Tailings Lines: 6396
Tailings Discharges	✓	Active Discharge Locations	X		X	Active Lines: 1-2 and 3-1(need pipelines cutoff, under tailings discharge)
		Pipeline leakage		X		
		Pipeline wear/damage		X		
Reclaim Water Pipeline	✓	Pipeline wear/damage		X	X	
		Pipeline leakage		X	X	

HORSESHOE BEND				
LOCATION	INSPECTION COMPLETED	ITEM	PHOTO	COMMENTS
Horseshoe Bend and Precipitation Plant	✓	Upper HSB Pond	X	
	✓	Lower HsB Pond	X	
	✓	HsB Pump and Water Level	X	
	✓	HsB Seepage to Upper Pond	X	
	✓	HsB Seepage to Hooligan Pond	X	
	✓	Surface Flows near DH18-09	X	No surface flows noticeable during inspection.
	✓	Precipitation Plant Overflow Box Leak	X	Overflow Box Repairs have decreased leakage
	✓	Precipitation Plant Cell Overflow	X	
	✓	BMFOU Pilot Project Facilities		

Additional Notes:

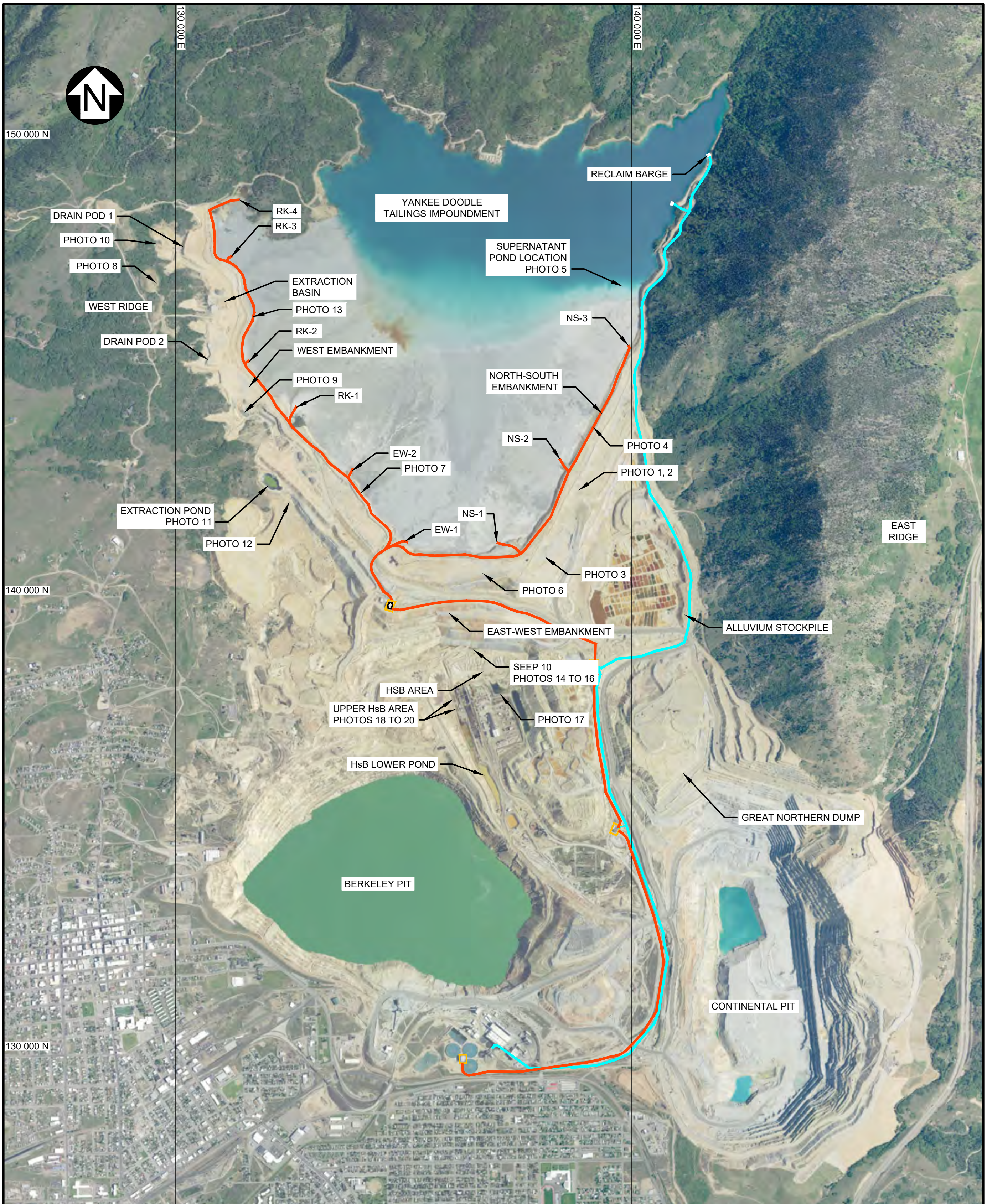
North-South, West and East-West Embankments were inspected and all areas appeared normal. No new cracking was observed, areas of known cracking along the pipe corridor was inspected and no progression of cracking was observed. Area will be closely monitored.

\\knightpiesold.local\VA-Prj$\1\01\00126\23\A\Correspondence\VA20-00803 Q1 Construction Field Review\Attachments\[T1 Q1 2020 Inspection Log.xlsx]Q1 Field Review_KP Comments

NOTES:

1. CHECKLIST COMPLETED BY MR REPRESENTATIVE MIKE HARVIE AND REVIEWED BY KP.

0	05MAY'20	ISSUED WITH LETTER VA20-00803	JRG	DDF
REV	DATE	DESCRIPTION	PREP'D	RVW'D



SAVED: M:\1\01\00126\23\A\Acad\FIGS\A07, 4/24/2020 11:43:46 AM , RMCLELLAN PRINTED: 5/7/2020 8:12:08 AM, FIG 1, RMCLELLAN
XREF FILE(S): 5ft_01_2019-11-12 IMAGE FILE(S): 5FT_01-2019-07-01

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. PHOTO LOCATIONS CORRESPOND TO PHOTO LOG ISSUED WITH 2020 Q1 QUARTERLY CONSTRUCTION FIELD REVIEW SUMMARY.
3. AERIAL IMAGERY FROM JULY 1, 2019 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	07MAY'20	ISSUED WITH LETTER	JRG	RMM	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q1 CONSTRUCTION FIELD REVIEW GENERAL ARRANGEMENT AND PHOTO LOCATION MAP

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-00803

FIGURE 1 REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 1, 2019 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q1 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	05MAY'20	ISSUED WITH LETTER	JRG	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q1 CONSTRUCTION FIELD REVIEW
NORTH-SOUTH EMBANKMENT
CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00803

FIGURE 2 REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 1, 2019 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q1 OF 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q1 CONSTRUCTION FIELD REVIEW
WEST EMBANKMENT
CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00803

FIGURE 3 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	05MAY'20	ISSUED WITH LETTER	JRG	DDF

2020 Q1 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 1 – North-South Embankment – Construction of the 6,400 ft lift. (March 30, 2020)

PHOTO 2 – North-South Embankment – Construction of the 6,400 ft lift nearly complete near the southern extent. (March 30, 2020)

PHOTO 3 – North-South Embankment – Southern extent of 6,350 ft lift surface scarified prior to advancement of the 6,400 ft lift. (March 30, 2020)

PHOTO 4 – North-South Embankment – Dormant cracking along the upstream pipe corridor near the NS-2 discharge location. (March 30, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 5 – Supernatant Pond covered by ice, viewed from reclaim barge access road. (March 30, 2020)

PHOTO 6 – East-West Embankment – New pipe bench and one tailings line moved beyond projected EL. 6,450 ft embankment toe. Additional dozer work needed above Booster Station #2 before remaining pipelines are relocated. (March 30, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 7 – East-West Embankment – Over steepened cut slopes on Terramac access ramp. (March 30, 2020)

PHOTO 8 – West Embankment – Overview from the West Ridge Topsoil Stockpile. (March 30, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 9 – West Embankment – Area above Temporary Extraction Pond filled in with U material, D1 5 ft lifts are planned to be placed in Q2. (March 30, 2020)

PHOTO 10 – West Embankment – Placement of the 6395 lift of Zone D1 Material near Drain Pod 1 (Bumtown). (March 30, 2020)

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2020 Q1 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 11 – West Embankment – WED Extraction Pond and Pump Station. (March 30, 2020)

PHOTO 12 – West Embankment – Extraction Pond Emergency Pipelines, still under construction. (March 30, 2020)

Knight Piésold CONSULTING

2020 Q1 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 13 – West Embankment – Completed Pipe Bench Raise of Tailings Line #1 and Discharge Point RK-2 in use. (April 10, 2020)

PHOTO 14 – Seep 10 Area. (March 30, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 15 – Seep 10 Weir. (March 30, 2020)

PHOTO 16 – Seep 10 Weir Staff Gauge reading approximately 0.38. (March 30, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 17 – Horseshoe Bend (HsB) Area – Leach seeps along toe of East-West Embankment viewed from Seep 10 bench. (March 31, 2020)

PHOTO 18 – HsB Area – Upper seepage collection area west of Precipitation Plant. (March 31, 2020)

2020 Q1 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 19 – HsB Area – Repair work done to discharge pipe bulkhead exiting #5 and #6 Cells of Precipitation Plant.

PHOTO 20 – HsB Area – Cell #10 Pump, new pump handling incoming flows, no overflowing water to HsB Lower Pond.

September 11, 2020

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: 2020 Q2 Construction Field Review Summary

1.0 INTRODUCTION

A construction field review of the Yankee Doodle Tailings Impoundment (YDTI) was completed for the second quarter (Q2) of 2020 by Mr. Mike Harvie (Montana Resources, LLP (MR) Mining Engineering Department) on June 26, 2020. This was the second quarterly field review completed by Mr. Harvie who has been assigned to be the official designate of the Engineer of Record (EOR) due to restrictions relating to the ongoing COVID-19 pandemic. The previous 2020 Q1 field review completed by Mr. Harvie is summarized in the Knight Piésold Ltd. (KP) 2020 Q1 Field Review Letter (KP, 2020a).

Mr. Harvie provided a collection of photos and videos gathered during the Q2 field review, along with a summary checklist, which were examined by KP to inform the opinions and conclusions provided herein. The weekly reports, completed by MR to satisfy the inspection requirements outlined in the Construction Management Plan (CMP) (KP, 2018), were also reviewed to assist in the development of this summary. This letter summarizes the findings and subsequent discussions of these documents. A summary checklist from the field review is included as Table 1, and photos from the field review are included in the attached Photo Log with locations shown on Figure 1.

The quarterly construction field review is intended to observe construction progress, review construction practices, and provide recommendations for priority actions. The field review is a visual inspection and does not constitute supervision of construction and does not represent a guarantee that all deficient or non-conforming works have been identified.

The field review is completed on a quarterly basis to satisfy the Engineer quarterly inspection frequency as outlined in the Earthworks Inspection and Test Plan in Table 3.4 of the CMP (KP, 2018).

2.0 FIELD OBSERVATIONS

2.1 NORTH-SOUTH EMBANKMENT

Regrading the tailings discharge corridor to realign the tailings pipeline and allow discharge location NS-3 to be relocated, as described in the 2019 EOR Annual Inspection Report (AIR) (KP, 2020b), began late in the quarter and will continue during Q3. A general update of construction progress is shown on Photo 2 with the approximate active construction area indicated on Figure 2.

The downstream step-out has been completed up to EL. 6,400 ft along most of the embankment, except at the southern end where the tailings pipelines still need to be relocated and where the current mine haul ramp is yet to be deactivated prior to continued construction. The current progress of construction along the downstream step-out is shown on Photo 1.

Intermittent cracking was identified along the downstream edge of the North-South Embankment crest, which is consistent with previously identified cracking summarized in the 2019 Q4 Field Review Letter (KP, 2019) and 2019 EOR AIR (KP, 2020b). An example of the cracking is shown on Photo 3. The nature and extent of this cracking indicates that the deformation is related to differential settlement caused by the dump construction along the downstream side of the embankment. The settlement cracking is not indicative of deteriorating embankment stability. MR is to continue to monitor for any future cracking or propagation of the existing cracks and to inform KP of any changing conditions. The upstream crest of the embankment generally appears to be in good condition with some dormant cracking identified along the older tailings discharge corridor.

Tailings discharge records indicate that all locations along the North-South Embankment were active since the previous field review. Photo 4 shows the beach conditions and supernatant pond location as viewed from discharge NS-2. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are provided below.

- NS-1: EL. 6,384.4 ft (increase of 1.3 feet from EL. 6,383.1 ft)
- NS-2: EL. 6,377.0 ft (increase of 1.7 feet from EL. 6,375.3 ft)
- NS-3: EL. 6,374.9 ft (increase of 0.0 feet from EL. 6,374.9 ft)

The elevation difference between NS-1 and NS-3 was approximately 9.5 ft, which is greater than the 8.2 ft at the time of the 2020 Q1 field review. The increased difference was related to the temporary deactivation of the NS-3 discharge location while the tailings discharge corridor was being regraded.

2.2 EAST-WEST EMBANKMENT

East-West Embankment construction during Q2 was limited to haul ramp construction for the EL. 6,450 ft lift of the embankment in an area to the west of the Booster #3 (Tailings) Pump House, and grading of the pipeline ramp as indicated on Figure 3. The downstream edge of the pipeline ramp, shown on Photo 5, does not show any cracking or deformation. The tailings pipelines were partially relocated along the central portion of the pipeline ramp during Q2.

The over-steepened cut slope at the Terramac access ramp along the tailings discharge corridor, as noted in the 2019 EOR AIR and previous quarterly field reviews, is shown on Photo 6. This area is still being monitored by MR as recommended in the 2019 AIR (KP, 2020b) and the MR Corrective Action Plan (CAP) (MR, 2020).

Records indicate that discharge location EW-1 was in operation since the last field review. The elevation difference between the EW discharge locations was approximately 3.8 ft, which is greater than the 2.4 ft difference recorded during the 2020 Q1 field review. The approximate beach elevations at the discharge points and the change in elevation since the previous field review are as follows:

- EW-1: EL. 6,386.8 ft (increase of 1.4 feet from EL. 6,385.4 ft)
- EW-2: EL. 6,383.0 ft (increase of 0.0 feet from EL. 6,383.0 ft)

2.3 WEST EMBANKMENT

Areas of active construction along the West Embankment during Q2 are shown on Figure 4. The construction of the EL. 6,450 lift of the West Embankment commenced in May with surface preparation of the EL. 6,400 lift as shown on Photos 7 and 8. Photo 9 provides an overview of the West Embankment area and EL. 6,450 construction progress as viewed from a topsoil stockpile situated on the West Ridge .

Zone D1 lifts along the western edge of the temporary sump (Photo 10) and near the Drain Pod 1 area (Bumtown) were placed by the MR haul truck fleet. These areas have reached approximately EL. 6,405 ft and EL. 6,400 ft, respectively. A 15 ft extension of the Extraction Basin well riser pipes was installed and backfill around the risers was completed to approximately 3 ft below the flange (EL. 6,411 ft).

The Extraction Pond Dewatering System installed on the floating barge was operating at approximately 400 gallons per minute (gpm) at the time of the field review, which is consistent with flowrates measured at this location since commissioning in late 2019. The quarterly trends will be summarized and presented in the Q2 Water Management Summary document currently in progress. The welding and placement of the emergency overflow pipelines from the Extraction Pond is still to be completed. An overview of the Extraction Pond and emergency overflow pipelines is shown on Photo 11. The emergency overflow discharge structure at the outlet of the emergency overflow pipelines has been constructed; however, additional large boulders for energy dissipation need to be placed after the pipeline installation is complete.

Tailings discharge records indicate that discharge locations RK-1, RK-2, and RK-3 were used since the last field review. RK-1 was active at the time of the field review and is shown on Photo 12. The elevation difference between RK-1 and RK-4 was approximately 8.7 ft, which is slightly greater than the difference of 8.4 ft at the time of the 2020 Q1 field review. Discharge location RK-4 was not used during Q2 as the focus of tailings discharge was to fill low spots along the embankment between RK-1 and RK-3. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are as follows:

- RK-1: EL. 6,379.8 ft (increase of 0.5 feet from EL. 6,379.3 ft)
- RK-2: EL. 6,374.0 ft (increase of 1.3 feet from EL. 6,372.7 ft)
- RK-3: EL. 6,371.5 ft (increase of 0.5 feet from EL. 6,371 ft)
- RK-4: EL. 6,371.1 ft (increase of 0.0 feet from EL. 6,371.1 ft)

2.4 SEEP 10 AREA AND HORSESHOE BEND

The flow comparisons presented within this section are based on visual observations and are intended to provide a general comparison of the conditions at the time of the field review with previous quarterly reviews. The quarterly trends and flowrates for Seep 10, Horseshoe Bend (HsB) Weir, and Precipitation Plant overflows will be summarized and presented in the Q2 Water Management Summary document currently in progress.

The condition of the Seep 10 flow paths, surface collection ditches, and stilling pond appear generally consistent with previous field reviews, as shown in Photos 13 through 15. The ultrasonic lookdown level sensor installed at the Seep 10 weir was reported to be operating normally and the reading on the staff gauge at the time of the field review was approximately 0.4 as shown in Photo 16.

The HsB seepage flow paths and collection ditches at the toe of the East-West Embankment were generally consistent with previous field reviews as viewed from the Seep 10 bench and shown in Photos 17 and 18. The overflow from the Surge Pond, shown in Photo 19, was overflowing and cutting around the weir at the time of the review. This overflow, along with the weir overflow, is collected in a pipe downstream of the weir and is believed to be discharged into the Hooligan Pond. MR plans to monitor and investigate this area during Q3 to confirm the routing of these flows.

Photos 20 through 23 show the Precipitation Plant and HsB Upper and Lower Pond areas, and indicate that the seep locations are generally consistent with past field reviews. The Cell 10 pump appears to function appropriately and was not overflowing towards the lower pond area at the time the provided video was recorded. The HsB Weir at the downstream end of the HsB Pond appears to be in good operating condition and is shown on Photo 24. These areas will continue to be monitored for any changes in flows or new seepage locations.

2.5 OTHER ITEMS

Weekly and monthly quality reports were discussed with MR throughout Q2, including during regular weekly meetings between KP and MR. Weekly reports were generally completed by MR each week. Several Monthly Quality Reports are overdue. KP and MR have begun to review the materials testing submittal procedures and results tracking in order too assist with continued improvement of deliverables and the development of a testing database. It is intended that this database will expedite the monthly reporting.

Issued for Construction drawings for the EL. 6,450 ft lift of the West Embankment were issued to MR in Q2 and select drawings for the East-West Embankment lift have subsequently been issued in Q3. The remaining East-West and North-South Embankment design drawings are currently in draft - for review and comment by MR.

Monitoring for embankment movement and piezometric levels within the YDTI embankments continues to be completed by KP and MR in accordance with the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020) using several concurrent monitoring programs. These programs include real-time monitoring of piezometric levels and in-place inclinometer instrumentation data via the Sensemetrics application, periodic review of beach development using Sentinel-2 satellite images, and collection of high resolution Interferometric Synthetic Aperture Radar (InSAR) data. The 2020 Q2 Piezometric Monitoring Update has been issued by KP (KP, 2020c) and provides a summary of the piezometric data collected at key monitoring sites during the quarter.

3.0 SUMMARY AND RECOMMENDATIONS

The 2020 Q2 Construction Field Review was completed by Mr. Mike Harvie of MR as the EOR designate. COVID-19 restrictions prevented KP from visiting the site. This letter provides a summary and description of the construction activities and conditions based on the information (photos, videos, and descriptions) provided by MR.

Construction of the downstream step-out of the North-South Embankment has been completed to the maximum extent practicable, prior to the relocation of the tailings pipelines and the deactivation of the current mine haul ramp along the East-West Embankment. Intermittent settlement cracking has occurred along the downstream edge of the EL. 6,400 ft North-South Embankment crest, similar to what was previously identified during the 2019 construction of the lower downstream step-out lifts. MR should continue to monitor the area to identify any propagation of the existing cracks or the development of new cracking.

Regrading of the North-South Embankment tailings discharge corridor is underway and expected to be completed during Q3. This regrading will allow for relocation of discharge location NS-3, the addition of a fourth discharge point (NS-4) along the North-South Embankment, and extension of Line 2 to NS-1 as recommended in the 2019 EOR AIR (KP, 2020a). The dormant cracking observed previously along the North-South Embankment tailings discharge corridor continues to be monitored, as described in the CAP (MR, 2020).

Construction of the EL. 6,450 lift along the West Embankment is underway. MR continued to place 5 ft lifts of Zone D1 material in the Drain Pod 1 area (Bumtown) and to the west of the temporary extraction pond to complete construction of the EL. 6,400 ft lift. A 15 ft extension of the Extraction Basin well riser pipes was installed and backfill around the risers was completed. The Extraction Pond Dewatering System is operating regularly, and flow records will be summarized in the Q2 Water Management Summary document, which is currently in progress. Installation of the overflow pipelines from the Extraction Pond have not yet been completed.

The new tailings pipeline ramp along the East-West Embankment is complete; however, the pipelines have only been partially relocated. Tailings beach development continues to be managed well and the extension of the tailings line along the North-South Embankment will provide improved flexibility in discharge locations and tailings management. Discharge locations along the West Embankment are being monitored to fill in low spots between RK-1 and RK-4. Weekly tailings beach surveys continue to assist in the monitoring of tailings beach development.

Yours truly,
Knight Piésold Ltd.

PROFESSIONAL PROVINCE OF J. R. R. GILLESPIE # 42239 BRITISH COLUMBIA ENGINEER 2020-09-11

Prepared: Jason Gillespie, P.Eng.
Senior Engineer

MONTANA 2020-09-11 DANIEL DYLAN FONTAINE No. 59785 PE LICENSED PROFESSIONAL ENGINEER

Prepared: Daniel Fontaine, P.E.
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Reviewed: Ken Brouwer, P.E.
Principal

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

Attachments:

Table 1 Rev 0	2020 Q2 Construction Field Review – Checklist
Figure 1 Rev 0	2020 Q2 Construction Field Review – General Arrangement and Photo Location Map
Figure 2 Rev 0	2020 Q2 Construction Field Review – North-South Embankment Construction Areas
Figure 3 Rev 0	2020 Q2 Construction Field Review – East-West Embankment Construction Areas
Figure 4 Rev 0	2020 Q2 Construction Field Review – West Embankment Construction Areas
Photo Log	

References:

Knight Piésold Ltd. (KP, 2018). Yankee Doodle Tailings Impoundment: Construction Management Plan (KP Reference No. VA101-126/12-5 Rev. 3). May 1, 2018.

Knight Piésold Ltd. (KP, 2019). 2019 Q4 Construction Field Review Summary (KP Reference No. VA19-02154). December 12, 2019.

Knight Piésold Ltd. (KP, 2020a). 2020 Q1 Construction Field Review Summary (KP Reference No. VA20-00803). May 7, 2020.

Knight Piésold Ltd. (KP, 2020b). Yankee Doodle Tailings Impoundment 2019 Annual Inspection Report (KP Reference No. VA101-126/21-2 Rev. 0). January 31, 2020.

Knight Piésold Ltd. (KP, 2020c). Q2 2020 – YDTI Quarterly Piezometric Monitoring Update (KP Reference No. VA20-01377). July 21, 2020.

Montana Resource, LLP and Knight Piésold Ltd. (MR/KP, 2020). 2020 Tailings Operations, Maintenance and Surveillance (TOMS) Manual (Reference No. VA101-126/23-1), Rev 4, dated May 13, 2020.

Montana Resources, LLP. (MR, 2020). 2019 Annual Engineer of Record Inspection Report for Yankee Doodle Tailings Impoundment and Corrective Action Plan for Recommendations. MT, USA, January 31, 2020.

Copy To: Mike Harvie

/jg

Montana Resources

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW CHECKLIST

Date: June 23 through 25, 2020 **Time:**

Inspectors:					
Name: Mike Harvie		Title: Manager of Engineering & Geology		Signature:	
Inspection Type:	DAILY	WEEKLY	MONTHLY	OTHER EVENT (Specify):	**Q2 CONSTRUCTION REVIEW**
Weather Conditions:		Precipitation (24 hr.):	0	Wind Speed:	**Calm to light**
		Temperature (°F):	**70**	Sky:	**Clear** / Partly Cloudy / Cloudy
Instrumentation Data Collected:	Yes	**No**	**Details:**		
Samples Collected:	Yes	**No**	**Details:**		

WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor		X		
Downstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	6450 U Material
		Surface Preparation	X		X	6400 Ripped

EAST-WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X	X	
		Lateral Deformation		X	X	
Upstream Face	✓	Cracking, Subsidence, Depressions	X		X	Teramac Ramp, no change in cracking
		Erosion		X	X	
		Pipeline Corridor		X	X	
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X	X	
		Seeps, Damp or Soft areas		X		
Seep 10 Bench	✓	Overview of HsB Photo			X	
	✓	Seep 10 Stilling Basin			X	
	✓	Seep 10 V-Notch Weir			X	
	✓	Seep 10 Inflows			X	
Active Embankment Construction	✓	Location and Elevation Reviewed		X		No Activity
		Surface Preparation		X		
Pipe Ramp Construction	✓	Cracking, Subsidence, Depressions		X	X	No Activity
		Erosion		X		
		Survey Stake Locations for Expansion	X			Some Old stakes still in place

NORTH-SOUTH EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions	X		X	Just north of haulage ramp
		Erosion	X		X	West side of haulage ramp (due to heavy rainfall events)
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions	X		X	Along pipe bench between Discharges 3-2 and 3-3.
		Erosion		X	X	
		Pipeline Corridor		X	X	
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed		NA		No Activity except construction of pipe bench for new dischage locations 3-4 and 3-5
		Surface Preparation		NA		

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TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW CHECKLIST

YANKEE DOODLE TAILINGS IMPOUNDMENT						
LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT		PHOTO	COMMENTS
			YES	NO		
General	✓	Pond Elevation and Location Reviewed	X		X	6360.45
	✓	Lowest Crest Elevation Determined	X			6396
Tailings Discharges	✓	Active Discharge Locations	X		X	Discharge locations 3-1 and 1-3
		Pipeline leakage		X	X	
		Pipeline wear/damage		X		
Reclaim Water Pipeline	✓	Pipeline wear/damage		X	X	
		Pipeline leakage		X		

HORSESHOE BEND				
LOCATION	INSPECTION COMPLETED	ITEM	PHOTO	COMMENTS
Horseshoe Bend and Precipitation Plant	✓	Upper HSB Pond	X	
	✓	Lower HsB Pond	X	
	✓	HsB Pump and Water Level	X	
	✓	HsB Seepage to Upper Pond	X	
	✓	HsB Seepage to Hooligan Pond	X	
	✓	Precipitation Plant Overflow Box Leak	X	
	✓	Precipitation Plant Overflow/Cell 10 Pump	X	
	✓	HsB Weir	X	
	✓	Muddler Pump and Overflow	X	
	✓	Leach Pump Head Tank (Weir)	X	
	✓	BMFOU Pilot Project Facilities	X	
Additional Notes:				
	✓	Extraction Pond	X	Emergency Pipelines not installed.

\\knightpiesold.local\VA-Prj$\1\01\00126\23\A\Correspondence\VA20-01468 - Q2 Construction Field Review\Attachments\[T1 Q2 2020 YDTI Inspection Log.xlsx]Q2 Field Review

NOTES:

1. CHECKLIST COMPLETED BY MR REPRESENTATIVE MIKE HARVIE AND REVIEWED BY KP.

0	11SEP'20	ISSUED WITH LETTER VA20-01468	JRG	KJB
REV	DATE	DESCRIPTION	PREP'D	RVW'D

SAVED: M:\1\01\00126\23\A\Acad\FIGS\A12, 8/10/2020 8:54:28 AM , RMCLELLAN PRINTED: 9/8/2020 9:47:38 AM, FIG 1, RMCLELLAN
XREF FILE(S): 5R_01_2020 IMAGE FILE(S): 2020 Aerial Photo

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. PHOTO LOCATIONS CORRESPOND TO PHOTO LOG ISSUED WITH 2020 Q2 QUARTERLY CONSTRUCTION FIELD REVIEW SUMMARY.
3. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	09SEP'20	ISSUED WITH LETTER	JRG	RMM	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW GENERAL ARRANGEMENT AND PHOTO LOCATION MAP

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-01468

FIGURE 1 REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q2 OF 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW
NORTH-SOUTH EMBANKMENT
CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01468

FIGURE 2 REV 0

0	11SEP'20	ISSUED WITH LETTER	JRG	KJB
REV	DATE	DESCRIPTION	PREP'D	RVW'D

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.
2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q2 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11SEP'20	ISSUED WITH LETTER	JRG	KJB

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW
EAST-WEST EMBANKMENT
CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. VA20-01468

FIGURE 3

REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q2 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11SEP'20	ISSUED WITH LETTER	JRG	KJB

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q2 CONSTRUCTION FIELD REVIEW
WEST EMBANKMENT
CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01468

FIGURE 4 REV 0

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 1 – North-South Embankment – Downstream step-out construction. (June 26, 2020)

PHOTO 2 – North-South Embankment – Tailings discharge corridor construction, looking towards NS-3. (June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 3 – North-South Embankment – Cracking along the downstream edge of the EL. 6,400 ft lift. (June 26, 2020)

PHOTO 4 – North-South Embankment – Tailings beach and supernatant pond as viewed from the NS-2 discharge location. (June 26, 2020)

Knight Piésold CONSULTING

2020 Q2 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 5 – East-West Embankment – Downstream edge of the pipe ramp. (June 26, 2020)

PHOTO 6 – East-West Embankment – Over steepened cut slopes on Terramac access ramp. (June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 7 – West Embankment – EL. 6,400 ft surface scarified prior to EL. 6,450 ft lift placement (June 26, 2020)

PHOTO 8 – West Embankment – Surface preparation of the EL. 6,400 ft. lift in advance of EL. 6,450 ft. construction.(June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 9 – West Embankment – Overview from the West Ridge Topsoil Stockpile showing EL. 6,450 ft. construction progress. (June 26, 2020)

PHOTO 10 – West Embankment – EL. 6,405 ft. Zone D1 Material near Temporary Extraction Pond. (June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 11 – West Embankment – WED Extraction Pond and emergency overflow pipelines. (June 26, 2020)

PHOTO 12 – West Embankment – RK-1 tailings discharge location. (June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 13 – Seep 10 Area. (June 26, 2020)

PHOTO 14 – Seep 10 Area. (June 26, 2020)

PHOTO 15 – Seep 10 Stilling Basin. (June 26, 2020)

PHOTO 16 – Seep 10 Weir Staff Gauge reading approximately 0.4. (June 26, 2020)

PHOTO 17 – Horseshoe Bend (HsB) Area – Leach seeps along toe of East-West Embankment viewed from Seep 10 bench. (June 26, 2020)

PHOTO 18 – HsB Area – Seeps along toe of East-West Embankment viewed from Seep 10 bench. (June 26, 2020)

2020 Q2 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 19 – HsB Area – Surge Pond overflow. (June 26, 2020)

PHOTO 20 – HsB Area – Upper Pond and HsB seeps. (June 26, 2020)

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2020 Q2 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 21 – HsB Area – Cell #10 Pump, no overflowing water to HsB Lower Pond. (June 26, 2020)

PHOTO 22 – HsB Area – Discharge pipe bulkhead exiting #5 and #6 Cells of Precipitation Plant. (June 26, 2020)

Knight Piésold CONSULTING

2020 Q2 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 23 – HsB Area – HsB Lower Pond (June 26, 2020)

PHOTO 24 – HsB Area – HsB Weir. (June 26, 2020)

November 4, 2020

Mr. Mark Thompson
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Dear Mark,

RE: 2020 Q3 Construction Field Review Summary

1.0 INTRODUCTION

A Construction Field Review of the Yankee Doodle Tailings Impoundment (YDTI) was completed for the third quarter (Q3) of 2020 by Mr. Mike Harvie (Montana Resources, LLP (MR) Mining Engineering Department) between September 16th and 18th, 2020. This was the third quarterly field review completed in 2020 by Mr. Harvie as a designate of the Engineer of Record (EOR) due to restrictions relating to the ongoing COVID-19 pandemic. The previous 2020 Q1 and Q2 field reviews completed by Mr. Harvie are summarized in Knight Piésold Ltd. (KP) letters (KP, 2020a and 2020b).

The quarterly Construction Field Review is intended to observe construction progress, review construction practices, and provide recommendations for priority actions. The field review is a visual inspection and does not constitute supervision of construction and does not represent a guarantee that all deficient or non-conforming works have been identified. The field review is completed on a quarterly basis to satisfy the Engineer quarterly inspection frequency as outlined in the Earthworks Inspection and Test Plan in Table 3.4 of the Construction Management Plan (CMP) (KP, 2018).

A collection of photos and videos gathered during the field review, along with the summary checklist included as Table 1, were provided to KP by Mr. Harvie. Select photos from the field review are included in the attached Photo Log with approximate locations shown on Figure 1. The photos and videos were visually compared by KP to similar information collected during previous field reviews to inform the opinions and conclusions presented in this letter. Weekly construction progress reports, completed by MR to satisfy the inspection requirements outlined in the CMP (KP, 2018), were also reviewed to assist in the development of this summary.

2.0 FIELD OBSERVATIONS

2.1 NORTH-SOUTH EMBANKMENT

As summarized in the Q2 summary letter, the downstream step-out has been completed up to EL. 6,400 ft along most of the North-South Embankment, except at the southern end. No additional materials were placed along the downstream step-out during Q3. An overview of the downstream edge of the embankment is shown on Photo 1.

The tailings pipeline corridor along the North-South Embankment has been regraded and Line 3 extended as described in the 2019 EOR Annual Inspection Report (AIR) (KP, 2020c). This included the relocation of discharge NS-3 and implementation of the new discharge location NS-4. Photo 2 shows the beach conditions and supernatant pond location as viewed from the new NS-4 discharge location, which was active during the field review. The updated configuration of the tailings discharge locations is shown on Figures 1 and 2. The extension of Line 2 to NS-1 as recommended in the 2019 EOR AIR (KP, 2020c) is still to be completed.

Relocation of the tailings reclaim water pipeline began in August and is expected to continue though Q4. The relocation of the pipeline requires the widening of the access road at the northern end of the embankment. Construction progress of the widening is shown on Photo 3 and the approximate construction area is shown on Figure 2.

Dormant settlement cracking along the tailings discharge corridor along the upstream side of the embankment crest was reviewed and appears similar to the 2020 Q2 field review. An example of the settlement cracking is shown on Photo 4. Intermittent cracking along the downstream edge of the embankment crest, which is consistent with previously identified cracking as summarized in previous quarterly field reviews (2019, 2020a, 2020b) and 2019 EOR AIR (KP, 2020c), was observed, with an example shown on Photo 5. MR is to continue to monitor any additional cracking and/or propagation of the existing cracks. MR is to continue to inform KP of any changing conditions.

Tailings discharge records indicate that all locations along the North-South Embankment were active since the previous field review. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are provided below. Note, as described above, discharge NS-3 was relocated since the 2020 Q2 field review, and NS-4 is a new location.

- NS-1: EL. 6,385.2 ft (increase of 0.8 feet from EL. 6,384.4 ft)
- NS-2: EL. 6,380.9 ft (increase of 3.9 feet from EL. 6,377.0 ft)
- NS-3: EL. 6,378.5 ft (discharge location relocated this quarter)
- NS-4: EL. 6,368.6 ft (new discharge location this quarter)

The elevation difference between NS-1 and NS-4 was approximately 16.6 ft at the end of Q3. The construction and implementation of the new NS-4 discharge location is expected to further infill the tailings beach at the northern end of the embankment and will reduce the beach to crest elevation differential of the North-South Embankment discharge locations. Use of this additional discharge location is expected to further extend the beach length between the supernatant pond and embankment.

2.2 EAST-WEST EMBANKMENT

Construction of the EL. 6,450 ft lift of the East-West Embankment resumed in early July. Embankment construction began during Q2 west of the Booster #3 (Tailings) Pump House and has progressed towards the West Embankment. Approximate construction limits are shown on Figure 3 and a general indication of progress is shown on Photo 6.

The downstream edge of the pipeline ramp, shown on Photos 7 and 8, shows signs of minor settlement cracking at intermittent locations along the loosely placed downstream berm. MR is to continue to monitor the downstream edge of the pipeline ramp for any additional cracking or the propagation of the existing cracks.

The tailings pipelines, partially relocated along the central portion of the pipeline ramp during Q2, are still to be relocated along the eastern end of the embankment. The connection of the East-West Embankment and North-South Embankment downstream step-outs is still to be completed (shown on Photo 9) following relocation of the tailings pipelines and after deactivation of the existing haul road.

The over-steepened cut slope at the Terramac access ramp along the tailings discharge corridor is shown on Photo 10. This area is still being monitored by MR as recommended in the 2019 AIR (KP, 2020c) and the MR Corrective Action Plan (CAP) (MR, 2020). The condition of the slopes is unchanged and appears to be consistent with observations provided in the previous field reviews.

Records indicate that discharge location EW-2 was in operation since the last field review. The elevation difference between the EW discharge locations was approximately 2.6 ft, which is less than the 3.8 ft difference recorded during the 2020 Q2 field review. The approximate beach elevations at the discharge points and the change in elevation since the previous field review are as follows:

- EW-1: EL. 6,386.8 ft (increase of 0.0 feet from EL. 6,386.8 ft)
- EW-2: EL. 6,384.2 ft (increase of 1.2 feet from EL. 6,383.0 ft)

2.3 WEST EMBANKMENT

Areas of active construction along the West Embankment during Q3 are shown on Figure 4.

Zone D1 lifts were placed along the western edge of the temporary sump (Photo 11) to complete the EL. 6,400 ft lift. A 15 ft extension of the Extraction Basin well riser pipes was completed; however, fill placement around the well risers has not yet been advanced and the fill surface remains at approximately EL. 6,411 ft. The well risers, at an approximate elevation of 6,428 ft, are shown on Photo 12.

The construction of the EL. 6,450 lift of the West Embankment commenced in Q2 and continued throughout Q3. An overview of the EL. 6,450 construction progress as viewed from the northern end of the West Embankment is shown on Photo 13. Mungas Construction Inc. (Mungas) completed various minor works along the West Embankment during Q3, including topsoil and vegetation removal and extensions of secondary seepage collection drains.

The Extraction Pond Dewatering System installed on the floating barge was operating at approximately 350 gallons per minute (gpm) at the time of the field review, which is consistent with flowrates measured at this location since commissioning in late 2019. Construction of the EL. 6,450 ft embankment required the temporary shut down of the dewatering system and the relocation of the Extraction Pond pipeline. The quarterly trends will be summarized and presented in the Q3 Water Management Summary document currently in progress. An overview of the Extraction Pond is shown on Photo 14. The welding and placement of the emergency overflow pipelines from the Extraction Pond is still to be completed as described in previous field reviews. Additional large boulders for energy dissipation are still required at the emergency overflow discharge structure at the outlet of the emergency overflow pipelines.

Discharge location RK-3 was active at the time of the field review and tailings discharge records indicate that all discharge locations were used since the last field review. Discharge location RK-4 was disconnected during Q3, as shown on Photo 15, during the ongoing construction of the EL. 6,450 ft embankment lift. It is expected that this discharge location and tailings discharge corridor will be realigned and re-established. The approximate beach elevations at the discharge points at the time of the field review and the change in elevation since the previous field review are as follows:

- RK-1: EL. 6,380.8 ft (increase of 1.0 feet from EL. 6,379.8 ft)
- RK-2: EL. 6,377.2 ft (increase of 3.2 feet from EL. 6,374.0 ft)

- RK-3: EL. 6,373.8 ft (increase of 2.3 feet from EL. 6,371.5 ft)
- RK-4: EL. 6,371.3 ft (increase of 0.2 feet from EL. 6,371.1 ft)

The elevation difference between RK-1 and RK-4 was approximately 9.5 ft, which is slightly greater than the difference of 8.7 ft at the time of the 2020 Q2 field review.

2.4 SEEP 10 AREA AND HORSESHOE BEND

The flow comparisons presented within this section are based on visual observations and are intended to provide a general comparison of the current conditions (at the time of the field review) with conditions observed during the previous 2020 quarterly reviews. The quarterly trends and flowrates for Seep 10, Horseshoe Bend (HsB) Weir, and Precipitation Plant overflows are also summarized and presented in the Q3 Water Management Summary document currently in progress. Beginning in Q4 of 2020 the visual observations, descriptions, and photos will be included only in the Quarterly Water Management Summary and will not be presented in the quarterly Construction Field Review unless the field review identifies the need for general maintenance or priority action.

The HsB seepage flow paths and collection ditches at the toe of the East-West Embankment viewed from the Seep 10 bench are shown on Photos 16 and 17. The conditions observed were generally consistent with previous field reviews. The overflow from the Surge Pond, shown on Photo 18, continues to flow and cut around the weir. This flow, along with the weir overflow, is collected in a pipe downstream of the weir and is discharged into the Houligan Pond.

The condition of the Seep 10 flow paths, surface collection ditches, and stilling pond appear generally consistent with previous field reviews, as shown on Photos 19 through 21. The ultrasonic lookdown level sensor installed at the Seep 10 weir was reported to be operating normally and the reading on the staff gauge at the time of the field review was approximately 0.4 as shown on Photo 22.

The following observations can be made from our review of photos of the Precipitation Plant, and the HsB Upper and Lower Pond areas:

- The HsB Upper and Lower Pond areas and seepage inflows appear to be in similar condition as previous field reviews as shown on Photos 23 and 24.
- The Cell 10 pump area shows signs of a minor overflow towards the HsB Lower Pond at the time of the field review, as shown on Photo 25. Maintenance should be performed to stop this overflow bypass.
- The Cell 10 return flow flume is shown on Photo 26 and appears to be operating normally.
- The HsB Weir at the downstream end of the HsB Pond, as shown on Photo 27, appears to be in good operating condition. The water level at the weir appears consistent with the level observed during the 2020 Q2 field review.
- The intake to the Equalization Basin, shown on Photo 28, appears to be operating normally and was not overflowing to the Berkeley Pit.
- The Berkeley Pit return flow pipeline was actively discharging to the HsB Water Treatment Plant Transfer Pond, as shown on Photo 29.
- The Muddler Pump area, shown on Photo 30, appears to be operating normally with no overflow to the HsB Lower Pond.

MR is to continue to monitor the flow conditions adjacent to the Precipitation Plant and at the HsB Pond areas for any changes in flows or new seepage locations.

2.5 OTHER ITEMS

Weekly and monthly quality reports were discussed with MR throughout Q3, including during regular weekly meetings between KP and MR. Completion of several MR Weekly Construction Reports lagged but have recently been provided at the start of Q4. Several Monthly Quality Reports were also late; however, MR has made significant progress in recent weeks.

MR requested a field instruction from KP to detail a potential procedure to increase the Zone D1 lift thickness. The proposed method specification includes placement of Zone D1 in approximately 10 ft lifts with traffic compaction by the 240 ton (CAT793D) mine haul fleet, equally distributed over the lift. KP provided a draft procedure to MR in early Q4 (KP, 2020d). It is anticipated that the method specification will be applied to a trial pad area during 2020 Q4 or 2021 Q1.

Monitoring for embankment movement and piezometric levels within the YDTI embankments continues to be completed by KP and MR in accordance with the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020) using several concurrent monitoring programs. These programs include real-time monitoring of piezometric levels and in-place inclinometer instrumentation data via the Sensemetrics system, periodic review of beach development using Sentinel-2 satellite images, and collection of high resolution Interferometric Synthetic Aperture Radar (InSAR) data. The 2020 Q3 Piezometric Monitoring Update letter is developed separately, and provides a summary of the piezometric data collected at key monitoring sites during the quarter.

3.0 SUMMARY AND RECOMMENDATIONS

The 2020 Q3 Construction Field Review was completed by Mr. Mike Harvie of MR on behalf of the EOR. COVID-19 travel restrictions prevented KP from visiting the site. The EOR is satisfied with Mr. Harvie's detailed inspection and commends MR for their excellent observations and communications during this review. It is anticipated that the Q4 field review will also need to be completed using a similar procedure as COVID-19 travel restrictions and safety protocols are not expected to improve during Q4.

Construction of the downstream step-out along the North-South Embankment was not advanced during Q3, with further construction in this area deferred until the current mine haul ramp is deactivated and tailings pipelines relocated. Realignment of the Reclaim Water Pipeline, including the widening of the access road at the north end of the North-South Embankment, is ongoing.

Construction of the EL. 6,450 lift continued along both the East-West and West Embankment and 5 ft lifts of Zone D1 were placed in the area west of the temporary extraction pond during this quarter. A 15 ft extension of the Extraction Basin well riser pipes was completed; and fill placement around the well risers continues.

Minor settlement cracking continues to be visible along the downstream edge of the EL. 6,400 ft North-South Embankment crest. Recent settlement cracking was also visible along the downstream edge of the new pipeline ramp that has been constructed along the East-West Embankment. The cracking in both locations is minor and similar to what was previously observed along the EL. 6,400 crest of the North-South Embankment during construction of the lower downstream step-out lifts during 2019.

Dormant cracks were inspected; along the North-South Embankment tailings discharge corridor and along the over-steepened slope adjacent to the Terramac access road on the East-West Embankment. MR should continue to monitor these areas as described in the CAP (MR, 2020) to identify any propagation of the existing cracks or the development of new cracking.

Regrading of the North-South Embankment tailings discharge corridor, the realignment of discharge location NS-3, and the extension of Line 3 to include a new discharge location (NS-4) has been completed. NS-4 is operational and these modifications to the tailings discharge system will provide improved discharge flexibility along the embankment. Discharge locations along the West Embankment are adjusted as appropriate during construction of the EL. 6,450 ft embankment and discharge location RK-4 is currently disconnected; however, it is expected that the tailings discharge corridor and discharge locations will be re-established after embankment construction is complete in this area. The effects of these operational changes will continue to be identified during the weekly tailings beach surveys, and will continue to be used to assist in monitoring tailings beach development. The extension of Line 2 to NS-1 as recommended in the 2019 EOR AIR (KP, 2020c) is still pending.

The Extraction Pond Dewatering System is operating regularly; however, installation of the overflow pipelines from the Extraction Pond have not yet been completed. Flow conditions throughout Seep 10, around the Precipitation Plant, and in the HsB area appear visually comparable to previous field reviews. A detailed review of flow records will be summarized in the Q3 Water Management Summary document, which is currently in progress.

We trust this letter appropriately summarizes the construction activities and conditions during Q3 of 2020 based on the information (photos, videos, and descriptions) provided by MR. This review validates that embankment construction progressed as expected during 2020 Q3 and continued to conform with procedures and specifications outlined in the Construction Management Plan (KP, 2018) and Issued for Construction Design Drawings.

Knight Piésold
CONSULTING

The information, descriptions and conclusions presented are based on a visual assessment of the provided information and does not constitute supervision of construction and does not represent a guarantee that all deficient or non-conforming works have been identified.

Yours truly,
Knight Piésold Ltd.

PROFESSIONAL PROVINCE OF J. R. R. GILLESPIE # 42239 BRITISH COLUMBIA ENGINEER 2020-11-04

Prepared: ______________________
Jason Gillespie, P.Eng.
Senior Engineer

MONTANA 2020-11-04 DANIEL DYLAN FONTAINE No. 59785 PE LICENSED PROFESSIONAL ENGINEER

Reviewed: ______________________
Daniel Fontaine, P.E.
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MONTANA KEN J. BROUWER 10020 PE REGISTERED PROFESSIONAL ENGINEER 2020-11-05

Reviewed: ______________________
Ken Brouwer, P.E.
Principal

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

Attachments:

Table 1 Rev 0	2020 Q3 Construction Field Review – Checklist
Figure 1 Rev 0	2020 Q3 Construction Field Review – General Arrangement and Photo Location Map
Figure 2 Rev 0	2020 Q3 Construction Field Review – North-South Embankment Approximate Construction Areas
Figure 3 Rev 0	2020 Q3 Construction Field Review – East-West Embankment Approximate Construction Areas
Figure 4 Rev 0	2020 Q3 Construction Field Review – West Embankment Approximate Construction Areas
Photo Log	

References:

Knight Piésold Ltd. (KP, 2018). Yankee Doodle Tailings Impoundment: Construction Management Plan (KP Reference No. VA101-126/12-5 Rev. 3). May 1, 2018.

Knight Piésold Ltd. (KP, 2019). 2019 Q4 Construction Field Review Summary (KP Reference No. VA19-02154). December 12, 2019.

Knight Piésold Ltd. (KP, 2020a). 2020 Q1 Construction Field Review Summary (KP Reference No. VA20-00803). May 7, 2020.

Knight Piésold Ltd. (KP, 2020b). 2020 Q2 Construction Field Review Summary (KP Reference No. VA20-01468). September 11, 2020.

Knight Piésold Ltd. (KP, 2020c). Yankee Doodle Tailings Impoundment 2019 Annual Inspection Report (KP Reference No. VA101-126/21-2 Rev. 0). January 31, 2020.

Knight Piésold Ltd. (KP, 2020d). Field Instruction: Zone D1 10 ft Lift Test Fill (KP Reference No. VA20-01546). Draft. October 7, 2020.

Montana Resource, LLP and Knight Piésold Ltd. (MR/KP, 2020). 2020 Tailings Operations, Maintenance and Surveillance (TOMS) Manual (Reference No. VA101-126/23-1), Rev 4, dated May 13, 2020.

Montana Resources, LLP. (MR, 2020). 2019 Annual Engineer of Record Inspection Report for Yankee Doodle Tailings Impoundment and Corrective Action Plan for Recommendations. MT, USA, January 31, 2020.

Copy To: Mike Harvie

Montana Resources

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 CONSTRUCTION FIELD REVIEW CHECKLIST

Date: 9/16/20 to 9/18/20 **Time:** Varies

Inspectors:					
Name: Mike Harvie	Title: Manager of Engineering & Geology			Signature:	MH
Inspection Type:	DAILY	WEEKLY	MONTHLY	OTHER EVENT (Specify):	Q3 Quarterly Inspection
Weather Conditions:	Precipitation (24 hr.):	none	Wind Speed:	**0-10**	
	Temperature (°F):	**60's**	Sky (circle):	Clear / Partly Cloudy / Cloudy	**SMOKEY**
Instrumentation Data Collected:	Yes No	**Details:**			
Samples Collected:	Yes No	**Details:**			

WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor		X	X	
Downstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	6450, no active dumping during inspection
		Surface Preparation	X		X	6400 Ripped

EAST-WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor	X		X	old settlement at Terramac access ramp, no progression
Downstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Seep 10 Bench	✓	Overview of HsB Photo		X	X	
	✓	Seep 10 Stilling Basin		X	X	
	✓	Seep 10 V-Notch Weir		X	X	
	✓	Seep 10 Inflows		X	X	
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	6450
		Surface Preparation	X		X	6400 Ripped
Pipe Ramp Construction	✓	Cracking, Subsidence, Depressions	X		X	some minor settlement cracking along downstream edgeof pipe ramp
		Erosion		X		
		Survey Stake Locations for Expansion		X		

NORTH-SOUTH EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Pipeline Corridor	X		X	Old settlement between 3-2/3-3, no progression
Downstream Face	✓	Cracking, Subsidence, Depressions	X		X	Old settlement at top of ramp, no progression
		Erosion		X	X	
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed	X			No activity
		Surface Preparation	X			

Montana Resources

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 CONSTRUCTION FIELD REVIEW CHECKLIST

YANKEE DOODLE TAILINGS IMPOUNDMENT						
LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT		PHOTO	COMMENTS
			YES	NO		
General	✓	Pond Elevation and Location Reviewed				6358.56, decreased by 0.39 ft since August 27th
	✓	Lowest Crest Elevation Determined				Above Station 3, Tailings Lines
Tailings Discharges	✓	Active Discharge Locations	X		X	Discharges 1-3 (RK-3), 3-5 (NS-4)
		Pipeline leakage		X		
		Pipeline wear/damage		X		
Reclaim Water Pipeline	✓	Pipeline wear/damage		X		
		Pipeline leakage		X		

HORSESHOE BEND				
LOCATION	INSPECTION COMPLETED	ITEM	PHOTO	COMMENTS
Horseshoe Bend and Precipitation Plant	✓	Upper HSB Pond	X	
	✓	Lower HsB Pond	X	
	✓	HsB Pump and Water Level	X	
	✓	HsB Seepage to Upper Pond	X	
	✓	HsB Seepage to Hooligan Pond	X	
	✓	Precipitation Plant Overflow Box Leak	X	
	✓	Precipitation Plant Overflow/Cell 10 Pump	X	
	✓	HsB Weir	X	
	✓	Muddler Pump and Overflow	X	
	✓	Leach Pump Head Tank (Weir)	X	
	✓	BMFOU Pilot Project Facilities		

Additional Notes:

Extraction Pond operating properly over last month, Emergency Pipelines are not installed. Pipelines need to be fused and placed.

Second fifteen foot extensions on Extraction Basin Riser Pipes were completed. Awaiting placement of fill materials around pipes.

\\KPL\VA-Prj$\1\01\00126\23\A\Correspondence\VA20-02161 Q3 Construction Field Review\Attachments\Checklist\[Q3 2020 Inspection Log.xlsx]Q3 Field Review

NOTES:

1. CHECKLIST COMPLETED BY MR REPRESENTATIVE MIKE HARVIE AND REVIEWED BY KP.

0	04NOV'20	ISSUED WITH LETTER VA20-02161	JRG	DDF
REV	DATE	DESCRIPTION	PREP'D	RVW'D

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\Acad\FIGS\A15, 10/23/2020 1:56:18 PM , JGILLESPIE PRINTED: 11/2/2020 11:23:16 AM, FIG 1, RMCLELLAN
XREF FILE(S): 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. PHOTO LOCATIONS CORRESPOND TO PHOTO LOG ISSUED WITH 2020 Q3 QUARTERLY CONSTRUCTION FIELD REVIEW SUMMARY.
3. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

0	02NOV'20	ISSUED WITH LETTER	JRG	RMM	DDF
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q3 CONSTRUCTION FIELD REVIEW GENERAL ARRANGEMENT AND PHOTO LOCATION MAP

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-02161

FIGURE 1 REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q3 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04NOV'20	ISSUED WITH LETTER	JRG	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q3 CONSTRUCTION FIELD REVIEW
NORTH-SOUTH EMBANKMENT
APPROXIMATE CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02161

FIGURE 2 REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.
2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q3 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	04NOV'20	ISSUED WITH LETTER	JRG	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q3 CONSTRUCTION FIELD REVIEW
EAST-WEST EMBANKMENT
APPROXIMATE CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. VA20-02161

FIGURE 3

REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q3 OF 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q3 CONSTRUCTION FIELD REVIEW
WEST EMBANKMENT
APPROXIMATE CONSTRUCTION AREAS

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02161

FIGURE 4 REV 0

0	04NOV'20	ISSUED WITH LETTER	JRG	DDF
REV	DATE	DESCRIPTION	PREP'D	RVW'D

2020 Q3 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 1 – North-South Embankment – Downstream step-out overview

PHOTO 2 – North-South Embankment – Tailings discharge NS-4 and supernatant pond location

2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 3 – North-South Embankment – Road widening to accommodate realignment of the Reclaim Water Pipeline

PHOTO 4 – North-South Embankment – Example of cracking along the upstream edge of the tailings discharge corridor

2020 Q3 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 5 – North-South Embankment – Downstream edge of Haul Ramp showing minor settlement cracking along EL 6,400 lift

PHOTO 6 – East-West Embankment – EL 6,450 ft construction progress

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2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 7 – East-West Embankment – Downstream edge of pipeline ramp showing minor settlement cracking

PHOTO 8 – East-West Embankment – Downstream edge of pipeline ramp showing minor settlement cracking

2020 Q3 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 9 – East-West Embankment – Corner to be completed between East-West and North-South Embankments viewed from the haul road

PHOTO 10 – East-West Embankment – Over steepened cut slopes on Terramac access ramp

2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 11 – West Embankment – EL 6,400 ft Zone D1 Material near Temporary Extraction Pond location

PHOTO 12 – West Embankment – Extraction Basin well risers

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2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 13 – West Embankment – EL 6,450 ft construction progress

PHOTO 14 – West Embankment – Extraction Pond

PHOTO 15 – West Embankment – Line 1, Valve 3 disconnected from RK-4 at RK-3 discharge location

PHOTO 16 – Horseshoe Bend (HsB) Area – Leach seeps along toe of East-West Embankment viewed from Seep 10 bench.

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2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 17 – HsB Area – Leach seeps along toe of East-West Embankment viewed from Seep 10 bench

PHOTO 18 – HsB Area – Surge Pond overflow

2020 Q3 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 19 – Seep 10 area

PHOTO 20 – Seep 10 area

PHOTO 21 – Seep 10 Stilling Pond

PHOTO 22 – Seep 10 Weir Staff Gauge reading approximately 0.4

2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 23 – HsB Area – HsB Upper Pond area

PHOTO 24 – HsB Area – HsB Upper Pond area

2020 Q3 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 25 – HsB Area – Cell #10 Pump, minor overflow to HsB Lower Pond

PHOTO 26 – HsB Area – Cell 10 Return Water Flume

2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 27 – HsB Area – HsB Weir

PHOTO 28 – HsB Area – Equalization Basin Intake

2020 Q3 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 29 – HsB Area – HsB Water Treatment Plant Transfer Pond

PHOTO 30 – HsB Area – Muddler Pump and overflow pipeline

Management System Certified by: bsi ISO 9001 ISO 14001 ISO 45001 CERTIFIED

March 11, 2021

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: 2020 Q4 Construction Field Review Summary

1.0 INTRODUCTION

The fourth quarter (Q4) construction field review of the Yankee Doodle Tailings Impoundment (YDTI) was completed on December 9th and 10th, 2020 by Mr. Mike Harvie of Montana Resources, LLP (MR) Mining Engineering Department. This was the final quarterly field review required in 2020. Each of the four 2020 quarterly reviews were completed by Mr. Harvie as a designate of the Engineer of Record (EOR) due to travel restrictions relating to the ongoing COVID-19 pandemic. The previous 2020 field reviews are summarized in Knight Piésold Ltd. (KP) letters (KP, 2020a, 2020b, 2020c).

The quarterly construction field review is intended to observe construction progress, review construction practices, and provide recommendations for priority actions. The field review is a visual inspection and does not constitute supervision of construction and does not represent a guarantee that all deficient or non conforming works have been identified. The field review is completed on a quarterly basis to satisfy the Engineer quarterly inspection frequency as outlined in the Earthworks Inspection and Test Plan in Table 3.4 of the Construction Management Plan (CMP) (KP, 2018).

A collection of photos and videos gathered during the field review, along with the summary checklist included as Table 1, were provided to KP by Mr. Harvie. Select photos from the field review are included in the attached Photo Log with approximate locations shown on Figure 1. The photos and videos were visually compared by KP to similar information collected during previous field reviews to inform the opinions and conclusions presented in this letter. Weekly construction progress reports, completed by MR to satisfy the inspection requirements outlined in the CMP (KP, 2018), were also reviewed to assist in the development of this summary.

2.0 FIELD OBSERVATIONS

2.1 NORTH-SOUTH EMBANKMENT

Relevant locations along the North-South Embankment discussed in this letter are shown on Figure 2 and an overview of the embankment as viewed from the Great Northern Dump is shown on Photo 1. The downstream step-out was completed up to EL. 6,400 ft along most of the North-South Embankment, except at the southern end, during Q2. No additional materials were placed along the downstream step-out during Q3 or Q4.

Settlement cracking was observed to be present within the tailings discharge corridor along the upstream side of the embankment crest, similar to observations from previous 2020 field reviews. A photo of the tailings pipeline corridor and minor settlement cracking is shown on Photo 2. The provided photos and checklist indicate that the downstream edge of the embankment was reviewed, and no cracking, subsidence or depressions were identified by MR. Minor depressions were observed along the embankment access ramp as shown on Photo 3. It is unclear if these depressions are newly formed or a result of the construction and hauling patterns of the MR mine fleet. MR will continue to monitor any cracking and/or propagation of the existing cracks.

Relocation of the tailings reclaim water pipeline and widening of the access road at the northern extent of the embankment began in Q3 and continued throughout Q4. Construction progress of the road widening work is shown on Photo 4.

2.2 EAST-WEST EMBANKMENT

There was no additional Zone U construction along the EL. 6,450 ft lift of the East-West Embankment during Q4. Construction of the EL. 6,450 ft lift commenced in Q2 from the west of the Booster #3 (Tailings) Pump House and progressed towards and along the West Embankment as described in Section 2.3. Approximate areas of intertest along the East-West Embankment are outlined on Figure 3.

The downstream edge of the pipeline ramp shows signs of minor settlement cracking at intermittent locations along the ramp, including near DH20-S1. An example of the cracking is shown on Photo 5. MR is to continue to monitor the downstream edge of the pipeline ramp for any additional cracking or the propagation of existing cracks.

The connection of the East-West Embankment and North-South Embankment downstream step-outs is still to be completed (shown on Photo 6), as well as a portion of the central section along the East-West Embankment below EL. 6,450. The 2020 Annual Inspection Report (AIR) (KP, 2021a) includes a recommendation to provide a construction schedule outlining the planned dump sequencing with a focus on the next 12 to 24 months.

The over-steepened cut slope at the Terramac access ramp along the tailings discharge corridor is still being monitored by MR as recommended in the 2019 AIR (KP, 2020d) and the MR Corrective Action Plan (CAP) (MR, 2020). The condition of the slopes was reported to be unchanged.

2.3 WEST EMBANKMENT

Areas of interest along the West Embankment during Q4 are shown on Figure 4. Zone D1 construction continued along the western edge of the temporary sump (Photo 7) and in the area of Drain Pod 1 (Photo 8). Construction of Zone U for the EL. 6,450 lift of the West Embankment continued throughout Q4. An overview of the EL. 6,450 construction progress as viewed from the northern end of the West Embankment is shown on Photo 9. The EL. 6,400 ft surface was ripped prior to placement of the subsequent fill materials as presented in various weekly reports completed during Q4.

An overview of the Extraction Pond is shown on Photo 10. The welding and placement of the emergency overflow pipelines from the Extraction Pond was completed in October and recorded in the appropriate weekly report (Photo 11). Additional large boulders for energy dissipation are still required at the emergency overflow discharge structure at the outlet of the emergency overflow pipelines.

The Extraction Pond Dewatering System installed on the floating barge was operating at approximately 300 gallons per minute (gpm) at the time of the field review, which is consistent with flowrates measured at this location since commissioning in late 2019. The quarterly trends of the dewatering systems will be summarized and presented in the Q4 Water Management Summary (KP, 2021b).

2.4 TAILINGS BEACH DEVELOPMENT AND MONITORING

The tailings beach conditions and supernatant pond location, observed from the tailings discharge corridor near discharge locations NS-4 and EW-2, and from the EL. 6,450 ft West Embankment near discharge location RK-3, are shown on Photos 12 through 14. Tailings discharge records indicate that nine of the ten discharge locations were active during Q4, with RK-4 being the only non-operational location. Discharge activity was inferred using the weekly tailings discharge elevations and daily discharge activity information provided by MR. The approximate beach elevations at each discharge location at the end of Q3 and Q4, along with the change in elevation over that time period, are summarized in the table below.

Discharge Location	Valve	Q3 Beach Elevation	Q4 Beach Elevation	Elevation Difference (Q3 to Q4)
		ft	ft	
		Date: 9/30/2020	Date: 12/28/2020	ft
EW - 1	2-1, 3-1	6,386.75	6,386.75	0.0
EW - 2	2-2	6,384.19	6,387.08	2.9
RK - 1	1-1, 2-3	6,380.81	6,385.17	4.4
RK - 2	1-2	6,377.23	6,377.23	0.0
RK - 3	1-3	6,373.83	6,375.08	1.3
RK - 4	1-4	6,371.33	6,371.33	0.0
NS - 1	3-2	6,385.22	6,385.32	0.1
NS - 2	3-3	6,380.92	6,380.92	0.0
NS - 3	3-4	6,378.49	6,378.49	0.0
NS - 4	3-5	6,368.61	6,369.02	0.4

NOTES:

1. WEEKLY DISCHARGE ELEVATION SURVEY PROVIDED BY MR. END OF QUARTER ELEVATIONS ARE CLOSEST PROVIDED DATES TO MONTH END.
2. HIGHLIGHTED CELLS INDICATE LOCATIONS WITH BEACH ELEVATION CHANGE DURING THE QUARTER.

Additional observations of the tailings discharge system and beach development are as follows:

- The elevation difference between NS-1 and NS-4 was approximately 16.3 ft at the end of Q4. This is similar to the 16.6 ft difference recorded at the end of Q3.
- The continued use of the NS-4 discharge location installed during Q3 is expected to further infill the tailings beach at the northern end of the embankment and reduce the beach to crest elevation differential of the North-South Embankment discharge locations.
- The recorded tailings beach elevation at EW-2 is now higher than the tailings beach elevation at EW-1. The elevation difference between the EW discharge locations was approximately 0.3 ft at the time of the field review.
- The elevation difference between RK-1 and RK-4 was approximately 13.9 ft, which is greater than the difference of 9.5 ft at the time of the 2020 Q3 field review. The increased elevation difference is due to the increase in discharge elevation at RK-1 during Q4.
- Discharge location RK-4 remains disconnected during the ongoing construction of the EL. 6,450 ft embankment lift. It is expected that this discharge location and tailings discharge corridor will be realigned and re-established following EL. 6,450 ft lift construction.

2.5 SEEP 10 AREA AND HORSESHOE BEND

The quarterly trends and flowrates, and visual observations and photos for Seep 10, Horseshoe Bend (HsB) Weir, and Precipitation Plant overflows are presented in detail within the Q4 Water Management Summary (KP, 2021b). Photos of the Seep 10 and HsB areas were visually compared with photos from the previous 2020 quarterly reviews to produce the general observations and recommended actions summarized below.

- The Seep 10 Weir staff gauge was measuring at approximately 0.4 and the Seep 10 flow paths, surface collection ditches and stilling pond appear consistent with previous reviews.
- HsB seepage flow paths and collection ditches at the toe of the East-West Embankment appear generally consistent with the previous field review.
- The Cell #10 Pump area was overflowing towards the HsB Lower Pond at the time of the field review and shown on Photo 15. The overflow appears to be a higher rate than at the time of the previous Q3 review. Maintenance should be performed to stop this overflow bypass.
- The Muddler pump overflow was conveying flows towards the HsB Pond. This overflow was not flowing during the Q3 field review.
- MR is to continue to monitor the flow conditions adjacent to the Precipitation Plant and at the HsB areas for any changes in flows or new seepage locations.

2.6 OTHER ITEMS

Weekly and monthly quality reports were discussed with MR throughout Q4, including during regular weekly meetings between KP and MR. Weekly construction progress reports were typically provided several weeks behind the planned reporting date, and Monthly Quality Reports were provided several months after month end. MR has made progress in recent weeks by issuing a number of outstanding reports.

Monitoring for embankment movement and piezometric levels within the YDTI embankments continues to be completed by KP and MR in accordance with the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020) using several concurrent monitoring programs. These programs include real-time monitoring of piezometric levels and in-place inclinometer instrumentation data via the Sensemetrics system, periodic review of beach development using Sentinel-2 satellite images, and the compilation of high resolution Interferometric Synthetic Aperture Radar (InSAR) data. The 2020 Q4 Piezometric Monitoring Update letter (KP, 2021c) is developed separately, and provides a summary of the piezometric data collected at key monitoring sites during the quarter.

3.0 SUMMARY AND RECOMMENDATIONS

The 2020 Q4 Construction Field Review was completed by Mr. Mike Harvie of MR on behalf of the EOR as COVID-19 related travel restrictions prevented KP from visiting the site. The EOR is satisfied with Mr. Harvie's detailed inspection and commends MR for their excellent observations and communications during this review. 2021 field reviews are anticipated to be completed using a similar procedure until COVID-19 related travel restrictions are relaxed.

Construction of the downstream step-out along the North-South Embankment was not advanced during Q4. Realignment of the Reclaim Water Pipeline, including the widening of the access road at the north end of the North-South Embankment, is ongoing. Construction of the EL. 6,450 lift continued along the West Embankment and 5 ft lifts of Zone D1 were placed in the area west of the temporary extraction pond and near Drain Pod 1. The corner connecting the East-West and North-South Embankments and lifts below EL.

6,400 ft in the central section are still to be completed by MR. The 2020 AIR (KP, 2021a) outlines a request for a more detailed construction schedule focused on the next 12 to 24 months.

Settlement cracking was visible along the downstream edge of the relocated tailings pipeline ramp and along the over-steepened slope adjacent to the Terramac access road on the East-West Embankment, as well as along the North-South Embankment tailings discharge corridor. The cracking in these locations is considered to be minor and similar to what was previously observed in earlier quarterly field reviews. MR should continue to monitor these areas as described in the CAP (MR, 2020) to identify any propagation of the existing cracks or the development of new cracking.

Tailings discharge locations NS-1, NS-2, EW-2, RK-1, and RK-3 were inferred to be operational during Q4 from the weekly MR tailings discharge elevation survey. Discharge location RK-4 is currently disconnected to facilitate the construction of the EL. 6,450 ft West Embankment; however, it is expected that the tailings discharge corridor and this discharge location will be re-established after embankment construction is complete in this area. The extension of Line 2 to NS-1 as recommended in the 2020 EOR AIR (KP, 2021a) is still pending completion of the EL. 6,450 ft raise.

The Extraction Pond Dewatering System is operating regularly and the overflow pipelines from the Extraction Pond were fused during Q4. Additional large boulders for energy dissipation are still required at the emergency overflow discharge structure at the outlet of the emergency overflow pipelines. Flow conditions throughout Seep 10, around the Precipitation Plant, and in the HsB area appear visually comparable to previous field reviews. A detailed review of flow records will be summarized in the Q4 Water Management Summary document.

We trust this letter appropriately summarizes the construction activities and conditions during Q4 of 2020 based on the information (photos, videos, and descriptions) provided by MR. The YDTI construction progressed as expected during 2020 Q4, and generally conforms with procedures and specifications outlined in the Construction Management Plan (KP, 2018) and Issued for Construction Design Drawings.

The information, descriptions and conclusions presented are based on a visual assessment of the provided information and does not constitute supervision of construction and does not represent a guarantee that all deficient or non-conforming works have been identified.

Yours truly,
Knight Piésold Ltd.

Prepared: Jason Gillespie, P.Eng.
Senior Engineer

Reviewed: Daniel Fontaine, P.E.
Specialist Engineer | Associate

Reviewed: Ken Brouwer, P.E.
Principal

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

Attachments:

Table 1 Rev 0	2020 Q4 Construction Field Review – Checklist
Figure 1 Rev 0	2020 Q4 Construction Field Review – General Arrangement and Photo Location Map
Figure 2 Rev 0	2020 Q4 Construction Field Review – North-South Embankment Areas of Interest
Figure 3 Rev 0	2020 Q4 Construction Field Review – East-West Embankment Areas of Interest
Figure 4 Rev 0	2020 Q4 Construction Field Review – West Embankment Areas of Interest
Photo Log	

References:

Knight Piésold Ltd. (KP, 2018). Yankee Doodle Tailings Impoundment: Construction Management Plan (KP Reference No. VA101-126/12-5 Rev. 3). May 1, 2018.

Knight Piésold Ltd. (KP, 2020a). 2020 Q1 Construction Field Review Summary (KP Reference No. VA20-00803). May 7, 2020.

Knight Piésold Ltd. (KP, 2020b). 2020 Q2 Construction Field Review Summary (KP Reference No. VA20-01468). September 11, 2020.

Knight Piésold Ltd. (KP, 2020c). 2020 Q3 Construction Field Review Summary (KP Reference No. VA20-02161). November 4, 2020.

Knight Piésold Ltd. (KP, 2020d). Yankee Doodle Tailings Impoundment 2019 Annual Inspection Report (KP Reference No. VA101-126/21-2 Rev. 0). January 31, 2020.

Knight Piésold Ltd. (KP, 2021a). Yankee Doodle Tailings Impoundment 2020 Annual Inspection Report (KP Reference No. VA101-126/21-2 Rev. 0). February 11, 2021.

Knight Piésold Ltd. (KP, 2021b). Q4 2020 – YDTI Quarterly Water Data Summary (KP Reference No. VA21-00003).

Knight Piésold Ltd. (KP, 2021c). Q4 2020 – YDTI Quarterly Piezometric Monitoring Update (KP Reference No. VA21-00046). February 16, 2021.

Montana Resources, LLP, and Knight Piésold Ltd. (MR/KP, 2020). 2020 Tailings Operations, Maintenance and Surveillance (TOMS) Manual (Reference No. VA101-126/23-2), Rev 4, dated May 13, 2020.

Montana Resources, LLP. (MR, 2020). 2019 Annual Engineer of Record Inspection Report for Yankee Doodle Tailings Impoundment and Corrective Action Plan for Recommendations. MT, USA, January 31, 2020.

Copy To: Mike Harvie

Montana Resources

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q4 CONSTRUCTION FIELD REVIEW CHECKLIST

Date: Dec 9 & 10, 2020 **Time:**

Inspectors:
Name: Mike Harvie | Title: Manager of Engineering & Geology | Signature: Mike Harvie

Inspection Type: DAILY | WEEKLY | MONTHLY | OTHER EVENT (Specify): Q4 Inspection

Weather Conditions: Precipitation (24 hr.): | Wind Speed:
Temperature (°F): | Sky (circle): Clear | Partly Cloudy | Cloudy

Instrumentation Data Collected: Yes No **Details:**

Samples Collected: Yes No **Details:**

WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Pipeline Corridor		X		
Downstream Face	✓	Cracking, Subsidence, Depressions		X		
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed	X		X	6450 U placement and D1 lifts near Temp Sump/Bumtown
		Surface Preparation	X			6400 Ripped in U areas, Grade control for 5 ft lifts in place

EAST-WEST EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions	X			Terramac Ramp, no progression or changes in cracks
		Erosion		X		
		Pipeline Corridor		X		
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Seep 10 Bench	✓	Overview of HsB Photo			X	
	✓	Seep 10 Stilling Basin			X	
	✓	Seep 10 V-Notch Weir			X	
	✓	Seep 10 Inflows			X	
Active Embankment Construction	✓	Location and Elevation Reviewed		X		No Activiity
		Surface Preparation		X		
Pipe Ramp Construction	✓	Cracking, Subsidence, Depressions	X		X	Very minor settlement cracking by DH20-S1 (surveyed)
		Erosion		X		
		Survey Stake Locations for Expansion	X			some old stakes are in place, needs refurb.

NORTH-SOUTH EMBANKMENT

LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT YES	ITEM PRESENT NO	PHOTO	COMMENTS
Crest of Dam	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Lateral Deformation		X		
Upstream Face	✓	Cracking, Subsidence, Depressions	X		X	Same cracking along pipe bench, no progression.
		Erosion		X		
		Pipeline Corridor		X	X	
Downstream Face	✓	Cracking, Subsidence, Depressions		X	X	
		Erosion		X		
		Seeps, Damp or Soft areas		X		
Active Embankment Construction	✓	Location and Elevation Reviewed		NA		No Activity except construction of new Reclaim Water
		Surface Preparation		NA		Line by contractor, (not part of dam construction)

Montana Resources

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q4 CONSTRUCTION FIELD REVIEW CHECKLIST

YANKEE DOODLE TAILINGS IMPOUNDMENT						
LOCATION	INSPECTION COMPLETED	ITEM	ITEM PRESENT		PHOTO	COMMENTS
			YES	NO		
General	✓	Pond Elevation and Location Reviewed	X			EL 6358.98
	✓	Lowest Crest Elevation Determined	X			EL 6396
Tailings Discharges	✓	Active Discharge Locations	X		X	2-2 and 3-3
		Pipeline leakage		X		
		Pipeline wear/damage		X		
Reclaim Water Pipeline	✓	Pipeline wear/damage		X		
		Pipeline leakage		X		

HORSESHOE BEND				
LOCATION	INSPECTION COMPLETED	ITEM	PHOTO	COMMENTS
Horseshoe Bend and Precipitation Plant	✓	Upper HSB Pond	X	
	✓	Lower HsB Pond	X	
	✓	HsB Pump and Water Level	X	
	✓	HsB Seepage to Upper Pond	X	
	✓	HsB Seepage to Hooligan Pond	X	
	✓	Precipitation Plant Overflow Box Leak	X	
	✓	Precipitation Plant Overflow/Cell 10 Pump	X	
	✓	HsB Weir	X	
	✓	Muddler Pump and Overflow		
	✓	Leach Pump Head Tank (Weir)		
	✓	BMFOU Pilot Project Facilities		

Additional Notes:

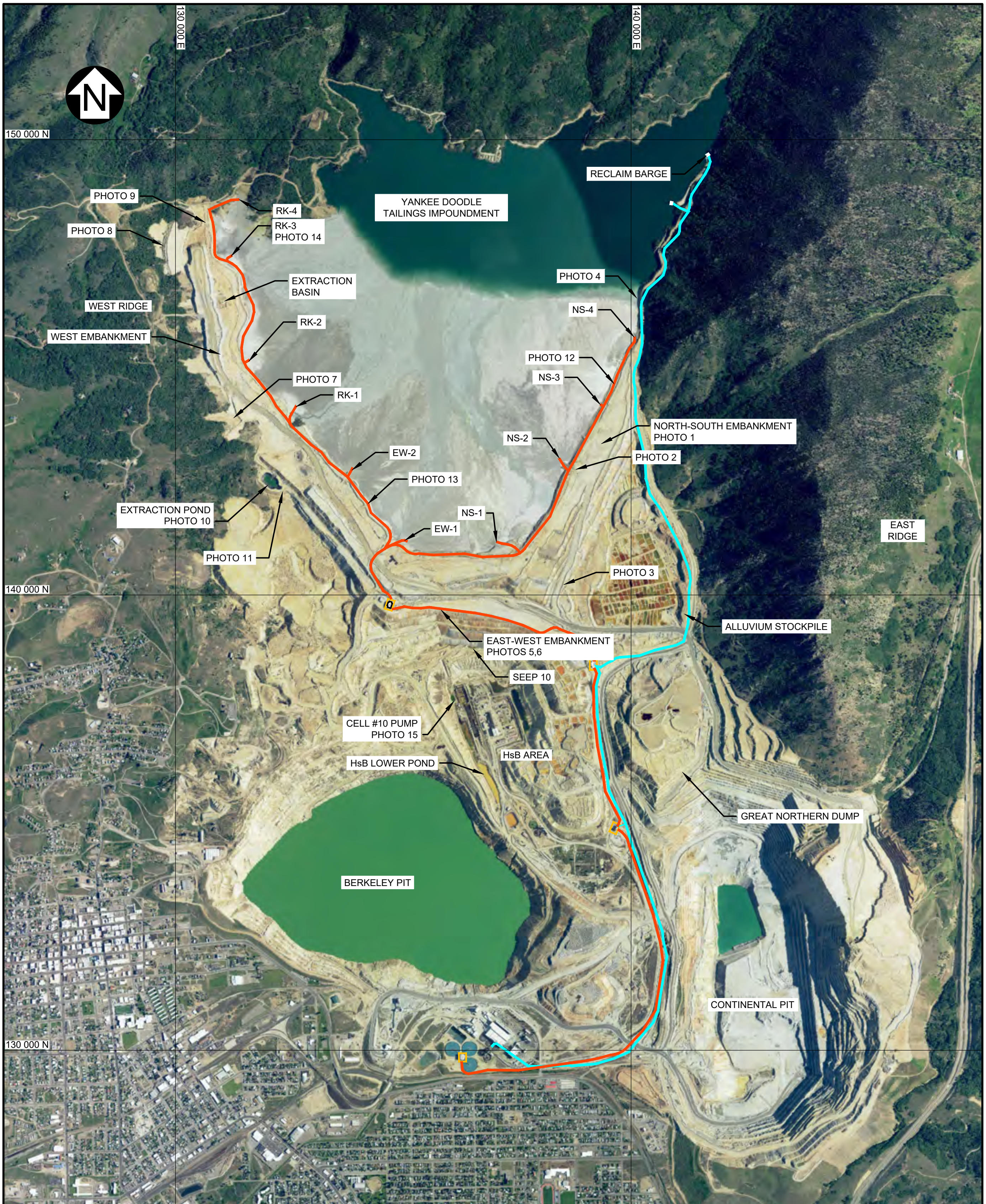
✓	Extraction Pond		Emergency Pipelines - Discharges not placed in energy dissipation basin.

\\knightpiesold.local\VA-Prj$\1\01\00126\23\A\Correspondence\VA21-00081 - Q4 Construction Field Review\Attachments\Checklist\[YDTI Q4 2020 Inspection Log.xlsx]Q4 Field Review

NOTES:

1. CHECKLIST COMPLETED BY MR REPRESENTATIVE MIKE HARVIE AND REVIEWED BY KP.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	26FEB'21	ISSUED WITH LETTER VA20-00803	JRG	DDF



NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS ARE BASED ON ANACONDA MINE GRID.
2. PHOTO LOCATIONS CORRESPOND TO PHOTO LOG ISSUED WITH 2020 Q4 QUARTERLY CONSTRUCTION FIELD REVIEW SUMMARY.
3. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 1500 0 1500 3000 4500 6000 7500 ft

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	26FEB'21	ISSUED WITH LETTER	JRG	RMM	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

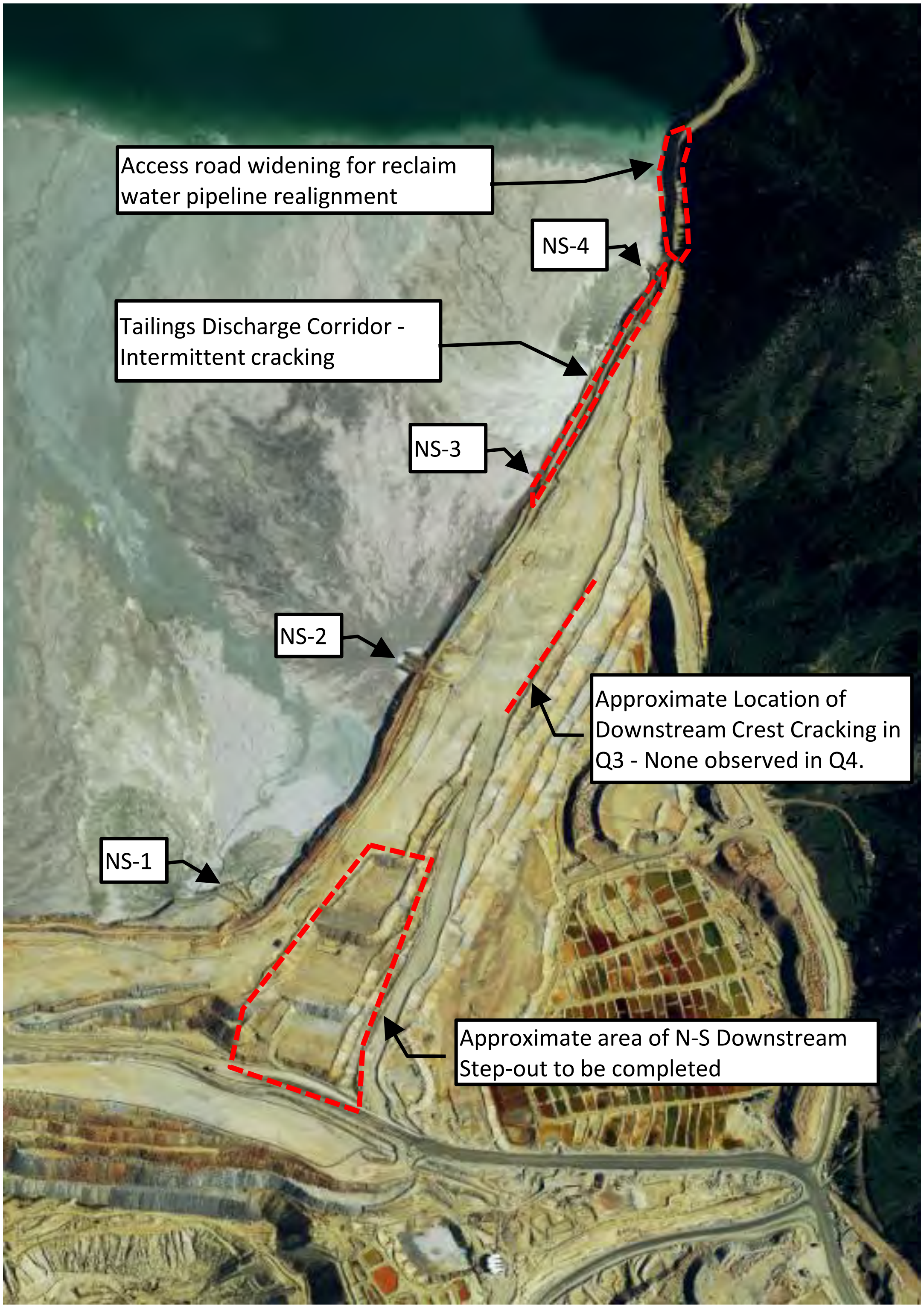
2020 Q4 CONSTRUCTION FIELD REVIEW GENERAL ARRANGEMENT AND PHOTO LOCATION MAP

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA21-00081

FIGURE 1 REV 0

SAVED: M:\1\01\00126\23\A\Acad\FIGS\A23, 2/26/2021 2:35:31 PM , RMCLELLAN PRINTED: 2/26/2021 2:46:23 PM, FIG 1, RMCLELLAN
XREF FILE(S): 5ft_01_2020 IMAGE FILE(S): 2020 Aerial Photo



NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q4 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11MAR'21	ISSUED WITH LETTER	JRG	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q4 CONSTRUCTION FIELD REVIEW
NORTH-SOUTH EMBANKMENT
AREAS OF INTEREST

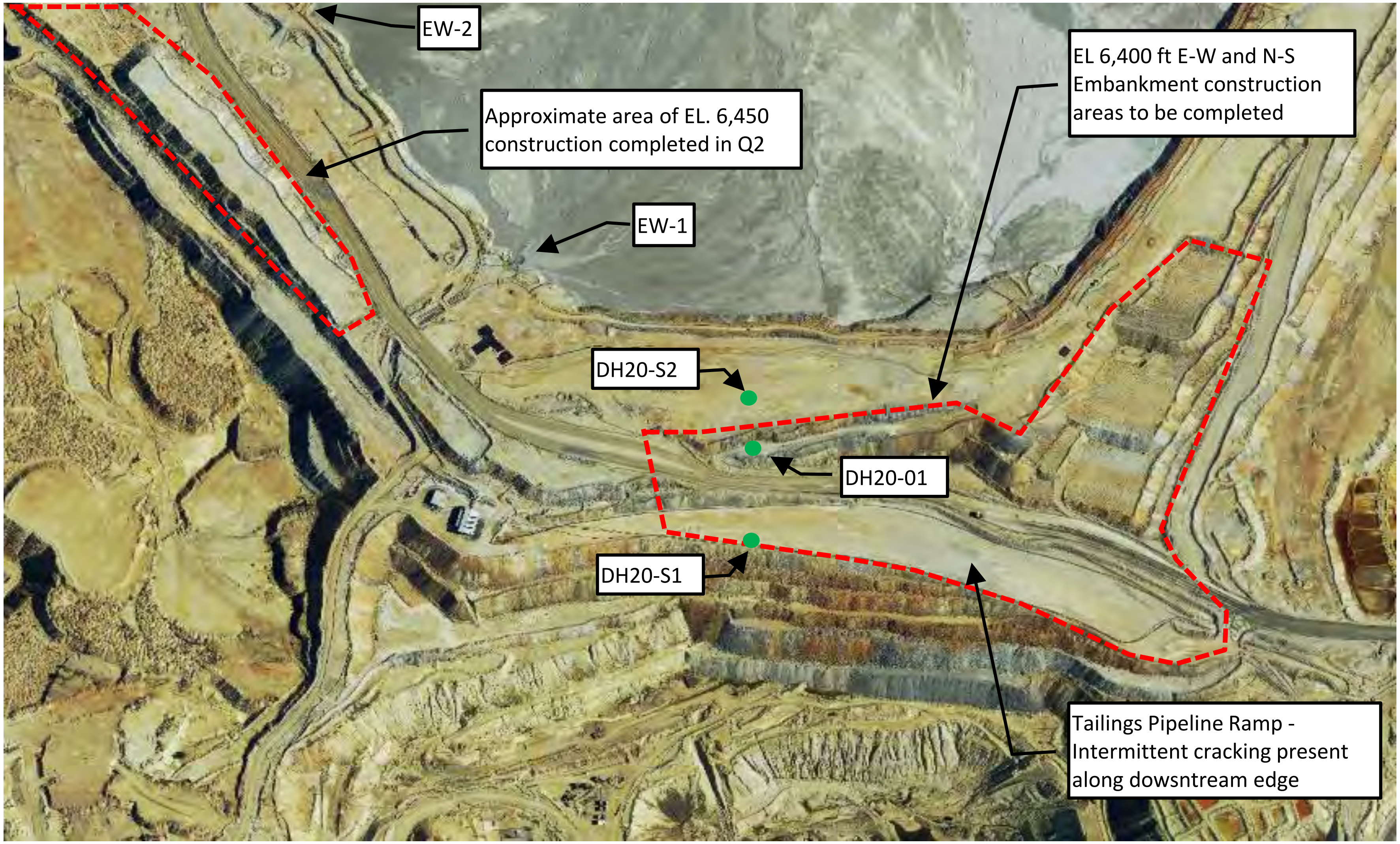
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. VA21-00081

FIGURE 2

REV 0



NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.
2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q4 OF 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11MAR'21	ISSUED WITH LETTER	JRG	DDF

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q4 CONSTRUCTION FIELD REVIEW
EAST-WEST EMBANKMENT
AREAS OF INTEREST

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. VA21-00081

FIGURE 3

REV 0

NOTES:

1. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

2. CONSTRUCTION AREAS ARE ESTIMATED TO REPRESENT ACTIVE AREAS DURING Q4 OF 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

2020 Q4 CONSTRUCTION FIELD REVIEW
WEST EMBANKMENT
AREAS OF INTEREST

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. VA21-00081

FIGURE 4

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11MAR'21	ISSUED WITH LETTER	JRG	DDF

2020 Q4 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 1 – North-South Embankment – Viewed from the Great Northern Dump

PHOTO 2 – North-South Embankment – Example of minor settlement cracking along the upstream edge of the tailings discharge corridor

2020 Q4 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 3 – North-South Embankment – Minor depressions in the access ramp

PHOTO 4 – North-South Embankment – Road widening to accommodate realignment of the Reclaim Water Pipeline

2020 Q4 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 5 – East-West Embankment – Example of settlement cracking along the downstream edge of the tailings pipeline ramp

PHOTO 6 – East-West and North-South Embankment – Corner and central zone to be constructed

2020 Q4 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 7 – West Embankment – Zone D1 construction west of the Temporary Extraction Pond location

PHOTO 8 – West Embankment – Zone D1 construction at Drain Pod 1 location

2020 Q4 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 9 West Embankment – El. 6,450 ft construction progress, looking south from the northern end of the embankment

PHOTO 10 – West Embankment – Extraction Pond

2020 Q4 CONSTRUCTION FIELD REVIEW
PHOTO LOG

PHOTO 11 – West Embankment – Extraction Pond emergency overflow pipes fused

PHOTO 12 – Tailings Beach and Supernatant pond location – Viewed from the tailings discharge corridor near discharge location NS-4

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2020 Q4 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 13 – Tailings Beach and Supernatant pond location – Viewed from the tailings discharge corridor near discharge location EW-2

PHOTO 14 – Tailings Beach and Supernatant pond location – Viewed from EL 6,450 ft West Embankment near discharge location RK-3

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2020 Q4 CONSTRUCTION FIELD REVIEW PHOTO LOG

PHOTO 15 – Cell #10 Pump – Overflow to HsB Pond

APPENDIX A2

Water Management Summary Letters

(Pages A2-1 to A2-73)

December 17, 2020

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: Q3 2020 – YDTI Quarterly Water Data Summary

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored in the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment enclosed by a rockfill embankment. MR's operational surveillance plan for the impoundment, as described in the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020), requires routine monitoring of the supernatant pond elevation and flowrates at several water management locations. Supernatant pond data and flow records are submitted to Knight Piésold Ltd. (KP) approximately quarterly, and these records are reviewed to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections of the impoundment.

This letter presents a summary of the MR YDTI water management data from the third quarter (Q3) of 2020, including July 1 to September 30, 2020. The purpose of this letter is to review the performance records associated with the YDTI water management systems and identify if any operational changes are recommended. The Q3 letter includes a summary of data related to the following:

- YDTI supernatant pond elevation and surveyed volume
- Tailings beach elevations at the discharge points
- Silver Lake Water System (SLWS) flowrates
- Horseshoe Bend (HsB) Weir flowrates
- Seep 10 flowrates
- Precipitation Plant Overflow flowrates
- West Embankment Drain (WED) Extraction Pond flowrates

2.0 YDTI SUPERNATANT POND

2.1 SUPERNATANT POND MONITORING

The YDTI supernatant pond is located on the northern side of the YDTI and is constrained by natural topography to the north and east, and the tailings beach to the south and west. MR manually measures the YDTI supernatant pond elevation on a weekly basis and surveys the pond annually to evaluate subaqueous beach slopes and estimate the pond volume. The elevation of the pond surface typically rises at a rate of six to seven feet per year as the volume of tailings stored in the facility increased. Minor changes in pond elevation also occur due to climatic/seasonal changes in pond volume (e.g. precipitation/runoff, evaporation, development/melt of winter ice).

The Berkeley Pit Pilot Project (the Pilot Project) was commissioned in September 2019 as part of the Superfund Butte Mine Flooding Operable Unit (BMFOU) activities on site and introduced a new water management strategy to the facility. One objective of the Pilot Project is to reduce the pond volume to approximately 15,000 acre-ft over the next three to five years. Consequently, the rate of change of the YDTI supernatant pond elevation will be affected by the Pilot Project when compared to previous years. A more detailed description of the Pilot Project is presented in the TOMS Manual (MR/KP, 2020).

2.2 2020 BATHYMETRIC SURVEY

The annual bathymetric survey and assessment of the YDTI supernatant pond volume was undertaken during Q3 2020 during the period from June 22 through July 9. The evaluation of the survey data indicated an estimated YDTI pond volume of approximately 32,100 acre-ft. This volume corresponds to a 2,300 acre-ft (7%) decrease in the estimated pond volume compared to the previous bathymetric survey conducted on July 9, 2019. The pond area was estimated to be approximately 610 acres, which corresponds to a decrease of 160 acres (21%) compared to the previous 2019 survey.

2.3 POND WATER ELEVATION

The last pond water elevation recorded for the Q3 monitoring period was 6358.48 ft on September 30, 2020, which equates to a pond elevation reduction of approximately 2 ft during Q3. The average Q3 pond elevation change measured over the previous three years was an increase of 0.2 ft. The elevation measured at the end of September 2020 is only slightly higher than the elevation of 6358.05 ft at the end of September 2019, indicating an annual change of less than 0.5 ft between these two measurements. The reduction in pond elevation in Q3 2020 is largely attributed to operation of the Pilot Project (detailed further in next section). The monthly supernatant pond water elevation changes from Q1 2015 through Q3 2020 are shown on Figure 2.1.

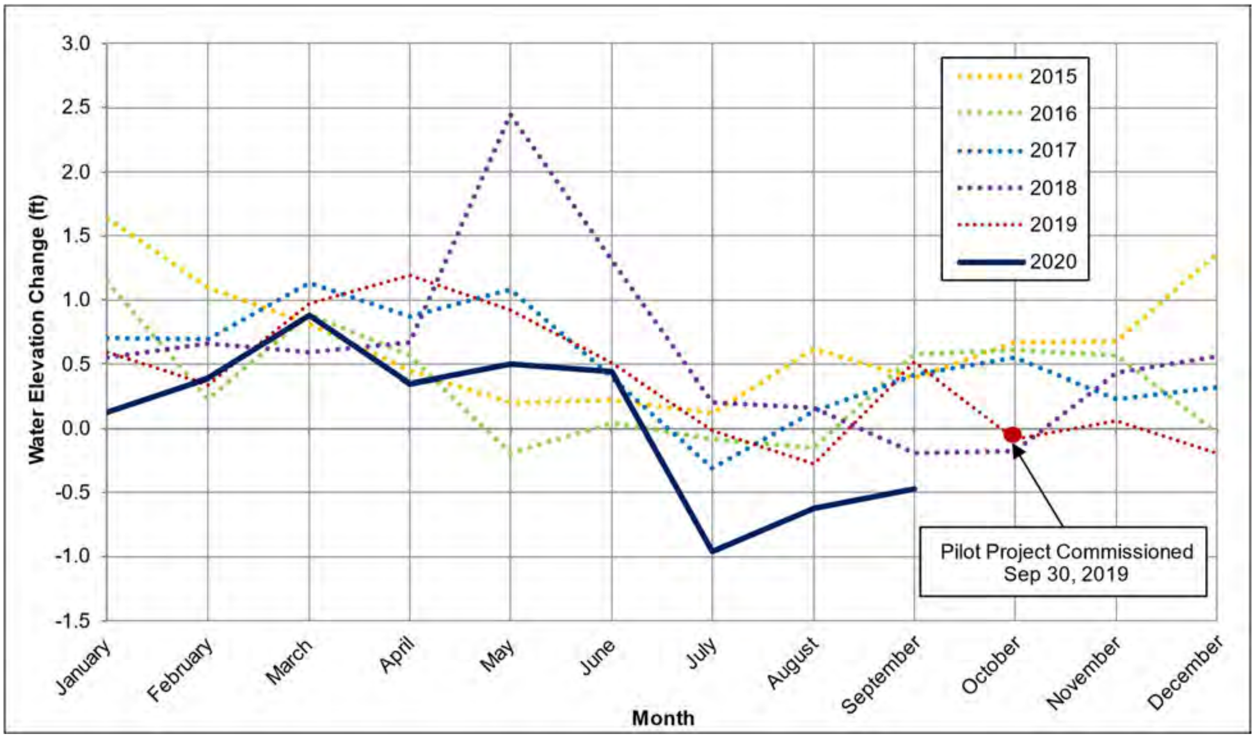

Figure 2.1 Monthly YDTI Pond Water Elevation Change

2.4 PILOT PROJECT DISCHARGE

Approximately 554 million gallons (1,700 ac-ft) of water was removed from the YDTI and discharged offsite during Q3 and approximately 335 million gallons (1,030 ac-ft) of Berkeley Pit water was treated and introduced to the YDTI during the same period. These two system flows resulted in a YDTI supernatant pond volume deficit of approximately 219 million gallons (670 ac-ft) during Q3 2020. The Pilot Project has resulted in a net volume deficit of approximately 677 million gallons (2,080 ac-ft) since it was commissioned in September 2019.

The Pilot Project's net volume deficit to date represents approximately 12% of Pilot Project's target total YDTI volume deficit to reduce the supernatant pond volume to 15,000 acre-ft. The monthly pond water elevation from Q1 2017 through Q3 2020 is shown on Figure 2.2, highlighting the effect of Pilot Project operations on the rise of the supernatant pond water elevation since late 2019 compared to the trend in the years preceding this operational change.

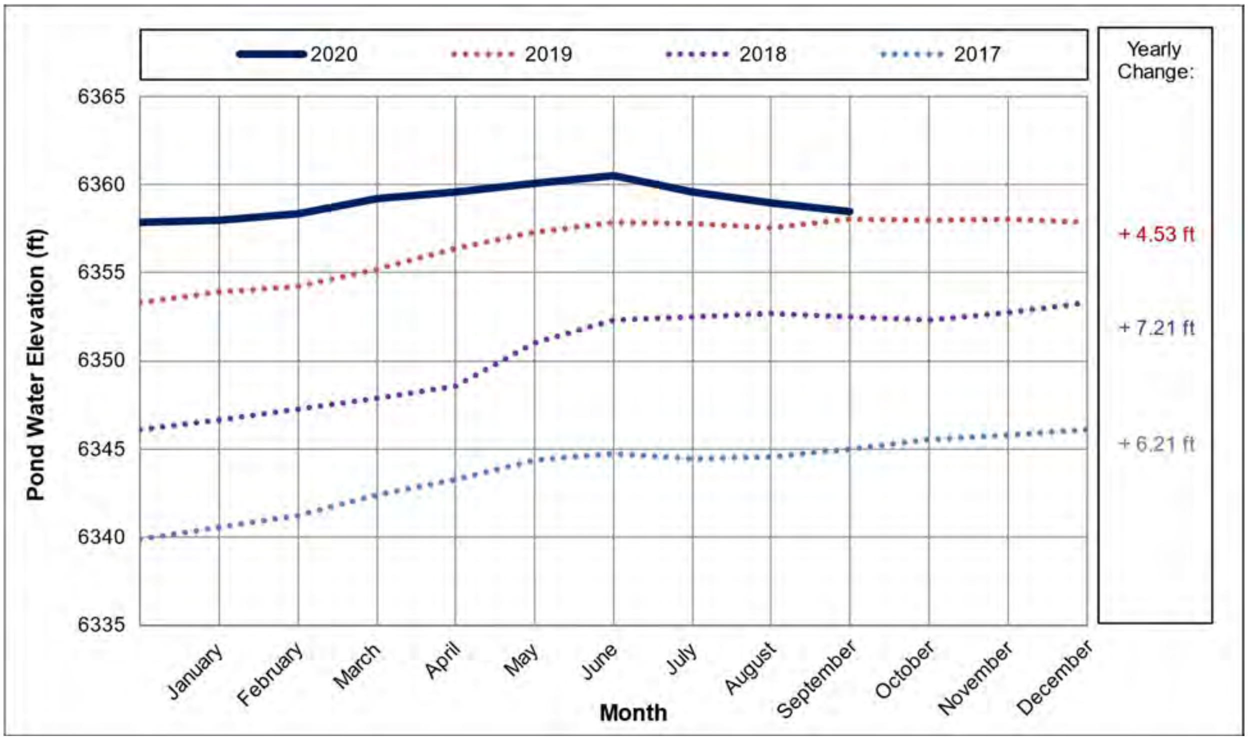

Figure 2.2 Monthly YDTI Pond Water Elevation

3.0 YDTI TAILINGS BEACH

3.1 TAILINGS DISCHARGE LOCATIONS

MR manually measures the YDTI tailings discharge elevations on a weekly basis. The two active tailings discharge lines used each week are selected based on the beach survey results and other external factors, such as the wind forecast, tailings line maintenance, and embankment construction projects around the discharge lines. Tailings discharge scheduling continues to focus on maintaining extensive tailings beaches adjacent to all three of the embankments.

Several changes were made to Tailings Discharge Line 3 in Q3 2020; tailings discharge location NS-3 was relocated closer to NS-2 and a new discharge location NS-4 was added in August at the northern end of the North-South Embankment. The positions of the ten discharge locations at the end of Q3 are shown on Figure 3.1. Tailings discharge records indicate that tailings were distributed from all three YDTI embankments during Q3 2020, and all ten discharge locations were used.

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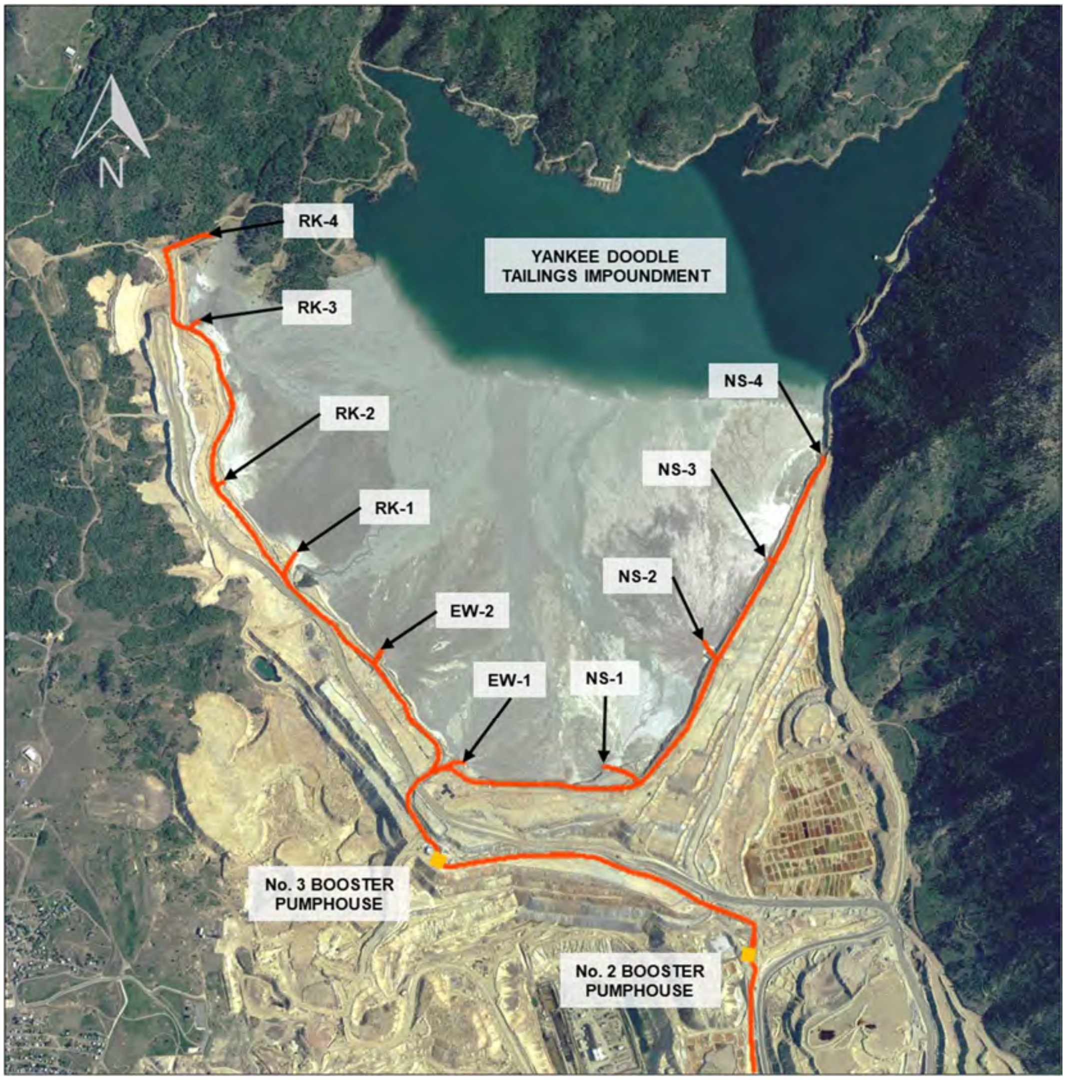

Figure 3.1 YDTI Tailings Discharge Locations

3.2 TAILINGS BEACH ELEVATIONS

The tailings beach elevations at each of the discharge locations are shown on Figure 3.2. The elevation difference between the lowest discharge elevation (NS-4) and the pond surface was approximately 11 ft at the end of Q3 2020. The lowest discharge elevation during Q3 was at the new NS-4 discharge location located at northern end of the North-South Embankment. The lowest discharge elevation prior to the installation of NS-4 was located at RK-3 and RK-4 at the northern end of the West Embankment. The location of the lowest discharge point identifies the area of the facility where the pond may initially contact the embankment in the event the pond elevation increases due to an increase in pond volume (e.g. flooding).

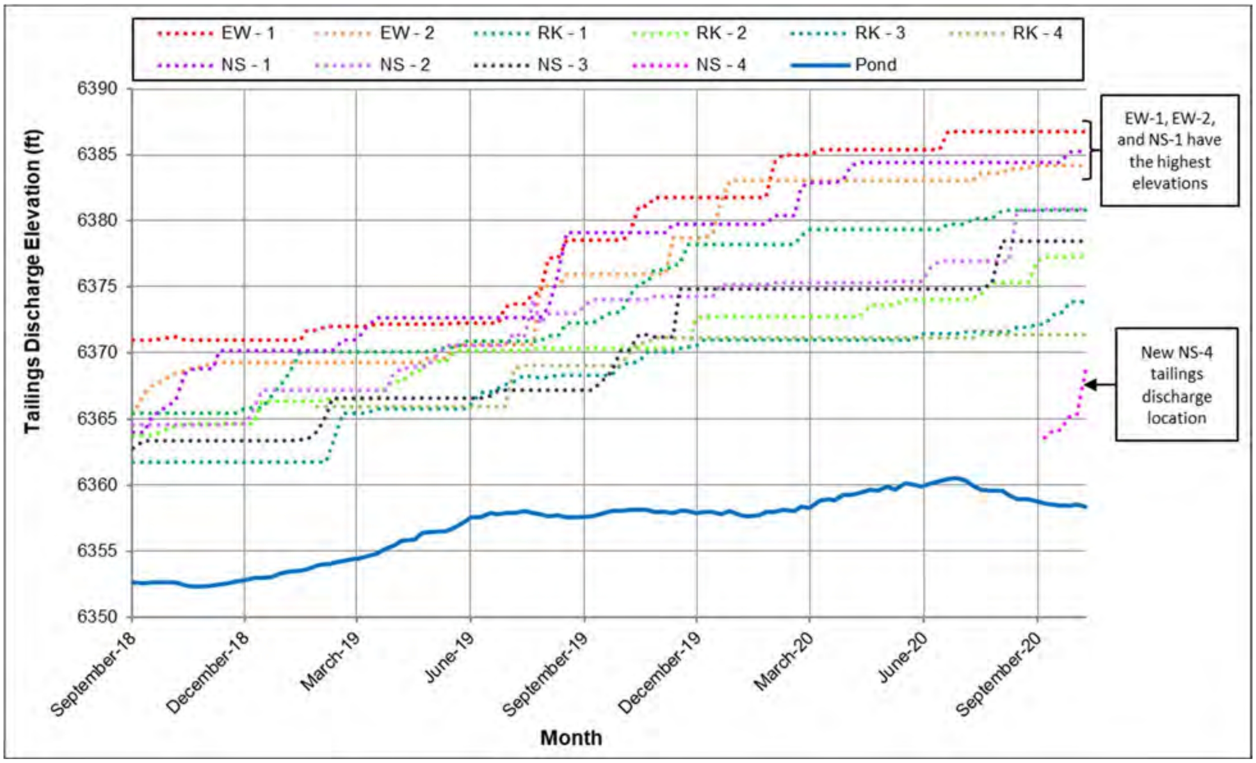

Figure 3.2 Tailings Discharge Elevations

3.3 TAILINGS BEACH LENGTH

Images captured by the Sentinel-2 satellite are reviewed twice per month to remotely observe the shape of the tailings beach and position of the supernatant pond relative to the embankments. The shortest Q3 beach length was observed at the northern end of the North-South Embankment at the end of Q3 and estimated to be approximately 1,400 ft. This is 200 ft (17%) longer than the Q2 beach length, which can be attributed to the reduction in pond volume and water surface area. An overview of the facility observed from the Sentinel-2 satellite images at the end of July, August, and September 2020 are presented in the attached figures.

3.4 TAILINGS BEACH SLOPE

Topographic data from the annual bathymetric and aerial surveys are used to determine the YDTI tailings beach slopes, both above and below water, from each discharge location. The 2020 bathymetric and aerial surveys were both undertaken during the first week of July. Note, these surveys were conducted prior to completing the changes to Tailings Discharge Line 3.

The average beach-above-water (BAW) slope, excluding discharge location NS-3, was 0.4%. This is a 23% reduction to the BAW slope since 2019, which is likely attributed to the pond receding in the facility and a longer beach length. The average beach-below-water (BBW) slope, excluding NS-3, is 5.2% which is similar to the BBW slope calculated in 2019.

The NS-3 slopes are slightly steeper than the slopes observed at the other discharge locations due to the proximity of the spigot to the supernatant pond. This trend was identified in 2019 and will likely also apply to the tailing beach slopes at the new NS-4 location.

The development of the tailings beach between June 2019 and June 2020 is represented visually with the basin isopach plot shown on Figure 3.4. The majority of the tailings beach recorded an elevation change of less than 6 ft since June 2019. The highest rate of tailings accumulation during this period was recorded at the margin of the supernatant pond near the northern end of the West Embankment and to a lesser extent elsewhere along the margin of and below the pond. The high rate of rise is due to preferential use of the tailings discharge points RK-3 and RK-4 during the last 12 months.

The subaerial tailings beach at the north ends of the North-South and West Embankment experienced a smaller change (0 ft to 3 ft) in elevation compared to the other subaerial beach areas. This is likely due to continued consolidation of the underlying finer-grained tailings that are being covered with coarser 'whole' tailings resulting from use of multiple tailings discharge locations since 2017.

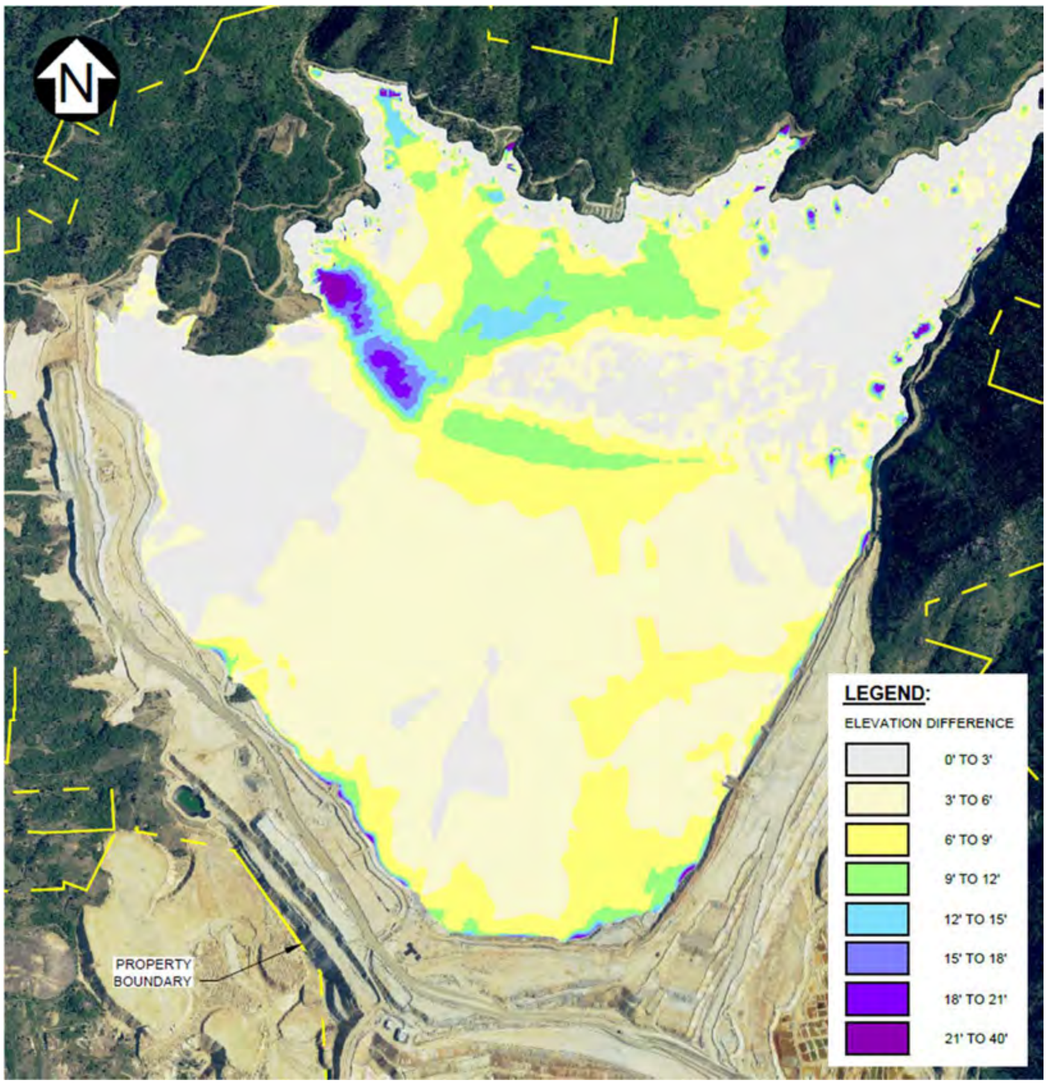

Figure 3.3 2019-2020 Basin Filling Isopach

4.0 SILVER LAKE WATER SUPPLY SYSTEM FLOWRATE

Water from the SLWS is used to meet both the operational freshwater and make-up water requirements. MR implemented changes to their SLWS use practices in April 2016, which immediately reduced the daily make-up water flowrates by more than 50%. MR has continued to operate with reduced freshwater and make-up water demands in Q3 2020.

The flowrates since the implementation of the new SLWS practices are presented on Figure 4.1. SLWS flows in July and August 2020 were relatively constant at an average rate of 580 gpm (0.84 Mgpd), which is comparable to the average Q3 flowrate from the previous 3 years. The September 2020 average flowrate was approximately 910 gpm (1.31 Mgpd), which is a 34% increase compared to the average Q3 flowrate from the previous three years. This increase is due to a period of higher than usual SLWS usage from September 17 to 28, averaging approximately 1300 gpm (1.9 Mgpd), when the SLWS was used for maintenance and filling the No. 3 thickener at the Concentrator. The average SLWS flowrate during Q3 remained below the target maximum flowrate of 1 Mgpd even when considering the higher than usual flows in September.

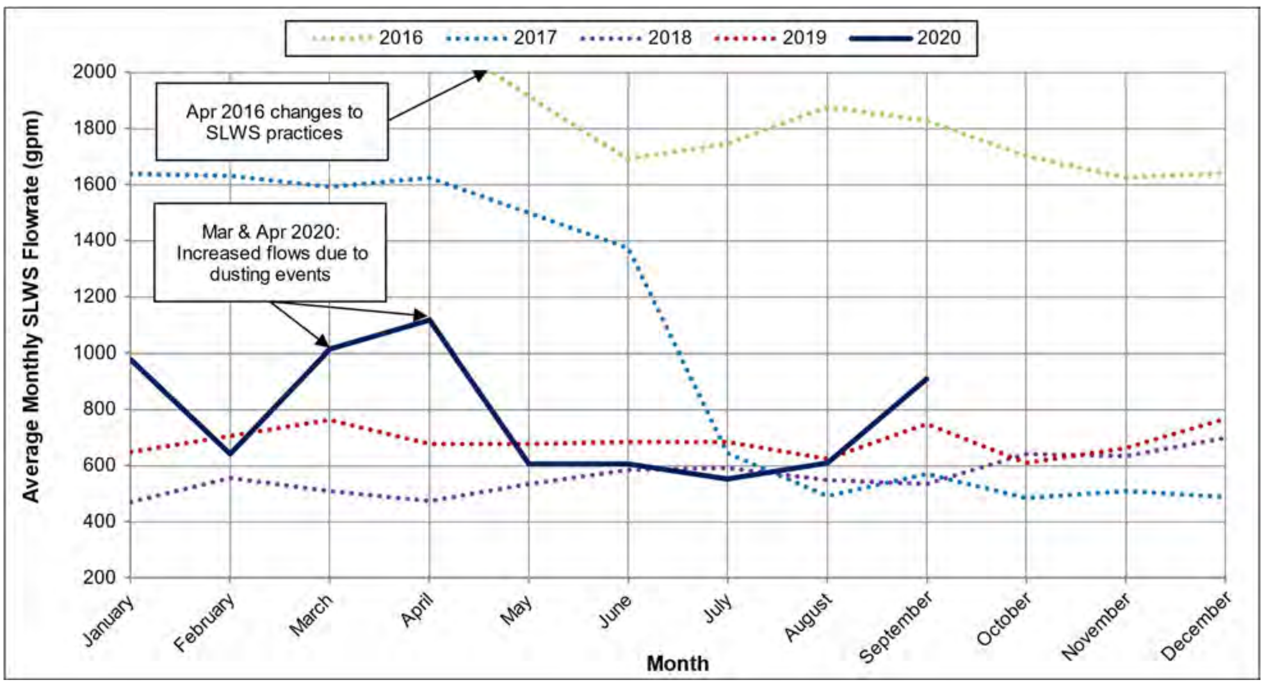

Figure 4.1 Average Monthly SLWS Flowrate

5.0 HSB WEIR FLOWRATE

Seepage from the YDTI flows south through the HsB area and joins with the Precipitation Plant overflow discharge and localized surface runoff in the HsB Pond before passing over the HsB Weir. The HsB Weir incorporates a weir plate and level meter near the south end of the pond, where flows are recorded in 15-minute intervals. The average monthly HsB Weir flowrates from Q1 2015 through Q3 2020 are presented on Figure 5.1.

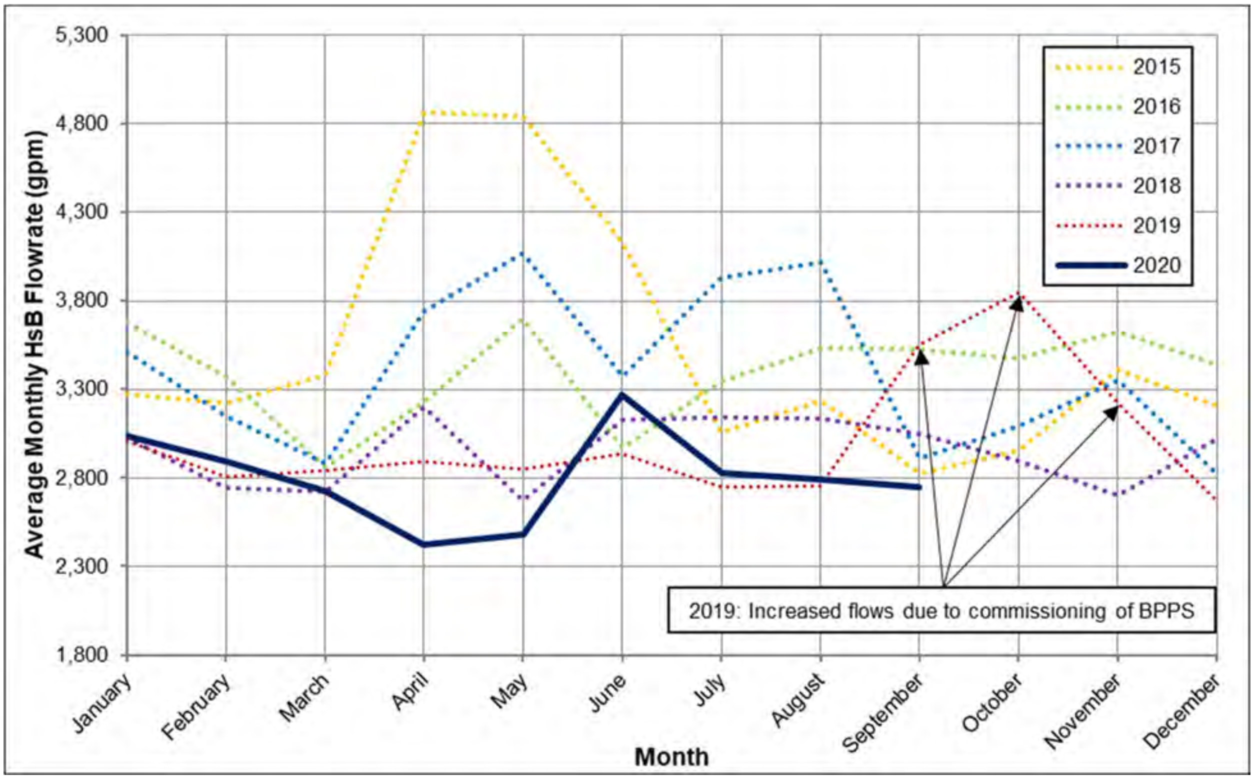

Figure 5.1 Average Monthly HsB Weir Flowrate

The average HsB Weir flowrate during Q3 2020 was approximately 2,790 gpm. The Q3 2020 flows are approximately 370 gpm (12%) lower than the Q3 average over the previous three years, excluding the increased flows during the commissioning of the Berkeley Pit Pumping System (BPPS). The average Q3 flowrate has remained relatively steady for the previous three years.

6.0 SEEP 10 FLOWRATE

Several smaller seeps, known as the Number 10 Seep (Seep 10), daylight on the EL 5,900 ft bench above the HsB seepage collection area approximately 250 ft higher than the downstream toe of the embankment. These localized flows have been attributed to a historical service corridor that conveys some tailings seepage as perched flows through the embankment to Seep 10.

The seepage is collected in a small pond on top of the EL 5,900 ft bench and is routed to the HsB seepage collection area via a pipe. The Seep 10 flows are measured using an ultrasonic lookdown level sensor that was installed in April 2019 to automatically measure the stilling pond level near the weir. The sensor was connected to the Remote Monitoring System (RMS) using a Sensemetrics ThreadX device on April 30, 2019.

The average Seep 10 flowrate in Q3 2020 was approximately 130 gpm, which is a comparable to the Q3 flowrates observed during the previous two years. The trend of the Seep 10 flows observed during 2020 is similar to the 2019 trend. Lower flowrates were observed in the beginning of the year, increasing during Q2, and reaching a peak throughout late Q2 and Q3. The average monthly Seep 10 flowrates from Q1 2015 through Q3 2020 are shown on Figure 6.1.

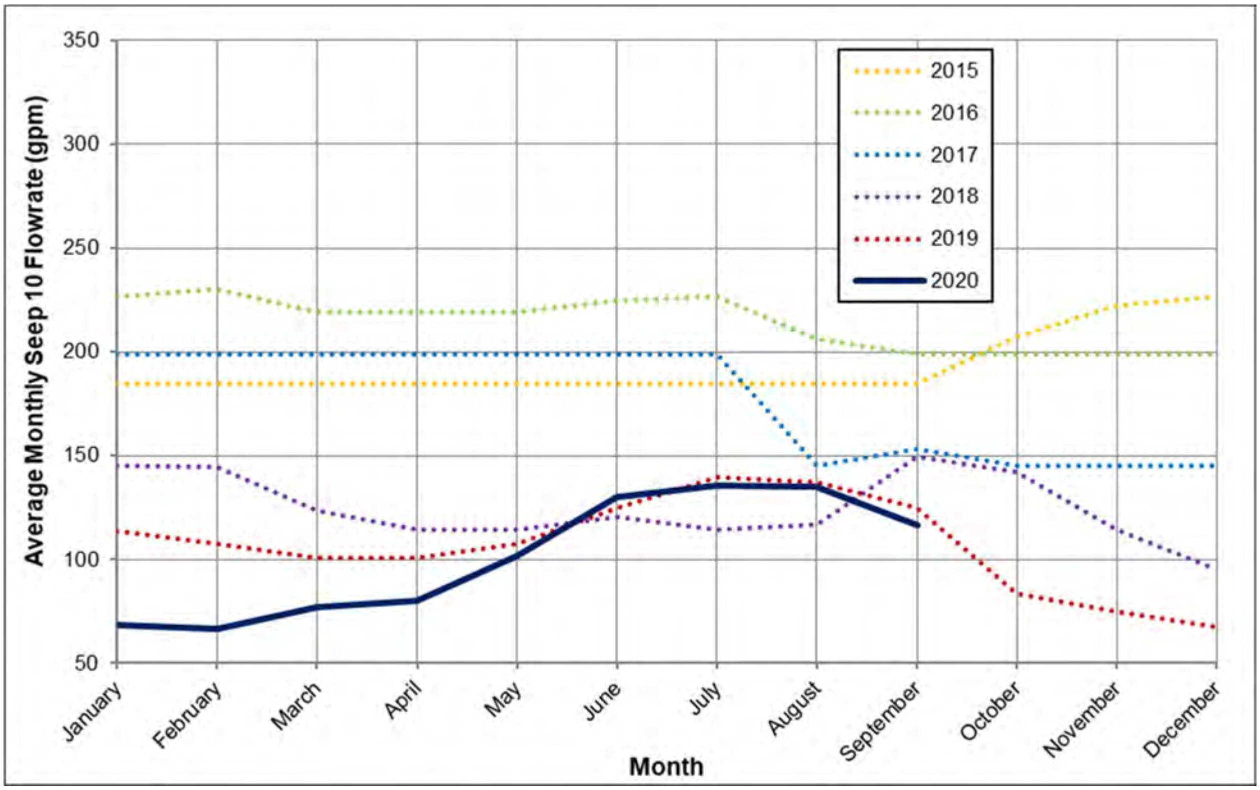

Figure 6.1 Average Monthly Flowrates at Seep 10

7.0 PRECIPITATION PLANT OVERFLOW FLOWRATE

The Precipitation Plant overflow is generated at the Precipitation Plant pump house after flows have been discharged from the 'tin can' processing cells. Processed water is directed to the Precipitation Plant recirculation pumps, and any flow greater than the capacity of the pumps is directed out of the system via the Precipitation Plant overflow pipeline into the HsB Pond. The Precipitation Plant overflow discharge rate is determined by:

- Inflows (leach water, seepage, precipitation)
- Outflow (recirculation pump station flowrate)

The discharge flowrate is measured using a calibrated overflow weir plate with water level measurement, and monitoring began at this location in 2017. Flow recording at this location can be used to provide insight into the HsB area seepage flow and water management changes.

The average monthly Precipitation Plant overflow flowrates from February 2017 through Q3 2020 are shown on Figure 7.1. The average Q3 flowrate was approximately 790 gpm lower (79%) than those measured in Q3 of the previous three years. Overflow flowrates in Q1 and Q2 2020 were similarly reduced compared to the previous three years.

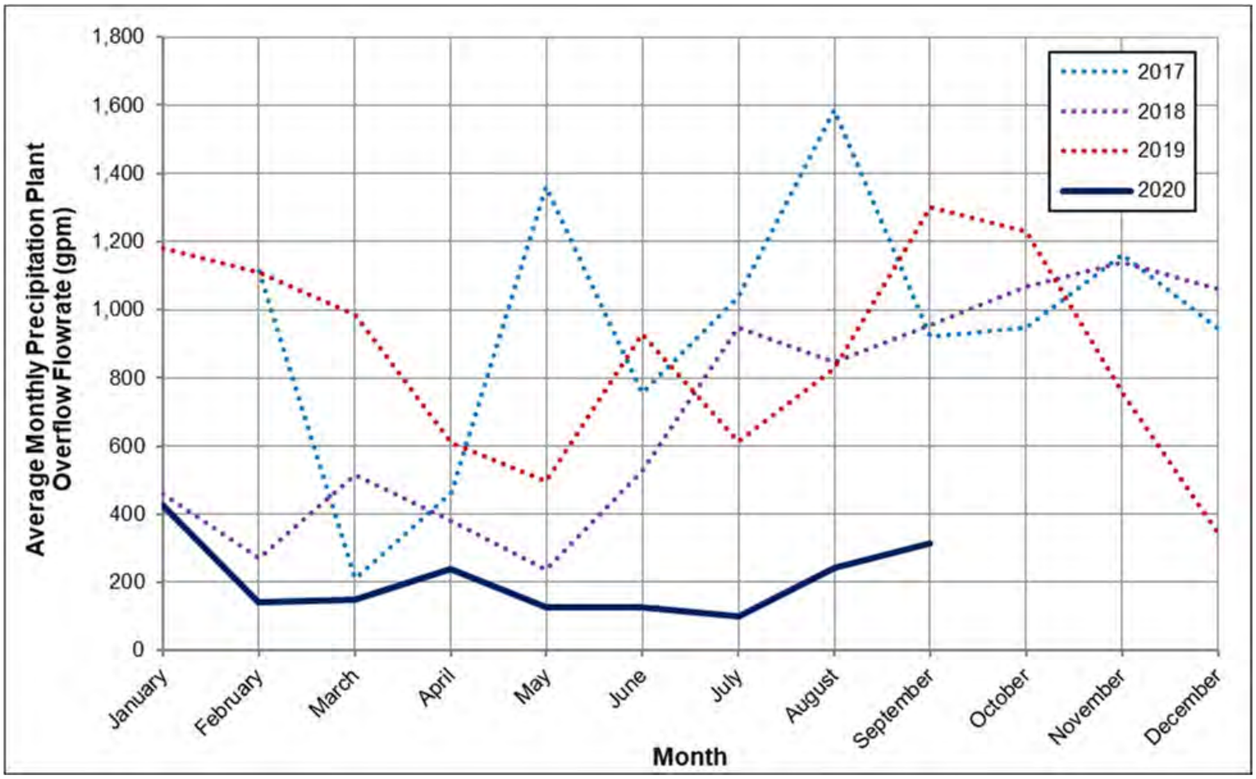

Figure 7.1 Average Monthly Precipitation Plant Overflow Flowrate

The reduction in flows can be attributed to changes to the water management strategy around the precipitation plant. A portion of the water reporting to Hooligan Pond is currently by-passing the Precipitation Plant via a weir and pipe (Photo 7.1) and discharging into the southern end of the HsB Pond (Photos 7.2 A and B). The flow is currently unmeasured. This diversion results in lesser flows contributing to the recirculation pump house head tanks, and therefore, lower overflow flowrates.

Water was also observed during Q3 2020 overflowing from the Precipitation Plant recirculation pump house head tank and draining to the adjacent HsB Pond (Photo 7.3). This unmeasured flow also reduces the contributing flows to the precipitation plant recirculation pump and overflow. Overflow at this location has been observed intermittently since Q4 2019.

Photo 7.1 Bypass Flow at Hooligan Pond Weir

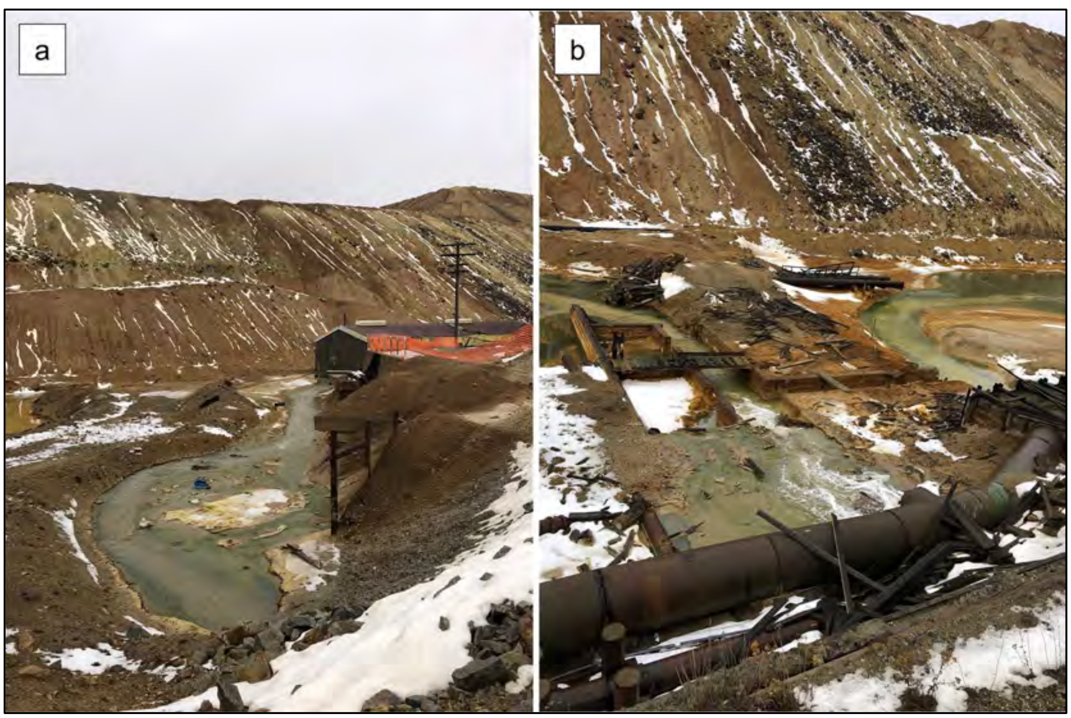

Photo 7.2 Bypass Flow Discharging into HsB Pond at Locations A and B

Photo 7.3 Precipitation Plant Recirculation Pump House. Water is overflowing from the head tank under the stairs.

8.0 WED EXTRACTION POND DEWATERING SYSTEM

The WED and several other seepage control features have been included in the West Embankment to maintain hydrodynamic containment of the YDTI seepage as the supernatant pond elevation rises above the groundwater elevation at the Potentiometric Low. Hydrodynamic containment will be achieved by keeping piezometric elevations along the west side of the YDTI below the Potentiometric Low in the West Ridge to preclude migration of seepage across the ridgeline.

The Extraction Pond forms the gravity outlet of the WED. The Extraction Pond Dewatering System, which includes a floating barge and pump system, began operating on November 20, 2019. The Extraction Pond Dewatering System returns water collected in the WED to the YDTI via a pipeline that discharges at RK-1. The flows are measured using an inline totalizing flowmeter. When operating correctly, the recorded flowrates have typically been between 175 gpm to 600 gpm since the system was commissioned.

The average daily flowrate for the Extraction Pond Dewatering System in Q3 2020 is shown on Figure 8.1. The average flowrate during this period was approximately 350 gpm, which is comparable to the average flowrate since the commissioning of the system. Two instances of unusual flows occurred during Q3 2020, both instances were associated with maintenance or relocation of the Extraction Pond discharge pipeline.

The average weekly flowrate of the Extraction Pond Dewatering System since it began operating on November 20, 2019 is shown on Figure 8.2. A longer period of data collection is required before any trends or seasonal changes can be determined. A period of erroneous data was recorded in March and April 2020 due to the pumps cycling on and off. Data from this period is excluded from Extraction Pond Dewatering System flow analysis.

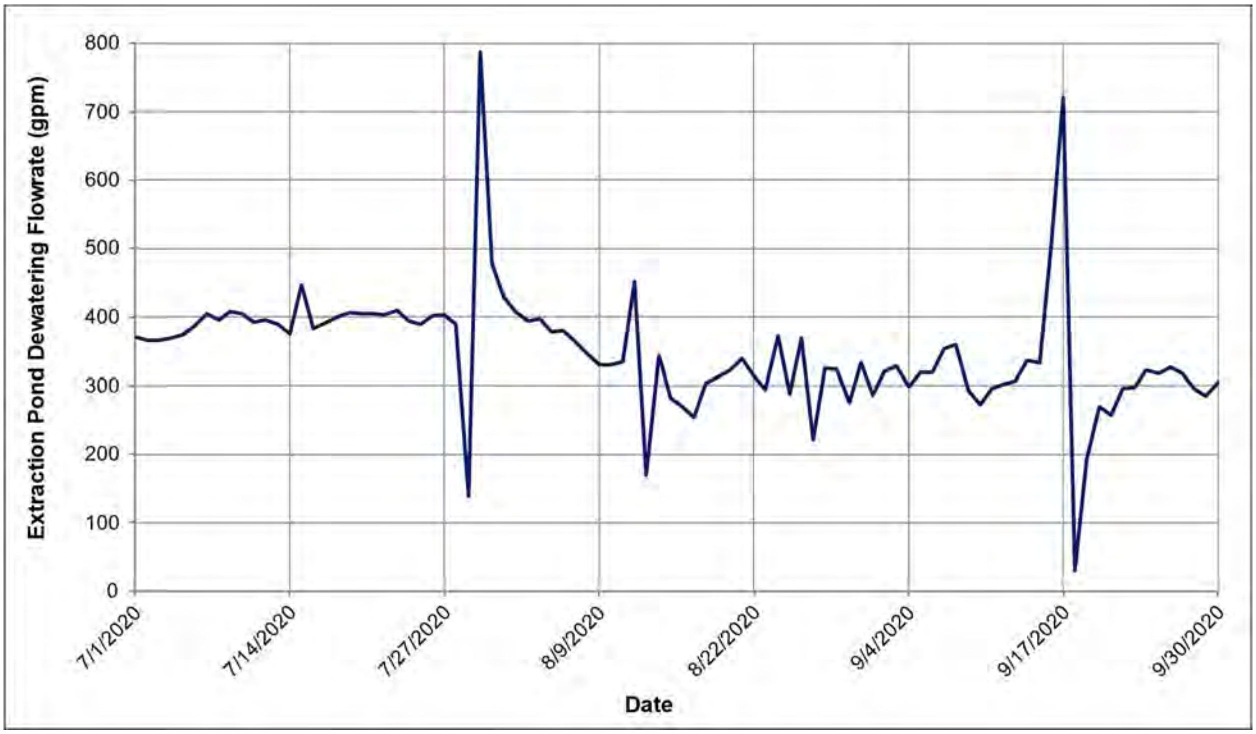

Figure 8.1 Extraction Pond Dewatering System Daily Flowrate (Q3 2020)

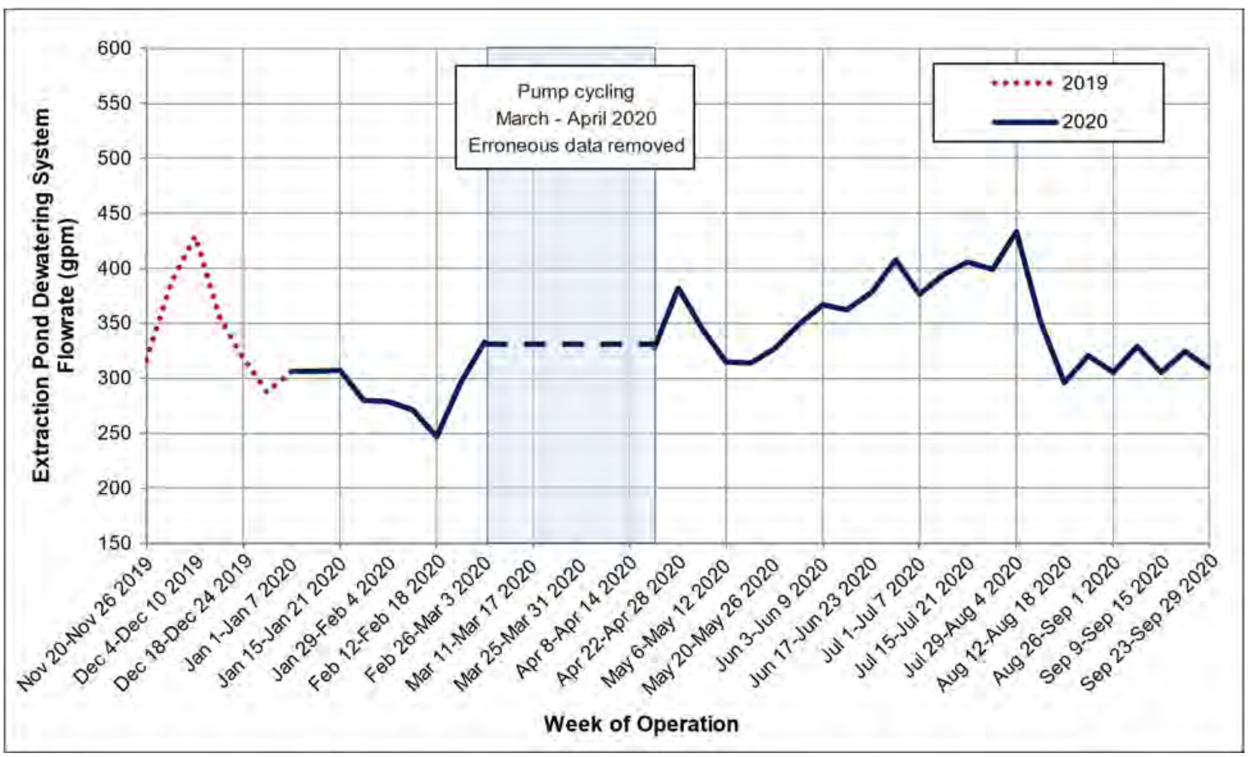

Figure 8.2 Extraction Pond Dewatering System Weekly Flowrate

9.0 CONCLUSIONS

The following observations were derived from the analysis of the Q3 2020 YDTI water data records:

- The YDTI supernatant pond elevation decreased by approximately 2 ft. This is mainly attributed to the operation of the BMFOU Pilot Project, which resulted in a net deficit of 219 million gallons (670 ac-ft) of water in Q3 2020.
- The YDTI supernatant pond volume was estimated to be 32,100 ac-ft from bathymetric data in July 2020. This corresponds to a 2,300 ac-ft (7%) decrease compared to the pond volume in July 2019.
- The YDTI supernatant pond area was estimated to be 610 acres from the bathymetric data in July 2020. This corresponds to a 160 acre (21%) decrease compared to the pond area in July 2019.
- SLWS flows averaged approximately 1 Mgpd in Q3 2020. This is similar to the average Q3 flowrates for the previous three years.
- HsB Weir flowrates were steady throughout Q3 2020, averaging approximately 2,790 gpm. This is 370 gpm (12%) lower than the Q3 average over the previous three years.
- Seep 10 flowrates in Q3 2020 were similar to those recorded in Q3 2019, averaging approximately 130 gpm. The monthly Seep 10 flowrate trends observed in 2019 and 2020 since installation of ultrasonic lookdown level sensor to automatically measure the stilling pond level near the weir include lower flowrates at the beginning of the year and increasing flows during Q2, which reach a peak throughout late Q2 and Q3.
- Extraction Pond Dewatering System flowrates averaged approximately 350 gpm in Q3 2020, which is comparable to the average flowrates since the implementation of the system.

We trust that this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared:

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Junior Engineer

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Reviewed:

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Principal

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

Attachments:

Figure A.1 Rev 0 Tailings Beach Assessment – July 28, 2020
Figure A.2 Rev 0 Tailings Beach Assessment – August 27, 2020
Figure A.3 Rev 0 Tailings Beach Assessment – October 5, 2020
Photo Log

References:

Montana Resources and Knight Piésold Ltd. (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

/lc

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON JULY 28, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON JULY 27, 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16DEC'20	ISSUED WITH LETTER	LC	RSD

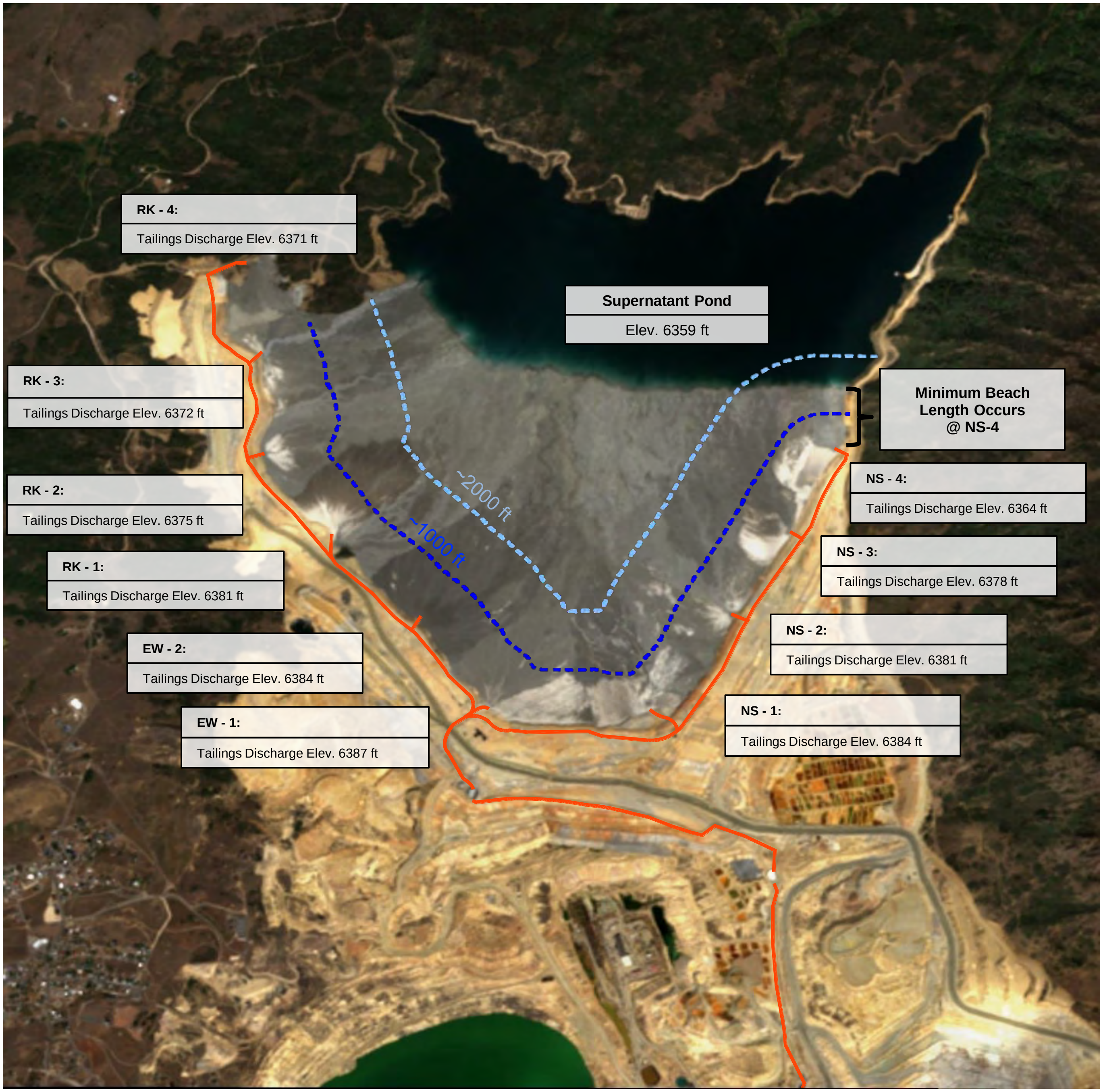
MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
JULY 28, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-02219	
FIGURE A.1		REV 0



NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON AUGUST 27, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON AUGUST 28, 2020.
3. TAILINGS DISCHARGE LOCATION NS-3 WAS RELOCATED CLOSER TO NS-2.
4. TAILINGS DISCHARGE LOCATION NS-4 WAS ADDED AT THE END OF THE NORTH-SOUTH EMBANKMENT.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16DEC'20	ISSUED WITH LETTER	LC	RSD

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
AUGUST 27, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-02219	
FIGURE A.2		REV 0

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON OCTOBER 5, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON OCTOBER 7, 2020.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
OCTOBER 5, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02219

FIGURE A.3 REV 0

0	16DEC'20	ISSUED WITH LETTER	LC	RSD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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Q3 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 1 – Sep 16, 2020 – Flow through HsB Weir.

PHOTO 2 – Sep 16, 2020 – Seep 10 Stilling Pond.

Q3 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 3 – Sep 16, 2020 – Seep 10 Weir and Staff Gauge.

PHOTO 4 – Sep 16, 2020 – Seep 10 Staff Gauge reading slightly below 0.4.

Q3 2020 – YDTI QUARTERLY WATER DATA SUMMARY
PHOTO LOG

PHOTO 5 – Oct 30, 2020 – Precipitation Plant Recirculation Pump House. Water is overflowing from the head tank under the stairs.

PHOTO 6 – Oct 15, 2020 – Precipitation Plant Recirculation Pump House head tank water level. Water is approximately 1 ft below the top of the concrete separators.

PHOTO 7 – Oct 30, 2020 – Flow through Precipitation Plant overflow weir.

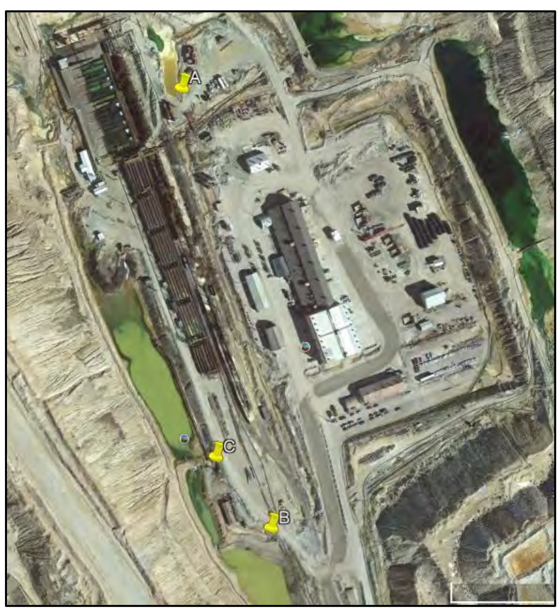

PHOTO 8 – Relevant locations regarding Hooligan Pond bypassing flows. A) Hooligan Pond; B) first discharge location; C) second discharge location.

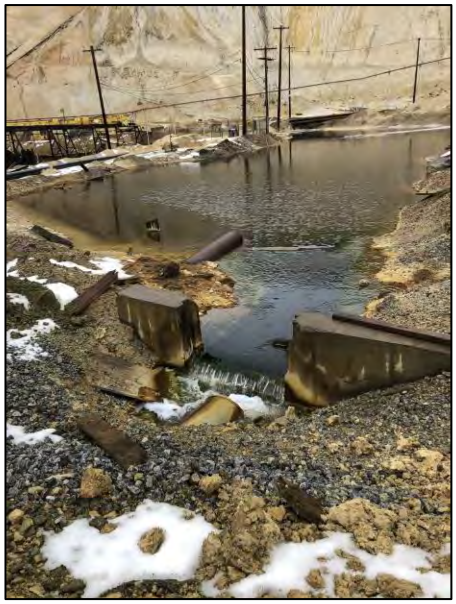

PHOTO 9 – Nov 18, 2020 – Hooligan Pond bypassing flows location A: Hooligan Pond and bypassing flow through weir.

PHOTO 10 – Nov 18, 2020 – Hooligan Pond bypassing flows location A: close-up of flow bypassing through weir.

Q3 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 11 – Nov 18, 2020 – Hooligan Pond bypassing flows location B: flow at first discharge location in HsB Pond area.

PHOTO 12 – Nov 18, 2020 – Hooligan Pond bypassing flows location B: flow at second discharge location in HsB Pond area.

Q3 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 13 – Sep 16, 2020 – WED Extraction Pond and Dewatering System.

May 28, 2020

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: Q1 2020 – YDTI Quarterly Water Data Summary

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored in the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment enclosed by a rockfill embankment. MR's operational surveillance plan for the impoundment, as described in the TOMS Manual (MR/KP, 2020), requires routine monitoring of the supernatant pond elevation and flowrates at several water management locations. Supernatant pond data and flow records are submitted to Knight Piésold Ltd. (KP) approximately quarterly, and these records are reviewed to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections of the impoundment.

A new water management strategy, the Berkeley Pit Pilot Project (the Pilot Project), was implemented in late-2019 as part of the Superfund Butte Mine Flooding Operable Unit (BMFOU) activities on site. The Pilot Project facilitates treatment and introduction of approximately 3 million gallons per day (MGPD) of Berkeley Pit to the site water management system and treatment and release of up to 10 MGPD of water from the YDTI. The Pilot Project consists of three water management systems: the Berkeley Pit Pumping System (BPPS), the Horseshoe Bend Capture System (HsBCS), and the Polishing Plant. The treated water is released into Silver Bow Creek via the Polishing Plant. The off-site discharge of water from the Polishing Plant is a BMFOU activity and is therefore outside of the direct purview of the YDTI Engineer of Record (EOR). The Polishing Plant flow data is discussed in this report due to its effects on other mine water management systems, including the YDTI pond elevation. The effects on the water management systems are discussed in the following sections.

This letter presents a summary of the MR YDTI water management data from the first quarter (Q1) of 2020, including January 1 to March 31, 2020. The purpose of this letter is to review the YDTI water management systems and identify if any operational changes are recommended. The Q1 letter includes a summary of data related to the following:

- YDTI supernatant pond elevation
- Tailings beach elevations at the discharge points
- Silver Lake Water System (SLWS) flowrates
- Horseshoe Bend (HsB) Weir flowrates
- Seep 10 flowrates
- Precipitation Plant Overflow flowrates

- West Embankment Drain (WED) Extraction Pond flowrates

2.0 YDTI TAILINGS BEACH AND SUPERNATANT POND

The YDTI supernatant pond is located on the northern side of the YDTI and is constrained by natural topography to the north and east and the tailings beach to the south and west. The elevation of the pond surface rises as the volume of tailings stored in the facility increases. The rate of rise associated with the tailings storage is typically in the range of six to seven feet per year.

Minor changes in the pond elevation also occur due to changes in the pond volume. Fluctuations in the supernatant pond volume typically occur seasonally due to precipitation/runoff, higher summer evaporation rates, variation in the SLWS flowrates, and development/melt of winter ice. The commissioning of the Pilot Project will also affect YDTI supernatant pond elevation as one objective of the project is to reduce the supernatant pond volume to approximately 15,000 acre-ft over the next three to five years. However, the Pilot Project is not entirely within MR's control due to a variety of factors and interruptions are possible that could impact the timeline. It is anticipated that the rate of rise of the pond elevation during this period will be less on average than historical conditions.

MR manually measures the YDTI supernatant pond elevation and tailings discharge elevations on a weekly basis. The two tailings discharge locations used each week are selected based on the beach survey results and other external factors, such as the climate forecast (windy days), tailings line maintenance, and small construction projects around discharge lines. The supernatant pond elevation was measured as 6,359.24 ft on March 30, 2020. The pond elevation increased by approximately 1.4 ft in Q1 2020, which is 1.0 ft (42%) less than average Q1 pond level increase measured over the previous five years. The monthly supernatant pond water elevation changes from 2015 through Q1 2020 are shown on Figure 2.1.

The lower rate of rise, particularly in January, is attributed to the Pilot Project and may have also been affected by lower than average precipitation during Q1. The BPPS was shut down from January 3 to 20; however, YDTI water was still polished and released off-site throughout January. Approximately 368 million gallons (1,130 acre-ft) of water was removed and discharged from the YDTI in Q1 and approximately 280 million gallons (860 acre-ft) of Berkeley Pit water was treated and introduced to the system during the same period. The two system flows result in a net deficit volume of approximately 88 million gallons (270 acre-ft) in Q1 2020. There was also 39% less precipitation in Q1 2020 compared with the average Q1 precipitation.

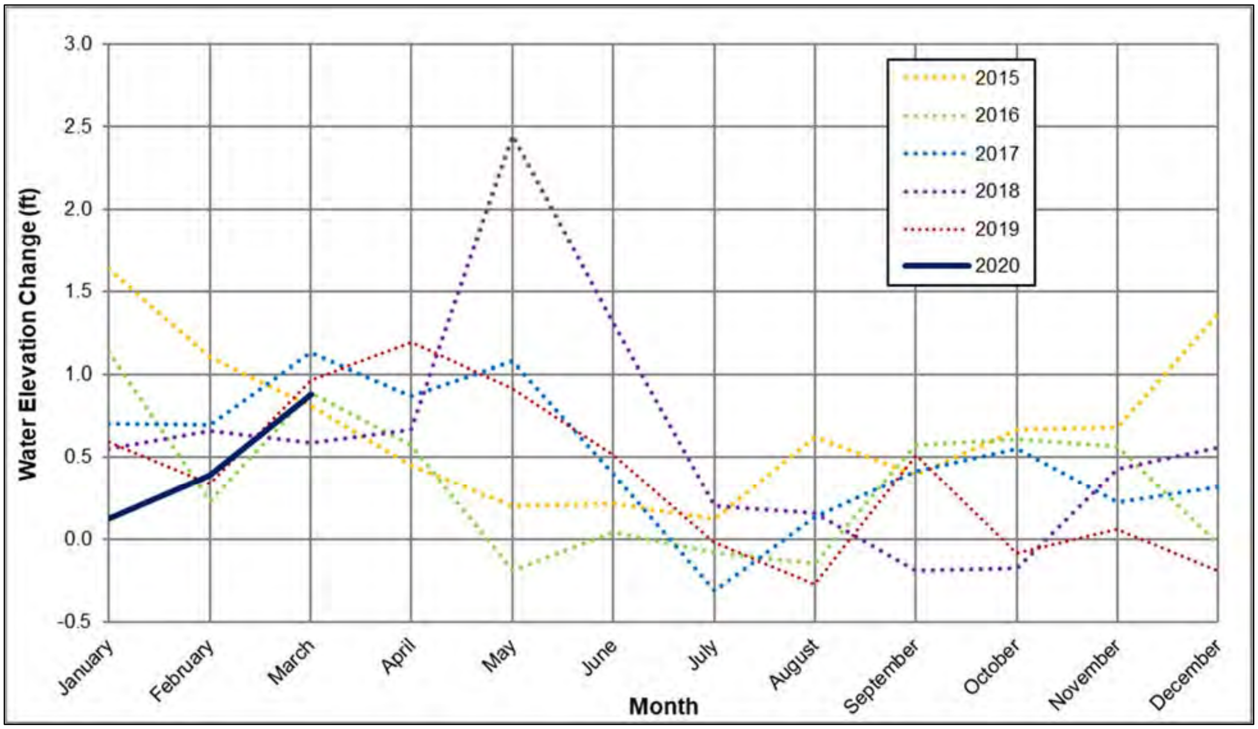

Figure 2.1 Monthly YDTI Pond Water Elevation Change

Discharge location planning continues to focus on maintaining extensive tailings beaches adjacent to all three of the embankments. Tailings discharge records indicate that tailings were distributed from all three YDTI embankments during Q1 of 2020, with six of the discharge locations being used. Tailings discharge from Line 1 along the West Embankment (RK - 1 through RK – 4) only occurred at RK–1 until March 20 due to line maintenance. The tailings beach elevations at each of the discharge locations are shown in Table 2.1 and Figure 2.2.

Table 2.1 Tailings Discharge Elevation

Discharge Location	2018			2019				2020
	Jun	Sep	Dec	Mar	Jun	Sept	Dec	Mar
EW - 1	6,370.2	6,371.0	6,371.0	6,372.1	6,372.3	6,378.5	6,381.8	6385.4
EW - 2	6,364.4	6,367.8	6,369.3	6,369.3	6,370.7	6,376.0	6,381.5	6383.0
RK - 1	6,364.0	6,365.5	6,367.4	6,370.1	6,370.9	6,373.1	6,378.2	6379.3
RK - 2	6,363.5	6,363.8	6,366.4	6,366.6	6,370.1	6,370.4	6,372.7	6372.7
RK - 3	6,355.7	6,361.8	6,361.8	6,365.8	6,367.3	6,369.1	6,371.0	6371.0
RK - 4	-	-	-	6,365.9	6,365.9	6,369.0	6,371.1	6371.1
NS - 1	6,364.0	6,365.9	6,370.1	6,372.6	6,372.6	6,379.1	6,379.8	6383.1
NS - 2	6,364.5	6,364.6	6,367.2	6,367.2	6,370.6	6,374.0	6,375.2	6375.4
NS - 3	6,360.8	6,363.4	6,363.4	6,366.6	6,367.2	6,370.2	6,374.9	6374.9

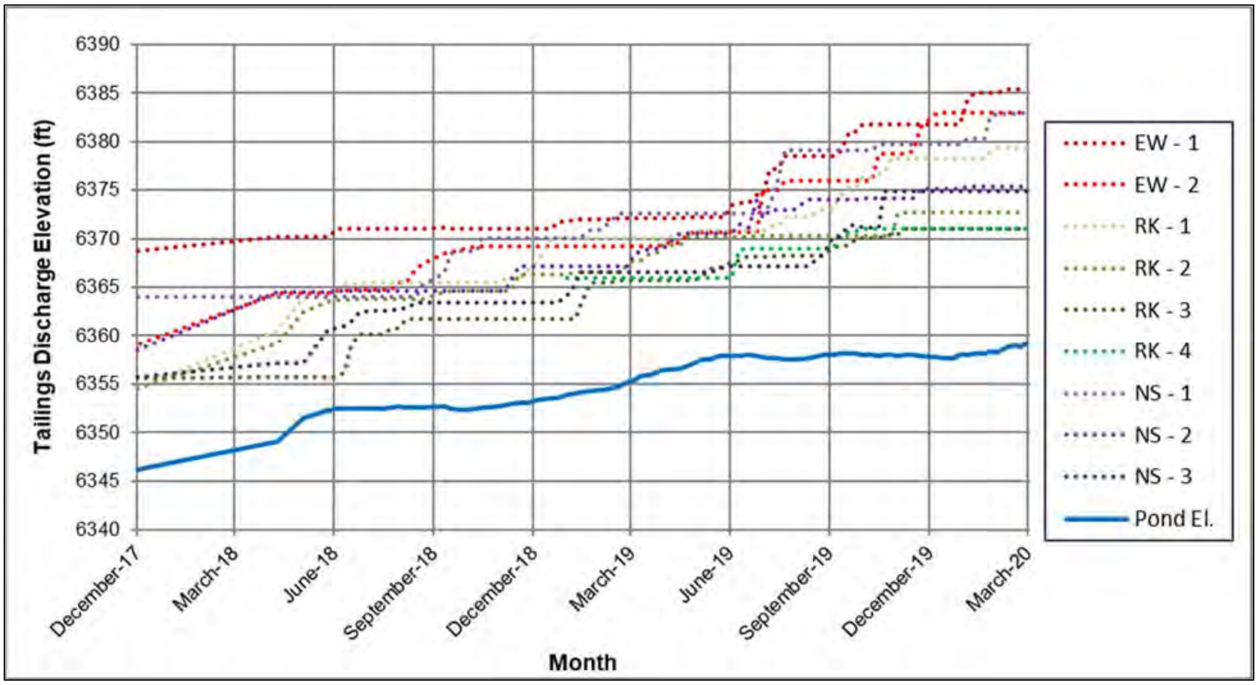

Figure 2.2 Tailings Discharge Elevation

The elevation difference between the highest (EW-1) and the lowest (RK-3) discharge elevations was approximately 14 ft at the end of Q1. This elevation differential is 3 ft greater than the differential measured in Q4 2019. The increased differential is a function of preferential use of some discharge points, primarily due to the line maintenance that occurred during Q1, which is now complete. Beach maintenance will continue along the West Embankment (RK-2 through RK-4) during Q2 now that the line maintenance is complete. The elevation difference between the lowest discharge elevation and the pond surface was approximately 12 ft at the end of Q1 2020. This is a 1 ft decrease compared to Q4 2019.

An overview of the facility observed from the Sentinel-2 satellite images from the end of January, February and March 2020 are presented in the attached figures.

3.0 SILVER LAKE WATER SUPPLY SYSTEM FLOWRATE

Water from the SLWS is used to meet both the freshwater and make-up water operational requirements. MR implemented changes to their SLWS use practices in April 2016, immediately reducing the daily make-up water flowrates by more than 50%. MR have continued to operate with reduced freshwater and make-up water demands in Q1 2020. A totalizing flowmeter was added to the SLWS, which records the flows from the SLWS used at the Polishing Plant that is then released with the effluent to Silver Bow Creek. The flows recorded by this flowmeter were excluded from MR's SLWS usage described in the paragraph below and presented on Figure 3.1.

The average Q1 2020 flowrate for the SLWS was approximately 880 gpm (1.3 Mgpd), which is 270 gpm (45%) greater than the average flowrate recorded since mid-2017. The increase is due to approximately 30 million gallons of Silver Lake Water being used to mitigate two YDTI dusting events, which occurred from January 3 to 6 and March 3 to 4. The average Q1 SLWS usage was 625 gpm (0.9 Mgpd) excluding these dusting event flows, which is consistent with the objective of maintaining freshwater use below approximately 1 MGPD. The average monthly SLWS flowrates from 2014 through Q1 2020 are presented on Figure 3.1.

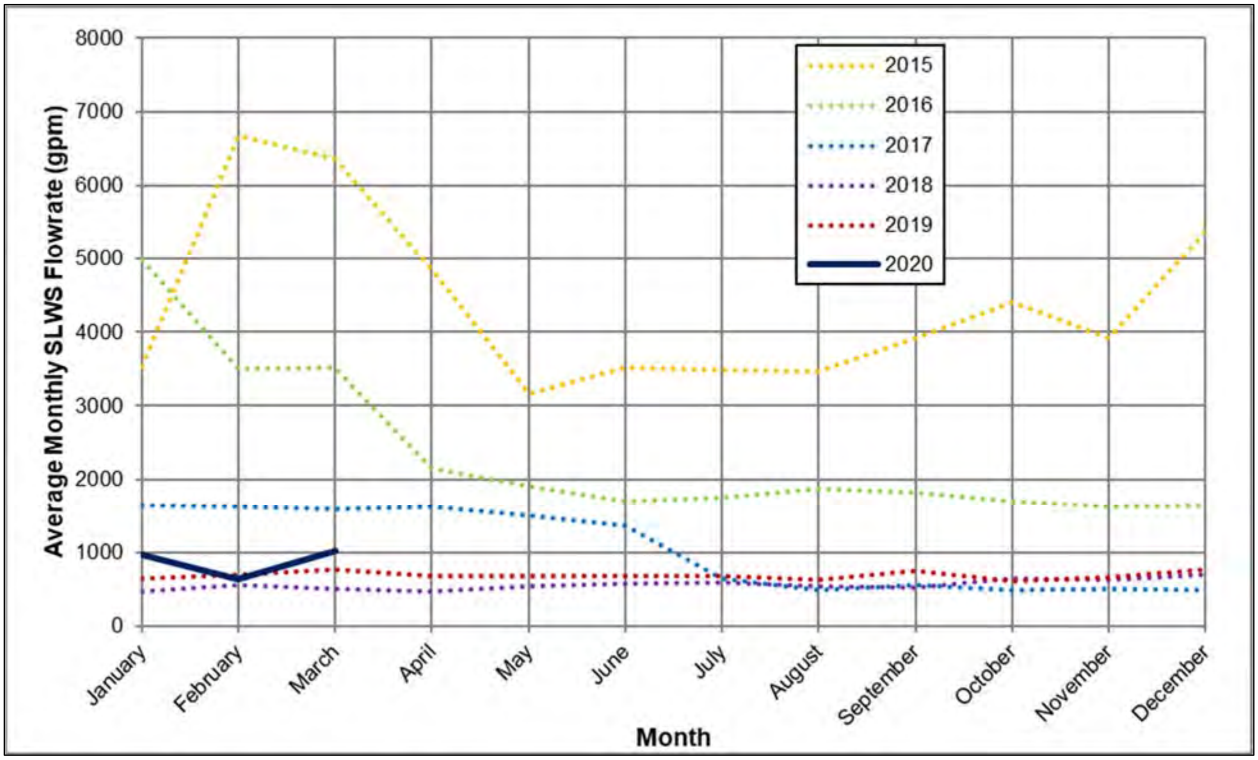

Figure 3.1 Average Monthly SLWS Flowrate

4.0 YDTI SEEPAGE: HSB WEIR FLOWRATE

Seepage from the YDTI flows south through the HsB area and joins with Precipitation Plant overflow discharge and localized surface runoff in the HsB Pond before passing over the HsB Weir. The HsB Weir incorporates a weir plate and level meter near the south end of the pond where flows are recorded at 15-minute intervals.

The average flowrate in Q1 2020 was 2,880 gpm (4.2 Mgpd), which is similar to the flows observed at this location during Q1 over the previous 3 years. The average monthly HsB Weir flowrates from 2015 through Q1 2020 are presented on Figure 4.1.

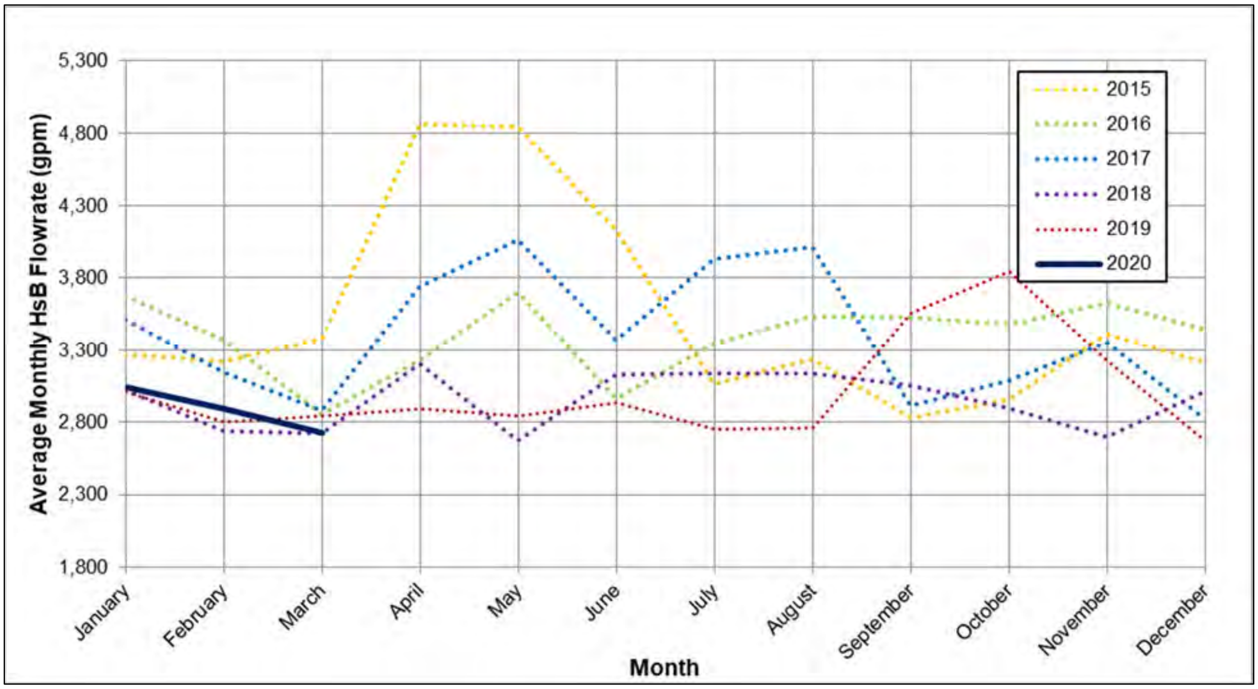

Figure 4.1 Average Monthly HsB Flowrate

5.0 YDTI SEEPAGE: SEEP 10 FLOWRATE

Several smaller seeps, known as the Number 10 Seep (Seep 10), daylight on a bench above the HsB Seep area approximately 250 ft higher than the downstream toe of the embankment. These localized flows have been attributed to a historical service corridor that conveys some tailings seepage as perched flows through the embankment to Seep 10. Seepage discharge at Seep 10 began in approximately 1989 and flow measurement began in 1991. An underdrain was installed in mid-2012 to capture the flows along the top of the EL. 5,900 lift and conveys the seepage to a small surface pond before being routed to the HsB seepage collection area via a pipe.

The Seep 10 flows were historically calculated using a calibrated V-notch weir and manual staff gauge readings near the weir at the outlet of the pond. An ultrasonic lookdown level sensor was installed in April 2019 to automatically measure the stilling pond level near the weir and was also connected to the Remote Monitoring System (RMS) using a Sensemetrics ThreadX device on April 30, 2019.

The average flowrate measured at Seep 10 was approximately 71 gpm in Q1 2020. This flowrate is 52 gpm (43%) lower than the average Q1 Seep 10 flows measured in the previous two years, which is consistent with the decreasing trend observed at Seep 10 since mid-2017. The decreasing trend is attributed to changes to the tailings discharge practices in the YDTI since implementation of the multiple discharge point system. The updated deposition strategy is inferred to have resulted in desaturation within a significant portion of the central tailings mass adjacent to the East-West Embankment as compared to historical conditions. The average monthly Seep 10 flowrates from 2015 through Q1 2020 are shown on Figure 5.1.

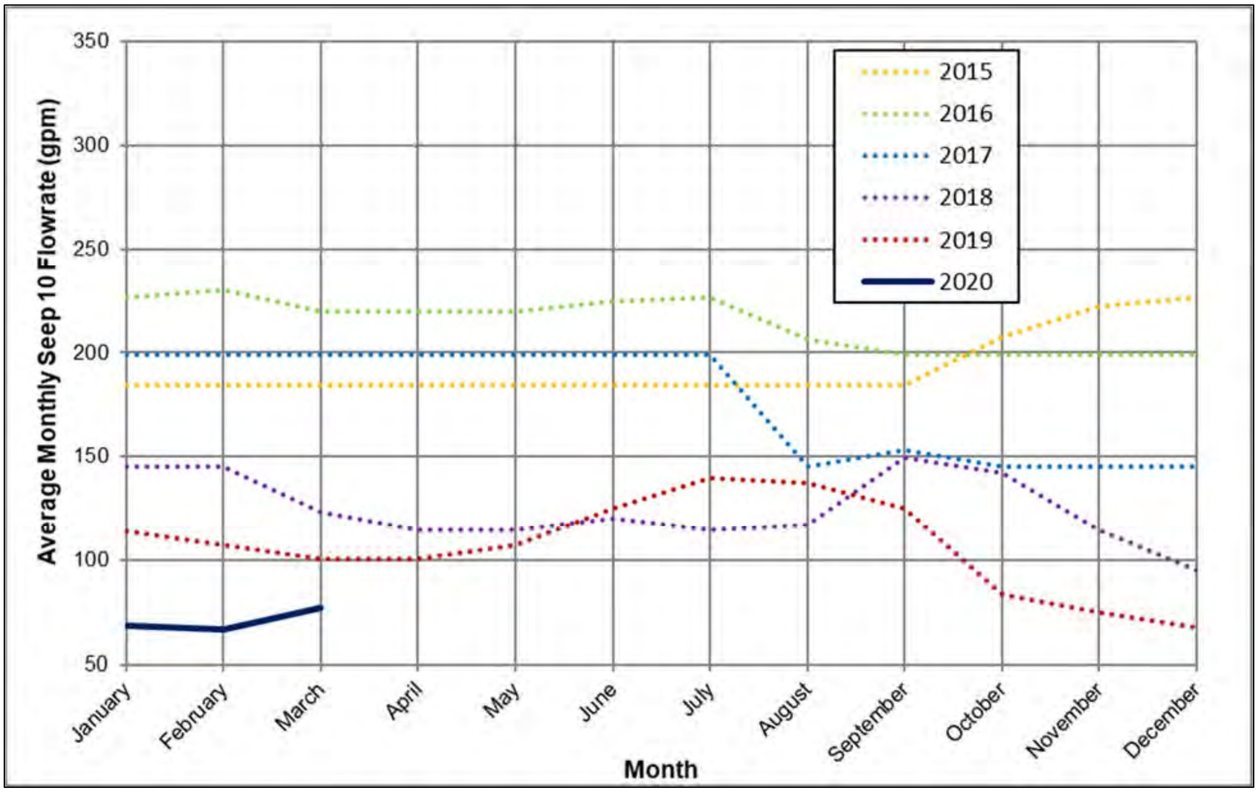

Figure 5.1 Average Monthly Flowrates at Seep 10

6.0 PRECIPITATION PLANT OVERFLOW FLOWRATE

The Precipitation Plant overflow is generated at the Precipitation Plant pump house after flows have discharged from the 'tin can' processing cells. Processed water is directed to the Precipitation Plant recirculation pumps and any flow greater than the capacity of the pumps is directed out of the system via the Precipitation Plant overflow pipeline into the HsB Pond.

The Precipitation Plant overflow discharge rate is determined by:

- Inflows (leach water, seepage and precipitation)
- Outflows (the recirculation pump station flowrate)

The flow is measured using a calibrated overflow weir plate with water level measurement. Flow monitoring at this location began in 2017. Flow recording in this location can be used to provide insight into the changes in seepage flows in the different HsB areas.

The average Precipitation Plant overflow flowrate recorded during Q1 2020 was 240 gpm (0.43 Mgpd), which is 490 gpm (68%) lower than the average Q1 flowrates measured over the previous three years, and 630 gpm (0.91 Mgpd) lower than the average 2019 flowrate. Precipitation Plant overflow flowrates have been progressively decreasing since November 2019. KP is currently reviewing the overflow data and the data of the associated upstream and downstream flow monitoring locations to further evaluate the downward trend in the rate of overflow.

The average monthly Precipitation Plant overflow flowrate from 2017 to Q1 2020 is shown on Figure 6.1.

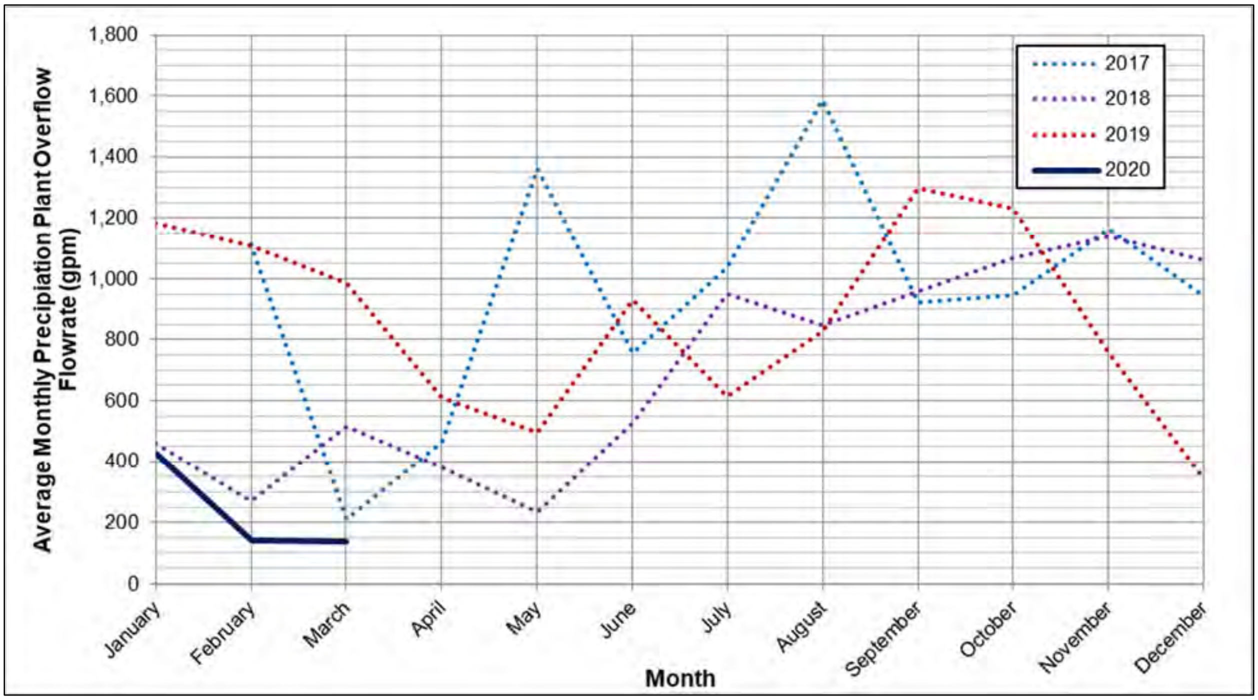

Figure 6.1 Average Monthly Precipitation Plant Overflow Flowrate

7.0 WEST EMBANKMENT DRAIN EXTRACTION POND DEWATERING

The West Embankment Drain (WED) and several other seepage control features have been included in the West Embankment to maintain hydrodynamic containment of YDTI seepage as the supernatant pond elevation rises above the groundwater elevation at the Potentiometric Low. Hydrodynamic containment will be achieved by keeping piezometric elevations along the west side of the YDTI below the Potentiometric Low in the West Ridge in order to preclude migration of seepage across the ridgeline.

The Extraction Pond forms the gravity outlet of the WED. The Extraction Pond Dewatering System, which includes a floating barge and pump system, began operating on November 20, 2019. The Extraction Pond Dewatering System returns water collected in the WED to the YDTI via a pipeline that discharges at RK-1. The flows are measured using an inline totalizing flowmeter.

MR identified recording issues in March 2020 with the inline flowmeter. The issues were associated with the pumps cycling on and off when there were very low flows. The flowmeter recorded water filling the discharge pipe during the 'on' cycle, however when the pump switched off, the pipeline drained back into the extraction basin. This same water was then double counted during the next 'on' cycle. MR fixed this issue in April by adjusting the variable frequency in the pumps to reduce cycling and double counting of flows. The March data is therefore excluded in the flow analysis for the system.

The average flowrate recorded at the Extraction Pond Dewatering pump system during January through February 2020 was 290 gpm (0.41 Mgpd), this flowrate is similar to those recorded in Q4 2019 when the system started operating. The average daily flowrate for the Extraction Pond Dewatering System from November 19, 2019 to Q1 2020 is shown on Figure 7.1. A longer data record is required to identify any trends or seasonal changes.

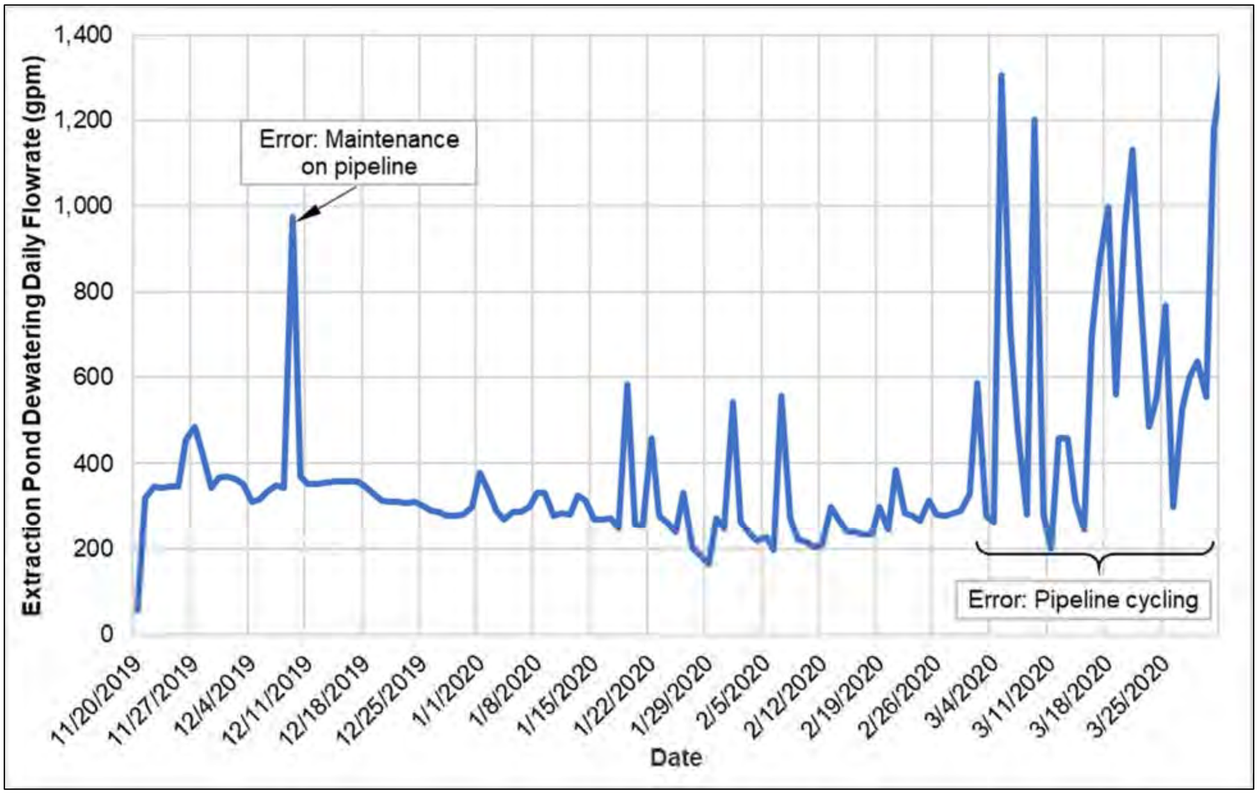

Figure 7.1 Average Daily Extraction Pond Dewatering System Flowrate

8.0 CONCLUSION

The following observation were derived from the analysis of the Q1 2020 YDTI water data records.

- The YDTI supernatant pond elevation rose at a slower rate of rise than recorded in the previous five years. This is largely attributed to the operation of the BMFOU Pilot Project that produced a net deficit of 88 million gallons (270 acre-ft) of water in Q1 2020 and the lower than average precipitation during Q1.
- The average Q1 2020 flowrate for the SLWS was approximately 880 gpm (1.3 Mgpd). The increased flow of water was due to two tailings dusting events during Q1. MR's SLWS usage was in line with the objective of maintaining SLWS flowrates below 1 MGPD, when excluding the water used to mitigate the potential dusting events.
- Flowrates at Seep 10 have remained lower than flowrates recorded in previous years.
- The average Q1 2020 flowrate for the HsB Weir was approximately 2,880 gpm (4.2 Mgpd), which is comparable to the average Q1 flowrate recorded over the previous three years.
- The average flowrate recorded at the Extraction Pond Dewatering pump system during January through February 2020 was 290 gpm (0.41 Mgpd), which is consistent with flows recorded since the system was commissioned in November 2019.

We trust that this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared: ______________________
Kristof Schlagintweit, E.I.T.
Junior Engineer

MONTANA
2020-05-28
DANIEL DYLAN FONTAINE
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Reviewed: ______________________
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2020-05-28

Reviewed: ______________________
Ken Brouwer, P.E.
Principal

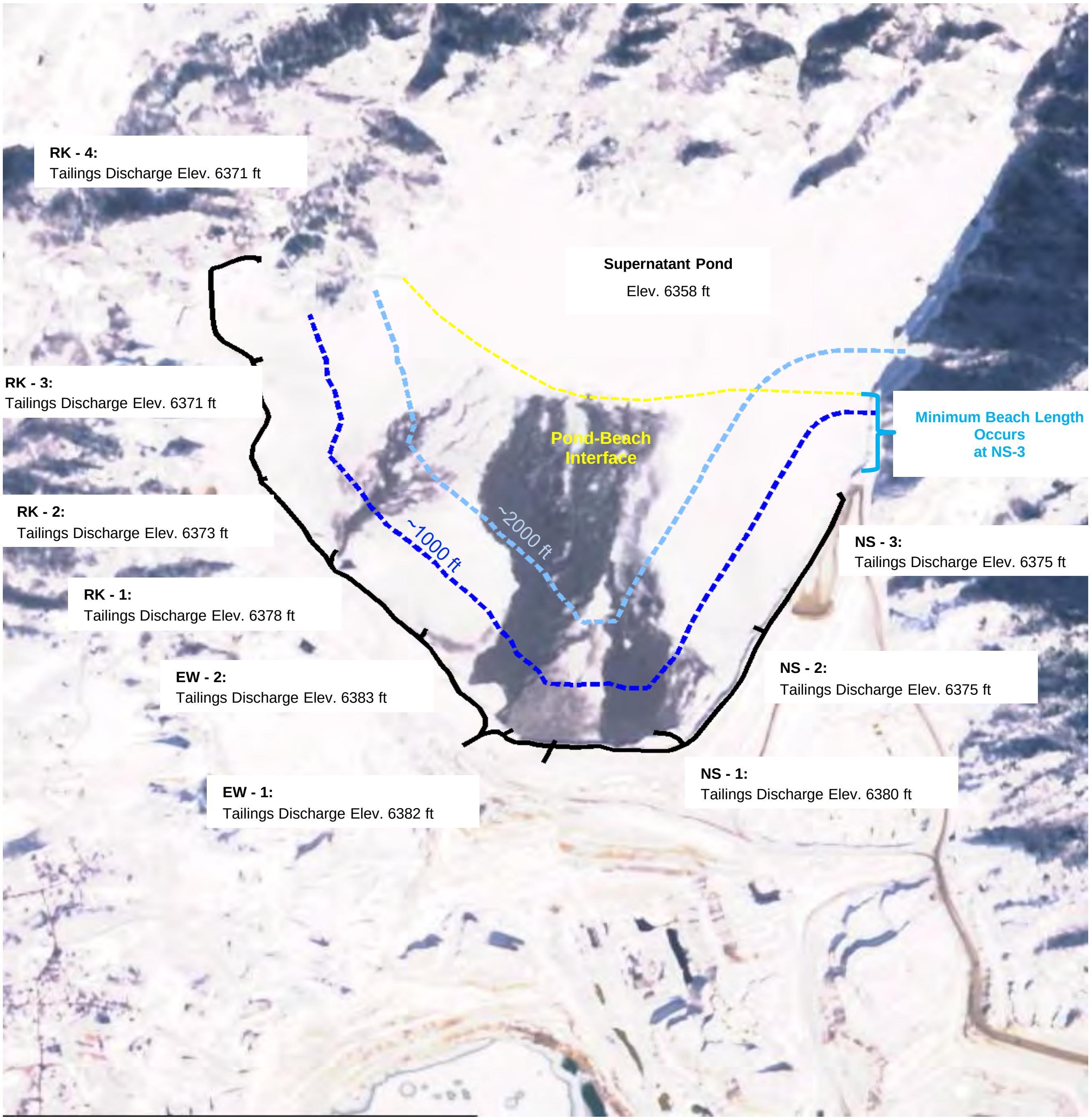
Approval that this document adheres to the Knight Piésold Quality System: KJB

Attachments:

Figure A.1 Rev 0	Sentinel Tailings Beach Assessment – January 19, 2020
Figure A.2 Rev 0	Sentinel Tailings Beach Assessment – February 20, 2020
Figure A.3 Rev 0	Sentinel Tailings Beach Assessment – April 5, 2020

References:

Montana Resources and Knight Piésold Ltd. (MR/KP, 2019). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 3, dated January 2019.



NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS ARE RELATIVE TO ANACONDA DATUM AS RECORDED ON JANUARY 23, 2020.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE FROM JANUARY 19, 2020 IS SHOWN.
3. 1000 ft AND 2000 ft DOTTED CONTOUR LINES SHOWN ARE DISTANCE FROM THE 2019 EMBANKMENT CREST/SURCHARGE LOCATION.

MONTANA RESOURCES, LLP.

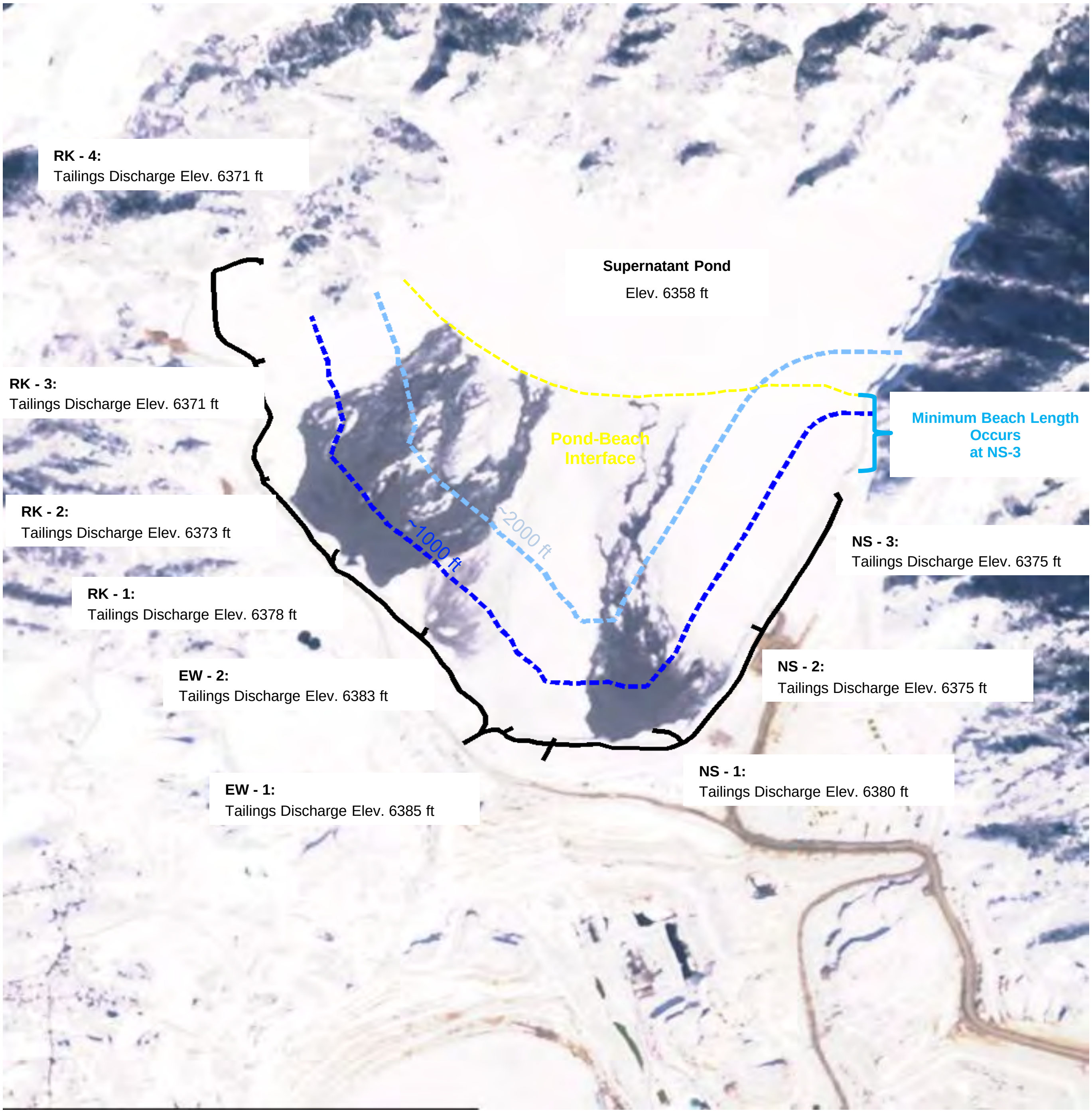
YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL TAILINGS BEACH ASSESSMENT
JANUARY 19, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-00652	
FIGURE A.1		REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27MAY'20	ISSUED WITH LETTER	KS1	DDF



NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS ARE RELATIVE TO ANACONDA DATUM AS RECORDED ON FEBRUARY 20, 2020.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE FROM FEBRUARY 20, 2020 IS SHOWN.
3. 1000 ft AND 2000 ft DOTTED CONTOUR LINES SHOWN ARE DISTANCE FROM THE 2019 EMBANKMENT CREST/SURCHARGE LOCATION.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL TAILINGS BEACH ASSESSMENT FEBRUARY 20, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	REV
VA101-126/23	VA20-00652	0

FIGURE A.2

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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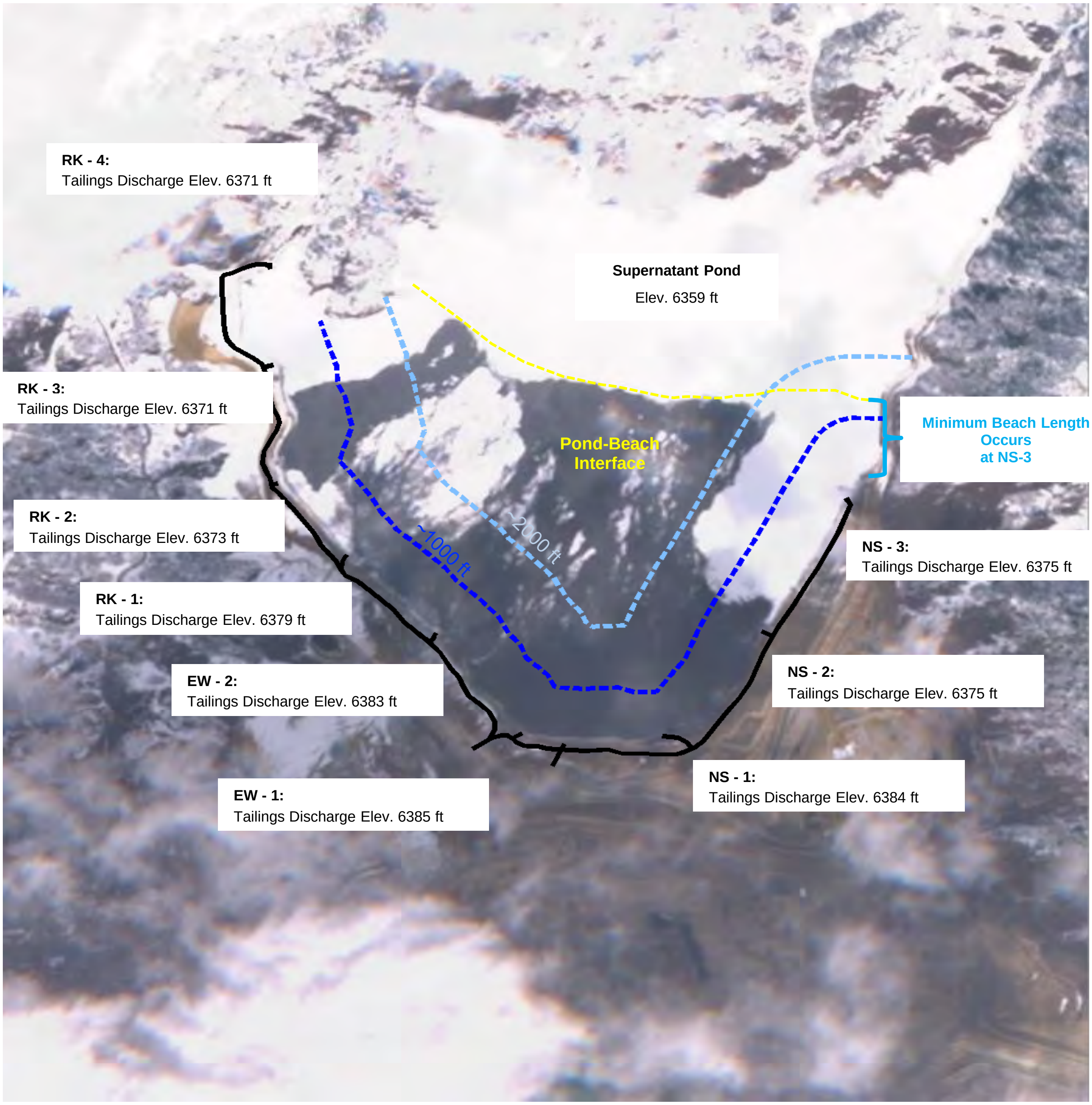

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS ARE RELATIVE TO ANACONDA DATUM AS RECORDED ON MARCH 24, 2020.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE FROM APRIL 5, 2020 IS SHOWN.
3. 1000 ft AND 2000 ft DOTTED CONTOUR LINES SHOWN ARE DISTANCE FROM THE 2019 EMBANKMENT CREST/SURCHARGE LOCATION.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL TAILINGS BEACH ASSESSMENT
APRIL 5, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00652

FIGURE A.3 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	27MAY'20	ISSUED WITH LETTER	KS1	DDF

Knight Piésold CONSULTING

October 8, 2020

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
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USA, 59701

Dear Mark,

RE: Q2 2020 – YDTI Quarterly Water Data Summary

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored in the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment enclosed by a rockfill embankment. MR's operational surveillance plan for the impoundment, as described in the TOMS Manual (MR/KP, 2020), requires routine monitoring of the supernatant pond elevation and flowrates at several water management locations. Supernatant pond data and flow records are submitted to Knight Piésold Ltd. (KP) approximately quarterly, and these records are reviewed to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections of the impoundment.

This letter presents a summary of the MR YDTI water management data from the second quarter (Q2) of 2020, including April 1 to June 30, 2020. The purpose of this letter is to review the YDTI water management systems and identify if any operational changes are recommended. The Q2 letter includes a summary of data related to the following:

- YDTI supernatant pond elevation
- Tailings beach elevations at the discharge points
- Silver Lake Water System (SLWS) flowrates
- Horseshoe Bend (HsB) Weir flowrates
- Seep 10 flowrates
- Precipitation Plant Overflow flowrates
- West Embankment Drain (WED) Extraction Pond flowrates

2.0 YDTI SUPERNATANT POND

The YDTI supernatant pond is located on the northern side of the YDTI and is constrained by natural topography to the north and east and the tailings beach to the south and west. The elevation of the pond surface rises as the volume of tailings stored in the facility increases. Minor changes in pond elevation also occur due to changes in pond volume.

The rate of rise associated with the tailings storage was historically in the range of six to seven feet per year. The YDTI pond elevation rate of rise is anticipated to be significantly lower in 2020 due to the commissioning of the Berkeley Pit Pilot Project (the Pilot Project) in late-2019. The Pilot Project was constructed as part of the Superfund Butte Mine Flooding Operable Unit (BMFOU) activities on site and introduces a new water management strategy. The Pilot Project will affect YDTI supernatant pond elevation as one objective of the project is to reduce the supernatant pond volume to approximately 15,000 acre-ft over the next three to five years. A detailed description of the system is presented in the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020).

MR manually measures the YDTI supernatant pond elevation and tailings discharge elevations on a weekly basis. The two tailings discharge locations used each week are then selected based on the beach survey results and other external factors, such as the wind forecast, tailings line maintenance, and embankment construction projects around the discharge lines.

The pond elevation increased by approximately 1.3 ft in Q2 2020, which is 1.8 ft less than the average Q2 pond level increase measured over the previous three years. The last pond water elevation recorded for this monitoring period was recorded as 6360.5 ft on June 29, 2020. The monthly supernatant pond water elevation changes from 2015 to Q2 2020 are shown on Figure 2.1.

The lower rate of rise measured in Q2 is largely attributed to operation of the Pilot Project. Approximately 630 million gallons (1,930 ac-ft) of water was removed and discharged from the YDTI in Q2 and approximately 360 million gallons (1,100 ac-ft) of Berkeley Pit water was treated and introduced to the system during the same period. The two system flows result in a YDTI net deficit volume of approximately 270 million gallons (830 ac-ft) in Q2 2020. The Pilot Project has resulted in a net deficit of 458 million gallons (1,400 ac-ft) since it was commissioned in November 2019.

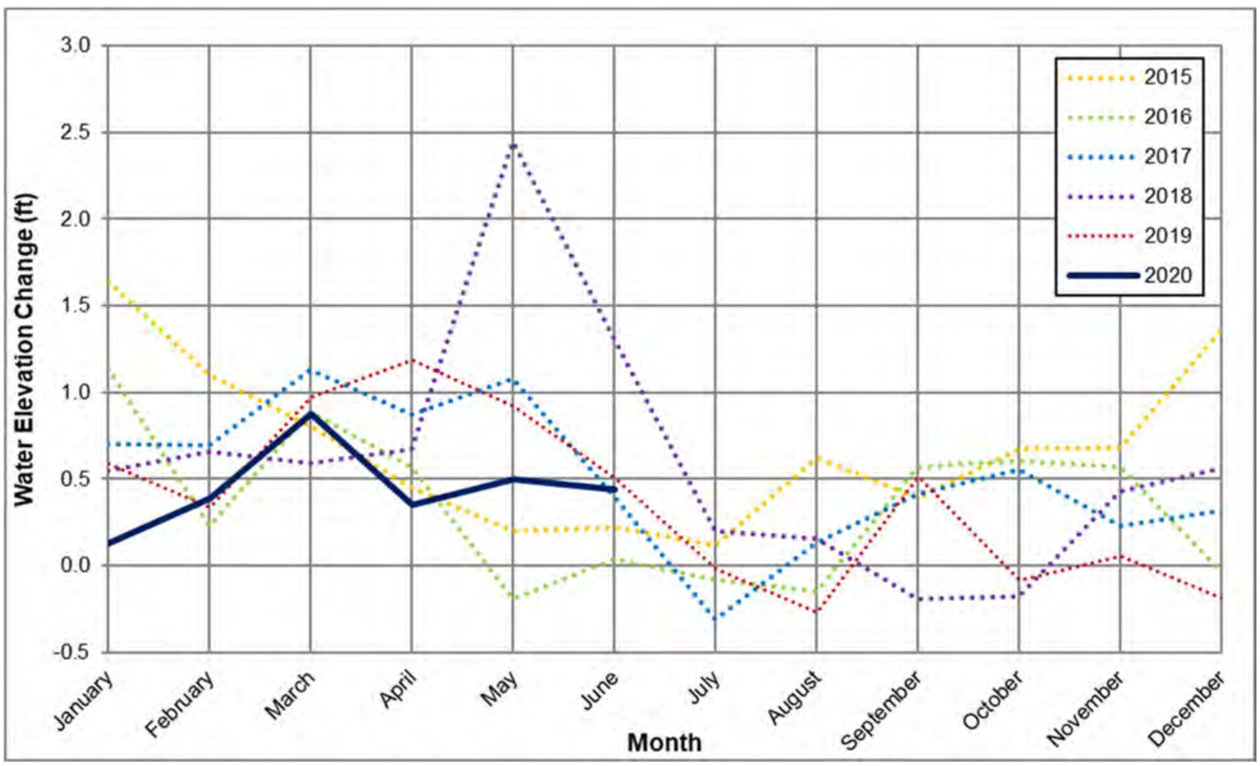

Figure 2.1 Monthly YDTI Pond Water Elevation Change

3.0 YDTI TAILINGS BEACH

Tailings discharge scheduling continues to focus on maintaining extensive tailings beaches adjacent to all three of the embankments. Tailings discharge records indicate that tailings were distributed from all three YDTI embankments during Q2 2020, with eight of the nine discharge locations being used. Tailings discharge location RK-4 was not used during Q2 2020. Figure 3.1 shows the position of the nine discharge locations.

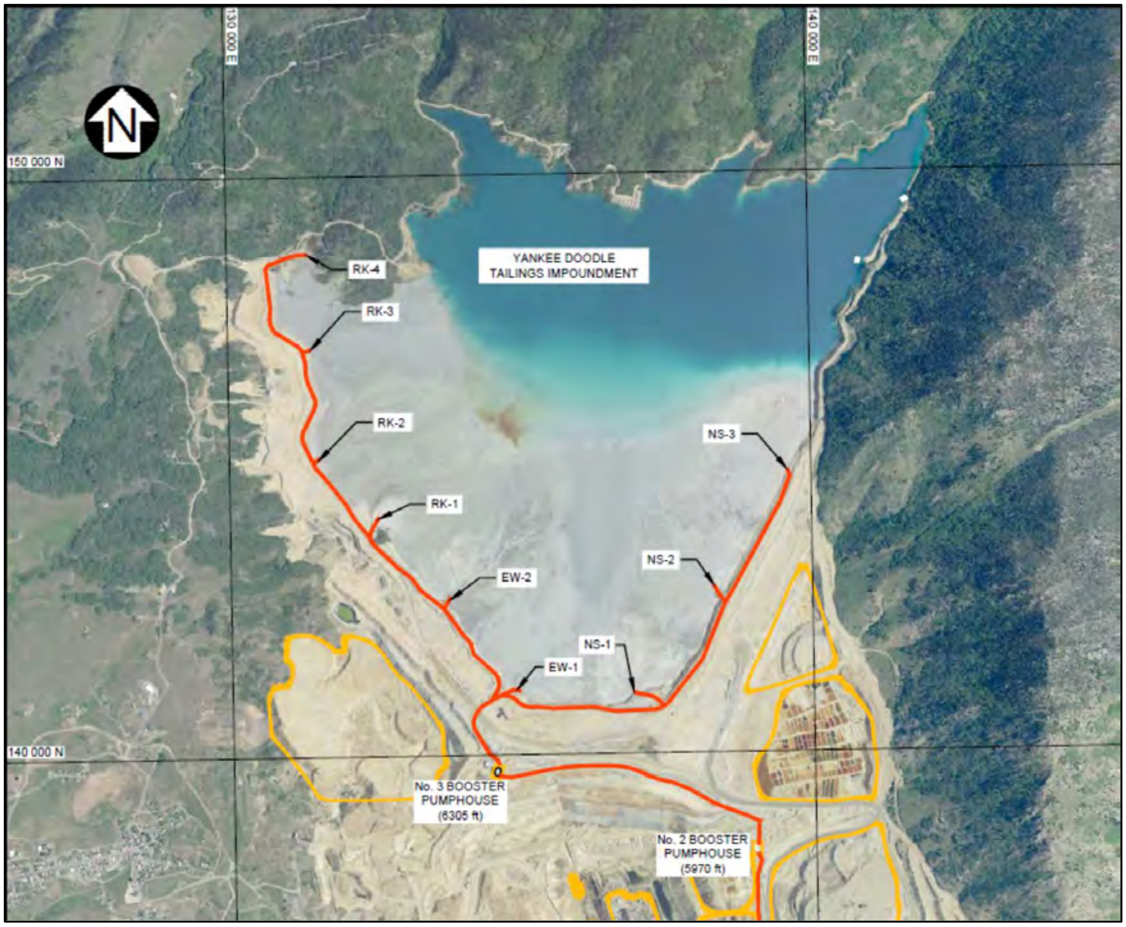

Figure 3.1 YDTI Tailings Discharge Locations

MR notified KP during Q2 that RK-3 rather than RK-4 is the preferred discharge location for development of the tailings beach adjacent to the northern end of the West Embankment due to the current beach elevation and YDTI shape. MR personnel have found that discharge from RK-4 often results in the tailings slurry flowing south adjacent to the West Embankment, which increases the likelihood of tailings drainage into the embankment. MR therefore only use RK-4 to displace ponded water near the discharge location, as necessary. The tailings beach elevations at each of the discharge locations are shown on Figure 3.2.

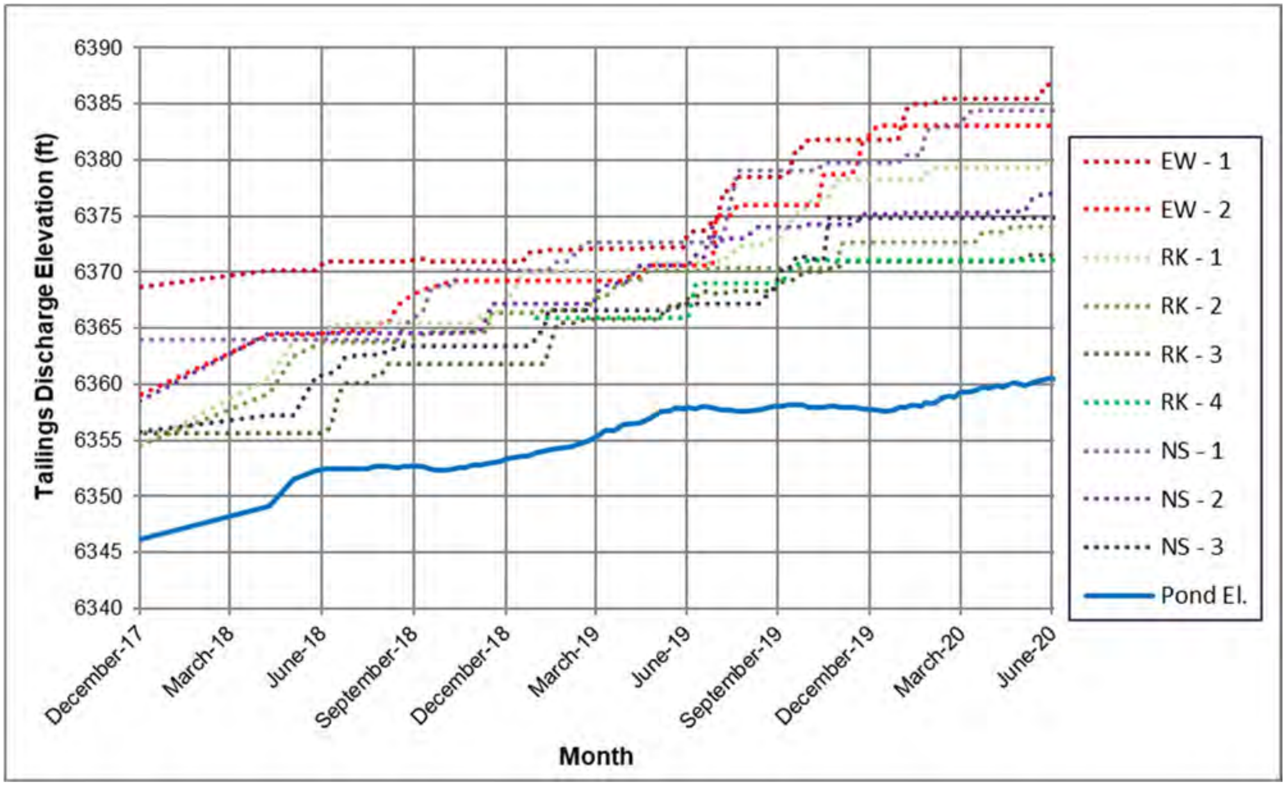

Figure 3.2 Tailings Discharge Elevation

The elevation difference between the lowest discharge elevation (RK-4) and the pond surface was approximately 11 ft at the end of Q2 2020. The lowest discharge point has been located at the northern end of the West Embankment (RK-3 or RK-4) since September 2019. The location of the lowest discharge point identifies the general area of the facility where the pond may initially contact the embankment in the event the pond elevation increases due to a large increase in pond volume (e.g. flooding).

Satellite-based imagery from the Sentinel-2 satellite is reviewed approximately twice per month to remotely observe the shape of the tailings beach and position of the supernatant pond relative to the embankments. The shortest Q2 beach length was observed at the northern end of the N-S Embankment in late June and estimated to be approximately 1,200 ft. An overview of the facility observed from the Sentinel-2 satellite images from the end of April, May, and June 2020 are presented in the attached figures.

4.0 SILVER LAKE WATER SUPPLY SYSTEM FLOWRATE

Water from the SLWS is used to meet both the freshwater and make-up water operational requirements. MR implemented changes to their SLWS use practices in April 2016, immediately reducing the daily make-up water flowrates by more than 50%. MR have continued to operate with reduced freshwater and make-up water demands in Q2 2020.

The average flowrate for the SLWS during April was approximately 1,100 gpm (1.6 Mgpd). The higher than usual flows were due to two events where Silver Lake water was used in the Concentrator in place of YDTI reclaim water during maintenance on the Return Line. The average flowrate for SLWS during May and June was 0.9 Mgpd. This flowrate is consistent with MR's objective of maintaining freshwater use below approximately 1 Mgpd. The value includes approximately 4M gallons of additional water that were imported on May 28 to mitigate a YDTI dusting event. The average monthly SLWS flowrates from 2014 through Q2 2020 are presented on Figure 4.1.

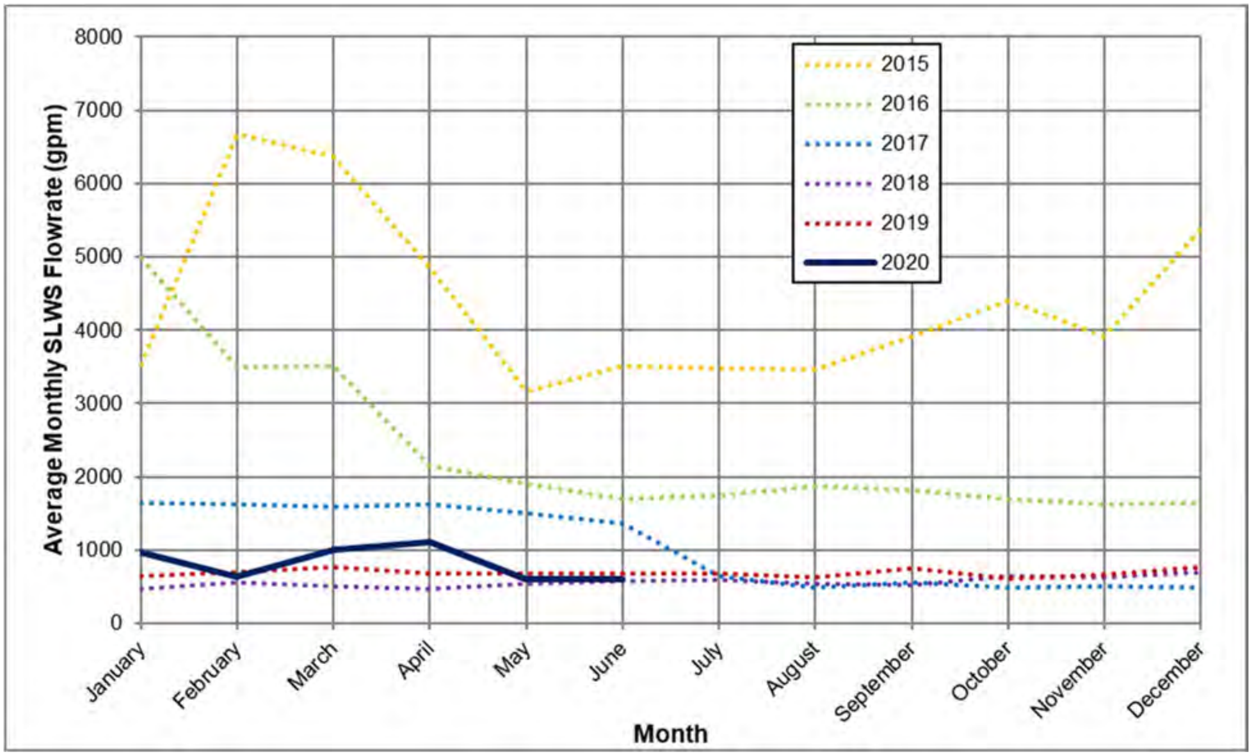

Figure 4.1 Average Monthly SLWS Flowrate

5.0 YDTI SEEPAGE: HSB WEIR FLOWRATE

Seepage from the YDTI flows south through the HsB area and joins with Precipitation Plant overflow discharge and localized surface runoff in the HsB Pond before passing over the HsB Weir. The HsB Weir incorporates a weir plate and level meter near the south end of the pond where flows are recorded at 15-minute intervals.

The average HsB flowrate during April and May was approximately 2450 gpm, which is 500 gpm (17%) lower than the average flows measured during this period over the previous three years. The HsB flowrates typically record higher values in April or May associated with the spring freshet and seasonal increase of precipitation during Q2. The April and May flows in 2020 however were lower than usual due to a delayed freshet and a dry April and May. Review of the climate data identified that precipitation during April and May was 50% lower and the April average temperature approximately 1.5 degrees cooler than the average values from the three years prior.

The HsB flowrates increased during June 2020 to 3,250 gpm, which is slightly greater (4%) than the average flowrates recorded over June for the previous three years. The increase in flows can be attributed to the delayed freshet and a wetter than usual June. The average monthly HsB Weir flowrates from 2015 through Q2 2020 are presented on Figure 5.1.

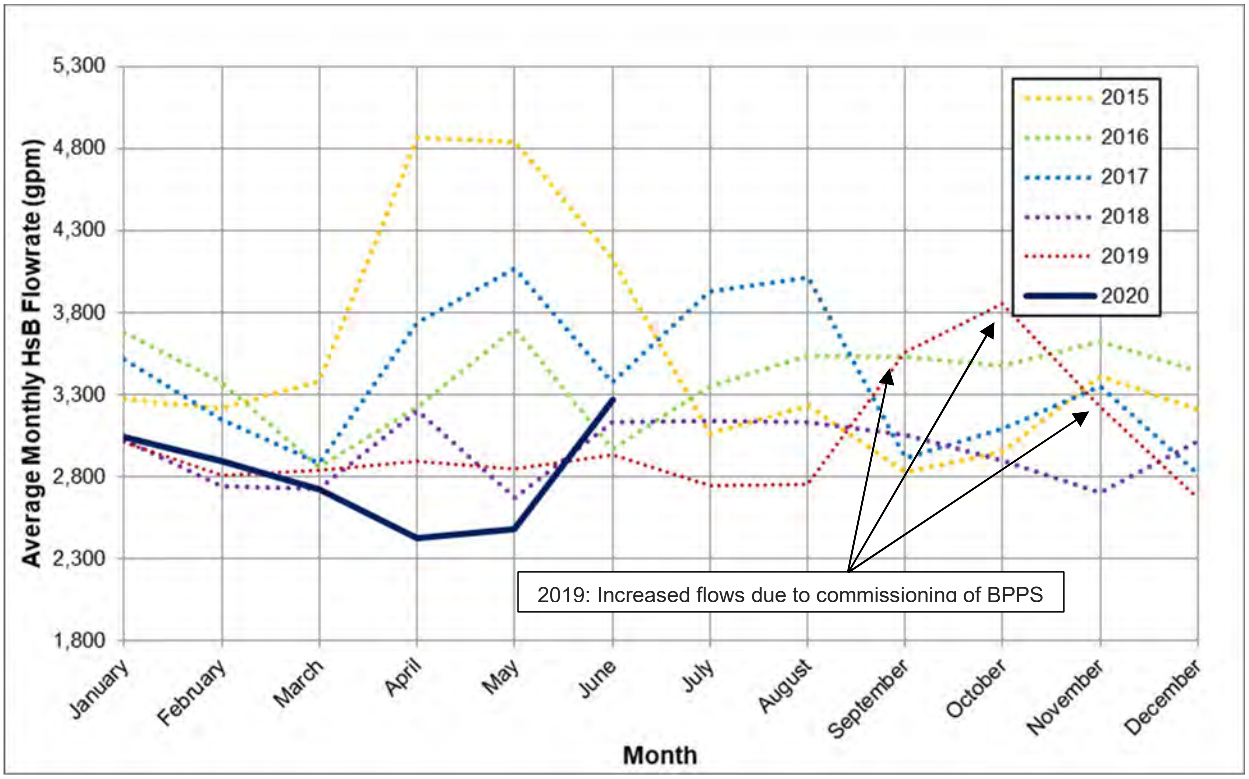

Figure 5.1 Average Monthly HsB Weir Flowrate

6.0 YDTI SEEPAGE: SEEP 10 FLOWRATE

Several smaller seeps, known as the Number 10 Seep (Seep 10), daylight on the EL 5,900 ft bench above the HsB seepage collection area approximately 250 ft higher than the downstream toe of the embankment. These localized flows have been attributed to a historical service corridor that conveys some tailings seepage as perched flows through the embankment to Seep 10.

The seepage is collected in a small pond on top of the EL 5,900 ft bench and is routed to the HsB seepage collection area via a pipe. The Seep 10 flows are measured using an ultrasonic lookdown level sensor that was installed in April 2019 to automatically measure the stilling pond level near the weir. The sensor was connected to the Remote Monitoring System (RMS) using a Sensemetrics ThreadX device on April 30, 2019.

The average flowrate measured at Seep 10 was approximately 104 gpm in Q2 2020, a 33 gpm (46%) increase since Q1 that can be attributed to the seasonal precipitation increase in Q2. The magnitude of the Q2 2020 increase is similar to previous years. The average monthly Seep 10 flowrates from 2015 through Q2 2020 are shown on Figure 6.1.

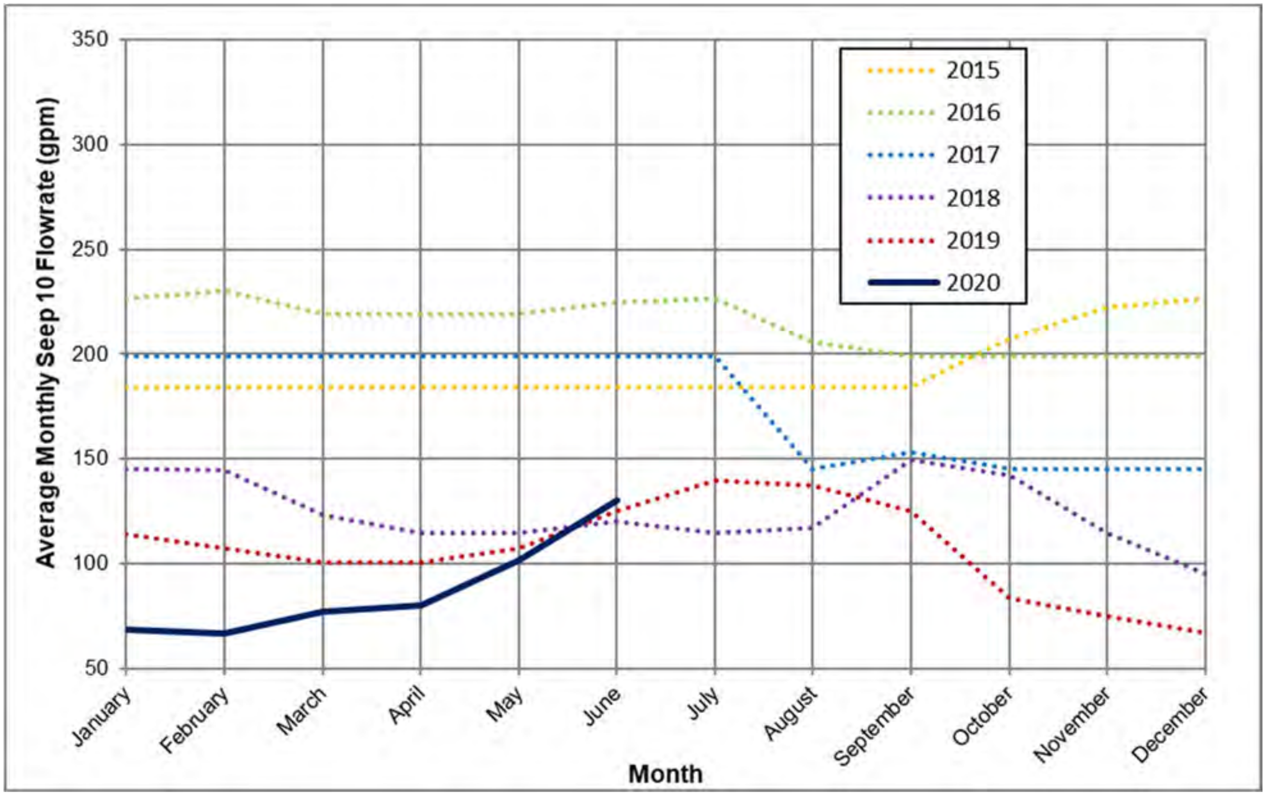

Figure 6.1 Average Monthly Flowrates at Seep 10

7.0 PRECIPITATION PLANT OVERFLOW FLOWRATE

The Precipitation Plant overflow is generated at the Precipitation Plant pump house after flows have discharged from the 'tin can' processing cells. Processed water is directed to the Precipitation Plant recirculation pumps and any flow greater than the capacity of the pumps is directed out of the system via the Precipitation Plant overflow pipeline into the HsB Pond.

The Precipitation Plant overflow discharge rate is determined by:

- Inflows (leach water, seepage and precipitation)
- Outflows (the recirculation pump station flowrate)

The flow is measured using a calibrated overflow weir plate with water level measurement. Flow monitoring at this location began in 2017. Flow recording in this location can be used to provide insight into the changes in seepage flows in the HsB area.

The average Precipitation Plant overflow flowrate recorded during Q2 2020 was 164 gpm (0.24 Mgpd), which is 480 gpm (74%) lower than the Q2 flowrates measured over the previous three years and 76 gpm (32%) lower than Q1 2020.

An explanation for the reduction in the overflow flowrate in 2020 has not been confirmed; however, the delayed 2020 freshet detailed in Section 5.0 likely contributed to the reduction in Q2 flows. MR inspected the weir plate and level measurement in Q2 and verified the monitoring equipment was recording correctly. A review of the Q2 recirculation pump station pump data also identified that the pumps have been operating normally. MR will continue to monitor the collection and routing of the Precipitation Plant overflow flows, including further ground truthing inspections of flows within the HsB area around the Precipitation Plant.

The average monthly Precipitation Plant overflow flowrates from 2017 through Q2 2020 are shown on Figure 7.1.

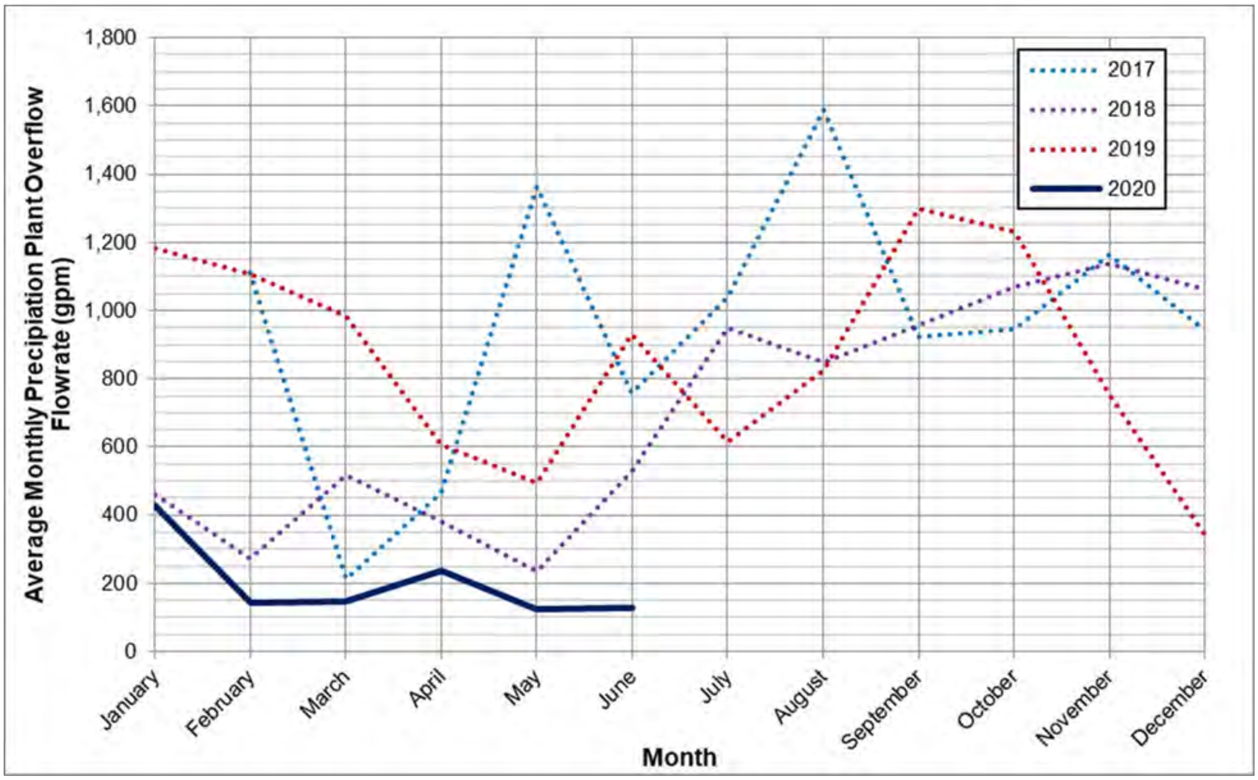

Figure 7.1 Average Monthly Precipitation Plant Overflow Flowrate

8.0 WEST EMBANKMENT DRAIN EXTRACTION POND DEWATERING

The West Embankment Drain (WED) and several other seepage control features have been included in the West Embankment to maintain hydrodynamic containment of the YDTI seepage as the supernatant pond elevation rises above the groundwater elevation at the Potentiometric Low. Hydrodynamic containment will be achieved by keeping piezometric elevations along the west side of the YDTI below the Potentiometric Low in the West Ridge in order to preclude migration of seepage across the ridgeline.

The Extraction Pond forms the gravity outlet of the WED. The Extraction Pond Dewatering System, which includes a floating barge and pump system, began operating on November 20, 2019. The Extraction Pond Dewatering System returns water collected in the WED to the YDTI via a pipeline that discharges at RK-1. The flows are measured using an inline totalizing flowmeter.

MR identified recording issues in March 2020 with the inline flowmeter. The issues were associated with the pumps cycling on and off when there were very low flows and the discharge line draining back to the Extraction Pond. MR fixed this issue in April by adjusting the variable frequency in the pumps to reduce the flow cycling. The erroneous data is identified in Figure 8.1 and excluded in the flow analysis of the system.

The average flowrate recorded at the Extraction Pond Dewatering pump system during Q2 2020 was 350 gpm (0.50 Mgpd). The Extraction Pond Dewatering System has recorded flowrates between 175 gpm and 600 gpm, when operating correctly, since the system was commissioned.

The average daily flowrate for the Extraction Pond Dewatering System from November 20, 2019 to Q2 2020 is shown on Figure 8.1. A longer data record is required to identify any trends or seasonal changes.

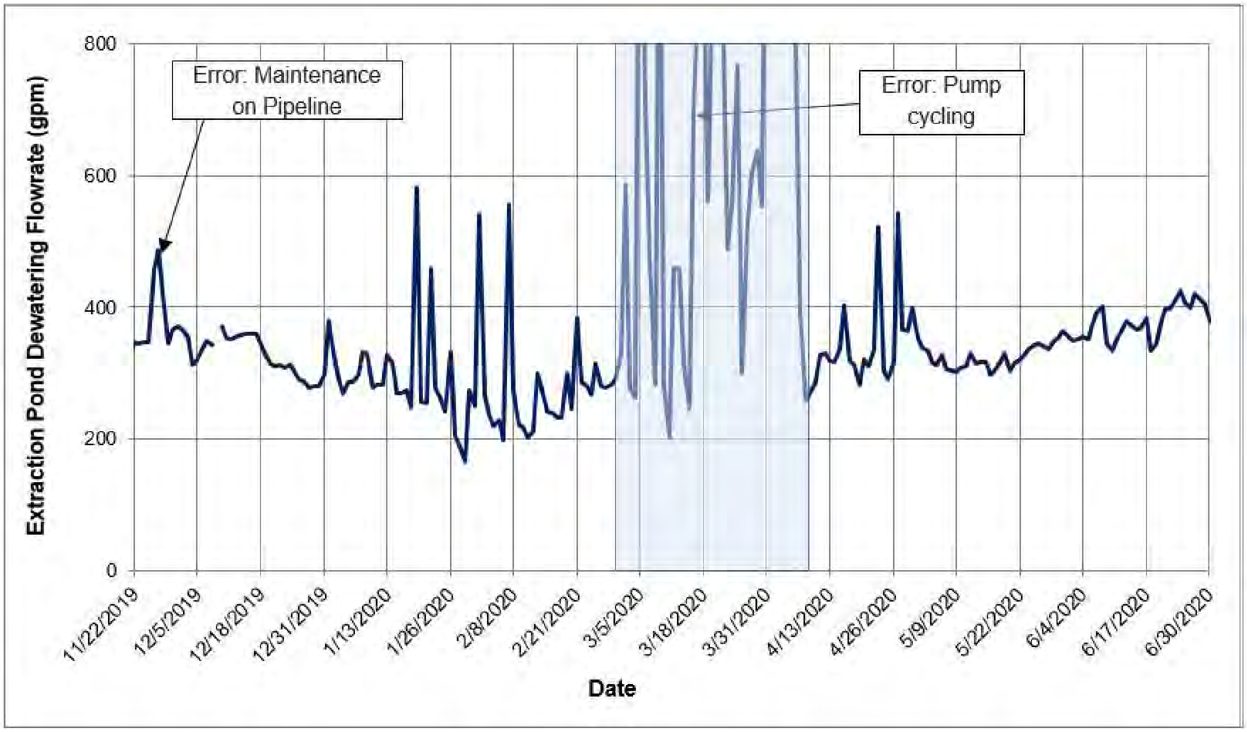

Figure 8.1 Extraction Pond Dewatering System Flowrate

9.0 CONCLUSION

The following observations were derived from the analysis of the Q2 2020 YDTI water data records.

- The YDTI supernatant pond rose at a slower rate of rise than recorded in the previous five years. This is largely attributed to the operation of the BMFOU Pilot Project that produced a net deficit of 270 million gallons (830 acre-ft) of water in Q2 2020.
- The average Q2 2020 flowrate for the SLWS was approximately 780 gpm (1.1 Mgpd). The increased Silver Lake water usage was due to two periods of maintenance on the Return Line and one dusting event. MR's SLWS usage was in line with the objective of maintaining SLWS flowrates below 1 Mgpd, when excluding the water used during these events.
- A delayed freshet and dry April and May caused HsB Weir flows to be lower than usual (2450 gpm average). The flowrates increased during June to 3,250 gpm, which is 100 gpm (4%) greater than the average flowrates recorded over June for the previous three years.
- The average flowrate measured at Seep 10 was approximately 104 gpm in Q2 2020, a 33 gpm (46%) increase since Q1 that can be attributed to the seasonal precipitation increase in Q2.

- The average Q2 2020 flowrate recorded at the Extraction Pond Dewatering pump system was 350 gpm (0.47 Mgpd), which is consistent with flows recorded since the system was commissioned in November 2019.

We trust that this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared:

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Ken Brouwer, P.E.
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Approval that this document adheres to the Knight Piésold Quality System: KJB

Attachments:

Figure A.1 Rev 0 Tailings Beach Length and Freeboard Assessment - April 27, 2020
Figure A.2 Rev 0 Tailings Beach Length and Freeboard Assessment – June 2, 2020
Figure A.3 Rev 0 Tailings Beach Length and Freeboard Assessment – June 29, 2020

References:

Montana Resources and Knight Piésold Ltd. (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

/ks

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON APRIL 27, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON APRIL 28, 2020.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
APRIL 27, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-01418	
FIGURE A.1		REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11AUG'20	ISSUED WITH LETTER	CYP	RSS

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON JUNE 2, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON MAY 28, 2020.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
JUNE 2, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01418

FIGURE A.2 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	11AUG'20	ISSUED WITH LETTER	CYP	RSS

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON JUNE 29, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON JUNE 24, 2020.

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
JUNE 29, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-01418	
FIGURE A.3		REV 0

0	11AUG'20	ISSUED WITH LETTER	CYP	RSS
REV	DATE	DESCRIPTION	PREP'D	RVW'D

Knight Piésold CONSULTING

Management System Certified by: bsi ISO 9001 ISO 14001 ISO 45001 CERTIFIED

May 13, 2021

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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: Q4 2020 – YDTI Quarterly Water Data Summary

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from ore processing are stored in the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment enclosed by a rockfill embankment. MR's operational surveillance plan for the impoundment, as described in the Tailings Operations, Maintenance and Surveillance (TOMS) Manual (MR/KP, 2020), requires routine monitoring of the supernatant pond elevation and flowrates at several water management locations. Supernatant pond data and flow records are submitted to Knight Piésold Ltd. (KP) approximately quarterly, and these records are reviewed to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections of the impoundment.

This letter presents a summary of the MR YDTI water management data from the fourth quarter (Q4) of 2020, including October 1 to December 31, 2020. The purpose of this letter is to review the performance records associated with the YDTI water management systems and identify if any operational changes are recommended. The Q4 letter includes a summary of data related to the following:

- YDTI supernatant pond elevation
- Tailings beach elevations at the discharge points
- Silver Lake Water System (SLWS) flowrates
- Horseshoe Bend (HsB) Weir flowrates
- Seep 10 flowrates
- Precipitation Plant Overflow flowrates
- West Embankment Drain (WED) Extraction Pond flowrates

A photo log of various components of the MR water systems is attached to this quarterly report. The photos were collected as part of the quarterly construction inspection that was conducted by MR on December 10, 2020 and documented in the *2020 Q4 Construction Field Review Summary* (VA21-00084). KP considers the inclusion of these photos in the Water Data Summary is more relevant.

2.0 YDTI SUPERNATANT POND

2.1 SUPERNATANT POND MONITORING

The YDTI supernatant pond is located on the northern side of the YDTI and is constrained by natural topography to the north and east, and the tailings beach to the south and west. MR manually measures the YDTI supernatant pond elevation on a weekly basis. The elevation of the pond surface typically rises at a rate of six to seven feet per year as the volume of tailings stored in the facility increases. Minor changes in pond elevation also occur due to climatic/seasonal changes in pond volume (e.g., precipitation/runoff, evaporation, development/melt of winter ice).

The Berkeley Pit Pilot Project (the Pilot Project), which was commissioned in September 2019, introduced a new water management strategy to the facility. One objective of the Pilot Project is to reduce the pond volume to approximately 15,000 acre-ft over the next three to five years. The rate of rise of the YDTI supernatant pond elevation has consequently reduced. A more detailed description of the Pilot Project is presented in the TOMS Manual (MR/KP, 2020).

2.2 POND WATER ELEVATION

The last pond water elevation recorded during the Q4 monitoring period was 6359 ft on December 28, 2020, which results in a total Q4 pond elevation increase of approximately 0.5 ft. This Q4 elevation change is a 64% (0.9 ft) decrease from the average Q4 pond elevation change measured during 2015 to 2018 (prior to the commissioning of the pilot project).

The Q4 pond elevation change in Q4 2019 and Q4 2020 (since the commissioning of the pilot project) followed a similar trend as presented on Figure 2.1. However, the November pond elevation increase during 2020 was greater than experienced in 2019 due to warmer than usual temperatures melting the early snowfall.

The annual pond elevation change during 2020 was approximately 1.2 ft. This is 81% (4.9 ft) less than the average annual pond elevation change over the previous five years, which is largely attributed to operation of the Pilot Project (detailed further in Section 2.3). The monthly supernatant pond water elevation changes from Q1 2015 through Q4 2020 are presented on Figure 2.1.

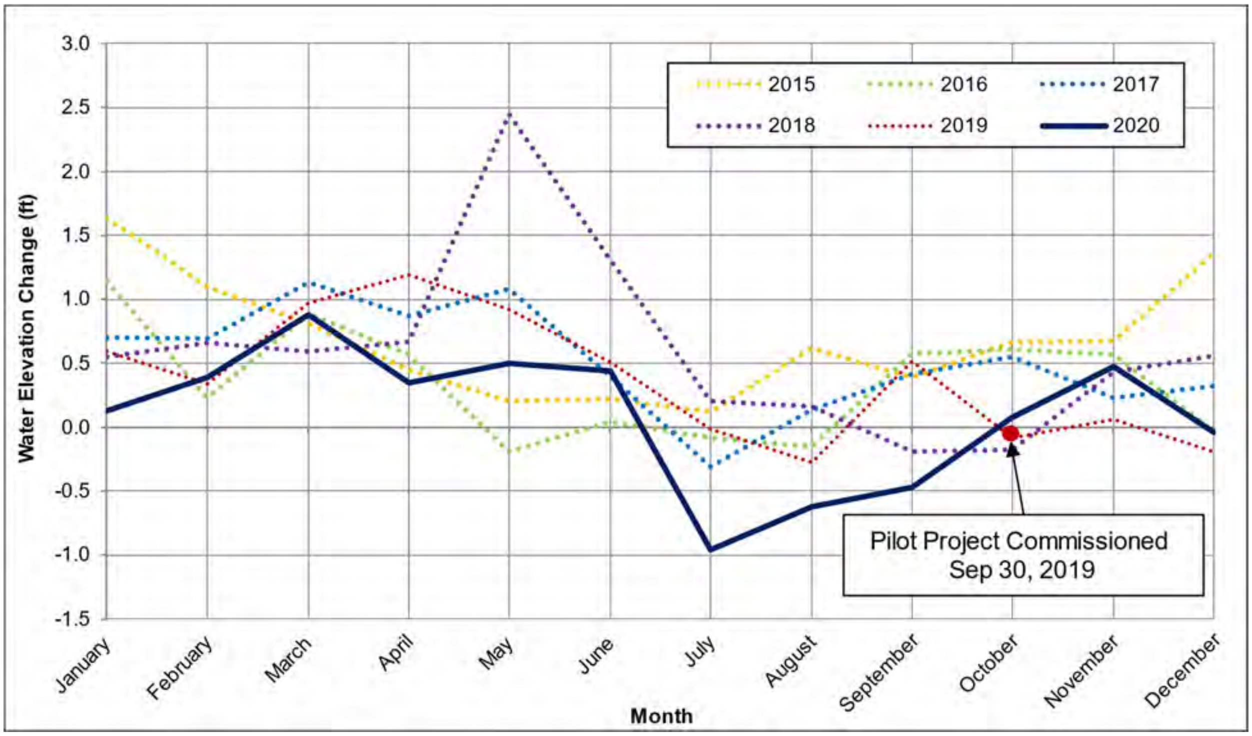

Figure 2.1 Monthly YDTI Pond Water Elevation Change

2.3 PILOT PROJECT DISCHARGE

Approximately 360 million gallons (1,100 ac-ft) of Berkeley Pit water was treated and introduced to the YDTI during Q4, and approximately 454 million gallons (1,390 ac-ft) of water was removed from the YDTI and discharged offsite during the same period. These two system flows resulted in a YDTI supernatant pond volume deficit of approximately 94 million gallons (290 ac-ft) during Q4 2020. The Pilot Project has resulted in a net volume deficit of approximately 771 million gallons (2,370 ac-ft) since it was commissioned in September 2019. The Pilot Project's net volume deficit to date represents approximately 12% of the Pilot Project's target total YDTI volume deficit to reduce the supernatant pond volume to 15,000 acre-ft. This is calculated using the estimated pond volume from the bathymetric survey conducted in July 2019.

The monthly pond water elevations from Q1 2017 through Q4 2020 are presented on Figure 2.2, highlighting the effect of Pilot Project operations on the rise of the supernatant pond water elevation since late 2019.

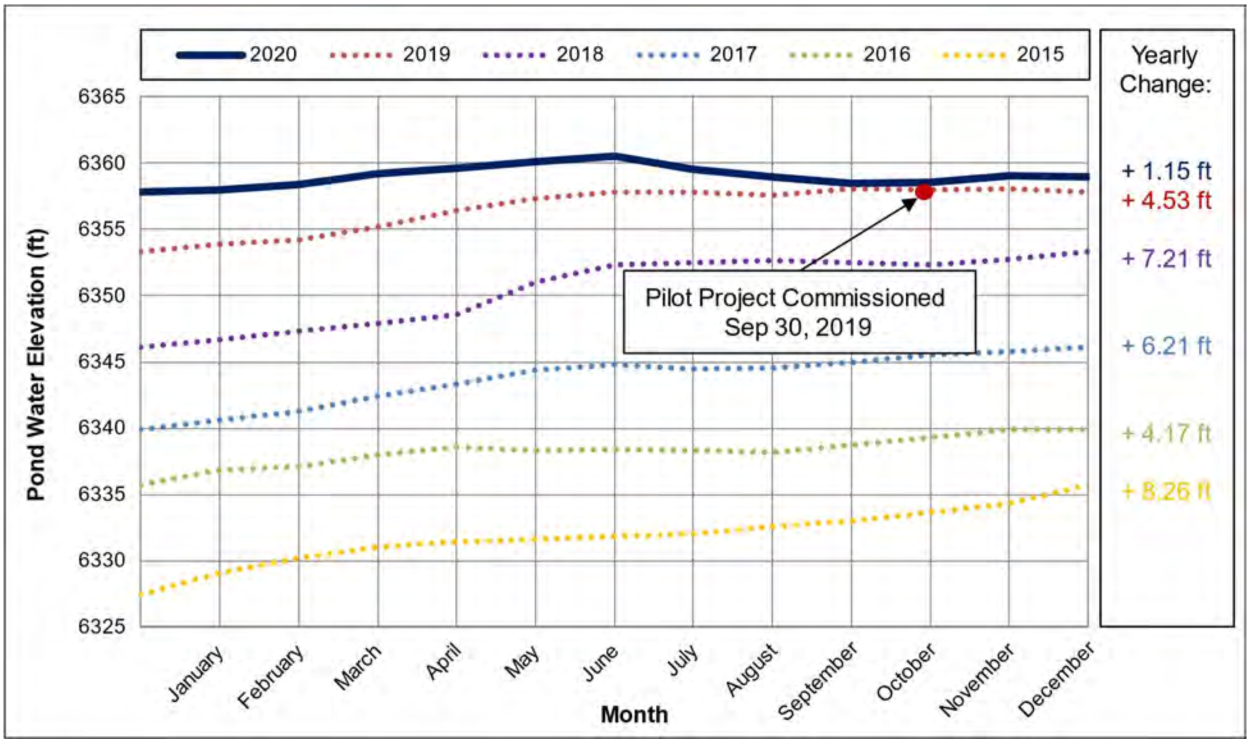

Figure 2.2 Monthly YDTI Pond Water Elevation

3.0 YDTI TAILINGS BEACH

3.1 TAILINGS DISCHARGE LOCATIONS

MR manually measures the beach elevation at active YDTI tailings discharge locations on a weekly basis. The two active tailings discharge lines used each week are selected based on the beach survey results and other external factors, such as the wind forecast, tailings line maintenance, and embankment construction projects around the discharge lines. Tailings discharge scheduling continues to focus on maintaining extensive tailings beaches adjacent to all three of the embankments.

The positions of the ten discharge locations are shown on Figure 3.1. Tailings discharge records indicate that tailings were distributed from all three YDTI embankments during Q4 2020, with nine of the ten discharge locations being used. Discharge location RK-4 was disconnected during Q3 due to ongoing construction of the EL. 6,450 ft embankment lift. This discharge location and tailings discharge corridor are expected to be re-aligned and re-established following the EL. 6,450 ft lift construction. MR primarily uses this location to displace ponded water near the northern end of the West Embankment as required.

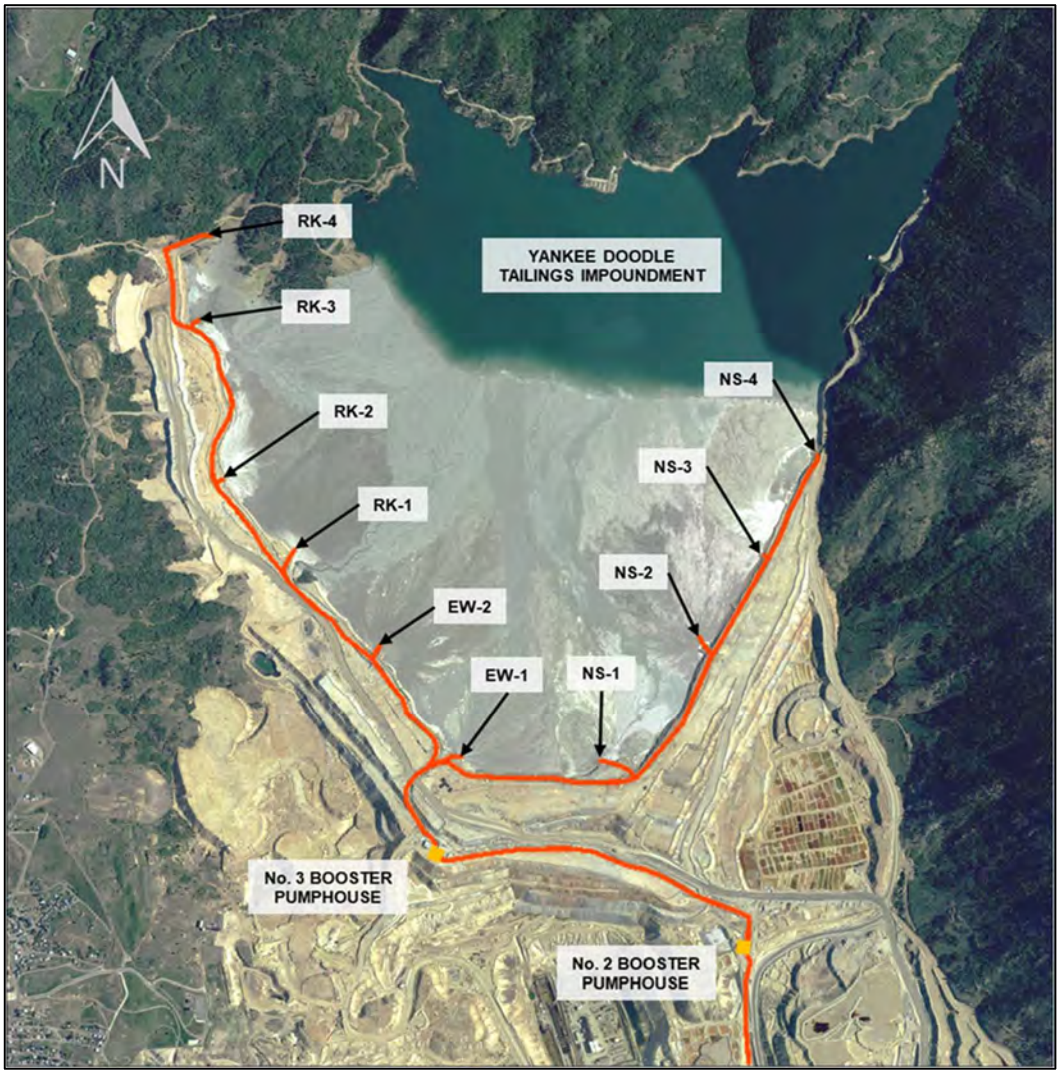

Figure 3.1 YDTI Tailings Discharge Locations

3.2 TAILINGS BEACH ELEVATIONS

The tailings beach elevations at each of the discharge locations are shown on Figure 3.2. The elevation difference between the lowest discharge elevation (NS-4) and the pond surface was approximately 10 ft at the end of Q4 2020. NS-4 was the discharge spigot with the lowest tailings beach elevation throughout Q4. The location of the lowest discharge point identifies the area of the facility where the pond may initially contact the embankment in the event the pond elevation increases due to an increase in pond volume (e.g. flooding).

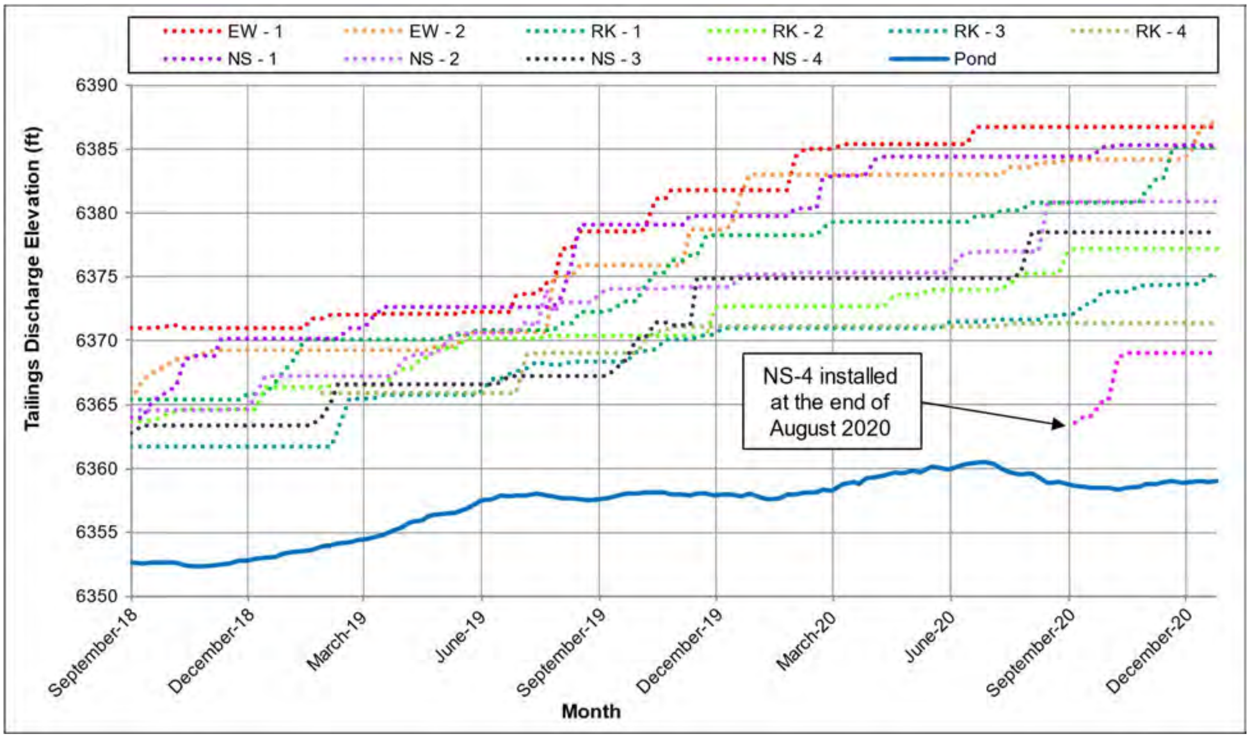

Figure 3.2 Tailings Discharge Elevations

3.3 TAILINGS BEACH LENGTH

Images captured by the Sentinel-2 satellite are reviewed twice per month to remotely observe the shape of the tailings beach and position of the supernatant pond relative to the embankments. The shortest beach length was observed at the northern end of the North-South embankment and estimated to be approximately 1,400 ft throughout Q4. This is similar to the beach length observed at the end of Q3. An overview of the facility observed from the Sentinel-2 satellite images at the end of October, November, and December 2020 are presented in the attached figures.

4.0 SILVER LAKE WATER SUPPLY SYSTEM FLOWRATE

Water from the SLWS is used to meet both the operational freshwater and make-up water requirements. MR implemented changes to their SLWS use practices in April 2016, which immediately reduced the daily make-up water flowrates by more than 50%. MR has continued to operate with reduced freshwater and make-up water demands in Q4 2020.

The flowrates since the implementation of the new SLWS practices are presented on Figure 4.1. SLWS flows in October and November 2020 averaged approximately 620 gpm (0.89 Mgpd), which is comparable to the average Q4 flowrate of 610 gpm (0.88 Mgpd) measured during the previous three years. Flows in December 2020 averaged approximately 910 gpm (1.31 Mgpd). This larger December average flow is due to increased SLWS usage on December 22, 28, and 29, which was required for maintenance work on the YDTI's Return Water line.

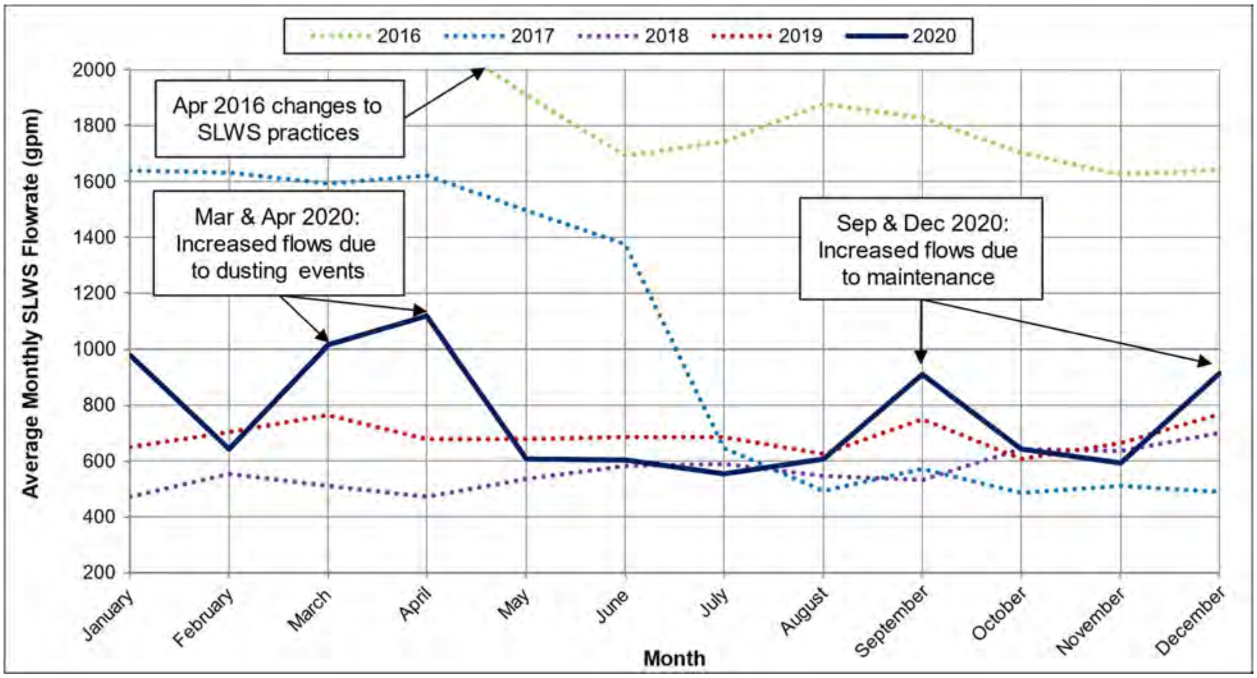

Figure 4.1 Average Monthly SLWS Flowrate

5.0 HSB WEIR FLOWRATE

Seepage from the YDTI flows south through the HsB area and joins with the Precipitation Plant overflow and localized surface runoff in the HsB Pond before passing over the HsB Weir. The HsB Weir incorporates a weir plate and level meter near the south end of the pond, where flows are recorded in 15-minute intervals. A photo of the HsB Weir on December 10, 2020 is presented in Appendix A – Photo 1.

MR committed to reducing (starting in Q4 2020) and eventually ceasing recirculation of flows from the Precipitation Plant to the rock disposal sites (RDSs) directly adjacent to the YDTI embankments over the next several years. This activity is aligned with the 2020 EOR Annual Inspection Report recommendations.

The changes expected from this commitment include:

- A short-term increase of flows through the Precipitation Plant overflow weir
- A short-term increase of flows through the HsB Weir

The average monthly HsB Weir flowrates from Q1 2015 through Q4 2020 are presented on Figure 5.1. The average flow during October 2020 was 2,490 gpm, and 3,200 gpm in November and December 2020. The October flows were consistent with a general trend of lower flows the entire year. The increase of flows in November is attributed to MR's commitment of reducing recirculation to the RDSs, as mentioned above. The increase in contributing flows can be observed in the Precipitation Plant overflow flowrate, which is upstream of the HsB Weir, and several unmeasured flows further detailed in Section 7.0.

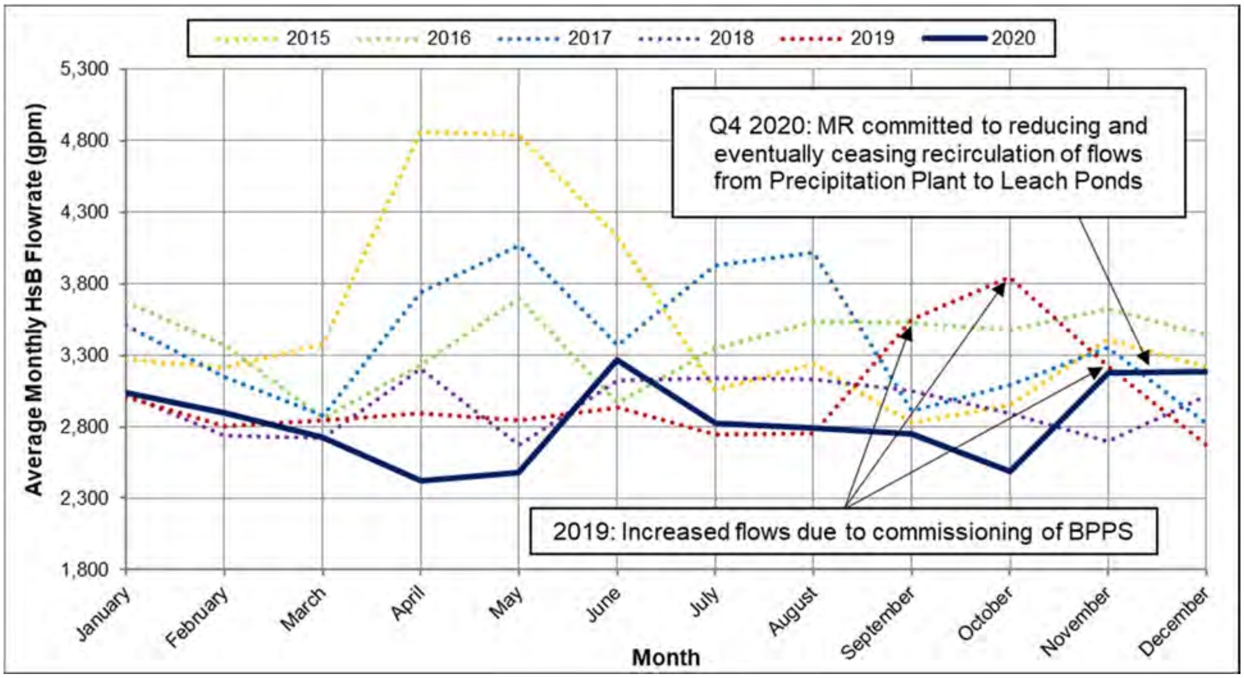

Figure 5.1 Average Monthly HsB Weir Flowrate

6.0 SEEP 10 FLOWRATE

Several smaller seeps, known as the Number 10 Seep (Seep 10), daylight on the EL 5,900 ft bench above the HsB seepage collection area approximately 250 ft higher than the downstream toe of the embankment. These localized flows have been attributed to a historical service corridor that conveys some tailings seepage and meteoric recharge on the embankment as perched flows through the embankment to Seep 10.

The seepage is collected in a small pond on top of the EL 5,900 ft bench and is routed to the HsB seepage collection area via a pipe. The Seep 10 flows are measured using an ultrasonic lookdown level sensor that was installed in April 2019 to automatically measure the stilling pond level near the weir. The sensor was connected to the Remote Monitoring System (RMS) using a Sensemetrics ThreadX device on April 30, 2019. A photo of the Seep 10 Stilling Pond, Weir and Staff Gauge on December 10, 2020 is presented in Appendix A – Photo 2 and Photo 3.

The average monthly Seep 10 flowrates from Q1 2015 through Q4 2020 are presented on Figure 6.1. The average Seep 10 flowrate in Q4 2020 was approximately 80 gpm. The magnitude and trend of the Seep 10 flows observed in Q4 2020 are similar those observed in Q4 2019.

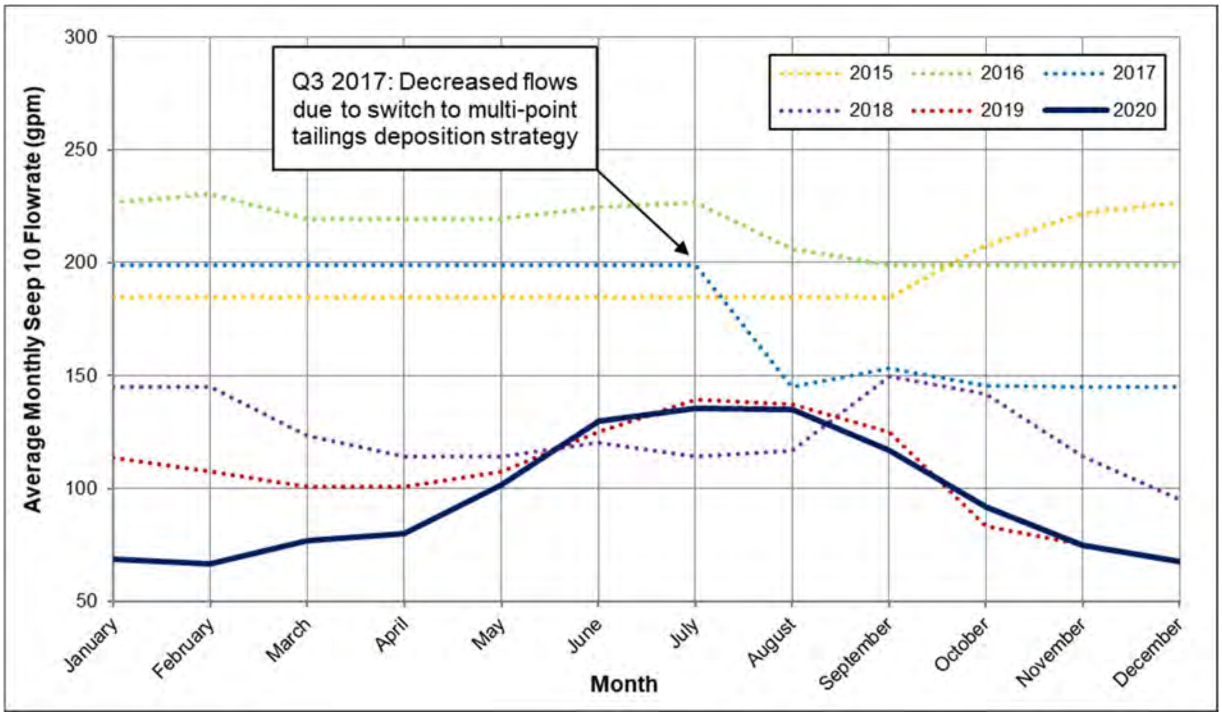

Figure 6.1 Average Monthly Flowrates at Seep 10

7.0 PRECIPITATION PLANT OVERFLOW FLOWRATE

The Precipitation Plant overflow is generated at the Precipitation Plant pump house after flows have been discharged form the 'tin can' processing cells. Processed water is directed to the Precipitation Plant recirculation pumps, and any flow greater than the pump recirculation flowrate is directed out of the system via the Precipitation Plant overflow pipeline into the HsB Pond. The Precipitation Plant overflow discharge rate is determined by:

- Inflows (leach water, seepage, precipitation)
- Outflows (recirculation pump station flowrate)

The discharge flowrate is measured using a calibrated overflow weir plate with water level measurement, and monitoring began at this location in 2017. Flow recording at this location can be used to provide insight into the HsB area seepage flow and water management changes.

The average monthly Precipitation Plant overflow flowrates from February 2017 through Q4 2020 are presented on Figure 7.1. The average flowrate was approximately 370 gpm in October 2020 and increased to approximately 590 gpm in December. The increase of flows is attributed to MR's commitment of reducing recirculation to the RDSs, as mentioned in Section 5.0. Review of the Precipitation Plant pump house data corroborates the decrease in recirculation flows.

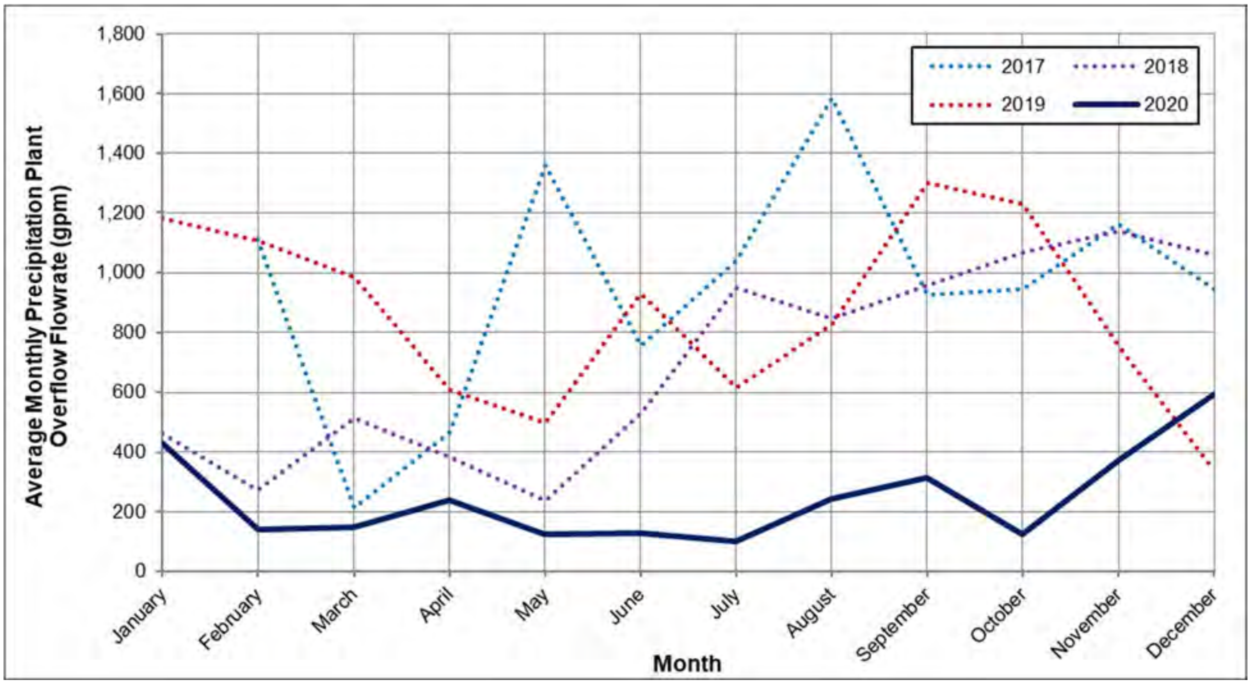

Figure 7.1 Average Monthly Precipitation Plant Overflow Flowrate

The overflow flowrates observed throughout 2020 were lower than those in the previous three years. The general reduction in flows can be attributed to changes to the water management strategy around the Precipitation Plant. A portion of the water reporting to Hooligan Pond is currently by-passing the Precipitation Plant via a weir and pipe (Photo 7.1) and discharging into two locations at the southern end of the HsB Pond. The flow is currently unmeasured. This diversion results in fewer inflows contributing to the recirculation pump house head tanks, and therefore lower overflow flowrates.

Photo 7.1 Hooligan Pond and By-passing Flow Through Weir (Dec 10, 2020)

Water was seen overflowing from the Precipitation Plant recirculation pump house head tank and draining to the adjacent HsB Pond in Q4 2020 (Photo 7.2). This unmeasured flow also reduces contributing flows to the Precipitation Plant recirculation pumps and overflow. Overflow at this location has been observed intermittently since Q4 2019.

Photo 7.2 Precipitation Plant Recirculation Pump House - water is overflowing from the head tank under the stairs (Dec 10, 2020).

8.0 WED EXTRACTION POND DEWATERING SYSTEM

The WED and several other seepage control features of the West Embankment were designed to maintain hydrodynamic containment of the YDTI seepage as the supernatant pond elevation rises above the groundwater elevation at the Potentiometric Low in the West Ridge. Hydrodynamic containment will be achieved by keeping piezometric elevations along the west side of the YDTI below the Potentiometric Low in the West Ridge to preclude migration of seepage across the ridgeline.

The Extraction Pond forms the gravity outlet of the WED. The Extraction Pond Dewatering System, which includes a floating barge and pump system, began operating on November 20, 2019. The Extraction Pond Dewatering System returns water collected in the WED to the YDTI via a pipeline that discharges at tailings discharge spigot RK-1. The flows are measured using an inline totalizing flowmeter. A photo of the WED Extraction Pond and Dewatering System on December 10, 2020 is presented in Appendix A – Photo 7.

The Extraction Pond Dewatering System has recorded average weekly flowrates between 250 gpm and 450 gpm since commissioning. The average WED pump rate in Q4 2020 was 340 gpm, which is comparable to the average flowrate since the commissioning of the system. The pump rate was elevated for four days during October (as presented on Figure 8.1) due to maintenance of the discharge pipeline requiring the pumps to be temporarily turned off. The pump system therefore pumped at a higher-than-usual rate when the pumps were brought back online to transfer the water that had accumulated during the shut down. The flowrates observed at the Extraction Pond Dewatering System remained steady thereafter.

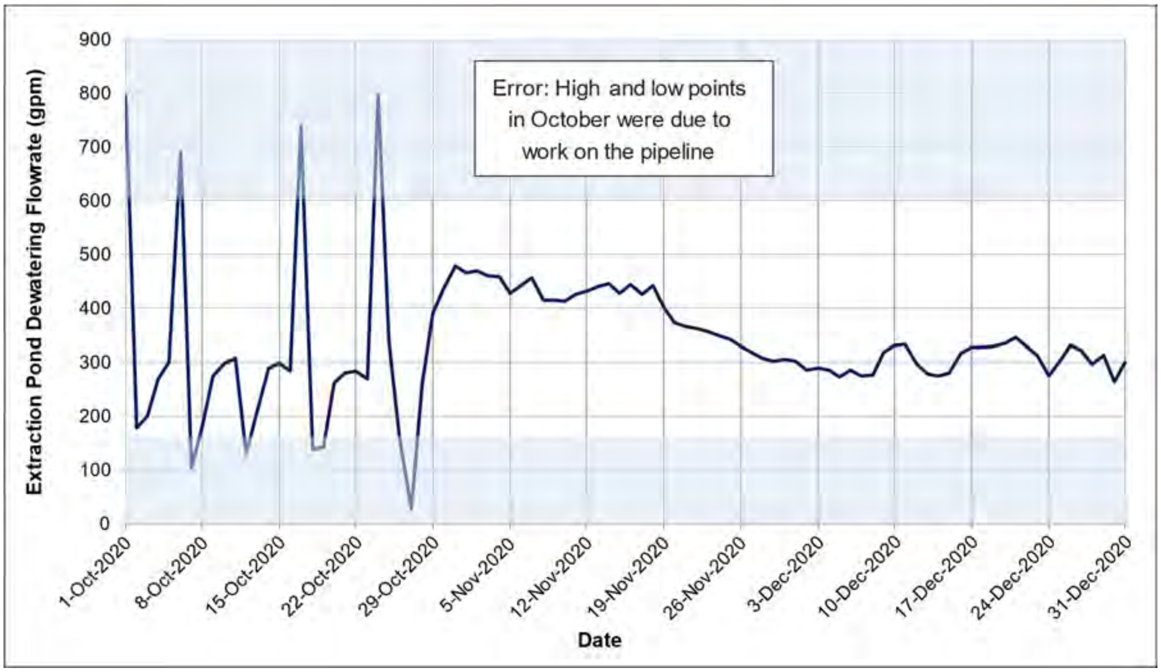

Figure 8.1 Extraction Pond Dewatering System Daily Flowrate (Q4 2020)

A period of higher flows were recorded in early November in Q4 2020, which is attributed to a period of warmer daily temperatures. The average weekly flowrates for the Extraction Pond Dewatering System since it began operating on November 20, 2019 are presented on Figure 8.2. A longer period of data collection is required before any trends or seasonal changes can be determined.

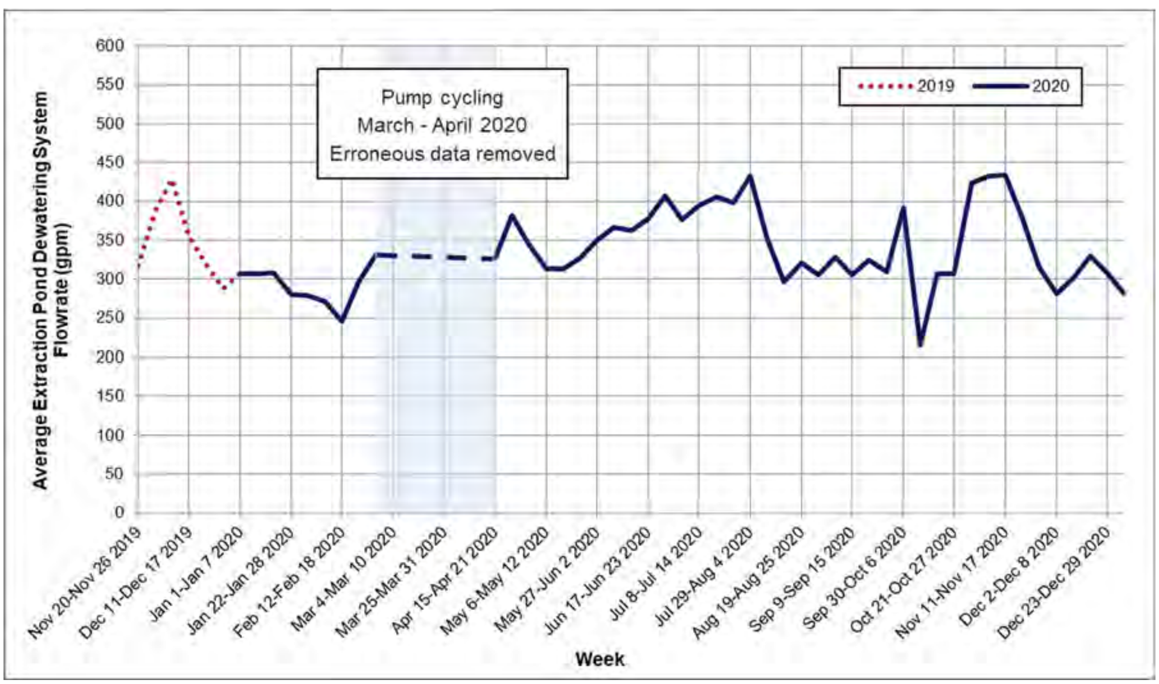

Figure 8.2 Extraction Pond Dewatering System Weekly Flowrate

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9.0 CONCLUSIONS

The following observations were derived from the analysis of the Q4 2020 YDTI water data records:

- The YDTI supernatant pond elevation increased by approximately 0.5 ft, which is lower than the average Q4 pond elevation increase observed in the previous five years. This is attributed to the operation of the BMFOU Pilot Project, which resulted in a net deficit of 94 million gallons (290 ac-ft) of water in Q4 2020.
- The YDTI tailings beach elevation increased by more than 4 ft at discharge location RK-1 during Q4 2020. The highest discharge locations at the end of Q4 were EW-2, EW-1, NS-1, and RK-1.
- SLWS flows averaged approximately 1 Mgpd in Q4 2020, which is similar to the average Q4 flowrates for the previous three years.
- HsB Weir flowrates increased approximately 28% (690 gpm) during Q4 2020. This increase is attributed to MR's commitment of reducing recirculation from the Precipitation Plant to the RDSs adjacent to the YDTI embankments.
- Seep 10 flowrates in Q4 2020 were similar to those in Q4 2019, averaging approximately 80 gpm.
- Precipitation Plant overflow flowrates increased approximately 59% (220 gpm) during Q4 2020. This increase is attributed to MR's commitment of reducing recirculation from the Precipitation Plant to the RDSs.
- Extraction Pond Dewatering System flowrates averaged approximately 340 gpm in Q4 2020, which is comparable to the average flowrates since the implementation of the system.

We trust that this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,

Knight Piésold Ltd.

Prepared:

Lena Choi, EIT
Junior Engineer

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Reviewed:

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

Attachments:

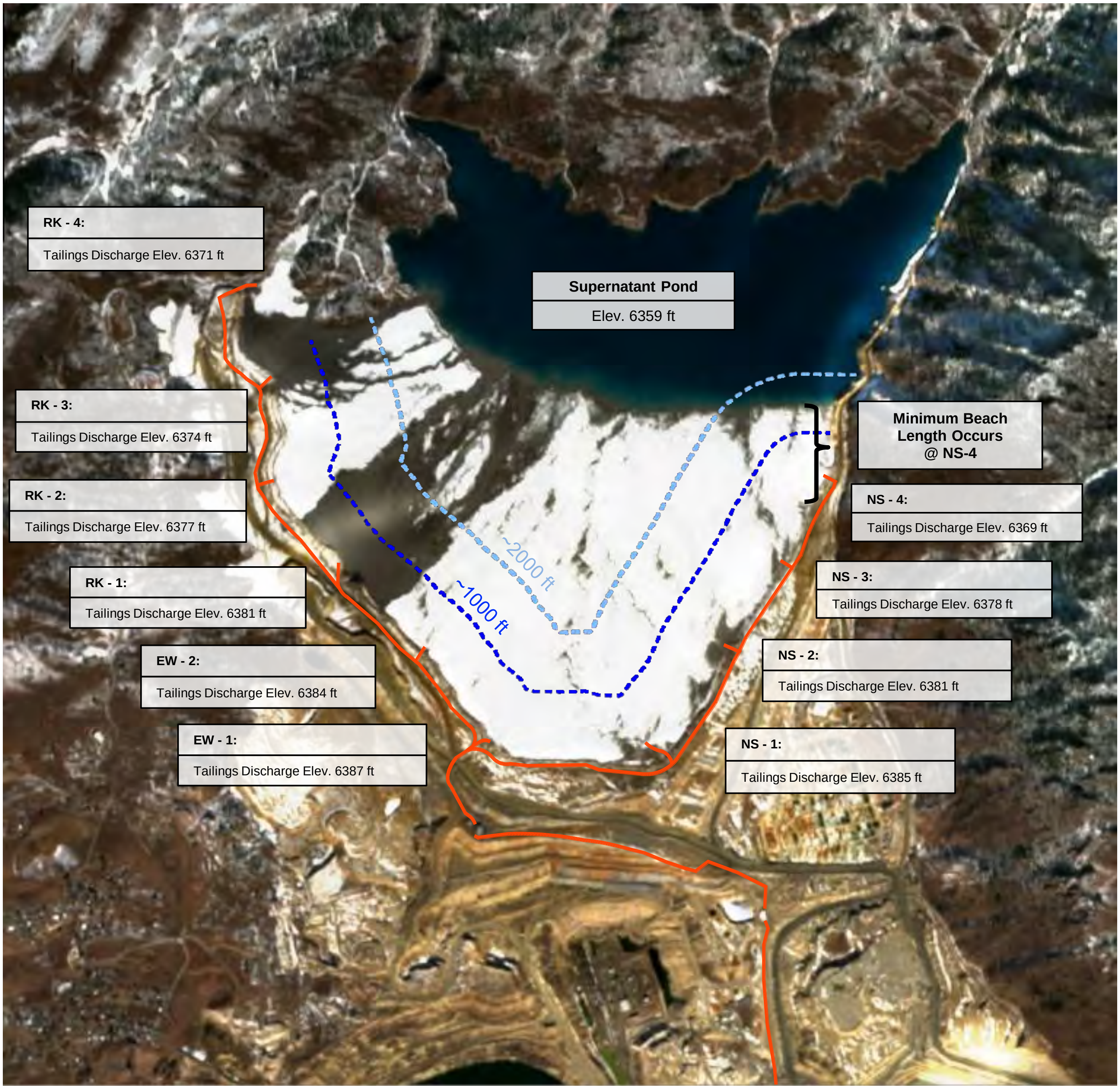
Figure A.1 Rev 0 Tailings Beach Assessment – October 29, 2020
Figure A.2 Rev 0 Tailings Beach Assessment – December 2, 2020
Figure A.3 Rev 0 Tailings Beach Assessment – December 28, 2020
Photo Log

References:

Montana Resources and Knight Piésold Ltd. (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

Knight Piésold Ltd. (KP, 2021). Yankee Doodle Tailings Impoundment – 2020 Annual Inspection Report, dated February 2021.

/lc



NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON OCTOBER 29, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. THE MINIMUM BEACH LENGTH AT THE NORTHERN EXTREMITY OF THE N-S EMBANKMENT IS MEASURED FROM THE TAILINGS BEACH AND UPSTREAM EMBANKMENT INTERFACE, AT THE INTERSECTION OF THE N-S EMBANKMENT AND NATURAL TOPOGRAPHY OF RAMPART MOUNTAIN, TO THE TAILINGS BEACH AND POND SURFACE INTERFACE.
3. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON OCTOBER 30, 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	13MAY'21	ISSUED WITH LETTER	LC	RSD

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
OCTOBER 29, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA21-00003	
FIGURE A.1		REV 0

NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON DECEMBER 2, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. THE MINIMUM BEACH LENGTH AT THE NORTHERN EXTREMITY OF THE N-S EMBANKMENT IS MEASURED FROM THE TAILINGS BEACH AND UPSTREAM EMBANKMENT INTERFACE, AT THE INTERSECTION OF THE N-S EMBANKMENT AND NATURAL TOPOGRAPHY OF RAMPART MOUNTAIN, TO THE TAILINGS BEACH AND POND SURFACE INTERFACE.
3. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON DECEMBER 4, 2020.

0	13MAY'21	ISSUED WITH LETTER	LC	RSD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

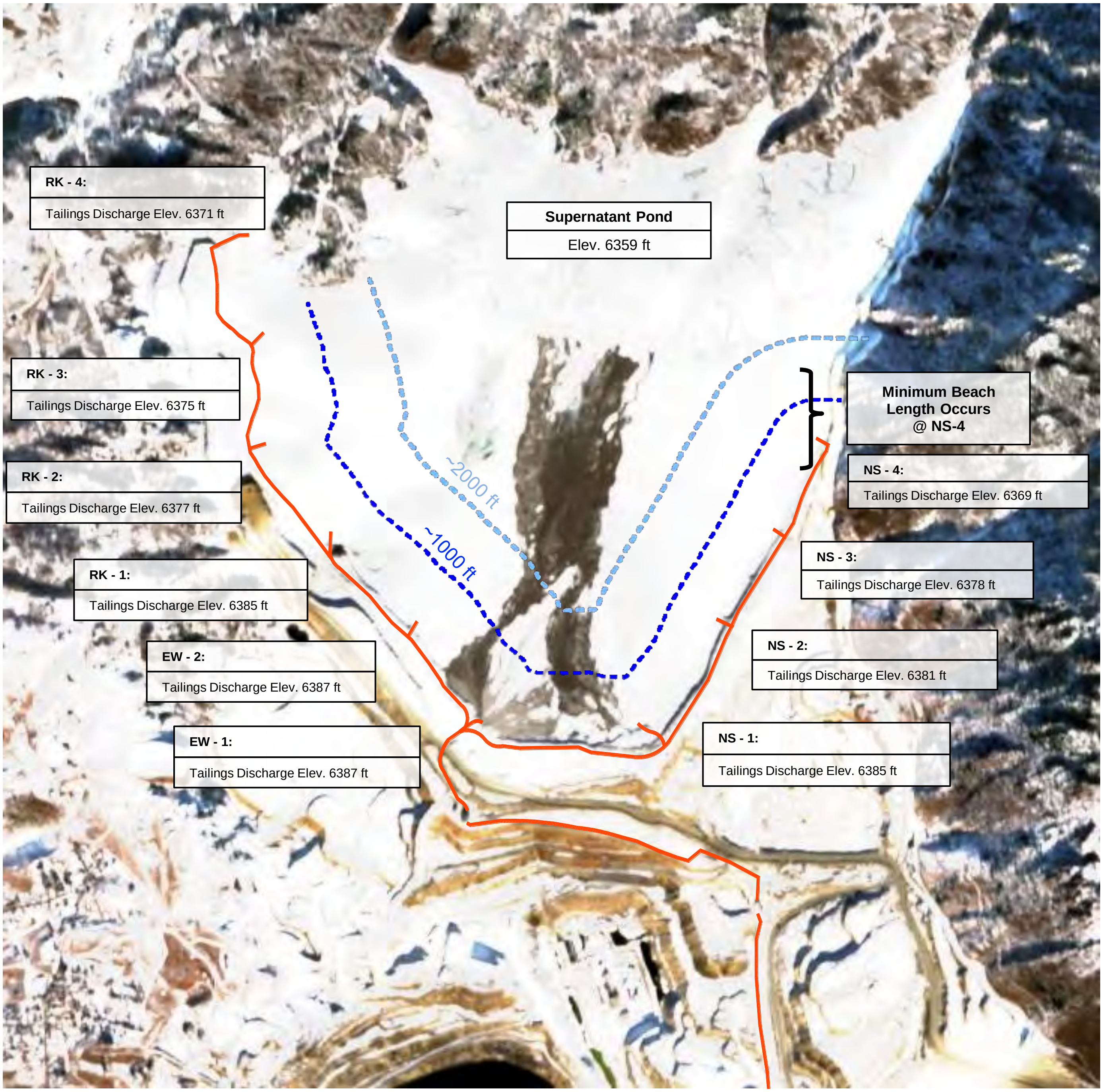
MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
DECEMBER 2, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA21-00003	
FIGURE A.2		REV 0



NOTES:

1. TAILINGS DISCHARGE AND SUPERNATANT POND ELEVATIONS WERE SURVEYED ON DECEMBER 28, 2020. ALL ELEVATIONS ARE RELATIVE TO THE ANACONDA DATUM.
2. THE MINIMUM BEACH LENGTH AT THE NORTHERN EXTREMITY OF THE N-S EMBANKMENT IS MEASURED FROM THE TAILINGS BEACH AND UPSTREAM EMBANKMENT INTERFACE, AT THE INTERSECTION OF THE N-S EMBANKMENT AND NATURAL TOPOGRAPHY OF RAMPART MOUNTAIN, TO THE TAILINGS BEACH AND POND SURFACE INTERFACE.
3. SENTINEL-2 VISIBLE SATELLITE IMAGE TAKEN ON DECEMBER 29, 2020.

0	13MAY'21	ISSUED WITH LETTER	LC	RSD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

SENTINEL-2 SATELLITE IMAGERY
TAILINGS BEACH ASSESSMENT
DECEMBER 28, 2020

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA21-00003	
FIGURE A.3		REV 0

Q4 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 1 – Dec 10, 2020 – Flow through HsB Weir.

PHOTO 2 – Dec 10, 2020 – Seep 10 Stilling Pond.

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Q4 2020 – YDTI QUARTERLY WATER DATA SUMMARY PHOTO LOG

PHOTO 3 – Dec 10, 2020 – Seep 10 Weir and Staff Gauge. Staff Gauge reading slightly below 0.4.

PHOTO 4 – Dec 10, 2020 – Precipitation Plant Recirculation Pump House. Water is overflowing from the head tank under the stairs.

PHOTO 5 – Dec 10, 2020 – Close-up of overflowing head tank at the Precipitation Plant Recirculation Pump House.

PHOTO 6 – Dec 10, 2020 – Hooligan Pond and bypassing flow through weir.

Q4 2020 – YDTI QUARTERLY WATER DATA SUMMARY
PHOTO LOG

PHOTO 7 – Dec 9, 2020 – WED Extraction Pond and Dewatering System.

APPENDIX A3

Piezometric Monitoring Letters

(Pages A3-1 to A3-54)

April 30, 2020

Knight Piésold Ltd.
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Mr. Mark Thompson
Vice President - Environmental Affairs
Montana Resources, LLP
600 Shields Avenue
Butte, Montana
USA, 59701

Dear Mark,

RE: Q1 2020 – YDTI Quarterly Piezometric Monitoring Update

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. MR has owned and operated the mine site since the 1980's and is currently mining the Continental Pit at a nominal Concentrator throughput rate of approximately 49,000 tons per day. Tailings produced from the process are stored within the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment contained within rockfill embankments. The YDTI was originally constructed in 1963 and the embankments have been continuously constructed to elevation (EL.) 6,400 ft using rockfill from the Berkeley Pit (until 1982) and from the Continental Pit (beginning in 1986).

MR routinely monitors piezometric conditions within the YDTI embankments, tailings mass, and surrounding areas as part of their operational surveillance plan for the tailings facility, as described in the TOMS Manual (MR/KP, 2020). Real-time piezometric records are available to KP via a remote monitoring system (RMS), and these records are comprehensively reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections. This letter provides a quarterly summary of piezometric data collected during the first quarter (Q1) of 2020 for key monitoring sites.

2.0 OVERVIEW OF PIEZOMETRIC MONITORING NETWORK

Pore pressures are monitored at 108 active instrumentation locations at the YDTI and in the West Ridge and Horseshoe Bend (HsB) areas. The piezometric monitoring sites are shown on Figure 1. These sites include 39 standpipe piezometers/monitoring wells and 69 drillholes with vibrating wire piezometers (VWPs). Most existing standpipe piezometers have been outfitted for continuous monitoring by suspending a VWP sensor within the PVC riser and connecting the sensor to the RMS.

Select standpipe piezometers and VWPs have piezometric elevations assigned as Quantitative Performance Parameters (QPPs) in the TOMS Manual and are used to routinely assess the performance of the YDTI. These QPPs specify a piezometric 'trigger elevation' at or above which a Level 1 Unusual Occurrence would be triggered, as specified in Table 5.1 of the TOMS Manual (MR/KP, 2020). Trigger elevations assigned to each QPP site are reevaluated by KP on an annual basis. Table 1 summarizes the piezometric QPPs that are presently in use at the YDTI. This letter discusses data from the QPP sites during Q1 2020. Discussion of data from the remaining monitoring sites is completed annually and will be presented in the 2020 Data Analysis Report.

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Data from the QPP sensor installed in drillhole DH17-S2 are not available from late February through all of March 2020 due to a hardware malfunction. Replacement hardware has been purchased for drillhole DH17-S2 and repair is planned for early Q2 2020. No data are available from the QPP sensor installed in drillhole DH18-S3 following Q4 2019 due a data logger malfunction. Manual readings were taken at the end of Q1 2020 and confirm proper embedded sensor performance. A replacement data logger will be installed in Q2 2020.

3.0 UPDATED QPP NETWORK FOR 2020

The piezometric QPP monitoring network was expanded in the 2020 TOMS update to include an additional eight (8) pore pressure monitoring instruments bringing the total number of QPP sensors to 18. The QPP network expansion was implemented to improve the spatial coverage of QPP monitoring throughout the East-West and North-South Embankments using the numerous pore pressure monitoring sites installed between 2017 and 2019 in these areas. Monitoring well MW14-01 was discontinued as a QPP site following abandonment of the well in Q4 2019, which resulted from a riser blockage. Monitoring coverage in this area has been replaced by establishing a QPP for an adjacent sensor in drillhole DH15-S5 (VW1). The current active QPP network is shown on Figure 1 and details are summarized in Table 1.

Trigger elevations for the new embankment QPP monitoring locations have been specified as approximately 20 ft above the maximum recorded piezometric elevation since the installation of each site. Trigger elevations specified for sensors VWP-DP1 and VWP-DP2 installed within the West Embankment Drain (WED) are specified as the maximum allowable hydraulic grade line established in the WED design basis.

4.0 SUMMARY OF Q1 2020 QPP PIEZOMETRIC CONDITIONS

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during Q1 2020. A high-level summary of QPP piezometric data and monitoring 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 along the East-West Embankment Section 8+00W are also shown graphically on Figure 7.

QPP sites within the embankment rockfill in the central section of the East-West Embankment exhibited decreasing piezometric elevations throughout 2017, 2018, and 2019. The majority of QPP sites have continued to display slightly decreasing piezometric trends during Q1 2020; however, the rates of decrease have slowed and one sensor (DH15-S3 VW1) installed within the basal saturated zone appears to have stabilized since Q4 2019. Decreasing piezometric conditions continued to be recorded during Q1 2020 by sensors installed within the basal saturated zone in monitoring wells MW94-08 and MW94-11 and in drillholes DH15-S5 (VW1) and DH15-S4 (VW1 and VW2), as shown on piezometric plots presented on Figures 2 and 3. Nearly stable piezometric pressure was recorded by sensor DH15-S3 VW1, which is located below the Seep 10 Bench on Section 8+00W. The decreasing trend within the embankment rockfill is interpreted to result from use of multiple tailings discharge points instead of the historical (pre-2016) practice of using a single, central discharge location. The updated deposition strategy is inferred to have resulted in desaturation within a significant portion of the central tailings mass adjacent to the East-West Embankment as compared to historical conditions. A reduction in tailings slurry-based water recharge has influenced drainage interaction with the adjacent embankment resulting in decreasing piezometric pressures. The slowing rate of decrease and apparent stabilization at DH15-S3 VW1 observed beginning in Q4 2019 suggests that pore pressures within the central section of the East-West Embankment may be approaching a new steady-state condition associated with the discharge strategies in place since 2016.

QPP sites within the embankment rockfill at the North-South Embankment have previously indicated relatively constant piezometric elevations since 2017; however, minor piezometric fluctuations associated with construction of the step-out of the North-South Embankment were observed within the basal saturated zone during 2019 and continued into Q1 2020. These fluctuations are characterized as increasing piezometric pressures corresponding to rockfill placement in proximity to each monitoring site and subsequent partial pore pressure dissipation following lift placement. This behavior was observed corresponding to the El. 6,250, 6,300, and 6,350 ft lift construction in Q2 and Q3 2019. The magnitude of pore pressure increase associated with each lift was observed at the monitoring sites to be approximately 2-3 ft at drillholes DH18-S1 (VW2) and DH18-S2 (VW2). Sequential lifts were placed such that pore pressures dissipated only partially before increasing again in response to subsequent loading. This resulted in an overall piezometric increases of around 3 ft through 2019 at these two sites. The limited data available for monitoring well MW12-01 during 2019 indicate slightly increasing piezometric conditions (approximately 2 ft increase) in Q4 2019 and are inferred to be similarly influenced by lift construction. Similar, minor fluctuations (less than 1 ft pressure change) have been observed at DH18-S1 (VW2) and DH18-S2 (VW2) during Q1 2020 in response to El. 6,400 lift construction. Piezometric pressures recorded at both DH18-S1 (VW2) and DH18-S2 (VW2) remain approximately 20 ft below the QPP ‘trigger elevation’ and measured pressures recorded at MW12-01 remain greater than 25 ft below the QPP ‘trigger elevation’.

Monitoring well MW12-05 has been historically unsaturated, indicating that the piezometric elevation is below the bottom of the well screen (less than 6,198 ft elevation). A VWP sensor connected to the RMS is installed in monitoring well MW12-05 at an elevation of 6,199 ft. This VWP continues to measure unsaturated conditions indicating that the well remains unsaturated (dry).

Piezometric elevations within the West Embankment have previously exhibited an increasing trend corresponding to the increasing supernatant pond elevation and tailings elevations due to ongoing operations; however, piezometric conditions began to stabilize in early 2019 and that trend continued throughout 2019 and Q1 2020. The stabilization is inferred to result from the influence of extensive tailings beach development adjacent to the West Embankment during 2018 and 2019 as well as the draining influence of the WED. The invert elevation of the WED is now lower than the YDTI pond for significant portions of the Stage 1 WED drain length. Sensors installed in drillhole DH15-12 are presently more than 20 feet below the TOMS QPP trigger elevations. Sensors installed in the two drain pods along the WED remained stable through 2019 and Q1 2020, with piezometric levels greater than 30 ft below the trigger elevations for each location.

5.0 CONCLUSIONS

Piezometric elevations within the embankment rockfill and tailings mass of the YDTI are available in real-time using the RMS and are monitored by KP and MR. KP provides an analysis of monitoring data on a quarterly basis for a subset of the monitoring sites specified as QPP sites within the TOMS Manual. 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 following the end of 2020. There were no QPP exceedances during Q1 2020.

The piezometric QPP monitoring network has now been revised to include an additional eight (8) pore pressure monitoring instruments beginning in Q1 2020, bringing the total number of sensors assigned as

QPPs to 18, as shown in Table 1. These additional QPP sites improve the spatial coverage of pore pressure conditions within the basal saturated zone of the embankment rockfill in the North-South and East-West Embankments. Monitoring well MW14-01 was discontinued as a QPP site following abandonment of the well in Q4 2019, which resulted from a riser blockage. QPP pore pressure monitoring at this site was replaced with monitoring at the nearby DH15-S5 VW1. Two QPP monitoring sites (DH17-S2 and DH18-S3) are presently offline due to hardware malfunctions. These will be reactivated early Q2 2020.

The piezometric monitoring network and monitoring protocols for the YDTI are being progressively upgraded. Additional VWP monitoring sites were installed as part of a 2019 Embankment Geotechnical Site Investigation Program. These monitoring sites have further expanded the spatial coverage of the monitoring network and were incorporated with the web-based RMS immediately following installation. Monitoring protocols will be progressively updated to take advantage of the automation capabilities of the RMS.

We trust this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

PROFESSIONAL PROVINCE OF BRITISH COLUMBIA K. T. DAVENPORT # 48840 ENGINEER
2020-04-30

Prepared:	Colin Phang, E.I.T. Junior Engineer	Prepared:	Kevin Davenport, P.Eng. Senior Engineer
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MONTANA KEN J. BROUWER 10020 PE REGISTERED PROFESSIONAL ENGINEER 2020-04-30

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

Attachments:

Table 1 Rev 0 Summary of Piezometric Quantitative Performance Parameters (QPP)
Figure 1 Rev 0 Active Piezometric Instrumentation and Monitoring Sites
Figure 2 Rev 0 Summary of Measured vs. QPP Trigger Piezometric Elevations East-West Embankment

References:

Knight Piésold Ltd. (KP, 2019). *2018 Data Analysis Report* (KP Reference No. VA101-126/19-4 Rev 0), dated August 15, 2019.

Montana Resources and Knight Piésold (MR/KP, 2020). *Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual*, Rev 4, dated May 2020.

Copy To: Mike Harvie, Amanda Griffith (Montana Resources)

/cyp

LEGEND:

- PIEZOMETRIC MONITORING SITE
- WELL NOT ACCESSIBLE (BURIED OR ABANDONED)
- QUANTITATIVE PERFORMANCE PARAMETER INSTRUMENT LOCATION
- IN-PLACE INCLINOMETER SITE
- GEOPHYSICAL TEST SITE
- TAILINGS PIPELINE
- PROPERTY LINE

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS BASED ON ANACONDA MINE GRID.
2. QPP = QUANTITATIVE PERFORMANCE PARAMETER.
3. RK-3 WAS RELOCATED NORTH IN OCTOBER 2017.
4. AERIAL IMAGERY FROM JULY 1, 2019 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A 500 0 500 1000 1500 2000 2500 ft

PLAN
SCALE A

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-00650

FIGURE 1 REV 0

0	29APR'20	ISSUED WITH LETTER	CYP	RMM	KTD
REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B11, 4/29/2020 3:59:51 PM, RMCLELLAN PRINTED: 4/30/2020 1:35:38 PM, FIG 1, RMCLELLAN

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

Q1 2020 INSTRUMENTATION SUMMARY
SUMMARY OF PIEZOMETRIC QUANTITATIVE PERFORMANCE PARAMETERS (QPP) MONITORING

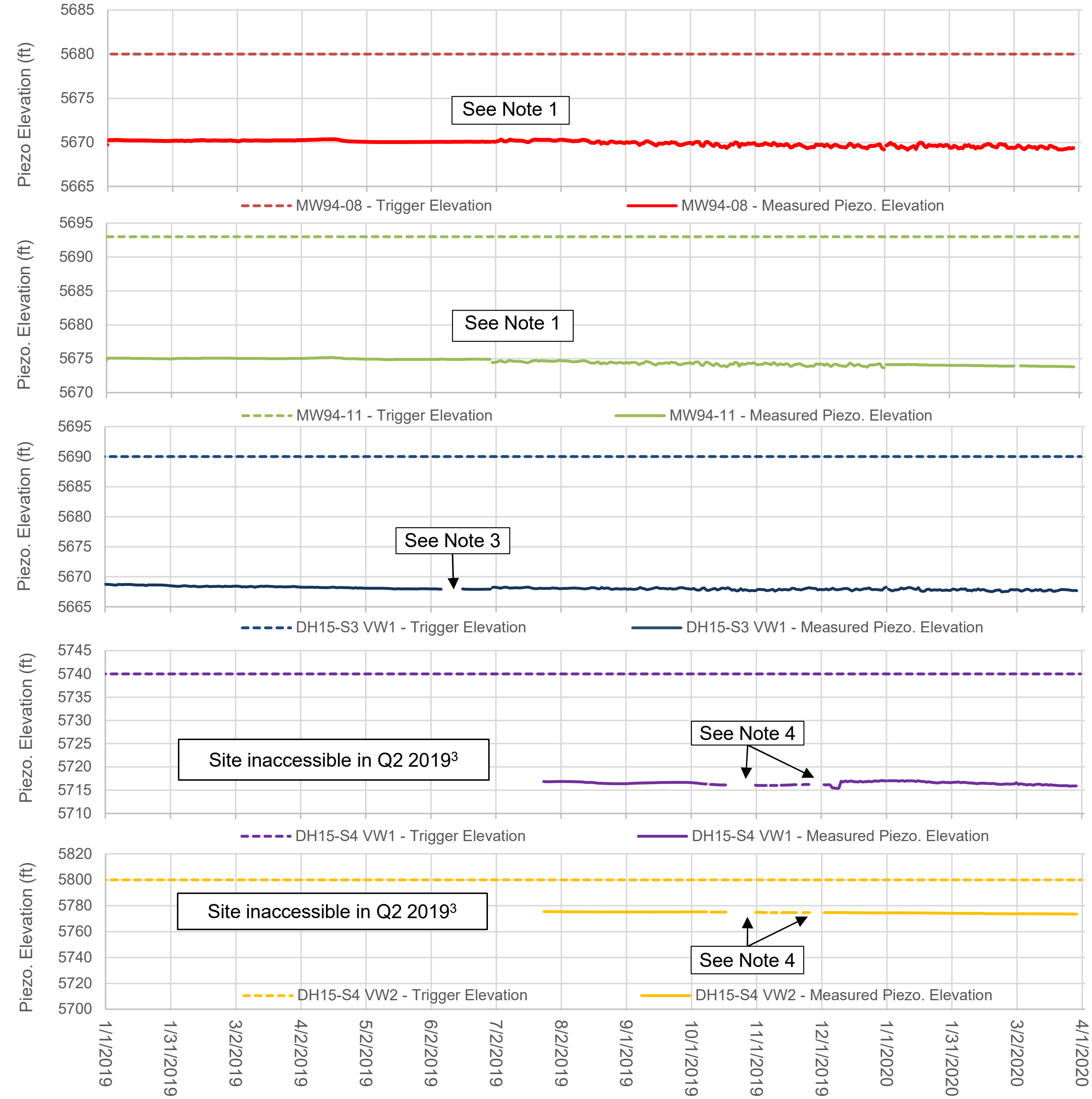
Print Apr/30/20 13:21:44

Monitoring Region	QPP Instrumentation Site	Monitoring Site Type [1]	Piezometric Trigger Elevation (ft)	Maxiumum Piezometric Elevation Recorded Q1 2020 (ft)	Exceeded Trigger Elevation During Q1 2020 (Yes/No)	Comments
East-West Embankment	MW94-08	VWP Sensor	5,680	5,670	No	
	MW94-11	VWP Sensor	5,693	5,674	No	
	DH15-S3 VW1	VWP Sensor	5,690	5,668	No	
	DH15-S4 VW1	VWP Sensor	5,740	5,717	No	
	DH15-S4 VW2	VWP Sensor	5,800	5,774	No	
	DH15-S5 VW1	VWP Sensor	5,785	5,764	No	Sensor added for 2020 QPP Monitoring[5]
	DH17-S1 VW2	VWP Sensor	5,741	5,721	No	Sensor added for 2020 QPP Monitoring[5]
	DH17-S2 VW2	VWP Sensor	5,969	5,849	No	Sensor added for 2020 QPP Monitoring[5]; Communication hardware replacement scheduled for early Q2 2020[4]
	DH18-S3 VW3	VWP Sensor	6,044	No Data	No	Sensor added for 2020 QPP Monitoring[5]; Data logger replacement scheduled for early Q2[3]
North-South Embankment	MW12-01	VWP Sensor	5,940	5,911	No	
	MW12-05	VWP Sensor	6,200	Unsaturated	No	
	DH18-S1 VW2	VWP Sensor	6,010	5,990	No	Sensor added for 2020 QPP Monitoring[5]
	DH18-S2 VW2	VWP Sensor	6,029	6,009	No	Sensor added for 2020 QPP Monitoring5
West Embankment	VWP-DP1	VWP Sensor	6,374	6,340	No	Sensor added for 2020 QPP Monitoring5
	VWP-DP2	VWP Sensor	6,366	6,335	No	Sensor added for 2020 QPP Monitoring[5]
	DH15-12 VW1	VWP Sensor	6,372	6,348	No	
	DH15-12 VW2	VWP Sensor	6,372	6,349	No	
	DH15-12 VW3	VWP Sensor	6,372	6,349	No	

\\KPL\VA-Prj$\1\01\00126\23\A\Data\Task 320 - Monitoring\2 - Quarterly Piezometric Monitoring Summary\2020\[QPP Compliance Figures and Table Q1.xlsx]Table 1 - QPP Evaluation

NOTES:
1. PIEZOMETRIC DATA FROM THE VWP SITES ARE COLLECTED CONTINUOUSLY 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. NO DATA COLLECTED FOR DH18-S3 VW1 FROM NOVEMBER 1, 2019 TO FEBRUARY 3, 2020 AND ERRONEOUS DATA RECORDED FOLLOWING FEBRUARY 4, 2020 DUE TO SUSPECTED HARDWARE DAMAGE.
4. NO DATA WERE COLLECTED BY DH17-S2 VW2 FOLLOWING FEBRUARY 25, 2020 DUE TO A COMMUNICATION HARDWARE ISSUE.
5. THE PIEZOMETRIC QPP NETWORK WAS EXPANDED TO INCLUDE ADDITIONAL SENSORS DURING THE MOST RECENT TOMS UPDATE (MR/KP, 2020).

0	29APR'20	ISSUED WITH LETTER VA20-00650	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. MW94-08 AND MW94-11 WERE CONVERTED ON JUNE 21, 2018 TO ALLOW FOR CONTINUOUS MONITORING USING A VWP SUSPENDED IN THE STANDPIPE DURING THE INTEGRATION OFTHE REMOTE MONITORING SYSTEM.
2. 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.
3. NO WERE DATA COLLECTED BY DH15-S3 VW1 FROM JUNE 7, 2019 TO JUNE 16, 2019 DUE TO INSUFFICIENT BATTERY VOLTAGE
4. NO WERE DATA COLLECTED BY DH15-S4 VW1 AND VW2 DUE TO POWER SUPPLY ISSUES OCTOBER 19 TO 31, 2019 AND NOVEMBER 27, 2019 TO DECEMBER 3, 2019. SENSORS MOVED NEW LOGGER.

MONTANA RESOURCES, LLP

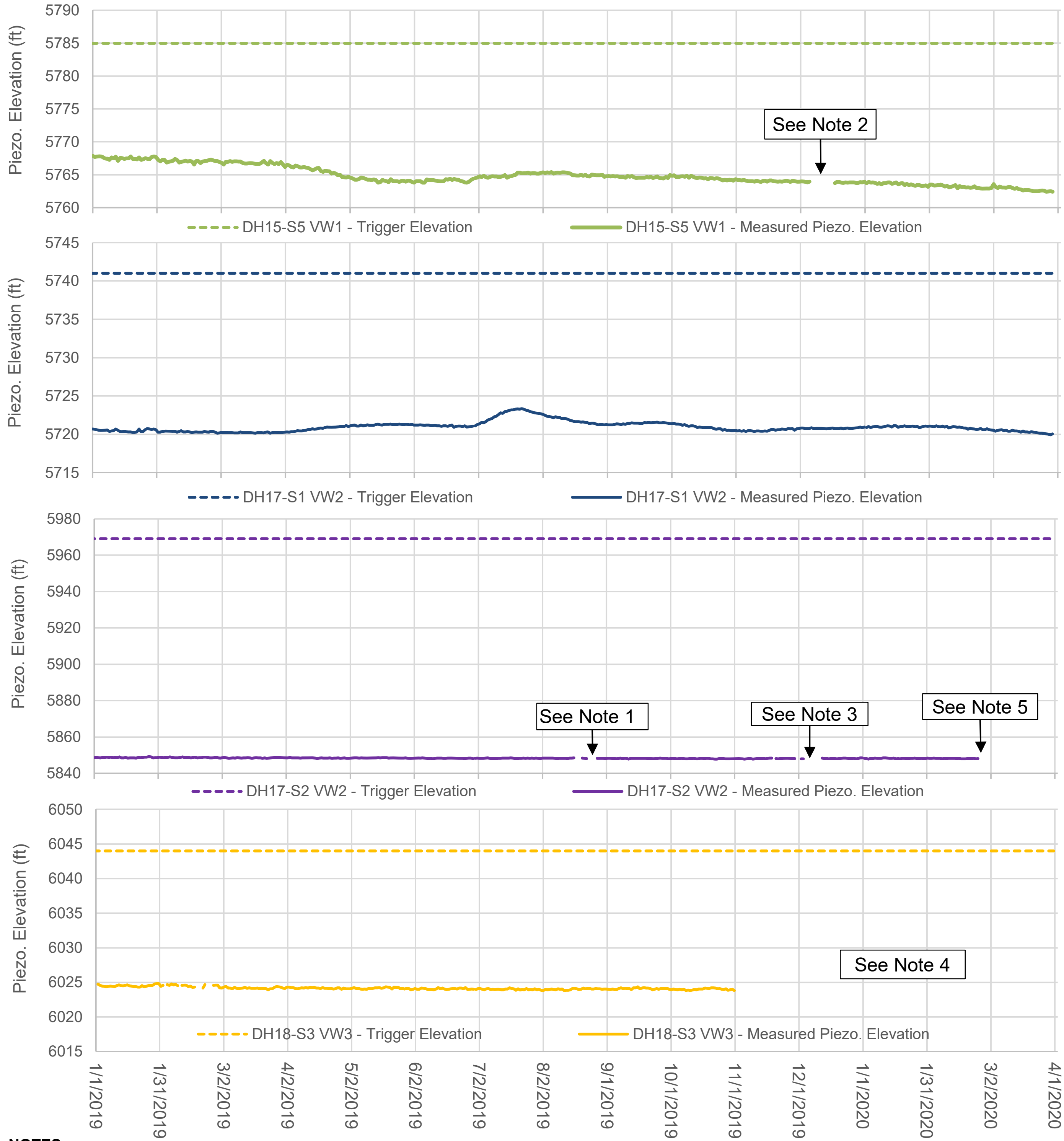
YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00650
FIGURE 2	REV 0

0	29APR'20	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. NO DATA WERE COLLECTED BY DH17-S2 VW2 FROM AUGUST 17, 2019 TO AUGUST 29, 2019 DUE TO AN UNKNOWN HARDWARE ISSUE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW1 FROM DECEMBER 7 TO 17, 2019 DUE TO A DATA LOGGER ISSUE. THE SENSOR WAS SUBSEQUENTLY CONNECTED TO A REPLACEMENT DATA LOGGER.
3. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO INTERMITTENT VOLTAGE ISSUES FROM DECEMBER 1 TO 12, 2019.
4. NO DATA WERE COLLECTED BY DH18-S3 VW1 FROM NOVEMBER 1, 2019 TO FEBRUARY 3, 2020 AND ERRONEOUS DATA RECORDED FOLLOWING FEBRUARY 4, 2020 DUE TO SUSPECTED HARDWARE DAMAGE.
5. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO THREAD POWER SUPPLY ISSUES FOLLOWING FEBRUARY 25, 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'20	ISSUED WITH LETTER	CYP	KTD

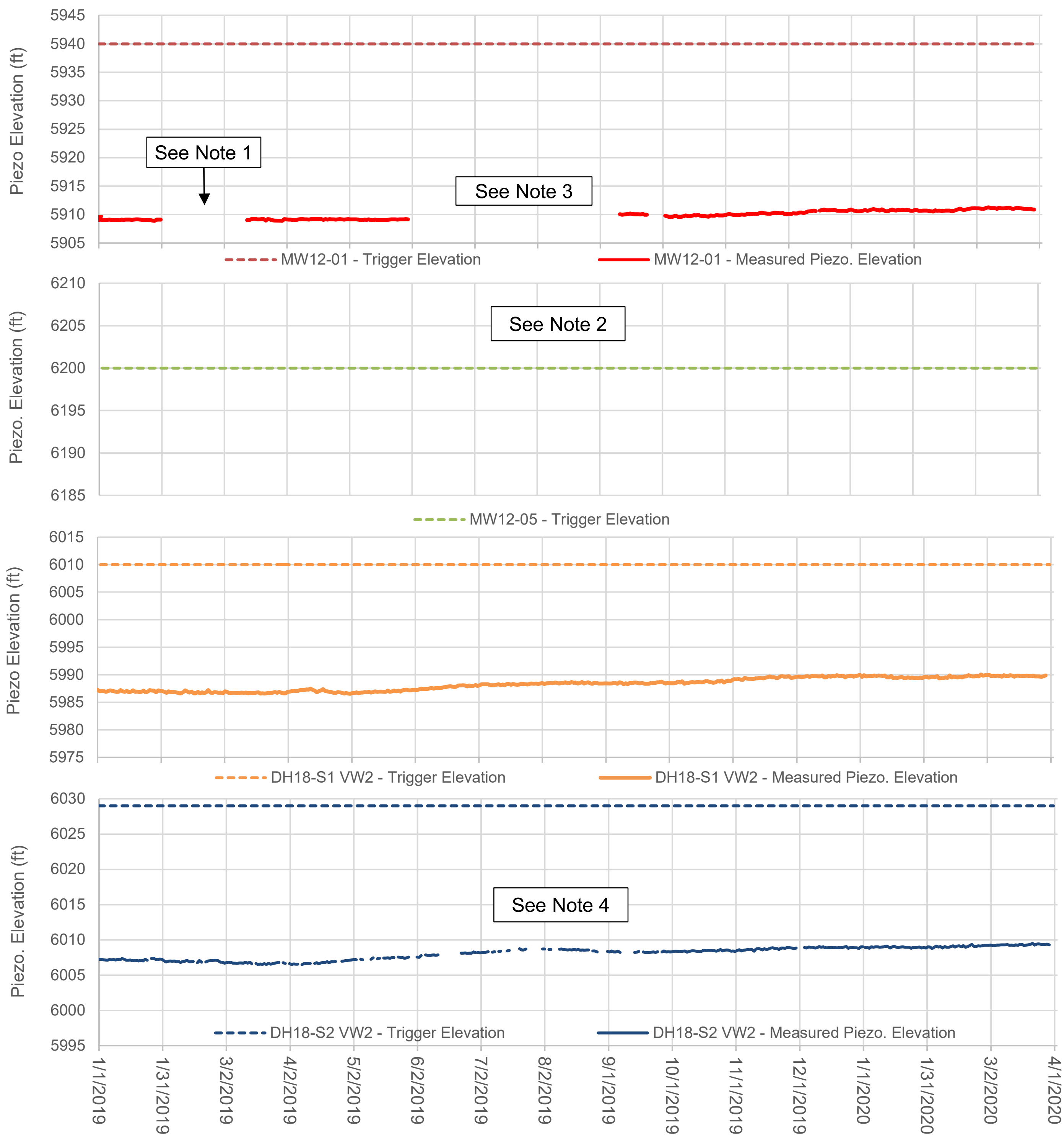
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	VA20-00650	
FIGURE 3		REV 0



NOTES:
1. MW12-01 BECAME UNSATURATED ON FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. STANDPIPE WAS AND REMAINS UNSATURATED (DRY).
3. NO DATA WERE COLLECTED BY MW12-01 FROM MAY 31 TO SEPTEMBER 11, 2019 DUE TO DATA LOGGER EQUIPMENT FAILURE.
4. ERRONEOUS NOISE WAS RECORDED IN THE DATA BY DH18-S2 VW2. THESE DATA HAVE BEEN OMITTED FOR CLARITY.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

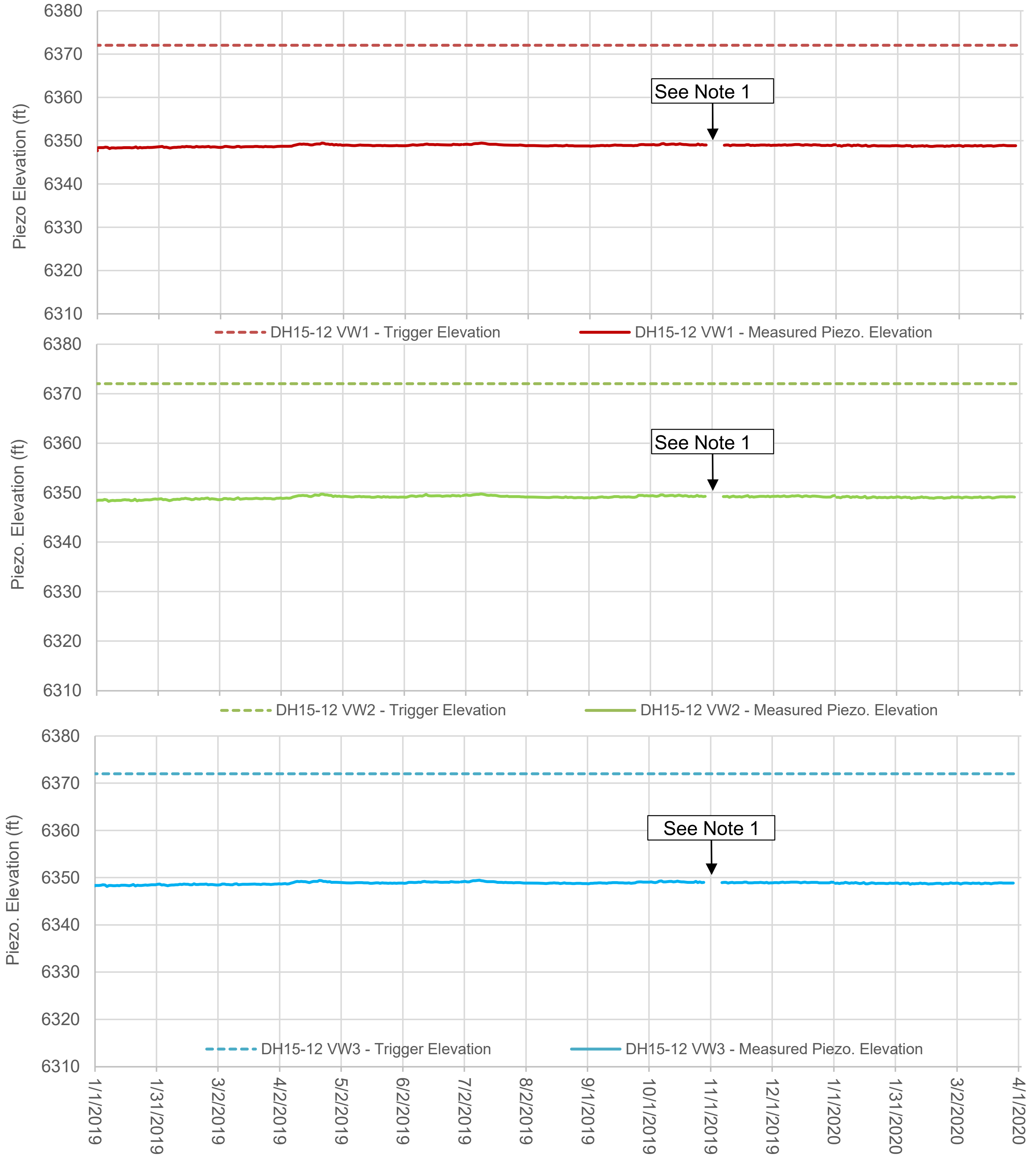
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS NORTH-SOUTH EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00650

FIGURE 4 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'20	ISSUED WITH LETTER	CYP	KTD



NOTES:
1. NO DATA WERE COLLECTED BY OCTOBER 30, 2019 TO NOVEMBER 6, 2019 DUE TO CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

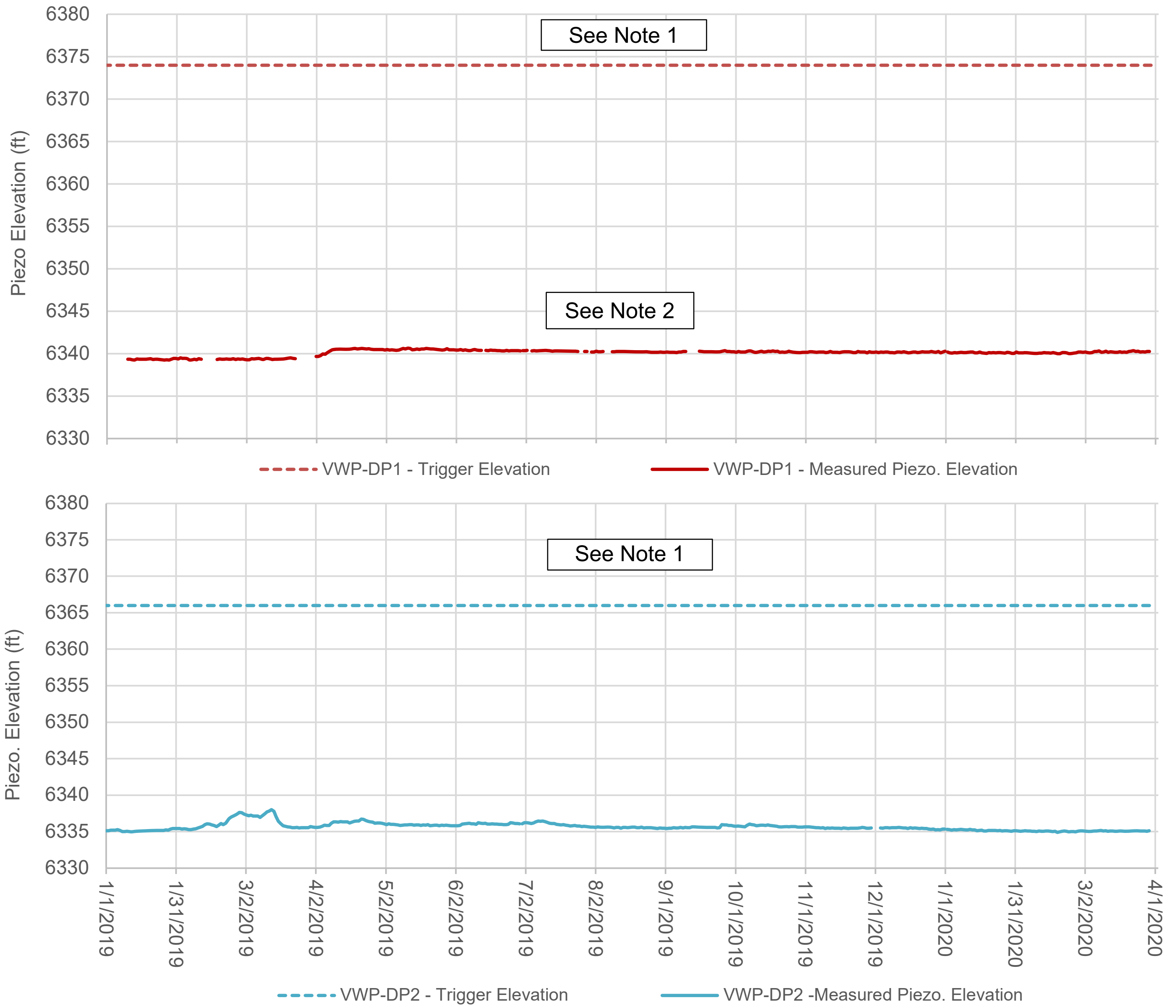
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-00650

FIGURE 5 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'20	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE
2. PERIODIC DATA OUTAGES OCCUR AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

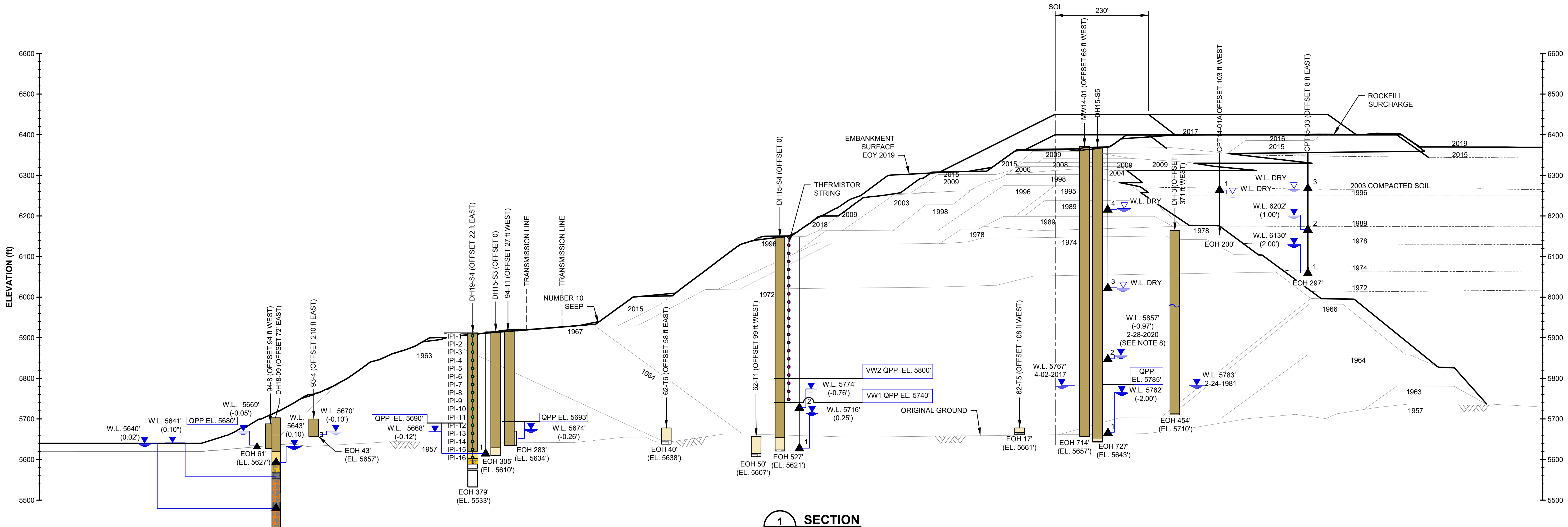
P/A NO. VA101-126/23

REF. NO. VA20-00650

FIGURE 6

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29APR'20	ISSUED WITH LETTER	CYP	KTD



1
SECTION
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 Q1 2020 READINGS, UNLESS OTHERWISE INDICATED.
4. SOL STANDS FOR SETTING OUT LINE.
5. CHANGE IN WATER LEVEL FOR QPP SITES IS RELATIVE TO END OF Q4 2019.
6. MONITORING WELL MW14-01 ABANDONED DUE TO SENSOR MALFUNCTIONING DURING Q4 2019, RESULTING IN ERRONEOUS DATA. DATA OMITTED FOR CLARITY.
7. QPP STANDS FOR QUANTITIVE PERFORMANCE PARAMETERS.
8. A GEOKON GEONET FIRMWARE PROBLEM ASSOCIATED WITH THE 2020 LEAP-YEAR HAS CAUSED ERRONEOUS DATA AT DH15-S5 VW 2 FOLLOWING FEB 29, 2020. MR IS PRESENTLY IN PROGRESS OF UPDATING THE FIRMWARE TO CORRECT THE ISSUE.

LEGEND:

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

- W.L. XXX — PIEZOMETRIC HEAD (FEET) (±X.X) CHANGE IN ELEVATION SINCE LAST QUARTER
- VIBRATING WIRE PIEZOMETER
- THERMISTOR
- SOL — SETTING OUT LINE
- 1972 — HISTORIC TAILINGS SURFACE
- 1972 — DATE OF EMBANKMENT RAISE

SCALE A: 125 0 125 250 375 500 625 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-00650

FIGURE 7 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29APR'20	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B12, 4/26/2020 12:33:30 PM , RMCLELLAN PRINTED: 4/29/2020 4:39:39 PM, FIG 7, RMCLELLAN
XREF FILE(S): Sections IMAGE FILE(S):

July 21, 2020

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

Dear Mike,

RE: Q2 2020 – YDTI Quarterly Piezometric Monitoring Update

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored within the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment contained within rockfill embankments. MR routinely monitors piezometric conditions within the YDTI embankments, tailings mass, and surrounding areas as part of their operational surveillance plan for the tailings facility, as described in the TOMS Manual (MR/KP, 2020). Real-time piezometric records are available to KP via a remote monitoring system (RMS), and these records are comprehensively reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections. This letter provides a quarterly summary of piezometric data collected during the second quarter (Q2) of 2020 for key monitoring sites.

2.0 OVERVIEW OF PIEZOMETRIC MONITORING NETWORK

Pore pressures are monitored at 108 active instrumentation locations at the YDTI and in the West Ridge and Horseshoe Bend (HsB) areas. The piezometric monitoring sites are shown on Figure 1. These sites include 39 standpipe piezometers/monitoring wells and 69 drillholes with vibrating wire piezometers (VWPs). Most existing standpipe piezometers have been outfitted for continuous monitoring by suspending a VWP sensor within the PVC riser and connecting the sensor to the RMS.

Select standpipe piezometers and VWPs have piezometric elevations assigned as Quantitative Performance Parameters (QPPs) in the TOMS Manual and are used to routinely assess the performance of the YDTI. These QPPs specify a piezometric ‘trigger elevation’ at or above which a Level 1 Unusual Occurrence would be triggered, as specified in Table 5.1 of the TOMS Manual (MR/KP, 2020). Trigger elevations assigned to each QPP site are reevaluated by KP on an annual basis. Table 1 summarizes the piezometric QPPs that are presently in use at the YDTI. This letter discusses data from the QPP sites during Q2 2020. Discussion of data from the remaining monitoring sites is completed annually and will be presented in the 2020 Data Analysis Report following Q4 2020.

QPP data collection and availability via the RMS generally experienced only minor interruptions during Q2 2020 due to battery depletions, minor hardware problems, or temporary loss-of-communication. Outages were identified regularly during weekly KP and MR monitoring reviews. Drillholes DH17-S1 (VW2) and DH18-S1 (VW3) experienced more significant outages due to hardware issues that required replacement. Data from drillhole DH17-S2 (VW2) were not recorded from the end of Q1 2020 through the beginning of May 2020. Data from drillhole DH18-S3 (VW3) are unavailable throughout Q1 2020 until the end of April 2020. Monitoring coverage was re-established following replacement of the data loggers and the sites are now operating properly.

3.0 UPDATED QPP NETWORK FOR 2020

The piezometric QPP monitoring network was expanded in the 2020 TOMS update to include an additional eight (8) pore pressure monitoring instruments bringing the total number of QPP sensors to 18. The QPP network expansion was implemented to improve the spatial coverage of QPP monitoring throughout the East-West and North-South Embankments using the numerous pore pressure monitoring sites installed between 2017 and 2019 in these areas. Monitoring well MW14-01 was discontinued as a QPP site following abandonment of the well in Q4 2019, which resulted from a riser blockage. Monitoring coverage in this area has been replaced by establishing a QPP for an adjacent sensor in drillhole DH15-S5 (VW1). The current active QPP network is shown on Figure 1 and details are summarized in Table 1.

Trigger elevations for the new embankment QPP monitoring locations have been specified as approximately 20 ft above the maximum recorded piezometric elevation since the installation of each site. Trigger elevations specified for sensors VWP-DP1 and VWP-DP2 installed within the West Embankment Drain (WED) are specified as the maximum allowable hydraulic grade line established in the WED design basis.

4.0 SUMMARY OF Q2 2020 QPP PIEZOMETRIC CONDITIONS

4.1 GENERAL

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during Q2 2020. A high-level summary of QPP piezometric data and monitoring 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 along the East-West Embankment Section 8+00W are also shown graphically on Figure 7.

4.2 EAST-WEST EMBANKMENT

The majority of QPP sites within the basal saturated zone of the East-West Embankment have continued to display slightly decreasing piezometric trends during Q2 2020. This continues the long-term decreasing trend monitored from 2017 through Q1 2020. The rates of decrease at these sites have continued to slow and several sites have stabilized or recorded slightly increasing piezometric conditions during Q2 2020. Two QPP monitoring well sensors (MW94-11 and MW94-8) and three QPP drillhole sensors (DH15-S3 VW1, DH15-S4 VW1, and DH15-S4 VW2) have monitored slightly decreasing piezometric elevations throughout Q2 2020. The magnitude of quarterly decrease during Q2 2020 ranges from approximately 0.1 to 0.5 ft. Two sensors in drillholes DH15-S5 (VW1) and DH17-S1 (VW2) monitored an overall quarterly decrease; however, piezometric elevations began increasing slightly beginning in May 2020 through the end of Q2. Drillhole DH15-S5 (VW1) monitored an initial decrease of 0.71 ft and a subsequent increase of 0.36 ft resulting in an overall quarterly decrease of 0.35 ft. Drillhole DH17-S1 (VW2) monitored an initial decrease of 0.83 ft and a subsequent increase of 0.56 ft resulting in an overall quarterly decrease of 0.27 ft. Pore water pressures monitored by QPP sensors in drillholes DH17-S2 (VW2) and DH18-S3 (VW3) remained stable throughout Q2 2020.

The continued decreasing trend within the embankment rockfill is interpreted to result from use of multiple tailings discharge points instead of the historical (pre-2016) practice of using a single, central discharge location. The updated deposition strategy is inferred to have resulted in desaturation within a significant portion of the central tailings mass adjacent to the East-West Embankment as compared to historical conditions. A reduction in tailings slurry-based water recharge has influenced drainage interaction with the adjacent embankment resulting in decreasing piezometric pressures. The slowing rate of decrease suggests that pore pressures within the central section of the East-West Embankment may be approaching a new steady-state condition associated with the discharge strategies in place since 2016. The minor increases in pore pressure monitored at two sites (DH15-S5, DH17-S1) from May through the end of Q2 2020 may be a delayed response from predominant use of tailings discharge locations in the vicinity of the central pedestal area in the Q4 2019 through Q1 2020.

4.3 NORTH-SOUTH EMBANKMENT

QPP sites within the embankment rockfill at the North-South Embankment have previously indicated relatively constant or slightly increasing piezometric elevations since 2018. These trends generally continued through Q2 2020. Pore water pressures monitored within the basal saturated zone at drillholes DH18-S1 (VW2) and DH18-S2 (VW2) monitored slight increases in pore pressure during Q2 2020 of about 0.3 ft. Monitoring well MW12-01 recorded a very slight quarterly decrease of approximately 0.1 ft. Monitoring well MW12-05 has been historically unsaturated, indicating that the piezometric elevation is below the bottom of the well screen (less than 6,198 ft elevation). This site continues to measure unsaturated conditions indicating that the well remains unsaturated (dry) through Q2 2020.

Minor piezometric fluctuations associated with construction of the North-South Embankment step-out were observed by both QPP and non-QPP sites within the basal saturated zone and foundation due to construction of four lifts from mid-2019 through Q1 2020, as described in KP (2020). The last lift up to EL. 6,400 ft was completed in April 2020. The largest pore pressure response to construction was observed in the alluvial foundation material at drillhole DH18-S1 (VW1) on Section 28+00N (non-QPP site). The EL. 6,400 ft lift resulted in a construction induced pore pressure increase of approximately 25 ft. and subsequent partial dissipation at this site. Pore water pressures at VW1 (DH18-S1) began to dissipate following the 6,400 lift placement, which has continued throughout Q1 and Q2 2020. The average rate of pore pressure decrease during Q2 2020 was 4 ft/month and pore pressures have recovered to within approximately 7 ft of pre-6,400 lift conditions. Minor pore pressure dissipation following 6,400 lift construction was observed at DH18-S1 (VW2), DH18-S2 (VW2), and MW12-01 (VW1) within the basal system, with magnitudes of decrease ranging between 0.2 and 0.5 ft. KP will continue to monitor conditions at DH18-S1, DH18-S2, MW12-01, and MW12-05 as dissipation continues following 6,400 lift construction. Piezometric pressures recorded at both DH18-S1 (VW2) and DH18-S2 (VW2) remain approximately 20 ft below the QPP 'trigger elevation' and measured pressures recorded at MW12-01 remain greater than 25 ft below the QPP 'trigger elevation'.

4.4 WEST EMBANKMENT AND DRAIN

Piezometric elevations within the West Embankment were relatively constant through 2019 and Q1 2020 following an increasing trend from 2015 through 2018 corresponding to the increasing supernatant pond elevation and tailings elevations due to ongoing operations. Piezometric conditions throughout Q2 2020 have continued to remain stable due to the draining influence of the West Embankment Drain (WED). The invert elevation of the WED is now lower than the YDTI pond for significant portions of the Stage 1 WED drain length. Three QPP sensors installed within the foundation in drillhole DH15-12 recorded stable piezometric conditions throughout Q2 2020. Piezometric elevations from the uppermost two sensors (VW2 and VW3) are approximately coincident with the WED drain invert elevation indicating that the drain is controlling pore pressures within the embankment foundation. Pore water pressures monitored within the WED in Drain Pods 1 and 2 (VWP-DP1 and VWP-DP2) have also remained relatively constant throughout Q2 2020. Sensors installed in drillhole DH15-12 are presently more than 20 feet below the TOMS QPP trigger elevations. Sensors installed in Drain Pods 1 and 2 remain more than 30 feet below the trigger elevations.

5.0 CONCLUSIONS

Piezometric elevations within the embankment rockfill and tailings mass of the YDTI are available in real-time using the RMS and are monitored by KP and MR. KP provides an analysis of monitoring data on a quarterly basis for a subset of the monitoring sites specified as QPP sites within the TOMS Manual. 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 following the end of 2020. There were no QPP exceedances during Q2 2020.

The piezometric QPP monitoring network was revised in 2020 to include an additional eight (8) pore pressure monitoring instruments, which improved the spatial coverage of the QPP network along the North-South and East-West Embankments. Two QPP monitoring sites (DH17-S2 and DH18-S3) required data logger replacement in Q2 2020 to remedy data outages caused by hardware malfunction. Functionality of these sites has been restored.

The piezometric monitoring network and monitoring protocols for the YDTI are being progressively upgraded. Additional VWP monitoring sites were installed as part of a 2019 Embankment Geotechnical Site Investigation Program. These monitoring sites have further expanded the spatial coverage of the monitoring network and were incorporated with the web-based RMS immediately following installation. Monitoring protocols will be progressively updated to take advantage of the automation capabilities of the RMS.

We trust this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared: Colin Phang, E.I.T.
Junior Engineer

Prepared: 2020-07-21
Kevin Davenport, P.Eng.
Senior Engineer

Reviewed: 2020-07-21
Daniel Fontaine, P.E.
Specialist Engineer | Associate

Reviewed: 2020-07-21
Ken Brouwer, P.E.
Principal

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

Attachments:

Table 1 Rev 0	Summary of Piezometric Quantitative Performance Parameters (QPP) Monitoring
Figure 1 Rev 0	Active Piezometric Instrumentation and Monitoring Sites
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)

References:

Knight Piésold Ltd. (KP, 2019). 2018 Data Analysis Report (KP Reference No. VA101-126/19-4 Rev 0), dated August 15, 2019.

Knight Piésold Ltd. (KP, 2020). Q1 2020 – YDTI Quarterly Piezometric Monitoring Update (KP Reference No. VA20-00650), dated April 30, 2020.

Montana Resources and Knight Piésold (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

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

/cyp

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

Q2 2020 INSTRUMENTATION SUMMARY
SUMMARY OF PIEZOMETRIC QUANTITATIVE PERFORMANCE PARAMETERS (QPP) MONITORING

Print Jul/21/20 7:15:45

Monitoring Region	QPP Instrumentation Site	Monitoring Site Type [1]	Piezometric Trigger Elevation (ft)	Maxiumum Piezometric Elevation Recorded Q2 2020 (ft)	Exceeded Trigger Elevation During Q2 2020 (Yes/No)	Comments
East-West Embankment	MW94-08	VWP Sensor	5,680	5,670	No	
	MW94-11	VWP Sensor	5,693	5,675	No	
	DH15-S3 VW1	VWP Sensor	5,690	5,668	No	
	DH15-S4 VW1	VWP Sensor	5,740	5,717	No	
	DH15-S4 VW2	VWP Sensor	5,800	5,774	No	
	DH15-S5 VW1	VWP Sensor	5,785	5,764	No	Sensor added for 2020 QPP Monitoring[3]
	DH17-S1 VW2	VWP Sensor	5,741	5,721	No	Sensor added for 2020 QPP Monitoring[3]
	DH17-S2 VW2	VWP Sensor	5,969	5,849	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S3 VW3	VWP Sensor	6,044	6,025	No	Sensor added for 2020 QPP Monitoring[3]
North-South Embankment	MW12-01	VWP Sensor	5,940	5,911	No	
	MW12-05	VWP Sensor	6,200	Unsaturated	No	
	DH18-S1 VW2	VWP Sensor	6,010	5,990	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S2 VW2	VWP Sensor	6,029	6,010	No	Sensor added for 2020 QPP Monitoring[3]
West Embankment	VWP-DP1	VWP Sensor	6,374	6,341	No	Sensor added for 2020 QPP Monitoring[3]
	VWP-DP2	VWP Sensor	6,366	6,335	No	Sensor added for 2020 QPP Monitoring[3]
	DH15-12 VW1	VWP Sensor	6,372	6,349	No	
	DH15-12 VW2	VWP Sensor	6,372	6,350	No	
	DH15-12 VW3	VWP Sensor	6,372	6,349	No	

\\KPL\VA-Prj$\1\01\00126\23\A\Data\Task 320 - Monitoring\2 - Quarterly Piezometric Monitoring Summary\2020\Q2\[QPP Compliance Figures and Table Q2.xlsx]Table 1 - QPP Evaluation

NOTES:
1. PIEZOMETRIC DATA FROM THE VWP SITES ARE COLLECTED CONTINUOUSLY 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 MOST RECENT TOMS UPDATE (MR/KP, 2020).

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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PLAN
SCALE A

LEGEND:

- PIEZOMETRIC MONITORING SITE
- WELL NOT ACCESSIBLE (BURIED OR ABANDONED)
- QUANTITATIVE PERFORMANCE PARAMETER INSTRUMENT LOCATION
- IN-PLACE INCLINOMETER SITE
- GEOPHYSICAL TEST SITE
- TAILINGS PIPELINE
- PROPERTY LINE

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS BASED ON ANACONDA MINE GRID.
2. QPP = QUANTITATIVE PERFORMANCE PARAMETER.
3. AERIAL IMAGERY FROM JULY 1, 2019 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A 500 0 500 1000 1500 2000 2500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES

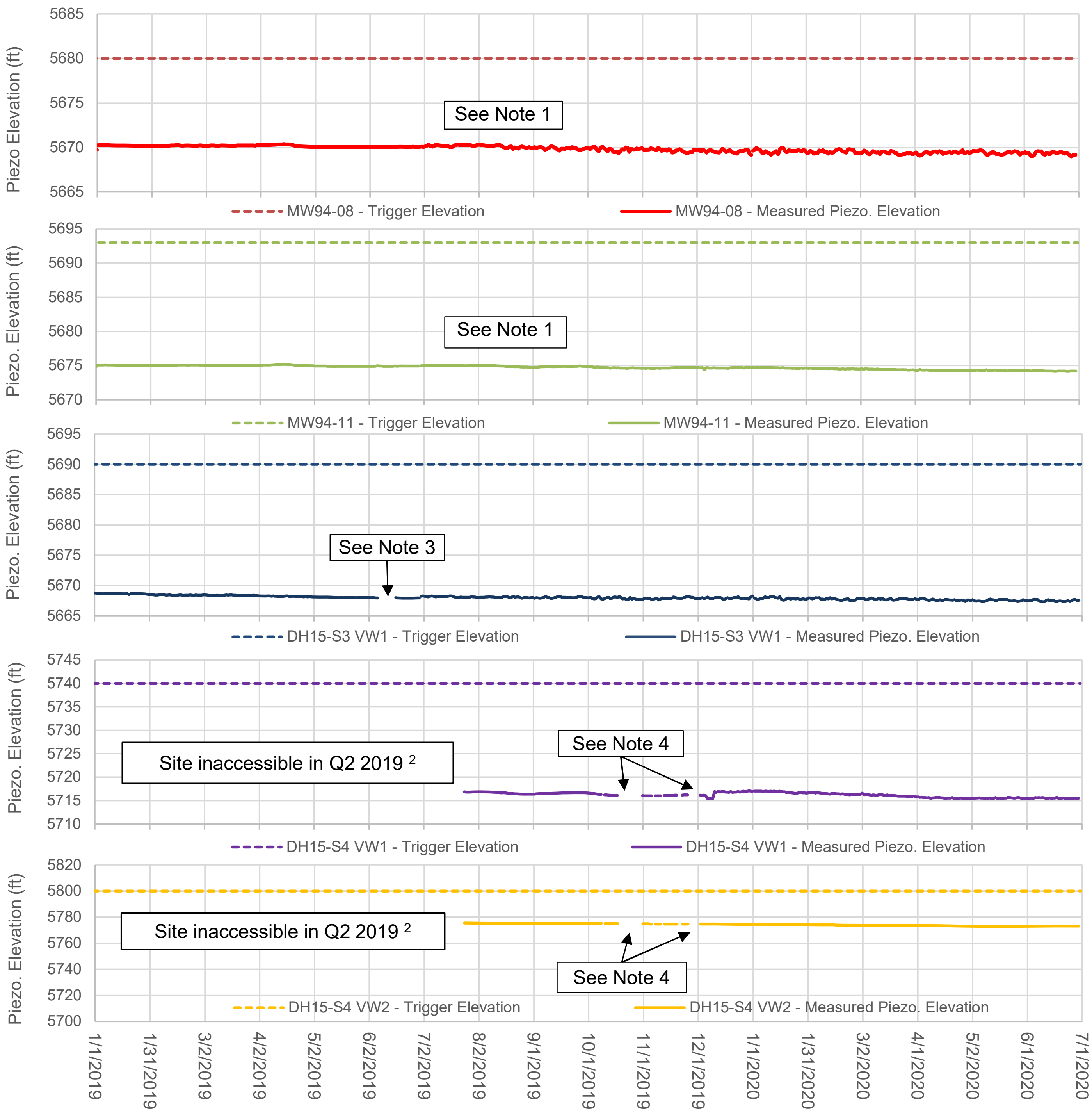
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-01377

FIGURE 1 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	21JUL'20	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B11, 7/6/2020 7:43:08 AM, RMCLELLAN PRINTED: 7/21/2020 10:20:36 AM, FIG 1, RMCLELLAN
XREF FILE(S): TOPO - SFT - 2018 BATH AND MAY 29 2019 - 58_01_2019; IMAGE FILE(S): 58_01_2019 SFT_01



NOTES:

1. MW94-08 AND MW94-11 WERE CONVERTED ON JUNE 21, 2018 TO ALLOW FOR CONTINUOUS MONITORING USING A VWP SUSPENDED IN THE STANDPIPE DURING THE INTEGRATION OFTHE REMOTE MONITORING SYSTEM.
2. 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.
3. NO DATA WERE COLLECTED BY DH15-S3 VW1 FROM JUNE 7, 2019 TO JUNE 16, 2019 DUE TO INSUFFICIENT BATTERY VOLTAGE
4. 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.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

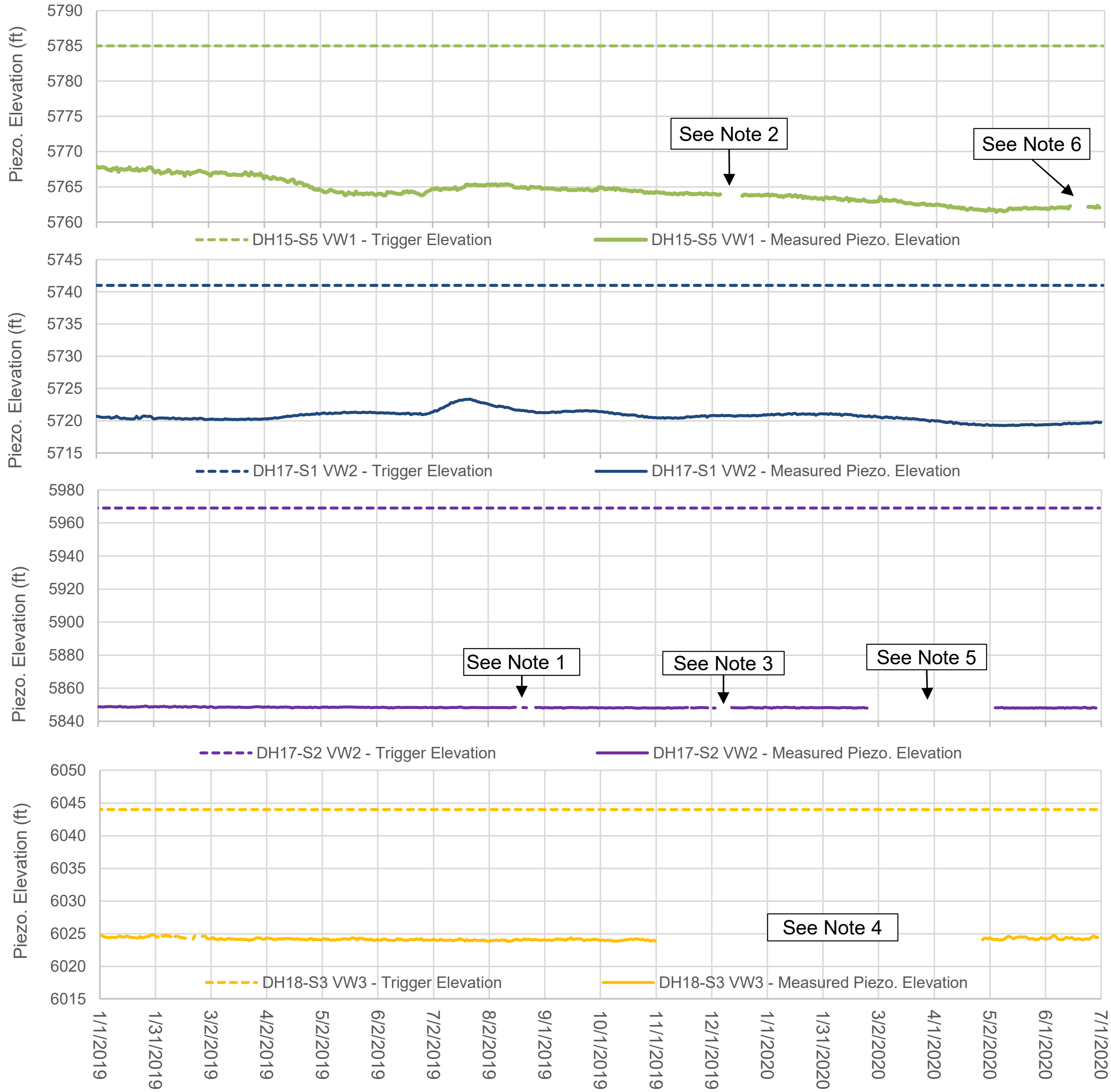
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	21JUL'20	ISSUED WITH LETTER	CYP	KTD

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01377

FIGURE 2 REV 0



NOTES:

1. NO DATA WERE COLLECTED BY DH17-S2 VW2 FROM AUGUST 17, 2019 TO AUGUST 29, 2019 DUE TO AN UNKNOWN HARDWARE ISSUE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW1 FROM DECEMBER 7 TO 17, 2019 DUE TO A DATA LOGGER ISSUE. THE SENSOR WAS SUBSEQUENTLY CONNECTED TO A REPLACEMENT DATA LOGGER.
3. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO INTERMITTENT VOLTAGE ISSUES FROM DECEMBER 1 TO 12, 2019.
4. NO DATA WERE COLLECTED BY DH18-S3 VW1 FROM NOVEMBER 1, 2019 TO FEBRUARY 3, 2020 AND ERRONEOUS DATA RECORDED FROM FEBRUARY 4 TO APRIL 30, 2020 DUE TO SUSPECTED HARDWARE DAMAGE.
5. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO THREAD POWER SUPPLY ISSUES FEBRUARY 25, 2020 TO MAY 7, 2020.
6. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO LOGGER POWER SUPPLY ISSUES FROM JUNE 13, 2020 TO JUNE 23, 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

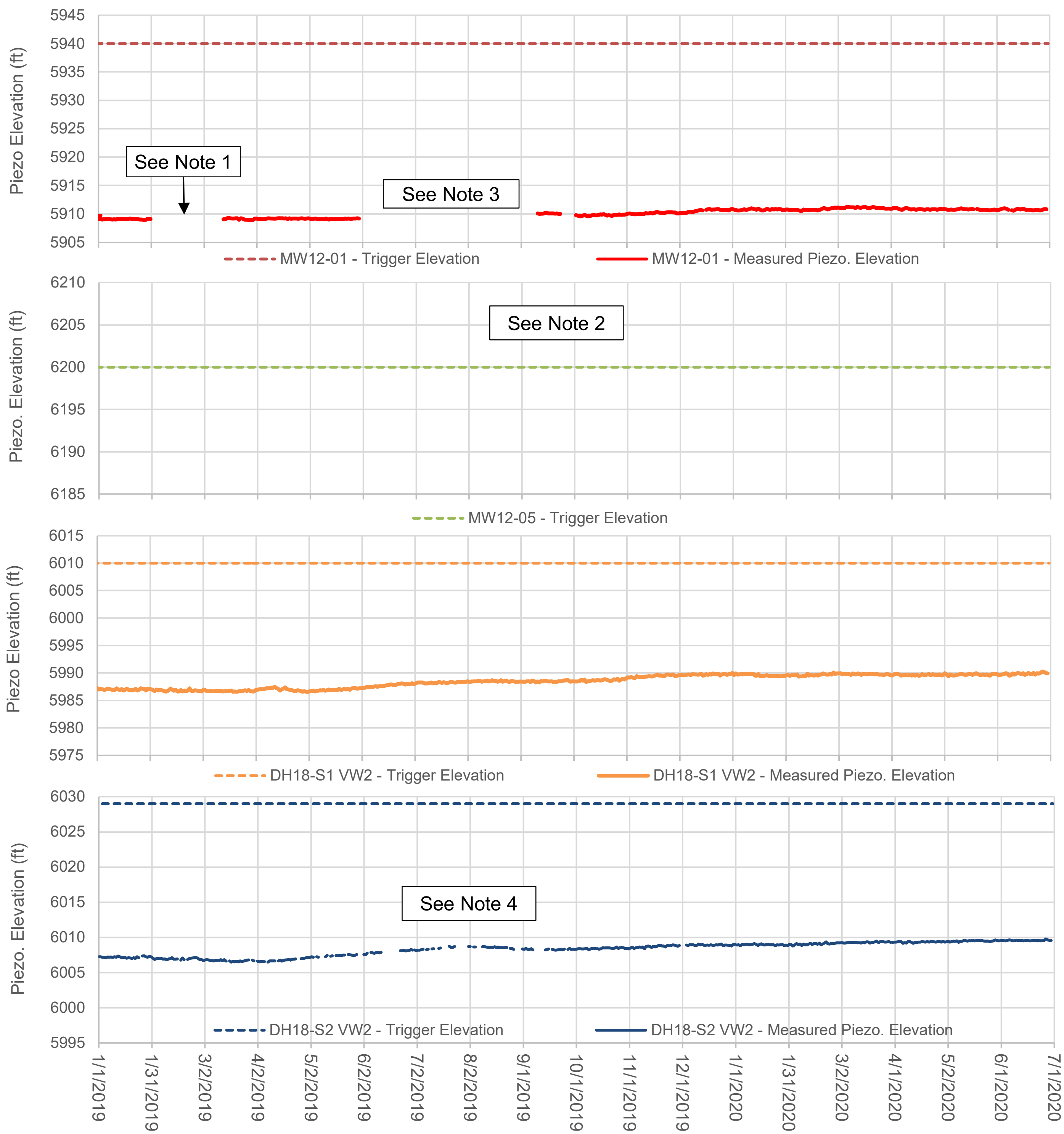
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01377

FIGURE 3 REV 0

0	21JUL'20	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. MW12-01 BECAME UNSATURATED ON FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. STANDPIPE WAS AND REMAINS UNSATURATED (DRY).
3. NO DATA WERE COLLECTED BY MW12-01 FROM MAY 31 TO SEPTEMBER 11, 2019 DUE TO DATA LOGGER EQUIPMENT FAILURE.
4. ERRONEOUS NOISE WAS RECORDED IN THE DATA BY DH18-S2 VW2. THESE DATA HAVE BEEN OMITTED FOR CLARITY.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

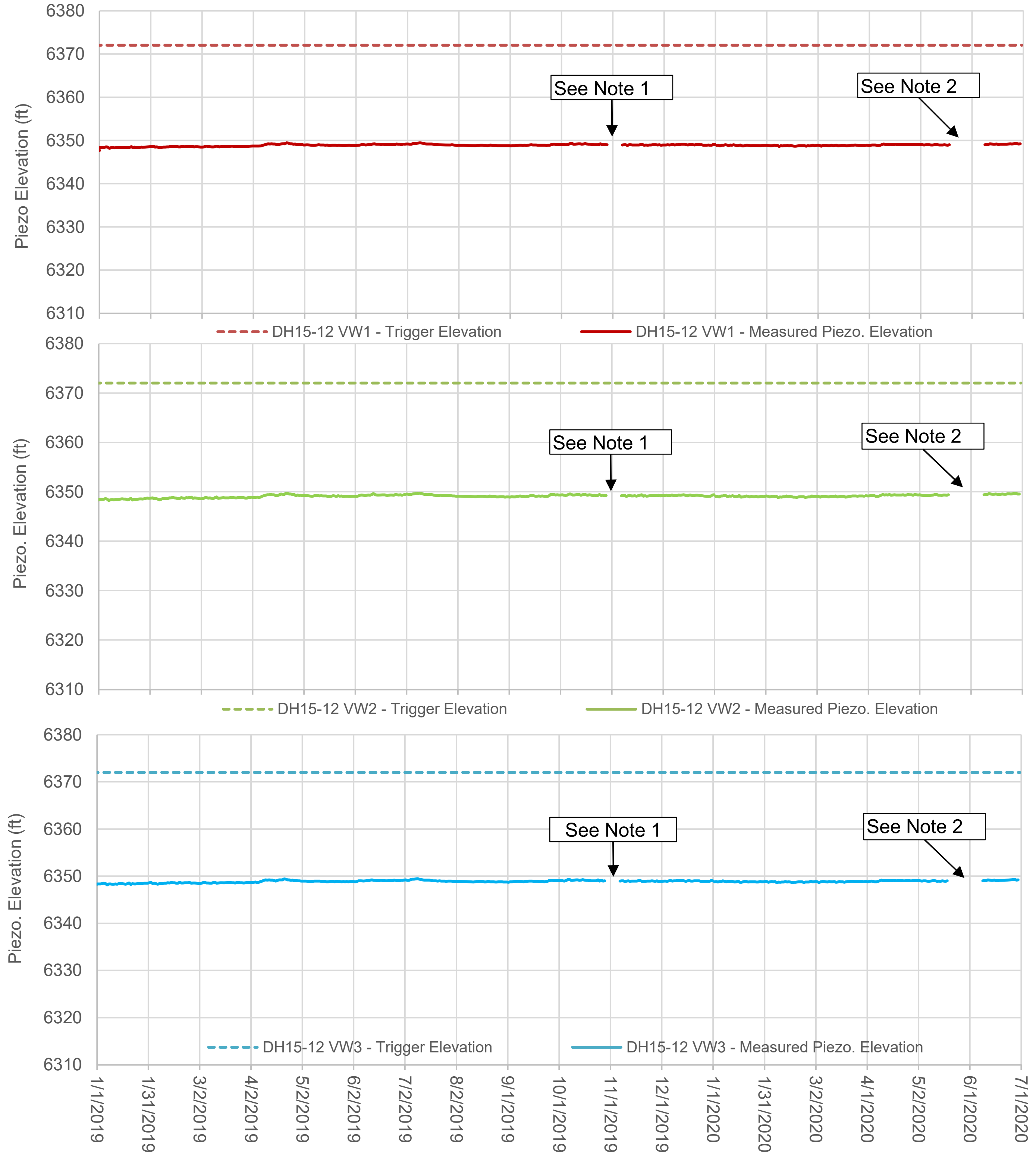
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS NORTH-SOUTH EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01377

FIGURE 4 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	21JUL'20	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. NO DATA WERE COLLECTED BY OCTOBER 30, 2019 TO NOVEMBER 6, 2019 DUE TO CONNECTIVITY ISSUE.
2. NO DATA WERE COLLECTED AT DH15-12 VW1, VW2, AND VW3 FROM MAY 19 TO JUNE 9, 2020 DUE TO SUSPECTED LOGGER CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

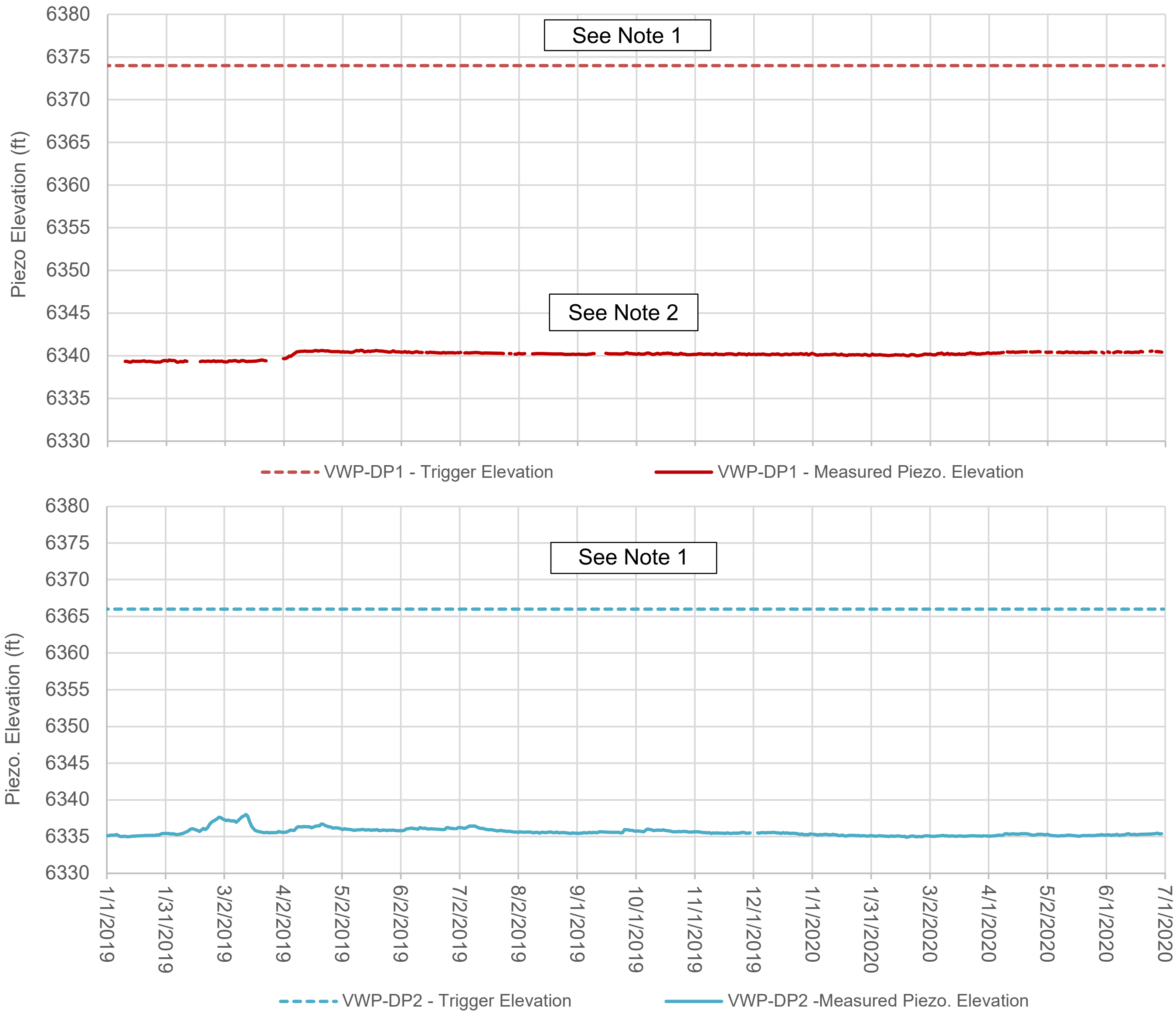
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01377

FIGURE 5 REV 0

0	21JUL'20	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE.
2. PERIODIC DATA OUTAGES OCCUR AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

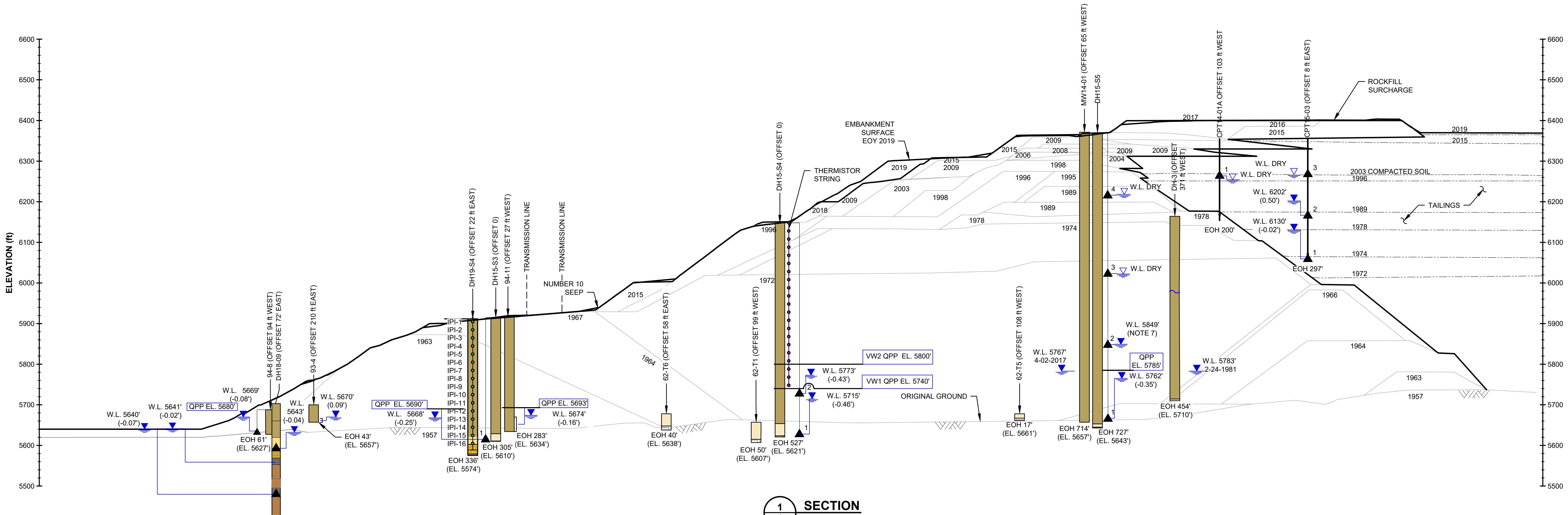
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-01377

FIGURE 6 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	21JUL'20	ISSUED WITH LETTER	CYP	KTD



SECTION
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 Q2 2020 READINGS, UNLESS OTHERWISE INDICATED.
4. CHANGE IN WATER LEVEL FOR QPP SITES IS RELATIVE TO END OF Q1 2020.
5. MONITORING WELL MW14-01 ABANDONED DUE TO SENSOR MALFUNCTIONING DURING Q4 2019, RESULTING IN ERRONEOUS DATA. DATA OMITTED FOR CLARITY.
6. QPP STANDS FOR QUANTITIVE PERFORMANCE PARAMETERS.
7. NO QUARTERLY PIEZOMETRIC CHANGE IS REPORTED FOR DH15-S5 VW2 AS THE SENSOR WAS REPORTING ERRONEOUS DATA FOR MUCH OF Q2 2020.

LEGEND:

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

W.L. XXX	PIEZOMETRIC HEAD (FEET) (±X.X) CHANGE IN ELEVATION SINCE LAST QUARTER
	VIBRATING WIRE PIEZOMETER
	THERMISTOR
	INCLINOMETER SENSOR
SOL	SETTING OUT LINE
1972	HISTORIC TAILINGS SURFACE
1972	DATE OF EMBANKMENT RAISE

SCALE A 125 0 125 250 375 500 625 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF NO.	
VA101-126/23	VA20-01377	
FIGURE 7		REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	21JUL'20	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B12, 7/13/2020 11:29:30 AM, RMCLELLAN PRINTED: 7/21/2020 10:45:14 AM, FIG 7, RMCLELLAN
XREF FILE(S): Sections IMAGE FILE(S):

November 5, 2020

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

Dear Mike,

RE: Q3 2020 – YDTI Quarterly Piezometric Monitoring Update

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored within the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment contained within rockfill embankments. MR routinely monitors piezometric conditions within the YDTI embankments, tailings mass, and surrounding areas as part of their operational surveillance plan for the tailings facility, as described in the TOMS Manual (MR/KP, 2020). Real-time piezometric records are available to KP via a remote monitoring system (RMS), and these records are comprehensively reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections. This letter provides a quarterly summary of piezometric data collected during the third quarter (Q3) of 2020 for key monitoring sites.

2.0 OVERVIEW OF PIEZOMETRIC MONITORING NETWORK

Pore pressures are monitored at 108 active instrumentation locations at the YDTI and in 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 and 69 drillholes with vibrating wire piezometers (VWPs). 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 to the RMS.

Select standpipe piezometers and VWPs have piezometric elevations assigned as Quantitative Performance Parameters (QPPs) in the TOMS Manual and are used to routinely assess the performance of the YDTI. These QPPs specify a piezometric 'trigger elevation' at or above which a Level 1 Unusual Occurrence would be triggered, as specified in Table 5.1 of the TOMS Manual (MR/KP, 2020). Trigger elevations assigned to each QPP site are reevaluated by KP on an annual basis. Table 1 summarizes the piezometric QPPs that are presently in use at the YDTI. This letter discusses data from the QPP sites during Q3 2020. Discussion of data from the remaining monitoring sites is completed annually and will be presented in the 2020 Data Analysis Report following Q4 2020.

QPP data collection and availability via the RMS generally experienced only minor interruptions during Q3 2020 with causes including battery depletion, minor hardware problems, water damaged hardware, and temporary loss-of-communication. Outages were identified regularly during weekly monitoring reviews. Data from drillhole DH15-S5 (VW1) are unavailable throughout the majority of September 2020 due to a water damaged data logger. Data from all sensors at DH15-12 (VW1, VW2, and VW3) were not available during the majority of July 2020 due to a suspected logger connectivity issue. Monitoring coverage at these sites has been re-established following replacement of the data loggers and the sites are now operating properly.

3.0 UPDATED QPP NETWORK FOR 2020

The piezometric QPP monitoring network was expanded in the 2020 TOMS update to include an additional eight (8) pore pressure monitoring instruments bringing the total number of QPP sensors to 18. The QPP network expansion was implemented to improve the spatial coverage of QPP monitoring throughout the East-West and North-South Embankments using the numerous pore pressure monitoring sites installed between 2017 and 2019 in these areas. Monitoring well MW14-01 was discontinued as a QPP site following abandonment of the well in Q4 2019, which resulted from a riser blockage. Monitoring coverage in this area has been replaced by establishing a QPP for an adjacent sensor in drillhole DH15-S5 (VW1). The current active QPP network is shown on Figure 1 and details are summarized in Table 1.

Trigger elevations for the new embankment QPP monitoring locations have been specified as approximately 20 ft above the maximum recorded piezometric elevation since the installation of each site. Trigger elevations specified for sensors VWP-DP1 and VWP-DP2 installed within the West Embankment Drain (WED) are specified as the maximum allowable hydraulic grade line established in the WED design basis.

4.0 SUMMARY OF Q3 2020 QPP PIEZOMETRIC CONDITIONS

4.1 GENERAL

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during Q3 2020. A high-level summary of QPP piezometric data and monitoring 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 piezometric elevation change along the East-West Embankment Section 8+00W are presented graphically on Figure 7.

4.2 EAST-WEST EMBANKMENT

The majority of QPP sites within the basal saturated zone of the East-West Embankment have continued to display slightly decreasing piezometric trends during Q3 2020. This continues the long-term decreasing trend monitored from 2017 through Q2 2020. The rates of decrease at these sites have continued to slow and several sites have stabilized or recorded slightly increasing piezometric conditions during Q3 2020. One QPP monitoring well sensor (MW94-11) and five QPP drillhole sensors (DH15-S3 VW1, DH15-S4 VW1 and VW2, DH17-S1 VW2, DH18-S3 VW3) have monitored decreasing piezometric elevations throughout Q3 2020. The magnitude of quarterly decrease during Q3 2020 ranges from approximately 0.1 to 0.8 ft. Two QPP sensors in drillholes DH15-S5 (VW1) and DH17-S2 (VW2) as well as another QPP sensor in monitoring well MW94-8 showed minor quarterly increases in Q3 2020. These increases ranged from 0.1 ft to 0.5 ft.

The continued decreasing trend within the embankment rockfill is interpreted to result from continued use of multiple tailings discharge points instead of the historical (pre-2016) practice of using a single, central discharge location. The updated deposition strategy is inferred to have resulted in desaturation within a significant portion of the central tailings mass adjacent to the East-West Embankment as compared to historical conditions. A reduction in tailings slurry-based water recharge has influenced drainage interaction with the adjacent embankment resulting in decreasing piezometric pressures. The slowing rate of decrease suggests that pore pressures within the central section of the East-West Embankment may be approaching a new steady-state condition associated with the discharge strategies in place since 2016. The minor increases in pore water pressure monitored at two sites (DH15-S5 and DH17-S2) beneath the embankment crest during Q3 2020 may be a response to predominant use of tailings discharge locations in the vicinity of the central pedestal area (EW-2, EW-3 and NS-1), which account for 36% of the Q3 discharge and 44% of the 2020 discharge from January 1 to September 30, 2020.

4.3 NORTH-SOUTH EMBANKMENT

QPP sites within the embankment rockfill at the North-South Embankment have previously indicated relatively constant or slightly increasing piezometric elevations since 2018. Pore water pressures monitored during Q3 2020 have generally exhibited a continuation of this increasing trend. Piezometric elevations monitored within the basal saturated zone at drillholes DH18-S1 (VW2) and DH18-S2 (VW2) increased by approximately 0.6 and 0.8 ft during Q3 2020. Monitoring well MW12-01 recorded a very slight quarterly decrease of approximately 0.1 ft during Q3 2020, which is inferred to result from the significantly decreased tailings discharge from NS-1 in Q2 and Q3 as compared with Q1 2020. Monitoring well MW12-05 has been historically unsaturated, indicating that the piezometric elevation is below the bottom of the well screen (less than 6,198 ft elevation). This site continues to measure unsaturated conditions indicating that the well remains unsaturated (dry) through Q3 2020.

Minor piezometric fluctuations associated with construction of the North-South Embankment step-out were observed by both QPP and non-QPP sites within the basal saturated zone and foundation due to construction of four lifts from mid-2019 through Q1 2020, as described in KP (2020). The last lift, up to EL. 6,400 ft, was completed in April 2020. The largest pore pressure response to construction was observed in the alluvial foundation material at drillhole DH18-S1 (VW1) on Section 28+00N (non-QPP site). The EL. 6,400 ft lift resulted in a construction induced pore pressure increase of approximately 25 ft and subsequent partial dissipation at this site. Pore water pressures at VW1 (DH18-S1) began to dissipate following the EL. 6,400 lift placement, which continued throughout Q1, Q2, and Q3 2020. The average rate of pore pressure decrease during Q3 2020 was approximately 3 ft/month and pore pressures recovered to pre-6,400 lift conditions by the end of September 2020. Minor pore pressure dissipation following EL. 6,400 lift construction was observed at DH18-S1 (VW2), DH18-S2 (VW2) and MW12-01 (VW1) within the basal system, with magnitudes of decrease ranging between 0.2 and 0.5 ft. KP will continue to monitor conditions at DH18-S1, DH18-S2, MW12-01, and MW12-05 as dissipation continues following EL. 6,400 lift construction. Piezometric pressures recorded at both DH18-S1 (VW2) and DH18-S2 (VW2) remain approximately 20 ft below the QPP ‘trigger elevation’ and measured pressures recorded at MW12-01 remain greater than 25 ft below the QPP ‘trigger elevation’. The increases in pore pressures at sites DH18-S1 (VW2) and DH18-S2 (VW2) during Q3 are inferred to be associated with continued tailings discharge along the North-South Embankment, including commissioning of an additional new discharge location (NS-4) at the location shown on Figure 1.

4.4 WEST EMBANKMENT AND DRAIN

Piezometric elevations within the foundation of the West Embankment have been relatively constant through 2019 and 2020 following an increasing trend from 2015 through 2018 that was attributed to increasing supernatant pond and tailings elevations resulting from ongoing operations. Piezometric conditions throughout Q3 2020 have continued to remain stable due to the draining influence of the West Embankment Drain (WED). The invert elevation of the WED is now lower than the YDTI pond. Three QPP sensors installed within the foundation in drillhole DH15-12 recorded stable piezometric conditions throughout Q3 2020. Piezometric elevations from the uppermost two sensors (VW2 and VW3) are approximately coincident with the WED drain invert elevation indicating that the drain is controlling pore pressures within the embankment foundation. Pore water pressures monitored within the WED in Drain Pods 1 and 2 (VWP-DP1 and VWP-DP2, respectively) have also remained relatively constant throughout Q3 2020. Sensors installed in drillhole DH15-12 are presently more than 20 feet below the TOMS QPP trigger elevations. Sensors installed in Drain Pods 1 and 2 remain more than 30 feet below the trigger elevations.

5.0 CONCLUSIONS

Piezometric elevations within the embankment rockfill and tailings mass of the YDTI are available in real-time using the RMS and are monitored by KP and MR. KP provides an analysis of monitoring data on a quarterly basis for a subset of the monitoring sites specified as QPP sites within the TOMS Manual. 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 following the end of 2020. There were no QPP exceedances during Q3 2020.

The piezometric QPP monitoring network was revised in 2020 to include an additional eight (8) pore pressure monitoring instruments, which improved the spatial coverage of the QPP network along the North-South and East-West Embankments. Two QPP monitoring sites (all three sensors at DH15-12 and one at DH15-S5) required data logger replacement in Q3 2020 to remedy data outages caused by hardware malfunction. Functionality of these sites has been restored.

The piezometric monitoring network and monitoring protocols for the YDTI are being progressively upgraded. Additional pore pressure monitoring sites were recently installed as part of a 2020 Embankment Geotechnical Site Investigation Program. These monitoring sites will further expand the spatial coverage of the monitoring network. Monitoring protocols will be progressively updated to take advantage of the automation capabilities of the RMS.

We trust this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared:	Colin Phang, E.I.T. Junior Engineer	Prepared:	2020-11-05 Kevin Davenport, P.Eng. Senior Engineer
Reviewed:	2020-11-05 Daniel Fontaine, P.E. Specialist Engineer | Associate	Reviewed:	2020-11-05 Ken Brouwer, P.E. Principal

PROFESSIONAL PROVINCE OF BRITISH COLUMBIA K. T. DAVENPORT # 48840 ENGINEER

MONTANA DANIEL DYLAN FONTAINE No. 59785 PE LICENSED PROFESSIONAL ENGINEER

MONTANA KEN J. BROUWER 50020 PE REGISTERED PROFESSIONAL ENGINEER

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

Attachments:

Table 1 Rev 0	Summary of Piezometric Quantitative Performance Parameter (QPP) Monitoring
Figure 1 Rev 0	Active Piezometric Instrumentation and Monitoring Sites
Figure 2 Rev 0	Summary of Measured Piezometric Elevations vs. QPP Triggers East-West Embankment
Figure 3 Rev 0	Summary of Measured Piezometric Elevations vs. QPP Triggers East-West Embankment
Figure 4 Rev 0	Summary of Measured Piezometric Elevations vs. QPP Triggers North-South Embankment
Figure 5 Rev 0	Summary of Measured Piezometric Elevations vs. QPP Triggers West Embankment
Figure 6 Rev 0	Summary of Measured Piezometric Elevations vs. QPP Triggers West Embankment
Figure 7 Rev 0	Piezometric Conditions Along East-West Embankment Section 8+00W (Looking West)

References:

Knight Piésold Ltd. (KP, 2020). 2019 Data Analysis Report (KP Reference No. VA101-126/21-4 Rev 0), dated August 28, 2020.

Montana Resources and Knight Piésold (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

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

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

Q3 2020 INSTRUMENTATION SUMMARY
SUMMARY OF PIEZOMETRIC QUANTITATIVE PERFORMANCE PARAMETER (QPP) MONITORING

Print Nov/05/20 8:21:02

Monitoring Region	QPP Instrumentation Site	Monitoring Site Type [1]	Piezometric Trigger Elevation (ft)	Maximum Piezometric Elevation Recorded Q3 2020 (ft)	Exceeded Trigger Elevation During Q3 2020 (Yes/No)	Comments
East-West Embankment	MW94-08	VWP Sensor	5,680	5,670	No	-
	MW94-11	VWP Sensor	5,693	5,675	No	-
	DH15-S3 VW1	VWP Sensor	5,690	5,668	No	-
	DH15-S4 VW1	VWP Sensor	5,740	5,717	No	-
	DH15-S4 VW2	VWP Sensor	5,800	5,774	No	-
	DH15-S5 VW1	VWP Sensor	5,785	5,764	No	Sensor added for 2020 QPP Monitoring[3] Data outage during September[4]
	DH17-S1 VW2	VWP Sensor	5,741	5,721	No	Sensor added for 2020 QPP Monitoring[3]
	DH17-S2 VW2	VWP Sensor	5,969	5,849	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S3 VW3	VWP Sensor	6,044	6,025	No	Sensor added for 2020 QPP Monitoring[3]
North-South Embankment	MW12-01	VWP Sensor	5,940	5,911	No	-
	MW12-05	VWP Sensor	6,200	Unsaturated	No	-
	DH18-S1 VW2	VWP Sensor	6,010	5,990	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S2 VW2	VWP Sensor	6,029	6,010	No	Sensor added for 2020 QPP Monitoring[3]
West Embankment	VWP-DP1	VWP Sensor	6,374	6,341	No	Sensor added for 2020 QPP Monitoring[3]
	VWP-DP2	VWP Sensor	6,366	6,335	No	Sensor added for 2020 QPP Monitoring[3]
	DH15-12 VW1	VWP Sensor	6,372	6,349	No	Data outage during July 2020[5]
	DH15-12 VW2	VWP Sensor	6,372	6,350	No	Data outage during July 2020[5]
	DH15-12 VW3	VWP Sensor	6,372	6,349	No	Data outage during July 2020[5]

\\KPL\VA-Prj$\1\01\00126\23\A\Correspondence\VA20-02198 - Q3 2020 - YDTI Quarterly Piezometric Monitoring Update\[QPP Compliance Figures and Table Q3_r0.xlsx]Table 1 - QPP Evaluation

NOTES:
1. PIEZOMETRIC DATA FROM THE VWP SITES ARE COLLECTED CONTINUOUSLY 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 MOST RECENT TOMS UPDATE (MR/KP, 2020).
4. DATA FROM DRILLHOLE DH15-S5 ARE UNAVAILABLE THROUGHOUT THE MAJORITY OF SEPTEMBER 2020 DUE TO A WATER-DAMAGED DATA LOGGER.
5. DATA FROM DRILLHOLE DH15-12 ARE UNAVAILABLE THROUGHOUT THE MAJORITY OF JULY 2020 DUE TO A COMMUNICATION HARDWARE ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	05NOV'20	ISSUED WITH LETTER VA20-02198	CYP	KTD

PLAN
SCALE A

LEGEND:

- PIEZOMETRIC MONITORING SITE
- WELL NOT ACCESSIBLE (BURIED OR ABANDONED)
- QUANTITATIVE PERFORMANCE PARAMETER INSTRUMENT LOCATION
- IN-PLACE INCLINOMETER SITE
- GEOPHYSICAL TEST SITE
- TAILINGS PIPELINE
- PROPERTY LINE

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS BASED ON ANACONDA MINE GRID.
2. QPP = QUANTITATIVE PERFORMANCE PARAMETER.
3. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A: 500 0 500 1000 1500 2000 2500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES

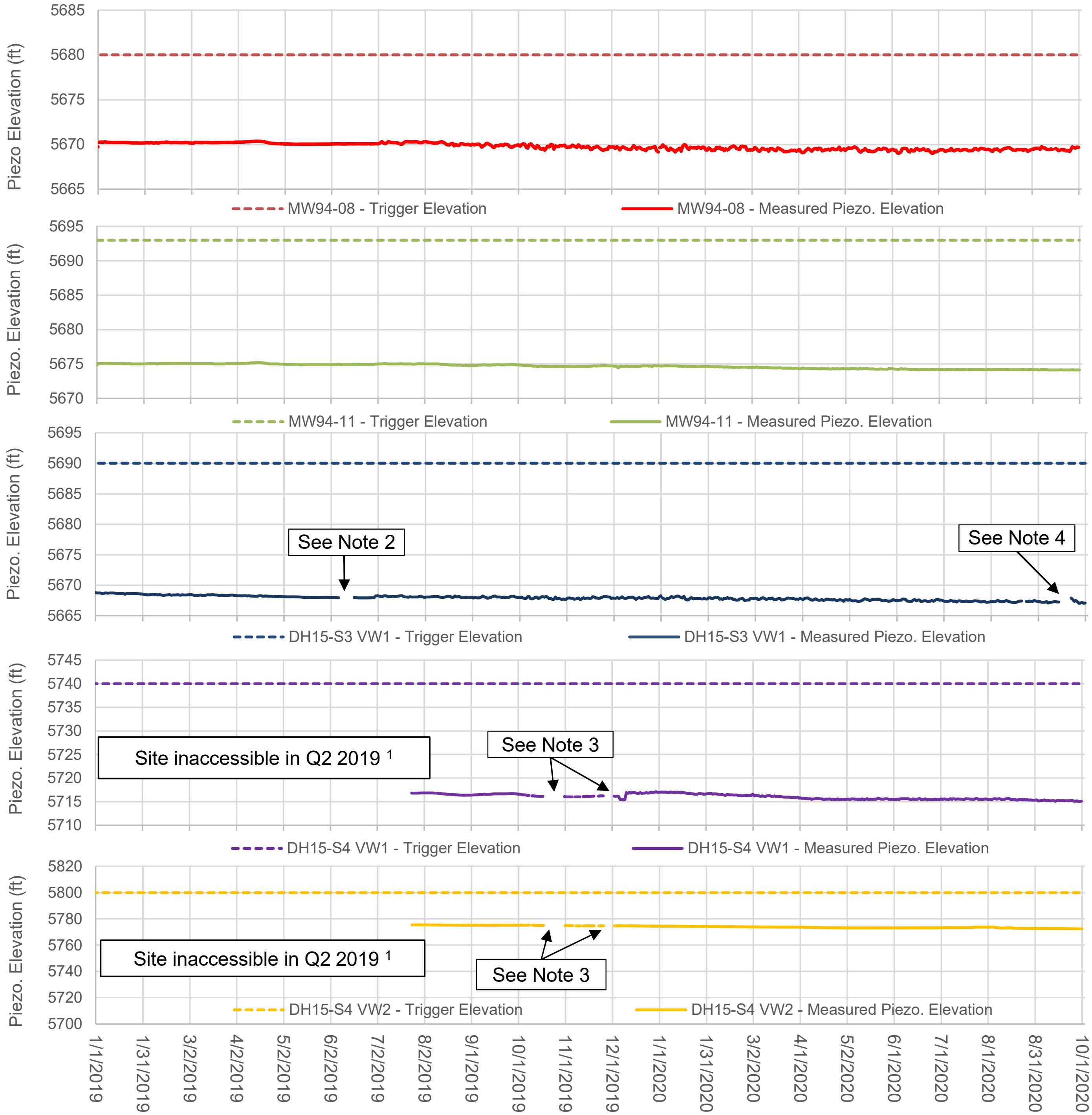
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-02198

FIGURE 1 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	03NOV'20	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\Acad\FIGS\B11, 10/29/2020 11:20:57 AM, RMCLELLAN PRINTED: 11/3/2020 7:24:34 AM, FIG 1, RMCLELLAN



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.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

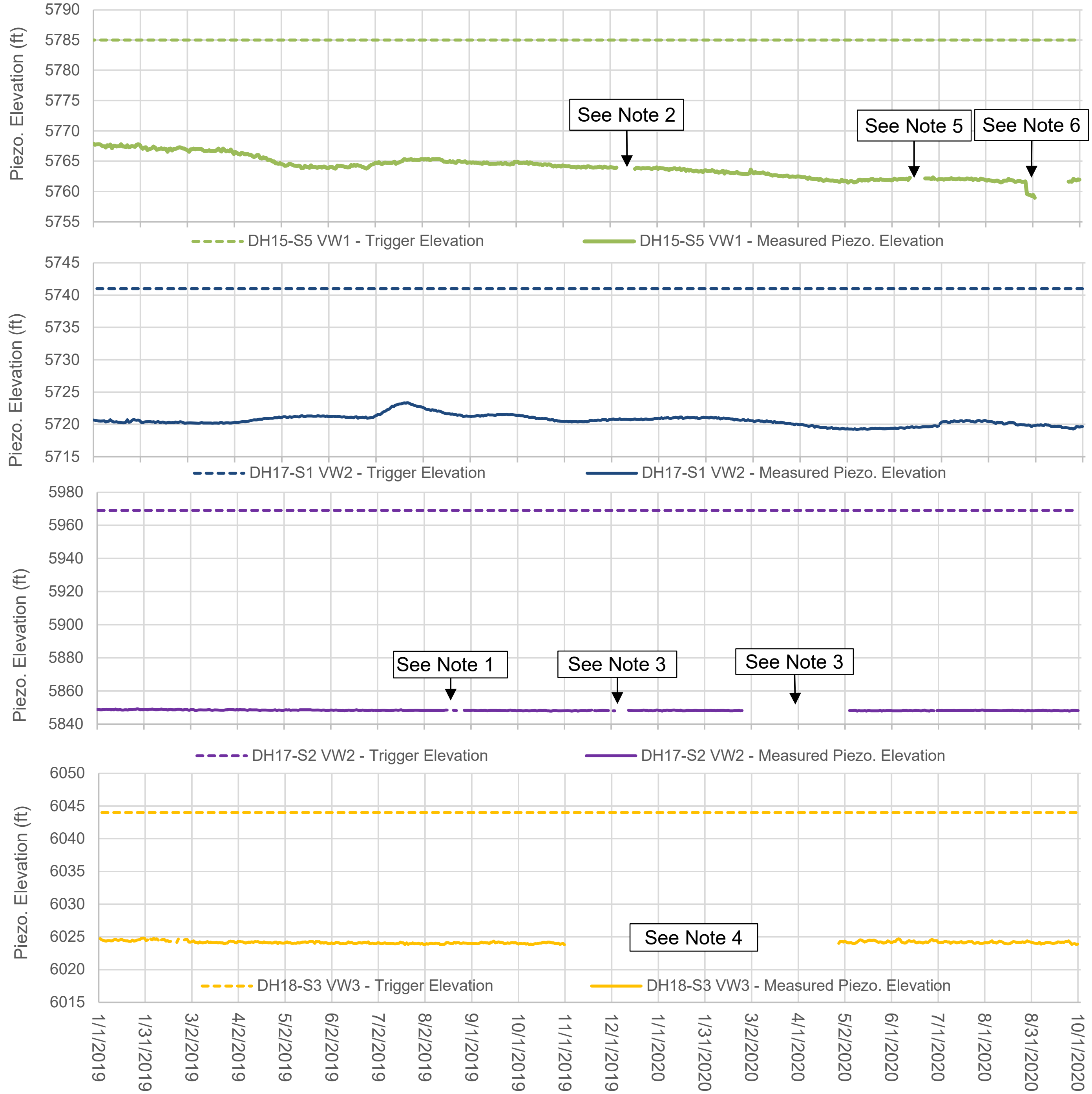
SUMMARY OF MEASURED PIEZOMETRIC ELEVATIONS VS. QPP TRIGGERS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02198

FIGURE 2 REV 0

0	02NOV'20	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. NO DATA WERE COLLECTED BY DH17-S2 VW2 FROM AUGUST 17, 2019 TO AUGUST 29, 2019 DUE TO AN UNKNOWN HARDWARE ISSUE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW1 FROM DECEMBER 7 TO 17, 2019 DUE TO A DATA LOGGER ISSUE. THE SENSOR WAS SUBSEQUENTLY CONNECTED TO A REPLACEMENT DATA LOGGER.
3. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO THREAD POWER SUPPLY ISSUES FROM FROM DECEMBER 1 TO 12, 2019 AND FEBRUARY 25, 2020 TO MAY 7, 2020.
4. 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.
5. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO LOGGER POWER SUPPLY ISSUES FROM JUNE 13, 2020 TO JUNE 23, 2020.
6. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO WATER DAMAGED DATA LOGGER FROM SEPTEMBER 2 TO SEPTEMBER 24, 2020. THE DATA LOGGER WAS SUBSEQUENTLY REPLACED.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

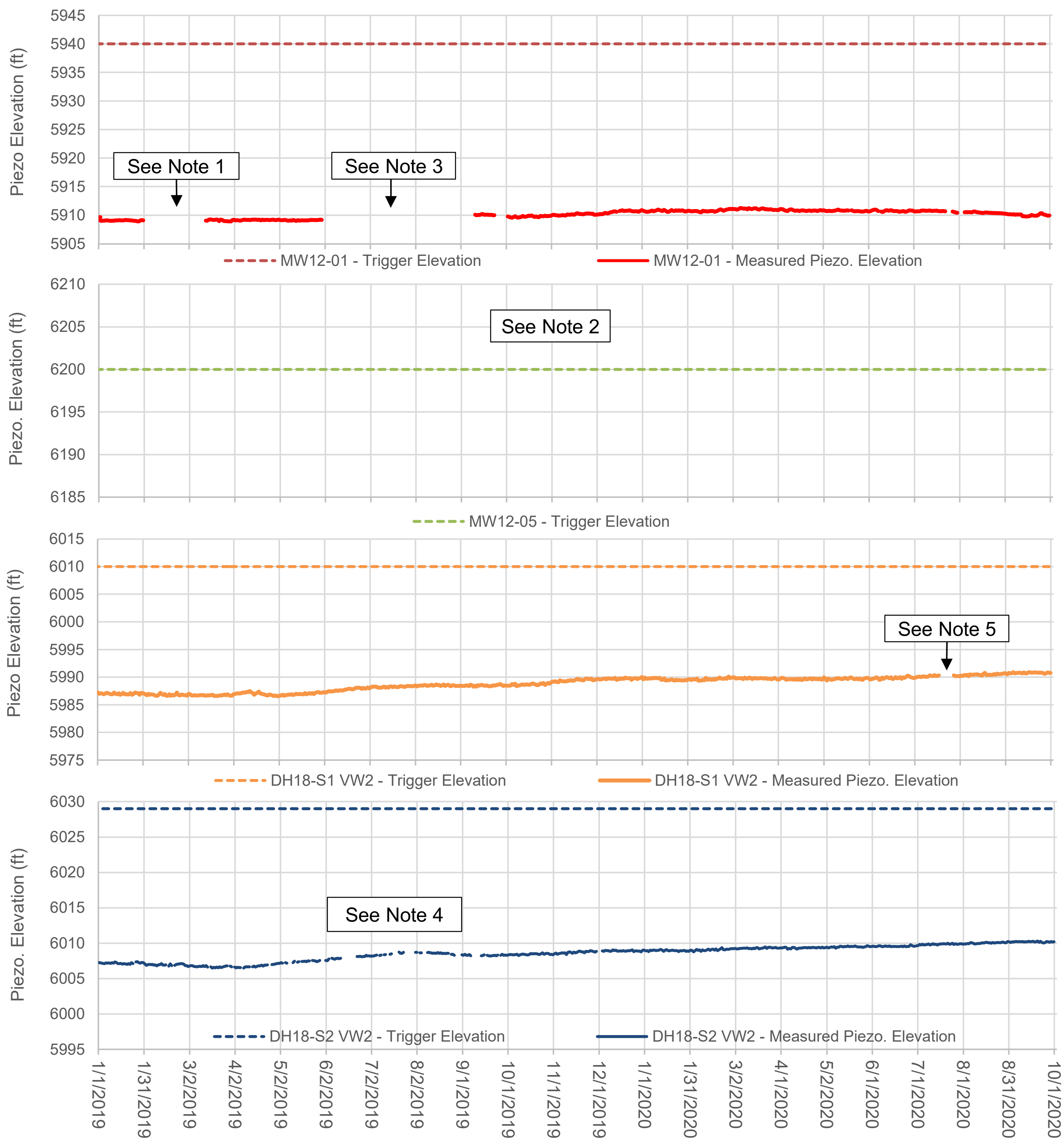
SUMMARY OF MEASURED PIEZOMETRIC ELEVATIONS VS. QPP TRIGGERS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02198

FIGURE 3 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	02NOV'20	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. MW12-01 BECAME UNSATURATED ON FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. STANDPIPE WAS AND REMAINS UNSATURATED (DRY).
3. NO DATA WERE COLLECTED BY MW12-01 FROM MAY 31 TO SEPTEMBER 11, 2019 DUE TO DATA LOGGER EQUIPMENT 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 JULY 29, 2020 DUE TO UNKNOWN SENSOR ISSUE.

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MONTANA RESOURCES, LLP

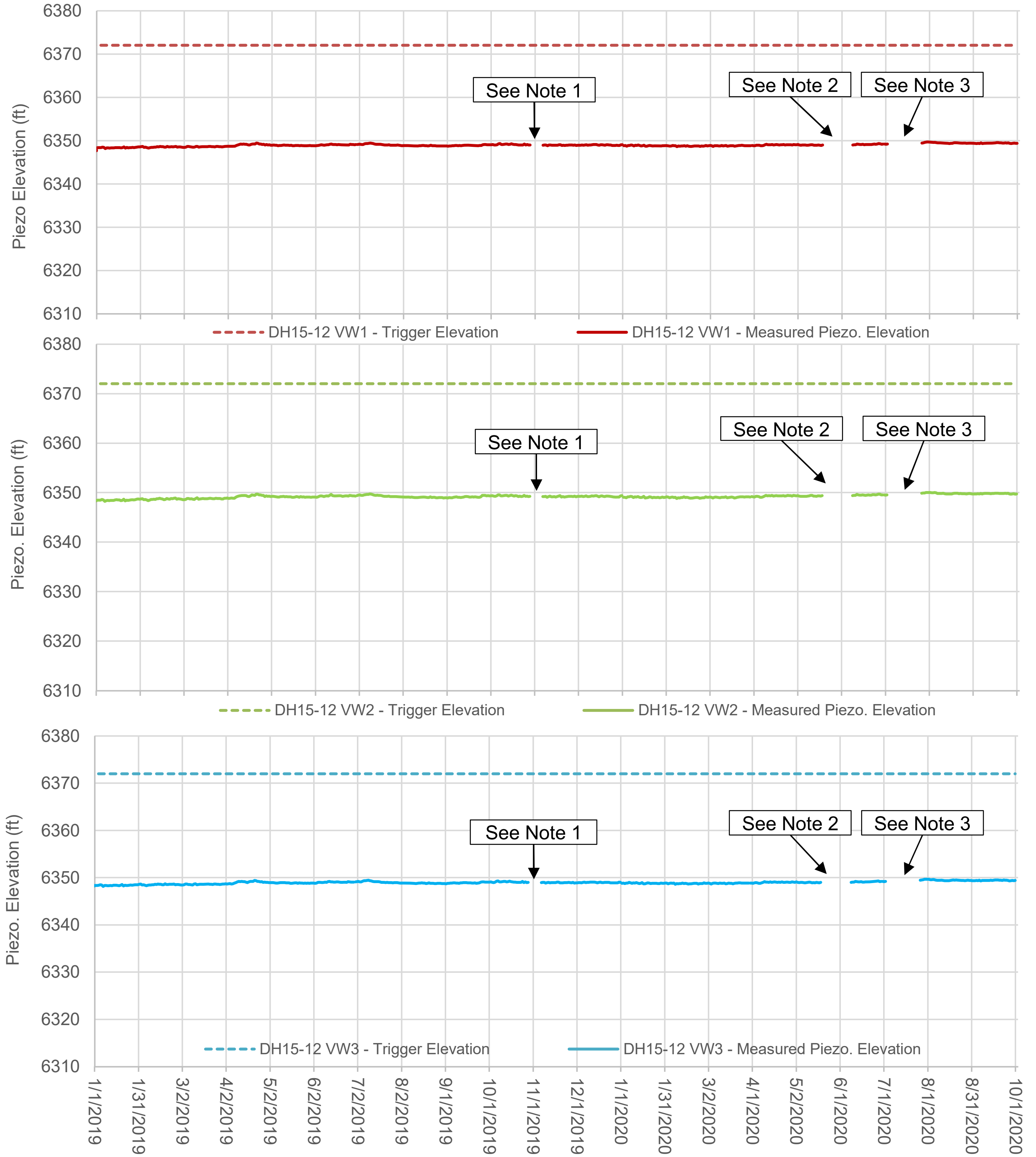
YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO. VA101-126/23 | REF. NO. VA20-02198

FIGURE 4 | REV 0



NOTES:

1. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 OCTOBER 30, 2019 TO NOVEMBER 6, 2019 DUE TO CONNECTIVITY ISSUE.
2. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 FROM MAY 19 TO JUNE 9, 2020 DUE TO SUSPECTED LOGGER CONNECTIVITY ISSUE.
3. NO DATA WERE COLLECTED BY DH15-12 VW1, VW2, AND VW3 FROM JULY 3 TO DUE TO JULY 26, 2020 SUSPECTED LOGGER CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

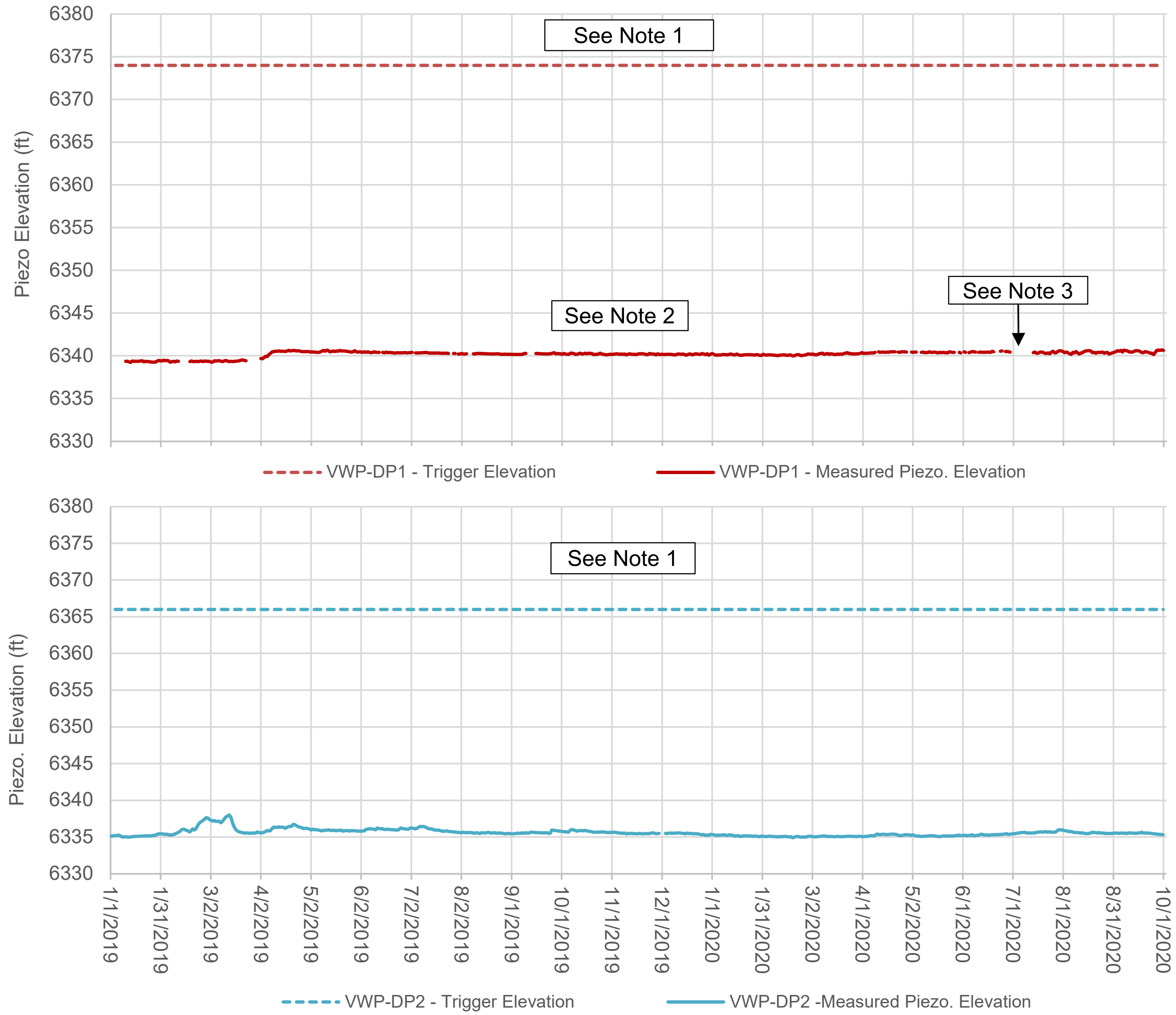
SUMMARY OF MEASURED PIEZOMETRIC ELEVATIONS VS. QPP TRIGGERS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO. VA101-126/23 | REF. NO. VA20-02198

FIGURE 5 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	02NOV'20	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE.
2. PERIODIC DATA OUTAGES OCCUR AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.
3. NO DATA RECORDED BY VWP-DP1 FROM JULY 1 TO JULY 14, 2020 DUE TO COMMUNICATION OUTAGE AT DATA LOGGER. REPLACEMENT EQUIPMENT HAS BEEN INSTALLED.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

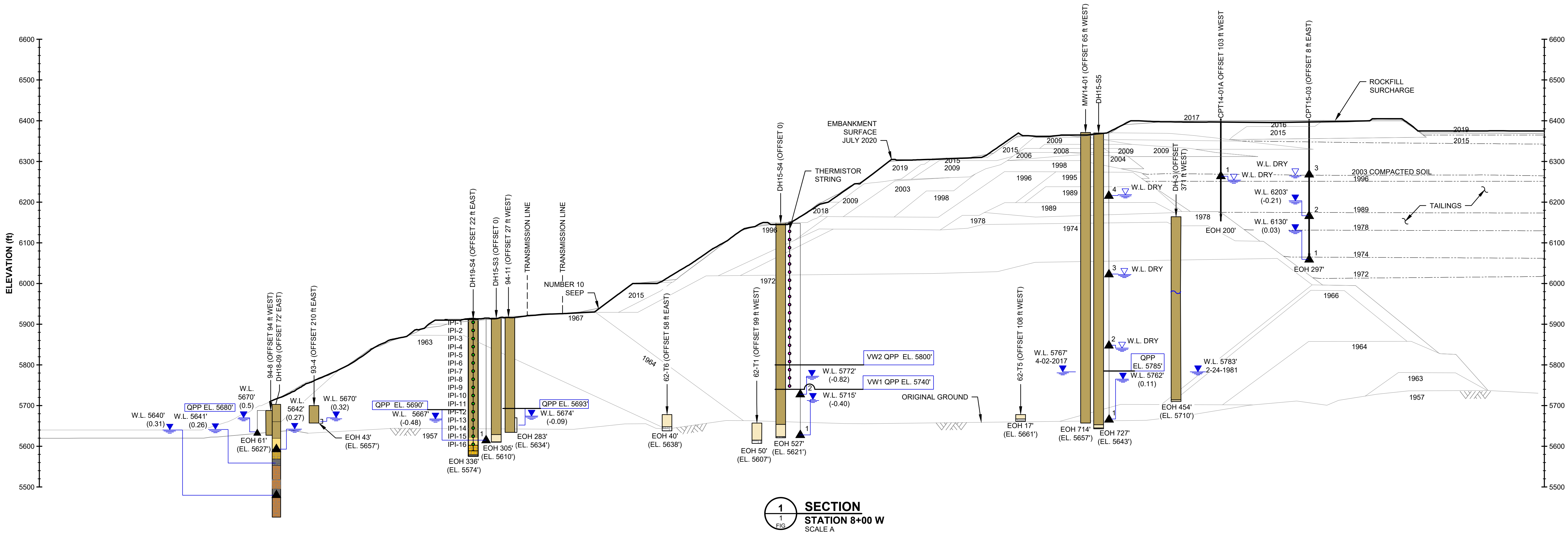
SUMMARY OF MEASURED PIEZOMETRIC ELEVATIONS VS. QPP TRIGGERS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA20-02198

FIGURE 6 REV 0

0	02NOV'20	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



SECTION

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 2020 READINGS (SEPTEMBER 30, 2020), UNLESS OTHERWISE INDICATED.
4. CHANGE IN WATER LEVEL FOR QPP SITES IS RELATIVE TO END OF Q2 2020.
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.

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
- 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

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA20-02198

FIGURE 7 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
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SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\Acad\FIGS\B12, 10/29/2020 11:27:31 AM , RMCLELLAN PRINTED: 11/3/2020 7:26:16 AM, FIG 7, RMCLELLAN
XREF FILE(S): Sections IMAGE FILE(S):

Knight Piésold
CONSULTING

February 16, 2021

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

Dear Mike,

RE: Q4 2020 – YDTI Quarterly Piezometric Monitoring Update

1.0 INTRODUCTION

Montana Resources, LLP (MR) operates an open pit copper and molybdenum mine in Butte, Montana. Tailings produced from the process are stored within the Yankee Doodle Tailings Impoundment (YDTI), which is a valley-fill style impoundment contained within rockfill embankments. MR routinely monitors piezometric conditions within the YDTI embankments, tailings mass, and surrounding areas as part of their operational surveillance plan for the tailings facility, as described in the TOMS Manual (MR/KP, 2020). Real-time piezometric records are available to KP via a remote monitoring system (RMS), and these records are comprehensively reviewed on a quarterly basis to evaluate the performance of the YDTI in conjunction with observations made during periodic inspections. This letter provides a quarterly summary of piezometric data collected during the fourth quarter (Q4) of 2020 for key monitoring sites.

2.0 OVERVIEW OF PIEZOMETRIC MONITORING NETWORK

Pore pressures are monitored at 108 active instrumentation locations at the YDTI and in 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 and 69 drillholes with vibrating wire piezometers (VWPs). 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 to the RMS.

Select standpipe piezometers and VWPs have piezometric elevations assigned as Quantitative Performance Parameters (QPPs) in the TOMS Manual and are used to routinely assess the performance of the YDTI. These QPPs specify a piezometric ‘trigger elevation’ at or above which a Level 1 Unusual Occurrence would be triggered, as specified in Table 5.1 of the TOMS Manual (MR/KP, 2020). Trigger elevations assigned to each QPP site are reevaluated by KP on an annual basis. Table 1 summarizes the piezometric QPPs that are presently in use at the YDTI. This letter discusses data from the QPP sites during Q4 2020. Discussion of data from the remaining monitoring sites is completed annually and will be presented in the 2020 Data Analysis Report in early 2021.

Data collection from QPP sites and their availability via the RMS generally experienced only minor interruptions during Q4 2020 with causes including battery depletion, minor hardware problems, water damaged to hardware, and temporary loss of communication with the local network. Outages were identified regularly during weekly monitoring reviews and corrective measures were carried out with minor issues typically remedied within one week of identification. Four sites experienced hardware failures that required more detailed investigation and procurement of replacement hardware. These events resulted in more significant data outages during Q4 2020 and are summarized below:

- Data from drillhole DH15-S4 (VW1 and VW2) are unavailable after mid-November 2020 due to a telemetry hardware (Sensemetrics Thread) failure. Functionality at this site was restored in early Q1 2021 following installation of a replacement Thread.
- Data from sensors at DH17-S2 (VW2), DH18-S2 (VW2) and DH18-S3 (VW3) were not available during the majority of November 2020 during which time the telemetry hardware at these sites was unable to connect with the RMS. Monitoring coverage at these sites was re-established in early December 2020 using replacement Threads.

3.0 UPDATED QPP NETWORK FOR 2020

The piezometric QPP monitoring network was expanded in the 2020 TOMS update to include an additional eight (8) pore pressure monitoring instruments bringing the total number of QPP sensors to 18. The QPP network expansion was implemented to improve the spatial coverage of QPP monitoring throughout the East-West and North-South Embankments using the numerous pore pressure monitoring sites installed between 2017 and 2019 in these areas. Monitoring well MW14-01 was discontinued as a QPP site following abandonment of the well in Q4 2019, which resulted from a riser blockage. Monitoring coverage in this area has been replaced by establishing a QPP for an adjacent sensor in drillhole DH15-S5 (VW1). The current active QPP network is shown on Figure 1 and details are summarized in Table 1.

Trigger elevations for the additional embankment QPP monitoring locations have been specified as approximately 20 ft above the maximum recorded piezometric elevation since the installation of each site. Trigger elevations specified for sensors VWP-DP1 and VWP-DP2 installed within the West Embankment Drain (WED) are specified as the maximum allowable hydraulic grade line established in the WED design basis.

4.0 SUMMARY OF Q4 2020 QPP PIEZOMETRIC CONDITIONS

4.1 GENERAL

No piezometric trigger elevation exceedances were observed at QPP monitoring sites during Q4 2020. A high-level summary of QPP piezometric data and monitoring 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 along the East-West Embankment Section 8+00W are presented graphically on Figure 7.

4.2 EAST-WEST EMBANKMENT

The majority of QPP sites within the basal saturated zone of the East-West Embankment exhibited relatively stable piezometric conditions throughout Q4 2020 as compared with the previously observed long-term pore water pressure decreases monitored from 2017 through Q2/Q3 2020. The following paragraphs summarize the notable piezometric trends observed during Q4 2020.

QPP sensors installed within basal rockfill near the East-West Embankment toe on Sections 0+00 and 8+00W monitored relatively stable piezometric conditions throughout Q4 2020. One QPP monitoring well sensor (MW94-08) and one QPP drillhole sensor (DH17-S1 VW2) monitored minor quarterly pore pressure decreases of 0.2 and 0.3 ft, respectively. Another QPP monitoring well sensor (MW94-11) and QPP drillhole sensor (DH15-S3 VW1) monitored very minor quarterly increases of <0.1 and 0.1, respectively. All four sites are now indicative of relatively stable piezometric trends after previously recording decreasing pore water pressures from 2017 through Q2/Q3 2020.

QPP and non-QPP sensors installed beneath the East-West Embankment crest monitored minor pore water pressure increases within the embankment rockfill during Q4 2020. These trends are interpreted to correspond with increasing pore pressures monitored over the same period within the tailings mass upstream of Sections 0+00 and 8+00W. QPP sensor DH17-S2 VW2 (Section 0+00W) and non-QPP sensor DH15-S5 VW2 (Section 8+00W), installed within the embankment basal saturated zone beneath the crest, monitored quarterly pore pressure increases of 0.8 and 1.6 ft, respectively. Tailings pore water pressures monitored at non-QPP sites DH17-S3 and SCPT15-03 observed corresponding increases of between approximately 0.3 and 1.1 ft. The increasing tailings piezometric elevations are interpreted to result from predominant use of tailings discharge locations near to the East-West Embankment central pedestal area (EW-1, EW-2 and NS-1) during the November and December 2020. Increasing piezometric elevations within the tailings mass are then interpreted to result in the minor basal pore water pressure increases monitored within the embankment.

Pore pressure data from instrumentation (QPP VW3, VW2 and VW1) installed in drillhole DH18-S3 (East-West Embankment Section 28+00NW) do not indicate a similar Q4 2020 piezometric increase within the basal system as was monitored at DH15-S5 and DH17-S2. Drillhole DH18-S3 is completed in proximity to the EW-1 discharge and increasing tailings pore pressures were monitored upstream at CPT15-06 and CPT13-02A; however, it is inferred that the instrumentation in DH18-S3 is isolated from the upstream tailings mass due to the historical topography underlying the East-West Embankment at that location. Drillhole DH18-S3 is situated upgradient and on the other side (to the southwest) of a historical drainage divide as compared to the tailings mass near EW-1. This configuration may preclude influence of the EW-1 and EW-2 discharges on pore water pressured monitored at DH18-S3.

The relatively stable piezometric conditions monitored during Q4 2020 are interpreted to indicate that YDTI East-West Embankment piezometric regime has reached a new steady-state following the long-term pore water pressure decreases monitored since the implementation of multiple point tailings discharge in late-2016. The minor pore water pressure fluctuations (increases and decreases) observed during Q4 2020 are inferred to be predominantly influenced by changes in the location(s) of active tailings discharge within the YDTI during the monitoring period. Tailings discharge in proximity to the East-West Embankment from EW-1, EW-2 and NS-1 discharges is inferred to result in minor increases to pore water pressures locally within the tailings and adjacent embankment rockfill. It is anticipated that stable or decreasing pore pressure trends will return during periods when tailings discharge is relocated further north and away from the central pedestal area.

4.3 NORTH-SOUTH EMBANKMENT

QPP sites within the embankment rockfill at the North-South Embankment have previously indicated relatively constant or slightly increasing piezometric elevations since 2018. Pore water pressures monitored during Q4 2020 generally exhibited stable piezometric conditions. Piezometric elevations monitored within the basal saturated zone at drillholes DH18-S1 (VW2) and DH18-S2 (VW2) decreased very slightly by approximately 0.2 and 0.5 ft during Q4 2020. Monitoring well MW12-01 recorded a minor quarterly increase of approximately 0.2 ft during Q4 2020. Monitoring well MW12-05 has been historically unsaturated, indicating that the piezometric elevation is below the bottom of the well screen (less than 6,198 ft elevation).

This site continues to measure unsaturated conditions indicating that the well remains unsaturated (dry) through Q4 2020.

Minor piezometric fluctuations associated with construction of the North-South Embankment step-out were observed by both QPP and non-QPP sites within the basal saturated zone and foundation due to construction of four lifts from mid-2019 through Q1 2020, as described in KP (2020). The last lift, up to EL. 6,400 ft, was completed in April 2020. The largest pore pressure response to construction was observed in the alluvial foundation material at drillhole DH18-S1 (VW1) on Section 28+00N (non-QPP site). The EL. 6,400 ft lift, for example, resulted in a construction induced pore pressure increase of approximately 25 ft and subsequent dissipation at this site. Pore water pressures at VW1 (DH18-S1) began to dissipate following the EL. 6,400 lift placement and continued through 2020. This decrease has continued through Q4 2020 and pore pressures monitored on December 31, 2020 are approximately 15 ft above pre-El. 6,350 lift placement conditions or approximately 35 ft above pore pressures monitored prior to the start of step-out construction. The average rate of pore pressure decrease during Q4 2020 was approximately 2.5 ft/month and has decreased slightly from the rate monitored during Q3 2020 (3 ft/month). Minor pore pressure dissipation was observed within the basal system during and following step-out construction at DH18-S1 (VW2), DH18-S2 (VW2) and MW12-01 (VW1); however, these trends are no longer visible in data from Q4 2020. Piezometric pressures recorded at both DH18-S1 (VW2) and DH18-S2 (VW2) remain approximately 20 ft below the QPP 'trigger elevation' and measured pressures recorded at MW12-01 remain greater than 25 ft below the QPP 'trigger elevation'. KP will continue to monitor conditions at DH18-S1 as dissipation continues.

4.4 WEST EMBANKMENT AND DRAIN.

Piezometric elevations within the foundation of the West Embankment have been relatively constant through 2019 and 2020 following an increasing trend from 2015 through 2018 that was attributed to increasing supernatant pond and tailings elevations resulting from ongoing operations. Piezometric conditions throughout Q4 2020 have continued to remain stable due to the draining influence of the WED. The invert elevation of the WED is now lower than the YDTI pond. Three QPP sensors installed within the foundation in drillhole DH15-12 recorded stable piezometric conditions throughout Q4 2020. Piezometric elevations from the uppermost two sensors (VW2 and VW3) are approximately coincident with the WED drain invert elevation indicating that the drain is controlling pore pressures within the embankment foundation. Pore water pressures monitored within the WED in Drain Pods 1 and 2 (VWP-DP1 and VWP-DP2, respectively) have also remained relatively constant throughout Q3 2020. Sensors installed in drillhole DH15-12 are presently more than 20 feet below the TOMS QPP trigger elevations. Sensors installed in Drain Pods 1 and 2 remain more than 30 feet below the trigger elevations.

5.0 CONCLUSIONS

Piezometric elevations within the embankment rockfill and tailings mass of the YDTI are available in real-time using the RMS and are monitored by KP and MR. KP provides an analysis of monitoring data on a quarterly basis for a subset of the monitoring sites specified as QPP sites within the TOMS Manual. 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 following the end of 2020. There were no QPP exceedances during Q4 2020.

The piezometric QPP monitoring network was revised in 2020 to include an additional eight (8) pore pressure monitoring instruments, which improved the spatial coverage of the QPP network along the North-

South and East-West Embankments. One QPP monitoring sites (two sensors at DH15-S4) required data logger replacement in Q4 2020 to remedy data outages caused by hardware malfunction. Functionality of these sites has been restored.

The piezometric monitoring network and monitoring protocols for the YDTI are being progressively upgraded. Additional pore pressure monitoring sites were recently installed as part of a 2020 Embankment Geotechnical Site Investigation Program. These monitoring sites will further expand the spatial coverage of the monitoring network. Monitoring protocols will be progressively updated to take advantage of the automation capabilities of the RMS.

We trust this letter meets your needs at this time. Please do not hesitate to contact the undersigned with any questions.

Yours truly,
Knight Piésold Ltd.

Prepared:

Colin Phang, E.I.T.
Junior Engineer

2021-02-16

Prepared:

Kevin Davenport, P.Eng.
Senior Engineer

2021-02-16

Reviewed:

Daniel Fontaine, P.E.
Specialist Engineer | Associate

2021-02-16

Reviewed:

Ken Brouwer, P.E.
Principal Engineer

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

Attachments:

Table 1 Rev 0	Summary of Piezometric Quantitative Performance Parameter (QPP) Monitoring
Figure 1 Rev 0	Active Piezometric Instrumentation and Monitoring Sites
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)

References:

Knight Piésold Ltd. (KP, 2020). 2019 Data Analysis Report (KP Reference No. VA101-126/21-4 Rev 0), dated August 28, 2020.

Montana Resources and Knight Piésold (MR/KP, 2020). Yankee Doodle Tailings Impoundment – Tailings Operations, Maintenance and Surveillance (TOMS) Manual, Rev 4, dated May 2020.

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

/cyp

Knight Piésold CONSULTING

TABLE 1

MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

Q4 2020 INSTRUMENTATION SUMMARY
SUMMARY OF PIEZOMETRIC QUANTITATIVE PERFORMANCE PARAMETER (QPP) MONITORING

Print Feb/16/21 13:20:34

Monitoring Region	QPP Instrumentation Site	Monitoring Site Type [1]	Piezometric Trigger Elevation (ft)	Maxiumum Piezometric Elevation Recorded Q4 2020 (ft)	Exceeded Trigger Elevation During Q4 2020 (Yes/No)	Comments
East-West Embankment	MW94-08	VWP Sensor	5,680	5,670	No	
	MW94-11	VWP Sensor	5,693	5,674	No	
	DH15-S3 VW1	VWP Sensor	5,690	5,668	No	
	DH15-S4 VW1	VWP Sensor	5,740	5,715	No	
	DH15-S4 VW2	VWP Sensor	5,800	5,773	No	
	DH15-S5 VW1	VWP Sensor	5,785	5,762	No	Sensor added for 2020 QPP Monitoring[3]
	DH17-S1 VW2	VWP Sensor	5,741	5,720	No	Sensor added for 2020 QPP Monitoring[3]
	DH17-S2 VW2	VWP Sensor	5,969	5,848	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S3 VW3	VWP Sensor	6,044	6,025	No	Sensor added for 2020 QPP Monitoring[3]
North-South Embankment	MW12-01	VWP Sensor	5,940	5,910	No	
	MW12-05	VWP Sensor	6,200	Unsaturated	No	
	DH18-S1 VW2	VWP Sensor	6,010	5,992	No	Sensor added for 2020 QPP Monitoring[3]
	DH18-S2 VW2	VWP Sensor	6,029	6,010	No	Sensor added for 2020 QPP Monitoring[3]
West Embankment	VWP-DP1	VWP Sensor	6,374	6,341	No	Sensor added for 2020 QPP Monitoring[3]
	VWP-DP2	VWP Sensor	6,366	6,336	No	Sensor added for 2020 QPP Monitoring[3]
	DH15-12 VW1	VWP Sensor	6,372	6,349	No	
	DH15-12 VW2	VWP Sensor	6,372	6,351	No	
	DH15-12 VW3	VWP Sensor	6,372	6,350	No	

\\KPL\VA-Prj$\1\01\00126\23\A\Correspondence\VA21-00046 - Q4 2020 - YDTI Piezometric Monitoring Update\[QPP Compliance Figures and Table Q4.xlsx]Table 1 - QPP Evaluation

NOTES:
1. PIEZOMETRIC DATA FROM VWP SITES ARE COLLECTED CONTINUOUSLY 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 MOST RECENT TOMS UPDATE (MR/KP, 2020).

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PLAN
SCALE A

LEGEND:

- PIEZOMETRIC MONITORING SITE
- WELL NOT ACCESSIBLE (BURIED OR ABANDONED)
- QUANTITATIVE PERFORMANCE PARAMETER INSTRUMENT LOCATION
- IN-PLACE INCLINOMETER SITE
- GEOPHYSICAL TEST SITE
- TAILINGS PIPELINE
- PROPERTY LINE

NOTES:

1. COORDINATE SYSTEM AND ELEVATIONS BASED ON ANACONDA MINE GRID.
2. QPP = QUANTITATIVE PERFORMANCE PARAMETER.
3. AERIAL IMAGERY FROM JULY 9, 2020 PROVIDED BY MONTANA RESOURCES, LLP.

SCALE A 500 0 500 1000 1500 2000 2500 ft

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

ACTIVE PIEZOMETRIC INSTRUMENTATION AND MONITORING SITES

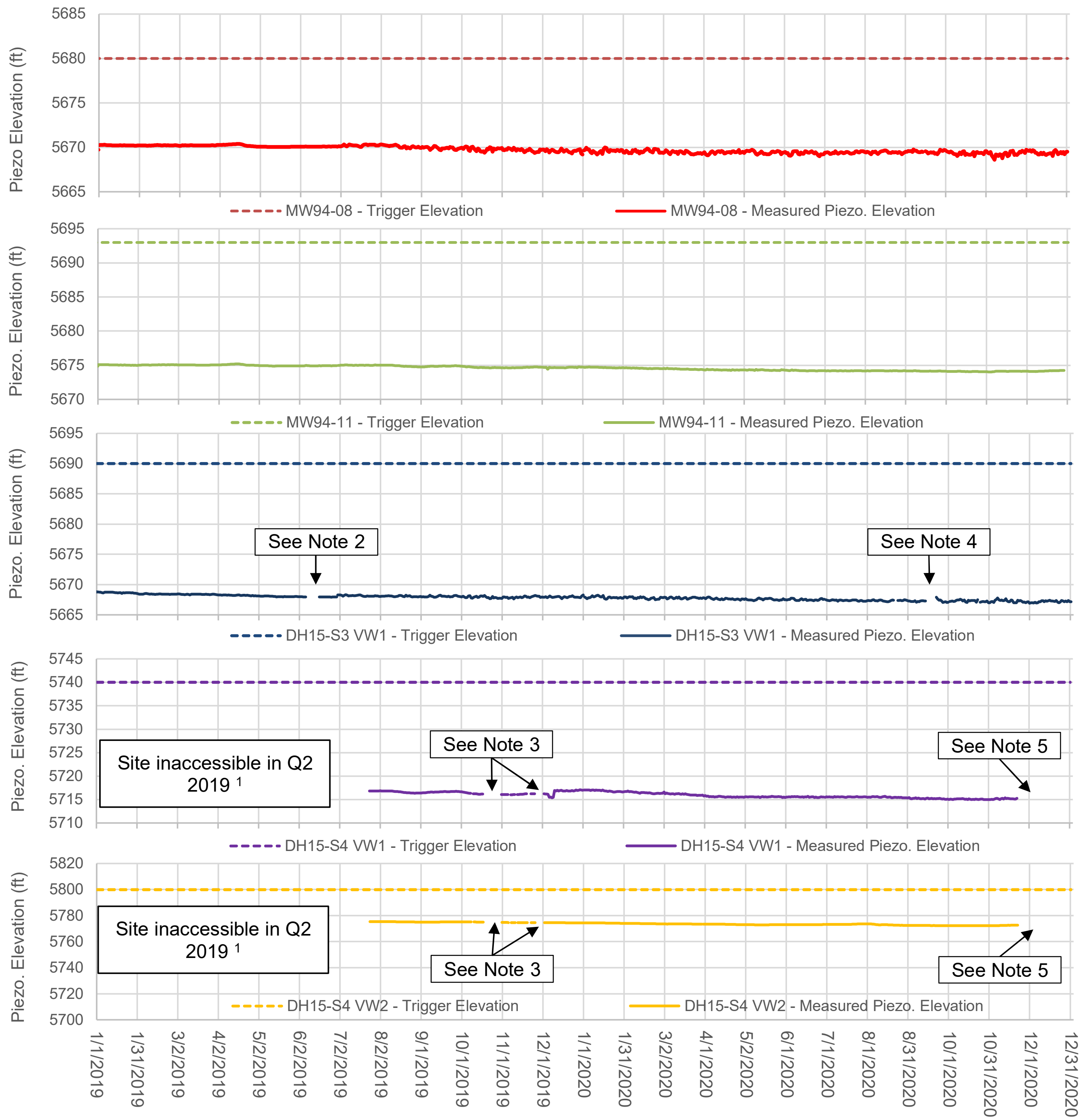
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA21-00046

FIGURE 1 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	27JAN'21	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\Acad\FIGS\B35, 1/27/2021 1:43:43 PM , RMCLELLAN PRINTED: 1/27/2021 1:44:58 PM, FIG 1, RMCLELLAN



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.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

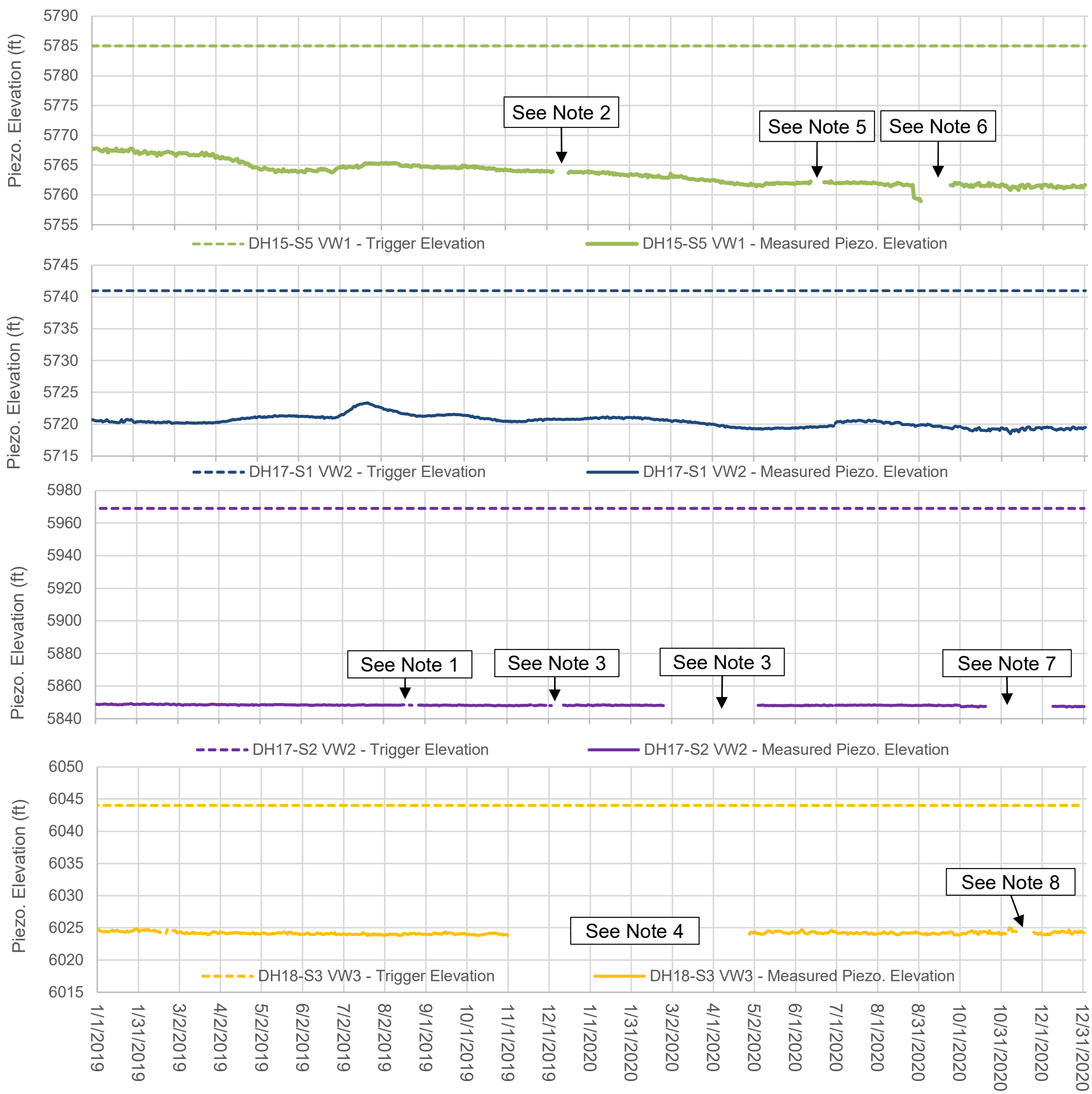
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA21-00046

FIGURE 2 REV 0

0	16FEB'21	ISSUED WITH LETTER	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:
1. NO DATA WERE COLLECTED BY DH17-S2 VW2 FROM AUGUST 17 TO 29, 2019 DUE TO AN UNKNOWN HARDWARE ISSUE.
2. NO DATA WERE COLLECTED BY DH15-S5 VW1 FROM DECEMBER 7 TO 17, 2019 DUE TO A DATA LOGGER ISSUE. THE DATA LOGGER WAS SUBSEQUENTLY REPLACED.
3. NO DATA WERE COLLECTED BY DH17-S2 VW2 DUE TO THREAD POWER SUPPLY ISSUES FROM FROM DECEMBER 1 TO 12, 2019 AND FEBRUARY 25, 2020 TO MAY 7, 2020.
4. 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.
5. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO LOGGER POWER SUPPLY ISSUES FROM JUNE 13 TO 23, 2020.
6. NO DATA WERE COLLECTED BY DH15-S5 VW1 DUE TO WATER DAMAGED LOGGER FROM SEPTEMBER 2 TO 24, 2020. THE LOGGER WAS SUBSEQUENTLY REPLACED.
7. NO DATA WERE COLLECTED BY DH17-S2 DUE TO A DEPLETED DATA LOGGER BATTERY FROM OCTOBER 20 TO DECEMBER 8, 2020.
8. NO DATA WERE COLLECTED BY DH18-S3 DUE TO A DEPLETED DATA LOGGER BATTERY FROM NOVEMBER 12 TO 25, 2020.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

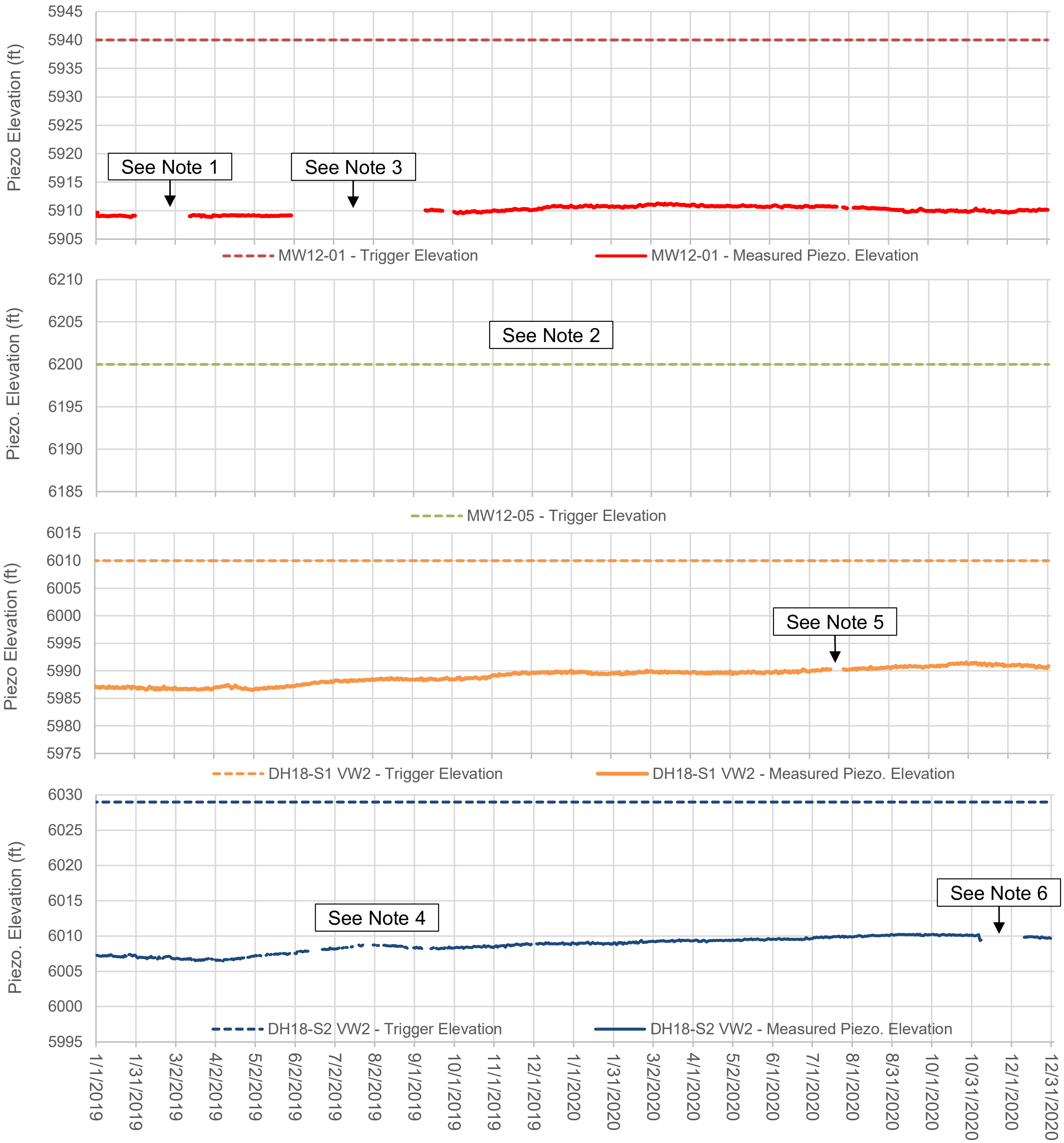
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS EAST-WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA21-00046

FIGURE 3 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16FEB'21	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. MW12-01 BECAME UNSATURATED FROM FEBRUARY 1 TO MARCH 13, 2019.
2. NO DATA WERE COLLECTED BY MW12-05. THE STANDPIPE WAS AND REMAINS UNSATURATED (DRY).
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.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16FEB'21	ISSUED WITH LETTER	CYP	KTD

MONTANA RESOURCES, LLP

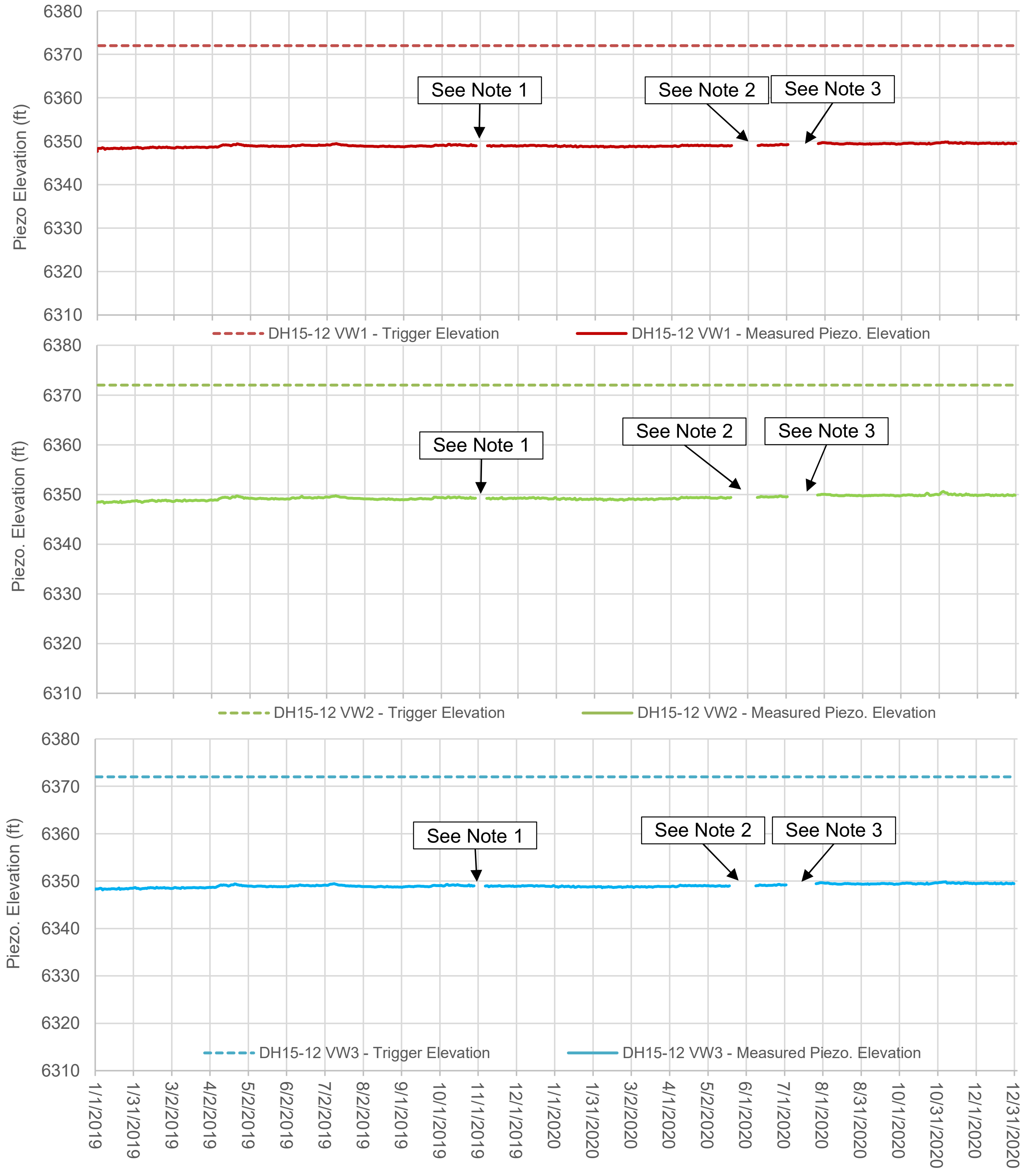
YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA21-00046

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 DUE TO JULY 26, 2020 DUE TO A CONNECTIVITY ISSUE.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

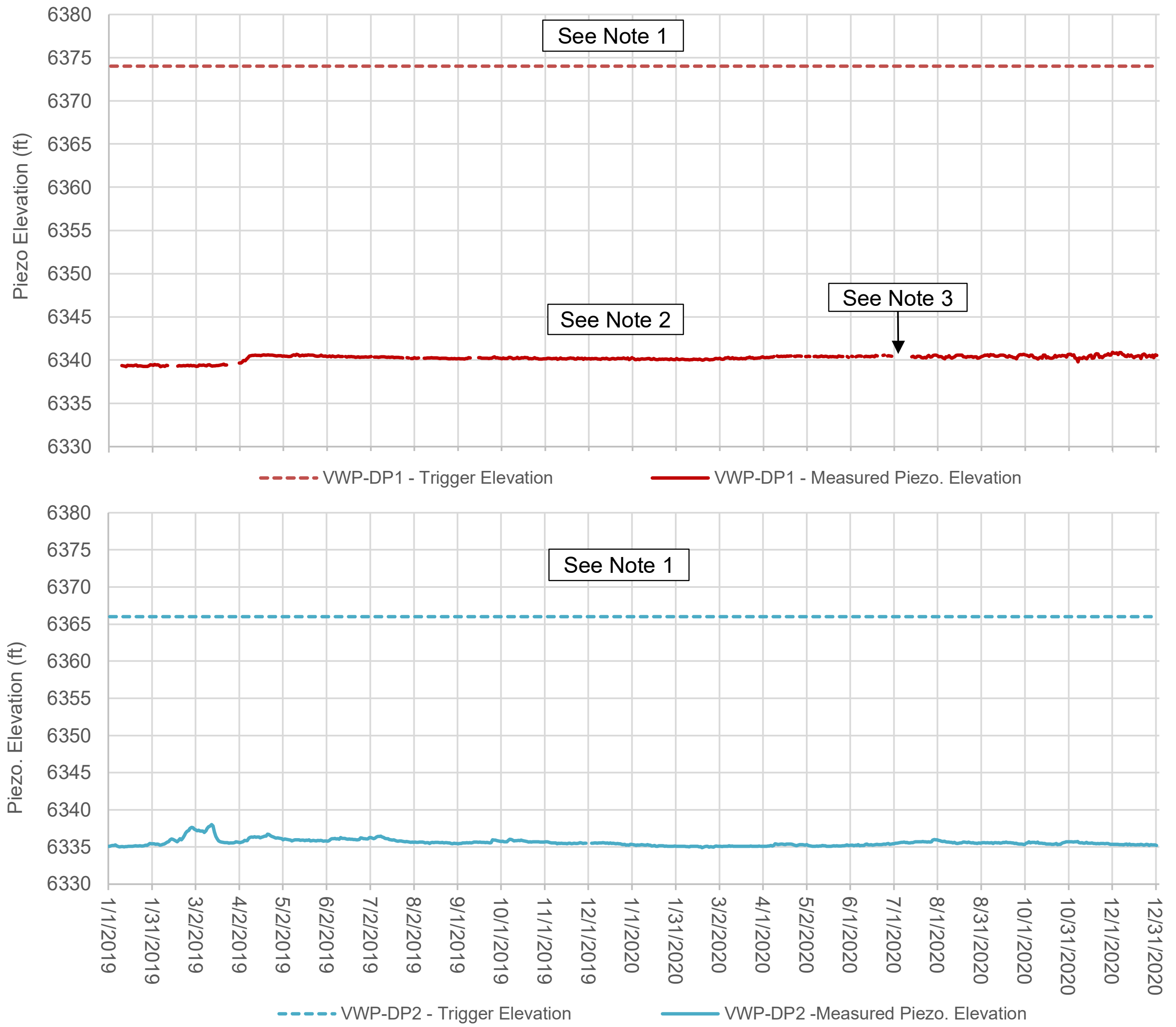
P/A NO. VA101-126/23

REF. NO. VA21-00046

FIGURE 5

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16FEB'21	ISSUED WITH LETTER	CYP	KTD



NOTES:

1. TRIGGER ELEVATIONS FOR SENSORS INSTALLED IN THE DRAIN PODS HAVE BEEN SPECIFIED AT THE ALLOWABLE HYDRAULIC GRADE LINE.
2. PERIODIC DATA OUTAGES OCCURED AT VWP-DP1 DUE TO INTERMITTENT BATTERY VOLTAGE ISSUES.
3. NO DATA RECORDED BY VWP-DP1 FROM JULY 1 TO 14, 2020 DUE TO COMMUNICATION OUTAGE AT DATA LOGGER. REPLACEMENT EQUIPMENT HAS BEEN INSTALLED.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

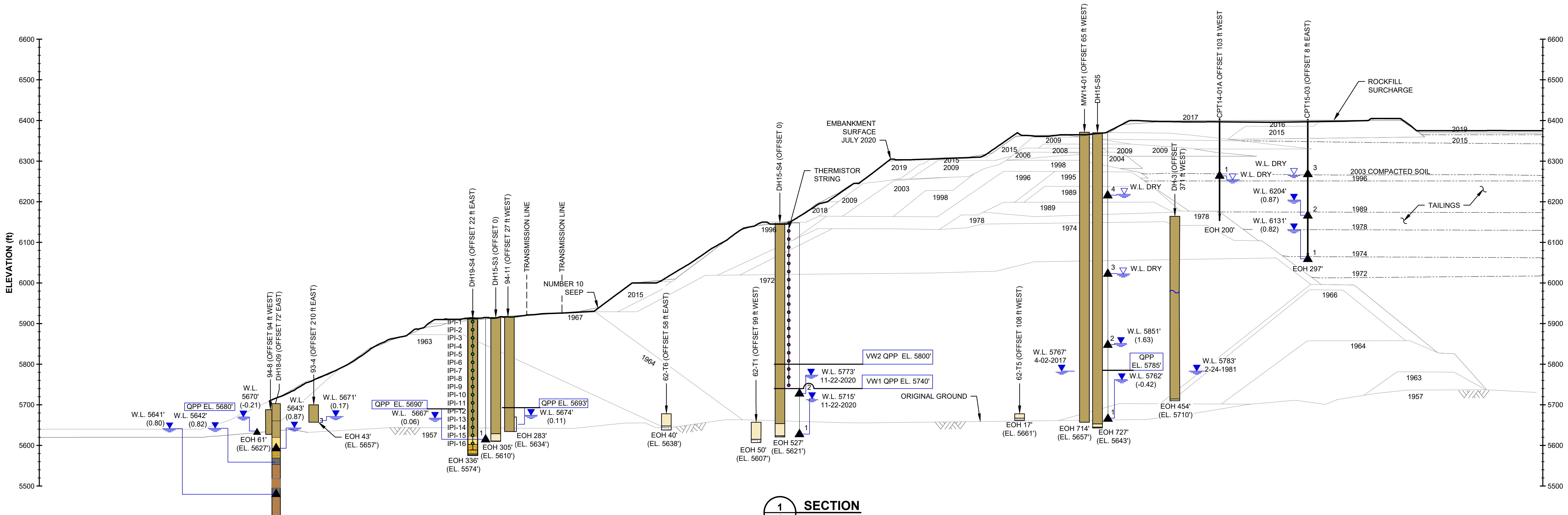
SUMMARY OF MEASURED VS. QPP TRIGGER PIEZOMETRIC ELEVATIONS WEST EMBANKMENT

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	VA21-00046

FIGURE 6 REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	16FEB'21	ISSUED WITH LETTER	CYP	KTD



SECTION 1
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 Q4 2020 READINGS (DECEMBER 31, 2020), UNLESS OTHERWISE INDICATED.
4. CHANGE IN WATER LEVEL FOR QPP SITES IS RELATIVE TO END OF Q3 2020.
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 QUARTERLY CHANGE VALUES ARE PRESENTED FOR DH15-S4 VW1 AND VW2 DUE TO AN INSTRUMENTATION OUTAGE THAT PREVENTED DATA COLLECTION FROM NOVEMBER 22, 2020 TO DECEMBER 21, 2020.

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
- 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

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

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

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	VA21-00046

FIGURE 7 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	27JAN'21	ISSUED WITH LETTER	CYP	RMM	KTD

SAVED: M:\1\01\00126\23\A\Acad\FIGS\B36, 1/27/2021 1:54:33 PM , RMCLELLAN PRINTED: 1/28/2021 10:58:33 AM, FIG 7, RMCLELLAN
XREF FILE(S): Sections IMAGE FILE(S):

APPENDIX B

2020 Bathymetric Survey

(Pages B-1 to B-3)

Montana Resources

600 Shields Avenue Butte, Montana 59701 (406) 723-4081
(406)496-3200 FAX (406) 723-9542

MEMORANDUM

TO: STEVE WALSH

FROM: JOHNATHAN HOOVER

SUBJECT: BATHYMETRIC SURVEY – 2020

DATE: 7/16/2020

The Bathymetric survey of the tailings pond was conducted from June 22 through July 9, 2020.

The bathymetric data collected during the survey was downloaded and converted to the local Montana Resources Coordinate System. MineSight was used to develop sub-surfaces of the tailings pond which were then used to calculate the volume of water in the pond. The results are shown in Table 1.

Table 1: Tailings Pond Volume Calculation Results

Method	Volume
MineSight	32,084 Acre-ft

The 2020 volume is 32,084 acre-ft which is a decrease of 2,308 acre-ft from last years' volume of 34,392 acre-ft. Table 2 shows the calculated pond volumes for all of the bathymetric surveys conducted to date.

<u>Note:</u> The total number of points captured in this survey was 24,509. This was due to a change in our survey device. We are using the TSC3 and a new Hydrolite system. Due to the processing power of the TSC3 we had to slow down the data capturing to a point every 1 to 3 seconds based on how the fast we traveled (3 to 5 mph). This ensures that the data being captured has no latency and the position associated with the depth is accurate.

Table 2: Tailings Pond Volume History

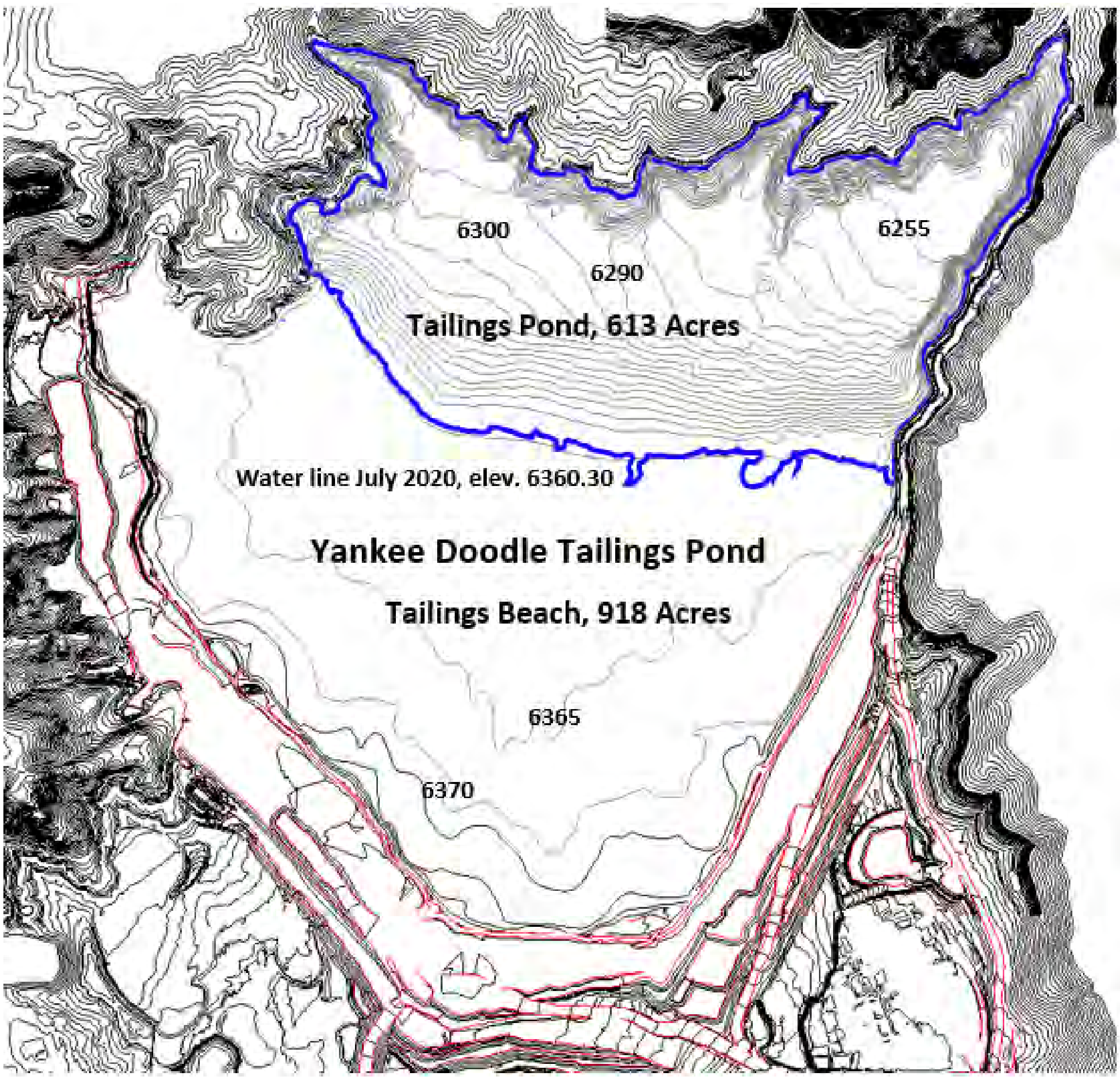
Year	Volume, Acre-Ft
2007	20,068
2009	16,008
2010	18,491
2011	22,145
2012	21,812
2013	21,474
2014	25,116
2015	29,113
2016	31,041
2017	31,264
2018	33,447
2019	34,392
2020	32,084

Table 3: General Study Information

Attribute	Year 2020	Year 2019	Year 2018	Year 2017
Methodology	2020 June Composite	2019 June Composite	2018 June Composite	2017 June Composite
Pond Area	613 Acres	774 Acres	837 Acres	798 Acres
Tailings Area	918 acres	727 Acres	642 Acres	658 Acres
Total Impoundment Area	1531 Acres	1501 Acres	1,479 Acres	1,456 Acres
Pond Volume	32,084 Acre-ft	34,392 Acre-ft	33,447 Acre-ft	31,264 Acre-ft
Avg. Water Depth	56.15 ft	41.09 ft	42.85 ft	45.9ft
Max Water Depth	112.72 ft	112.03 ft	109.2 ft	109.1ft
Min Water Depth	2.35 ft	2.795 ft	0.4 ft	2.7ft
Measured Water Elevation ~~(July 9, 2019)~~	6360.30 ft.	6357.902 ft.	6351.67 ft.	6345.02 ft.
Data Points Used	24,509	23,562	100,707	55,787

Figure 1 is a contour map of the bottom of the tailings pond and beach generated from MineSight. The deepest areas of the pond are located nearest to the barge.

Figure 1: Contour Lines of Current Tailings Beach and Pond Bottom



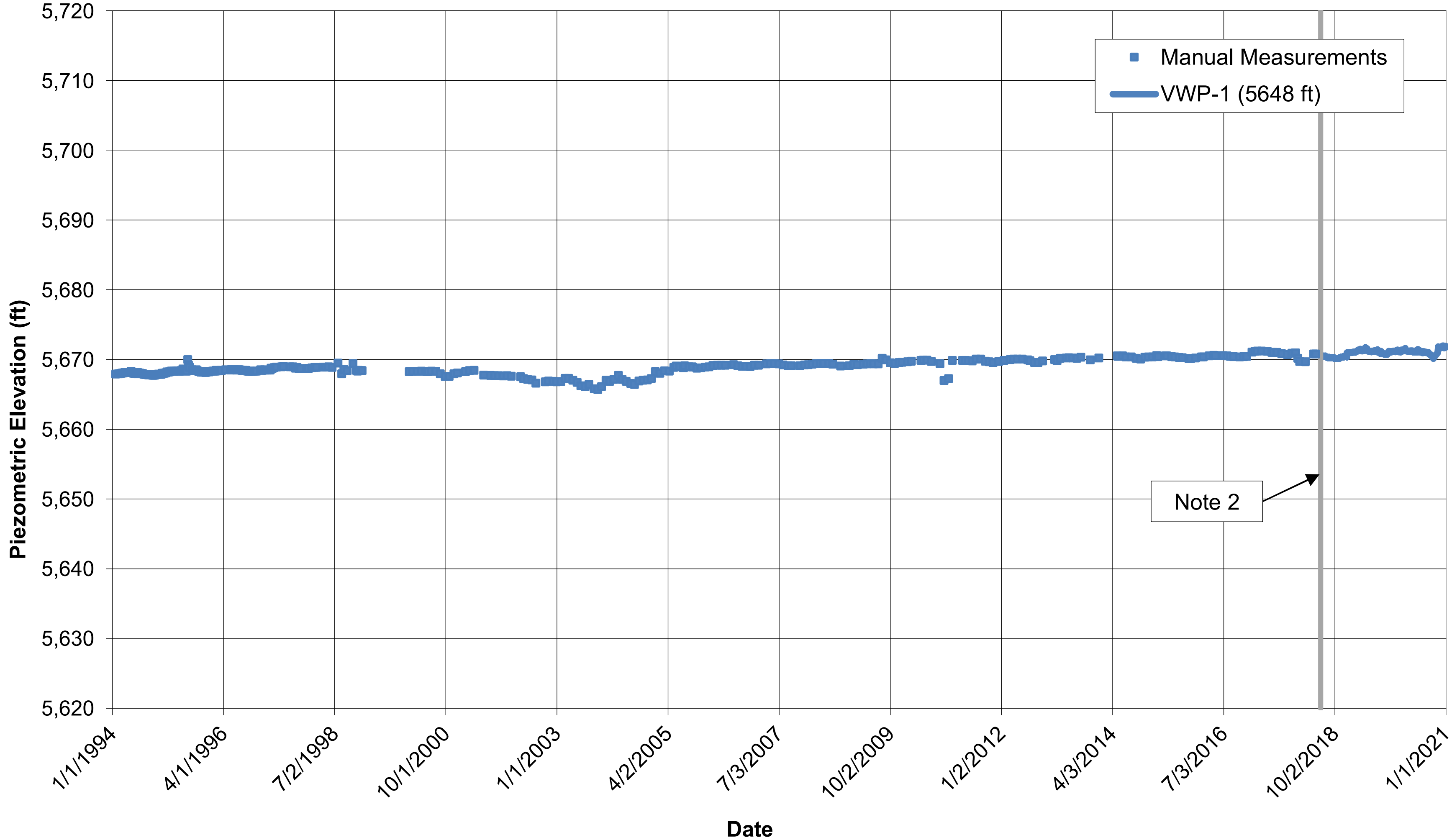
APPENDIX C

Piezometric Monitoring Data

APPENDIX C1

East-West Embankment

(Figures C1.1 to C1.18)



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018 USING A VWP SENSOR, MEASUREMENTS PRIOR TO THIS WERE TAKE MANUALLY.
3. STANDPIPE PIEZOMETER WAS INSTALLED MAY 1, 1980; HOWEVER, NO DATA PRIOR TO FEBRUARY 11, 1993 IS AVAILABLE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH-11 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

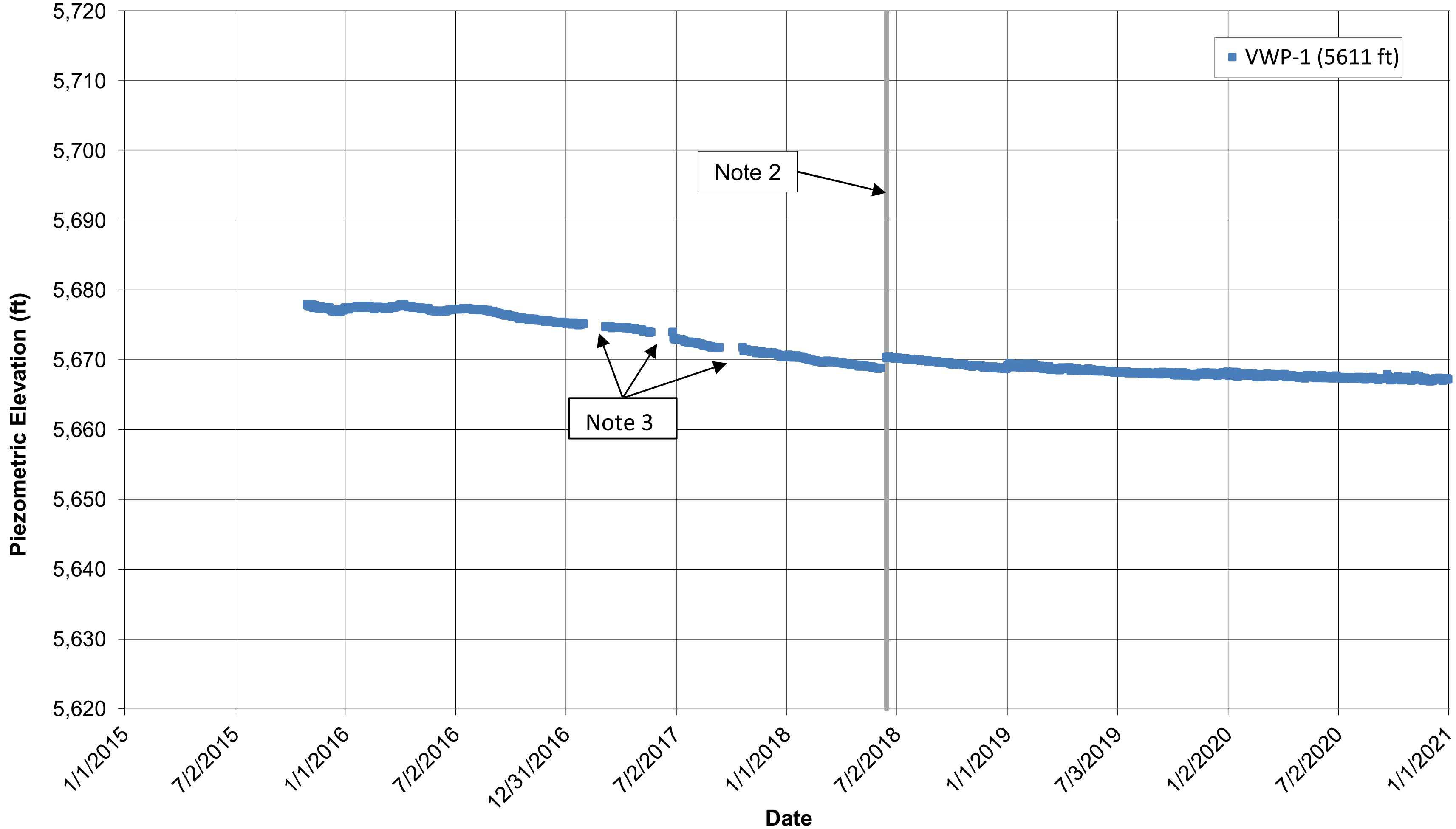
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C1.1

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 15, 2018.
3. NO DATA AVAILABLE DUE TO INSUFFICIENT BATTERY VOLTAGE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

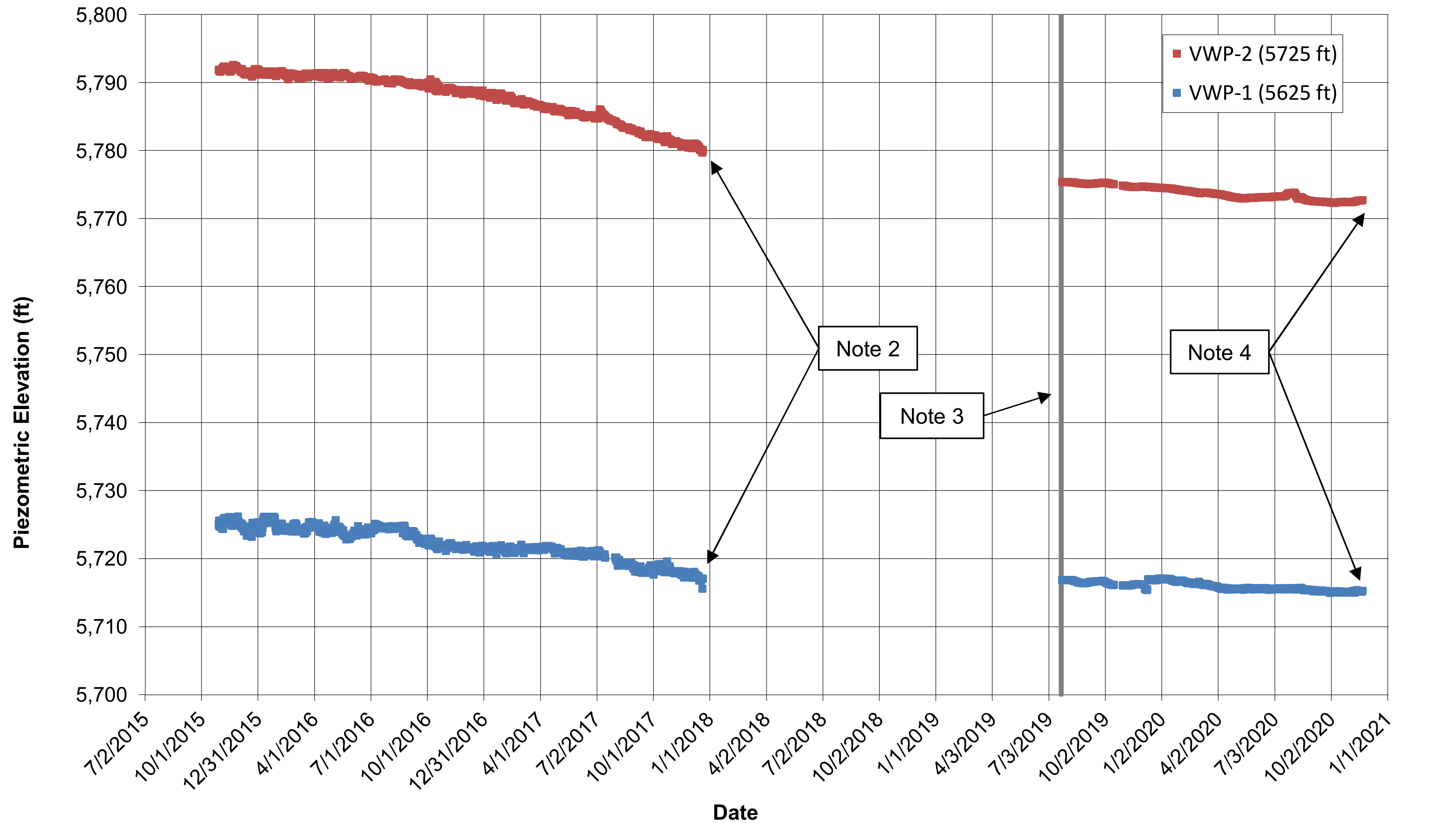
MONTANA RESOURCES, LLP
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-S3 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-00126/23 | REF. NO. 5

FIGURE C1.2 | REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. A HARDWARE ISSUE BEGINNING ON DECEMBER 21, 2017 PREVENTED DATA DOWNLOAD.
   MR STAFF REPLACED THE HARDWARE IN Q3, 2019.
3. SENSORS WERE INTEGRATED WITH REMOTE MONITORING SYSTEM ON JULY 25, 2019.
4. NO DATA AVAILABLE FROM NOVEMBER 22, THROUGH THE END OF 2020 DUE TO FAULTY NETWORK COMMUNICATIONS HARDWARE

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-S4 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

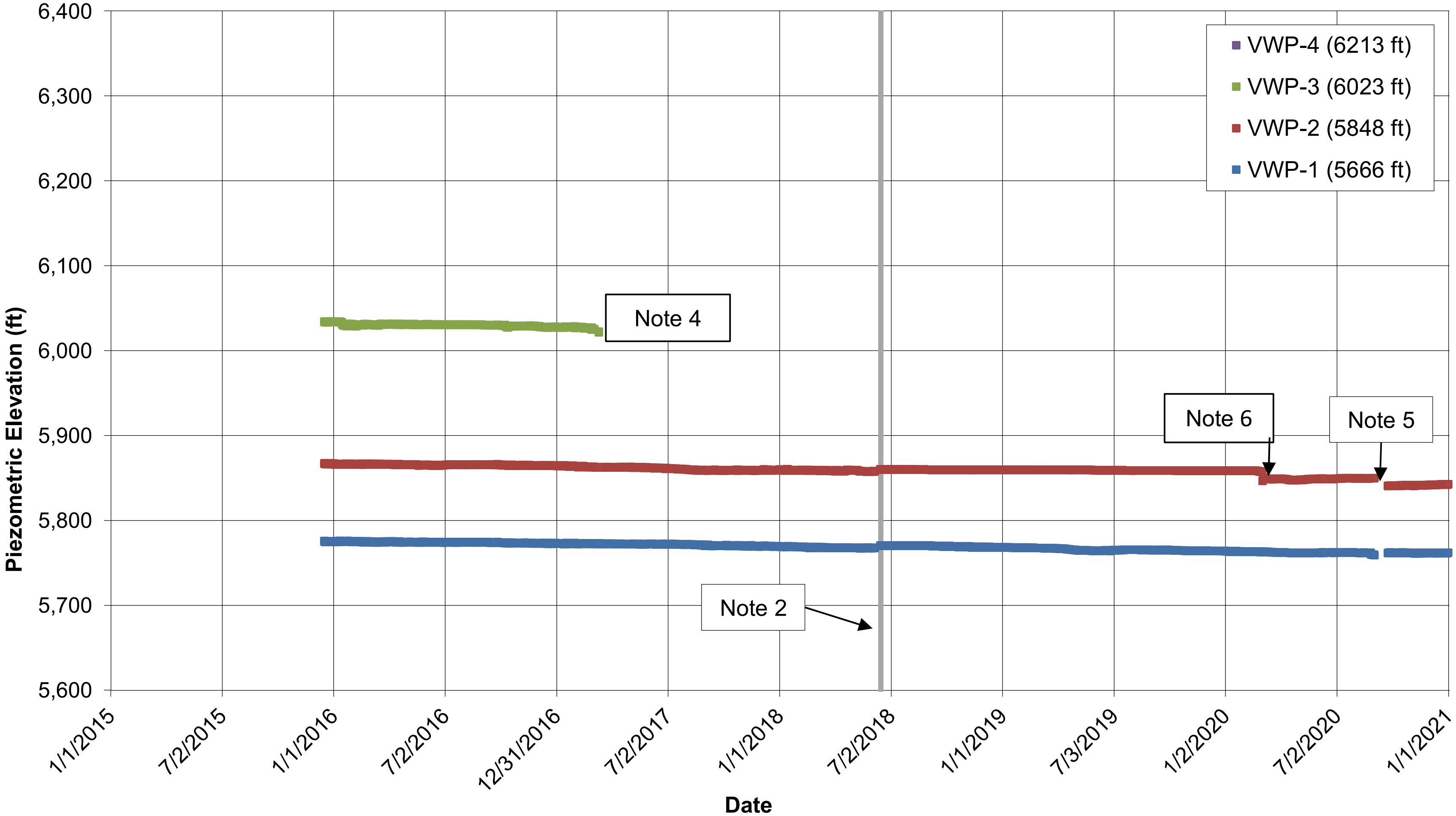
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C1.3

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONTIORING SYSTEM ON JUNE 15, 2018.
3. NO PIEZOMETRIC DATA ARE SHOWN FOR VWP-4 BECAUSE THE SENSOR IS UNSATURATED (DRY).
4. NO PIEZOMETRIC DATA ARE SHOWN FOR VWP-3 AFTER MARCH 3, 2017 BECAUSE THE SENSOR BECAME UNSATURATED (DRY).
5. NO PIEZOMETRIC DATA AVAILABLE FROM SEPTEMBER 2 TO 24, 2020 DUE TO A WATER DAMAGED DATA LOGGER. THE DATA LOGGER WAS SUBSEQUENTLY REPLACED.
6. OFFSET PRESENT IN FREQUENCY DATA RESULTS IN OBSERVED PORE PRESSURE DROP; CAUSE UNKNOWN.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

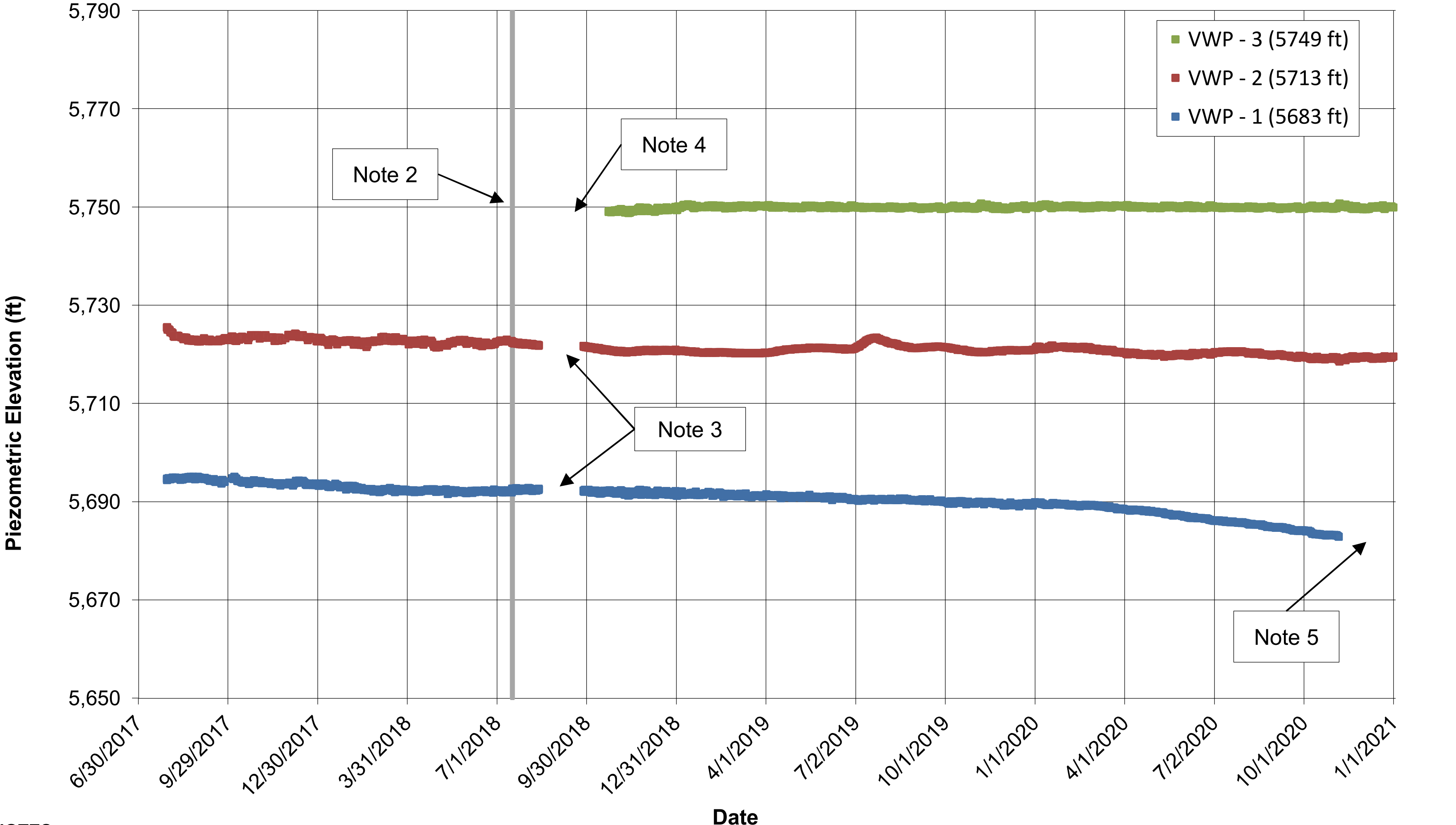
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-S5 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE C1.4 REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONTIORING SYSTEM ON JULY 16, 2018.
3. NO DATA RECORDED BETWEEN AUGUST 12, 2018 AND SEPTEMBER 27, 2018 DUE TO AN UNKNOWN ERROR WITH THE SENSEMETRICS THREAD DEVICE.
4. NO DATA SHOWN FOR VWP-3 PRIOR TO OCTOBER, 2018 BECAUSE THE SENSOR WAS UNSATURATED (DRY).
5. DATA AFTER NOVEMBER 6, 2020 HAVE BEEN OMITTED AFTER THE SENSOR INDICATED UNSATURATED CONDITIONS.
6. CAUSE OF DECREASE IN PIEZOMETRIC ELEVATION RECORDED BY VWP-1 BEGINNING IN FEBRUARY 2020 IS UNKNOWN. MAY BE INDICATIVE OF A SENSOR MALFUNCTION RATHER THAN IN-SITU CONDITIONS.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

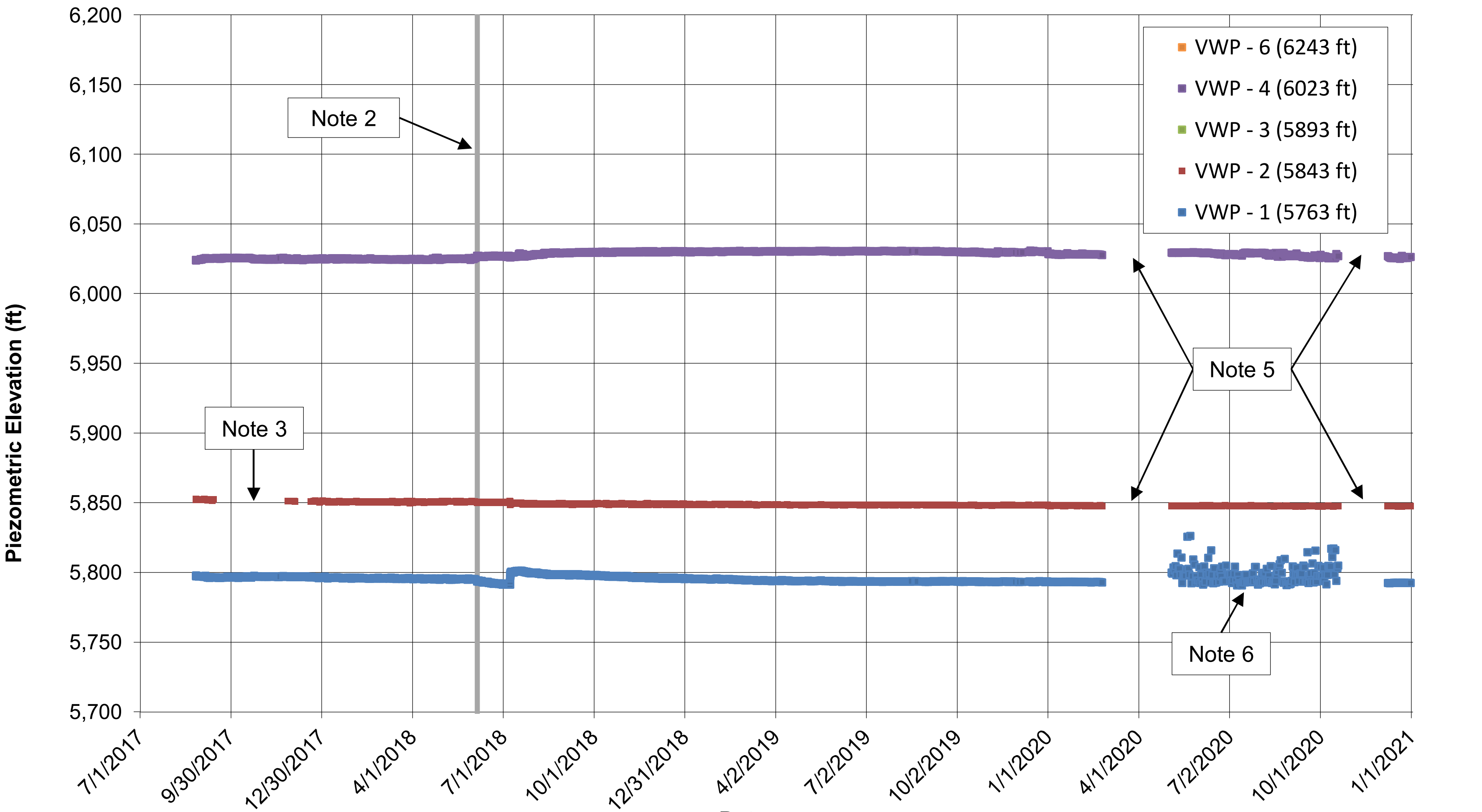
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH17-S1 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE C1.5 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONTIORING SYSTEM ON JUNE 5, 2018.
3. VWP-2 EXHIBITED INTERMITTENT CONNECTIVITY ISSUES RESULTING IN ISOLATED GAPS IN THE DATA SERIES.
4. NO DATA ARE SHOWN FOR VWP-3, VWP-5 AND VWP-6 BECAUSE THE SENSORS ARE UNSATURATED (DRY).
5. NO DATA WERE COLLECTED BY VWP-1, VWP-2, AND VWP-4 DUE TO THREAD POWER SUPPLY ISSUES FROM FEBRUARY 25 TO MAY 7, 2020 AND OCTOBER 21 TO DECEMBER 8, 2020.
6. DATA COLLECTED BY VWP-1 CONTAIN HIGH NOISE LEVELS FROM MAY 7 TO OCTOBER 21, 2020 DUE TO HARDWARE POWER MANAGEMENT ISSUE

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH17-S2 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

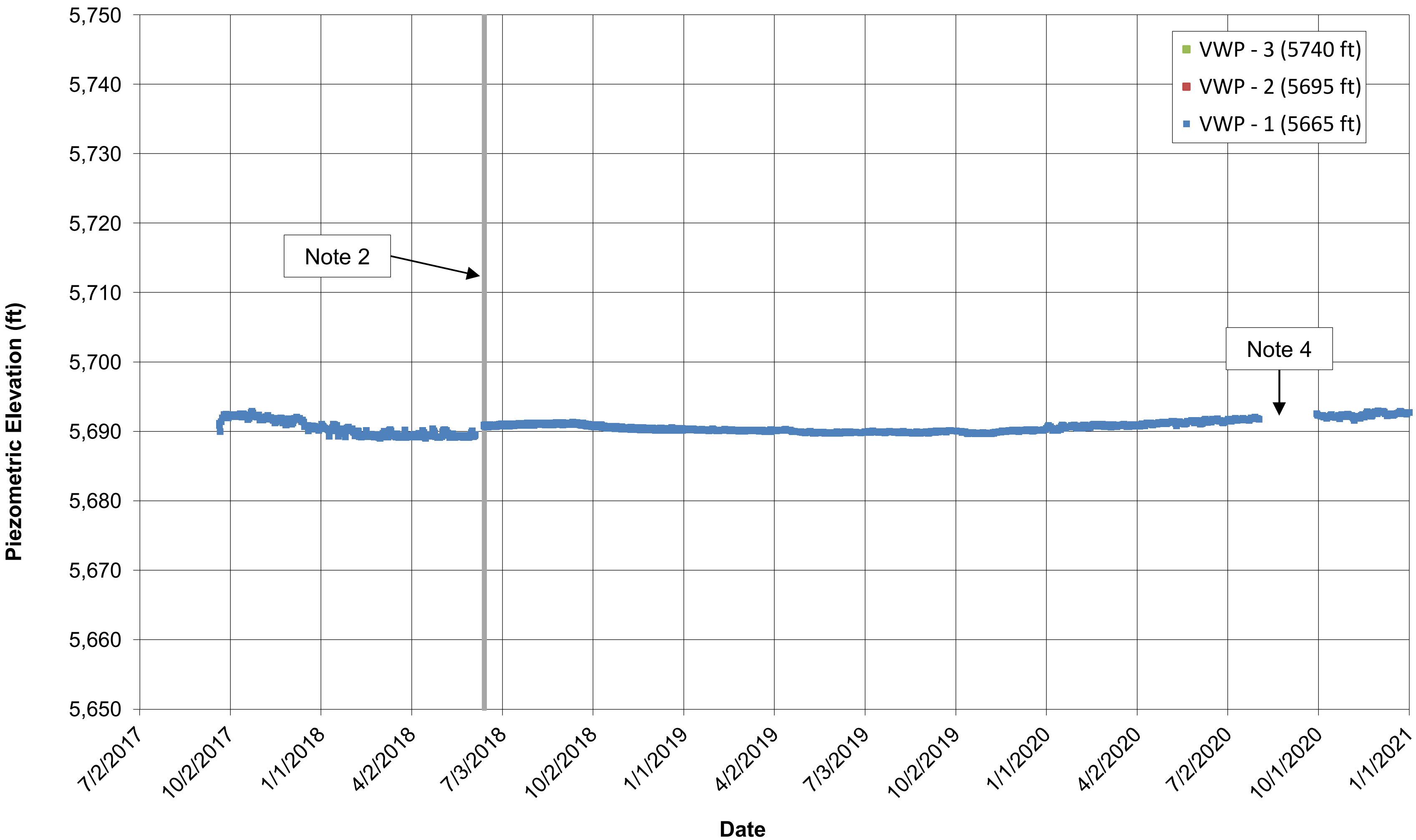
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C1.6

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONTIORING SYSTEM ON JUNE 14, 2018.
3. NO DATA ARE SHOWN FOR VWP-2 AND VWP-3 BECAUSE THE SENSORS ARE UNSATURATED (DRY).
4. NO DATA WERE COLLECTED FOR VWP-1 FROM AUGUST 4 TO OCTOBER 1, 2020 DUE TO SENSOR DISCONNECTION.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

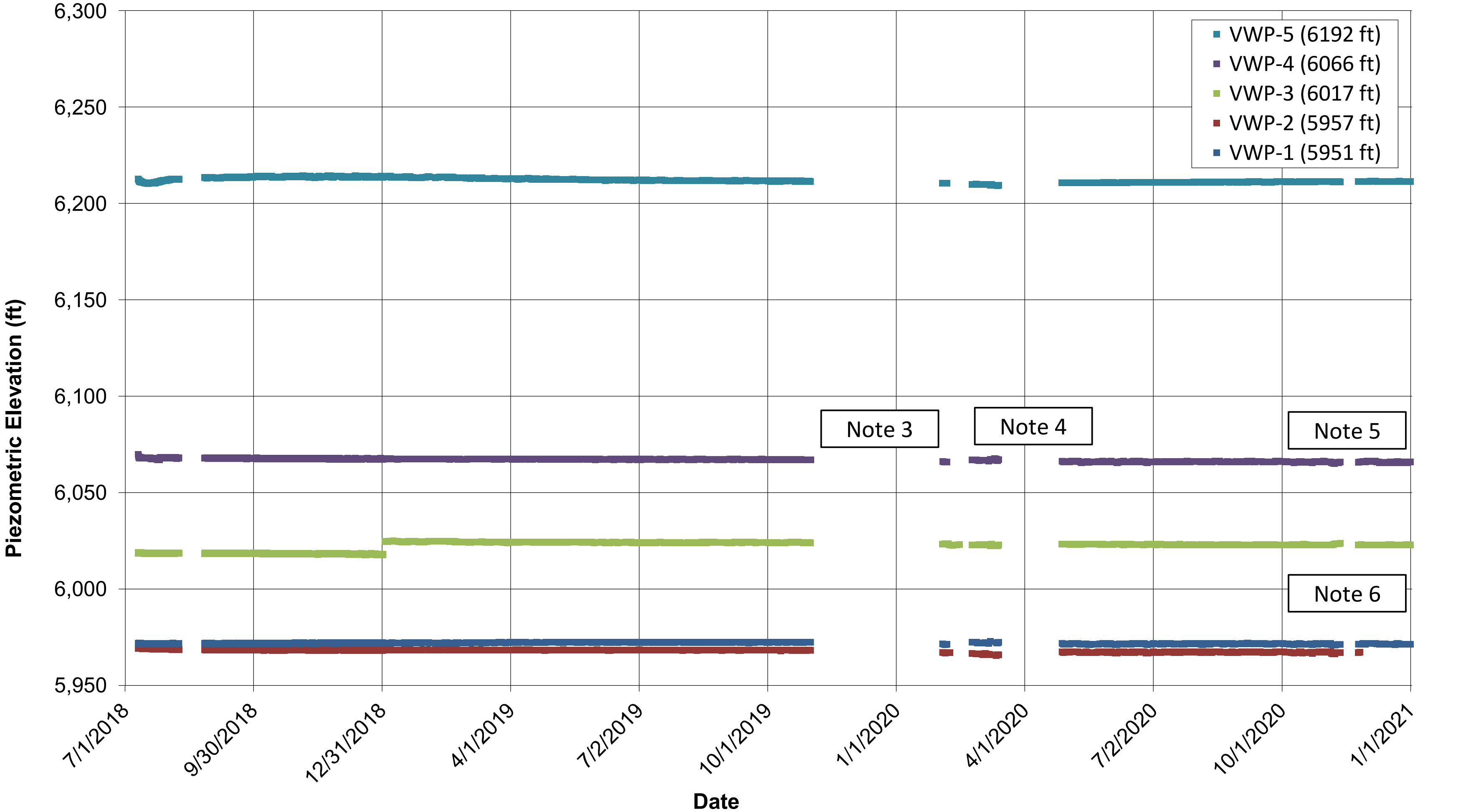
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH17-S4 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE C1.7 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON JULY 10, 2018.
3. SENSORS STOPPED LOGGING FROM AUGUST 2018 TO NOVEMBER 2019 DUE TO HARDWARE ISSUES. A NEW LOGGER WAS INSTALLED FEBRUARY 4, 2020.
4. NO DATA WERE COLLECTED FOR ALL VWPS FROM MARCH 15 TO APRIL 8, 2020 DUE TO DATA LOGGER VOLTAGE ISSUE.
5. NO DATA WERE COLLECTED FOR ALL VWPS FROM NOVEMBER 13 TO NOVEMBER 24, 2020 DUE TO DATA LOGGER BATTERY DEPLETION.
6. NO DATA WERE COLLECTED FOR VWP-2 SINCE NOVEMBER 27, 2020 DUE TO SENSOR DISCONNECTION.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

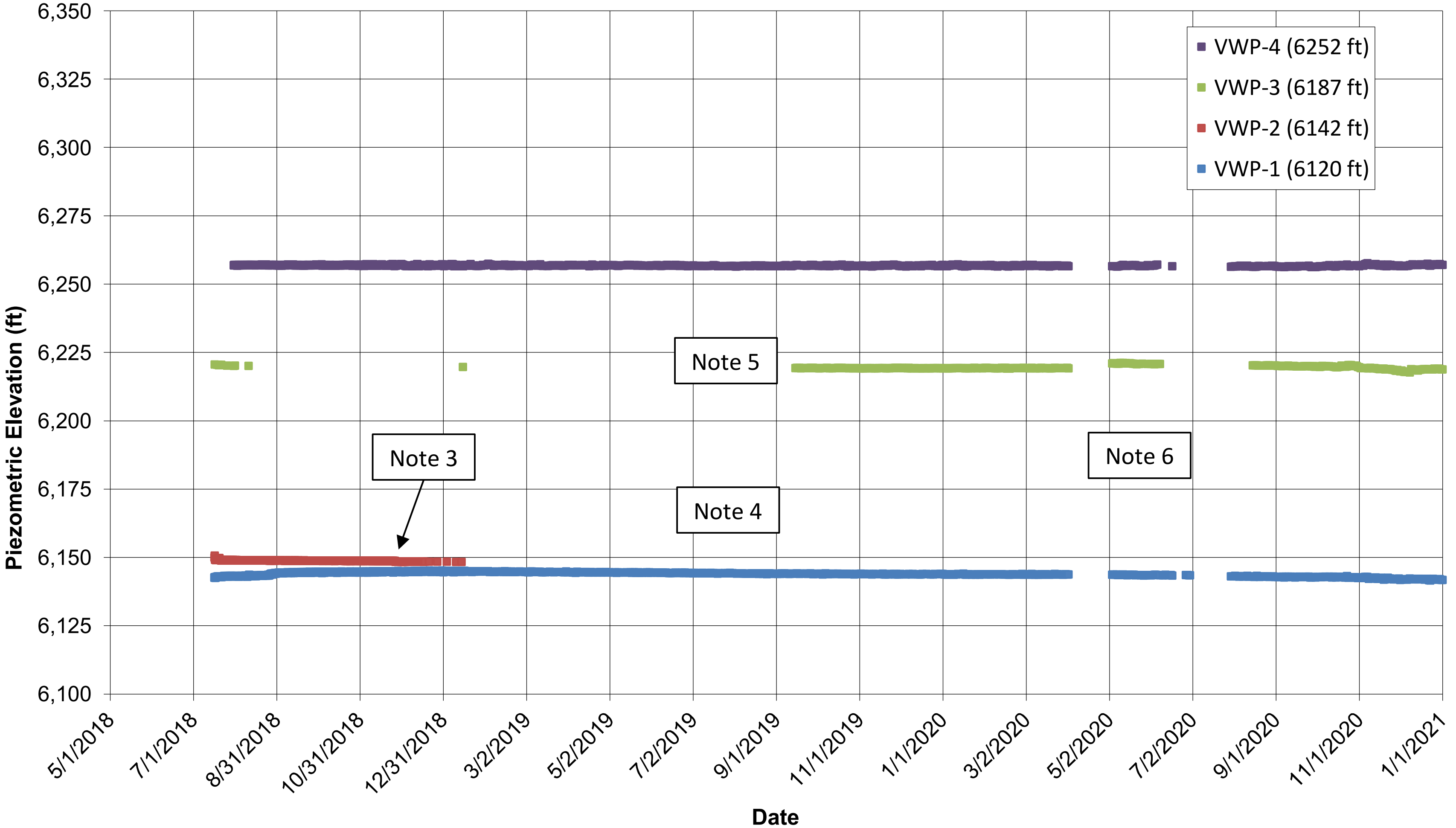
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH18-S3 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE C1.8		REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON JULY 9, 2018.
3. VWP-2 HAS EXHIBITED ERRONEOUS DATA SINCE JANUARY 13, 2019 LIKELY DUE TO SENSOR PERFORMANCE ISSUES.
4. VWP-3 HAS EXHIBITED ERRONEOUS DATA FROM AUGUST 10, 2018 TO SEPTEMBER 15, 2019 LIKELY DUE TO CONNECTIVITY ISSUES.
5. NO DATA ARE SHOWN FOR VWP-3 BECAUSE DATA FROM THIS SENSOR ARE ERRONEOUS DUE TO SUSPECTED SENSOR DAMAGE.
6. NO DATA WERE COLLECTED FOR VWP-1, VWP-3, VWP-4 FROM APRIL 4 TO MAY 4, 2020 AND JUNE 7, 2020 TO

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH18-S4 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

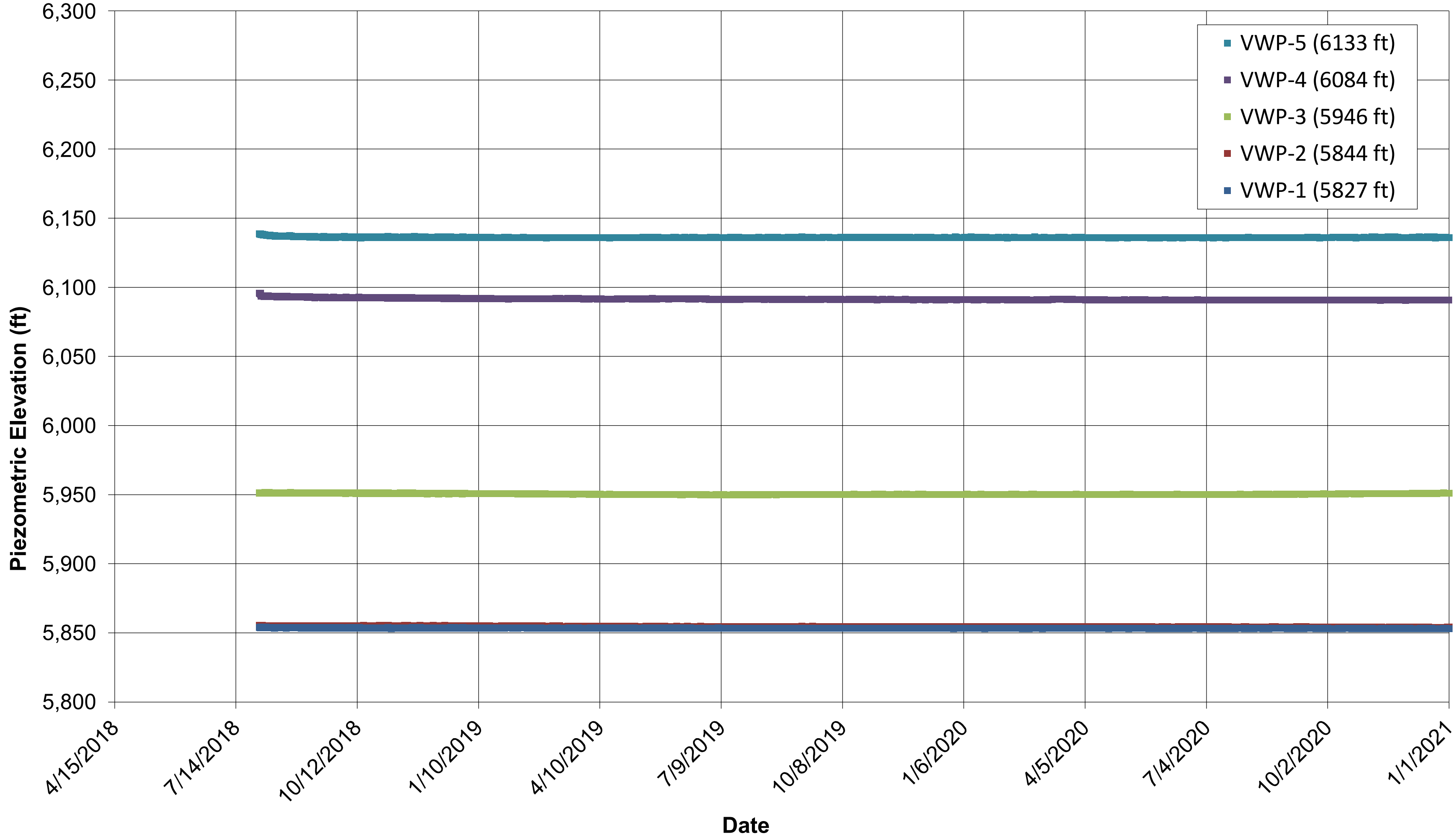
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.9

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON JULY 31, 2018.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH18-S5 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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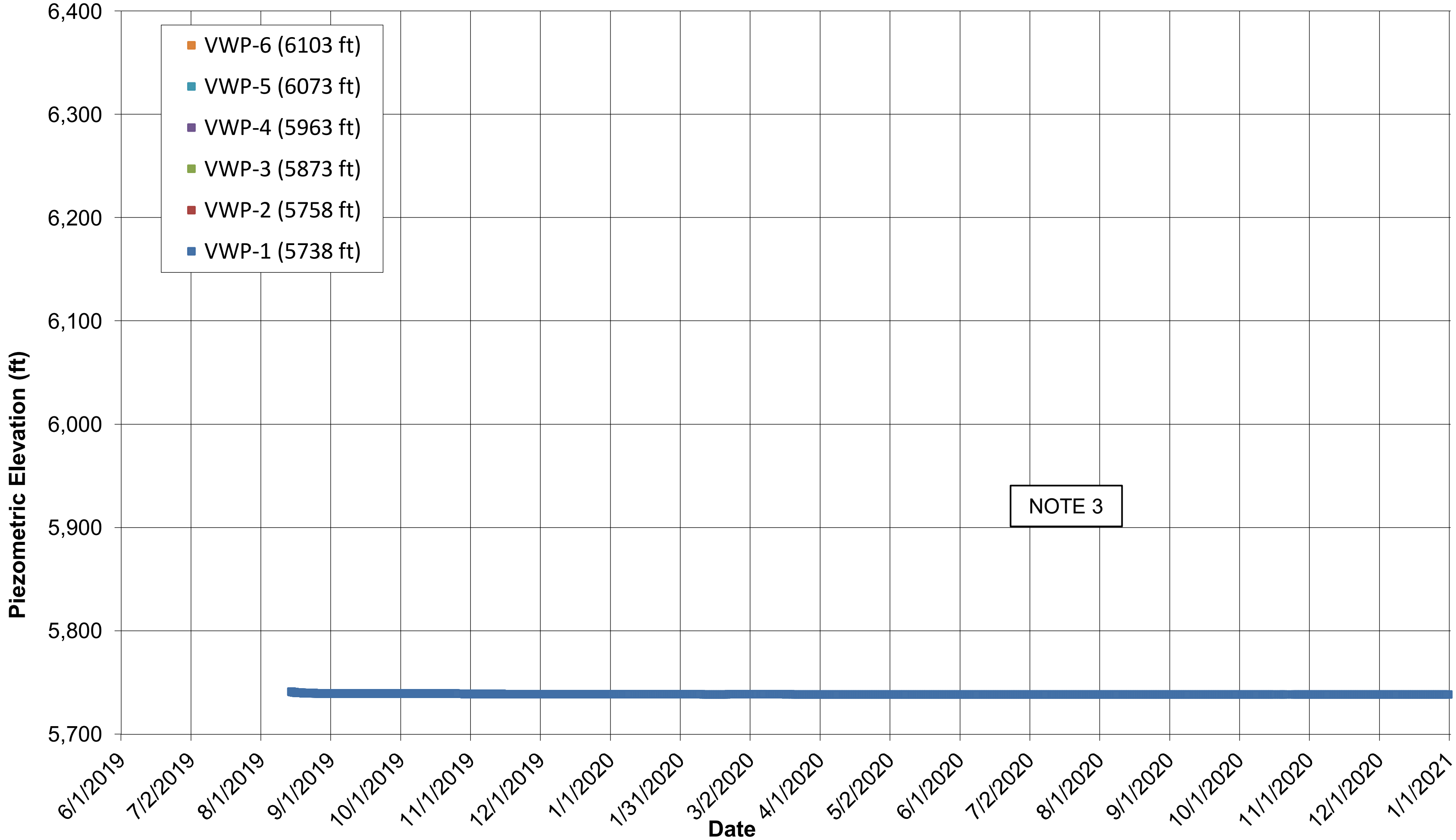
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.10

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON AUGUST 12, 2019.
3. SENSORS VWP-2 THROUGH VWP-6 ARE UNSATURATED AND HAVE BEEN OMITTED FROM THIS PLOT

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

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S5 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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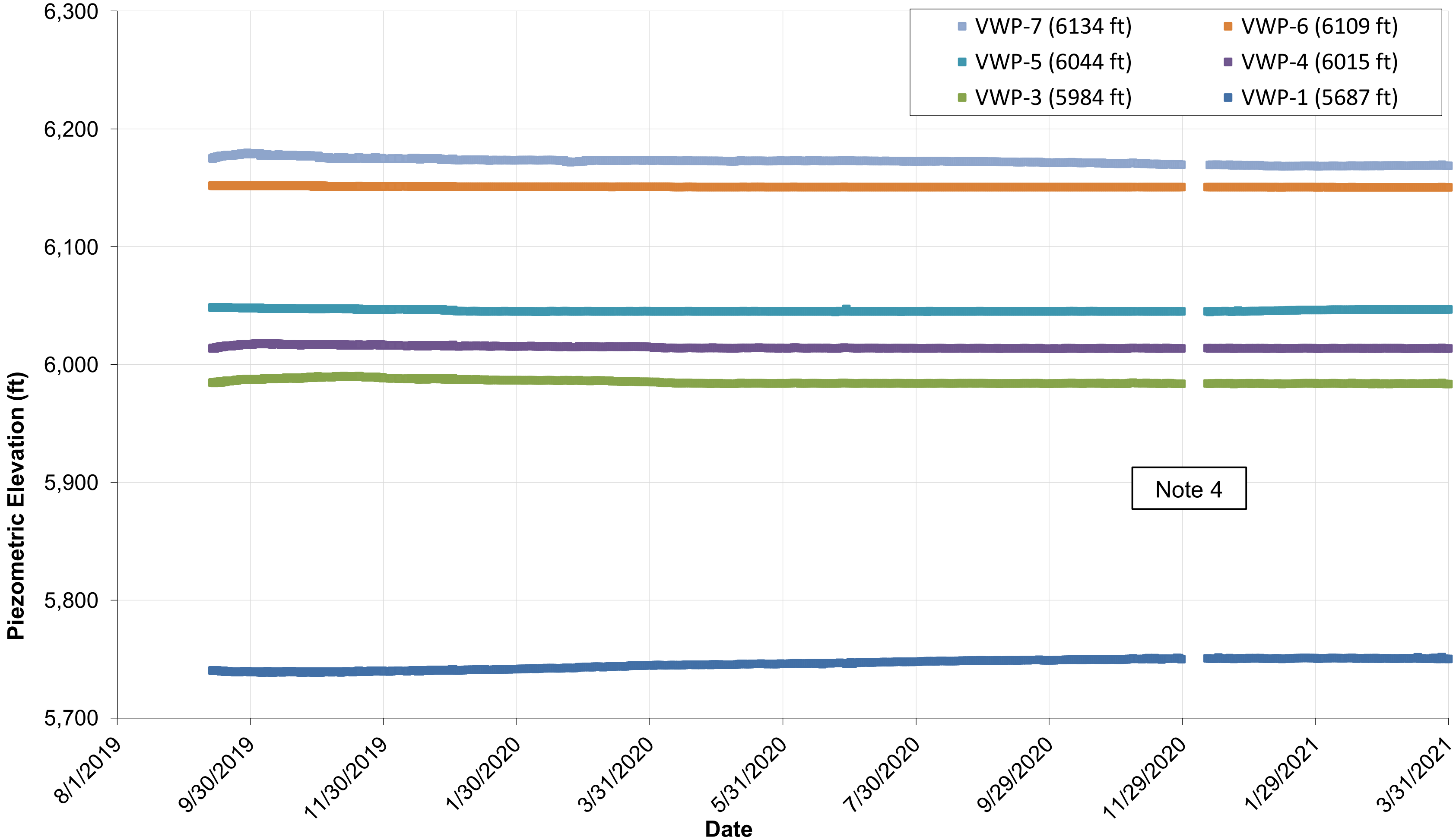
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.11

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON AUGUST 31, 2019.
3. VWP-2 HAS BEEN UNSATURATED SINCE SEPTEMBER 13, 2019 AND HAS BEEN OMITTED FROM PLOT FOR CLARITY.
4. NO DATA ARE AVAILABLE FROM NOVEMBER 30 TO DECEMBER 10 FOR ALL SENSORS DUE TO A DISCHARGED DATA LOGGER BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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DH19-S7 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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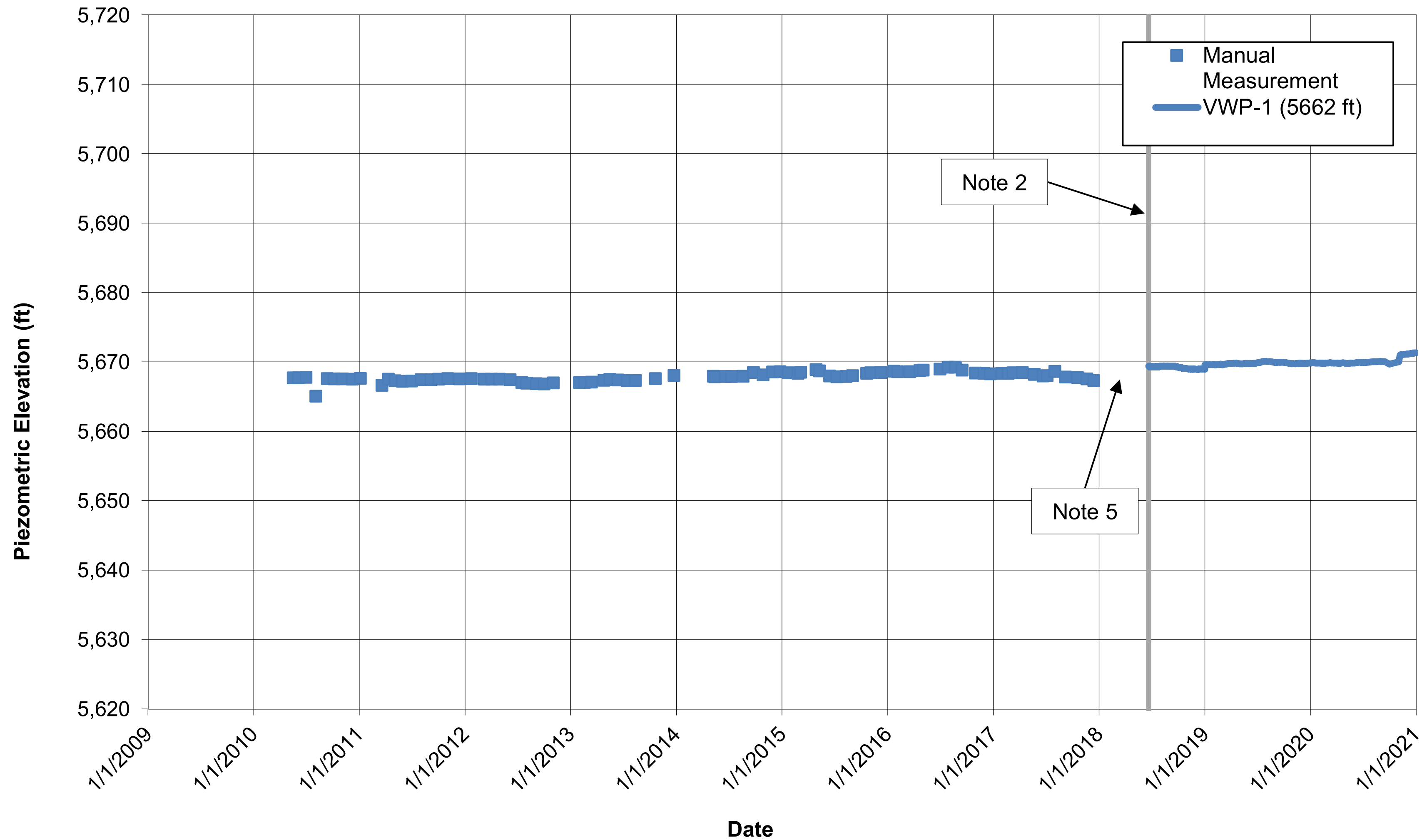
P/A NO. VA101-126/23 | REF. NO. 5

FIGURE C1.12 | REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. STANDPIPE PIEZOMETER INSTALLED FEBRUARY 12, 1993.
4. NO HISTORICAL DATA ARE AVAILABLE PRIOR TO AUGUST 4, 2010.
5. NO DATA WERE RECORDED BETWEEN DECEMBER 14, 2017 TO JUNE 21, 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

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YANKEE DOODLE TAILINGS IMPOUNDMENT

MW93-4 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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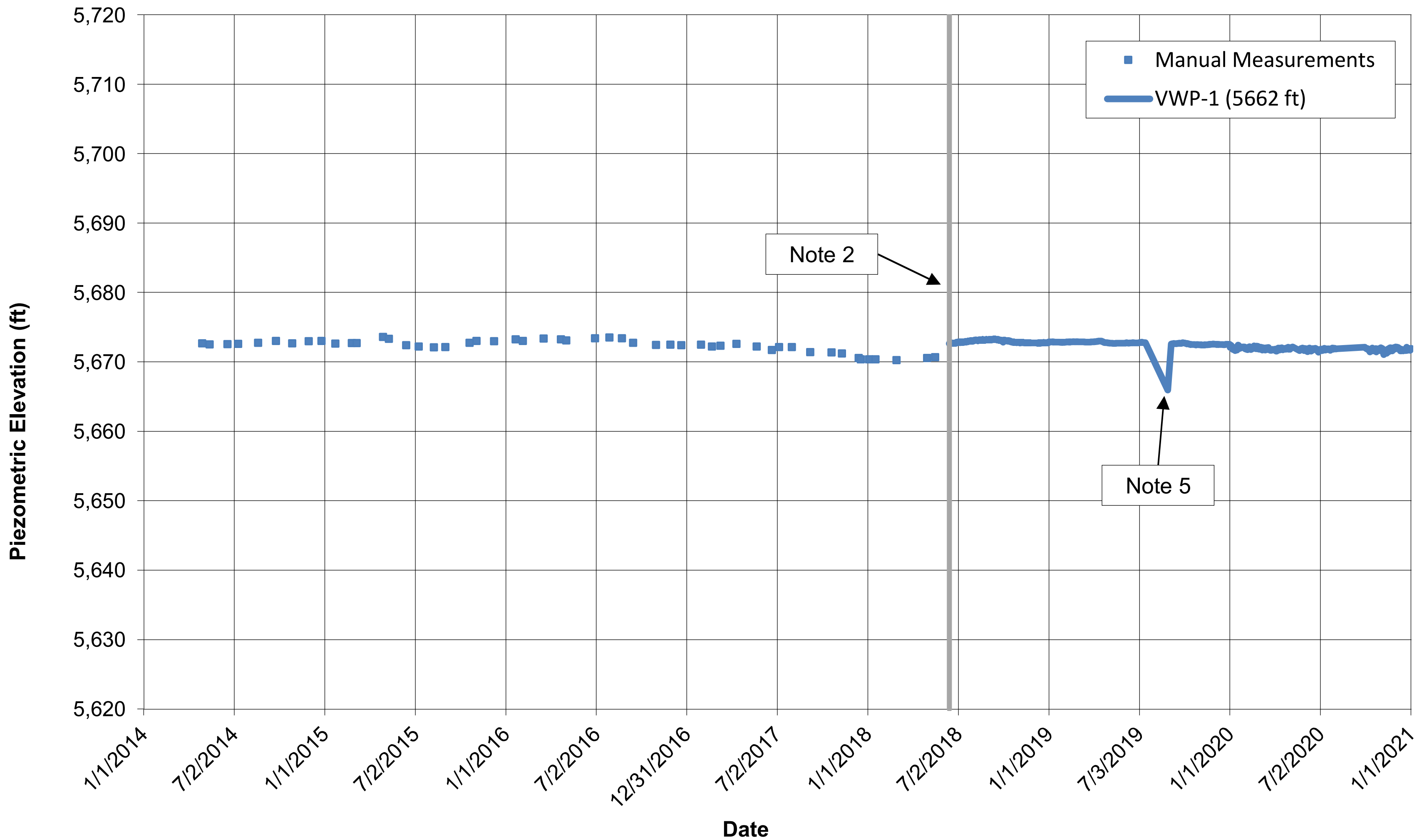
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.13

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 14, 2018.
3. STANDPIPE PIEZOMETER INSTALLED FEBRUARY 2, 1994.
4. NO HISTORICAL DATA ARE AVAILABLE PRIOR TO APRIL 8TH, 2014.
5. SENSOR WAS TEMPORARILY REMOVED FOR INSPECTION.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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MW94-5 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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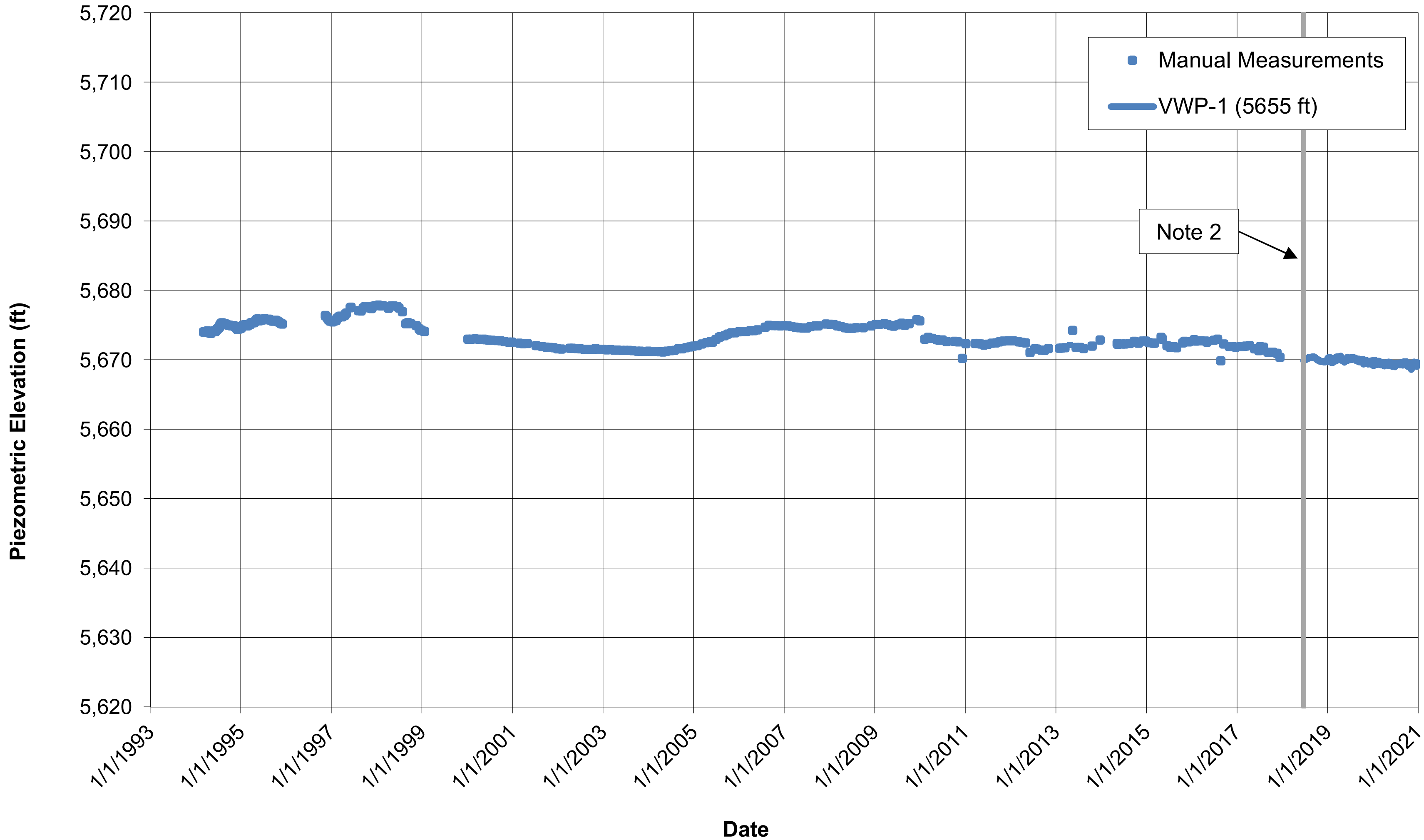
P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C1.14		REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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MW94-8 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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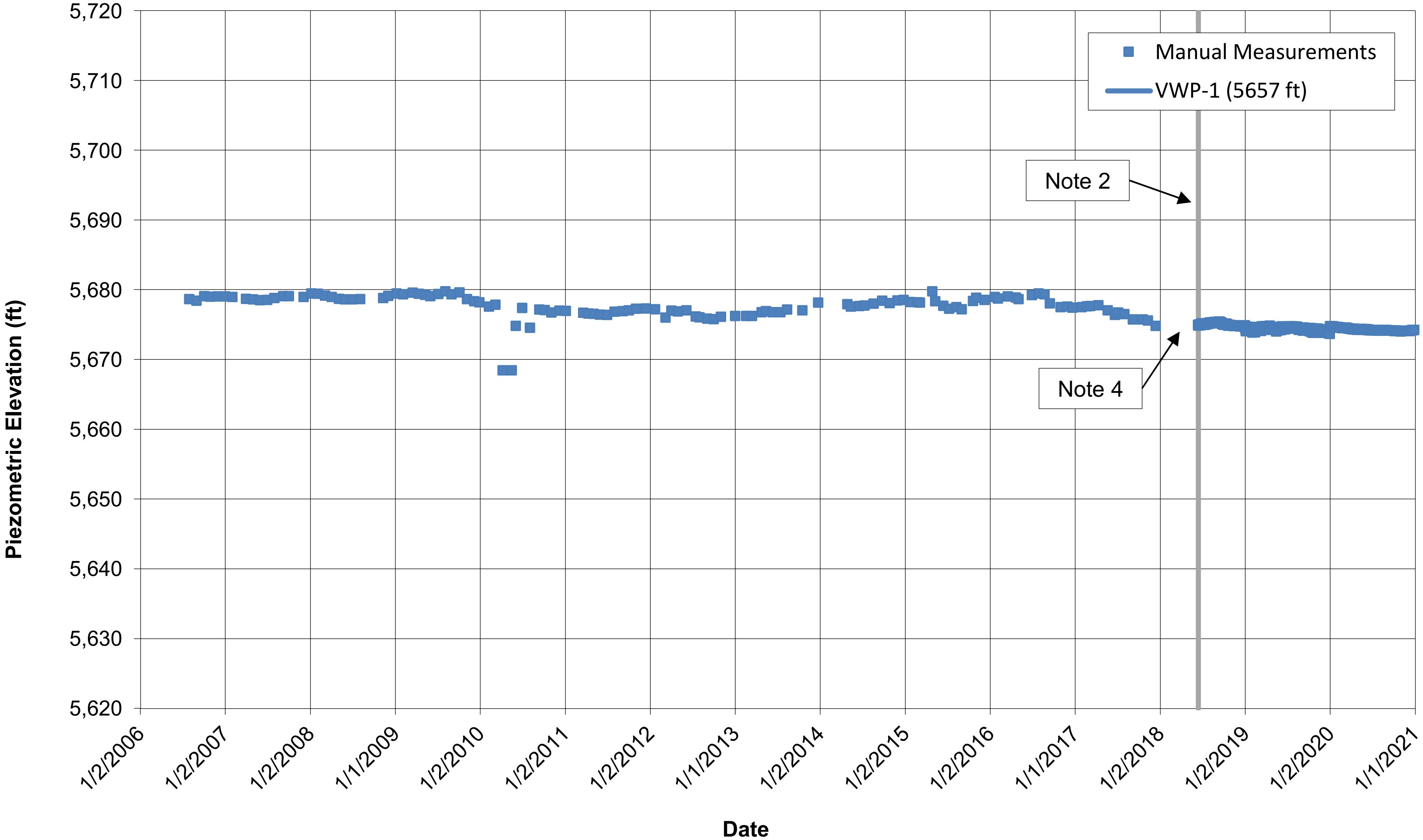
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.15

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED JUNE 28, 1994. NO HISTORICAL DATA ARE AVAILABLE PRIOR TO AUGUST 1, 2006.
4. NO DATA WERE COLLECTED FROM DECEMBER 18, 2017 TO JUNE 14, 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.

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

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW94-11 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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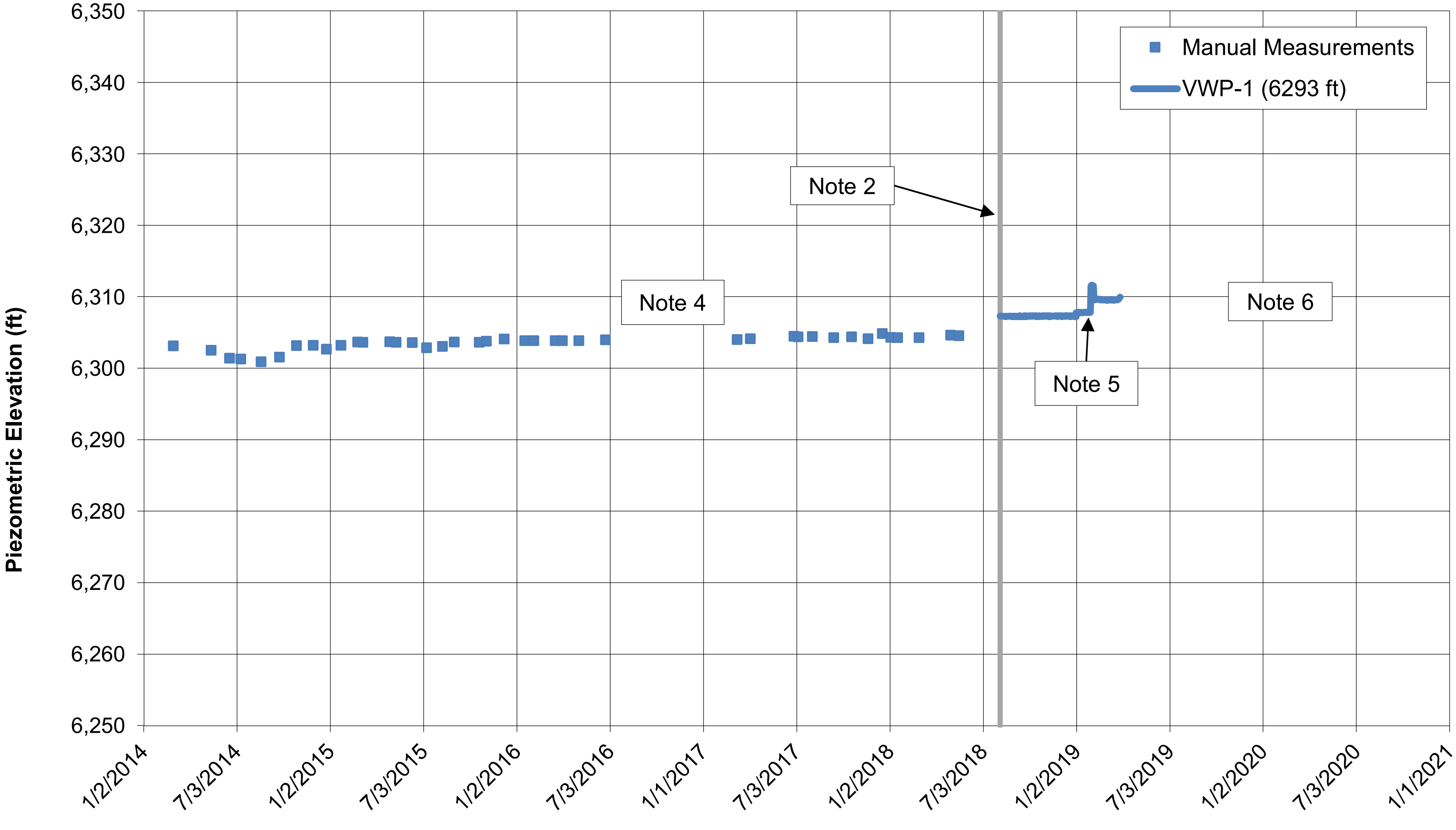
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C1.16

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON AUGUST 5, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED AUGUST 22, 2012.
4. STANDPIPE PIEZOMETER WAS TEMPORARILY ABANDONED JUNE 29, 2016 DURING CONSTRUCTION OF ROCKY KNOB CUT. MANUAL MEASUREMENTS WERE RESTARTED FOLLOWING CONSTRUCTION ON MARCH 9, 2017.
5. ERRONEOUS SPIKE OCCURRED JANUARY 29 TO FEBRUARY 6, 2019 DUE TO UNKNOWN CAUSE.
6. NO DATA WERE COLLECTED AFTER MARCH 28, 2019 DUE TO SENSOR CONNECTIVITY ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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MW12-07 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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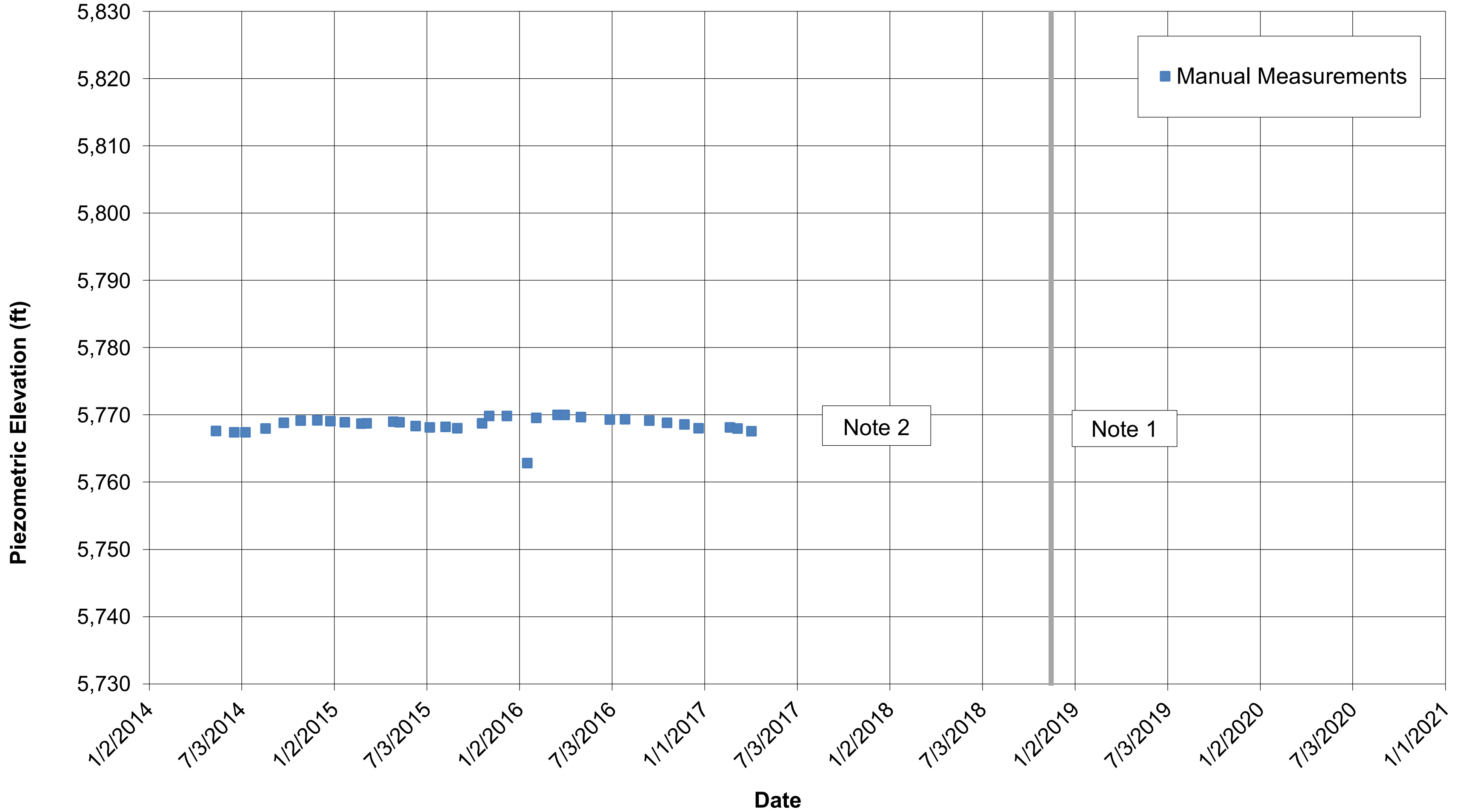
P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C1.17

REV 0



NOTES:

1. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 15, 2018; HOWEVER, SENSOR DAMAGE RESULTED IN ERRONEOUS DATA.
2. MW14-01 WAS ABANDONED IN Q4 2019 DUE TO A BLOCKAGE THAT OCCURRED DURING ATTEMPT TO RECOVER NON-FUNCTIONAL VWP FROM THE MONITORING WELL.

0	29JUN'21	ISSUED FOR INFORMATION	CYP	KTD
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MW14-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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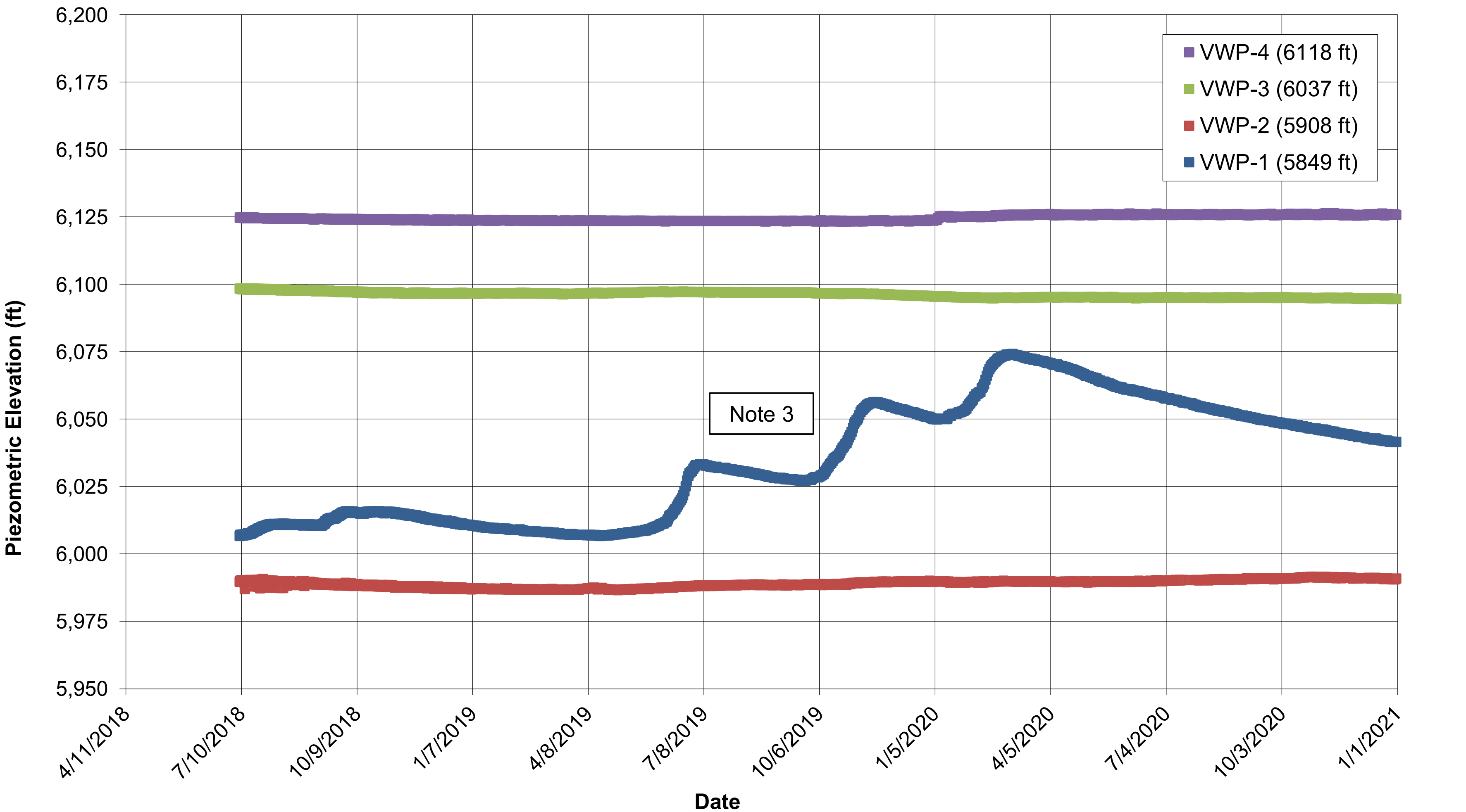
FIGURE C1.18

REV 0

APPENDIX C2

North-South Embankment

(Figures C2.1 to C2.16)



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM DURING SENSOR INSTALLATION ON JULY 9, 2018.
3. THE PORE PRESSURE FLUCTUATIONS RECORDED BY VWP-1 CORRESPOND TO NORTH-SOUTH EMBANKMENT STEP-OUT LIFT CONSTRUCTION LOADING AND SUBSEQUENT PRESSURE DISSIPATION.

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DH18-S1 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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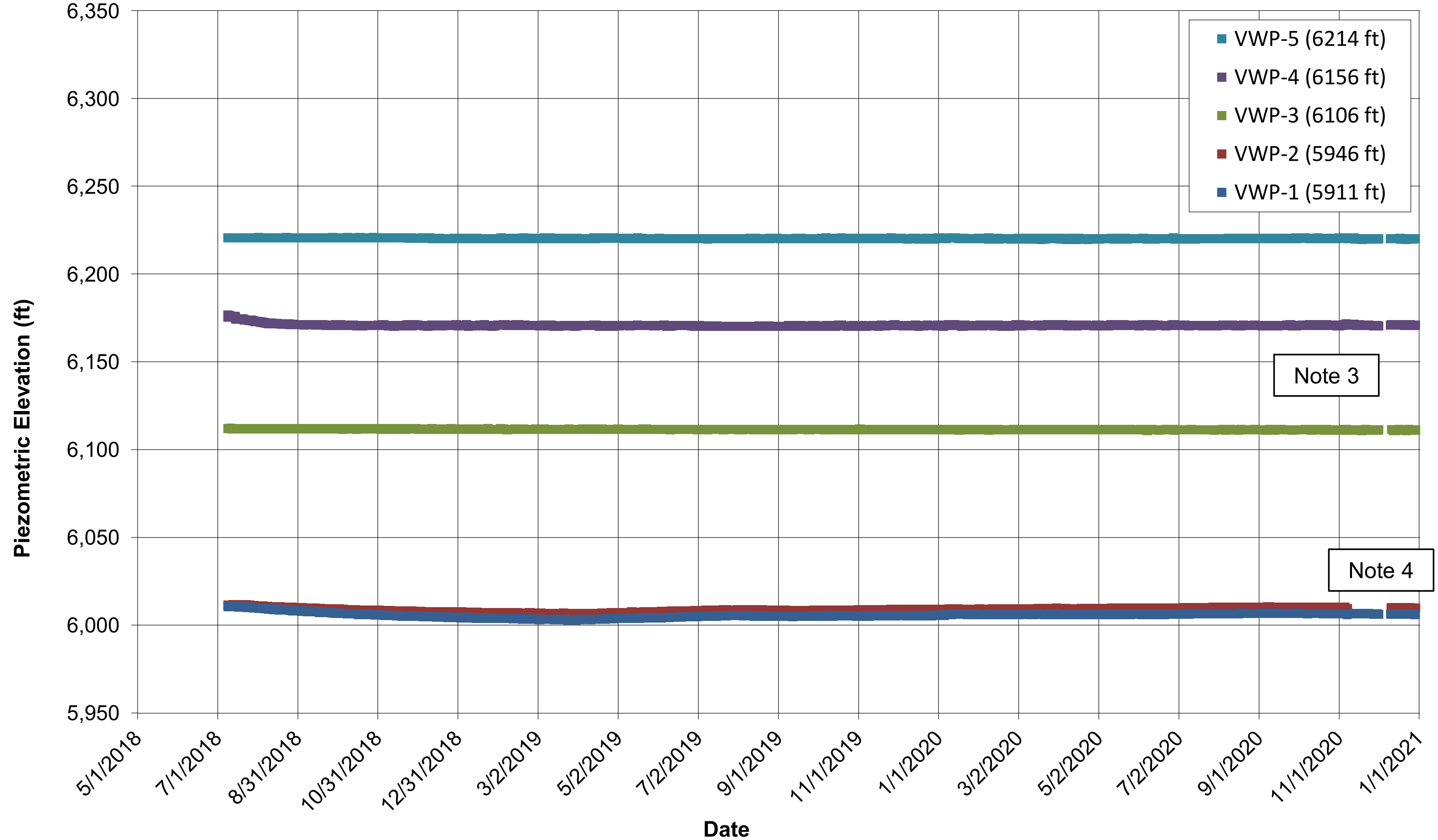
P/A NO. VA101-126/23 | REF. NO. 5

FIGURE C2.1 | REV 0

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM DURING SENSOR INSTALLATION ON JULY 9, 2018.
3. NO DATA COLLECTED FOR VWP-1, VWP-3, VWP-4, VWP-5 FROM DECEMBER 3, 2020 TO DECEMBER 10, 2020 DUE TO A BAROMETRIC REFERENCE OUTAGE.
4. NO DATA COLLECTED FOR VWP-2 FROM NOVEMBER 9 TO DECEMBER 10, 2020 DUE TO

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DH18-S2 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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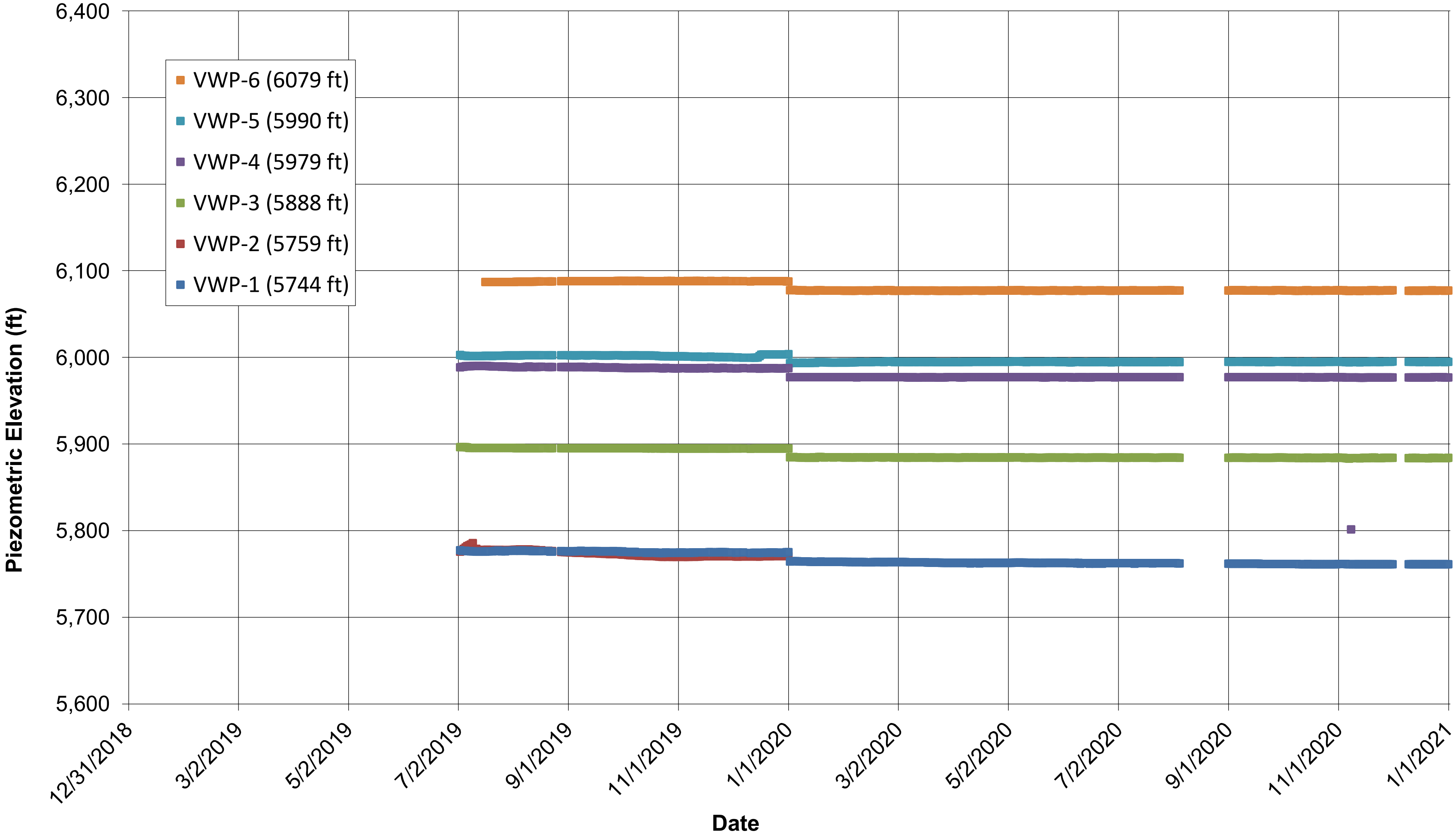
REF. NO. 5

FIGURE C2.2

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON JUNE 29, 2019.
3. DATA ARE PLOTTED WITH ONE READING PER DAY. SENSORS RECORD DATA HOURLY.
4. MINOR INTERMITTENT DATA GAPS RESULT FROM HARDWARE CONNECTIVITY ISSUES.

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REV	DATE	DESCRIPTION	PREP'D	RVW'D

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DH19-S1 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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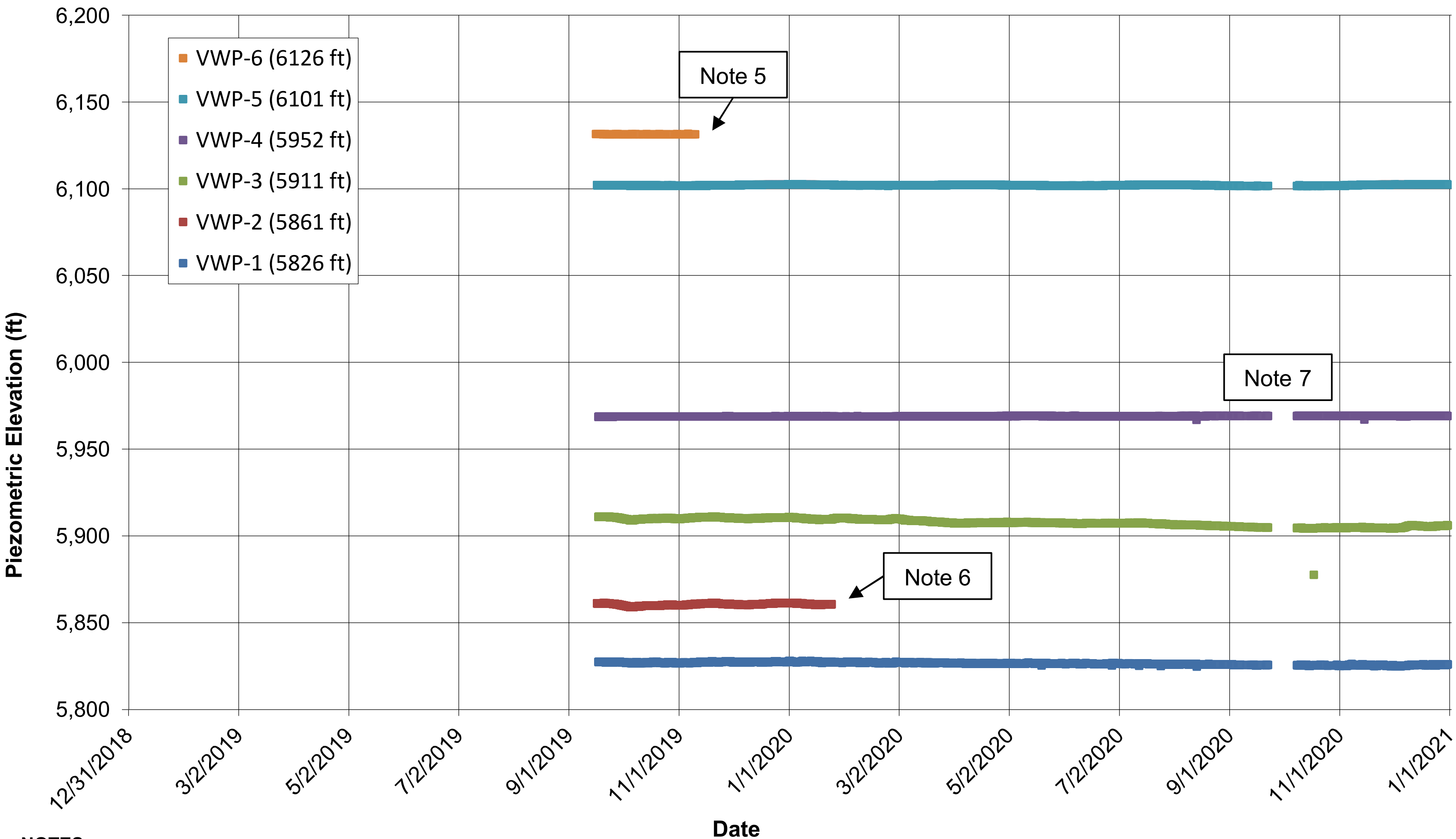
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.3

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON JULY 16, 2019.
3. DATA SHOWN ABOVE WERE EXTRACTED USING A DAILY TIME INTERVAL. SENSORS RECORD DATA HOURLY.
4. MINOR INTERMITTENT DATA GAPS RESULT FROM HARDWARE CONNECTIVITY ISSUES.
5. NO DATA WERE COLLECTED FOR VWP-6 AFTER NOVEMBER 10, 2019 DUE TO SUSPECTED SENSOR DAMAGE.
6. NO DATA WERE COLLECTED FOR VWP-2 AFTER FEBRUARY 17, 2020 DUE TO SUSPECTED SENSOR DAMAGE.
7. NO DATA WERE COLLECTED FOR VWP-1, VWP-3, VWP-4, VWP-5 FROM SEPTEMBER 9, 2020 TO OCTOBER 8, 2020 DUE TO SUSPECTED CONNECTIVITY ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S2 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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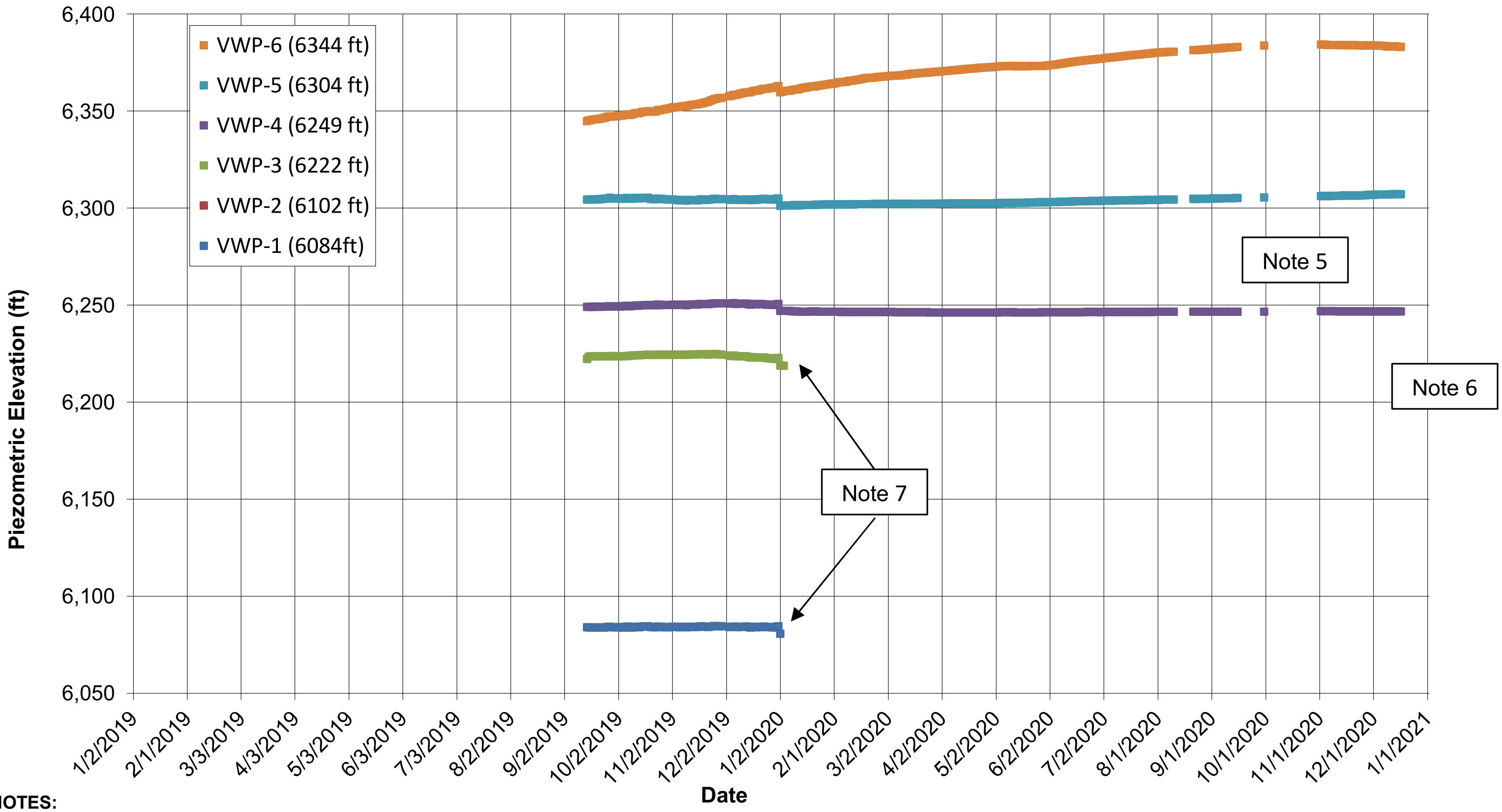
FIGURE C2.4 | REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON AUGUST 12, 2019.
3. DATA ARE PLOTTED WITH ONE READING PER DAY. SENSORS RECORD DATA HOURLY.
4. VWP-3, VWP-5, AND VWP-6 ARE INSTALLED IN TAILINGS, VWP-2 AND VWP-4 ARE INSTALLED IN ROCKFILL, AND VWP-1 IS INSTALLED IN ALLUVIUM.
5. NO DATA WERE COLLECTED FOR ALL VWPS FROM SEPTEMBER 9, TO OCTOBER 10, 2020 AND FROM DECEMBER 18, 2020 DUE TO DATA LOGGER REPLACEMENT AND SUBSEQUENT LOGGER ISSUE.
6. NO DATA IS AVAIILABLE FOR ALL SENSORS AFTER DECEMBER 18, 2020 DUE TO A DATA LOGGER MALFUNCTION.
7. VWP-2 HAS BEEN DRY SINCE INSTALLATION AND VWP-1 AND VWP-3 BECAME UNSATURATED ON JANUARY 3, 2020.

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DH19-S6 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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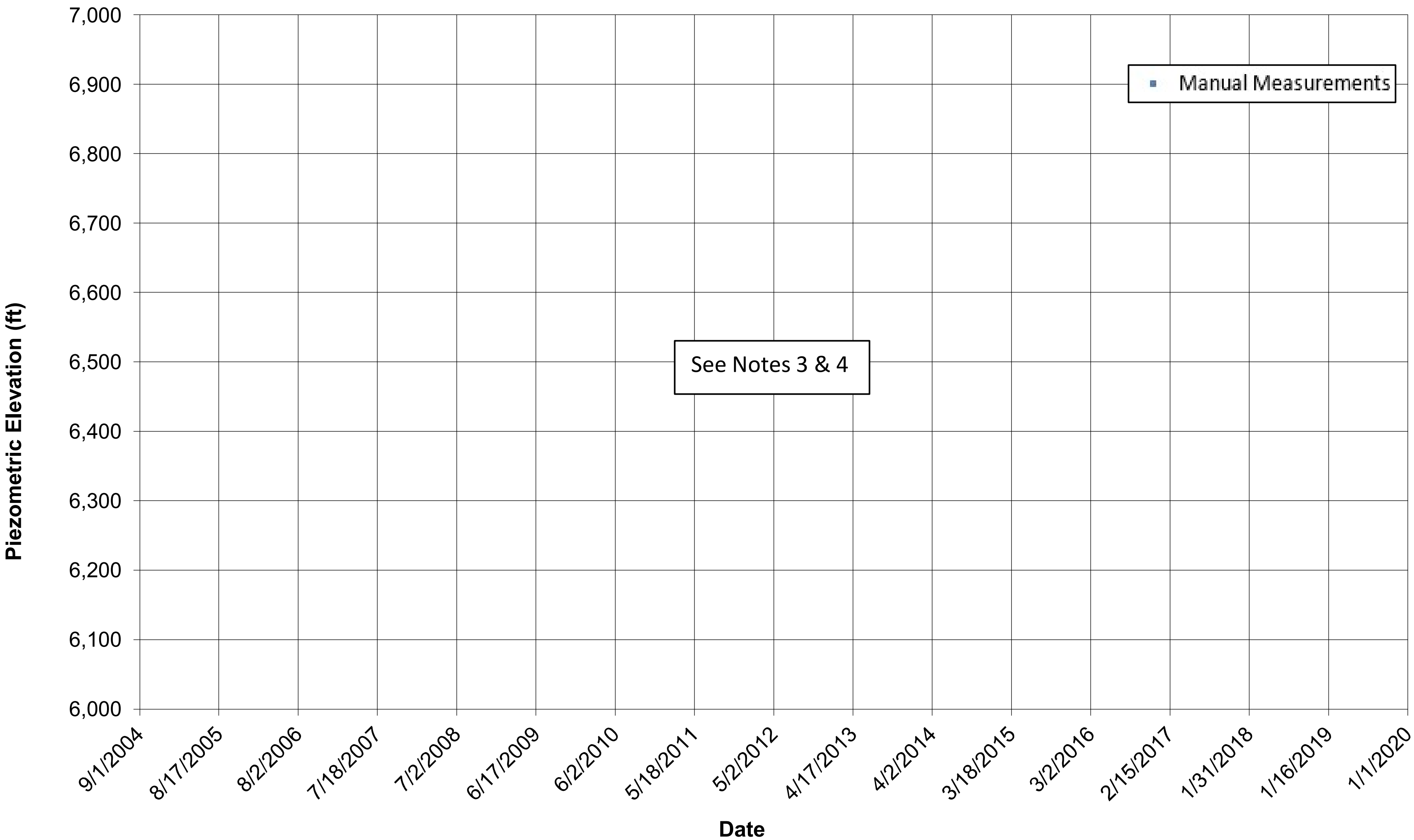
REF. NO. 5

FIGURE C2.5

REV 0



NOTES:
1. GROUND ELEVATION AT THE COLLAR LOCATION WAS 6146 FEET AT THE TIME OF INSTALLATION BASED ON ANACONDA MINE GRID.
2. MONITORING WELL WAS INSTALLED JULY 5, 2005.
3. MONITORING WELL HAS BEEN UNSATURATED (WATER LEVEL BELOW THE SCREEN ELEVATION) FOR THE PERIOD OF RECORD.
4. MONITORING WELL WAS ABANDONED ON FEBRUARY 19, 2016 DUE TO A HARDWARE ISSUE.

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MONTANA RESOURCES, LLP

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MW05-3 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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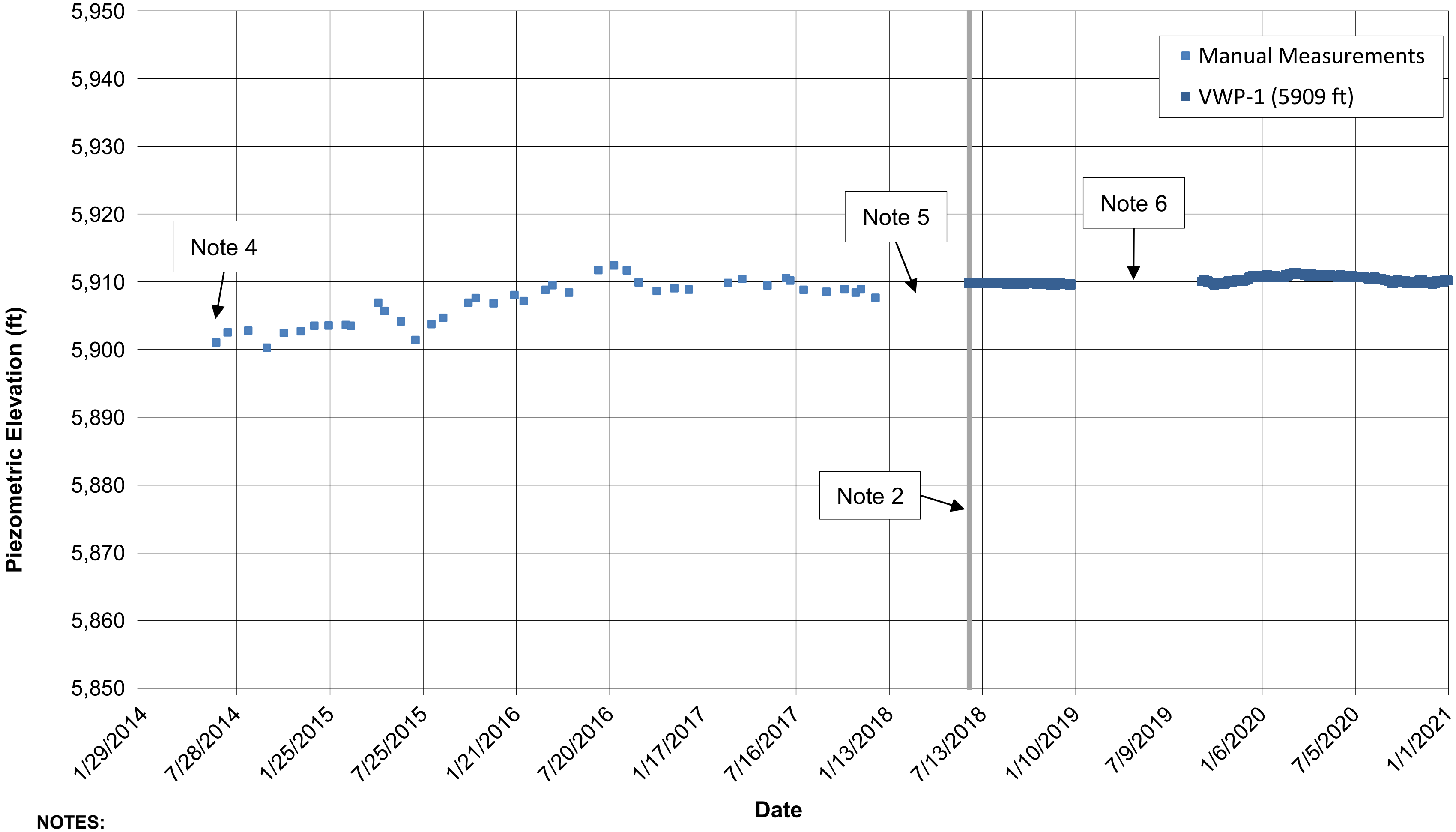
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.6

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 17, 2018.
3. STANDPIPE PIEZOMETER WAS ORIGINALLY INSTALLED FEBRUARY 12 AND WAS REDRILLED AUGUST 20, 2012.
4. SAND HEAVE INFILLLED THE PIEZOMETER DURING INSTALLATION RENDERING IT UNUSABLE FOR MONITORING UNTIL IT WAS REHABILITATED ON MAY 9, 2014.
5. NO DATA COLLECTED BETWEEN DECEMBER 18, 2018 TO JUNE 21, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
6. THE GATEWAY HARDWARE AT MH-5 IS PRESENTLY NOT FUNCTIONAL. THE QPP VWP INSTALLED IN MW12-01 HAS BEEN TEMPORARILY REASSIGNED TO A SINGLE-CHANNEL GATEWAY DEVICE TO MAINTAIN COMMUNICATION. DATA FROM THIS TEMPORARY GATEWAY ARE SHOWN IN PLACE OF THE NONFUNCTIONAL SENSORS.

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MW12-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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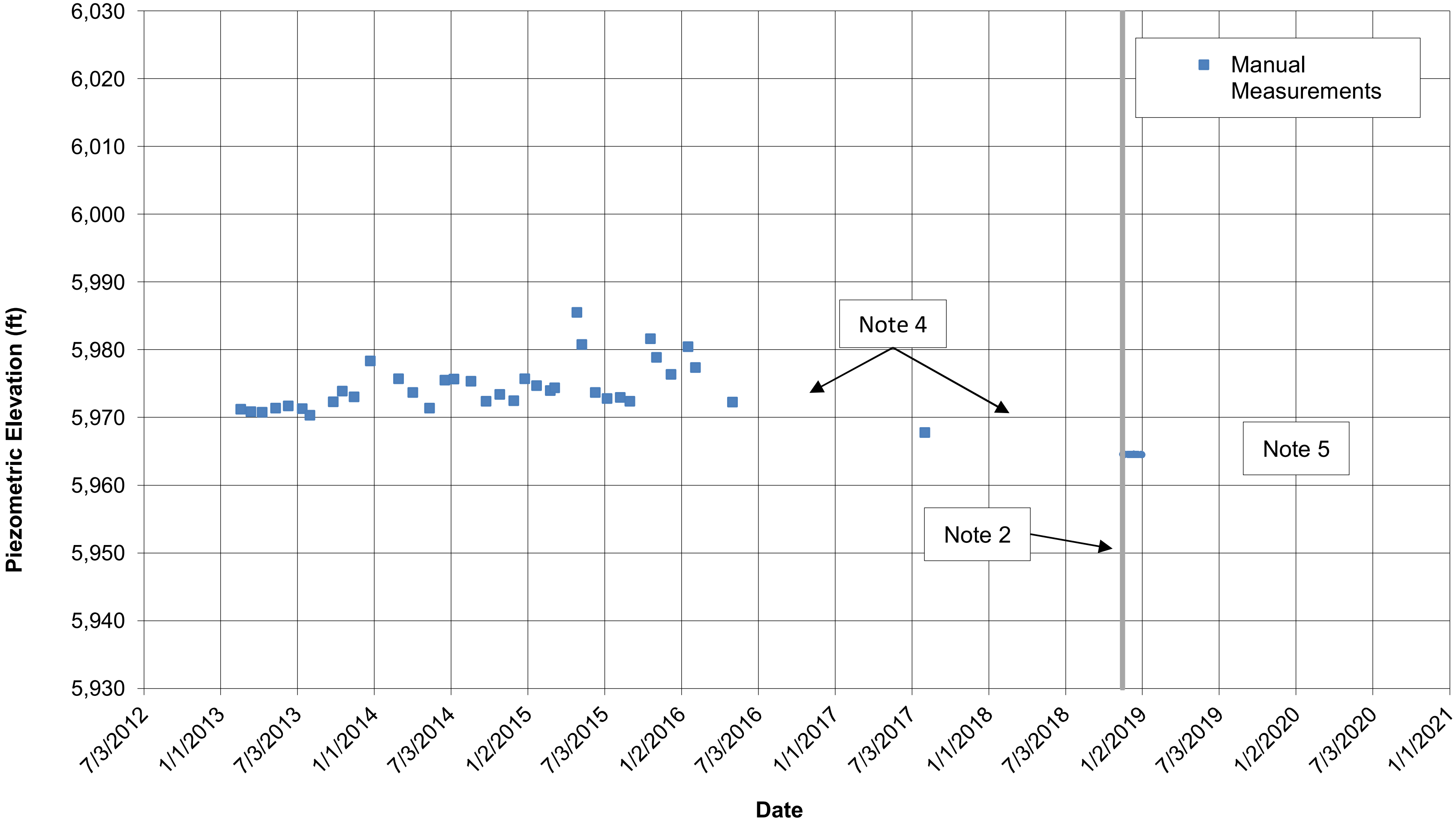
REF. NO. 5

FIGURE C2.7

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 15, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED FEBRUARY 18, 2013.
4. ONLY ONE MEASUREMENT WAS COLLECTED BETWEEN MAY 3, 2016 AND NOVEMBER 15, 2018 DUE TO
MEASUREMENT OR ACCESS DIFFICULTIES.
5. SENSOR PRESENTLY READING SIGNIFICANT NEGATIVE PORE PRESSURES AND INSTRUMENT DAMAGE

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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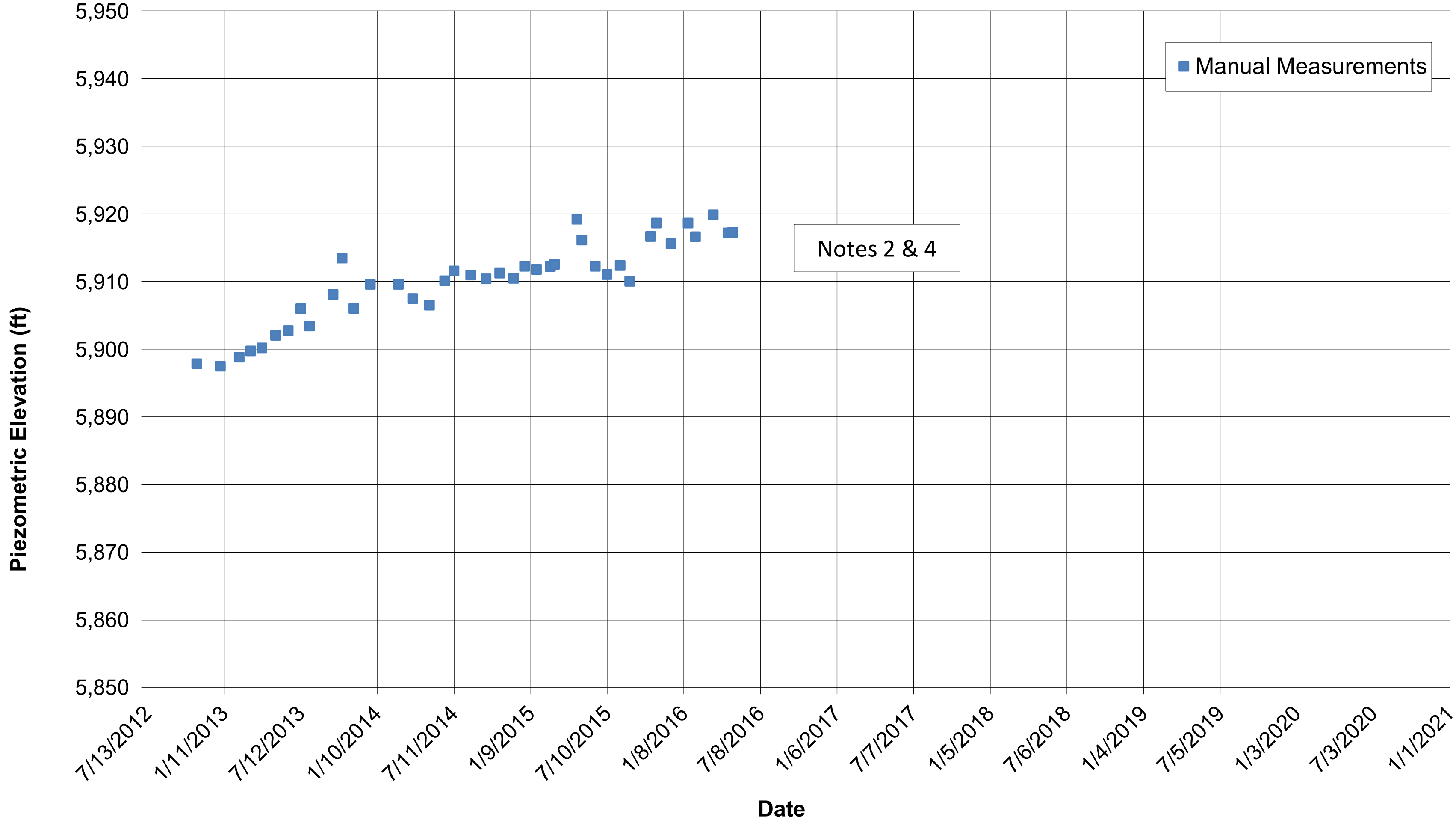
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.8

REV 0



NOTES:
1. GROUND ELEVATION AT THE COLLAR LOCATION IS 6,396 ft BASED ON ANACONDA MINE GRID.
2. SENSOR HAS NOT BEEN INTEGRATED TO REMOTE MONITORING SYSTEM DUE TO ACCESSIBILITY ISSUES.
3. THE STANDPIPE PIEZOMETER WAS INSTALLED NOVEMBER 9, 2012.
4. MANUAL MEASUREMENTS WERE UNSUCESSFUL FROM JUNE 24, 2016 TO APRIL 4, 2017. LAST VALID MEASUREMENT WAS RECORDED MAY 2, 2016.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
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MW12-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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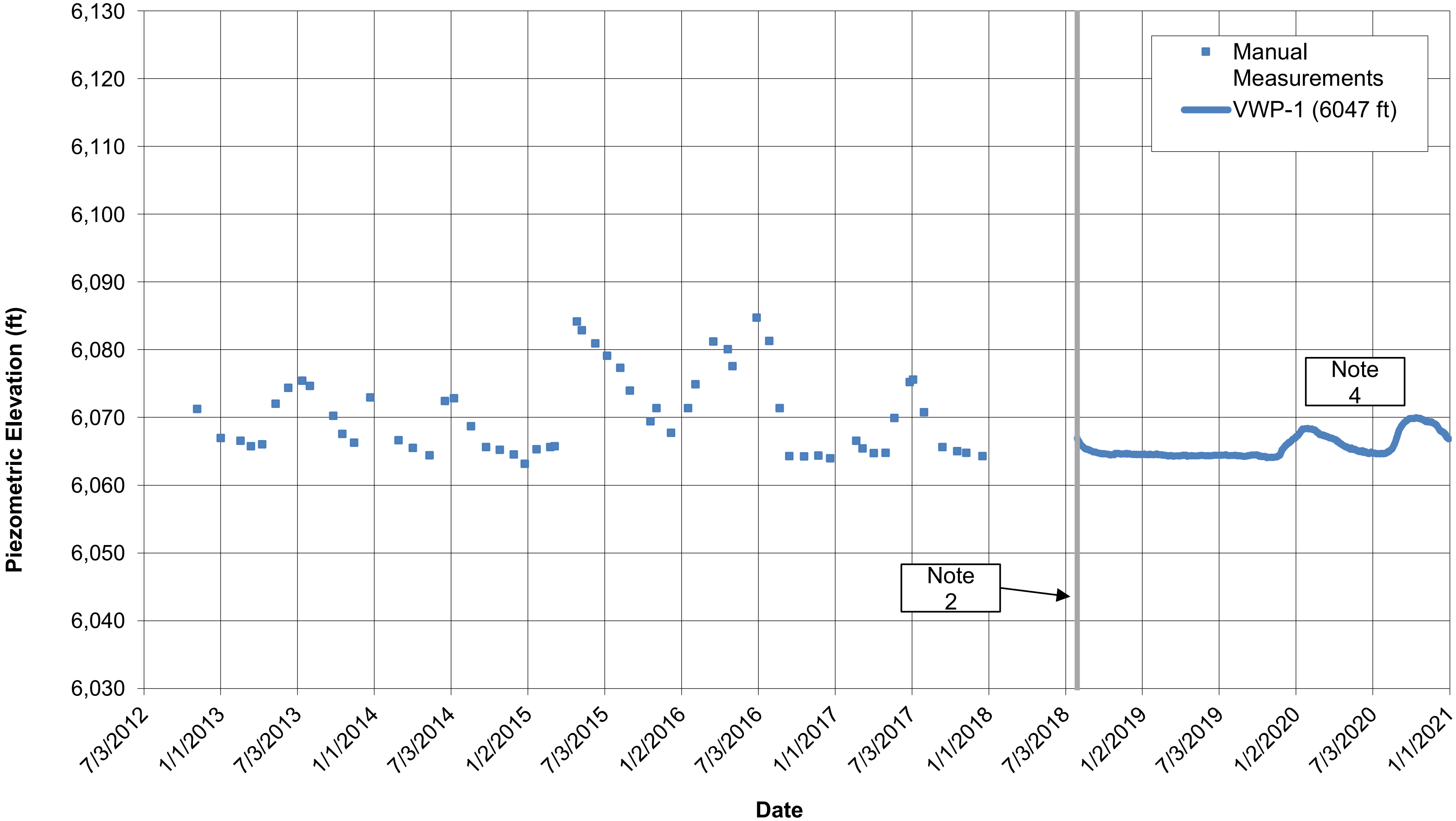
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.9

REV 0



NOTES:
1. GROUND ELEVATION AT THE COLLAR LOCATION IS 6,401 ft BASED ON ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JULY 31, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED AUGUST 30, 2012.
4. PORE PRESSURE RESPONSE DUE TO CONSTRUCTION OF STEP-OUT LIFTS ON THE

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

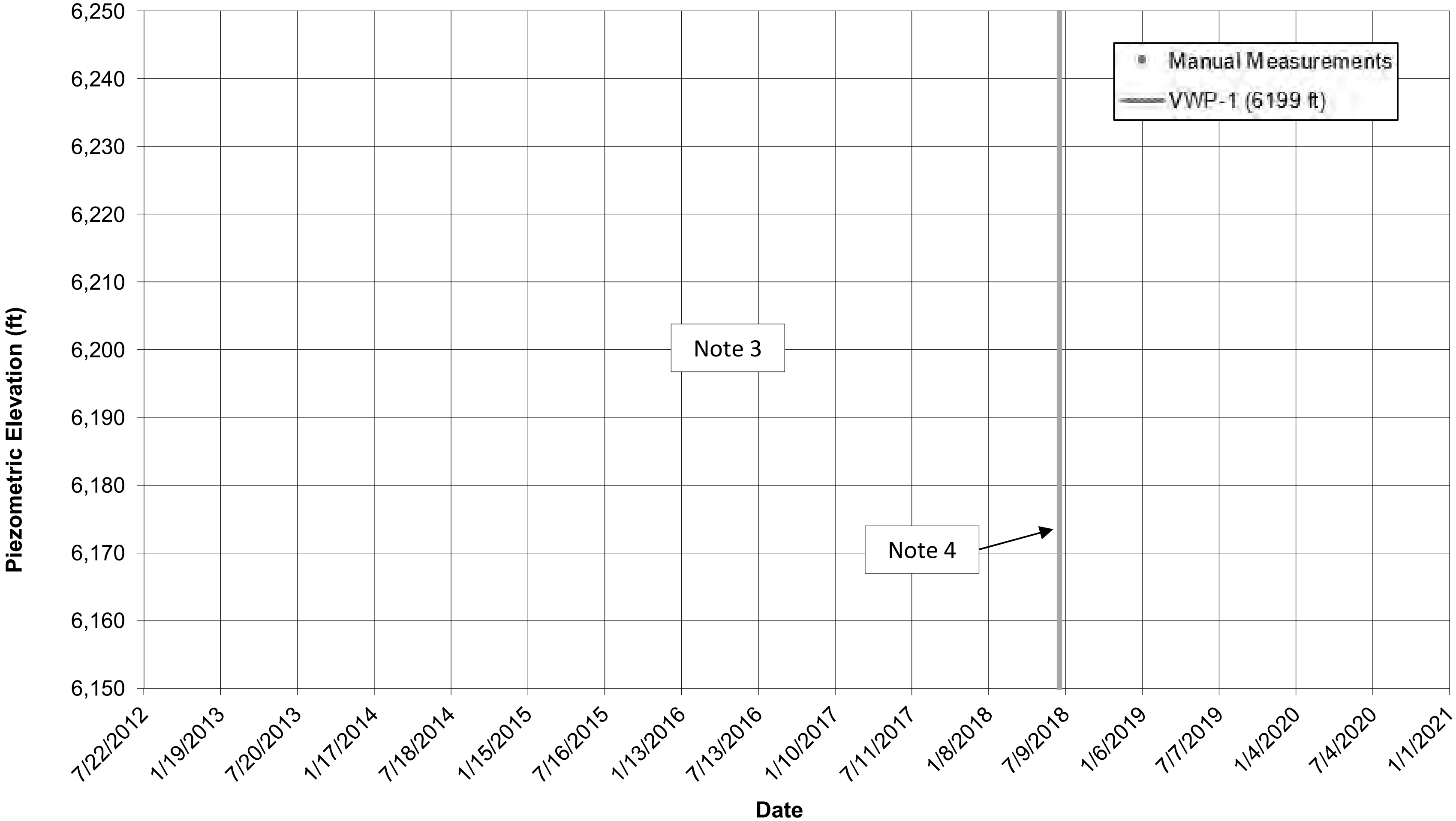
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.10

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. MONITORING WELL WAS INSTALLED OCTOBER 18, 2012
3. NO MEASURED PIEZOMETRIC ELEVATION DATA ARE SHOWN BECAUSE THE STANDPIPE HAS BEEN UNSATURATED (DRY) FOR THE PERIOD OF RECORD.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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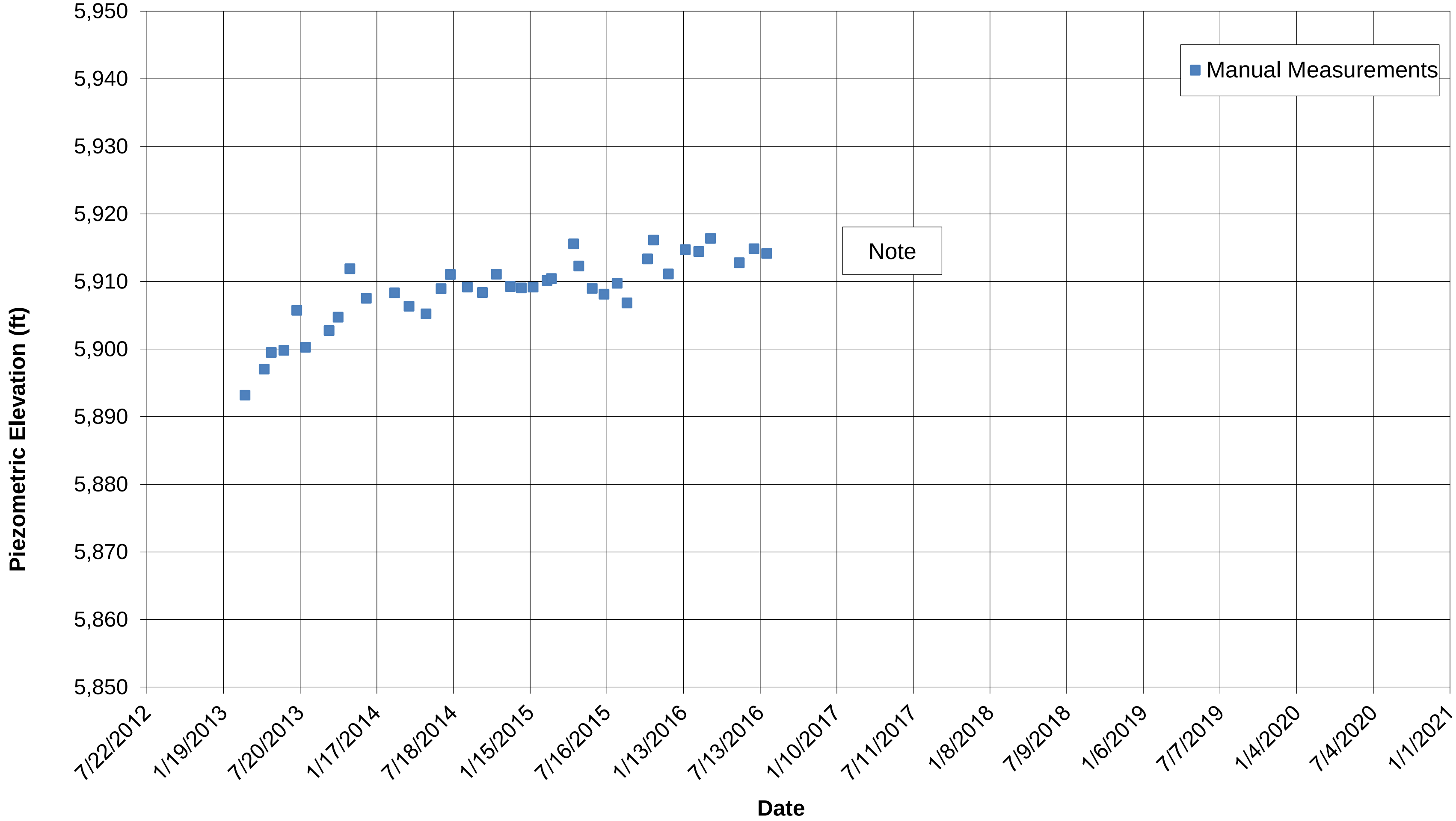
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.11

REV 0



NOTES:
1. GROUND ELEVATION AT THE COLLAR LOCATION IS 6100 FEET BASED ON ANACONDA MINE GRID.
2. STANDPIPE PIEZOMETER WAS INSTALLED MARCH 12, 2013.
3. THE STANDPIPE WAS ABANDONED ON SEPTEMBER 15, 2018 DUE TO A BLOCKAGE. MANUAL MEASUREMENTS WERE UNSUCESSFUL FROM JULY 29, 2016 TO APRIL 4, 2017. LAST VALID MEASUREMENT WAS RECORDED JULY 9, 2016.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-06A PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

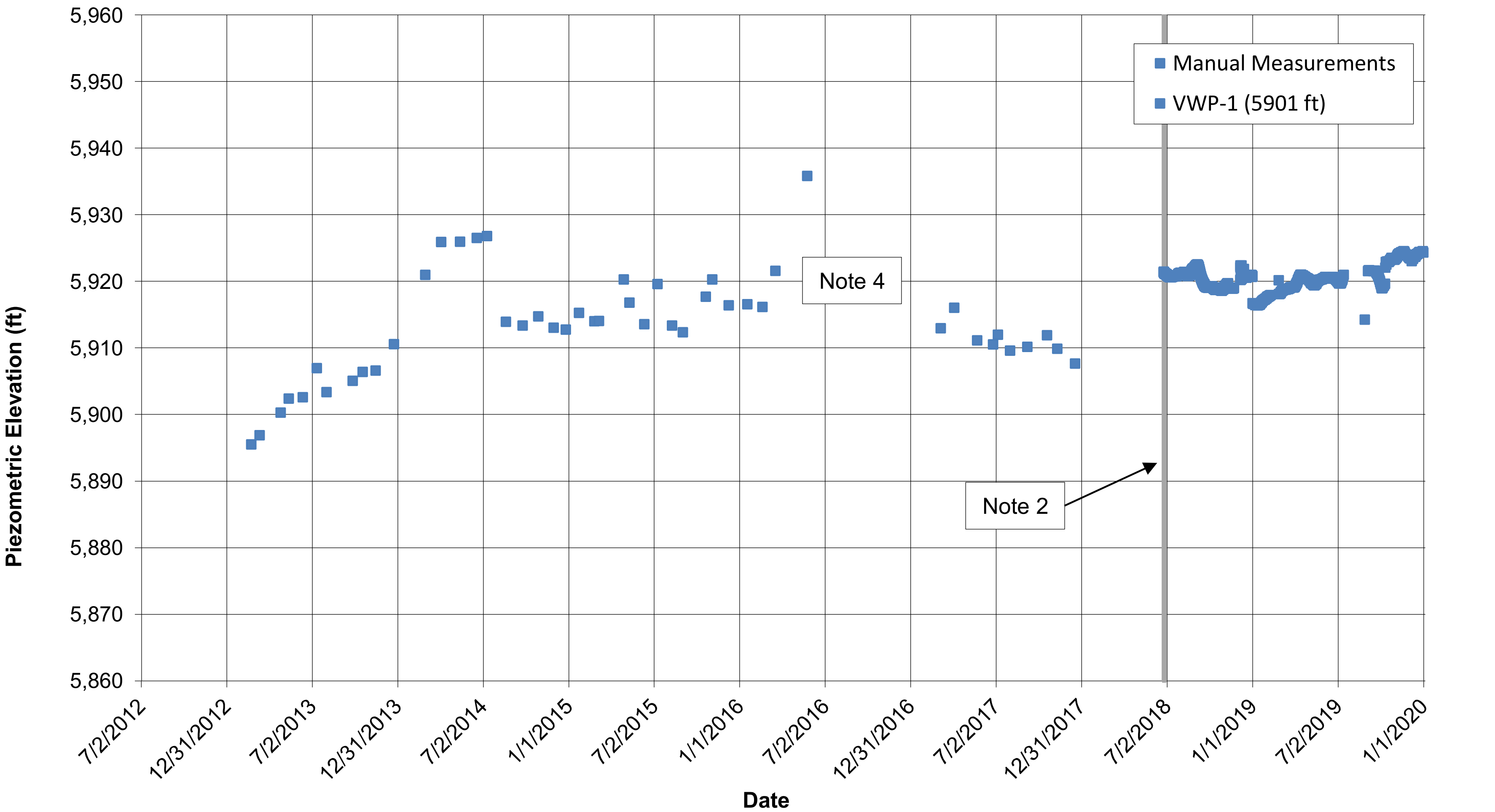
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C2.12

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 25, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED ON FEBRUARY 22, 2013.
4. NO WATER LEVEL READINGS WERE TAKEN BETWEEN MAY 25, 2016 TO MARCH 6, 2017 DUE TO ACCESSIBILITY ISSUES.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW13-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

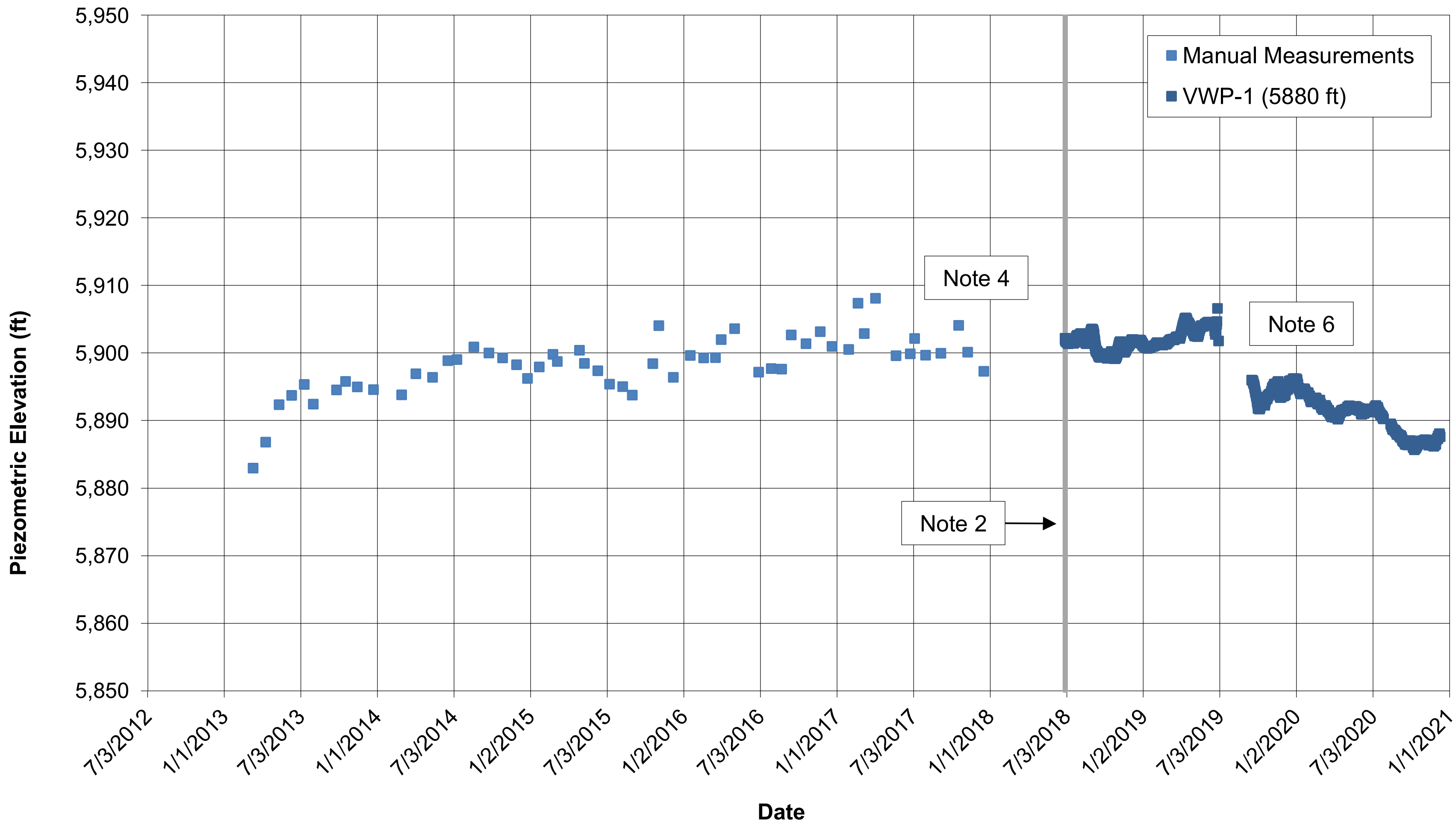
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE C2.13

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON JUNE 29, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED ON MARCH 8, 2013.
4. NO DATA COLLECTED BETWEEN DECEMBER 18, 2017 TO JUNE 29, 2018 DUE TO WELL INCCESSIBILITY.
5. STANDPIPE IS INSTALLED IN THE LEACH AREA DOWNSTREAM OF THE NORTH-SOUTH EMBANKMENT AND IS NOT INDICATIVE OF CONDITIONS WITHIN THE FILL OR FOUNDATION BENEATH THE EMBANKMENT.
6. SENSOR WAS DAMAGED ON JULY 1, 2019 AND SUBSEQUENTLY REPLACED ON SEPTEMBER 18, 2019.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

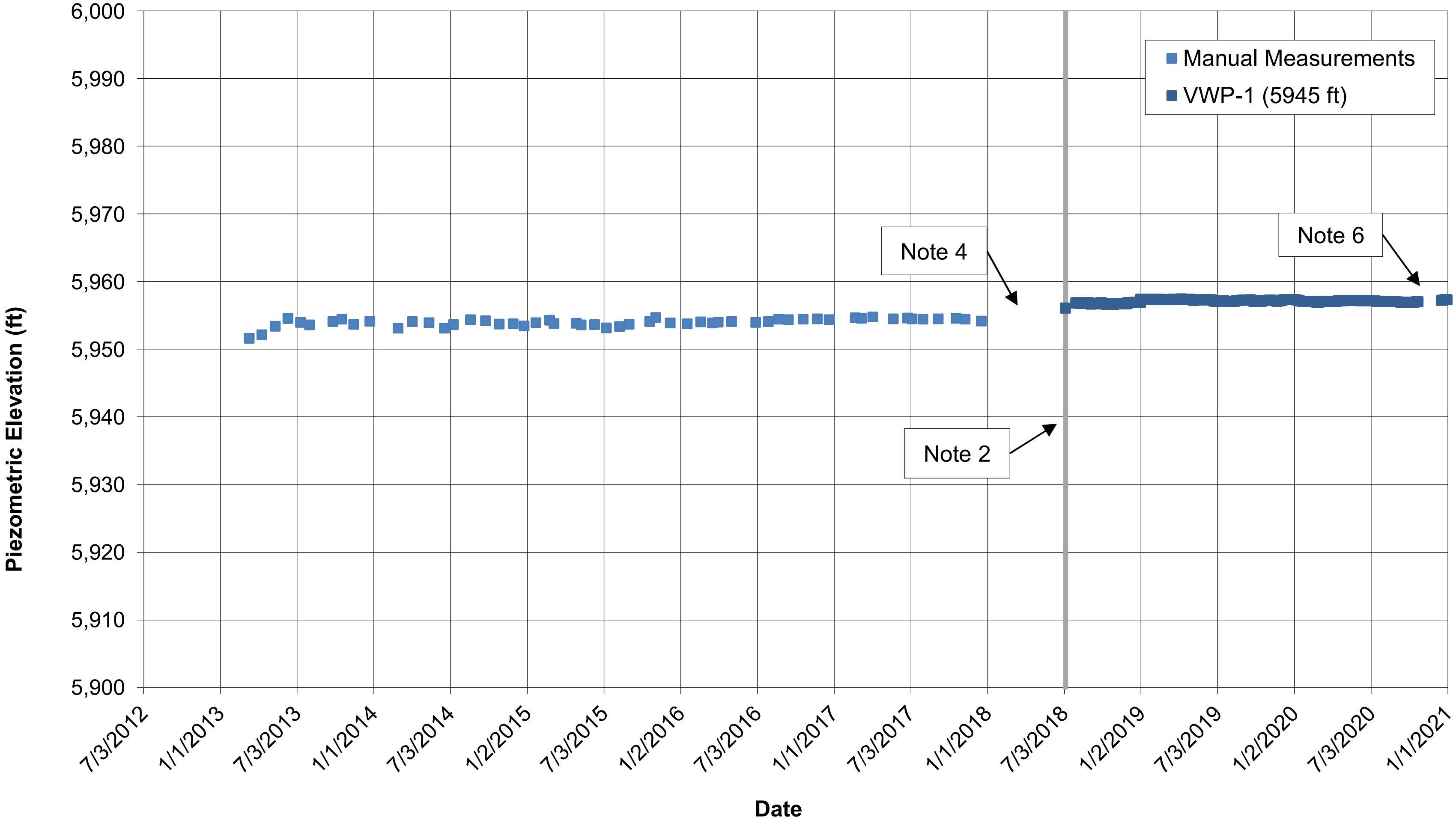
YANKEE DOODLE TAILINGS IMPOUNDMENT

MW13-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C2.14 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR INTEGRATED TO THE REMOTE MONITORING SYSTEM ON JULY 6, 2018.
3. STANDPIPE PIEZOMETER WAS INSTALLED ON MARCH 6, 2013
4. NO DATA WERE COLLECTED FROM DECEMBER 17, 2017 TO JULY 6 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. STANDPIPE IS INSTALLED IN THE LEACH AREA DOWNSTREAM OF THE NORTH-SOUTH EMBANKMENT AND IS NOT INDICATIVE OF CONDITIONS WITHIN EMBANKMENT FILL OR FOUNDATION BENEATH THE EMBANKMENT.
6. NO DATA WERE COLLECTED FROM OCTOBER 24 TO DECEMBER 16, 2020 DUE TO VOLTAGE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW13-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

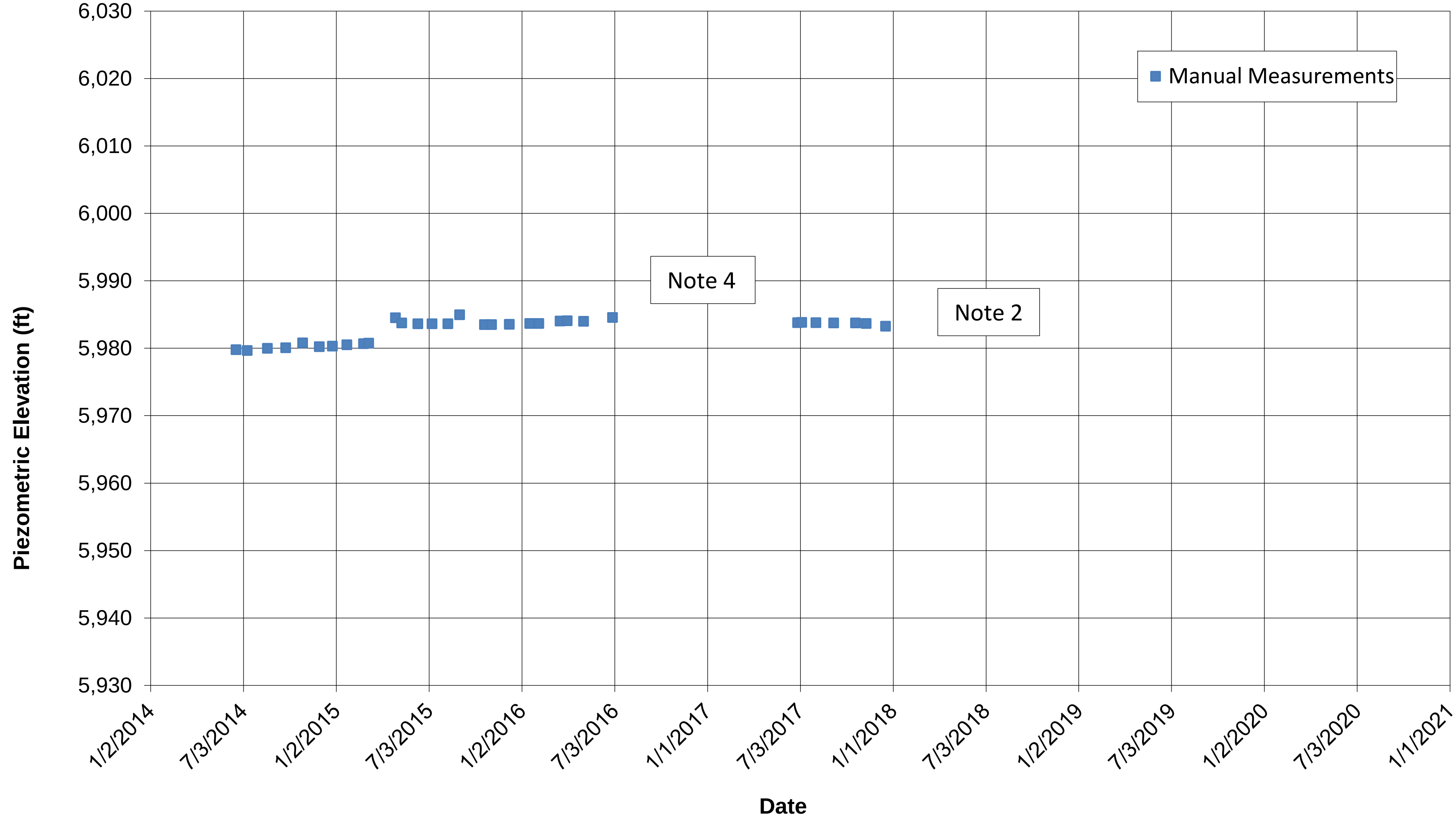
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C2.15

REV 0



NOTES:
1. GROUND ELEVATION AT THE COLLAR LOCATION IS 6,391 ft BASED ON ANACONDA MINE GRID.
2. STANDPIPE HAS NOT BEEN INTEGRATED TO THE REMOTE MONITORING SYSTEM.
3. STANDPIPE PIEZOMETER WAS INSTALLED MAY 2, 2014.
4. NO MEASUREMENT WERE TAKEN BETWEEN MARCH 29, 2016 AND MARCH 28, 2017 DUE TO INACCESSIBILITY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW14-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

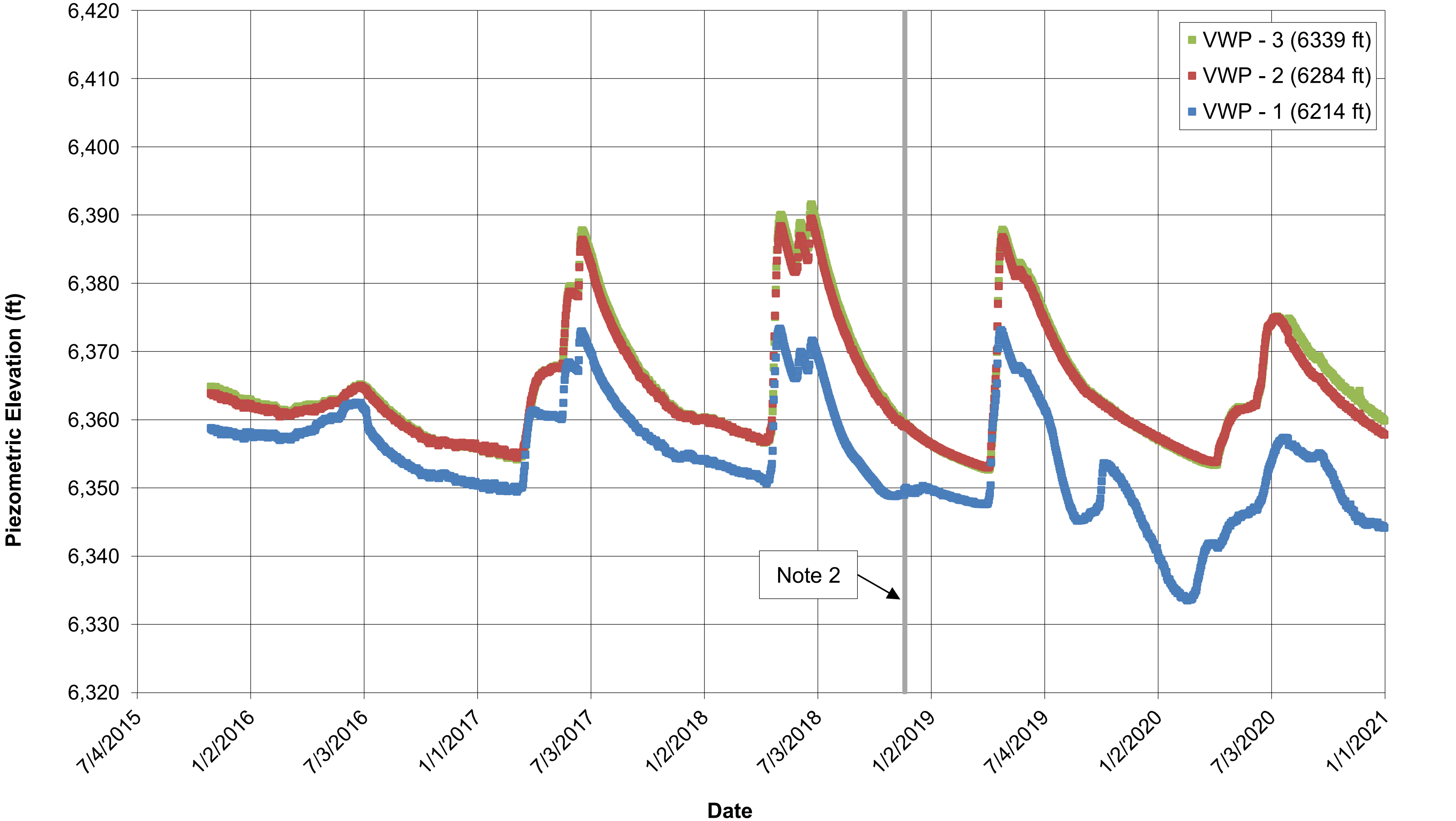
FIGURE C2.16

REV 0

APPENDIX C3

West Embankment

(Figures C3.1 to C3.14)



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONITORING SYSTEM ON NOVEMBER 20, 2018.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

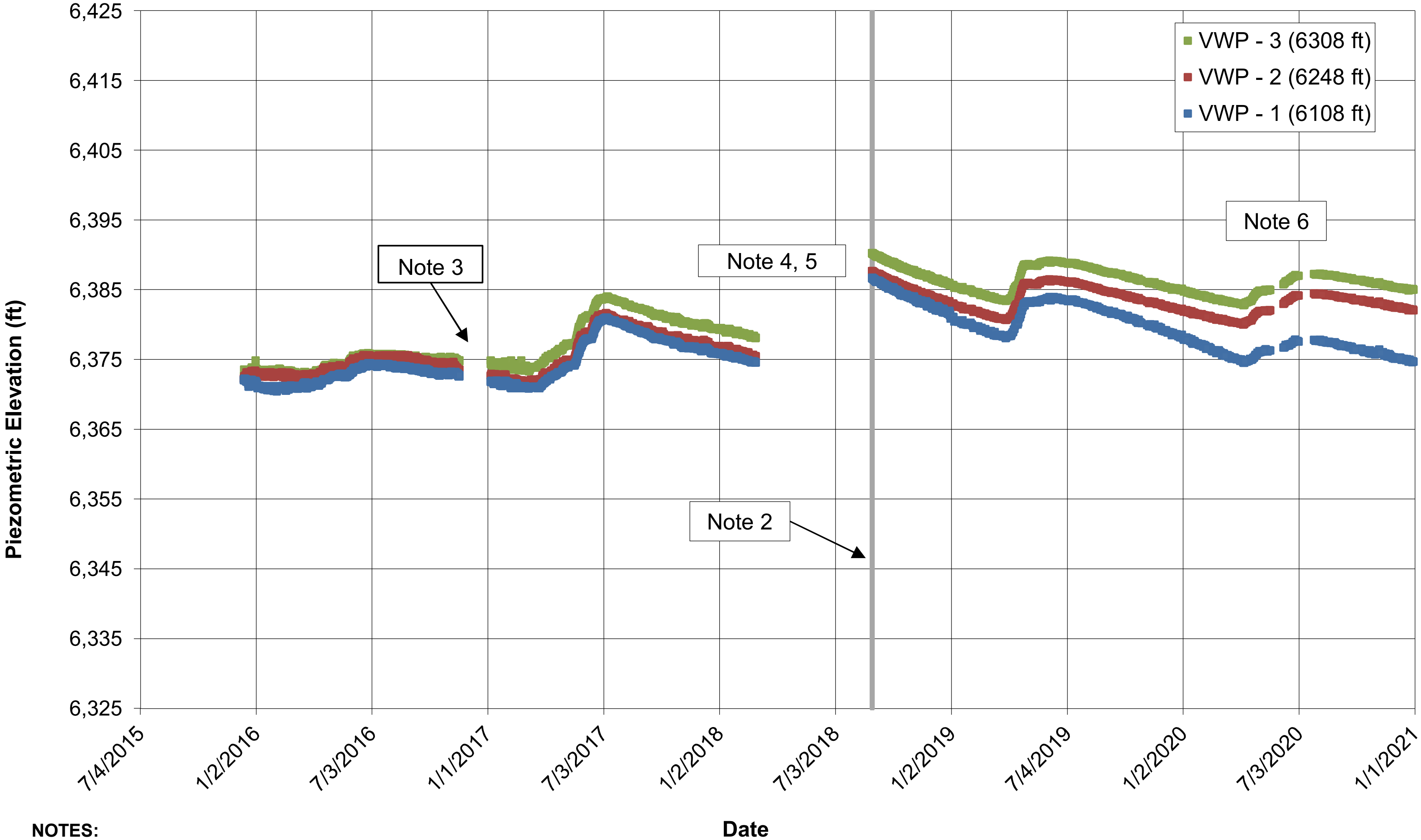
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C3.1 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON AUGUST 30, 2018.
3. SENSORS STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
4. NO DATA REPORTED BETWEEN FEBRUARY 28, 2018 TO AUGUST 30, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. THE INCREASE IN PIEZOMETRIC ELEVATIONS BETWEEN FEBRUARY 2018 AND AUGUST 2018 ARE INFERRED TO RESULT FROM RISING WATER LEVELS WITHIN THE YDTI AND SEASONAL INCREASE SIMILAR TO THAT OBSERVED FOR THE SAME PERIOD IN 2017.
6. NO DATA WERE COLLECTED FOR ALL VWPS FROM MAY 20 TO JUNE 9, 2020 AND FROM JULY 4 TO 27, 2020 DUE TO A DEPLETED BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

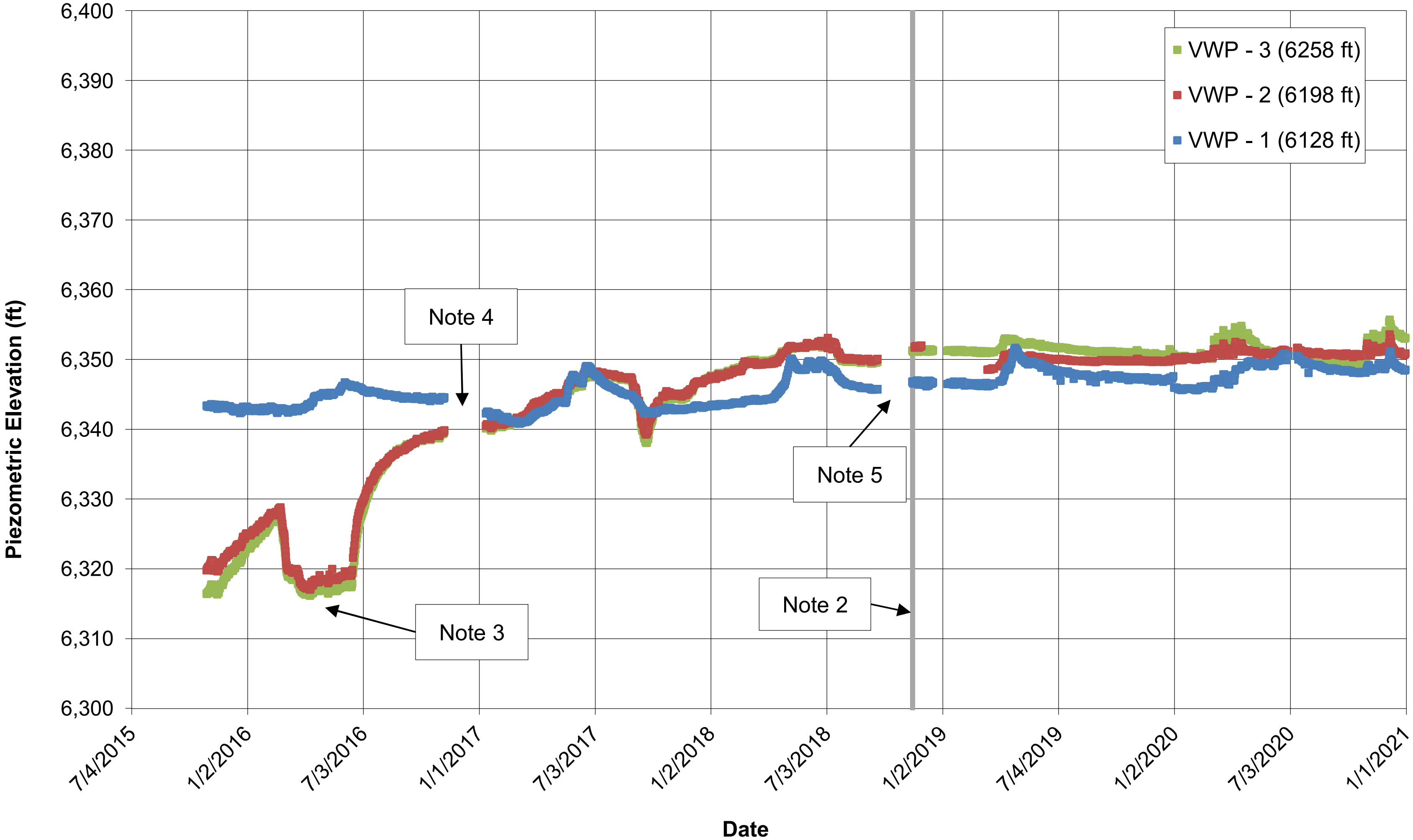
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.2

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 15, 2018.
3. THE DRAWDOWN SHOWN AT VWP-2 AND VWP-3 IS ATTRIBUTED TO CONSTRUCTION DEWATERING AT DRAIN POD 1.
4. SENSORS STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
5. NO DATA WERE REPORTED BETWEEN SEPTEMBER 21 AND NOVEMBER 15, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

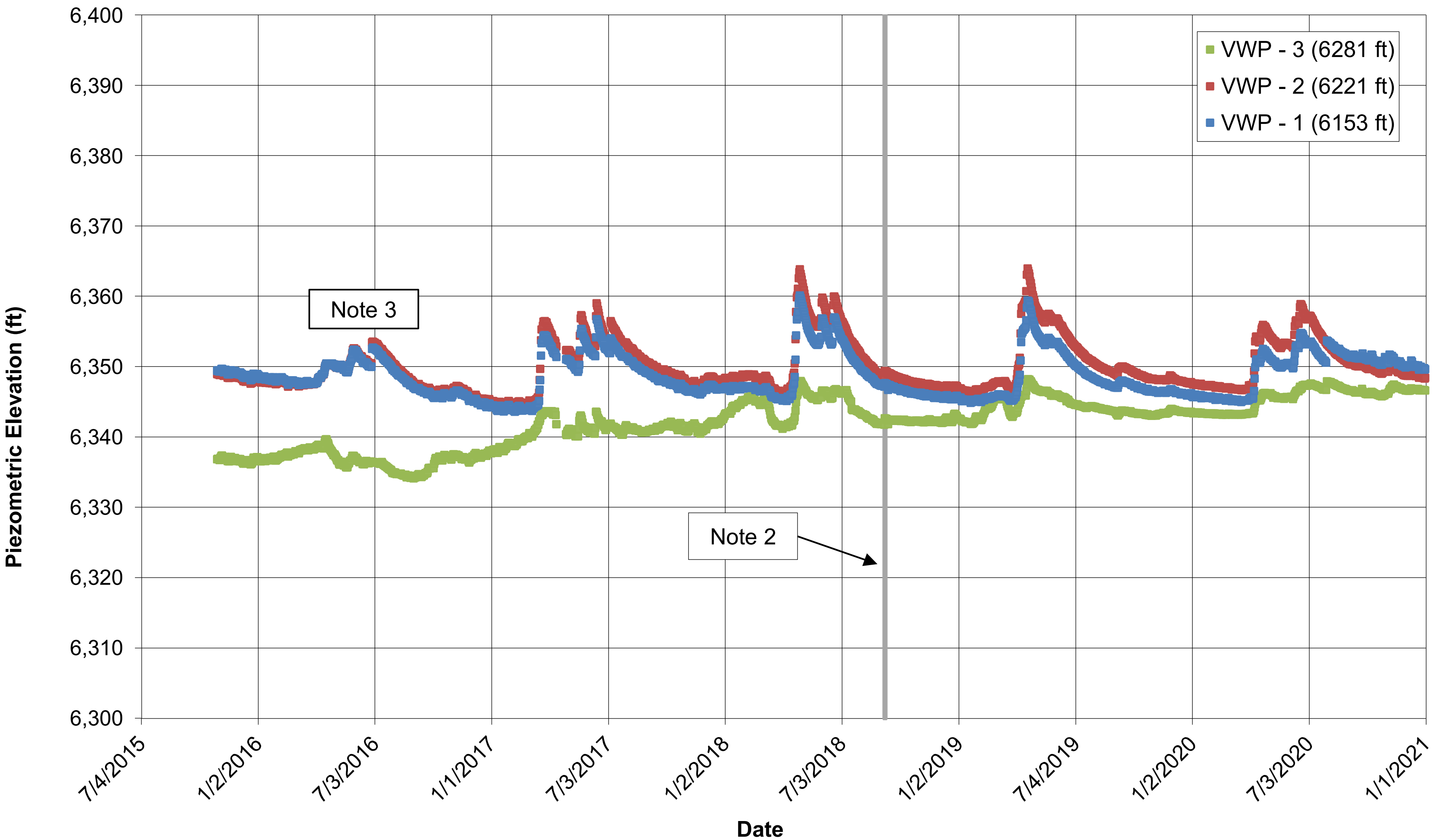
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.3

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON SEPTEMBER 9, 2018.
3. WATER LEVEL FLUCTUATIONS ARE ATTRIBUTED TO SEASONAL GROUNDWATER RESPONSE TO FRESHET.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

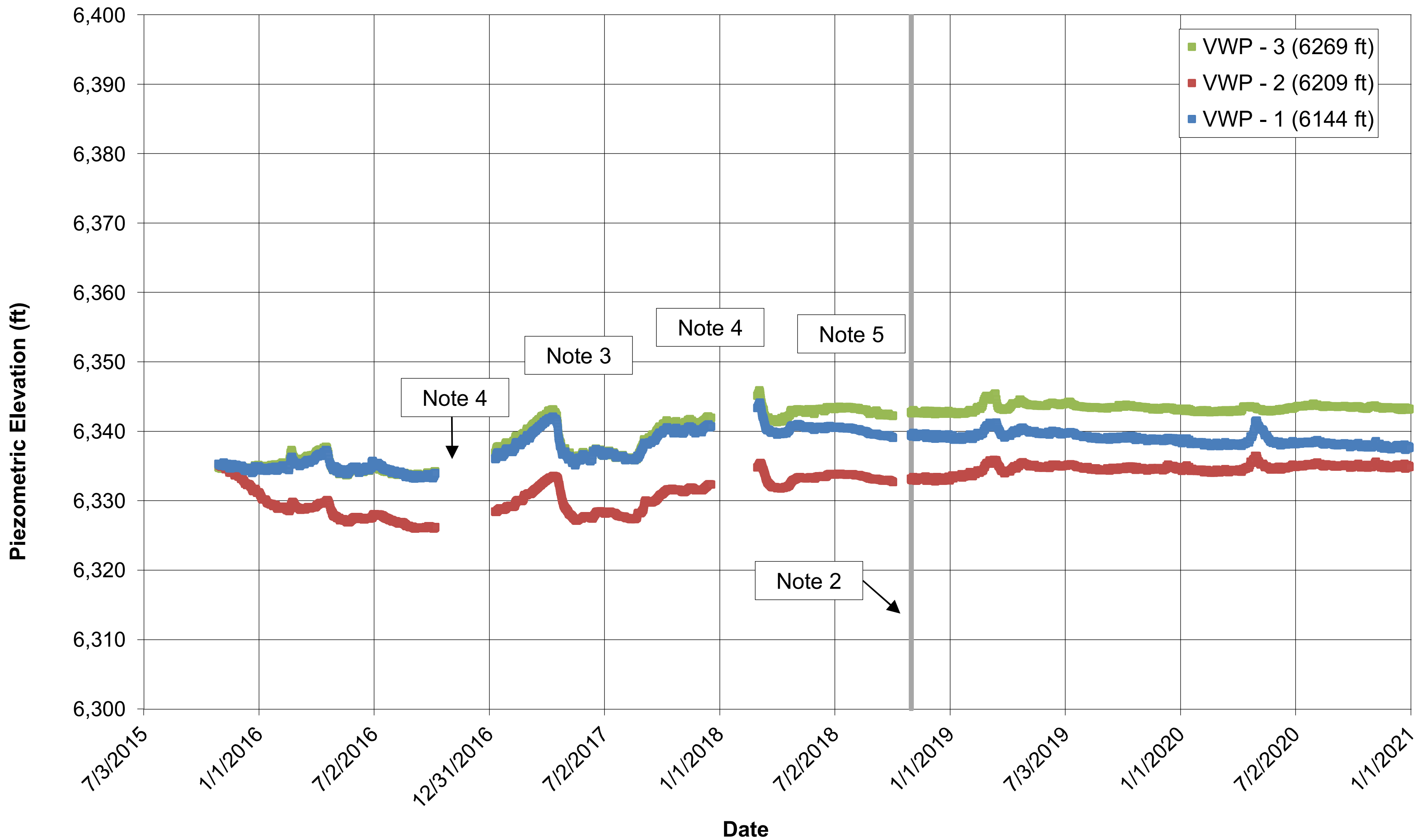
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C3.4 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 31, 2018.
3. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED DEWATERING.
4. SENSOR STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
5. NO DATA WERE COLLECTED FROM OCTOBER 3, 2018 TO OCTOBER 31, 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

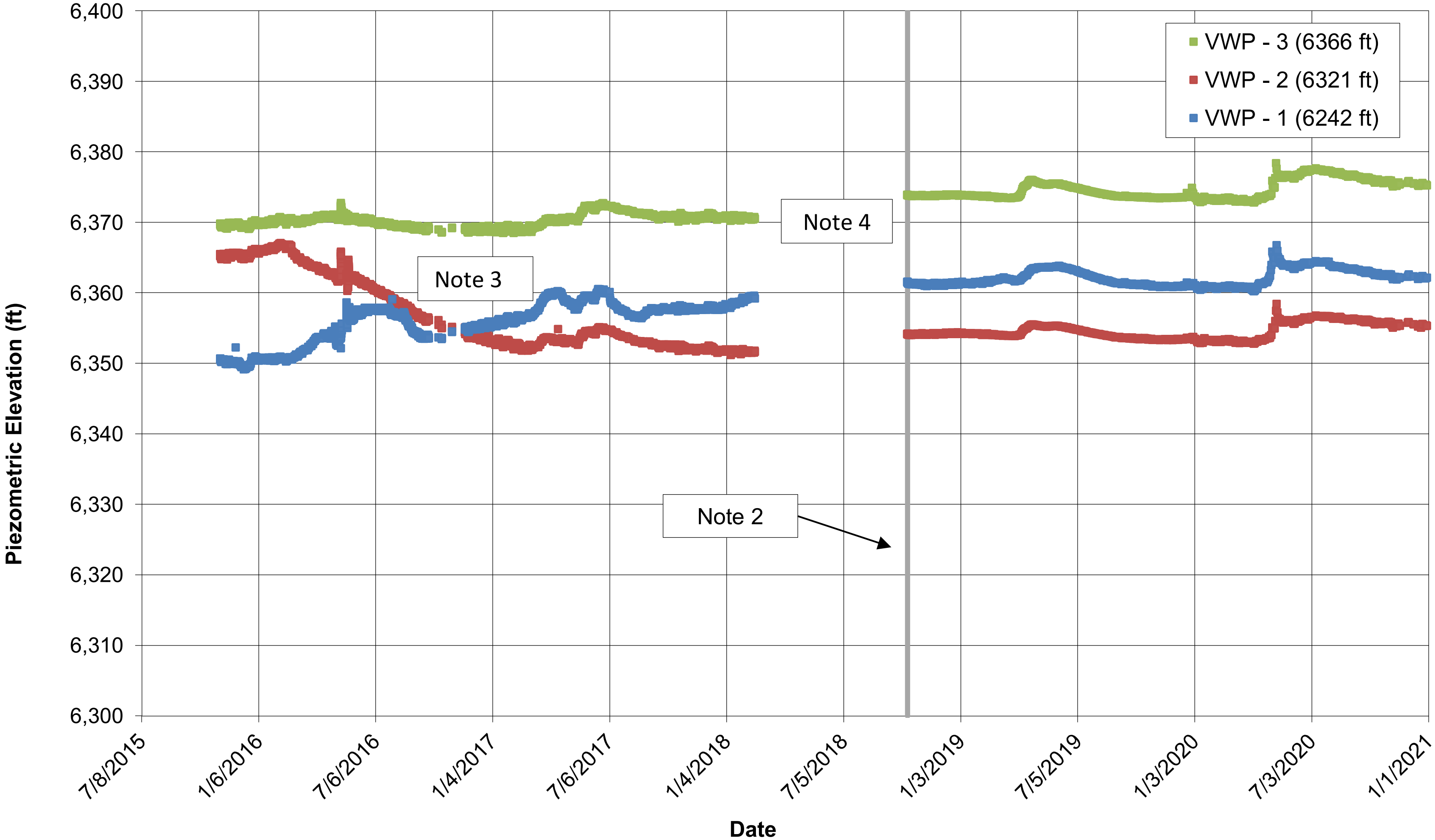
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.5

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 12, 2018.
3. THE DATALOGGER MALFUNCTIONED AND STOPPED RECORDING FROM 09/27/16 TO 11/22/16 DURING WHICH TIME PRESSURE READINGS WERE TAKEN MANUALLY FROM EACH SENSOR.
4. NO DATA RECORDED BETWEEN FEBRUARY 17, 2018 AND OCTOBER 12, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

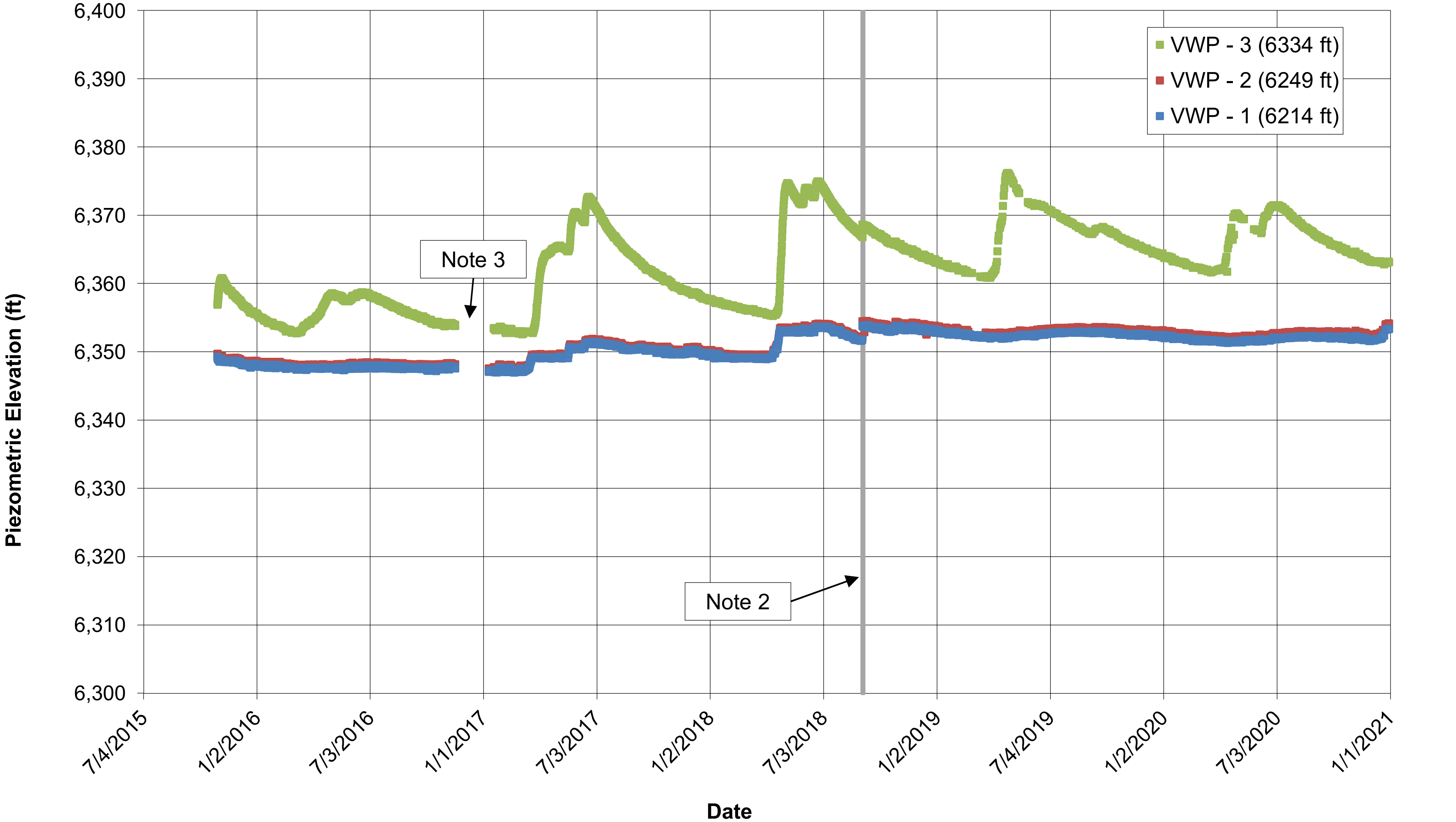
DH15-07 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C3.6 REV 0

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON SEPTEMBER 4, 2018.
3. DATA LOGGER STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-08 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

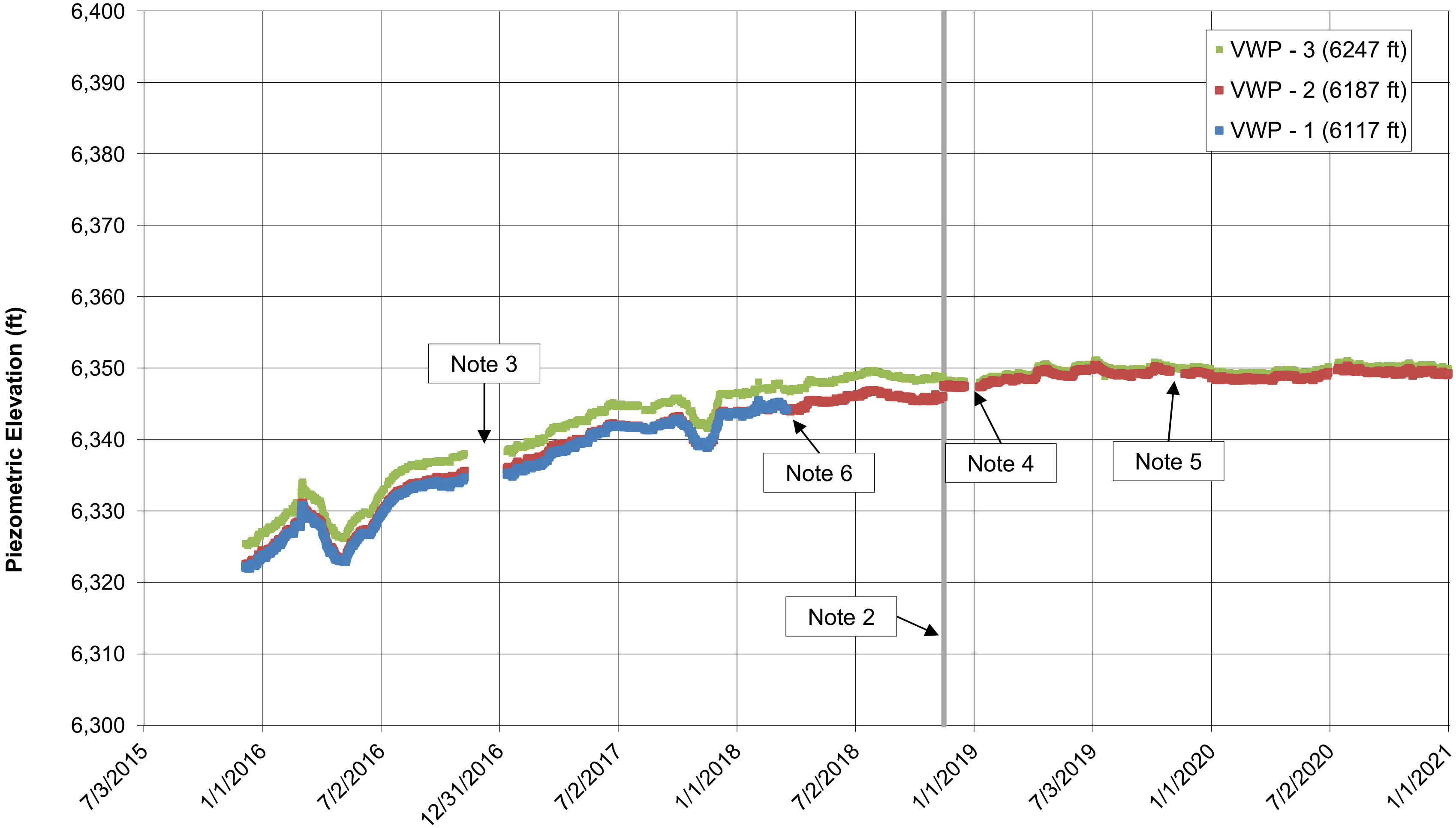
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.7

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 15, 2018.
3. SENSORS STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
4. VWP-2 STOPPED RECORDING DUE TO A COMMUNICATION ISSUE. THIS ISSUE WAS RESOLVED ON FEBRARY 6, 2019.
5. NO DATA ARE AVAILABLE FOR VWP-2 FOR OCTOBER 30 TO NOVEMBER 22, 2019 DUE HARDWARE ISSUE.
6. DATA FROM VWP-1 ARE ERRONEOUS FROM MARCH 17, 2018 ONWARDS DUE TO SENSOR ISSUE AND HAVE BEEN OMITTED FROM THE PLOT

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

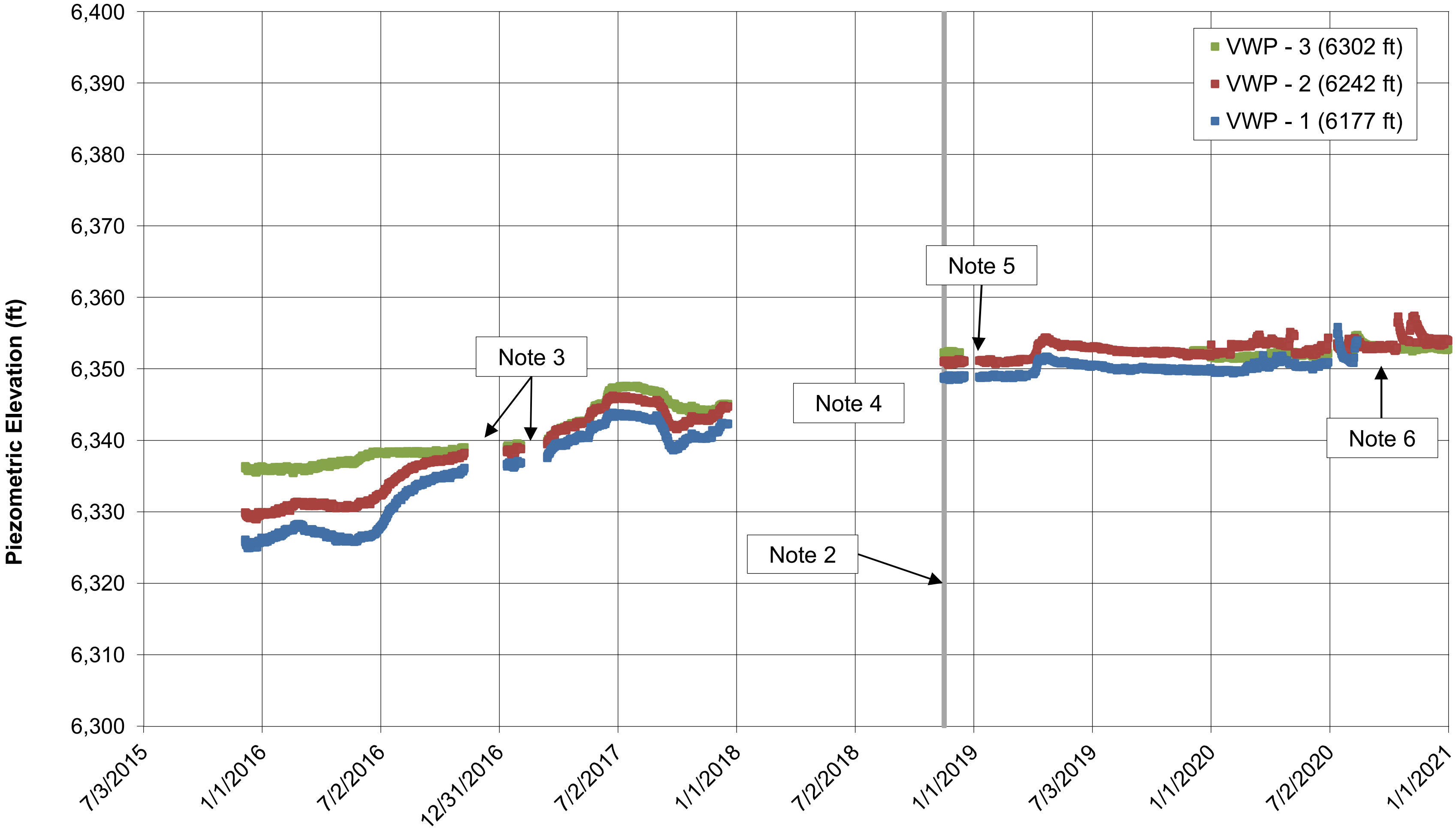
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-09 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C3.8 REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONITORING SYSTEM ON NOVEMBER 15, 2018.
3. THE DATA LOGGER STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
4. NO DATA WERE REPORTED BETWEEN DECEMBER 19, 2017 AND NOVEMBER 15, 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. VWP-3 BEGAN RECORDING ERRONEOUS DATA AFTER DECEMBER 10, 2018 DUE TO A SENSOR MALFUNCTION. DATA FROM THIS PERIOD HAVE BEEN OMITTED FROM THE PLOT.
6. NO DATA IS AVAILBLE FROM AUGUST 15 TO DECEMBER 31, 2020 DUE TO SENSOR MALFUNCTION

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REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-11 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

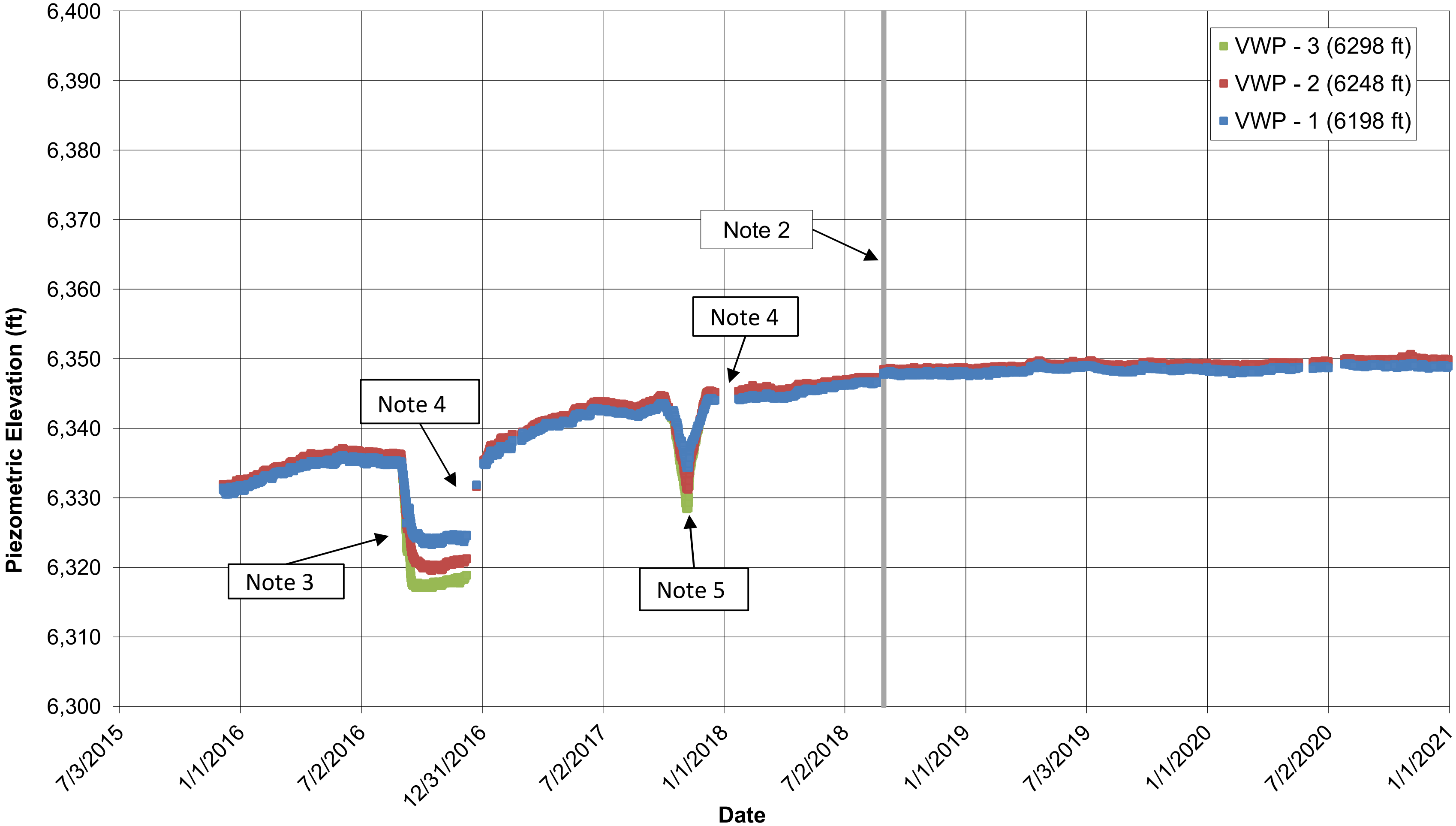
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.9

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON SEPTEMBER 4, 2018.
3. THE DRAWDOWN BEGINING ON AUGUST 15, 2016 IS CAUSED BY CONSTRUCTION-RELATED PUMPING AT THE EXTRACTION BASIN TO THE EAST OF DH15-12.
4. SENSOR STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
5. THE DRAWDOWN BEGINNING SEPTEMBER 30, 2017 IS CAUSED BY CONSTRUCTION RELATED PUMPING AT EXTRACTION BASIN 1.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-12 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

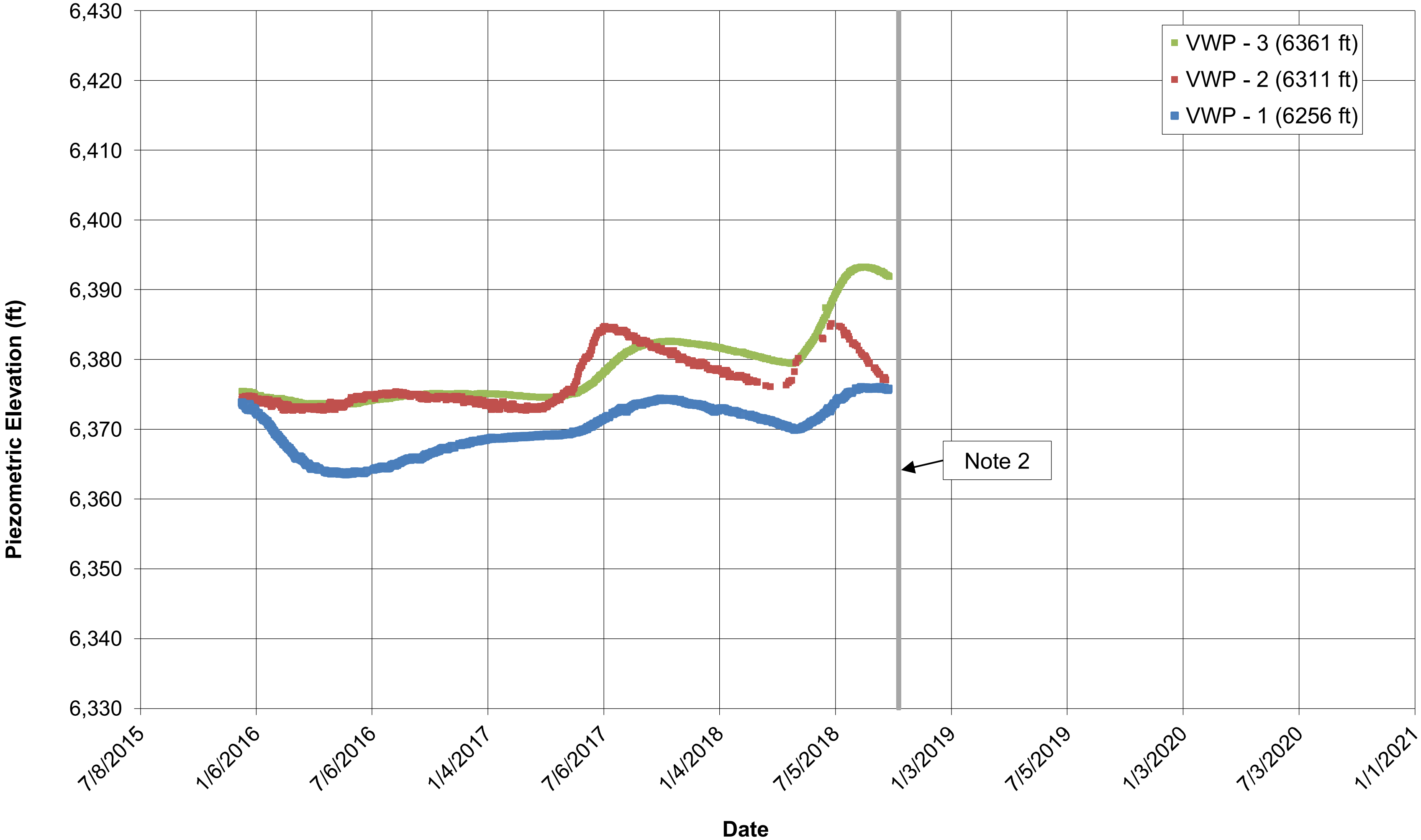
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.10

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 10, 2018; HOWEVER, THE SENSORS WERE NON-FUNCTIONAL AT THE TIME OF INSTALLATION AND CONTINUE TO RECORD ERRONEOUS VALUES.
3. VWP-1 EXHIBITED ISOLATED RECORDING ERRORS ON APRIL 16, 2016, JUNE 30, 2016, AND NOVEMBER 16, 2016.
4. NO DATA ARE AVAILABLE FOLLOWING INTEGRATION WITH THE REMOTE MONITORING SYSTEM. KP AND MR STAFF ARE WORKING TO TROUBLESHOOT THE INSTALLATION.
5. PIEZOMETRIC FLUCTUATIONS OBSERVED BY ALL THREE SENSORS ARE DUE TO SEASONAL EFFECTS.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

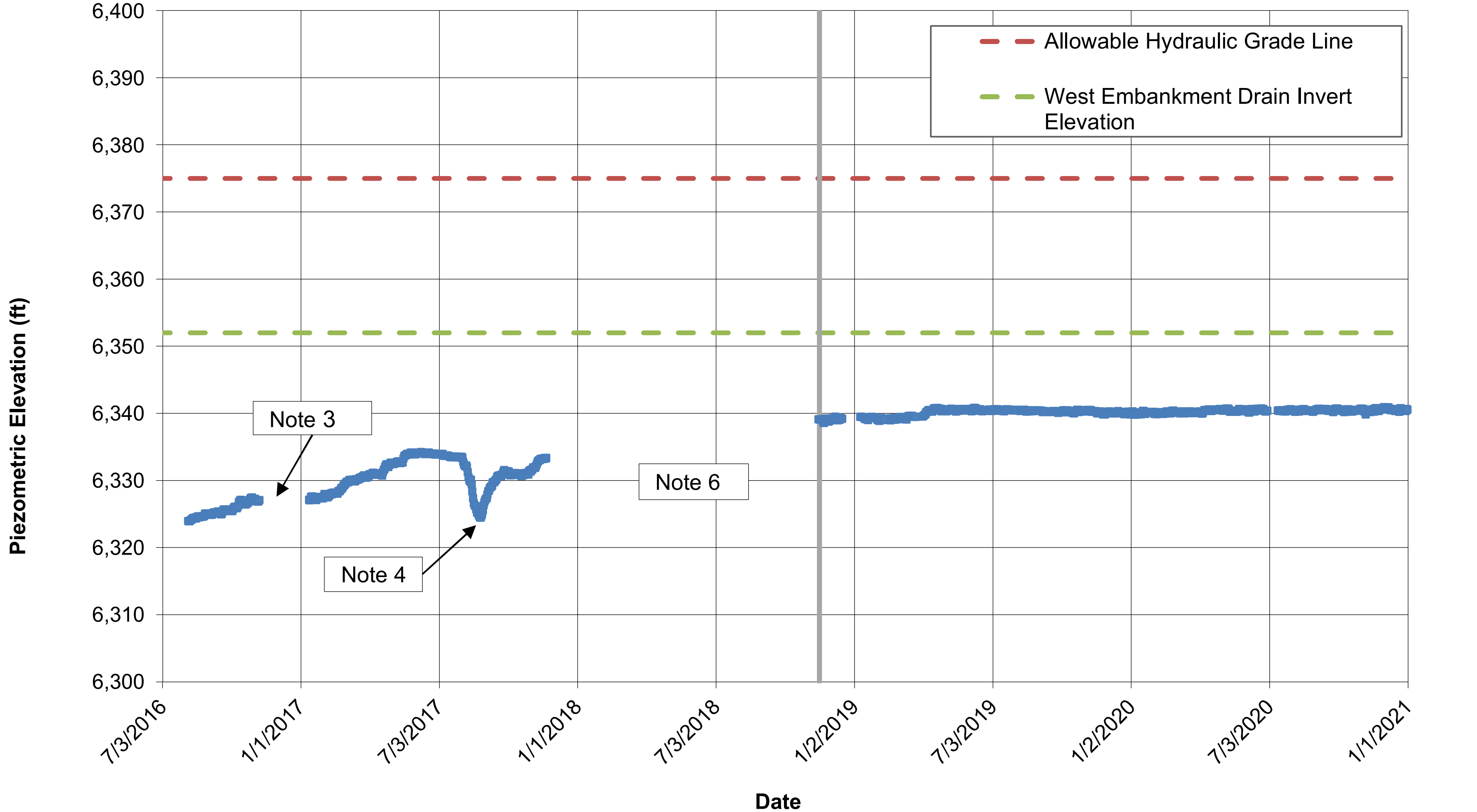
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-13 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE C3.11		REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 16, 2018.
3. SENSOR STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
4. THE WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED PUMPING AT DRAIN POND 1.
5. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS THE MAXIMUM HYDRAULIC HEAD DURING OPERATION WITHIN THE DRAIN POD #1; A 10 ft INCREASE IN HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN.
6. NO DATA REPORTED BETWEEN NOVEMBER 21, 2017 TO NOVEMBER 16, 2018 DUE TO A HARDWARE ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

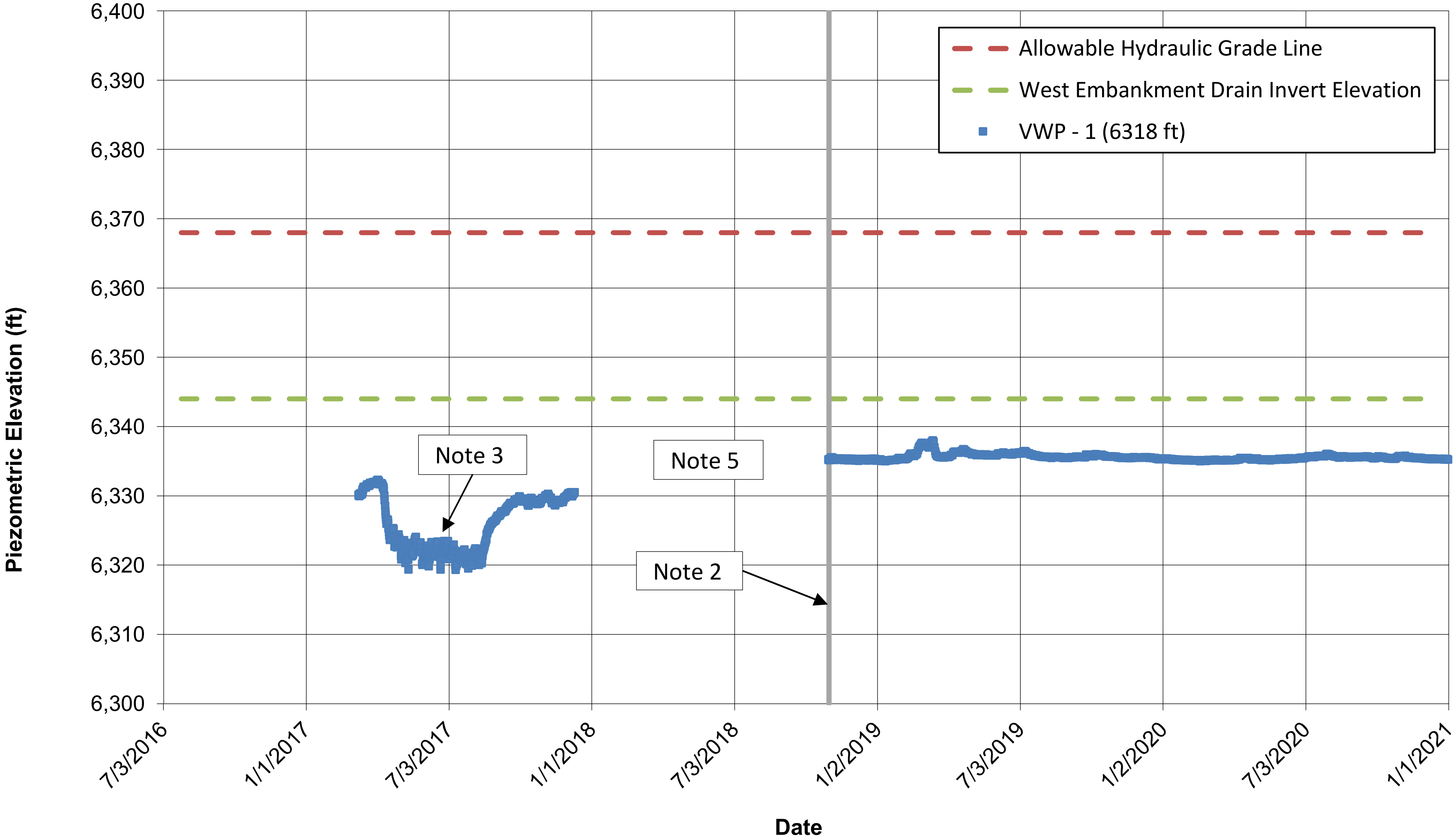
YANKEE DOODLE TAILINGS IMPOUNDMENT

DRAIN POD #1 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C3.12 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 16, 2018.
3. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED DEWATERING OF THE SOUTH POND AREA AND FROM THE WEST EMBANKMENT DRAIN.
4. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS THE MAXIMUM ALLOWABLE HYDRAULIC HEAD; 10 ft OF HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN.
5. NO DATA RECORDED BETWEEN DECEMBER 19, 2017 TO NOVEMBER 16, 2018 DUE TO A CONNECTIVITY ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DRAIN POD #2 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

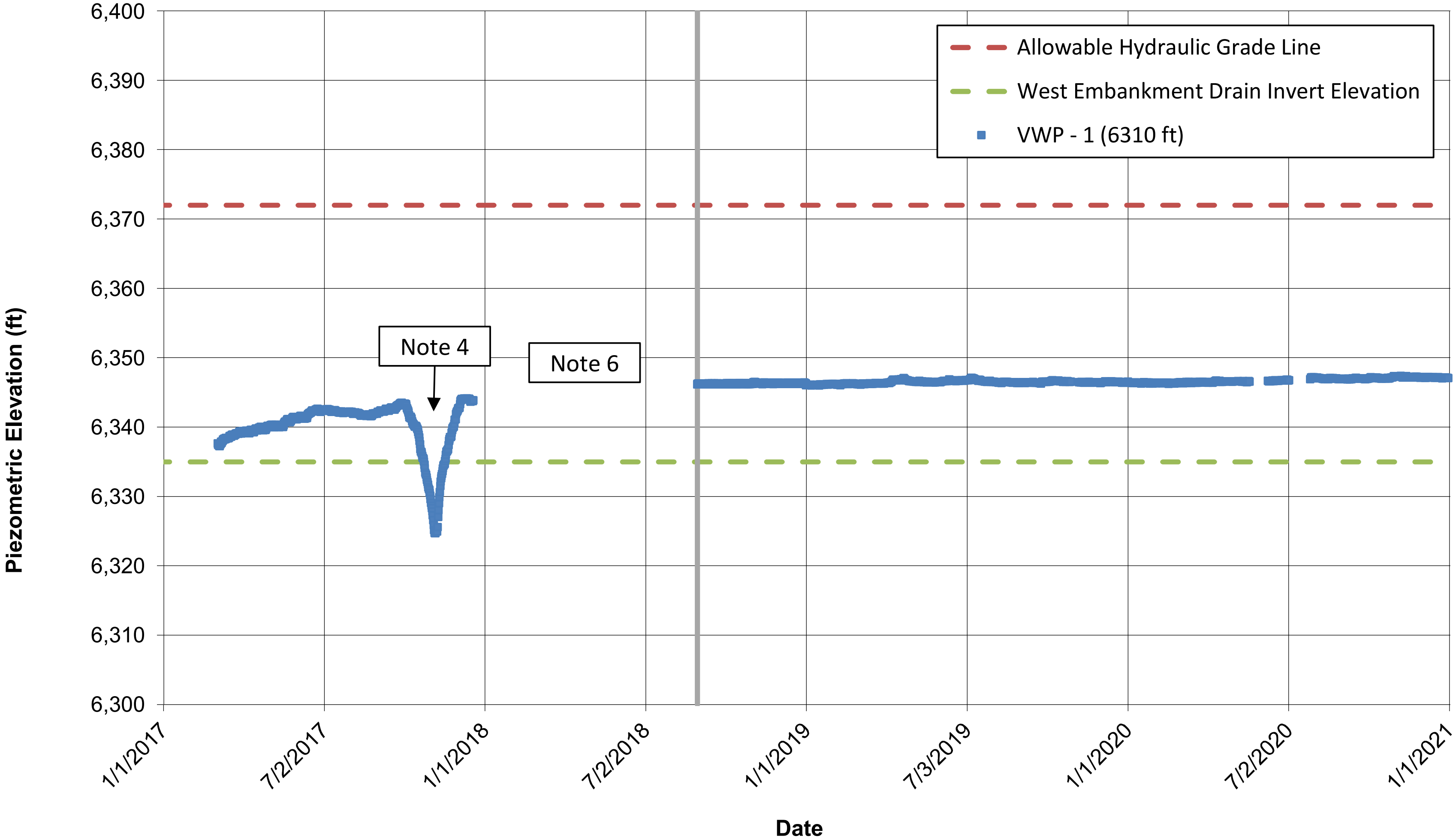
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C3.13

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 16, 2018.
4. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH CONSTRUCTION RELATED PUMPING AT EXTRACTION BASIN 1.
5. THE ALLOWABLE HYDRAULIC GRADE LINE REPRESENTS THE MAXIMUM ALLOWABLE HYDRAULIC HEAD IN THE EXTRACTION BASIN; 10 ft OF HYDRAULIC HEAD ABOVE THE FILTER ZONE AND DRAIN CROWN.
6. NO DATA RECORDED BETWEEN DECEMBER 19, 2017 TO NOVEMBER 16, 2018 DUE TO A CONNECTIVITY ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

EXTRACTION BASIN PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

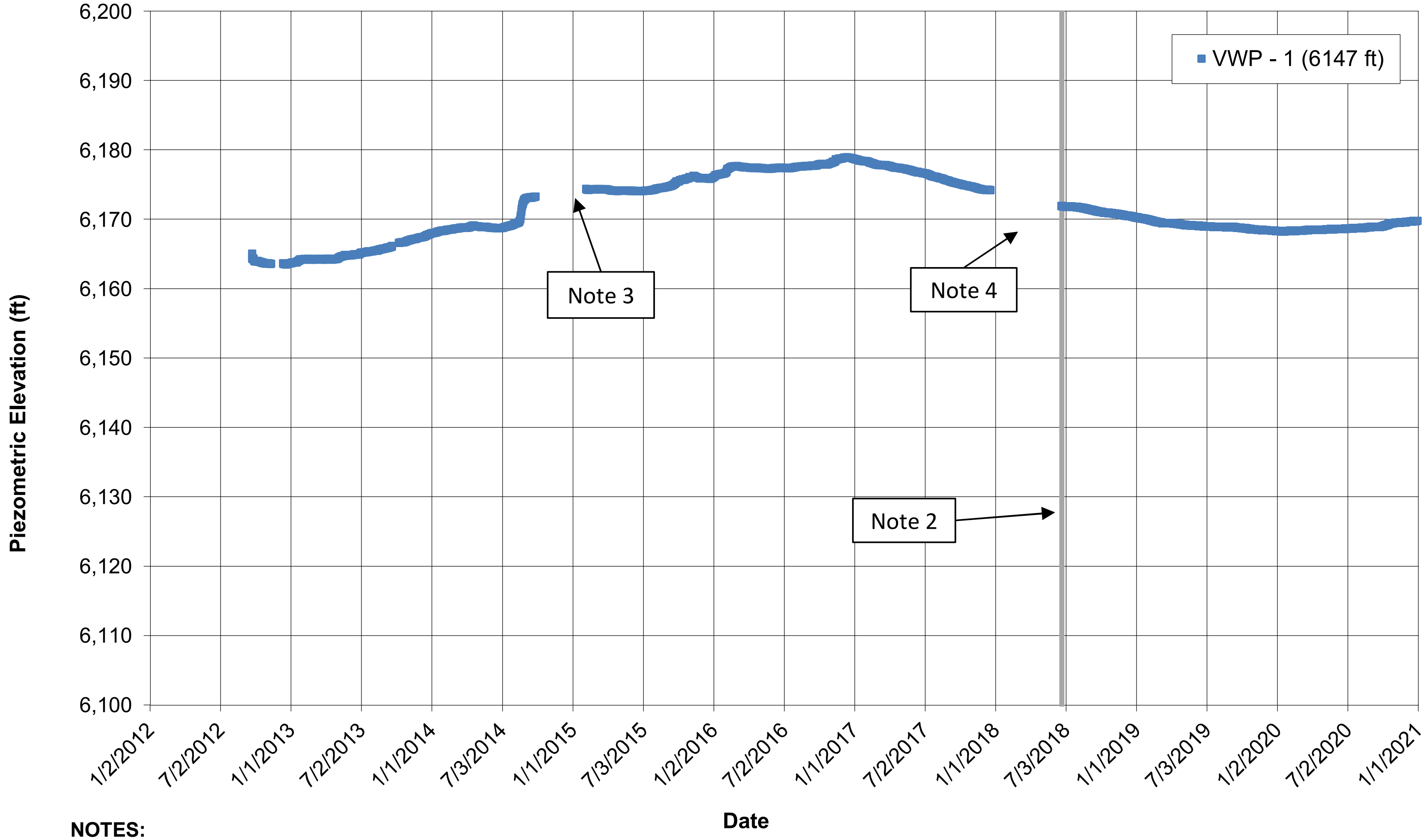
FIGURE C3.14

REV 0

APPENDIX C4

Tailings Mass

(Figures C4.1 to C4.20)



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. NO DATA WERE RECORDED FROM OCTOBER 2014 TO JANUARY 2015 DUE TO DATA LOGGER BATTERY FAILURE
4. NO DATA WERE RECORDED BETWEEN NOVEMBER 20, 2017 TO JUNE 21, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH12-03A PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

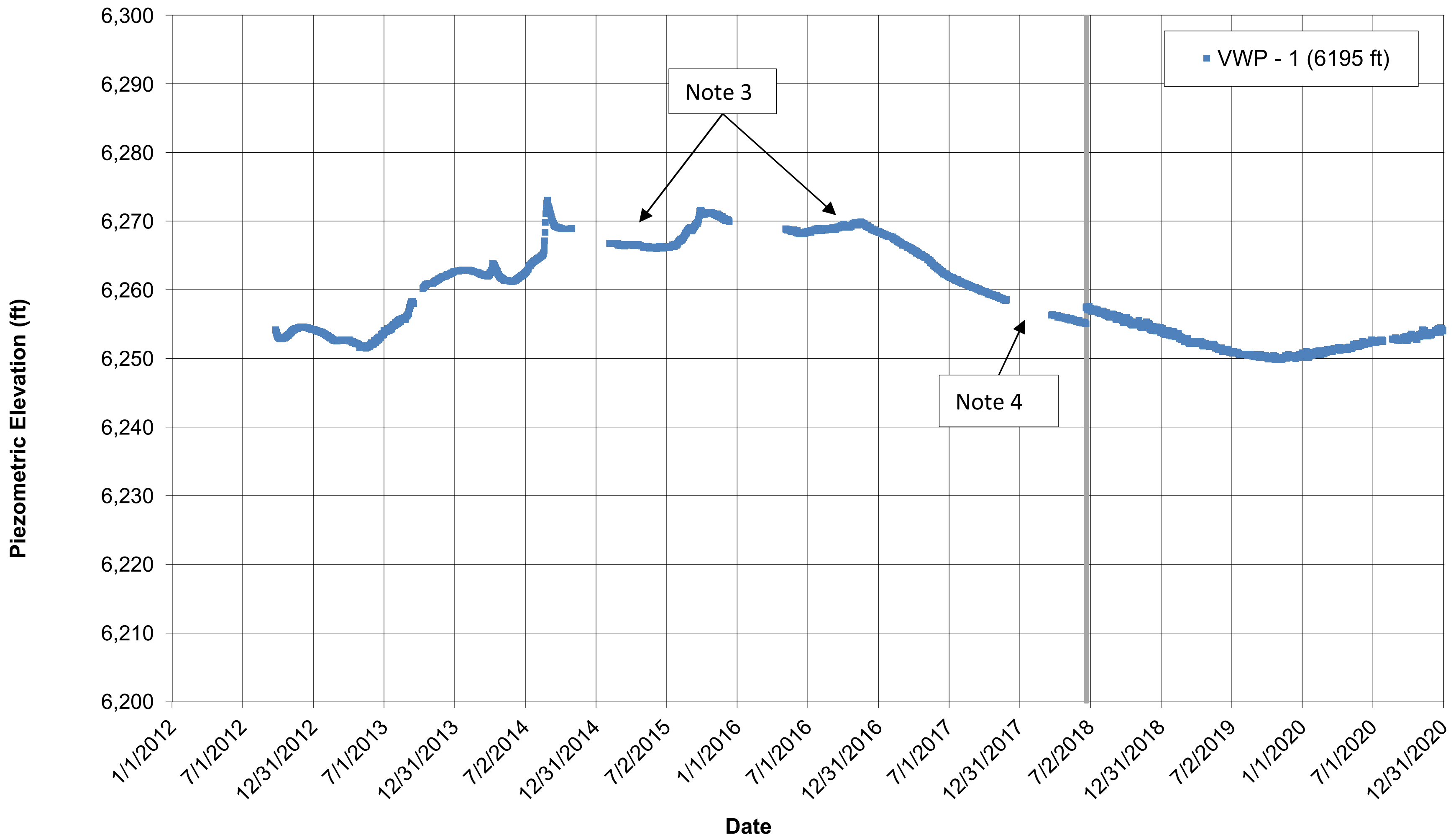
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.1

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. NO MEASUREMENTS WERE RECORDED FROM NOVEMBER 2014 TO DECEMBER 2014 AND FROM JANUARY 2016 TO APRIL 2016 DUE TO BATTERY FAILURE.
4. NO DATA WERE RECORDED BETWEEN NOVEMBER 20, 2017 TO MARCH 22, 2018.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.

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MONTANA RESOURCES, LLP

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DH12-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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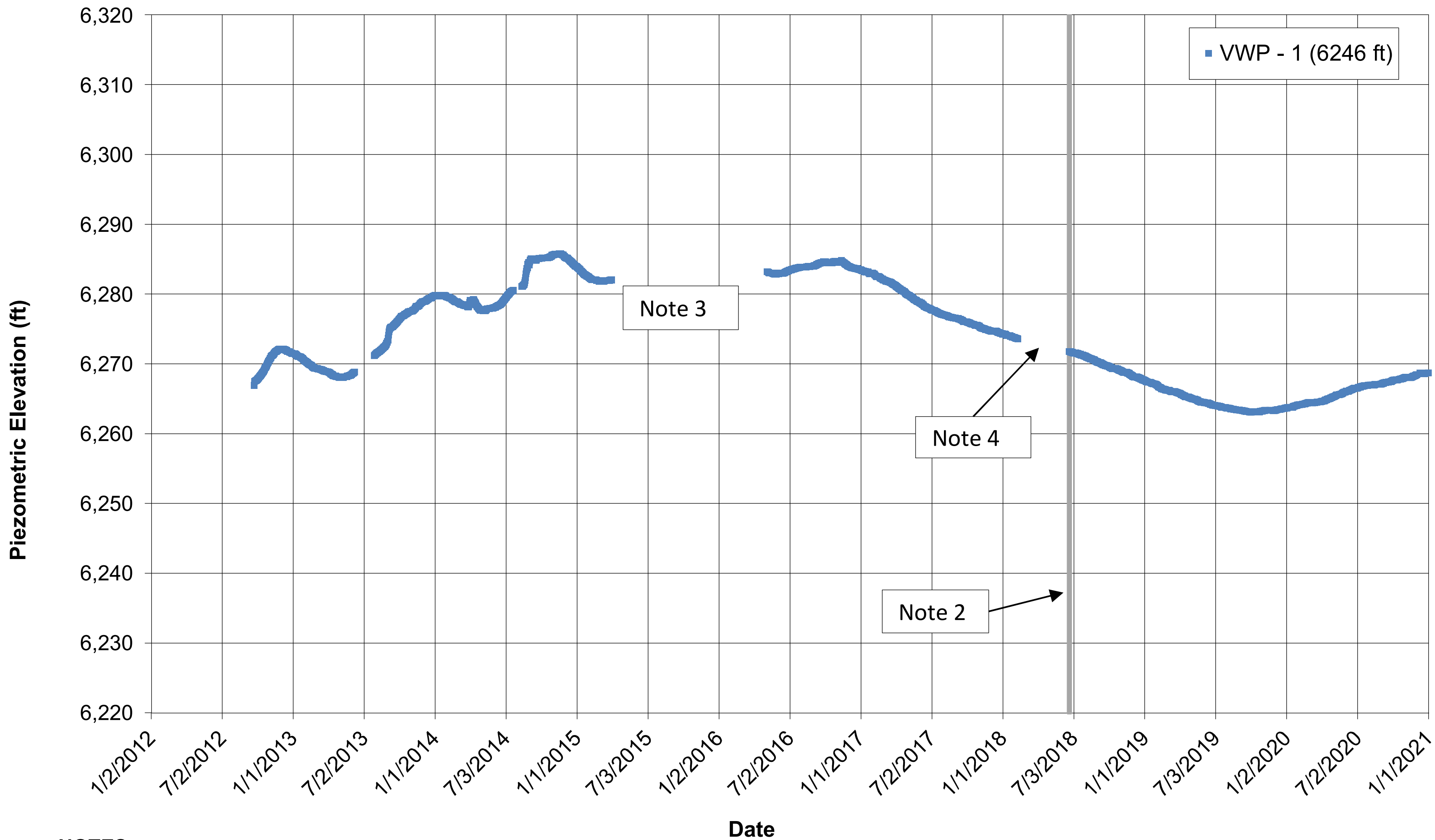
REF. NO. 5

FIGURE C4.2

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. NO MEASUREMENTS WERE RECORDED FROM MAY 11, 2015 TO APRIL 22, 2016 DUE TO INSUFFICIENT BATTERY VOLTAGE AND SITE INACCESSABILITY.
4. NO DATA WERE REPORTED BETWEEN FEBRUARY 9, 2018 TO JUNE 21 2018 DURING INTEGRATION WITH REMOTE MONITORING SYSTEM.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH12-04A PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

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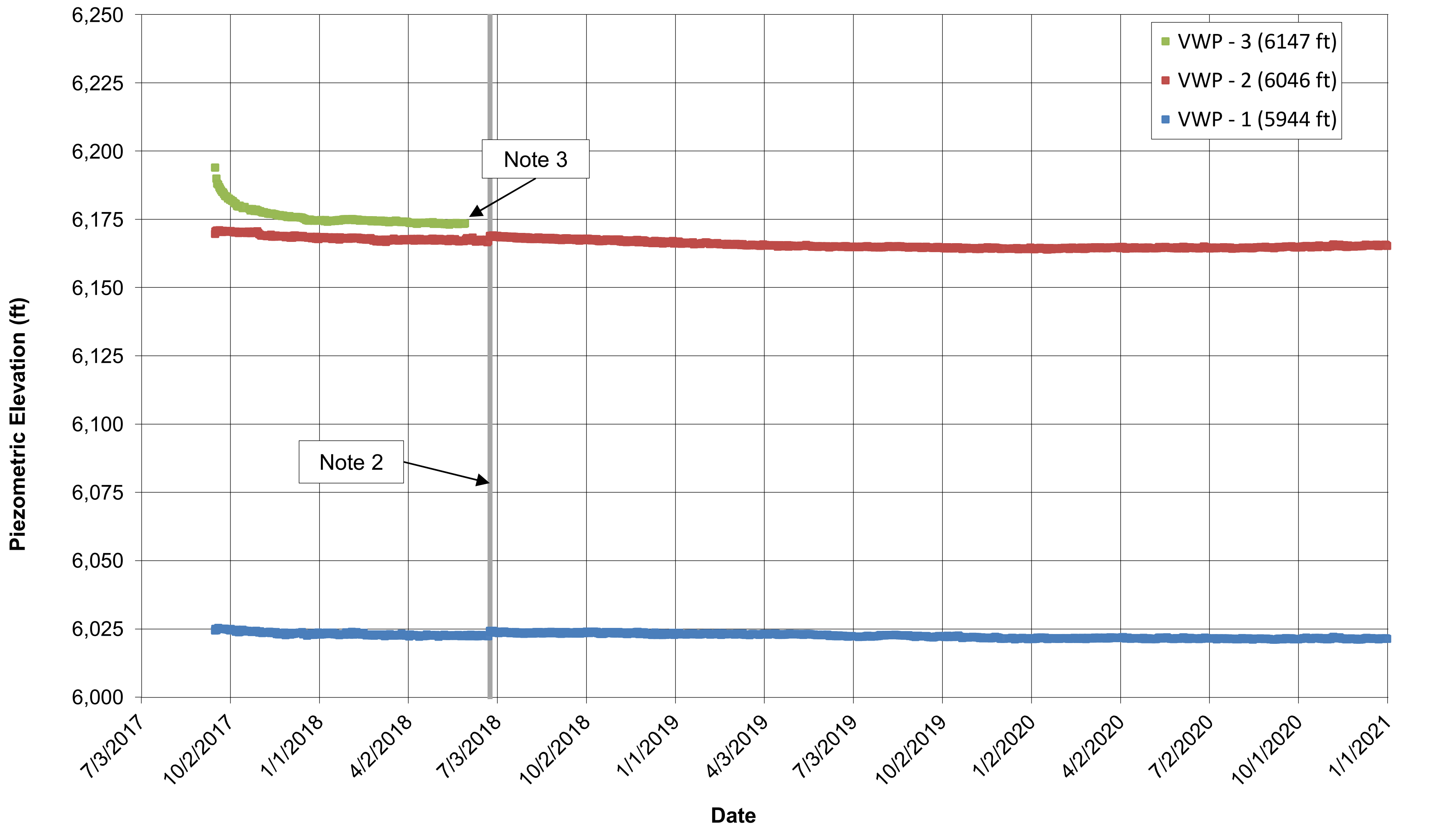
FIGURE C4.3 REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 25, 2018.
3. NO DATA ARE SHOWN FOR VWP-3 AFTER THE INTEGRATION TO THE REMOTE MONITORING SYSTEM BECAUSE SENSOR IS NO LONGER REPORTING AND SUSPECTED TO HAVE BEEN DAMAGED.

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DH17-S3 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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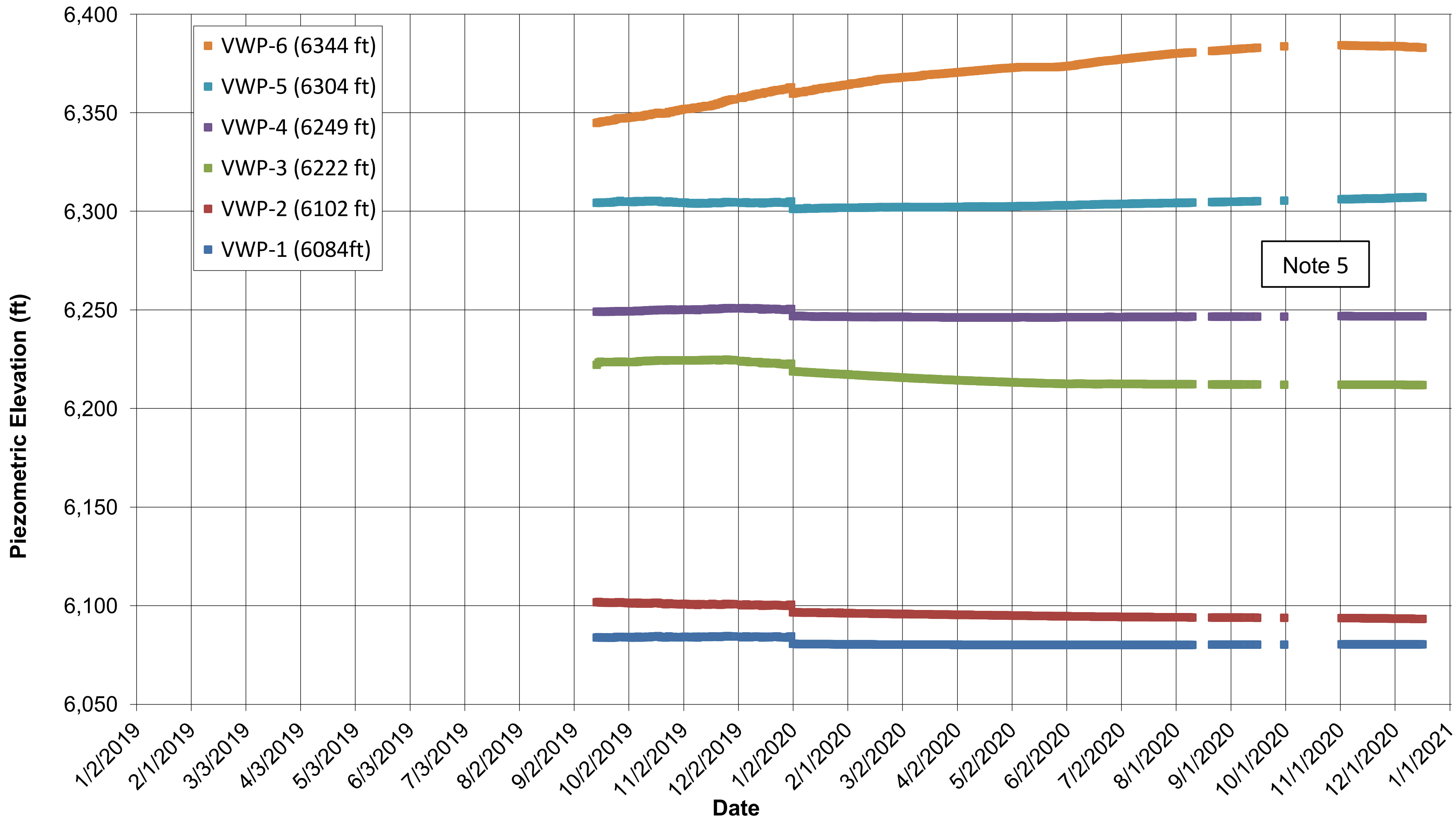
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.4

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE CONNECTED TO THE REMOTE MONITORING SYSTEM FOLLOWING SENSOR INSTALLATION ON AUGUST 12, 2019.
3. DATA ARE PLOTTED WITH ONE READING PER DAY. SENSORS RECORD DATA HOURLY.
4. VWP-3, VWP-5, AND VWP-6 ARE INSTALLED IN TAILINGS, VWP-2 AND VWP-4 ARE INSTALLED IN ROCKFILL, AND VWP-1 IS INSTALLED IN ALLUVIUM.
5. NO DATA WERE COLLECTED FOR ALL VWPS FROM SEPTEMBER 9, TO OCTOBER 10, 2020 AND FROM DECEMBER 18, 2020 DUE TO DATA LOGGER REPLACEMENT AND SUBSEQUENT LOGGER ISSUE.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S6 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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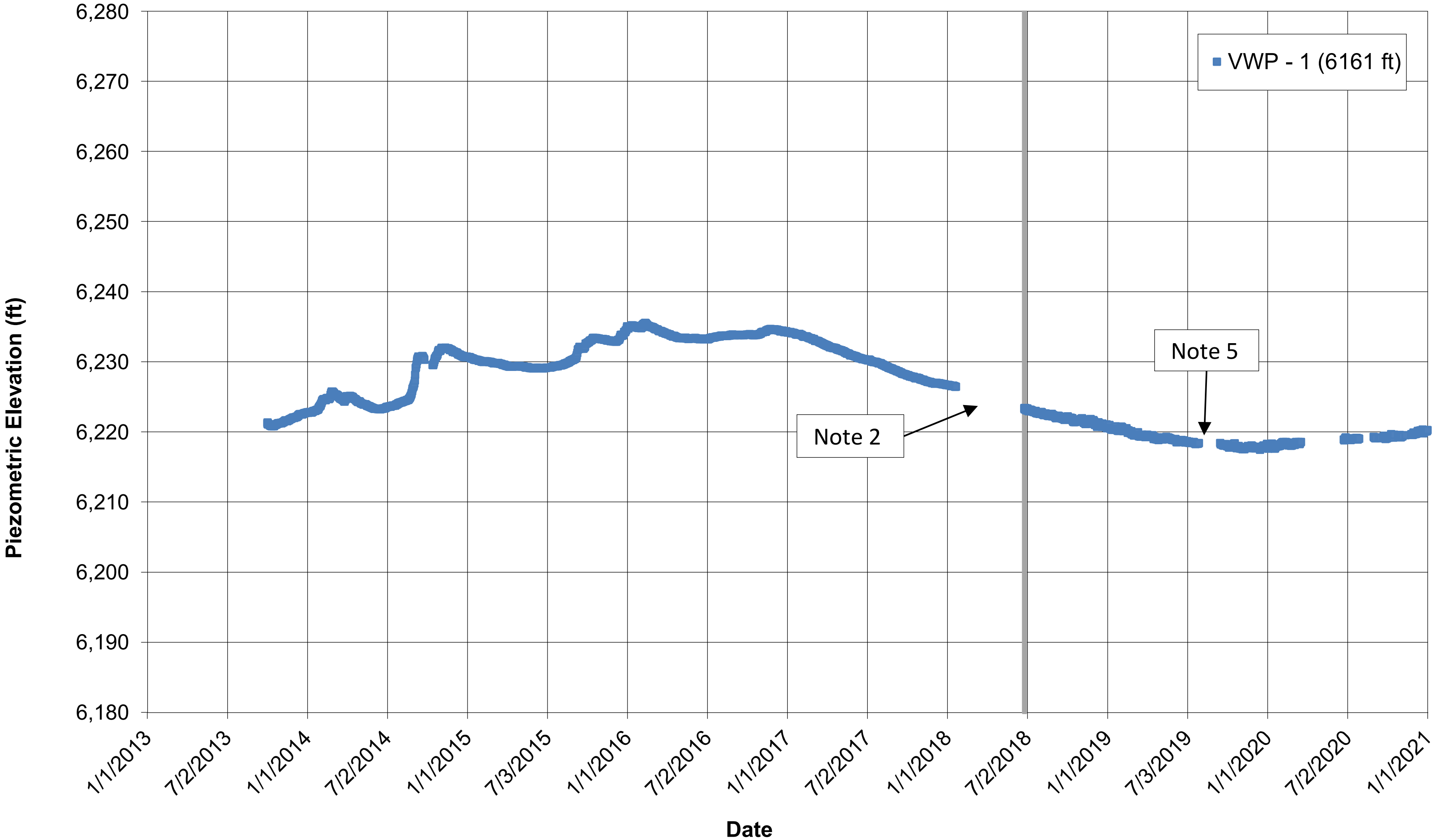
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.5

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 25, 2018.
3. NO DATA WERE REPORTED BETWEEN JANUARY 20, 2018 TO JUNE 25, 2018 DURING INTEGRATION WITH REMOTE MONITORING SYSTEM.
4. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
5. DATA ARE UNAVAILABLE DUE TO UNKNOWN ISSUE JULY 29, 2019 TO SEPTEMBER 16, 2019.

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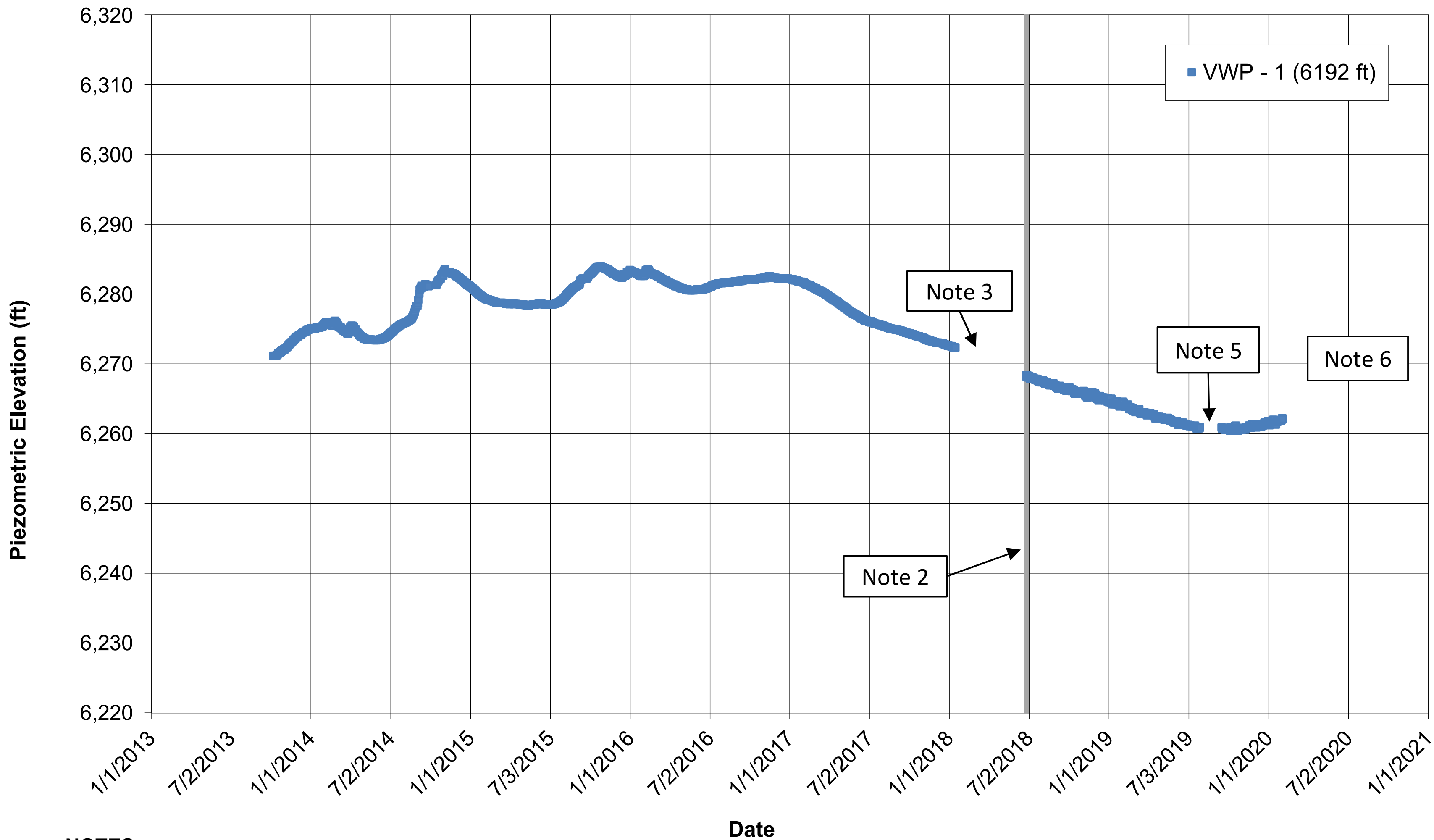
CPT13-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C4.6 REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM ON JUNE 25, 2018.
3. NO DATA WERE RECORDED BETWEEN JANUARY 15, 2018 AND JUNE 25, 2018 DURING INTEGRATION OF REMOTE MONITORING SYSTEM.
4. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
5. DATA ARE UNAVAILABLE DUE TO UNKNOWN ISSUE JULY 29, 2019 TO SEPTEMBER 16, 2019.
6. NO DATA WERE COLLECTED FOR VWP-1 FROM FERBRUARY 3, 2020 DUE TO A SUSPECTED DATA LOGGER FAILURE

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YANKEE DOODLE TAILINGS IMPOUNDMENT

CPT13-02A PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

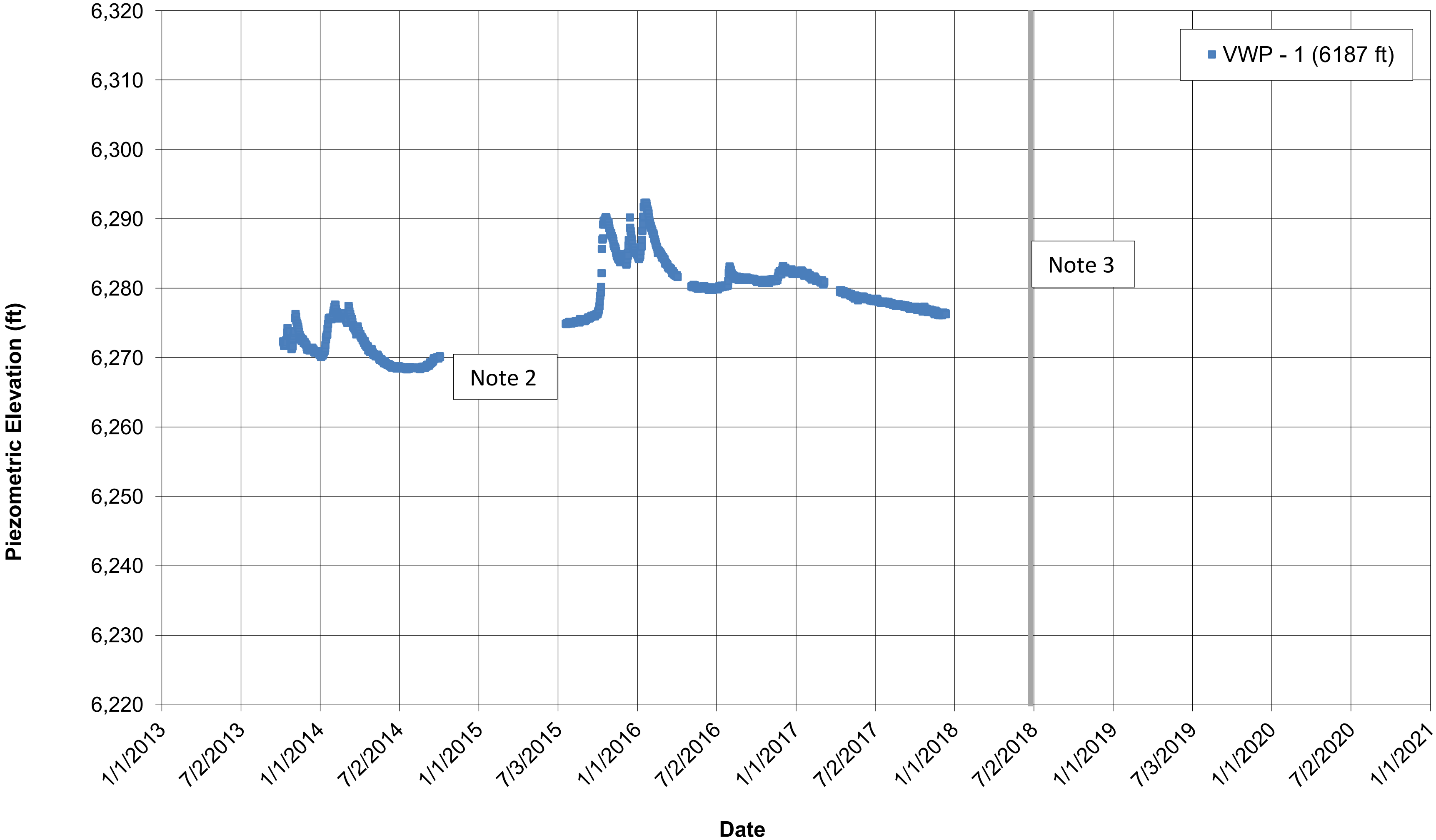
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.7

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. NO MEASUREMENTS WERE RECORDED FROM NOVEMBER 2014 TO JULY 2015 DUE TO DATA LOGGER FAILURE.
3. SENSOR WAS INTEGRATED WITH THE REMOTE MONITORING SYSTEM ON JUNE 25, 2018. THE SENSOR HAS NOT RECORDED VALID DATA DUE TO SUSPECTED SENSOR DAMAGE AND IS PLANNED TO BE REPLACED IN Q1, 2021.

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CPT13-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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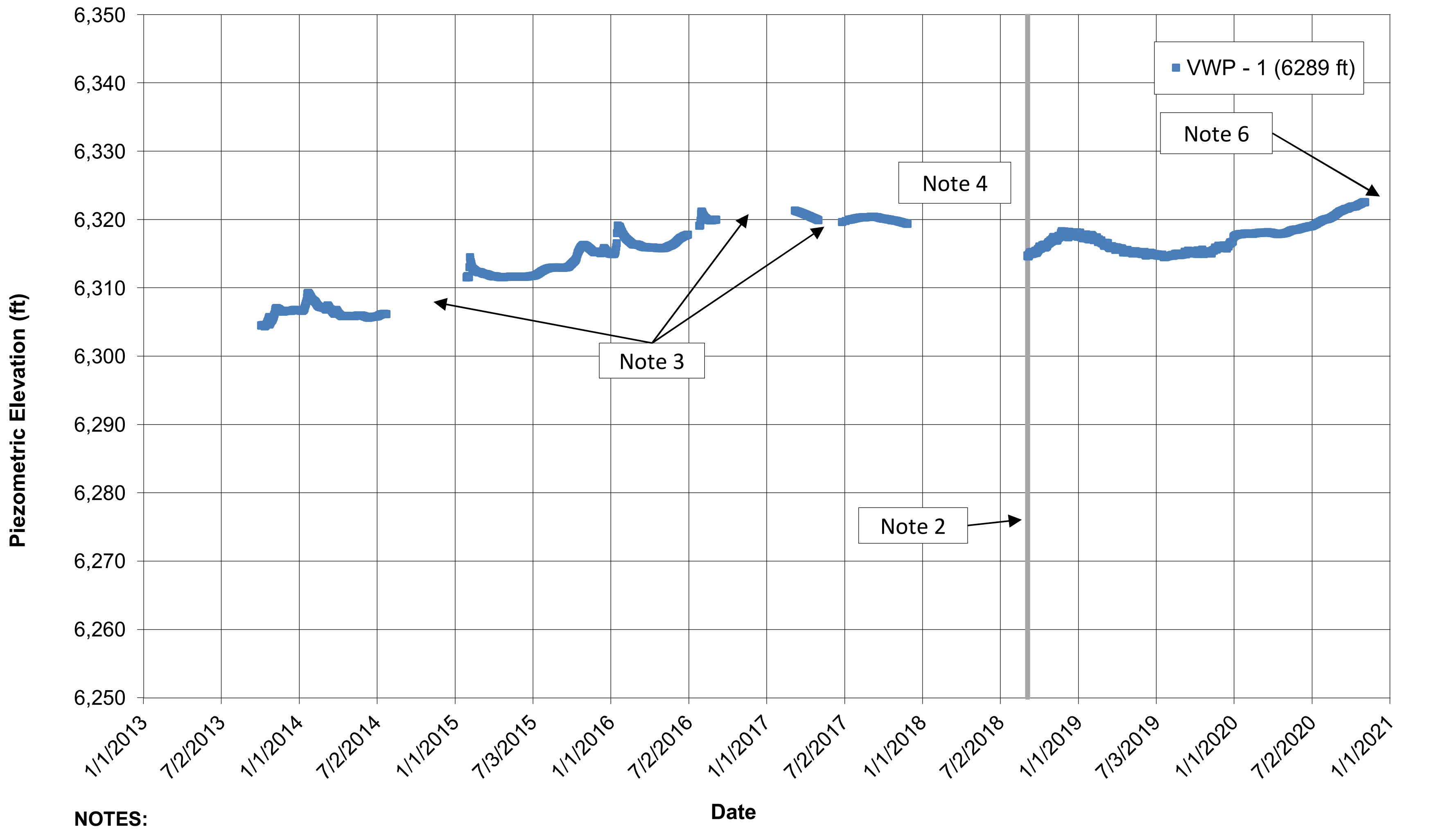
REF. NO. 5

FIGURE C4.8

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM ON SEPTEMBER 4, 2018.
3. NO MEASUREMENTS WERE RECORDED FROM AUGUST 2014 TO JANUARY 2015 AND FROM SEPTEMBER 2016 TO MARCH 2017 DUE TO DATA LOGGER FAILURE.
4. NO DATA WERE RECORDED BETWEEN NOVEMBER 20, 2017 TO SEPTEMBER 4, 2018 DURING INTEGRATION OF REMOTE MONITORING SYSTEM.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
6. NO DATA ARE AVAILABLE AFTER NOVEMBER 4, 2020 DUE TO SUSPECTED SENSOR DAMAGE.

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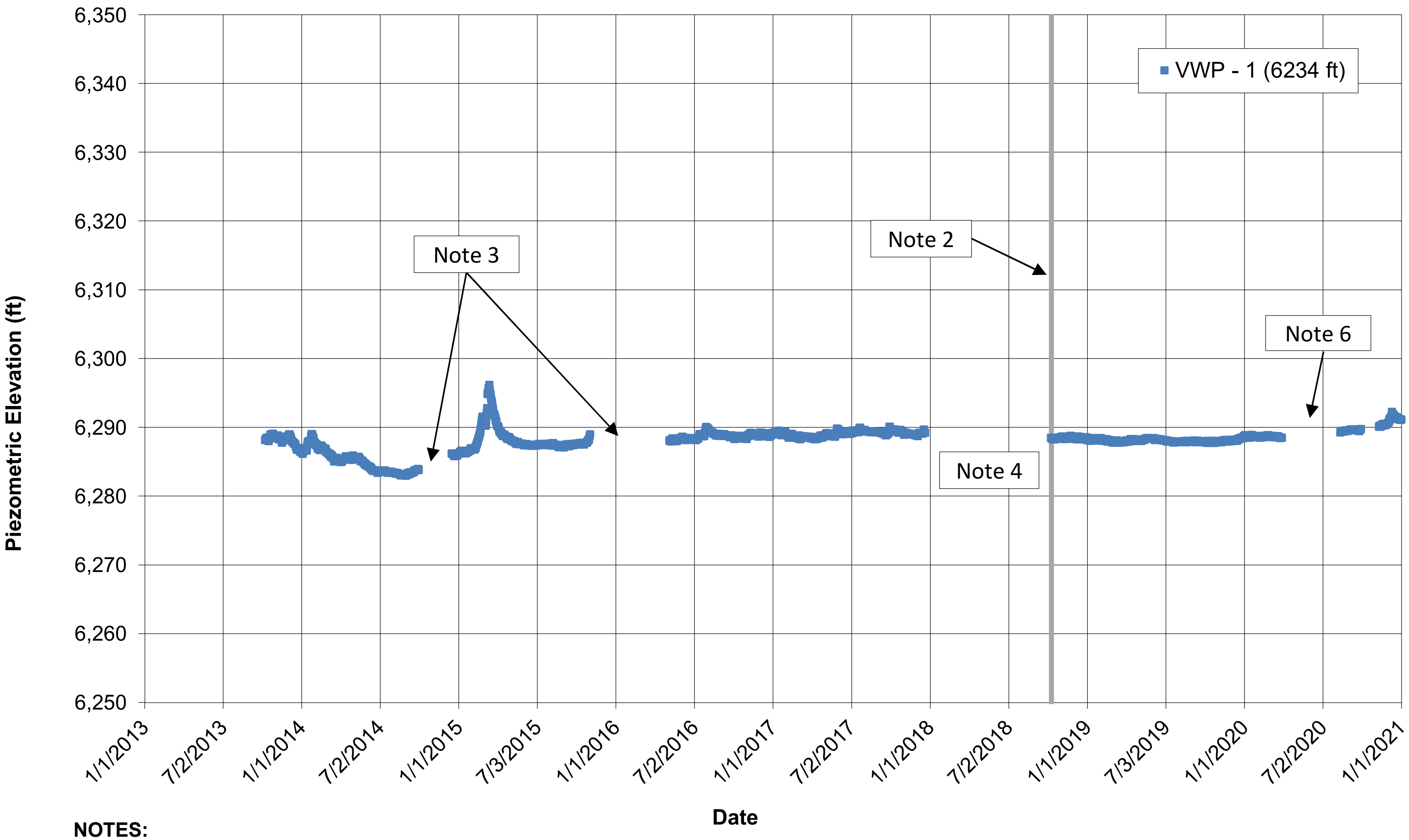
CPT13-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C4.9 REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCTOBER 9, 2018.
3. NO MEASUREMENTS WERE RECORDED BETWEEN OCTOBER 2014 TO DECEMBER 2014 AND FROM DECEMBER 2015 TO MAY 2016 DUE TO DATA LOGGER FAILURE.
4. NO DATA WERE RECORDED BETWEEN NOVEMBER 20, 2017 TO OCTOBER 9, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
6. NO DATA ARE AVAILABLE FROM MARCH 30, 2020 TO AUGUST 11, 2020 DUE TO DATA LOGGER ISSUE.

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CPT13-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

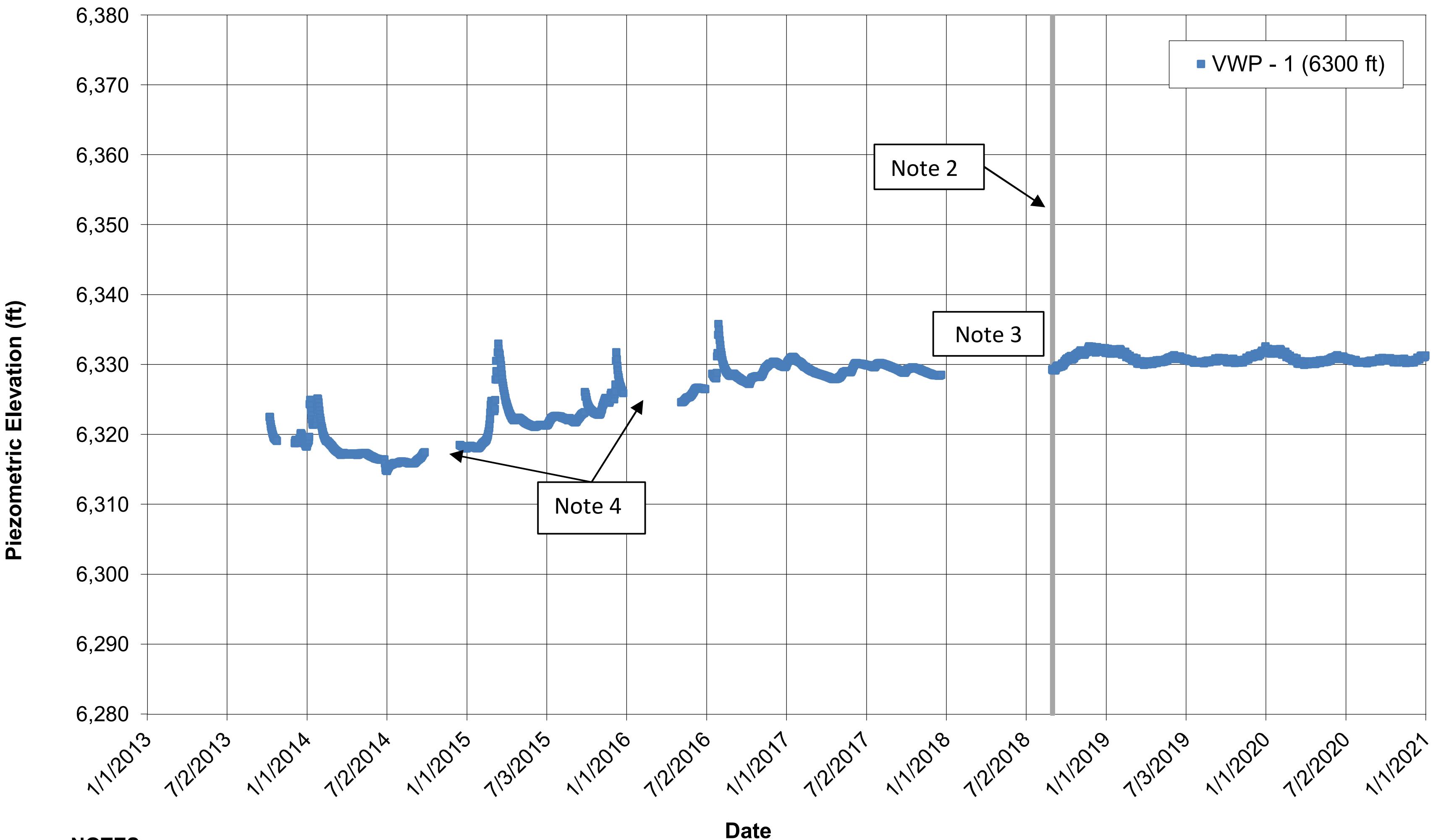
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.10

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON AUGUST 31, 2018.
3. NO MEASUREMENTS WERE REPORTED BETWEEN NOVEMBER 20, 2017 TO AUGUST 31, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
4. NO MEASUREMENTS WERE RECORDED FROM OCTOBER 2014 TO NOVEMBER 2014 FROM JANUARY 2016 TO MAY 2016 DUE TO DATA LOGGER FAILURE.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.

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CPT13-06 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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P/A NO.	REF. NO.
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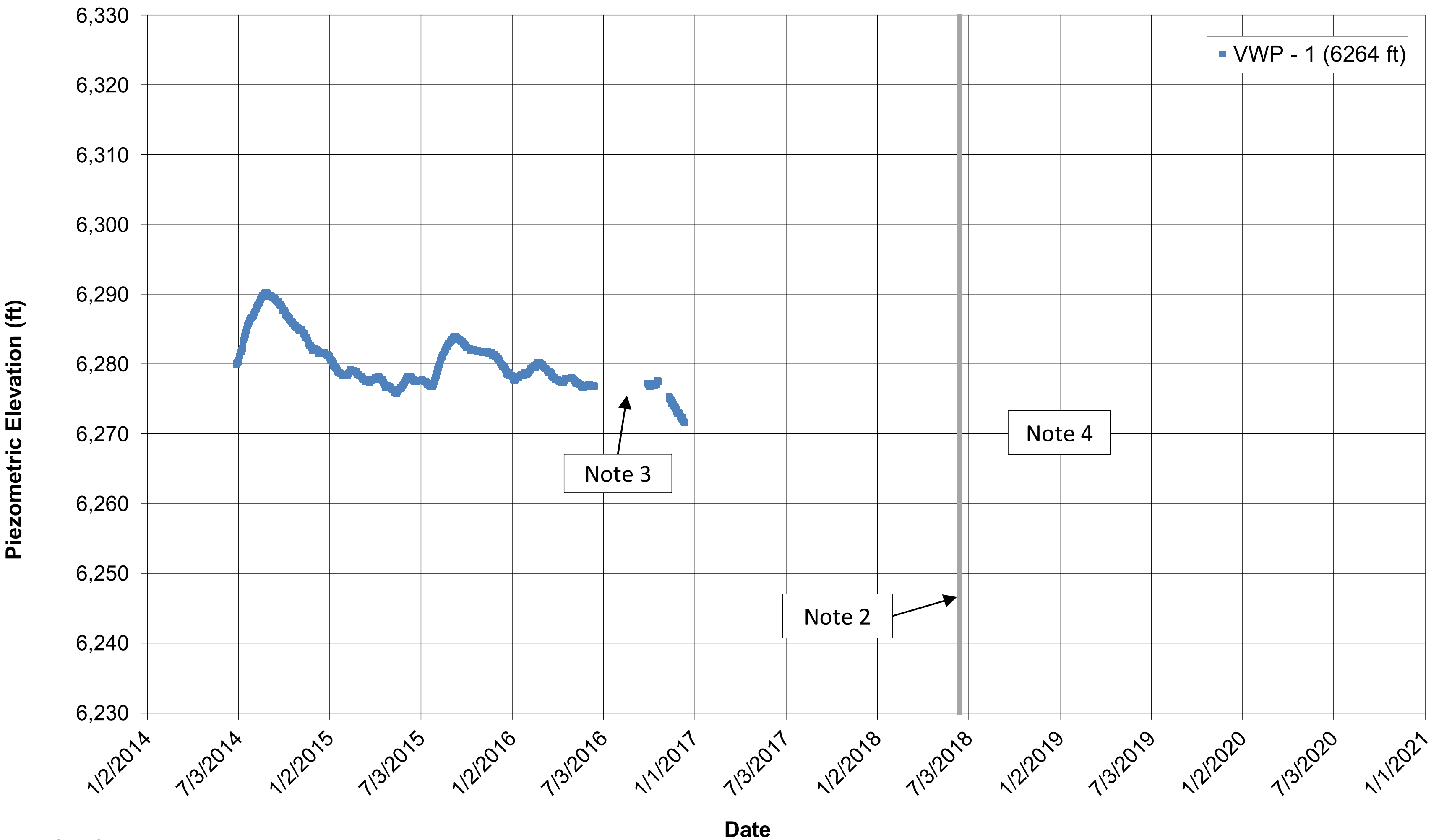
FIGURE C4.11 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM JUNE 15, 2018.
3. NO MEASUREMENTS WERE RECORDED FROM JUNE 2016 TO SEPTEMBER 2016 DUE TO DATA LOGGER FAILURE.
4. NO DATA ARE SHOWN FROM NOVEMBER 29, 2016 TO DECEMBER 31, 2020 BECAUSE THE SENSOR BECAME UNSATURATED (DRY).
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.

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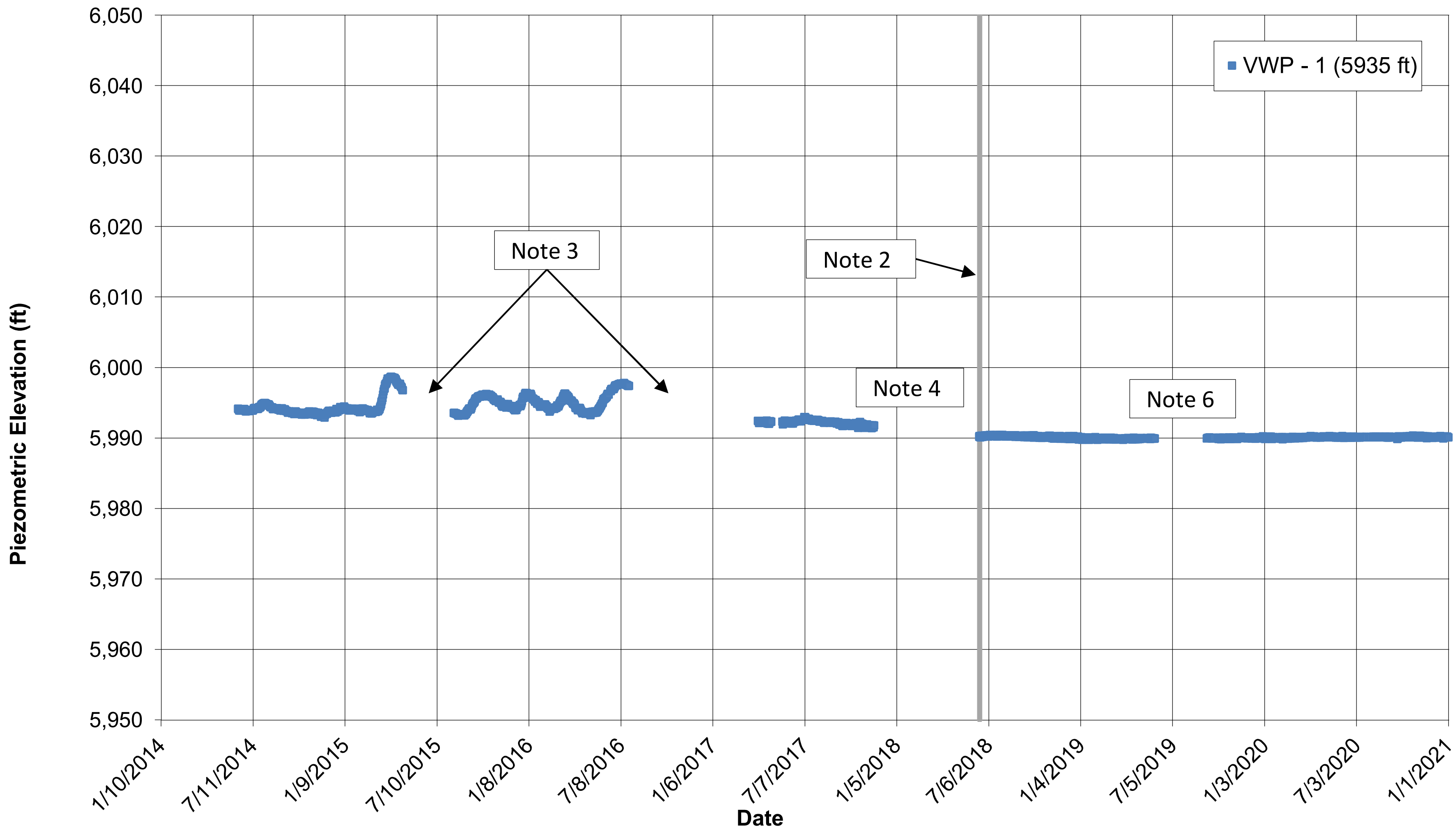
CPT14-01A PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C4.12		REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 17, 2018.
3. NO MEASUREMENTS WERE RECORDED FROM JUNE 2015 TO JULY 2015, MAY 2016 TO AUGUST 2016 TO MAY 2017 DUE TO DATALOGGER FAILURE.
4. NO DATA WERE REPORTED BETWEEN NOVEMBER 20, 2017 TO JUNE 17, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. DATA PRIOR TO INTEGRATION OF REMOTE MONITORING SYSTEM ASSUMED A BAROMETRIC PRESSURE OF 1 ATM. THESE DATA HAVE SUBSEQUENTLY BEEN ADJUSTED TO COMPENSATE FOR LOCAL BAROMETRIC CONDITIONS.
6. NO DATA WERE RECORDED BETWEEN MAY 31, 2019 TO SEPTEMBER 11, 2019 DUE TO HARDWARE ISSUE. SENSORS WERE CONNECTED TO MH-5 TEMPORARY LOGGER SEPTEMBER 11, 2019.

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CPT14-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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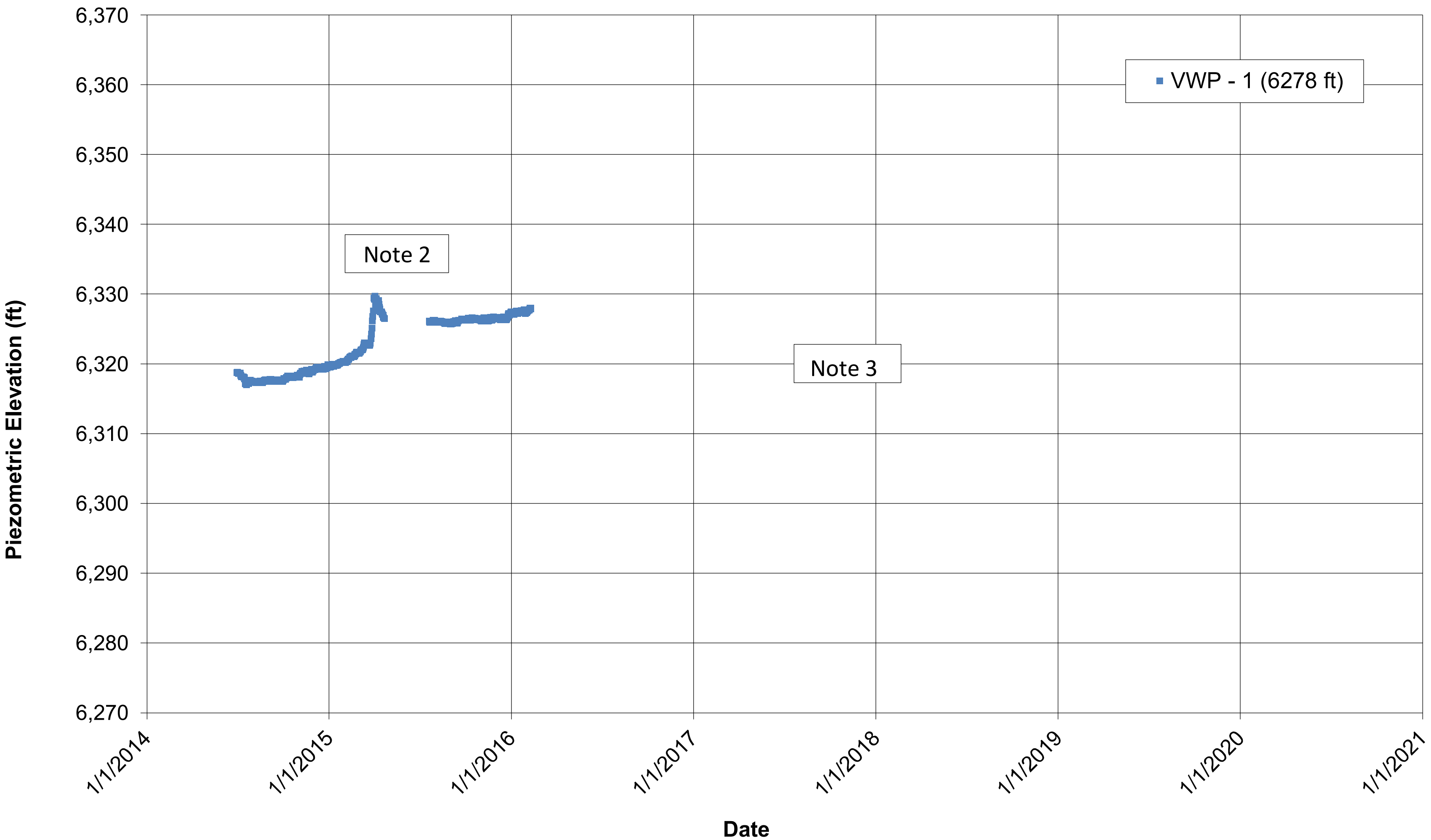
REF. NO. 5

FIGURE C4.13

REV 0



NOTES:

1. GROUND ELEVATION AT THE COLLAR LOCATION IS 6355 FEET BASED ON ANACONDA MINE GRID.
2. NO MEASUREMENTS WERE RECORDED FROM APRIL 2015 TO JULY 2015 DUE TO BATTERY FAILURE.
3. MONITORING SITE WAS ABANDONED FEBRUARY 12, 2016 DUE TO WEST EMBANKMENT CONSTRUCTION ACTIVITIES.

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FIGURE C4.14

REV 0

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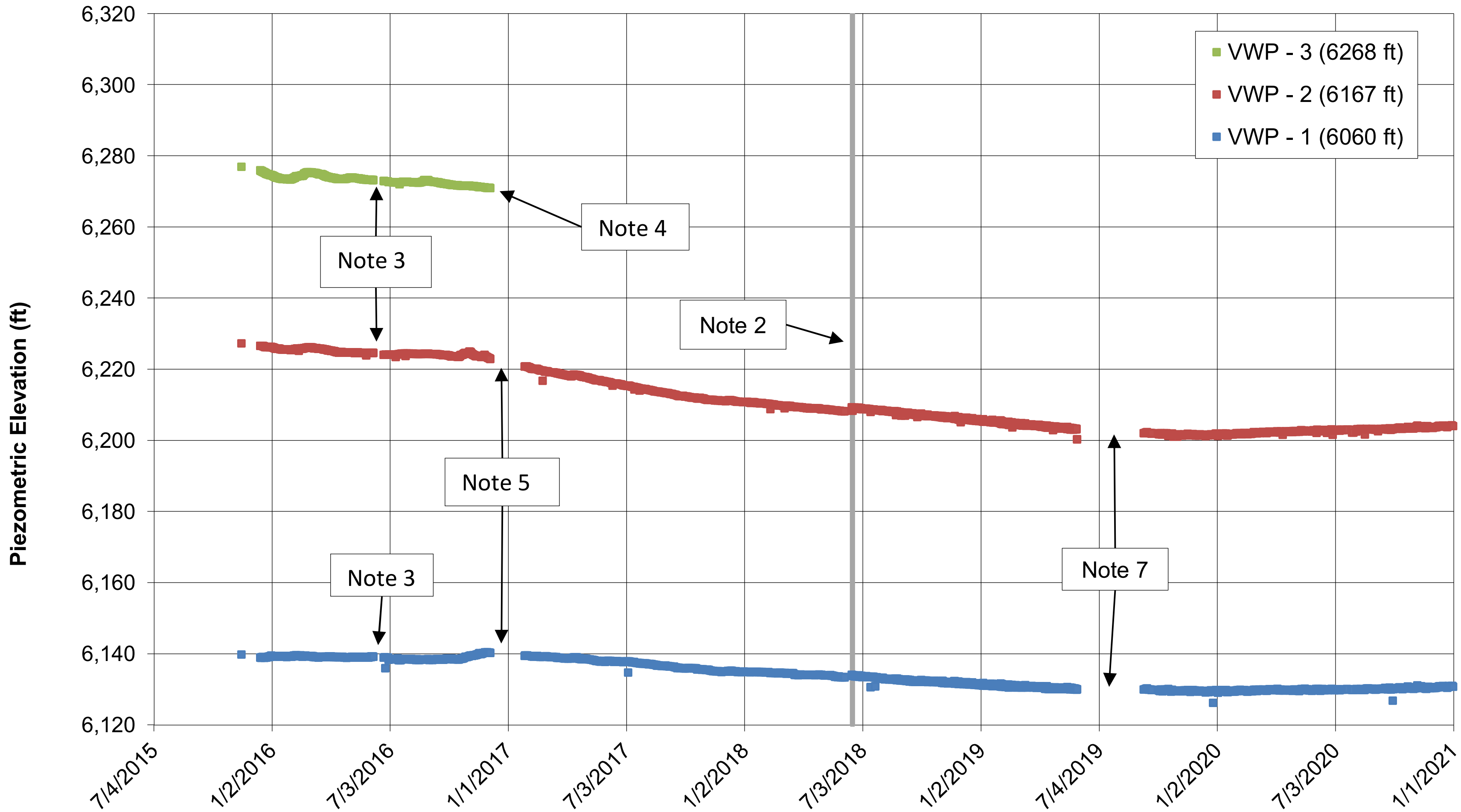

NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 17, 2018.
3. A DATA GAP EXISTS BETWEEN JUNE 8, 2016 AND JULY 1, 2016 WHEN THE DATA LOGGER WAS DISCONNECTED TO VERIFY PERFORMANCE OF SENSOR ELECTRONICS.
4. VWP-3 BECAME UNSATURATED (DRY) ON JANUARY 27, 2017.
5. THE DATA LOGGER STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE
6. NO DATA WERE RECORDED BETWEEN JUNE 5 AND JUNE 17, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
7. NO DATA WERE RECORDED BETWEEN MAY 31, 2019 TO SEPTEMBER 11, 2019 DUE TO HARDWARE ISSUE. SENSORS WERE CONNECTED TO MH-5 TEMPORARY LOGGER SEPTEMBER 11, 2019.

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SCPT15-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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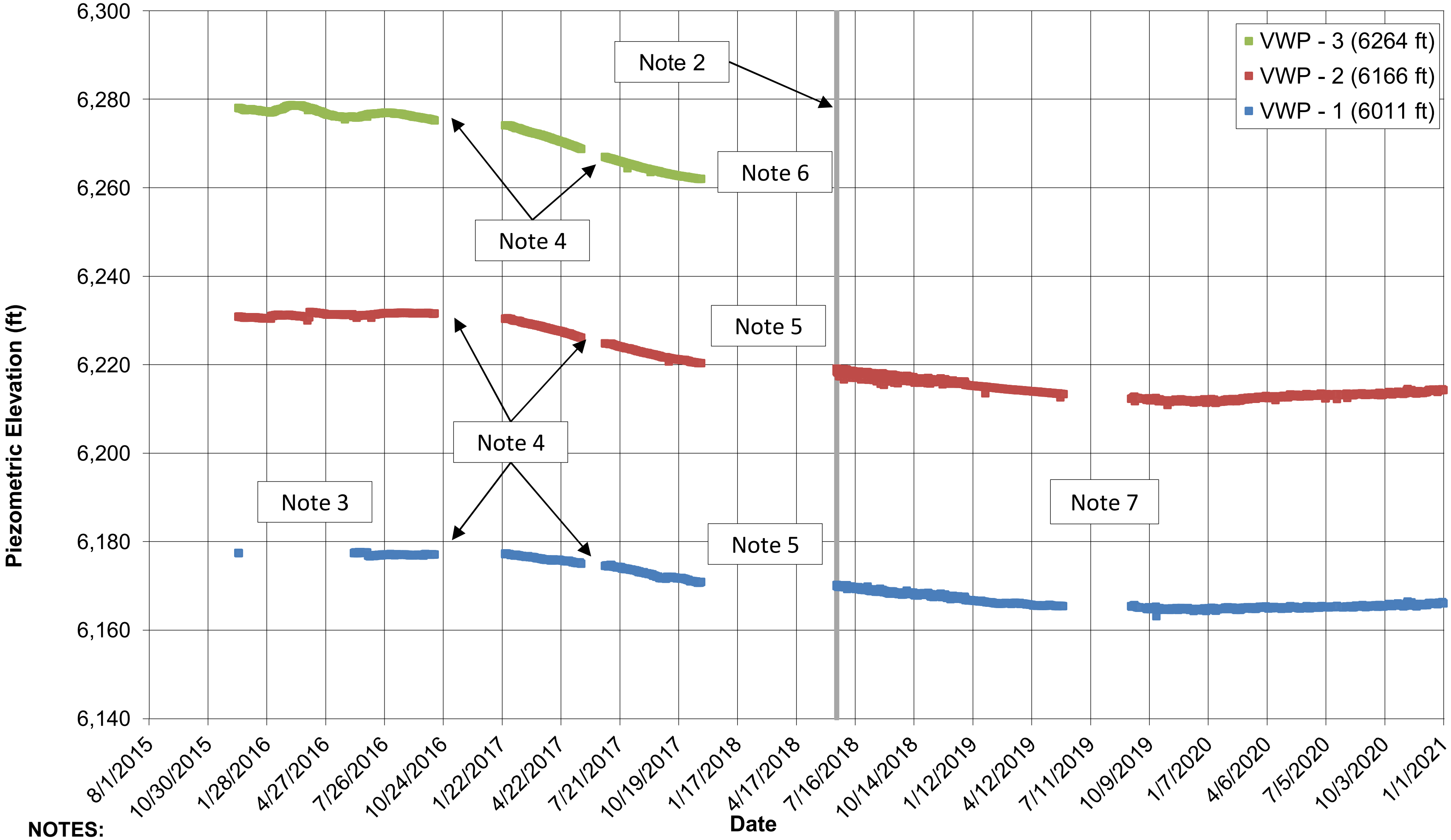
P/A NO. VA101-126/23	REF. NO. 5
FIGURE C4.15	REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 17, 2018.
3. THE VWP-1 SENSOR CABLE WAS SEVERED FOLLOWING DATA LOGGER INSTALLATION AND WAS RECONNECTED ON JUNE 9. 2016.
4. SENSORS STOPPED LOGGING DUE TO INSUFFICENT BATTERY VOLTAGE.
5. NO DATA WERE REPORTED BETWEEN NOVEMBER 22, 2018 TO JUNE 17, 2018 DURING INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
6. NO PIEZOMETRIC DATA ARE SHOWN AFTER NOVEMBER 22, 2018 BECAUSE THE SENSOR BECAME UNSATURATED.
7. NO DATA WERE RECORDED BETWEEN MAY 31, 2019 TO SEPTEMBER 2019 DUE TO HARDWARE ISSUE. SENSORS WERE CONNECTED TO MH-5 TEMPORARY LOGGER SEPTEMBER 11, 2019.

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SCPT15-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

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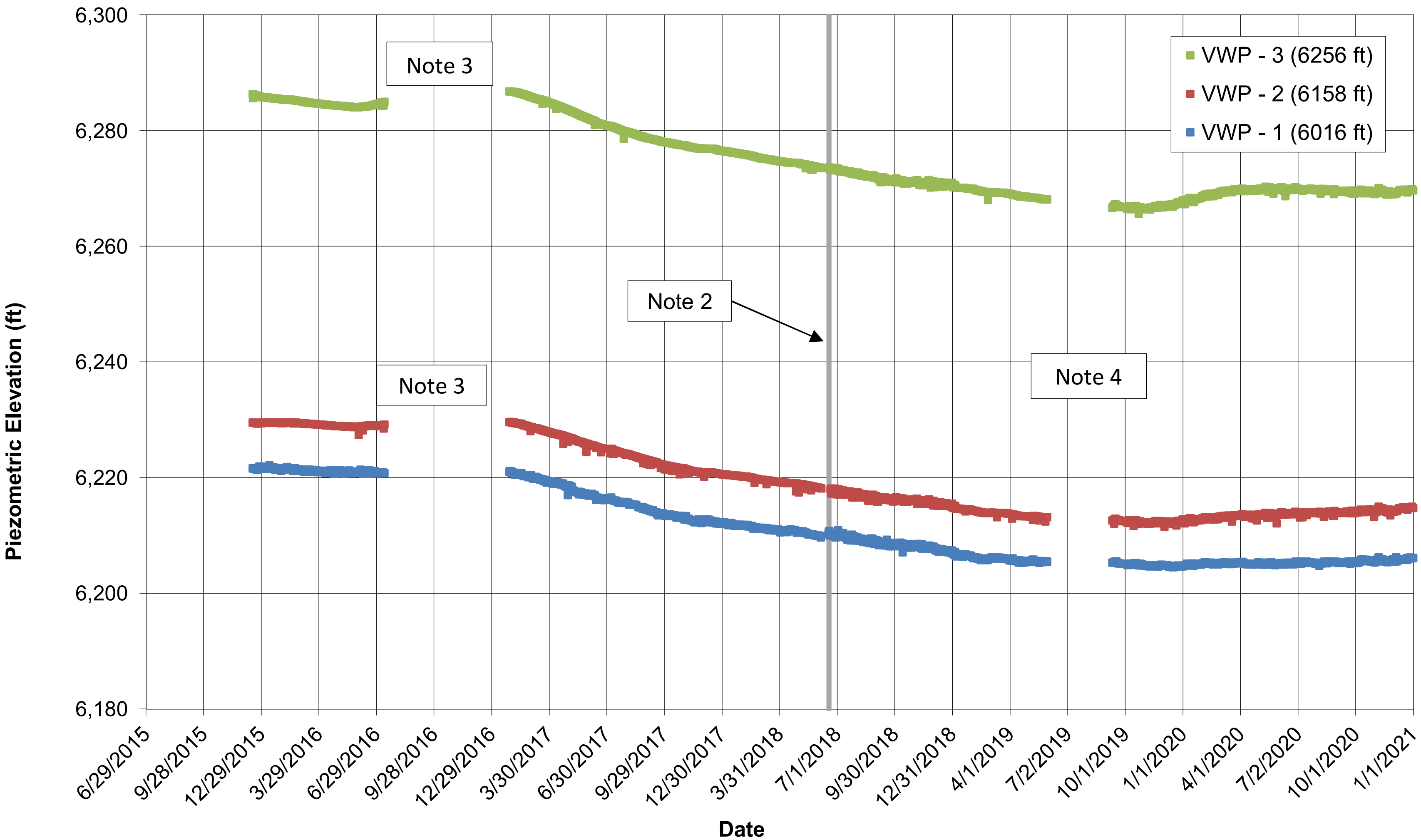
FIGURE C4.16 REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 17, 2018.
3. DATA LOGGER WAS DAMAGED ON JULY 12, 2016 AND RECONNECTED ON JANUARY 26, 2017.
4. NO DATA WERE RECORDED BETWEEN MAY 31, 2019 TO SEPTEMBER 11, 2019 DUE TO HARDWARE ISSUE. SENSORS WERE CONNECTED TO MH-5 TEMPORARY LOGGER SEPTEMBER 11, 2019.

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SCPT15-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

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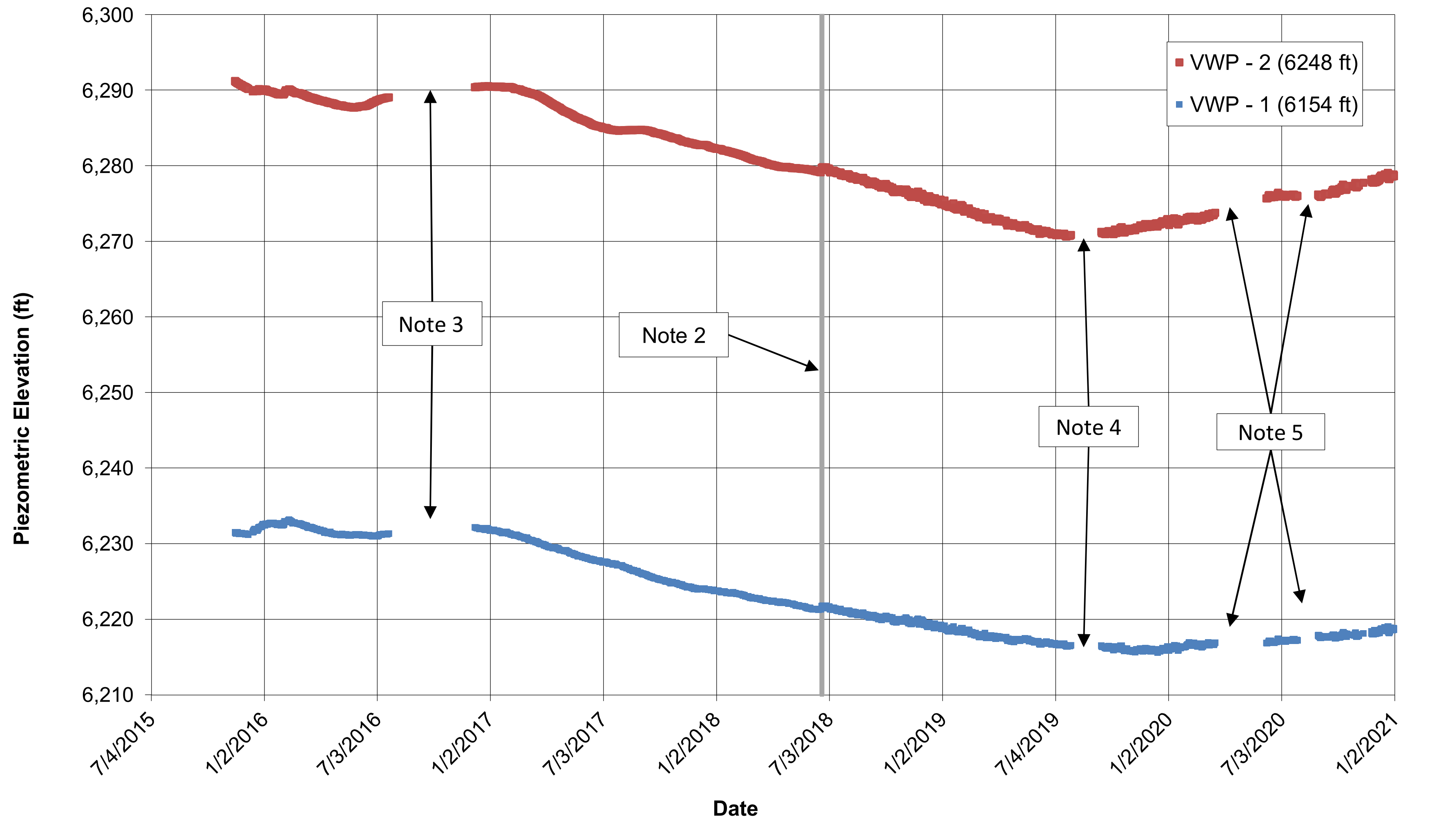
REF. NO. 5

FIGURE C4.17

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. A DATA GAP EXISTS BETWEEN BETWEEN JULY 22, 2016 AND DECEMBER 6, 2016 WHILE THE DATA LOGGER WAS DISCONNECTED TO PROVIDE ACCESS FOR CONSTRUCTION ACTIVITIES.
4. NO DATA WERE COLLECTED FROM JULY 29, 2019 TO SEPTEMBER 16, 2019 DUE TO VOLTAGE ISSUES.
5. NO DATA WERE COLLECTED FROM MARCH 19, 2020 TO JUNE 8, 2020 AND FROM JULY 29, 2020 TO AUGUST 31, 2020 DUE TO VOLTAGE ISSUES.

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SCPT15-06 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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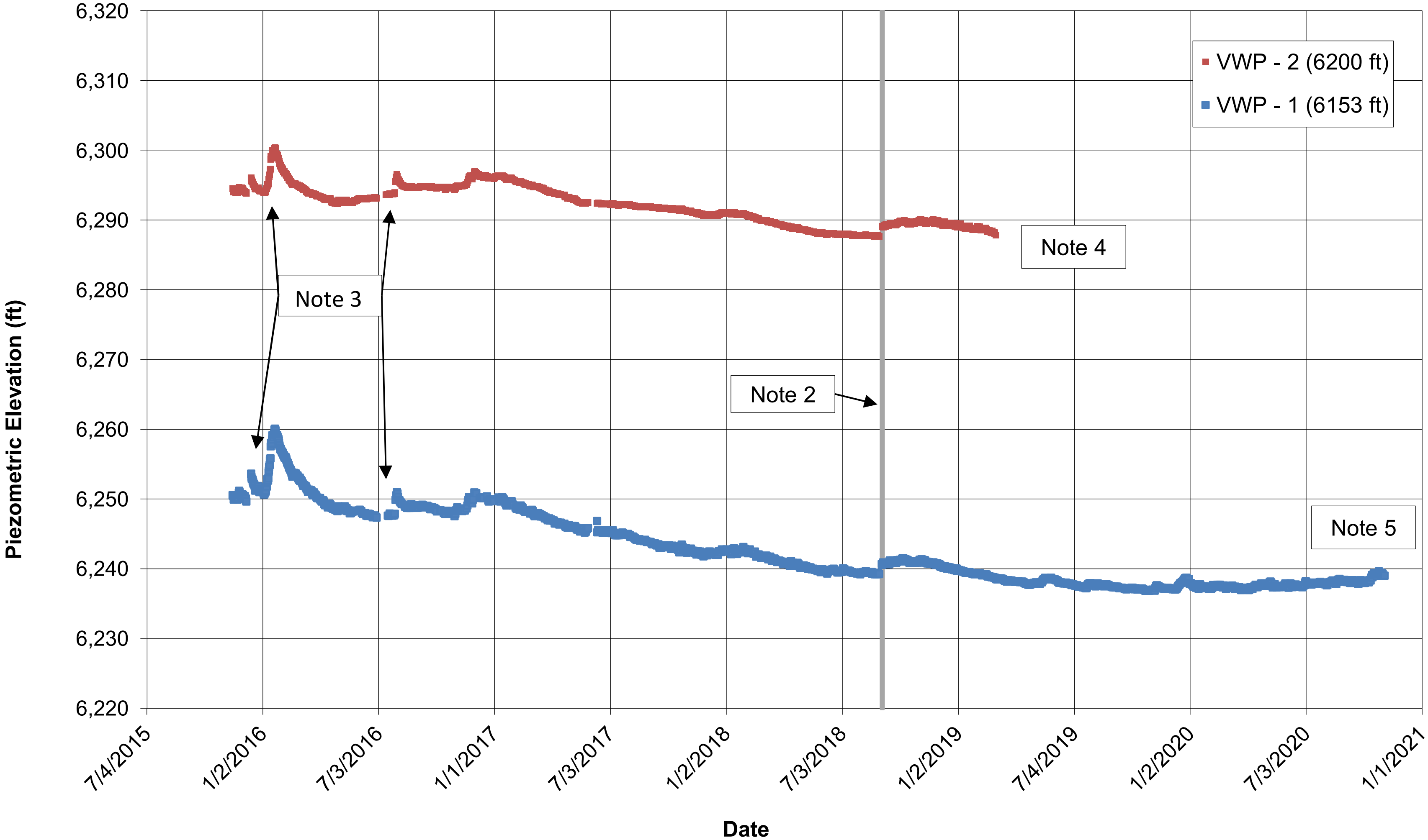
FIGURE C4.18

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONITORING SYSTEM ON SEPTEMBER 4, 2018.
3. DATA GAPS EXIST FROM DECEMBER 8 TO DECEMBER 16, 2015 AND FROM JULY 1 TO JULY 16, 2016 WHEN THE DATA LOGGER WAS DISCONNECTED TO ADD AN ADDITIONAL CASING PRIOR TO A ROCKFILL LIFT.
4. ERRONEOUS DATA READINGS AT VW 2 SINCE MARCH 3, 2019 DUE SENSOR ERROR.
5. DATA FROM VWP-1 SINCE NOVEMBER 10, 2020 ARE ERRONEOUS DUE TO SUSPECTED SENSOR DAMAGE.

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

YANKEE DOODLE TAILINGS IMPOUNDMENT

SCPT15-07 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

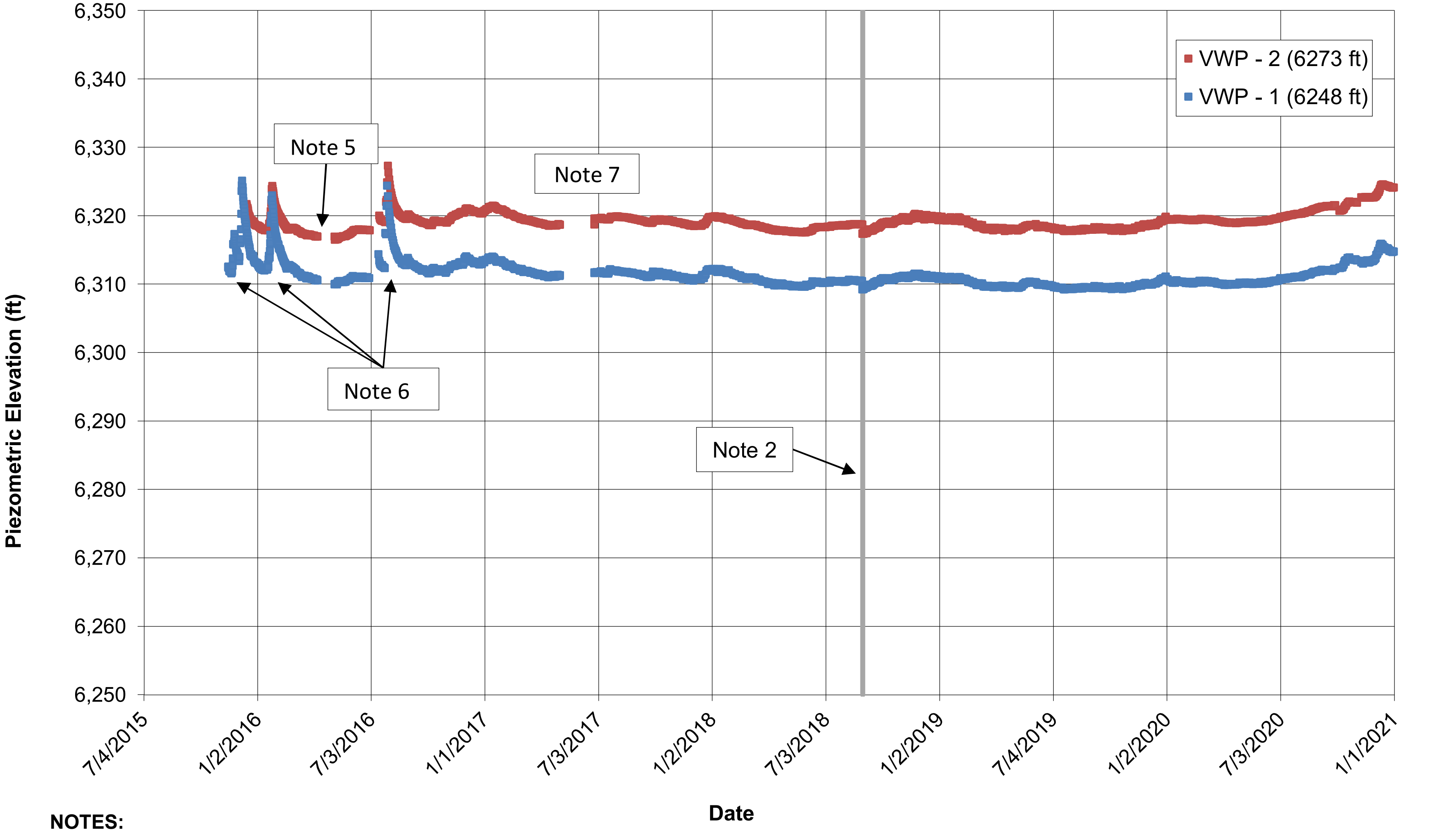
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C4.19

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON AUGUST 31, 2018.
3. VWP-2 WAS INSTALLED APPROXIMATELY FOUR WEEKS AFTER VWP-1.
4. A DATA GAP EXISTS BETWEEN APRIL 6, 2016 AND MAY 5, 2016 WHEN THE DATA LOGGER WAS DISCONNECTED TO ADD AN ADDITIONAL CASING PRIOR TO A ROCKFILL LIFT.
5. THE PIEZOMETRIC RESPONSES RECORDED ON DECEMBER 3, 2015, JANUARY 17,2016, AND JULY 24, 2016 CORRESPOND TO APPLICATION OF ROCKFILL LIFTS AND THE ASSOCIATED INCREASE IN TAILINGS PORE PRESSURE.
6. SENSORS STOPPED RECORDING DATA DUE TO INSUFFICIENT BATTERY VOLTAGE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

SCPT15-08 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

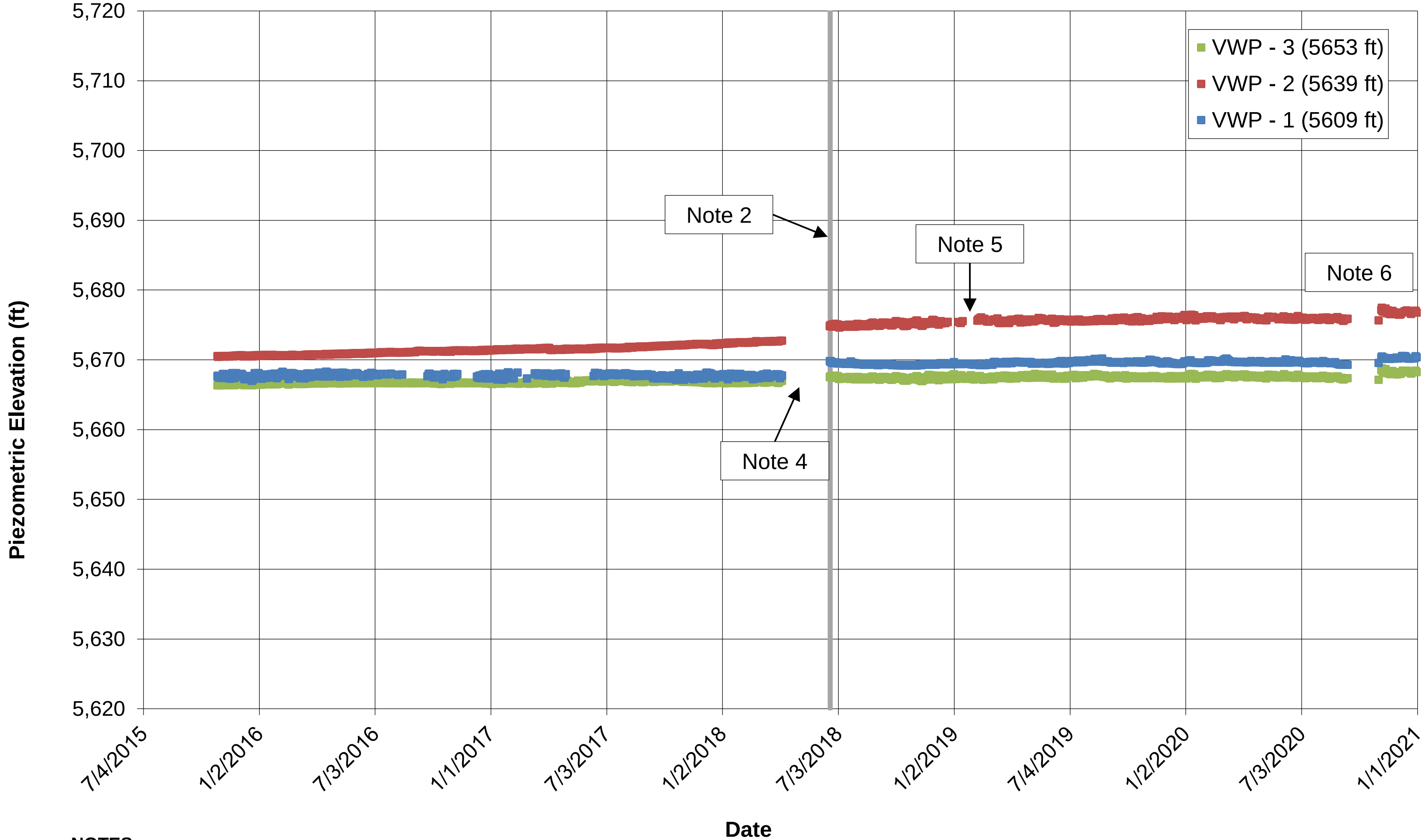
P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C4.20 REV 0

APPENDIX C5

Horseshoe Bend Area

(Figures C5.1 to C5.12)



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON JUNE 20, 2018.
3. VWP-1 EXHIBITED INTERMITTENT CONNECTIVITY ISSUES RESULTING IN ISOLATED GAPS IN THE DATA SERIES.
4. NO DATA WERE COLLECTED FROM APRIL 14 TO JUNE 20, 2018 DURING THE INTEGRATION WITH THE REMOTE MONITORING SYSTEM.
5. VWP-2 EXPERIENCED INTERMITTENT PERIODS OF ERRONEOUS DATA FROM DECEMBER DECEMBER 24, 2018 TO FEBRUARY 8, 2019.
6. NO DATA WERE COLLECTED FROM SEPTEMBER 14 TO OCTOBER 9, 2020 DUE TO A DEPLETED LOGGER BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-S1 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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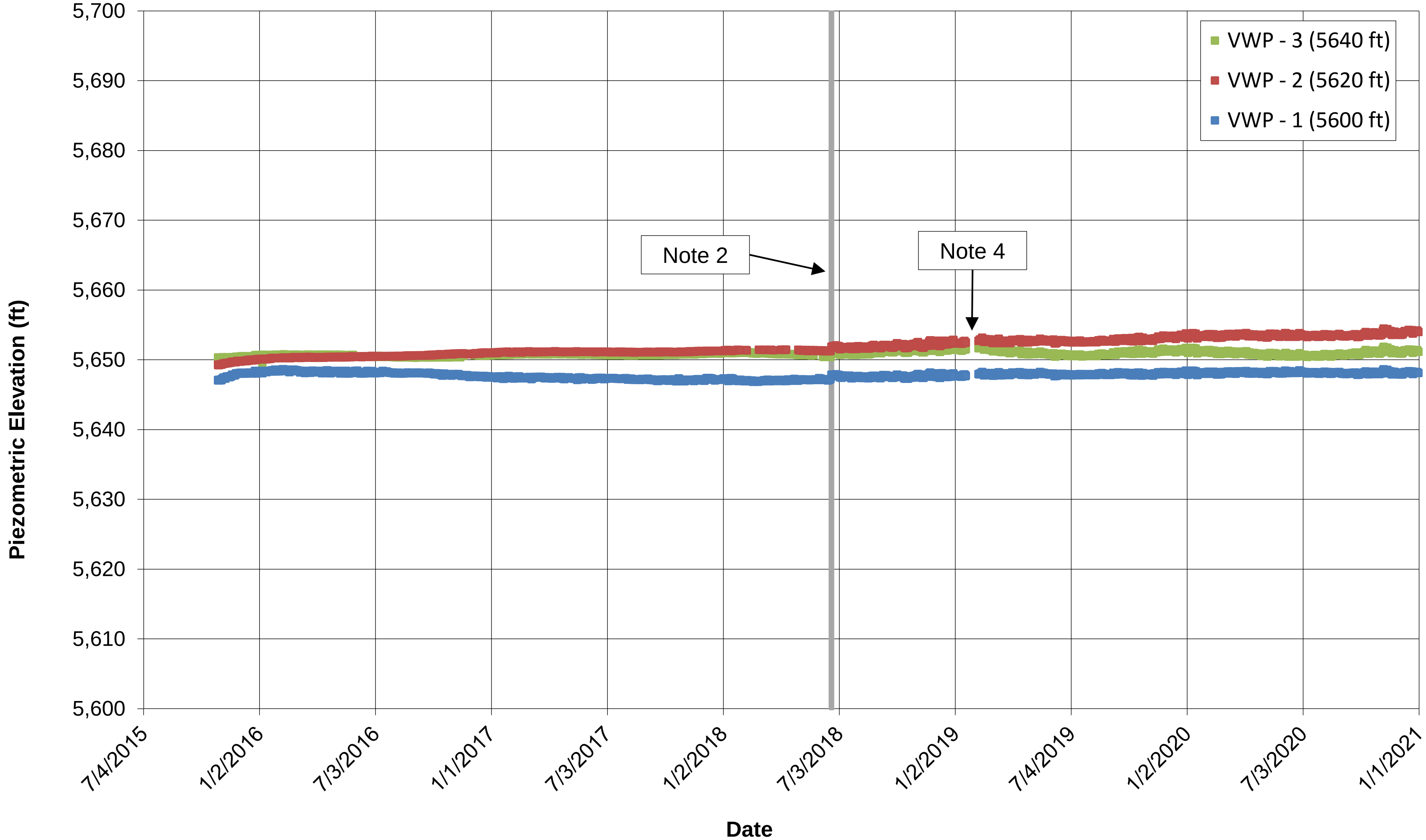
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.1

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTED MONITORING SYSTEM ON JUNE 21, 2018.
3. VWP-2 EXHIBITED INTERMITTENT CONNECTIVITY ISSUES RESULTING IN ISOLATED GAPS IN THE DATA SERIES.
4. NO DATA WERE COLLECTED FROM JANUARY 19, 2019 TO FEBRUARY 8, 2019 DUE TO VOLTAGE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH15-S2 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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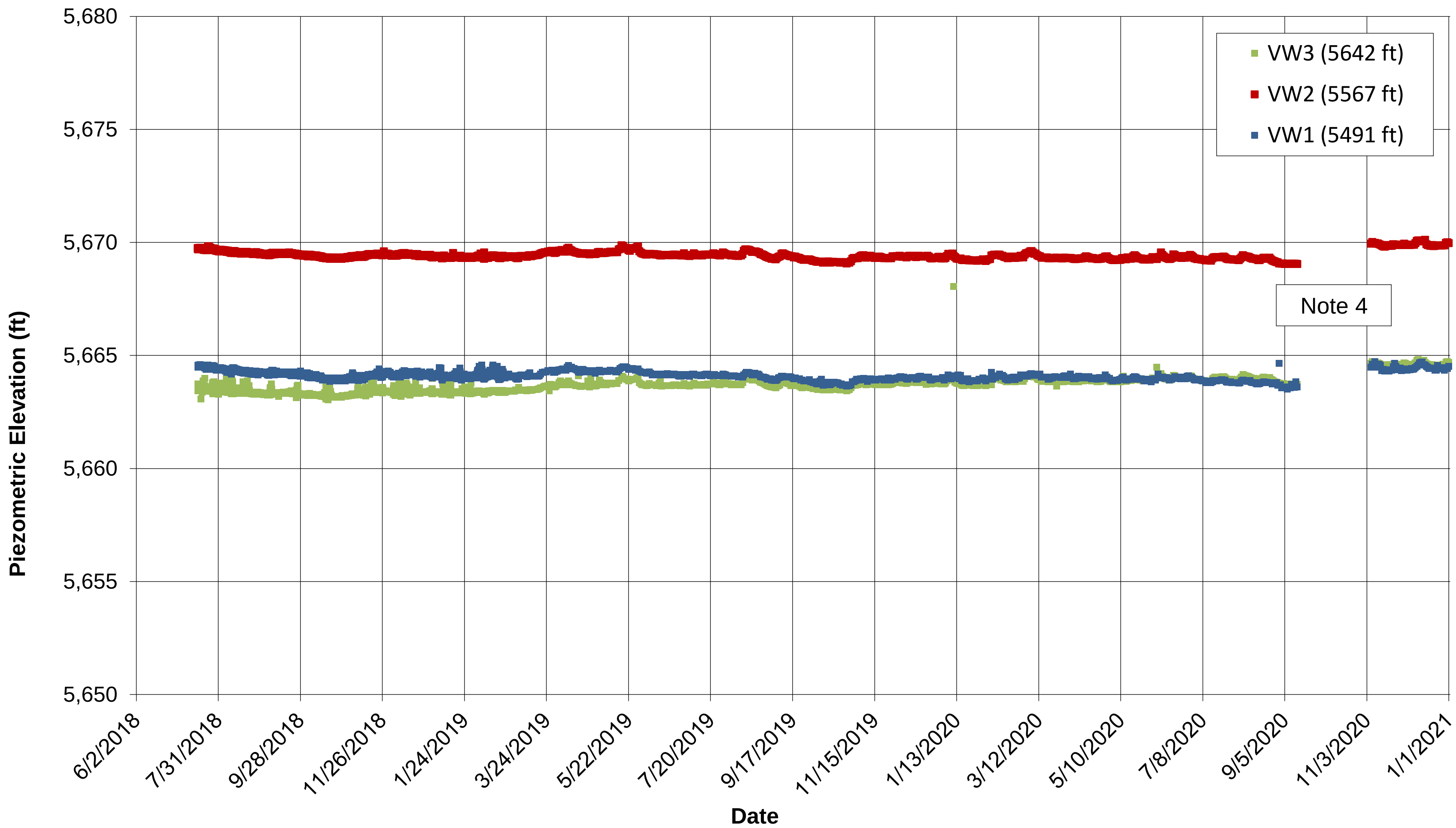
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.2

REV 0



NOTES:

1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. ISOLATED VWP-3 SENSOR DATA ANOMILIES REMOVED FOR CLARITY
3. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5677 FT.
4. DATA WERE NOT COLLECTED FROM SEPTEMBER 15 TO NOVEMBER 6, 2020 DUE TO A DATA LOGGER ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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DH18-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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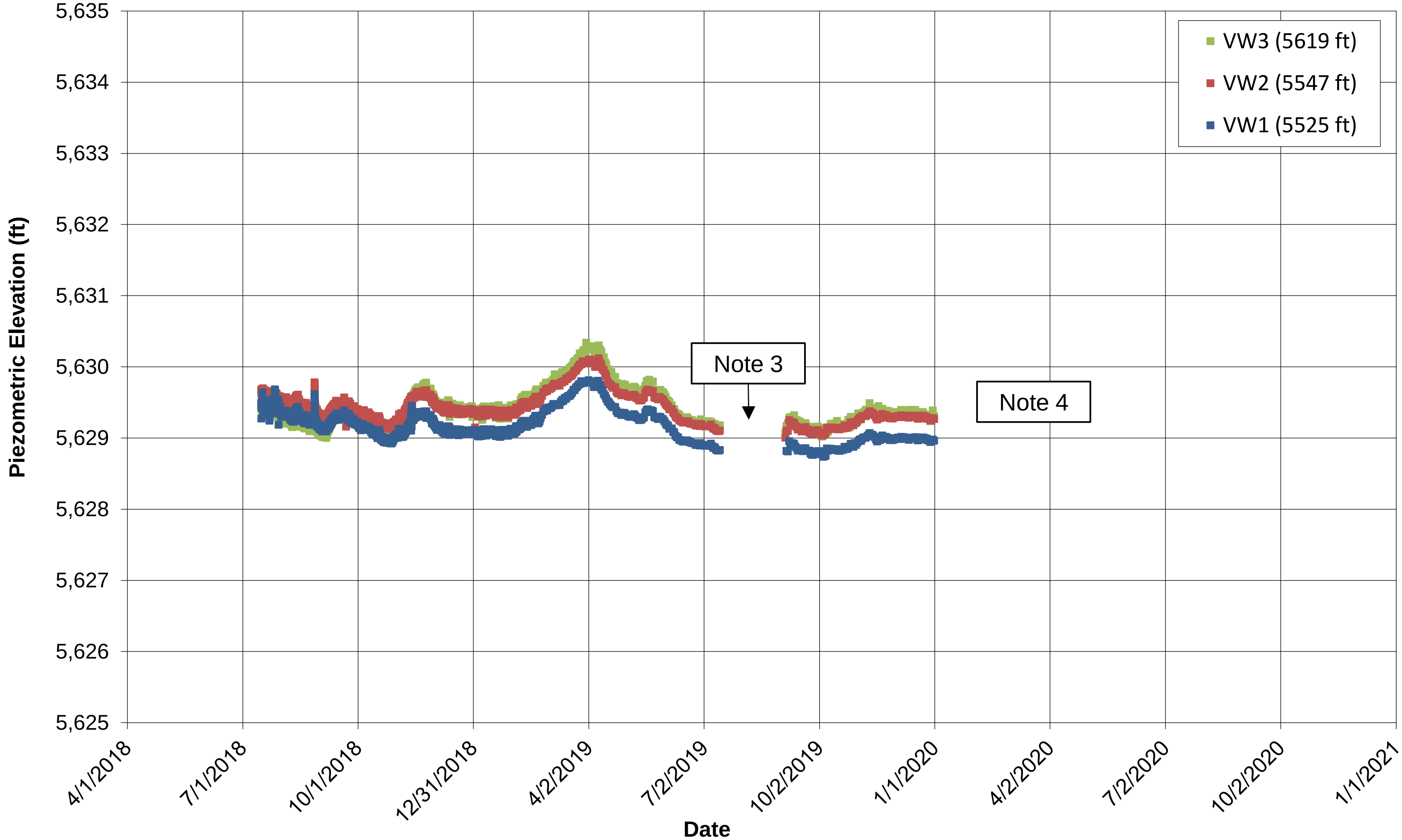
P/A NO. VA101-126/23 | REF. NO. 5

FIGURE C5.3 | REV 0



NOTES:

1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5645 FT.
3. NO DATA WERE COLLECTED FROM JULY 15, 2019 TO SEPTEMBER 7, 2019 DUE TO UNKNOWN ISSUE
4. NO DATA ARE AVAILABLE DURING 2020 DUE TO A SUSPECT GEONET HARDWARE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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DH18-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

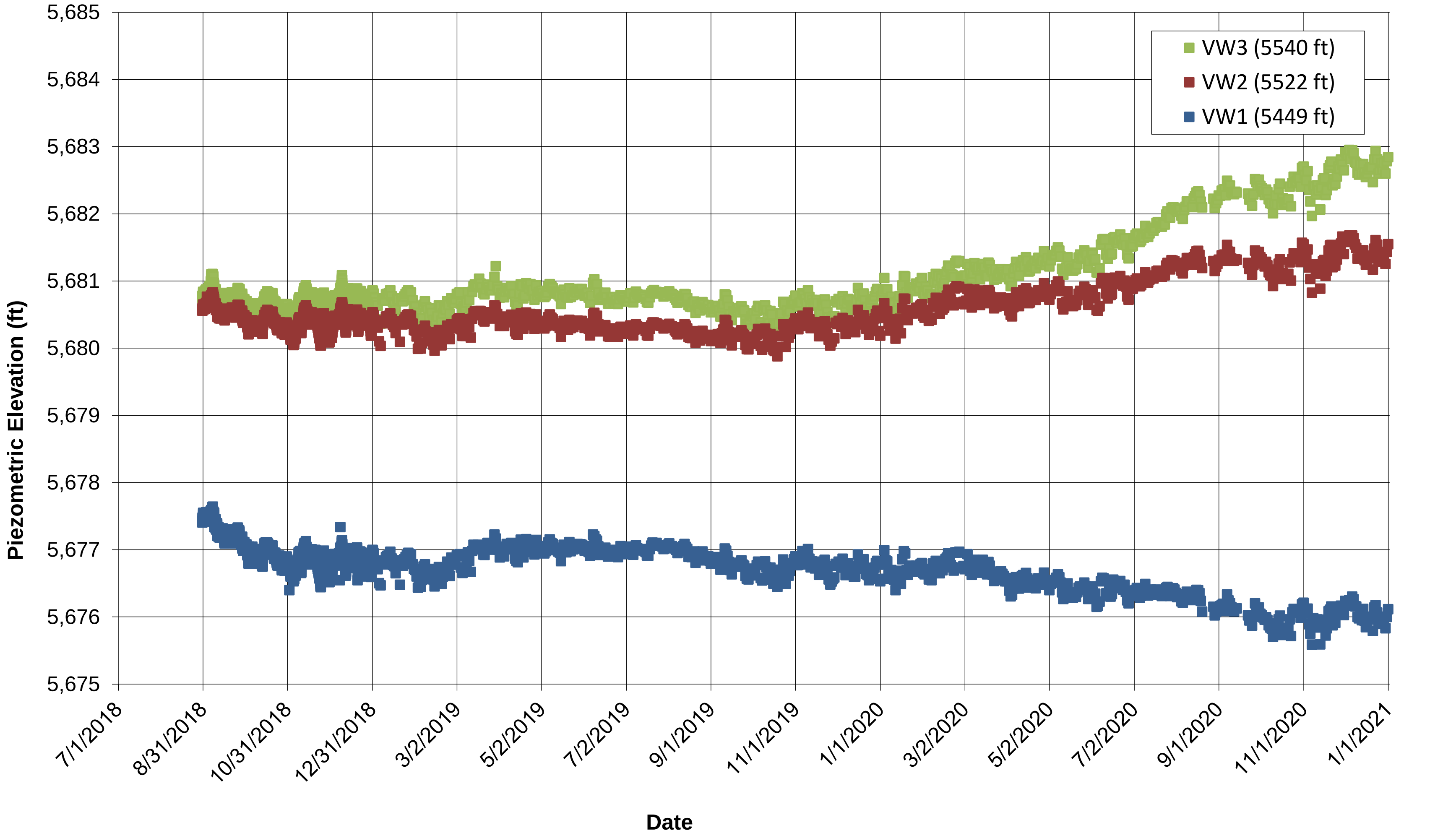
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.4

REV 0



NOTES:

1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. EXISTING GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5707 FT.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

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DH18-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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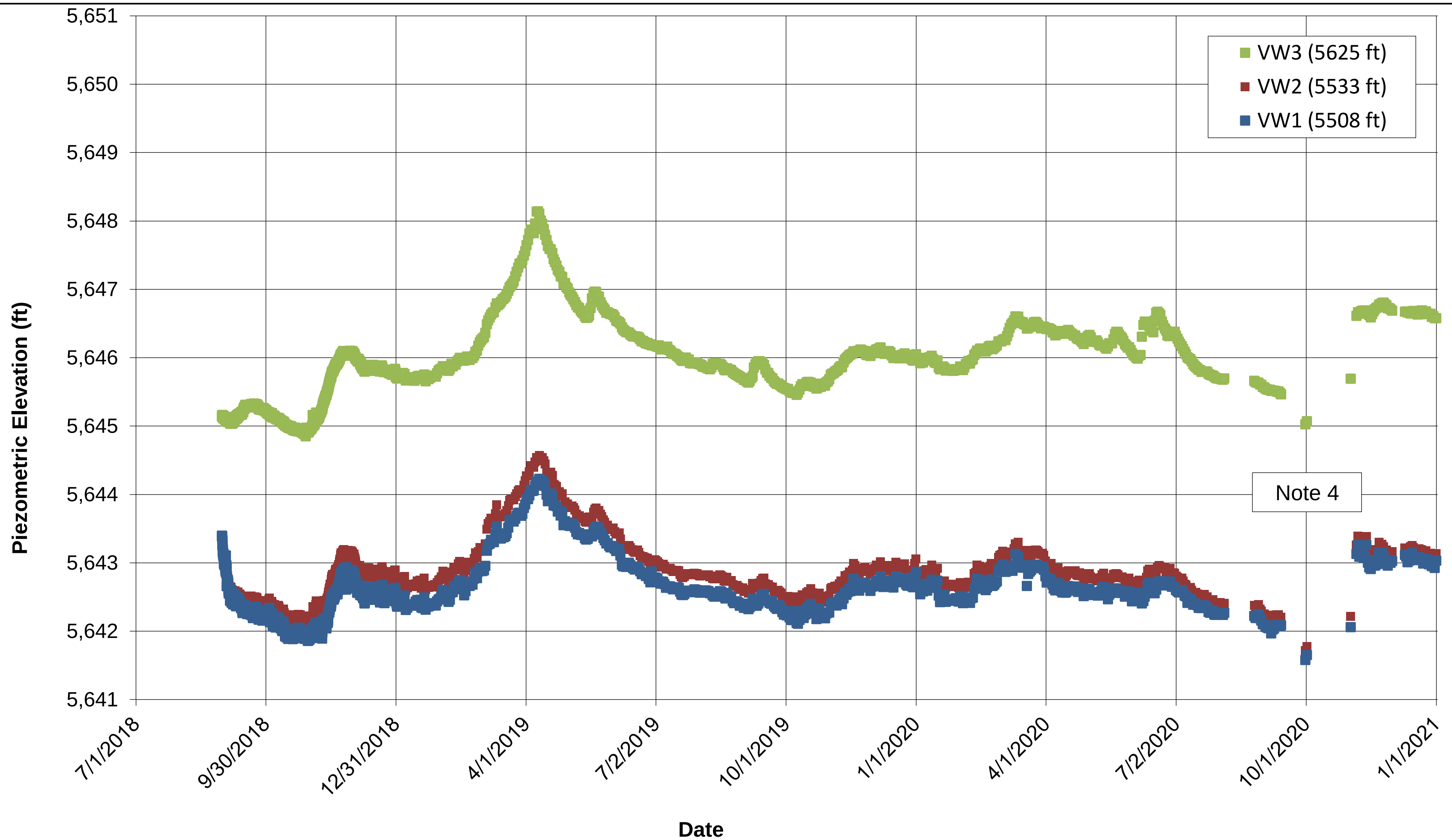
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.5

REV 0



NOTES:
1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5648 FT.
3. PORE PRESSURE FLUCTUATIONS RECORDED BY ALL THREE SENSORS ARE DUE TO SEASONAL EFFECTS
4. INTERMITTENT DATA COLLECTION ISSUES WERE EXPERIENCED FROM AUGUST 6 TO NOVEMBER 5, 2020 DUE TO DATA LOGGER VOLTAGE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

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DH18-06 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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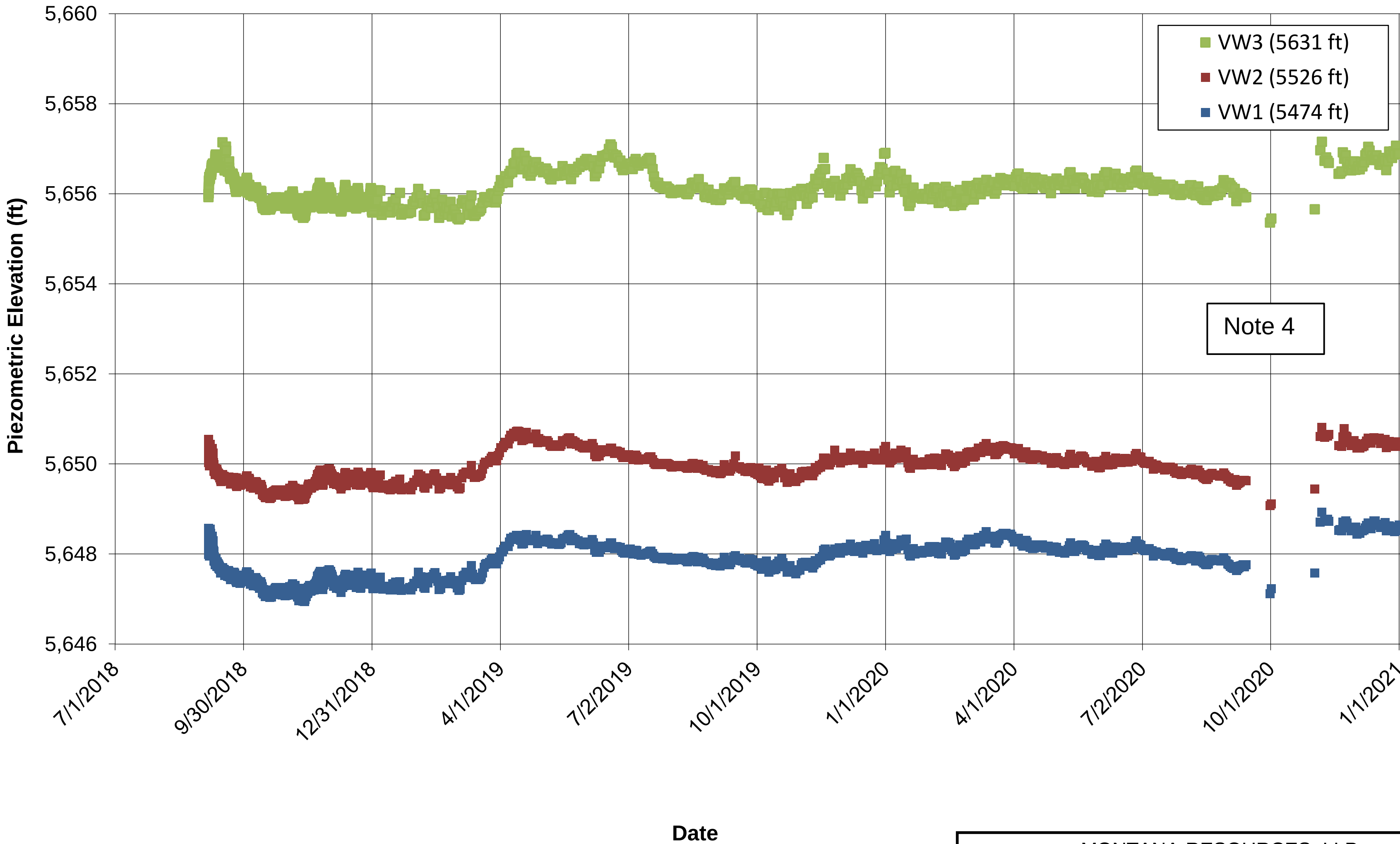
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.6

REV 0



NOTES:
1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. ISOLATED VWP SENSOR DATA ANOMILIES REMOVED FOR CLARITY.
3. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5656 FT.
4. NO DATA WERE COLLECTED FROM ALL VWPS FROM OCTOBER 2 TO NOVEMBER 18, 2020 DUE SENSOR ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

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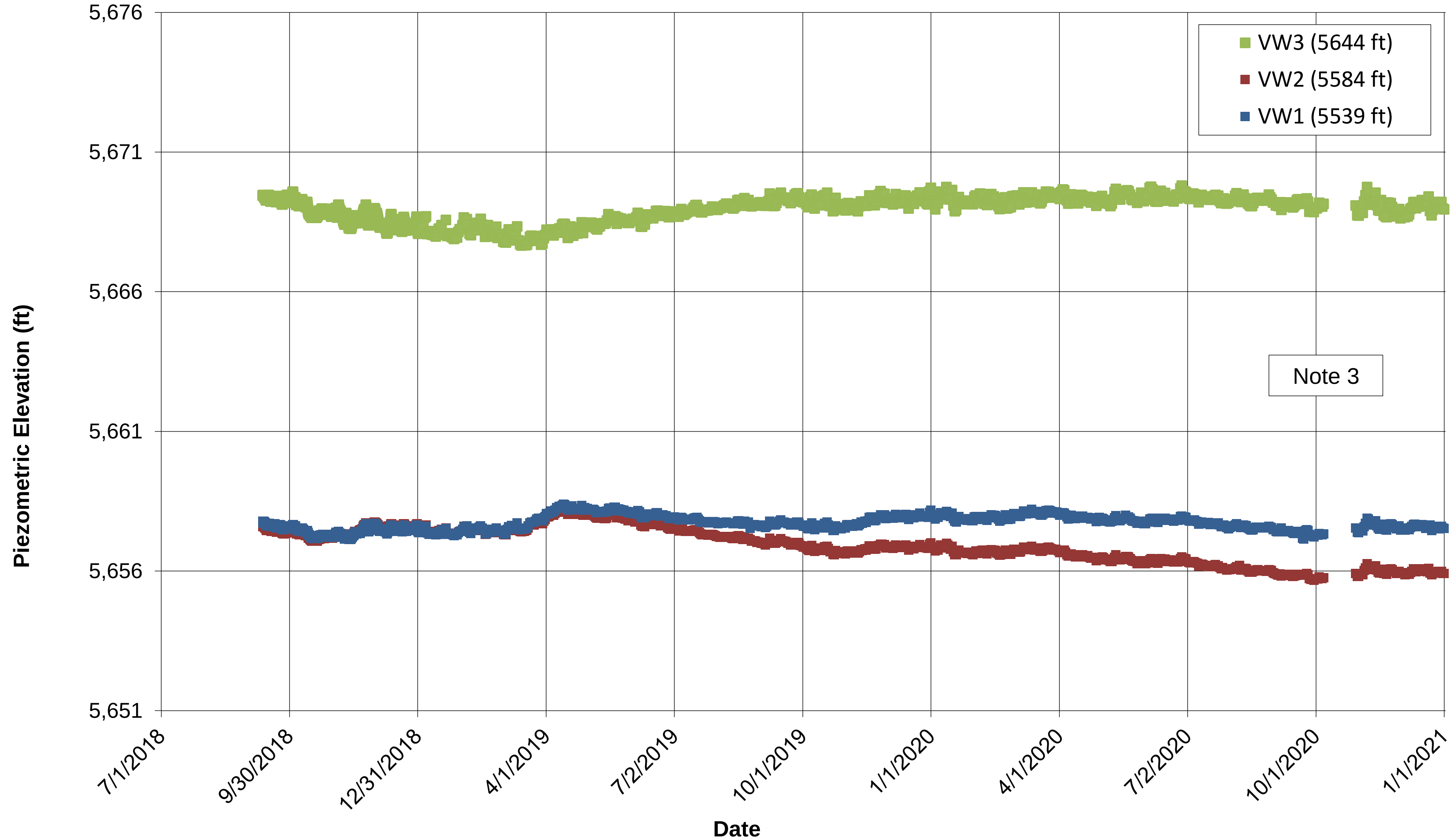
DH18-07 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C5.7 REV 0



NOTES:
1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. EXISTING GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5684 FT.
3. NO DATA WERE COLLECTED FROM ALL VWPS FROM OCTOBER 8 TO OCTOBER 29, 2020 DUE TO A DEPLETED DATA LOGGER BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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DH18-08 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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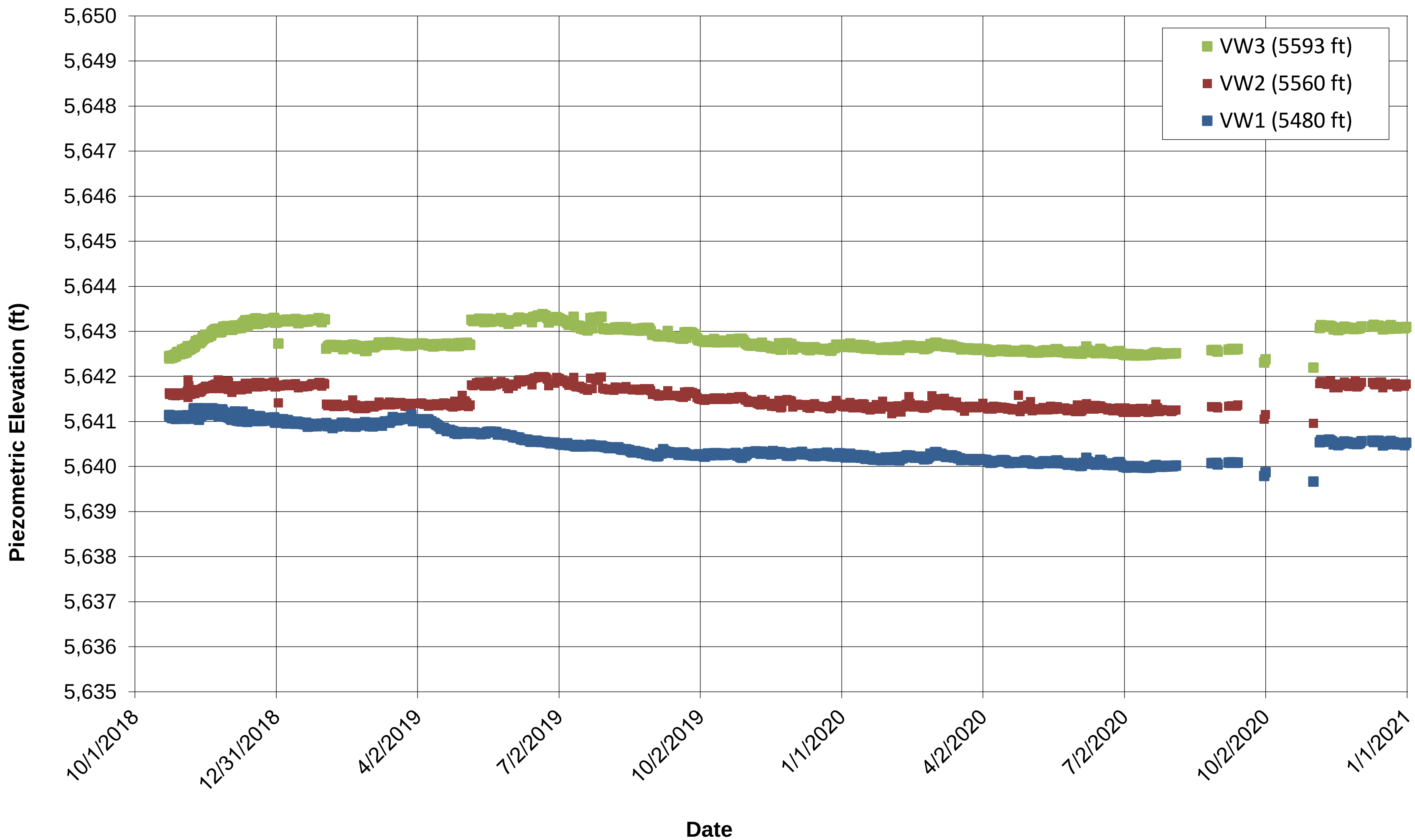
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.8

REV 0



NOTES:
1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5703 FT.
3. NO DATA WERE COLLECTED FOR ALL VWPS FROM SEPTEMBER 15 TO NOVEMBER 5, 2020 DUE TO A DEPLETED DATA LOGGER BATTERY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH18-09 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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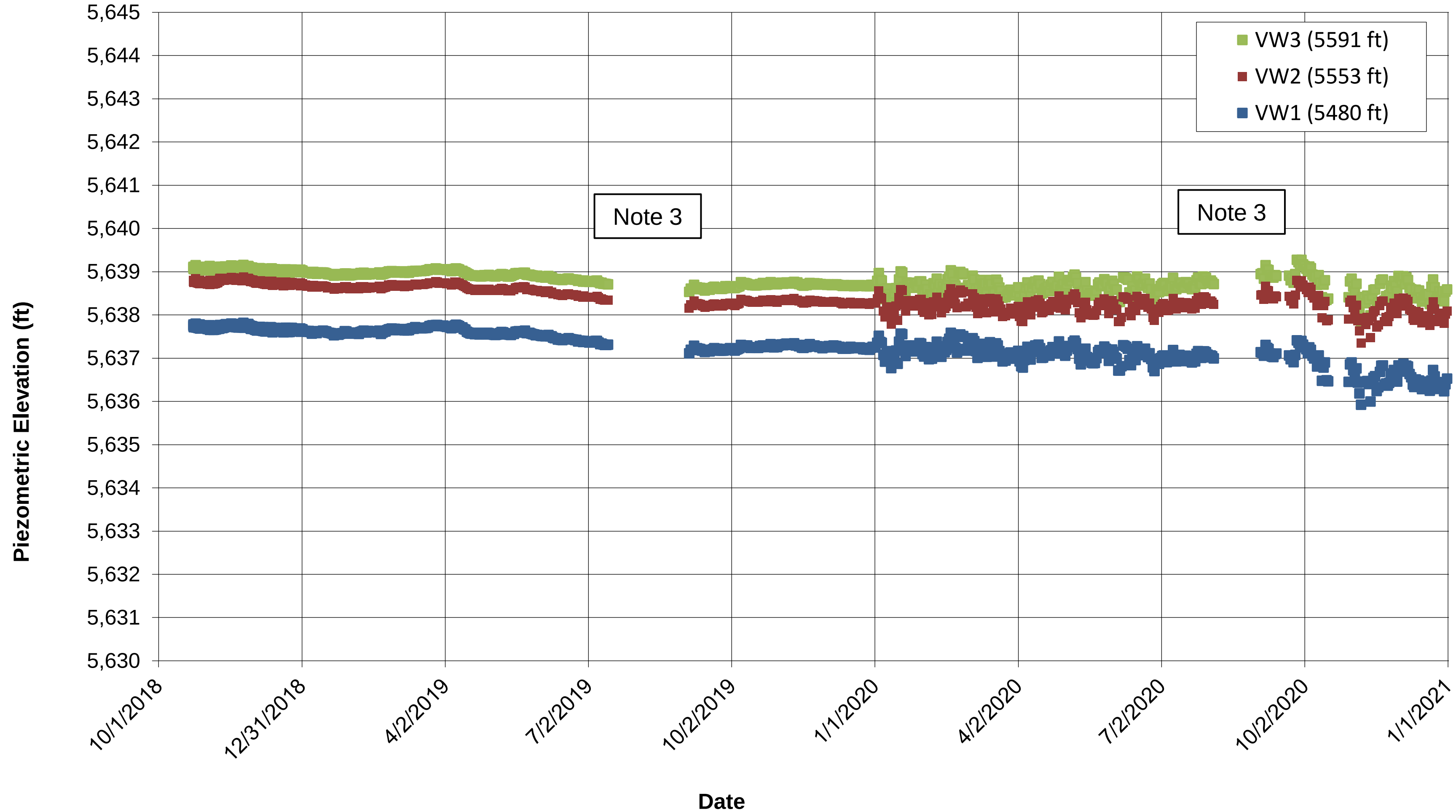
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.9

REV 0



NOTES:

1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. EXISTING GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5665 FT
3. NO DATA WERE COLLECTED FROM JULY 15 TO SEPTEMBER 5, 2019 AND FROM AUGUST 6 AND SEPTEMBER 3, 2020 DUE TO A DEPLETED LOGGER BATTERY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH18-10 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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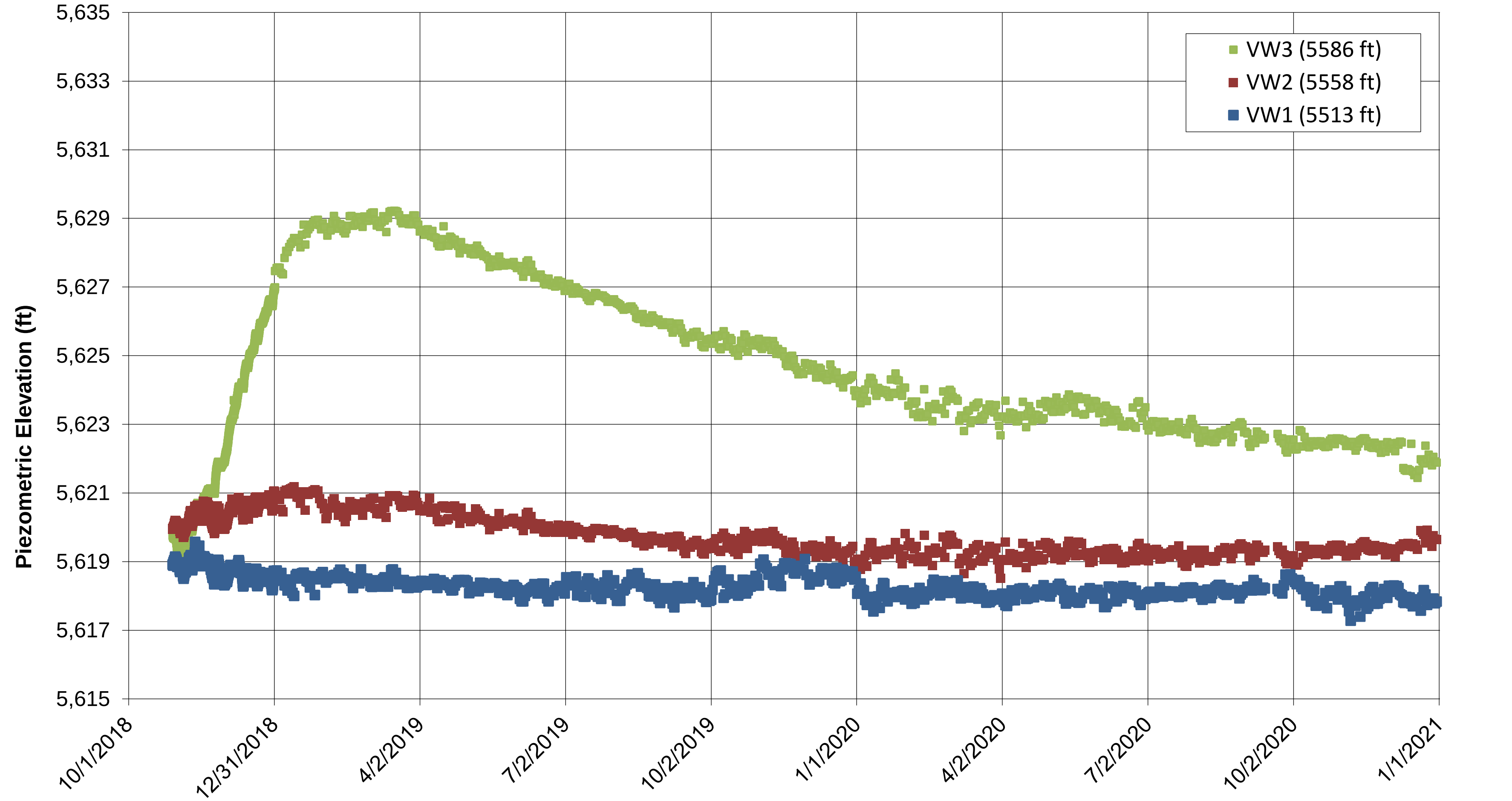
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.10

REV 0



NOTES:

1. PIEZOMETRIC ELEVATON AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. VWP SENSOR DATA ANOMILIES REMOVED FOR CLARITY
3. GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5648 FT.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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DH18-11 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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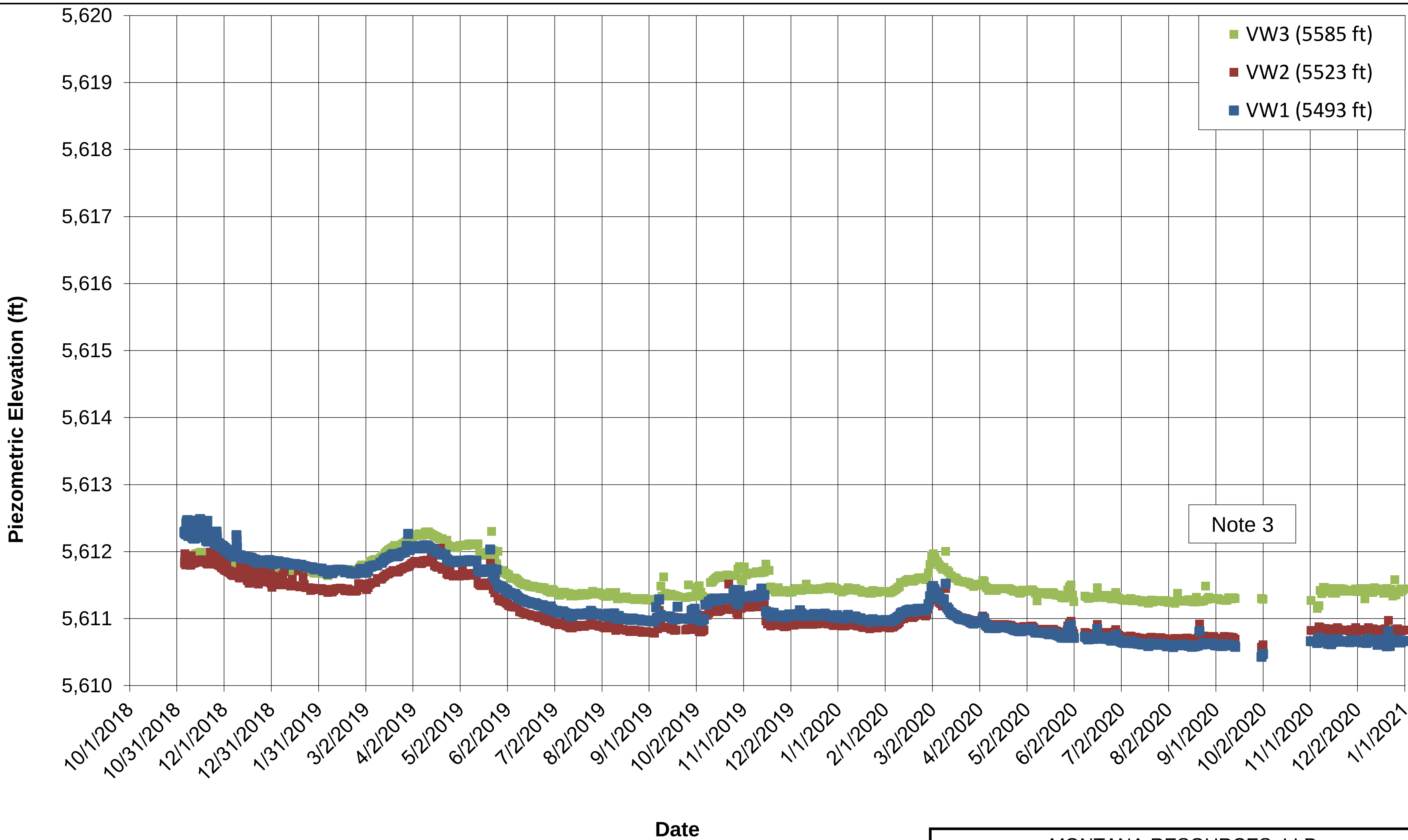
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C5.11

REV 0



NOTES:

1. PIEZOMETRIC ELEVATION AND SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. EXISTING GROUND SURFACE (DRILLHOLE COLLAR) ELEVATION IS APPROXIMATELY 5623 FT.
3. NO DATA WERE COLLECT FROM SEPTEMBER 15 TO NOVEMBER 10, 2020 DUE TO UNKNOWN ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

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DH18-12 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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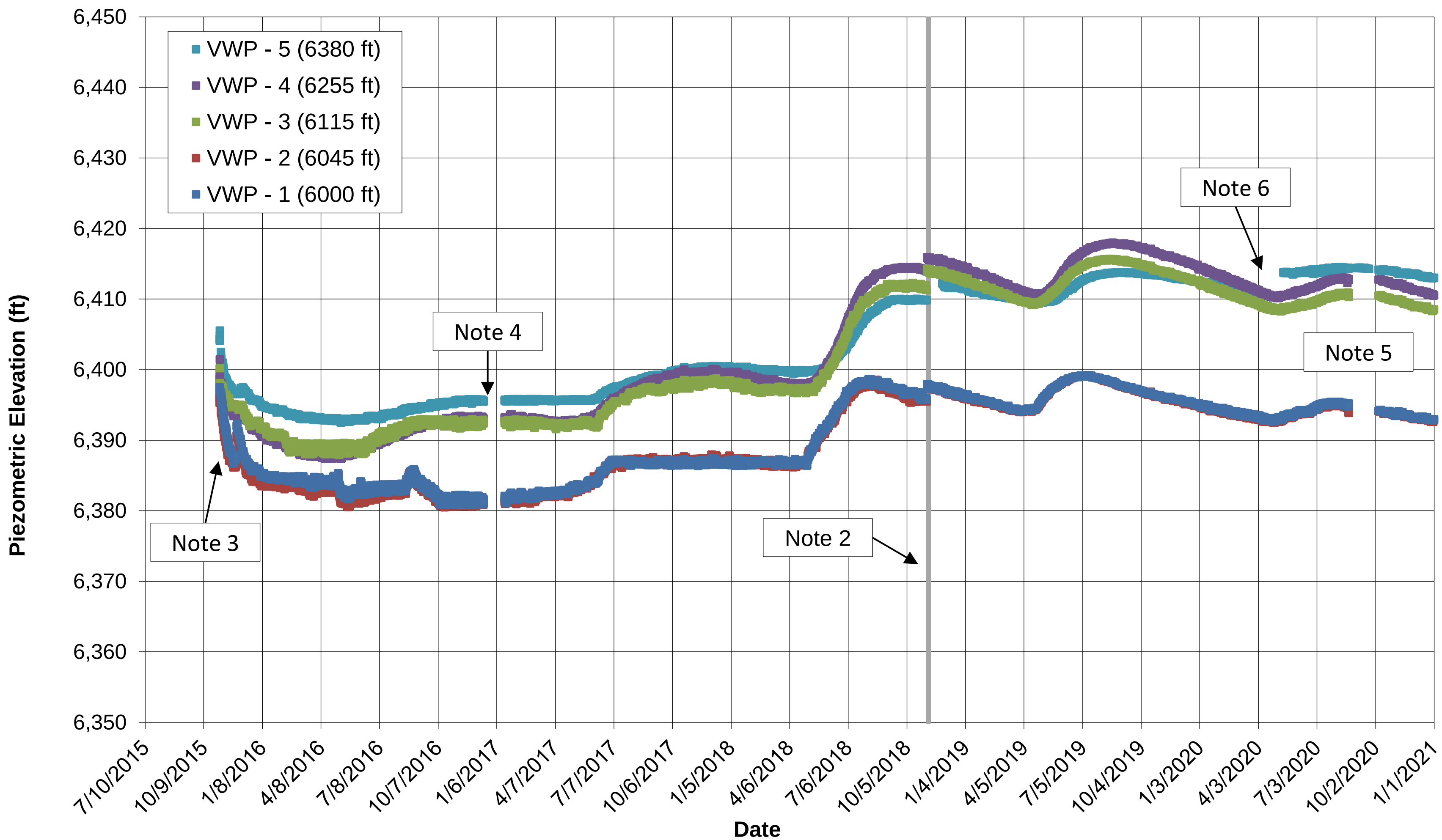
P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C5.12		REV 0

APPENDIX C6

West Ridge Area

(Figures C6.1 to C6.27)



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO A REMOTE MONITORING SYSTEM ON NOVEMBER 5, 2018.
3. INCREASE IN PIEZOMETERIC ELEVATION OF APPROXIMATELY 4 FEET AT VWP-1 AND VWP-2 ON NOVEMBER 28, 2015 IS COINCIDENT WITH DRILLING BETWEEN 625 AND 700 FEET DOWNHOLE AT NEARBY DH15-10.
4. SENSORS STOPPED LOGGING DUE TO INSUFFICIENT BATTERY VOLTAGE.
5. NO DATA WERE COLLECTED FOR VWP-1, VWP-2, VWP-3, AND VWP-4 FROM AUGUST 21 TO OCTOBER 7, 2020 DUE TO UNKNOWN ISSUE.
6. ERRONEOUS DATA OMMITTED FROM APRIL9, 2020 TO MAY 12, 2020

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DH15-06 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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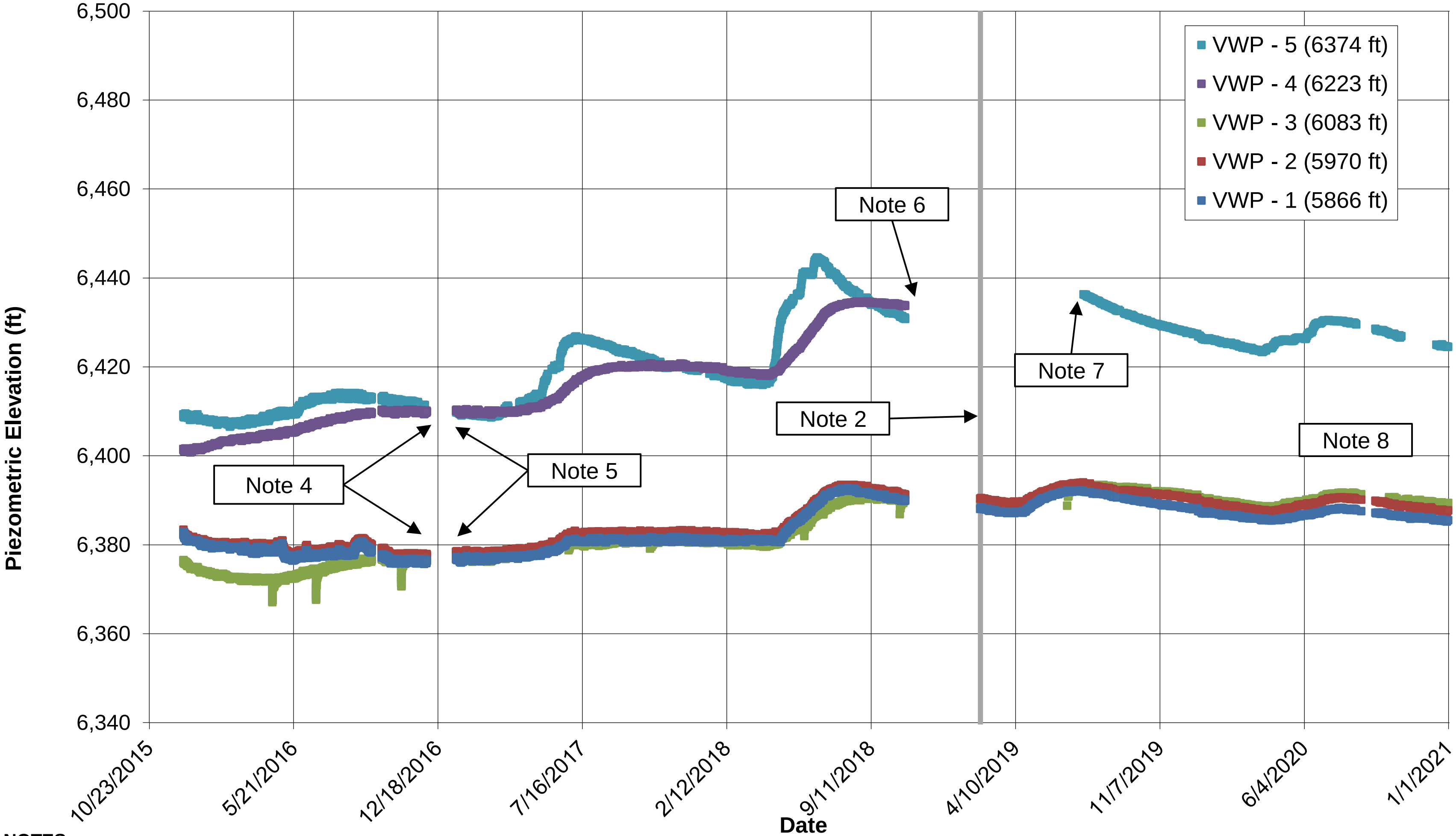
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.1

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED WITH THE REMOTE MONITORING SYSTEM ON FEBRUARY 18, 2019.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. DATA WERE ERASED FROM THE DATALOGGER WHILE DOWNLOADING ON SEPTEMBER 27, 2016
5. NO DATA WERE RECORDED FROM DECEMBER 1, 2016 TO JANUARY 13, 2017 DUE TO A HARDWARE ISSUE.
6. VWP-4 WAS DAMAGED AND HAS BEEN ABANDONED.
7. VWP-5 INTEGRATED WITH REMOTE MONITORING SYSTEM ON JULY 19, 2019.
8. NO DATA WERE COLLECTED FROM VWP-1, VWP-2, VWP-3, VWP-5 FROM AUGUST 27 TO 7 OCTOBER, 2020 DUE TO DATA LOGGER VOLTAGE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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DH15-10 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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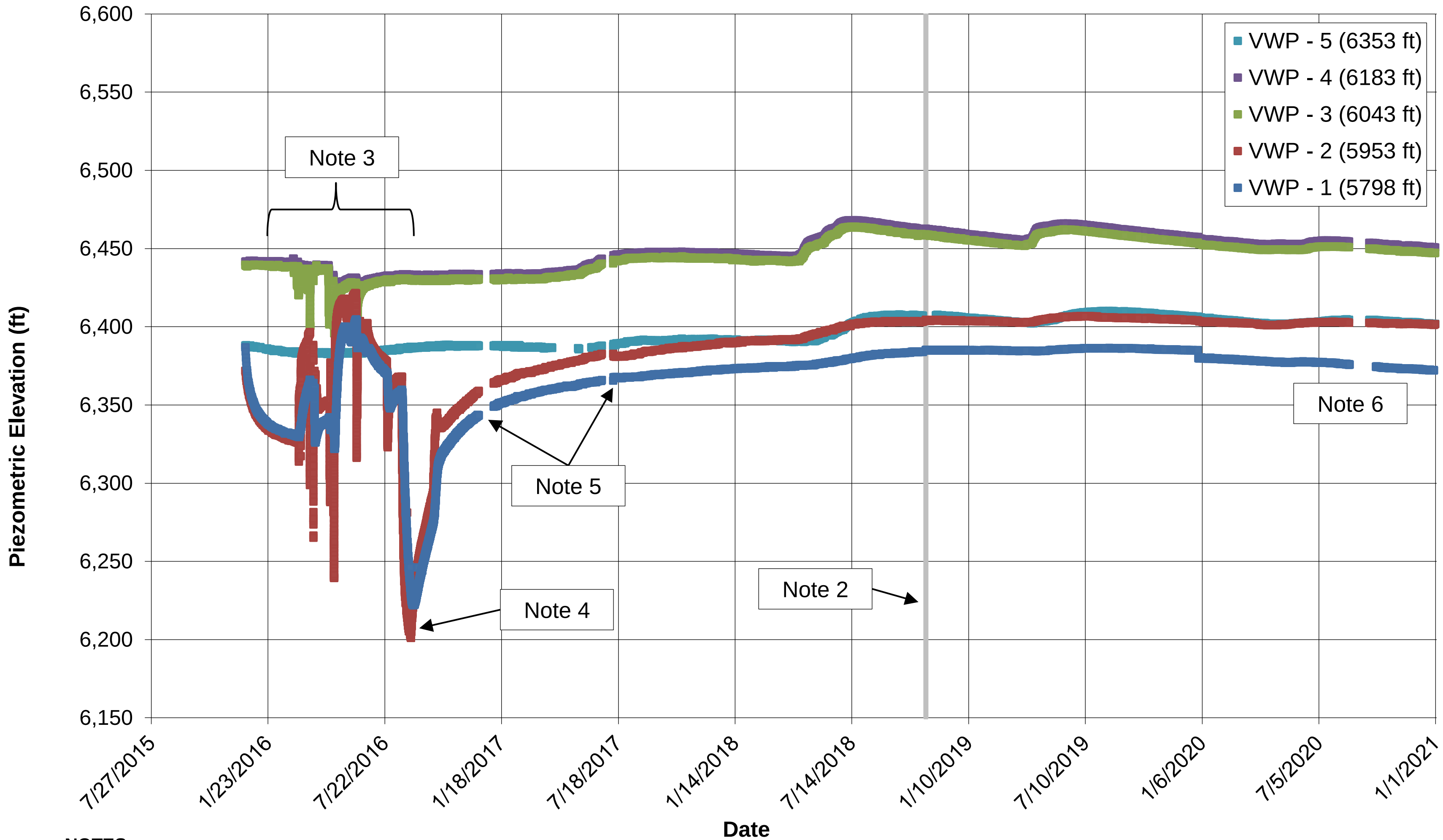
P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C6.2 REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 5, 2018.
3. WATER LEVEL FLUCTUATIONS FROM APRIL 15, 2016 TO AUGUST 15, 2016 ARE CAUSED BY INFLUENCE OF DRILLING IN NEARBY MONITORING WELLS AND DRILLHOLES.
4. WATER LEVEL FLUCTUATIONS FROM AUGUST 15, 2016 ONWARDS ARE CAUSED BY PUMPING AND RECHARGE ASSOCIATED WITH HYDROMETRICS INC. LONG-TERM PUMPING TEST.
5. NO DATA WERE RECORDED BETWEEN DECEMBER 14, 2017 AND JANUARY 6, 2017, AND BETWEEN JUNE 22, 2017 AND JULY 10, 2017 DUE TO A DEPLETED DATA LOGGER BATTERY.
6. NO DATA WERE RECORDED FROM AUGUST 21, 2020 TO SEPTEMBER 21, 2020 DUE TO INSUFFICIENT BATTERY VOLTAGE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

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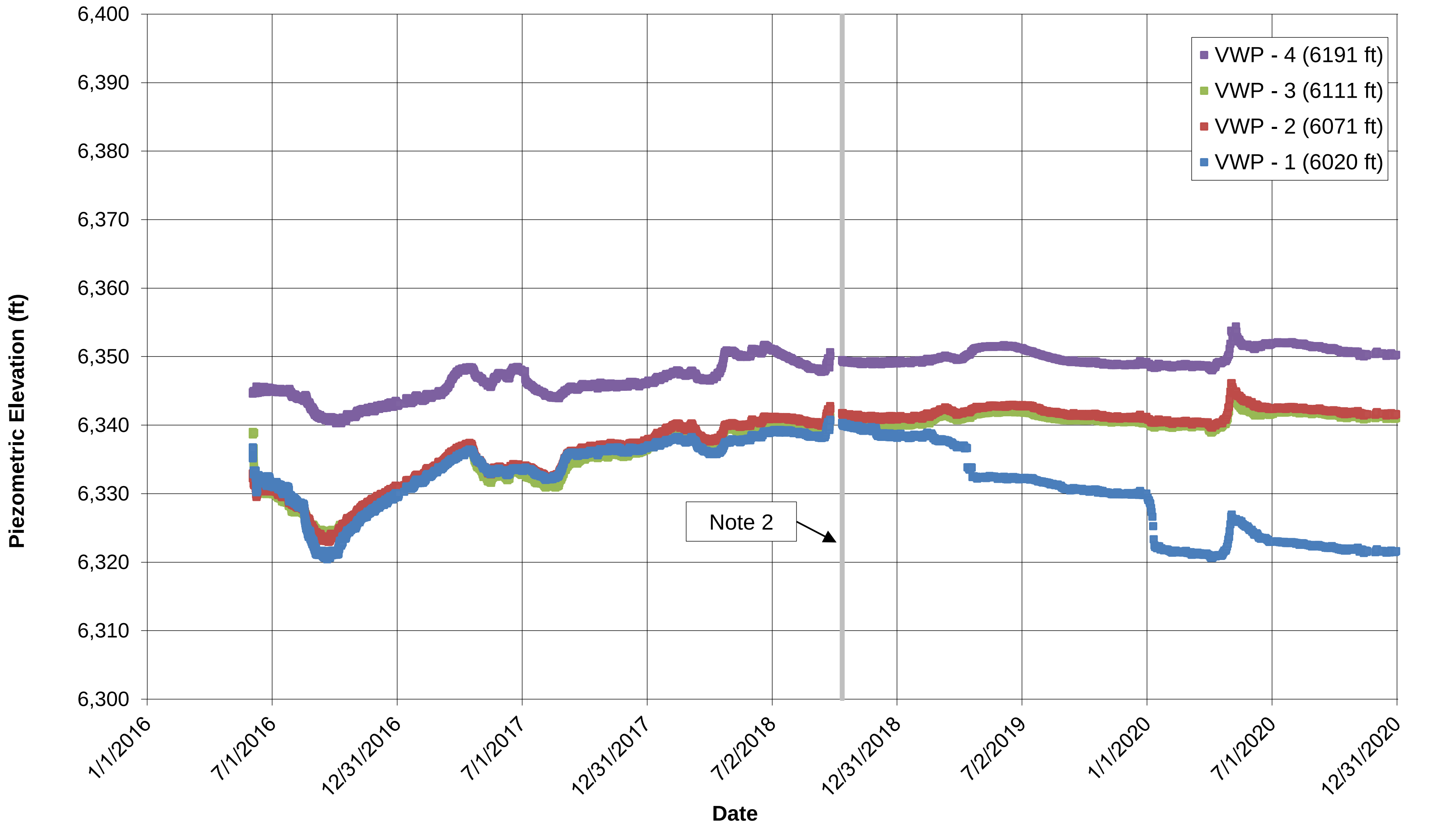
DH15-14 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C6.3		REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 12, 2018.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH16-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

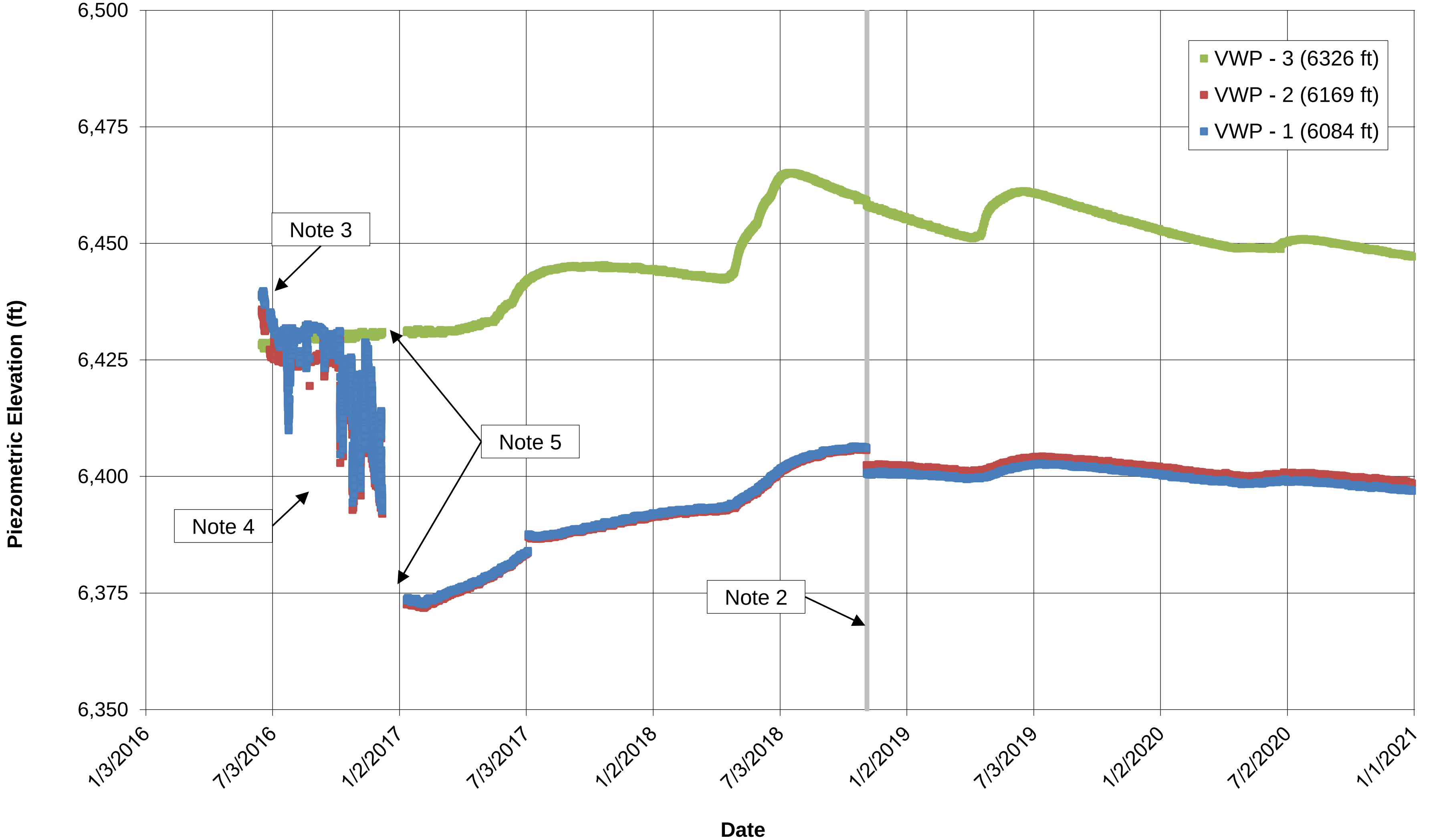
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.4

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 5, 2018.
3. DATA GAPS EXIST FROM JUNE 22 TO 29 AND JULY 6 TO 11, 2016 WHILE THE DATA LOGGER WAS DISCONNECTED.
4. DATA RECORDED FROM SEPTEMBER 15, 2016 TO DECEMBER 25, 2016 BY VWP-1 AND VWP-2 ARE ERRONEOUS AND CAUSED BY A DATALOGGER MALFUNCTION.
5. SENSORS STOPPED RECORDING DATA DUE TO A DEPLETED DATA LOGGER BATTERY.

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

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH16-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

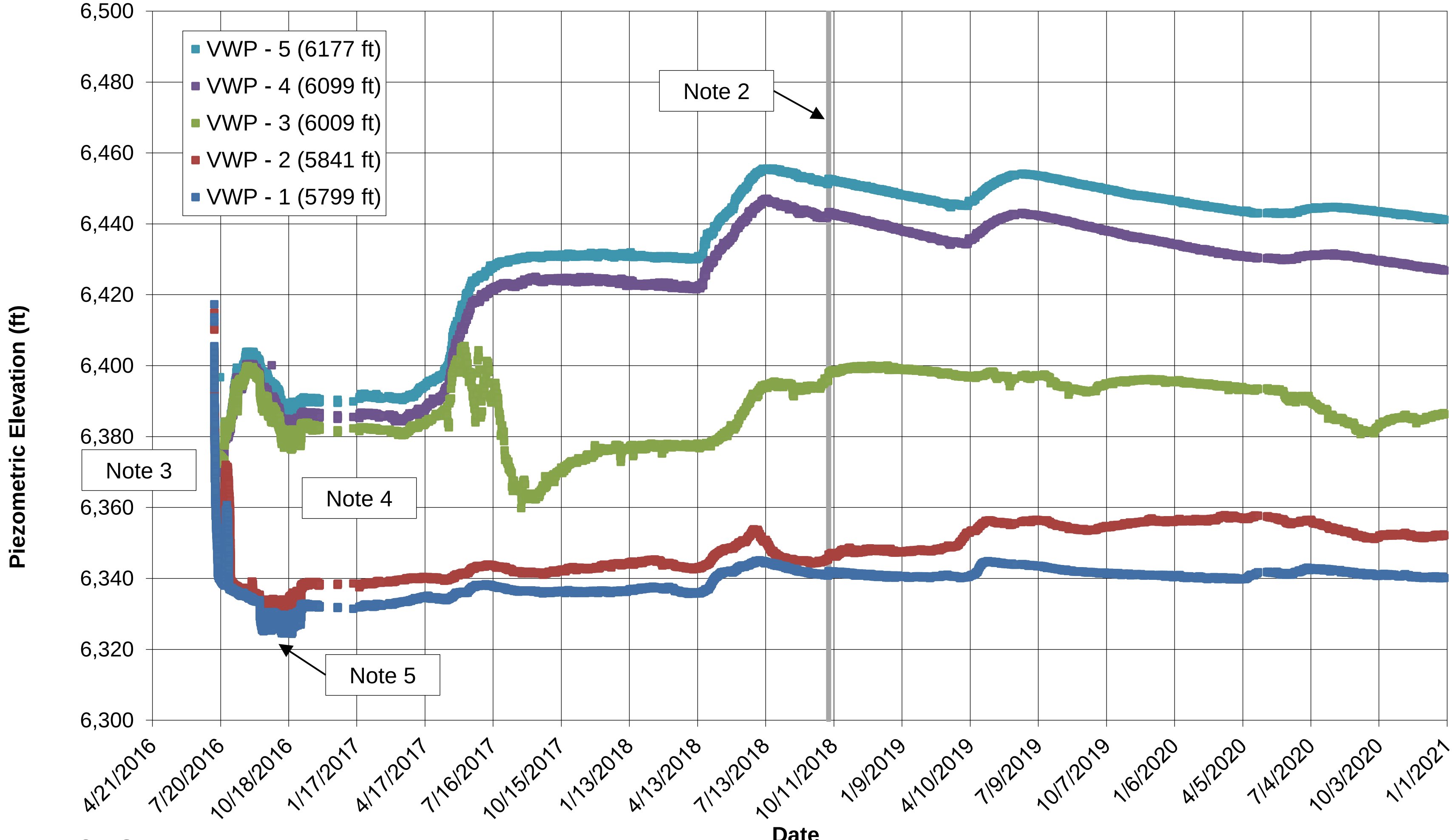
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.5

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 4, 2018.
3. WATER LEVEL PERTURBATION BEGINNING JULY 27, 2016 IS ATTRIBUTED TO THE STEP PUMPING TEST CONDUCTED AT MW16-02 BY HYDROMETRICS.
4. SENSOR STOPPED LOGGING DATA DUE TO INSUFFICIENT BATTERY VOLTAGE
5. WATER LEVEL FLUCTUATIONS FROM SEPTEMBER TO NOVEMBER 5, 2016 ARE CAUSED BY DATA LOGGER MALFUNCTION, AND ARE ERRONEOUS.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

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YANKEE DOODLE TAILINGS IMPOUNDMENT

DH16-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

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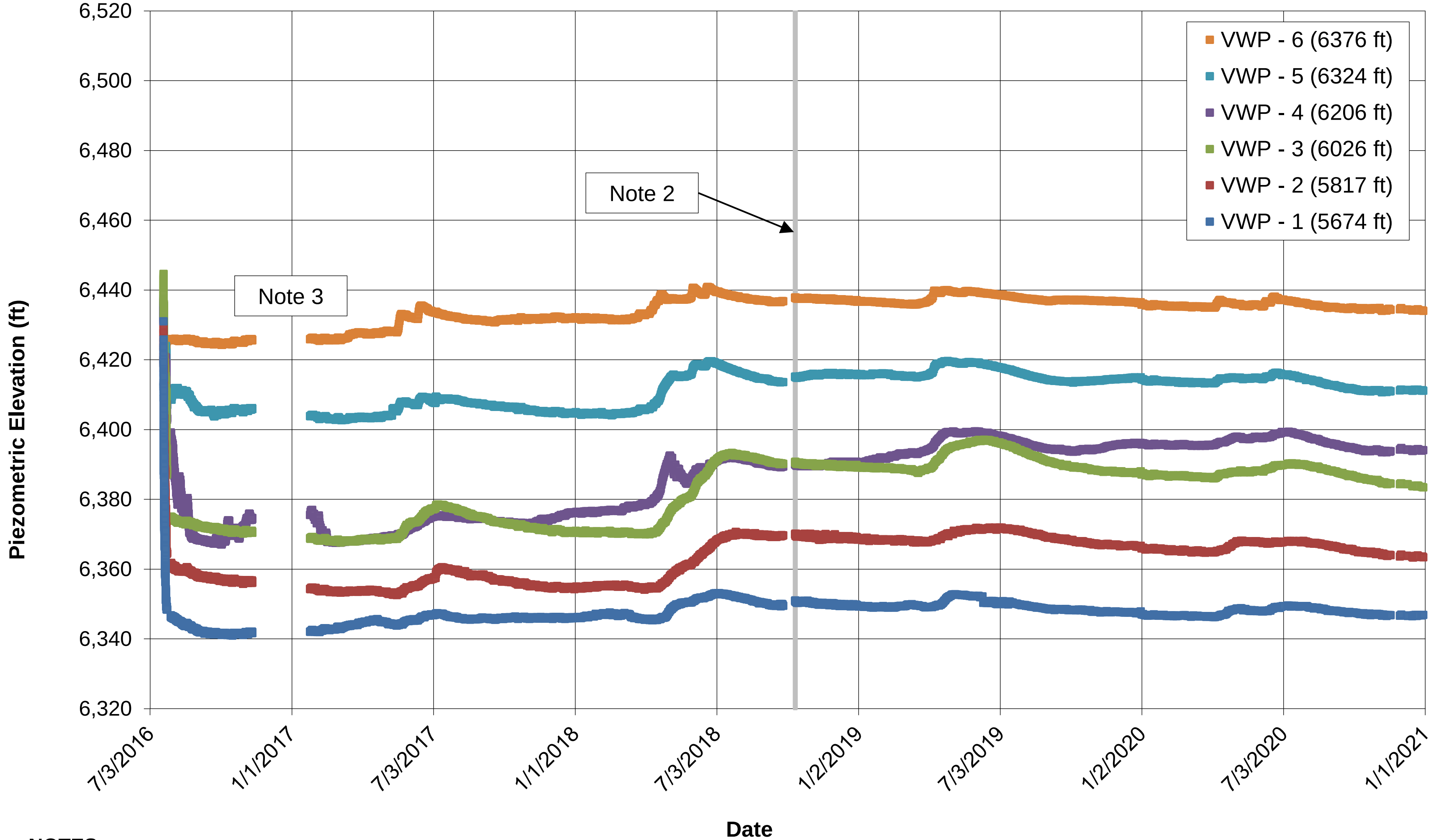
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.6

REV 0



NOTES:
1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 12, 2018.
3. A DATA LOGGER MALFUNCTION RESULTED IN ERRONEOUS DATA FROM NOVEMBER 20, 2016. DATA LOGGER WAS REPLACED ON JANUARY 25, 2017.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH16-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

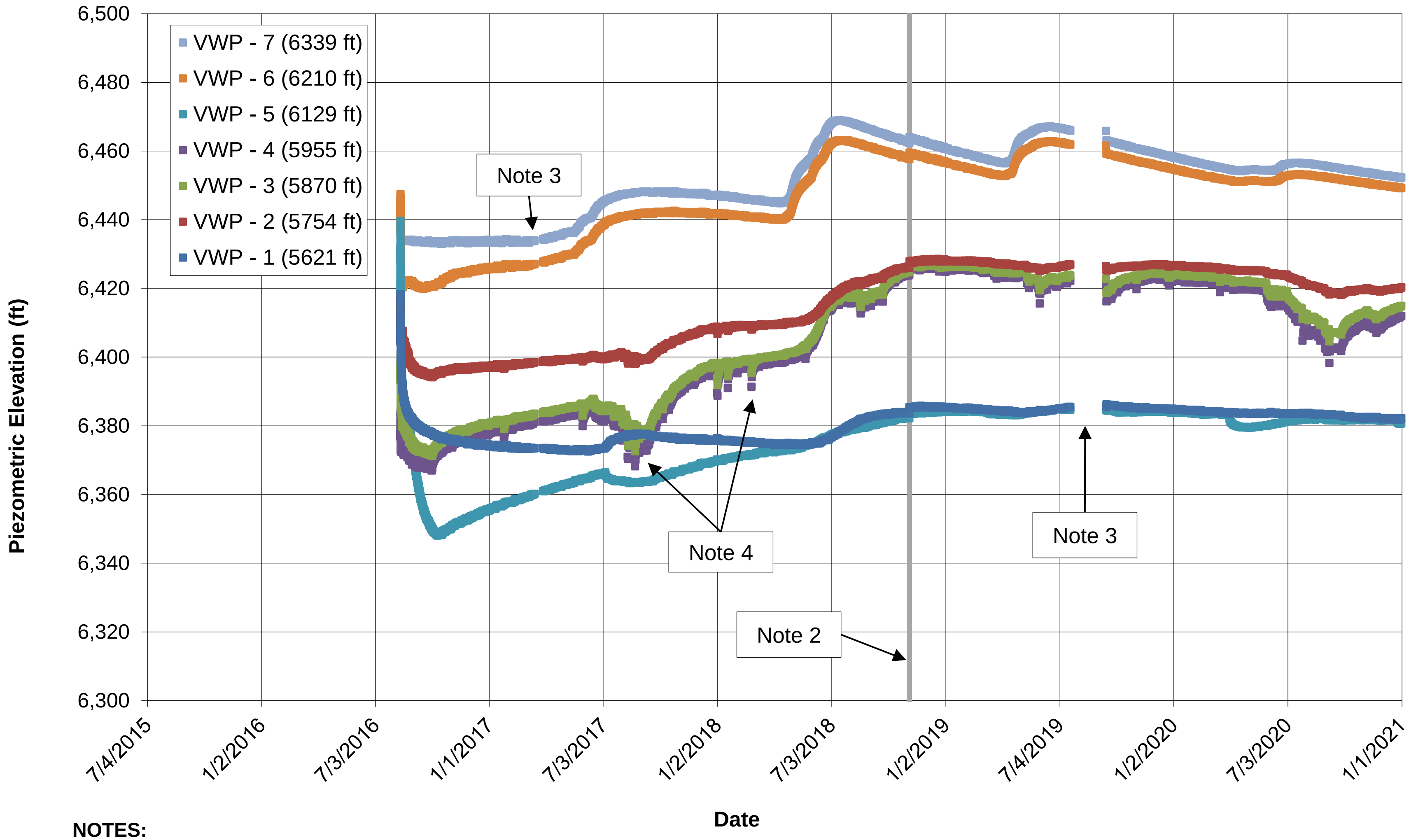
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.7

REV 0



NOTES:

1. SENSOR ELEVATIONS SHOWN IN LEGEND ARE RELATIVE TO ANACONDA MINE GRID.
2. SENSORS WERE INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER 5, 2018.
3. SENSORS STOPPED RECORDING DUE TO INSUFFICIENT BATTERY VOLTAGE.
4. PIEZOMETRIC FLUCTUATIONS OBSERVED AT VWP-2, VWP-3 AND VWP-4 SENSORS ARE THE RESULT OF PUMPING AT RESIDENTIAL WELL 196757.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH16-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

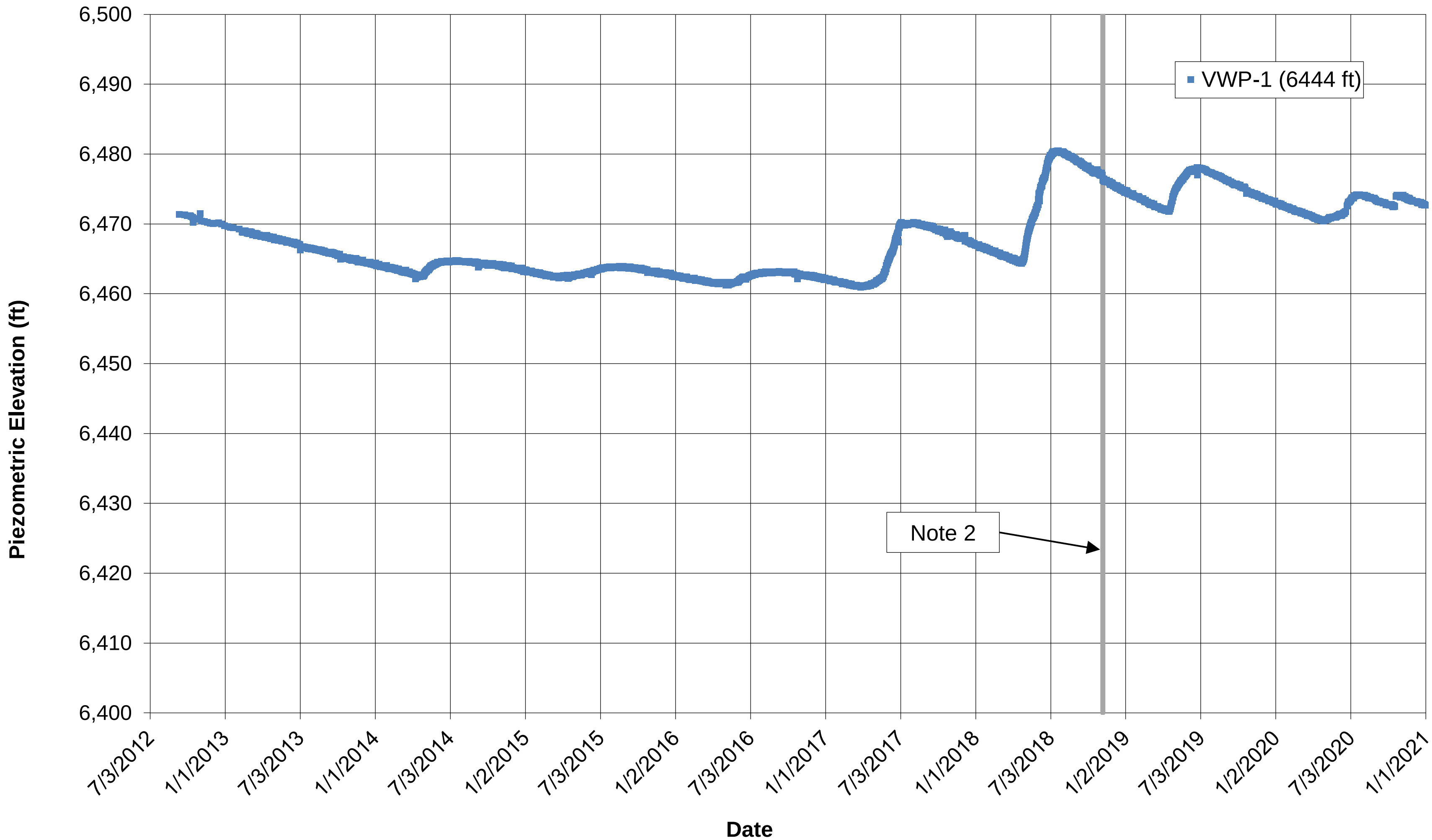
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.8

REV 0

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7 , 2018.
3. PRIOR TO INTEGRATION OF THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FOR CLARITY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

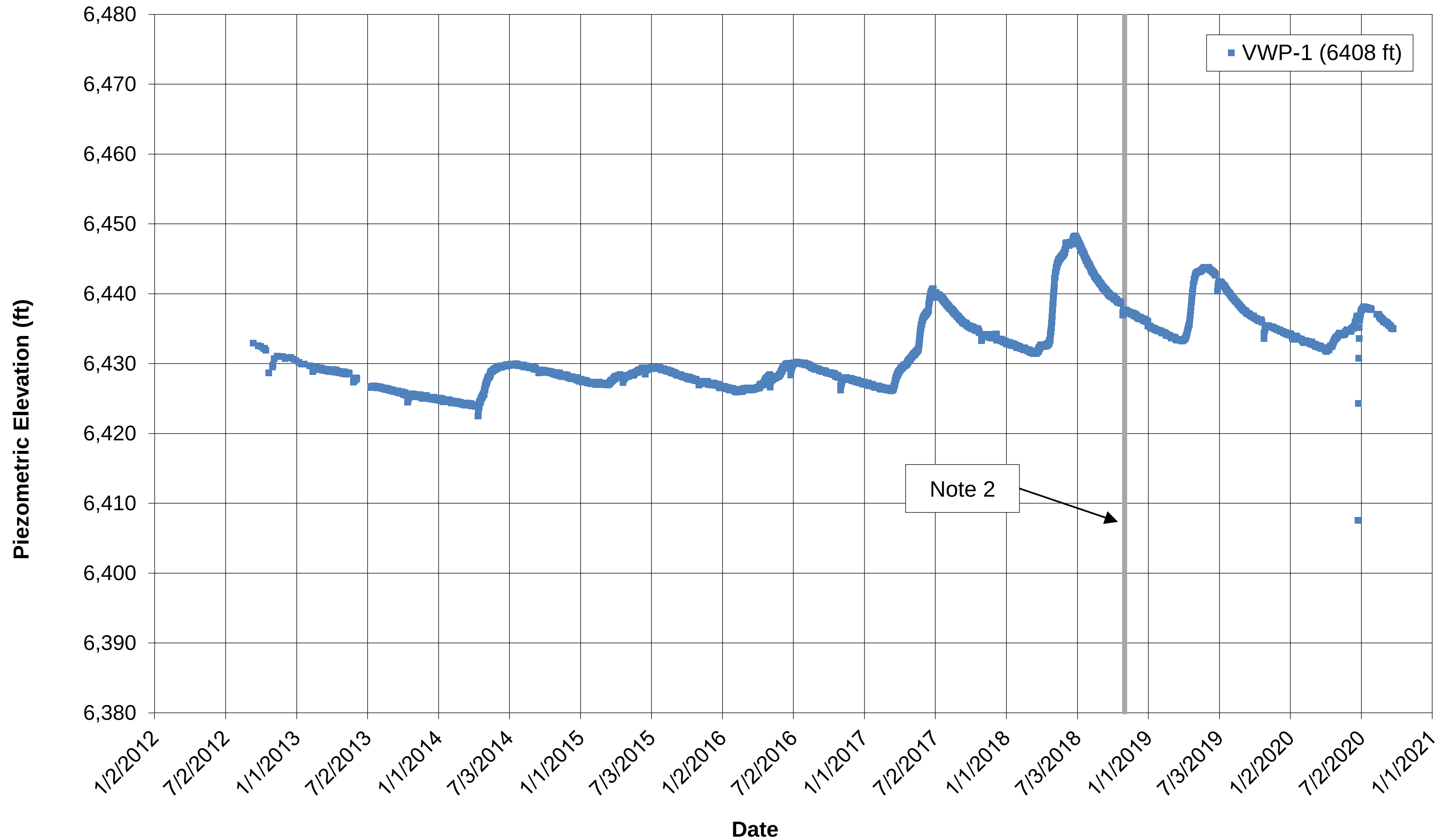
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-11 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C6.9		REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON NOVEMBER, 2018.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-12 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

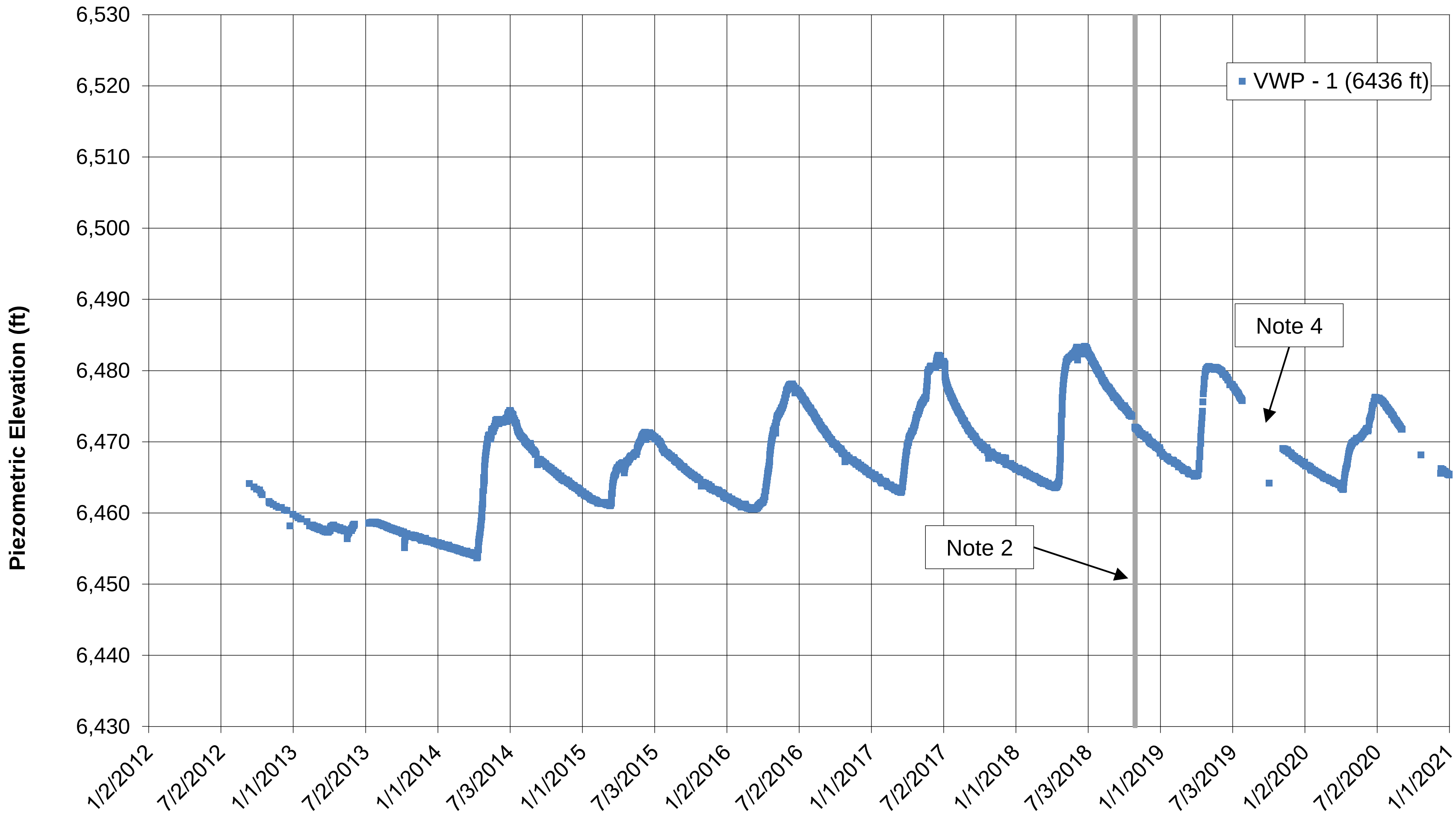
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.10

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON OCTOBER 29, 2018.
3. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. NO DATA FROM JULY 29 TO NOVEMBER 6, 2020 DUE TO PARAMETRIC REFERENCE ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
A	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

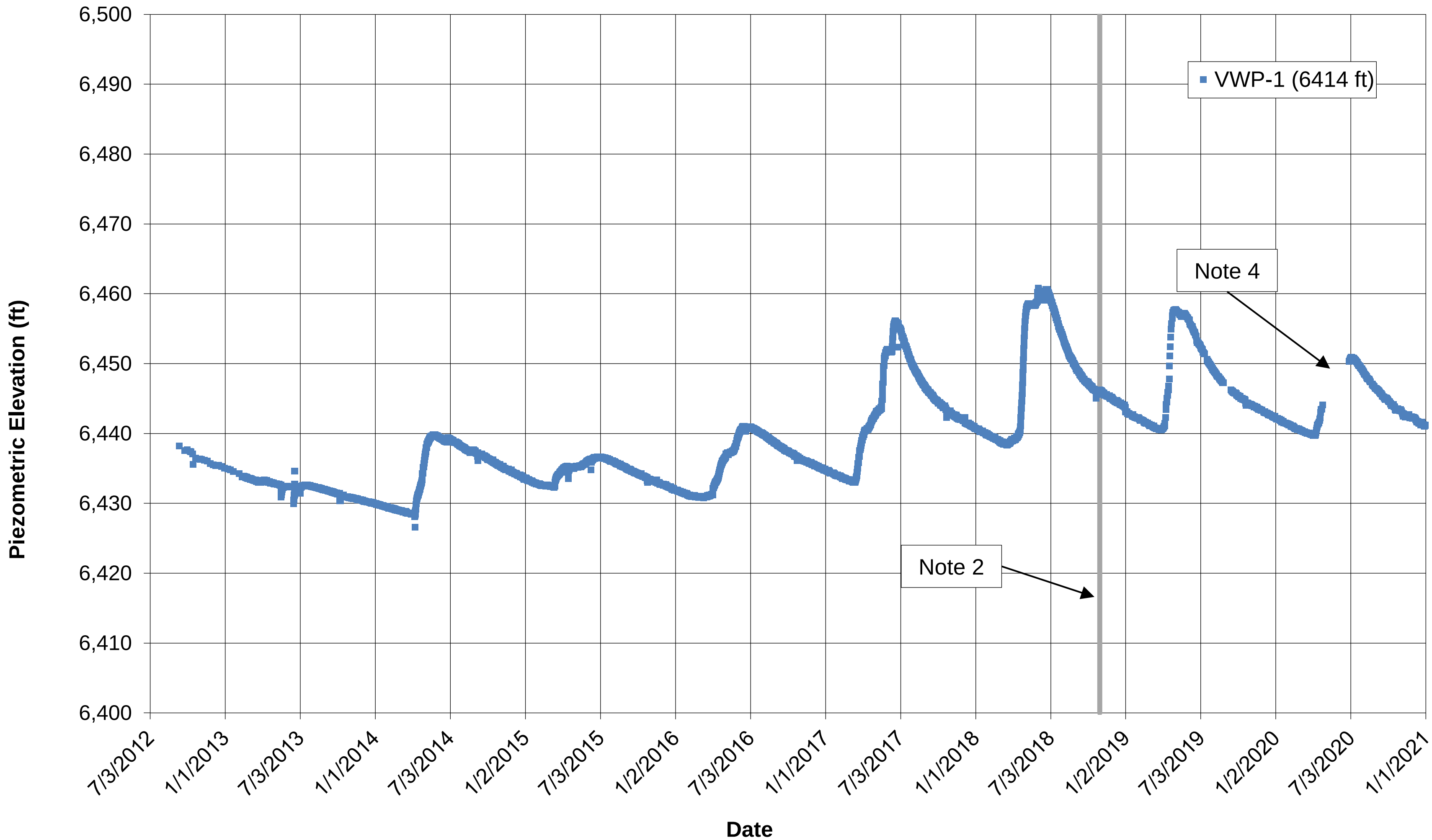
YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-13 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C6.11 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCTOBER 30, 2018.
3. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. NO DATA WERE COLLECTED FROM APRIL 27 TO JUNE 28, 2020 DUE SENSOR DAMAGE. A REPLACEMENT SENSOR WAS SUBSEQUENTLY INSTALLED.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

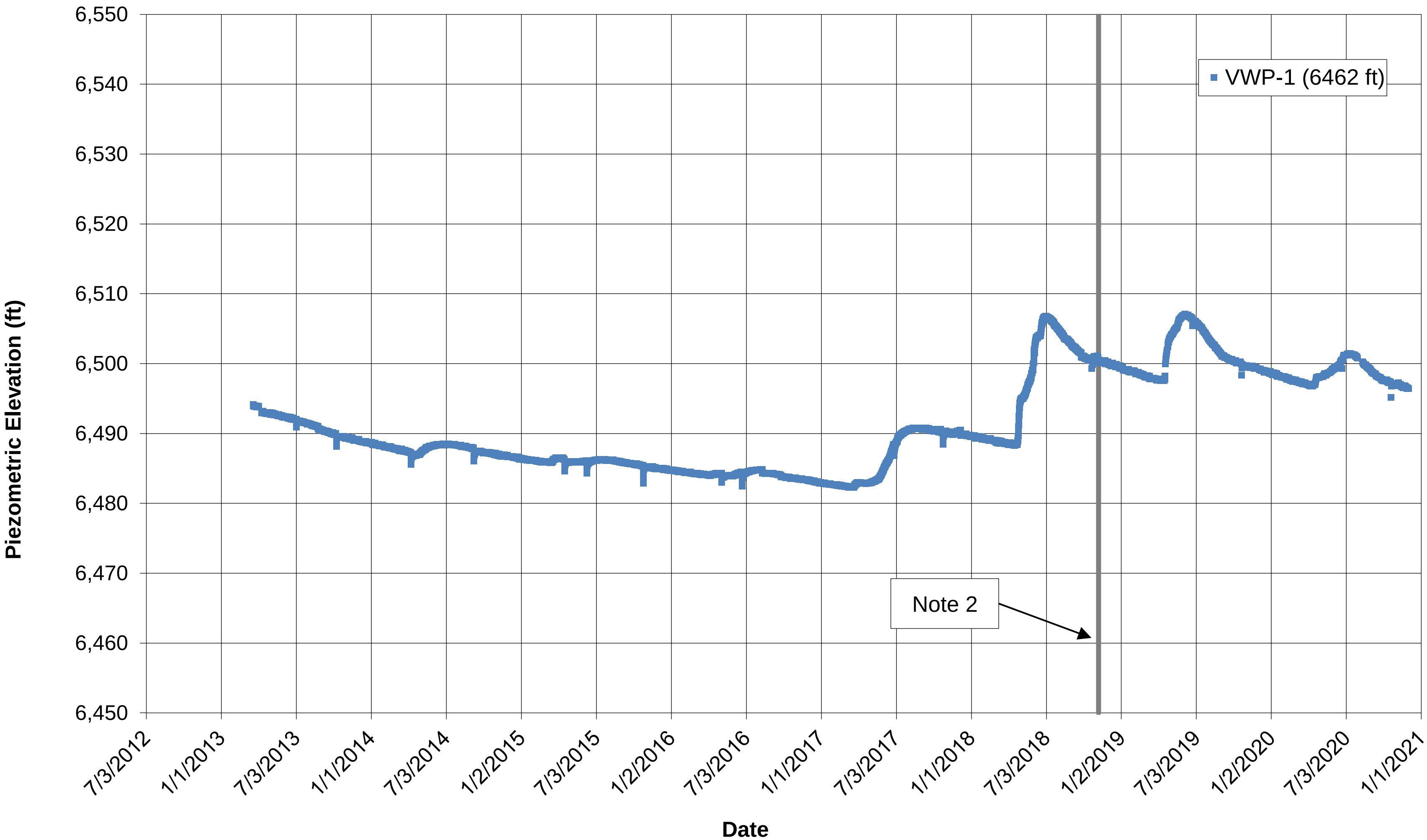
YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-14 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C6.12 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7, 2018.
3. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-15 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

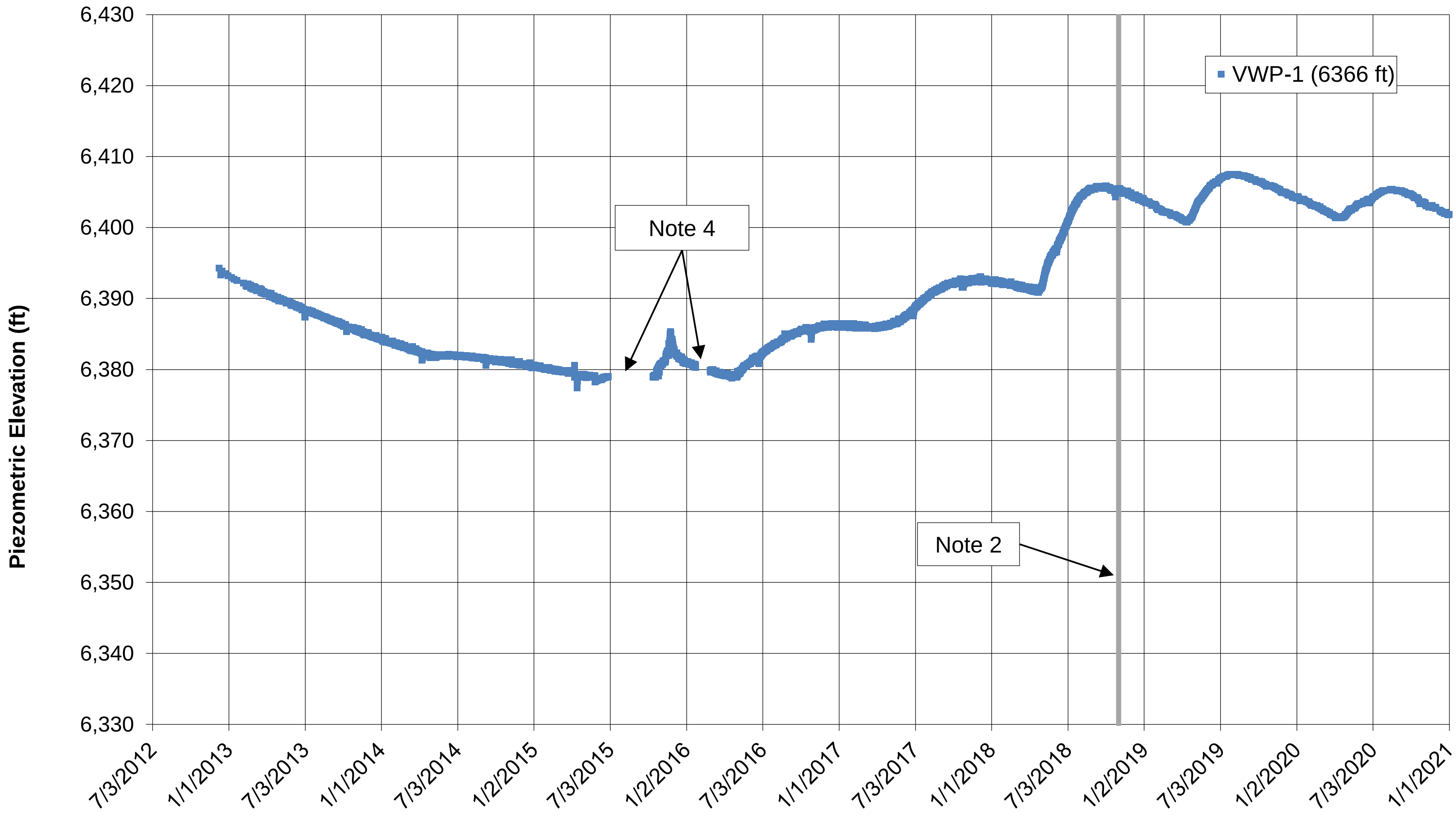
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.13

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 1, 2018.
3. TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY
4. NO DATA WAS RECORDED BETWEEN JULY 6 AND OCTOBER 14, 2015 AND BETWEEN JANUARY 25 AND FEBRUARY 28, 2016 DUE TO A HARDWARE PROBLEM.

MONTANA RESOURCES, LLP

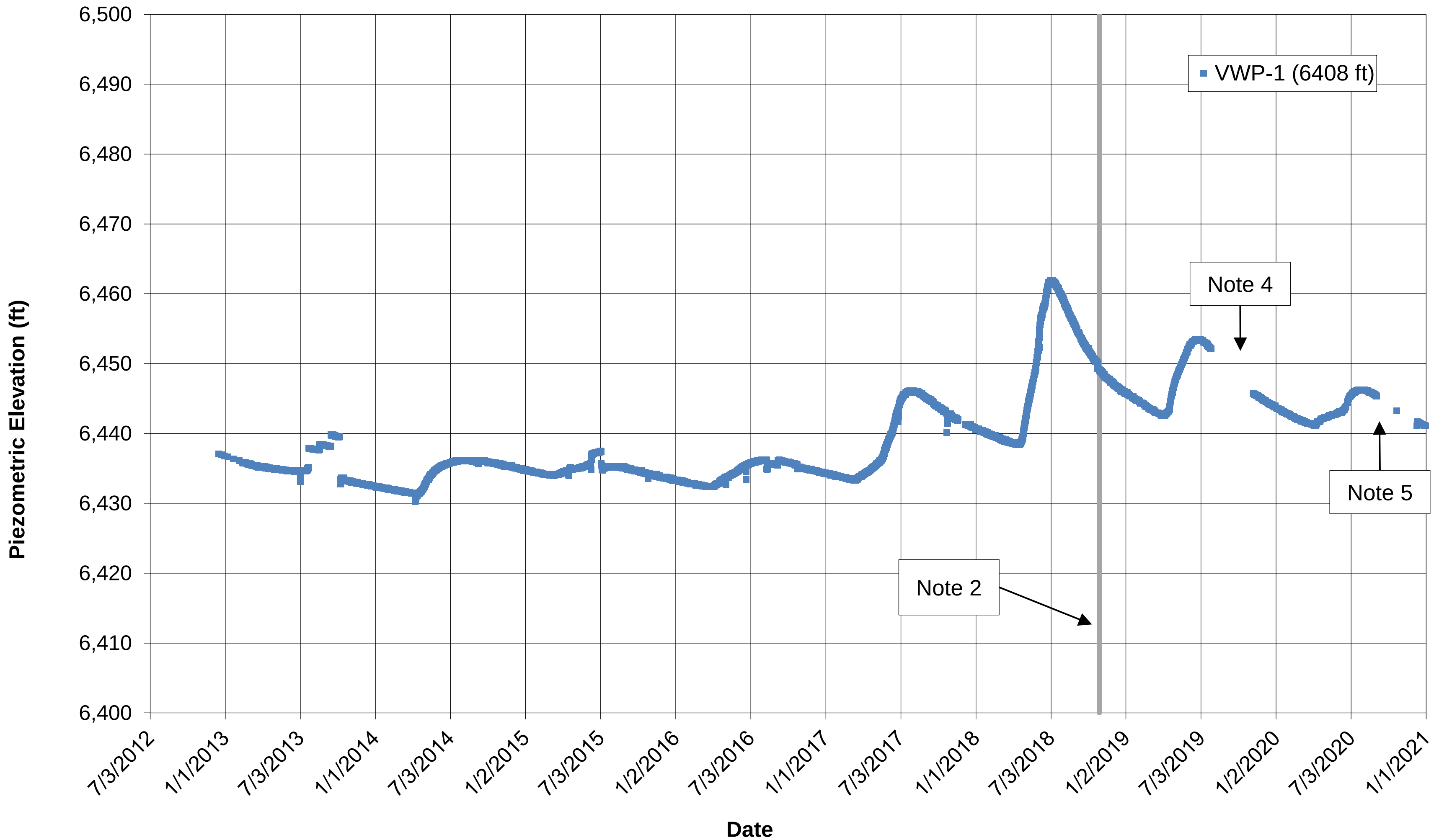
YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-16 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE C6.14		REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCTOBER 29, 2018.
3. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. NO DATA WERE COLLECTED FROM JULY 26, 2019 TO NOVEMBER 7, 2019 DUE TO A DEPLETED DATA LOGGER BATTERY.
5. NO DATA WERE COLLECTED FROM SEPTEMBER 4 TO DECEMBER 9, 2020 DUE TO A DEPLETED DATA LOGGER BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

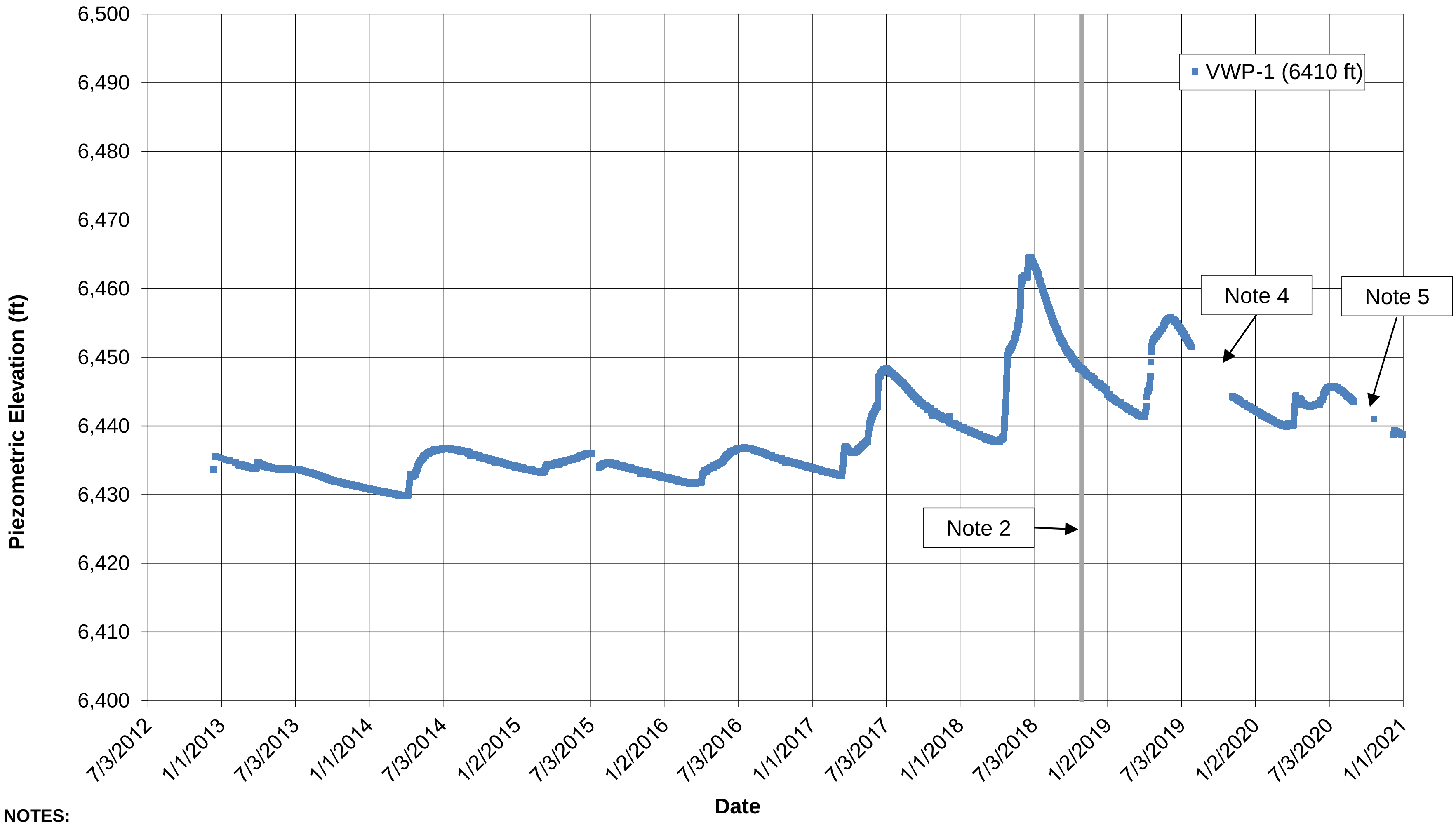
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-17 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C6.15		REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCTOBER 29, 2018.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. NO DATA WERE COLLECT FROM JULY 26, 2019 TO NOVEMBER 7, 2019 DUE TO A DEPLETED DATA LOGGER BATTERY.
5. NO DATA WERE COLLECTED FROM SEPTEMBER 4, 2020 TO DECEMBER 9, 2020 DUE TO A DEPLETED DATA LOGGER BATTERY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

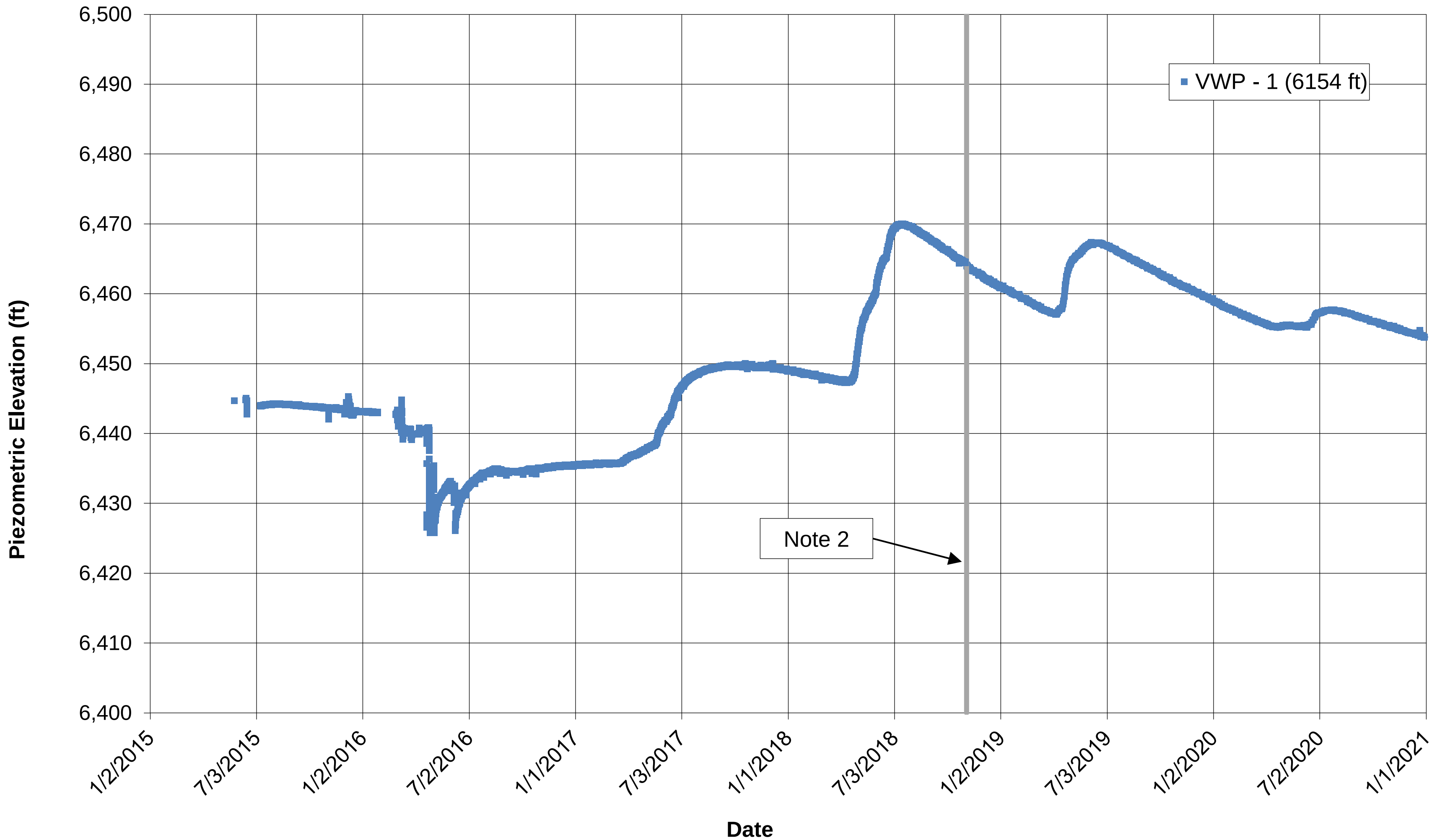
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW12-18 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C6.16		REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 4, 2018.
3. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

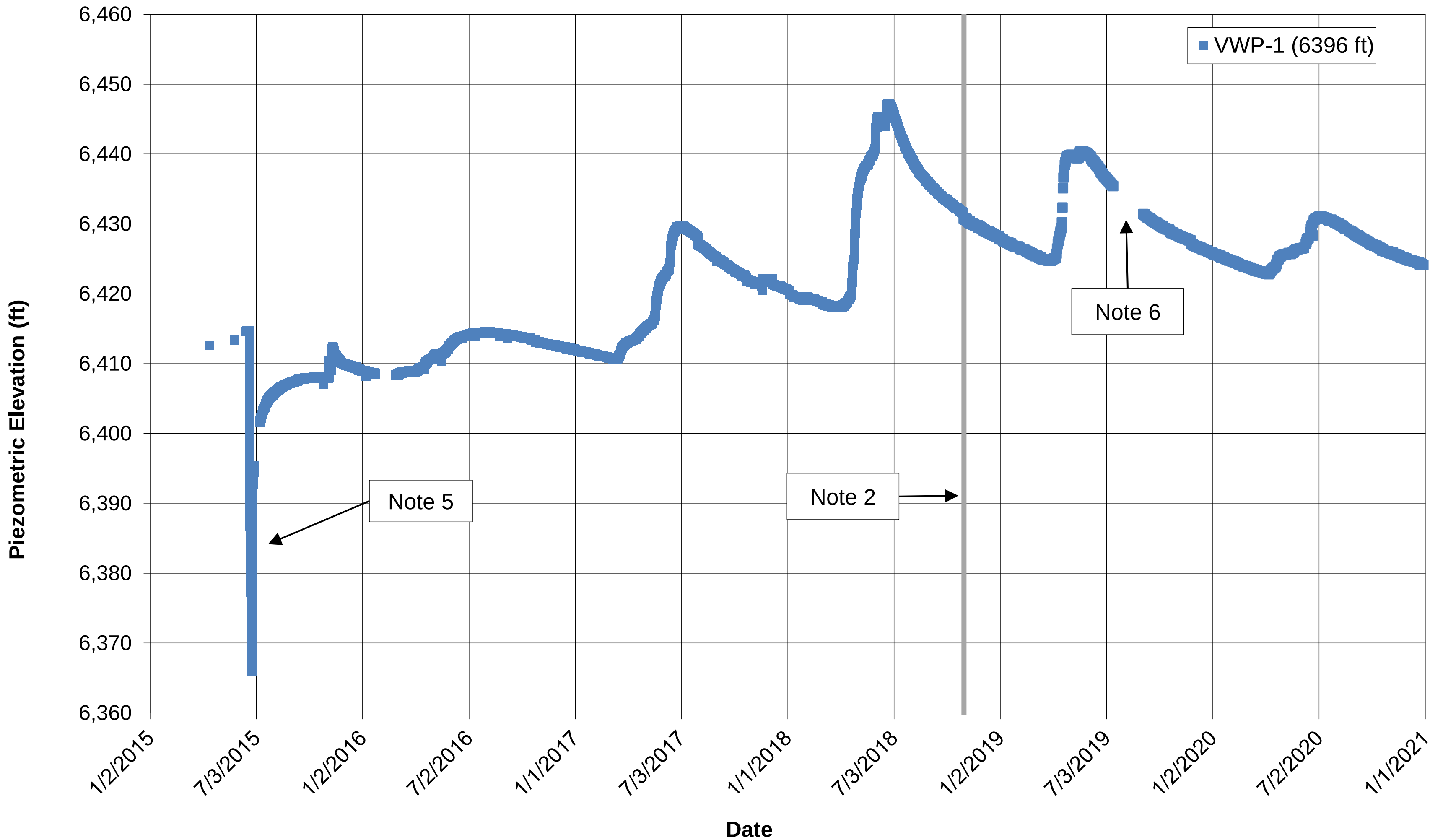
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.17

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCTOBER 31, 2018.
4. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
5. WATER LEVEL DRAWDOWN IS ASSOCIATED WITH THE PUMPING TEST CONDUCTED BY HYDROMETRICS INC. BETWEEN JUNE 23, 2015 TO JUNE 26, 2015.
6. NO DATA WERE COLLECT FROM JULY 14, 2019 TO SEPTEMBER 5, 2019 DUE TO DEPLETED DATA LOGGER BATTERY.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-02 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

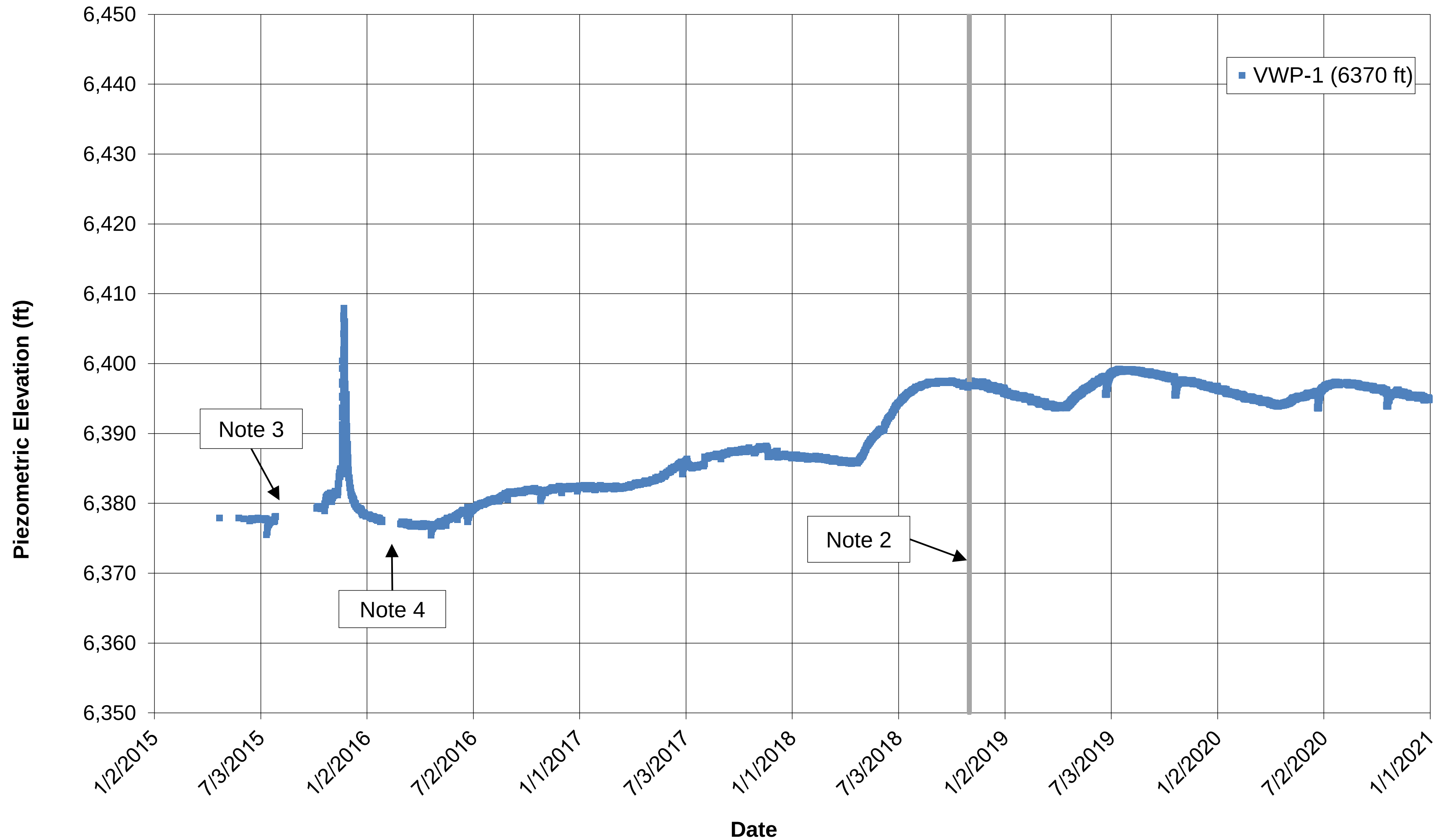
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.18

REV 0



NOTES:

1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO A REMOTE MONITORING SYSTEM ON JUNE 21, 2018.
3. A DATA GAP EXISTS BETWEEN JULY 29 TO OCTOBER 8, 2015 DURING TRANSDUCER REMOVAL TO REPLACE THE CABLE.
4. A DATA GAP EXISTS FROM JANUARY 28 TO MARCH 2, 2016 DUE TO A HARDWARE ISSUE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-03 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

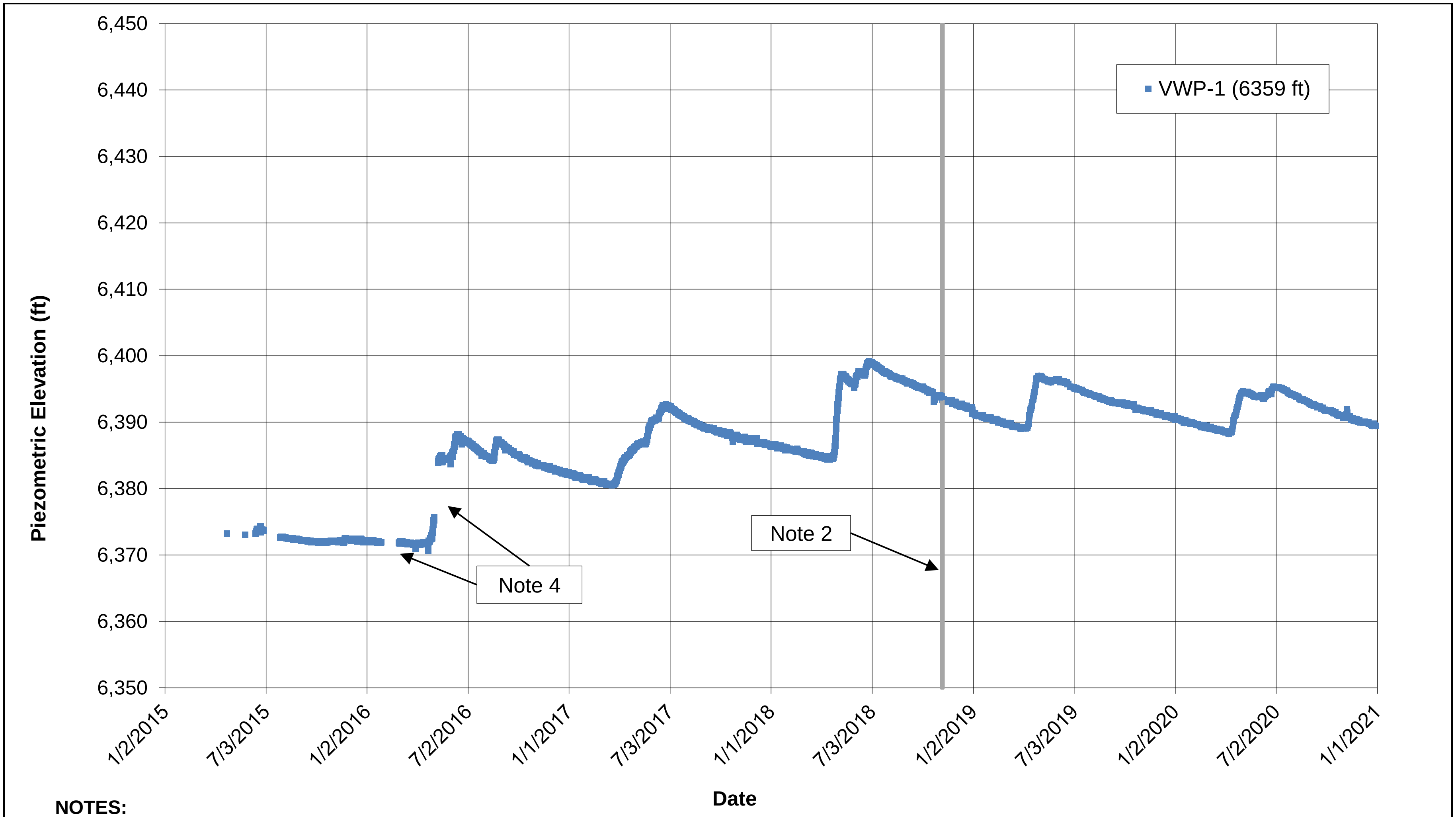
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.19

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7, 2018.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. A DATA GAP EXISTS BETWEEN JANUARY 26 TO MARCH 3, 2016 AND MAY 3 TO MAY 14, 2016 DURING DATALOGGER REPLACEMENT.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-04 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

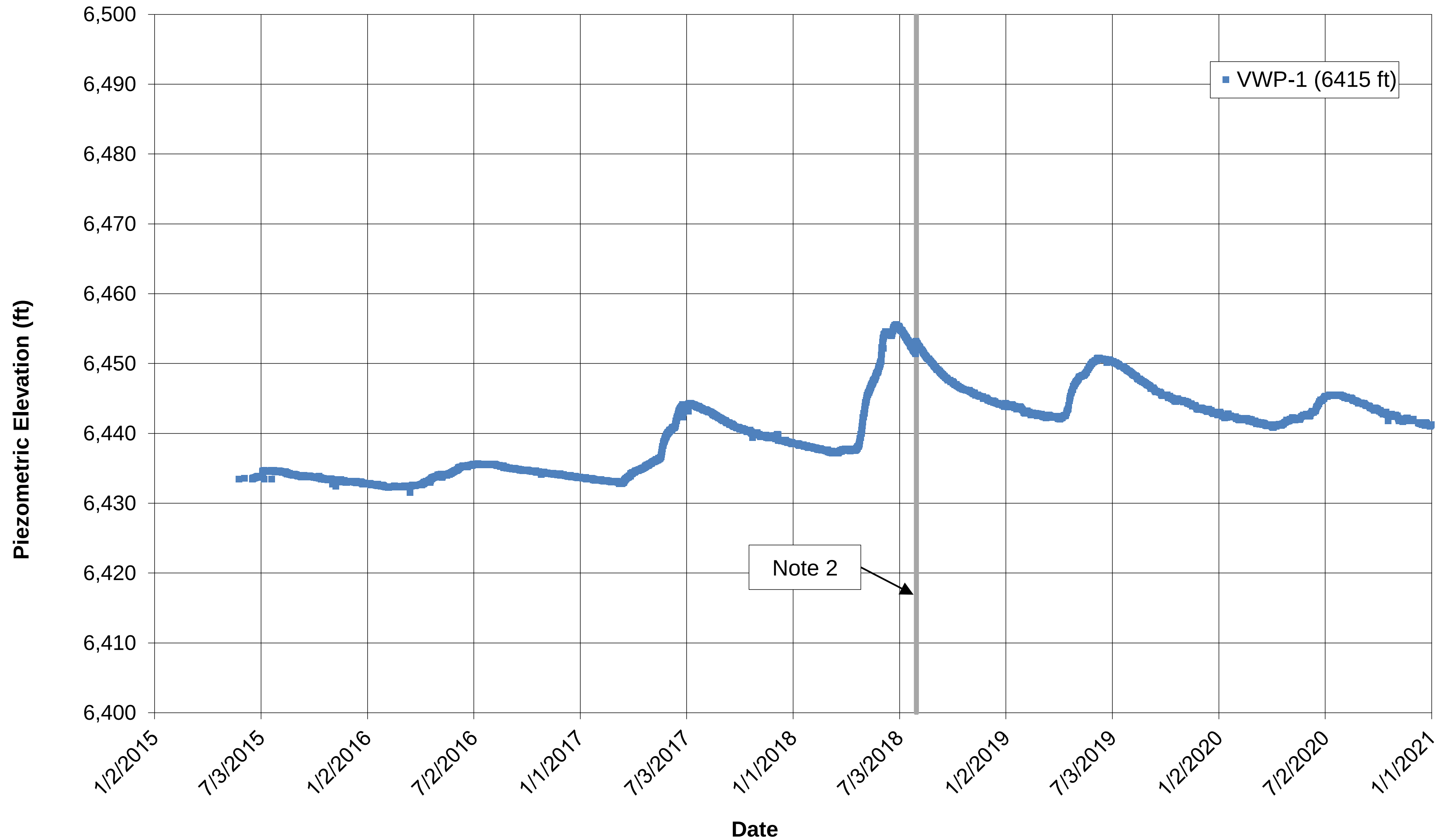
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.20

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED INTO THE REMOTE MONITORING SYSTEM ON AUGUST 1, 2018.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-05 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

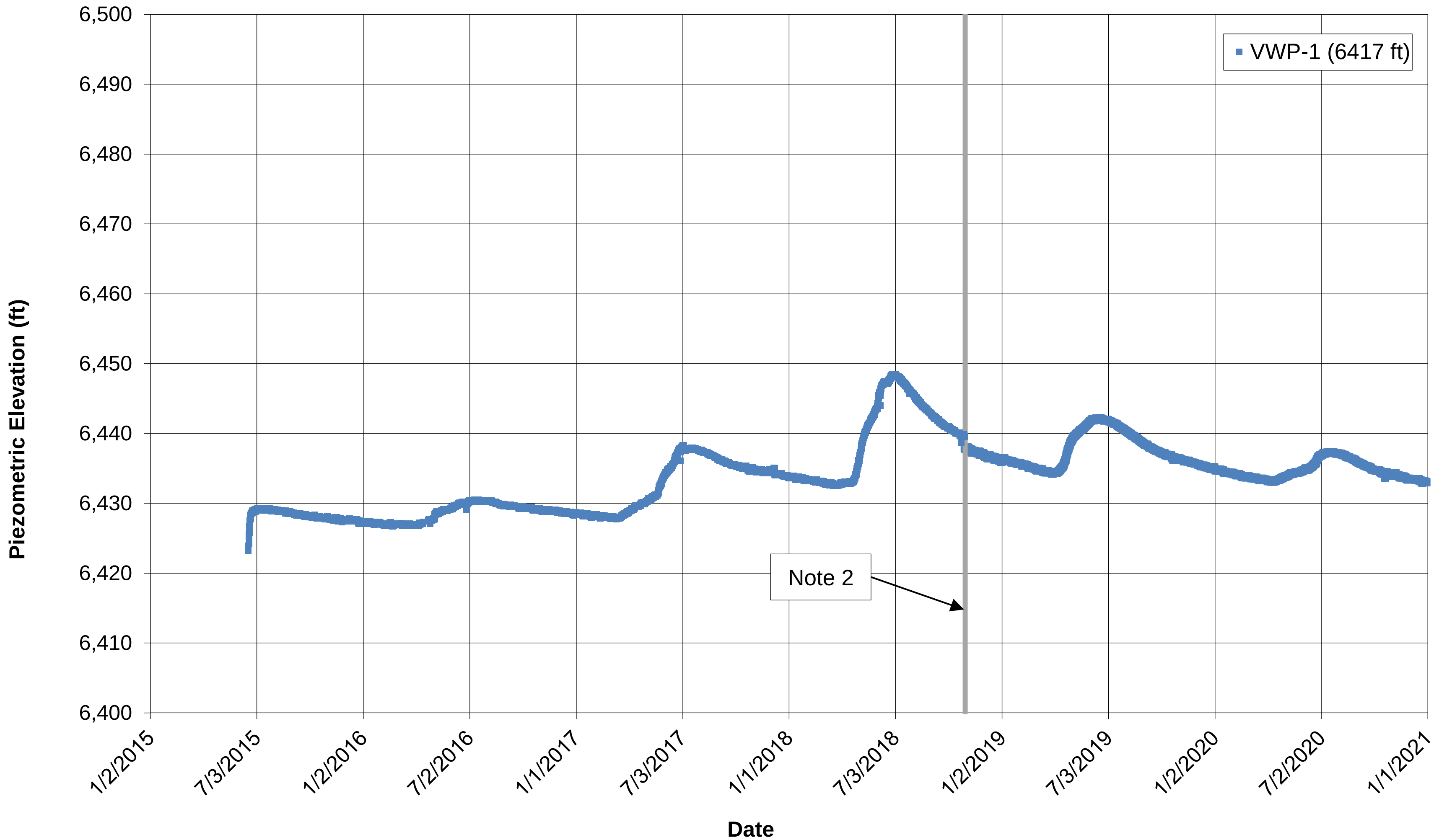
P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.21

REV 0

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON OCT 30, 2018.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-06 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

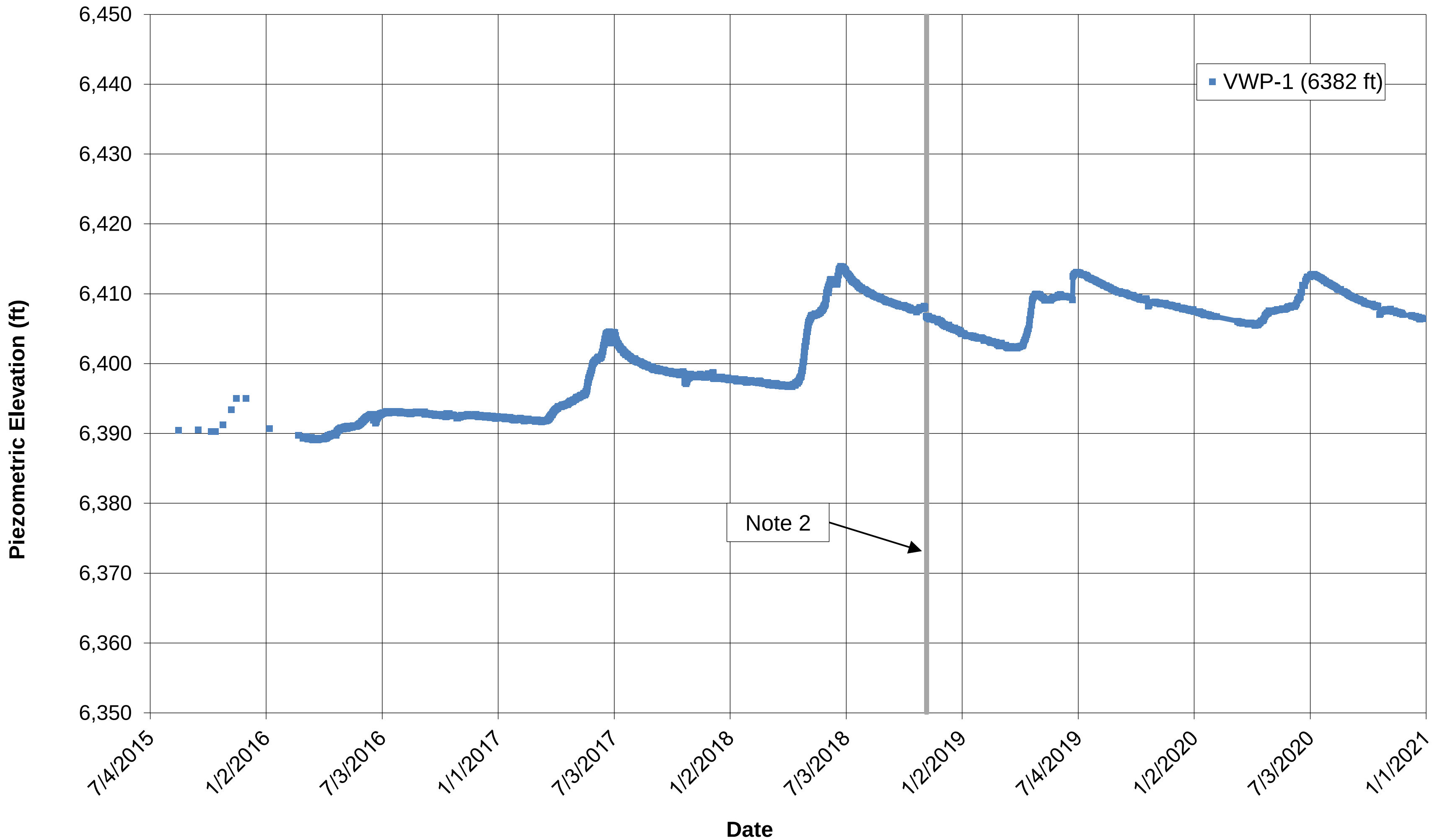
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.22

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7, 2018.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

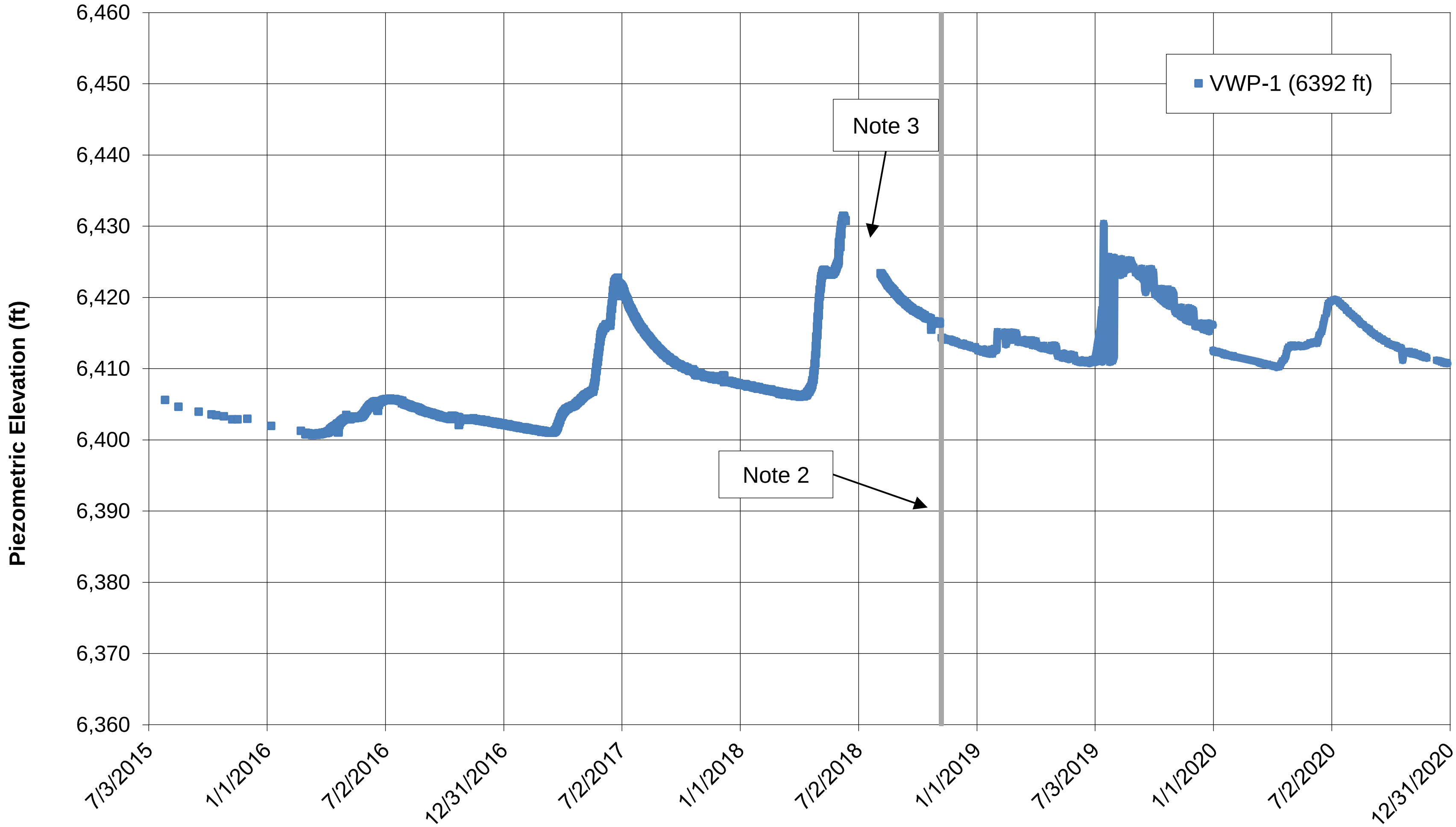
YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-07 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C6.23 REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7, 2018.
3. NO DATA WERE RECORDED BETWEEN JUNE 13, 2018 TO AUGUST 6, 2018 DUE TO A HARDWARE ISSUE.
4. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIOSIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

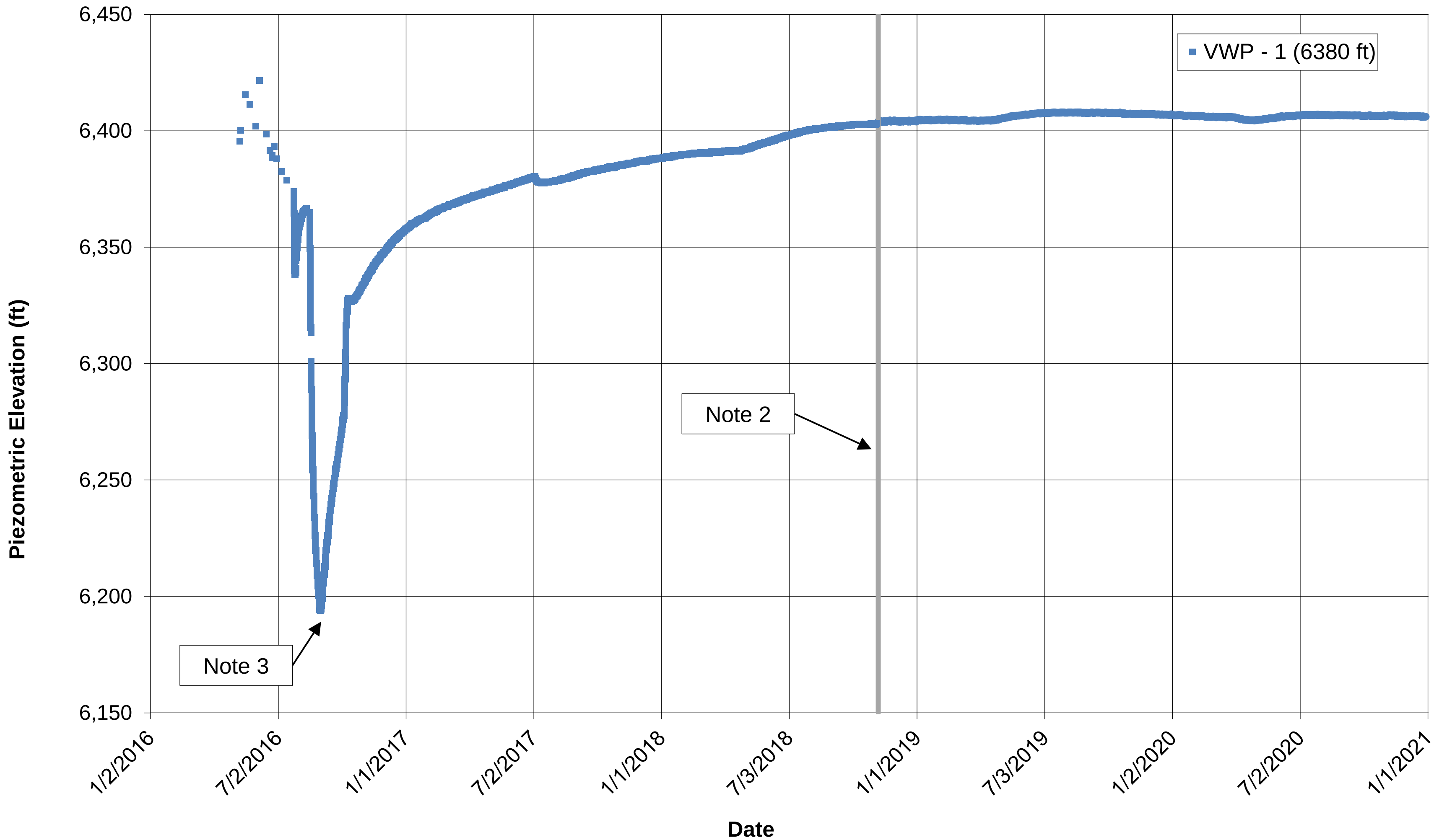
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW15-08 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE C6.24		REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED TO THE REMOTE MONITORING SYSTEM ON NOVEMBER 7, 2018.
3. WATER LEVEL FLUCTUATION DUE TO NEARBY PUMPING TEST CONDUCTED BY HYDROMETRICS INC. AT MW16-02D.
4. PRIOR TO INTEGRATION WITH REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM THE WELL FOR PERIODIC DOWNLOAD. DATA RECORDED. WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

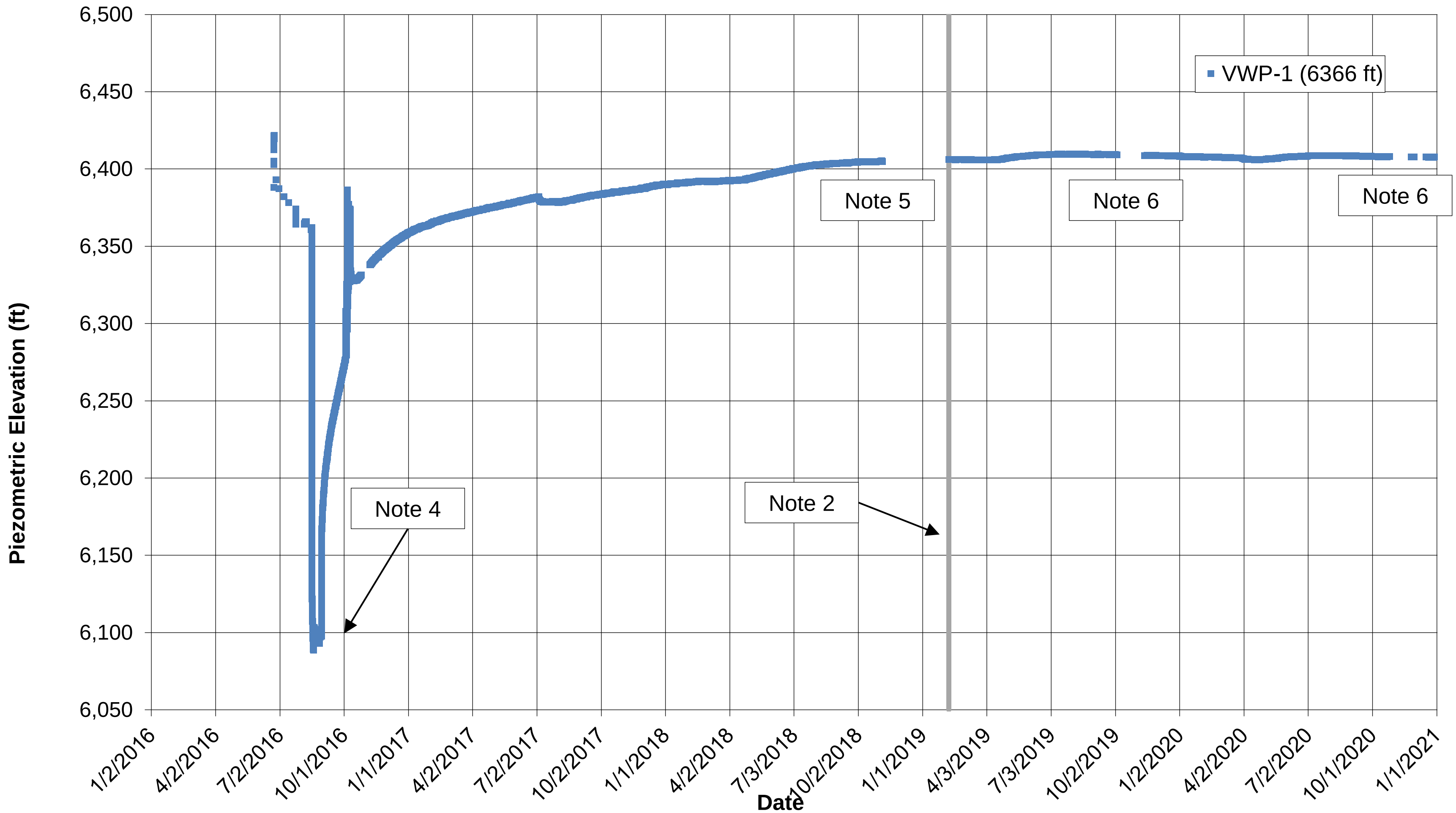
MW16-01 PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE C6.25 REV 0

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED WITH THE REMOTE MONITORING SYSTEM ON FEBRUARY 9, 2019.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. WATER LEVEL FLUCUATIONS ASSOCAITED WITH RECHARGE AND PUMPING TESTS CONDUCTED BY HYDROMETRICS INC. BETWEEN AUGUST 17, 2016 TO AUGUST 31, 2016.
5. NO DATA WERE RECORDED FROM NOVEMEBER 4, 2018 TO FEBRUARY 9, 2019 DUE TO INTEGRATION OF REMOTE MONITORING SYSTEM.
6. NO DATA WERE RECORDED FROM OCTOBER 4, TO NOVEMBER 13, 2019 AND OCTOBER 27 TO DECEMBER 16, 2020 DUE TO INSUFFICIENT BATTERY VOLTAGE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	CYP	KTD

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW16-02D PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

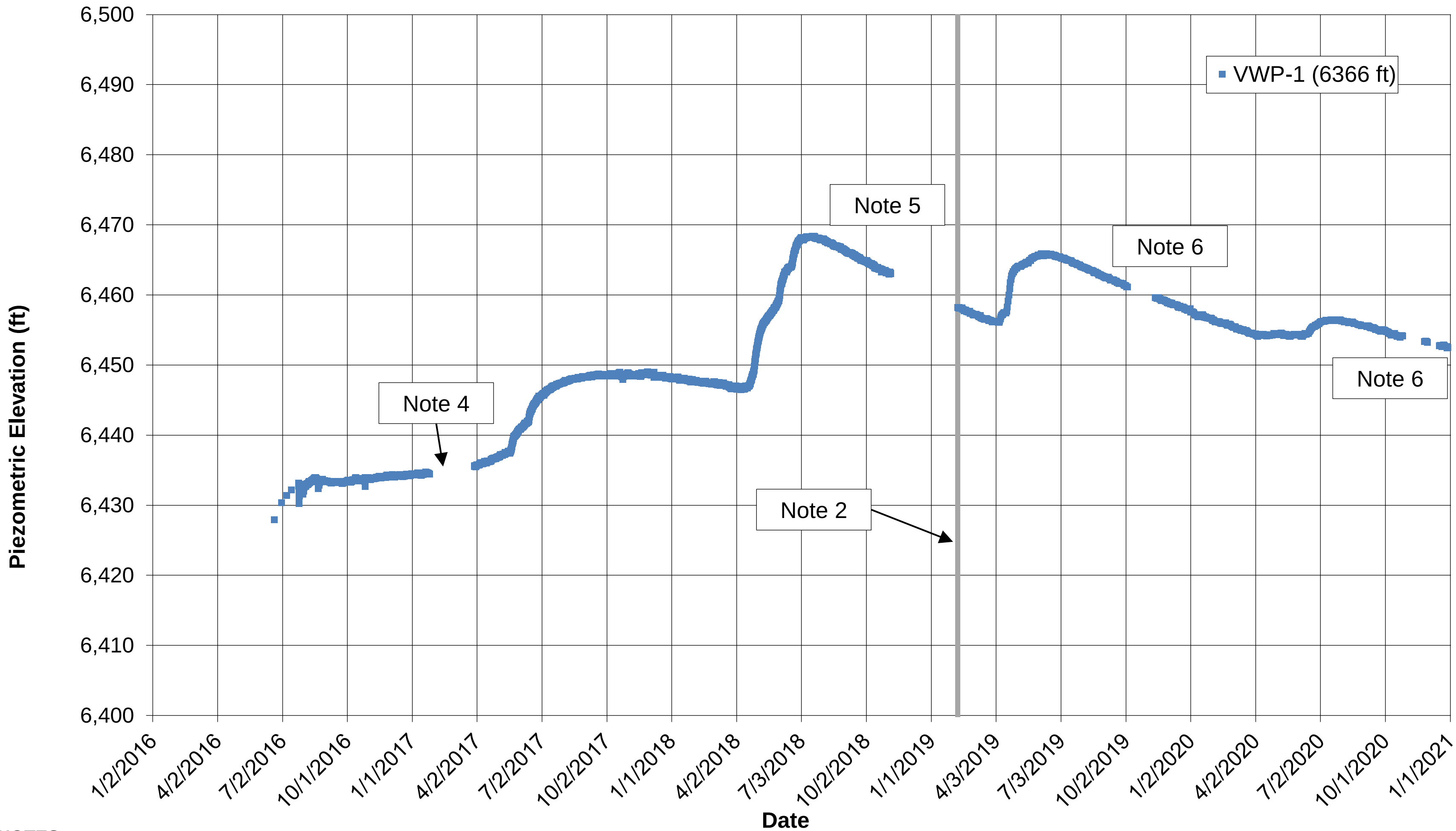
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE C6.26

REV 0



NOTES:
1. SENSOR ELEVATION SHOWN IN LEGEND IS RELATIVE TO ANACONDA MINE GRID.
2. SENSOR WAS INTEGRATED WITH THE REMOTE MONITORING SYSTEM ON FEBRUARY 9, 2019.
3. PRIOR TO INTEGRATION WITH THE REMOTE MONITORING SYSTEM, TRANSDUCERS WERE REMOVED FROM WELL FOR PERIODIC DOWNLOAD. DATA RECORDED WHILE THE TRANSDUCERS WERE UNINSTALLED HAVE BEEN OMITTED FROM THE PLOT FOR CLARITY.
4. NO DATA WERE RECORDED FROM JANUARY 25, 2016 TO MARCH 29, 2016 DUE TO HARDWARE ISSUES.
5. NO DATA WERE RECORDED FROM NOVEMEBER 4, 2018 TO FEBRUARY 9, 2019 DUE TO INTEGRATION OF REMOTE MONITORING SYSTEM.
6. NO DATA WERE RECORDED FROM OCTOBER 4, 2019 TO NOVEMBER 13, 2019 AND FROM OCTOBER 27 TO DECEMBER 16, 2020 DUE TO INSUFFICIENT BATTERY VOLTAGE.

0	29JUN'21	ISSUED WITH REPORT	CYP	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MW16-02S PIEZOMETER DATA
PIEZOMETRIC ELEVATION (FEET)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE C6.27		REV 0

APPENDIX D

Deformation Monitoring Data

APPENDIX D1

InSAR Monitoring Data

(Figures D1.1 D1.9)

LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50
- ELEVATION CONTOUR 10 FT

CUMULATIVE SURFACE DISPLACEMENT

- < -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.25
- - 0.25 - 0
- 0 - 0.25
- 0.25 - 1

NOTES:

1. BASE MAP: 2018 PROJECT AERIAL IMAGERY AND TOPOGRAPHY.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST AND WEST EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL InSAR SURFACE DEFORAMTION (JUNE 6, 2017 TO JUNE 23, 2019)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5
FIGURE D1.1	REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50 FT
- ELEVATION CONTOUR 10 FT

VERTICAL DISPLACEMENT RATE (in/yr)

- < -7.00
- -7 - -6
- -6 - -5
- -5 - -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.5
- -0.5 - 0
- 0 - 0.5
- 0.5 - 1
- 1 - 2

NOTES:

1. BASE MAP: 2018 PROJECT AERIAL IMAGERY AND TOPOGRAPHY.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST AND WEST EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

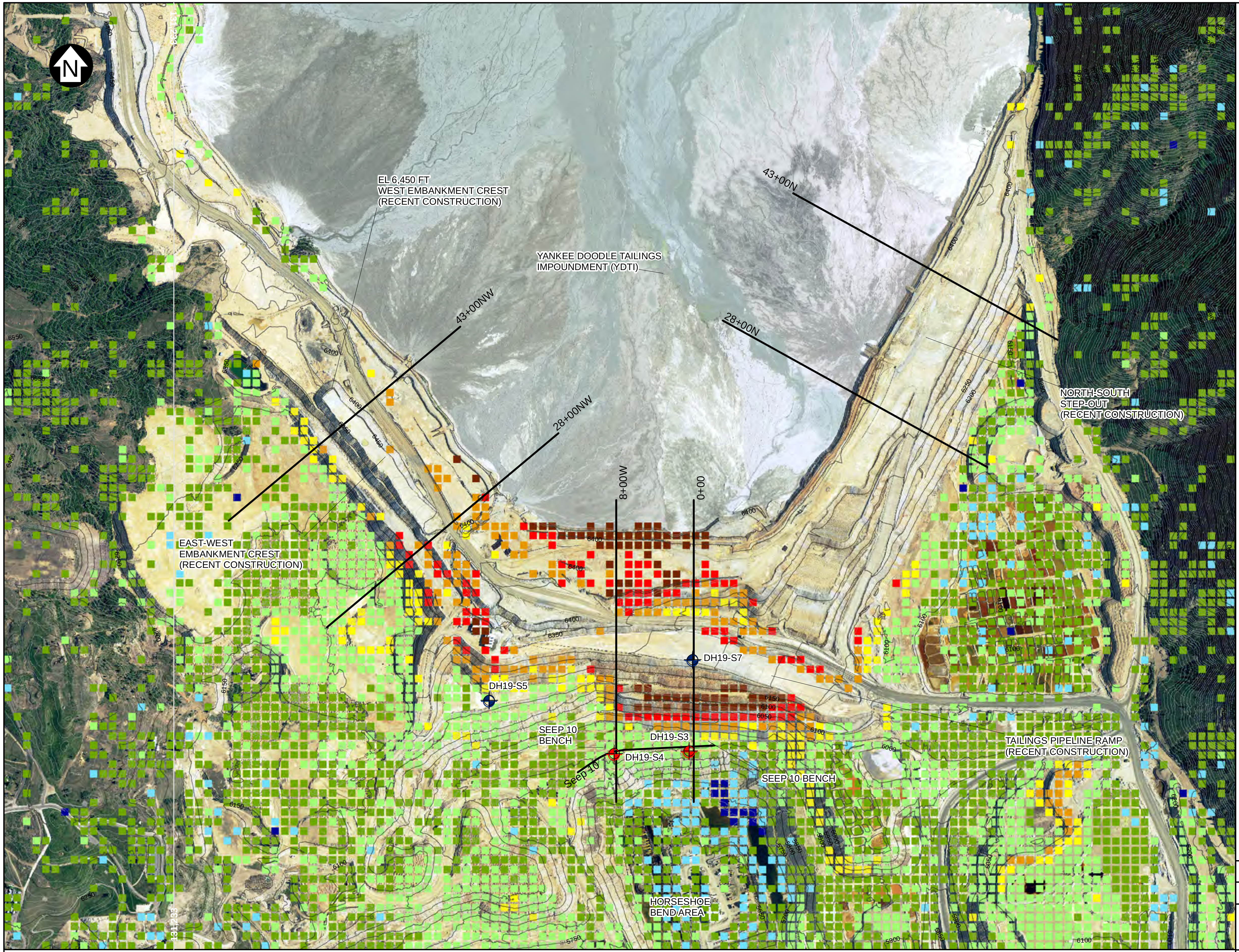
AVERAGE VERTICAL InSAR SURFACE DEFORAMTION RATES (JUNE 6, 2017 TO JUNE 23, 2019)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5
FIGURE D1.2	REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\GIS\Figs\Report 5 - 2020 YDTI Data Analysis Report\Rev0\FigD1-2_AverageVerticalInSARSurfaceDeformationRates_June2017ToJune2020_r0.mxd; Jun 29, 2021 4:41 PM; bhedji



LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50 FT
- ELEVATION CONTOUR 10 FT

CUMULATIVE SURFACE DISPLACEMENT (in)

- < -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.25
- -0.25 - 0
- 0 - 0.25
- 0.25 - 1

NOTES:

1. BASE MAP: AERIAL IMAGERY AND TOPOGRAPHY ARE FROM JULY 2020.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST, WEST EMBANKMENT CREST AND PORTION OF THE NORTH-SOUTH EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL InSAR SURFACE DEFORAMTION (JUNE 3, 2019 TO APRIL 28, 2020)

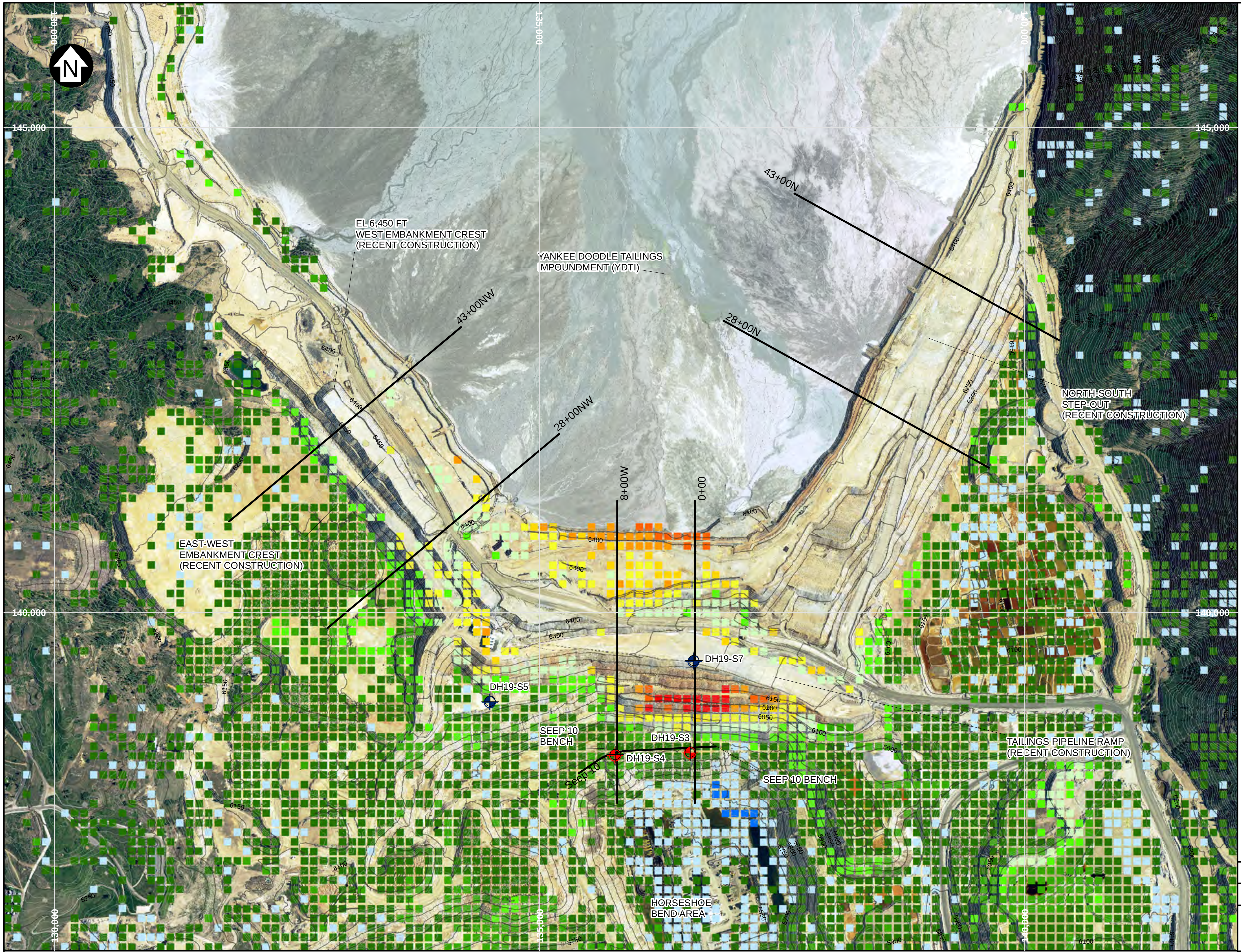
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE D1.3 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\GIS\Figs\Report 5 - 2020 YDTI Data Analysis Report\Rev0\FigD1-3_CumulativeVerticalInSARSurfaceDeformation_June2019ToApr2020_r0.mxd; Jun 29, 2021 4:43 PM; bhedji



LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50 FT
- ELEVATION CONTOUR 10 FT

VERTICAL DISPLACEMENT RATE (in/yr)

- < -7.00
- -7 - -6
- -6 - -5
- -5 - -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.5
- -0.5 - 0
- 0 - 0.5
- 0.5 - 1
- 1 - 2

NOTES:

1. BASE MAP: AERIAL IMAGERY AND TOPOGRAPHY ARE FROM JULY 2020.

2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.

3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.

5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.

6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST, WEST EMBANKMENT CREST AND PORTION OF THE NORTH-SOUNTH EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.

7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

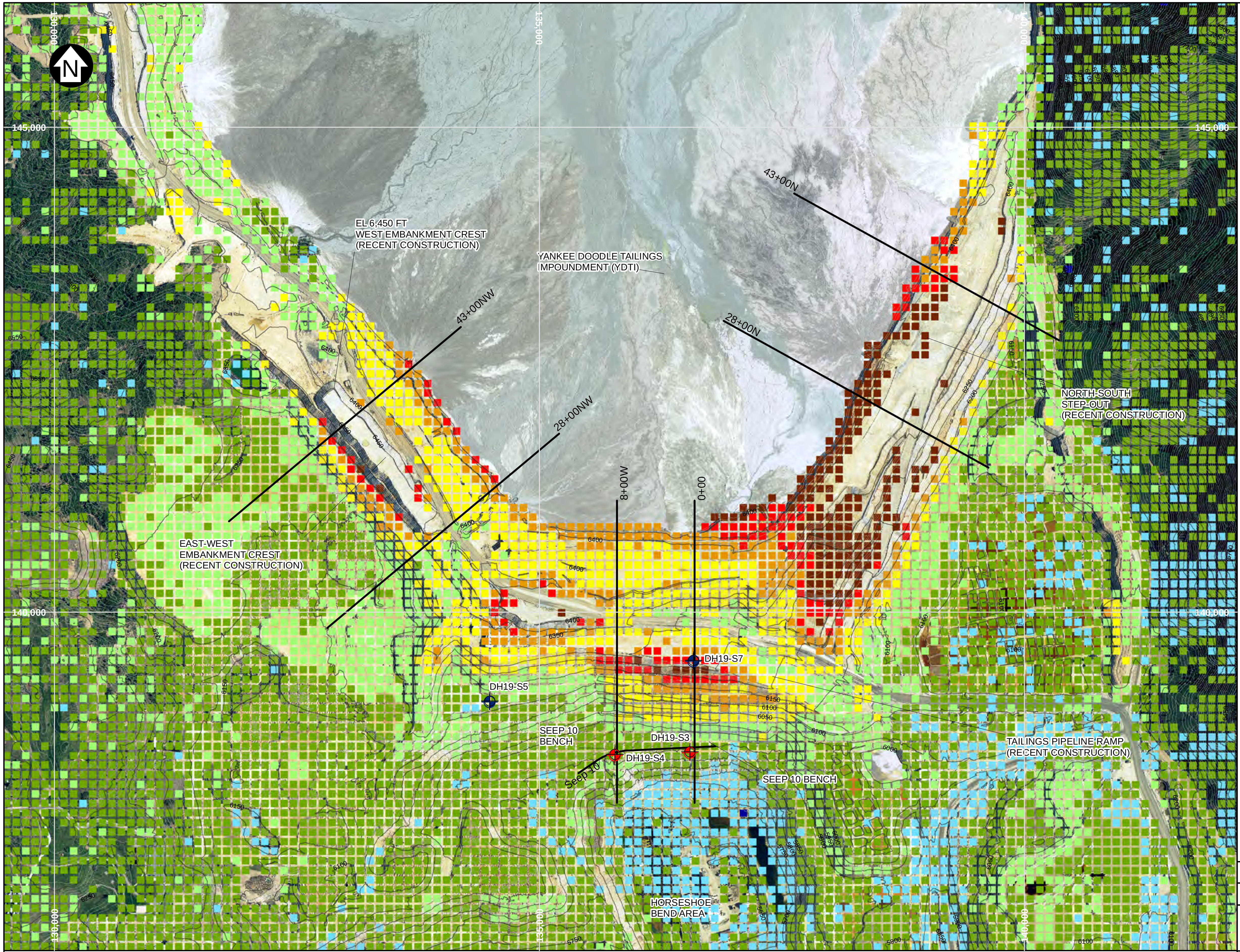
AVERAGE VERTICAL InSAR SURFACE DEFORAMTION RATES (JUNE 3, 2019 TO APRIL 28, 2020)

Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE D1.4 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF



LEGEND:

GENERAL

IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION

IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION

SECTION

ELEVATION INDEX CONTOUR 50 FT

ELEVATION CONTOUR 10 FT

CUMULATIVE SURFACE DISPLACEMENT (in)

- < -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.25
- -0.25 - 0
- 0 - 0.25
- 0.25 - 1

NOTES:

1. BASE MAP: AERIAL IMAGERY AND TOPOGRAPHY ARE FROM JULY 2020.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST, WEST EMBANKMENT CREST AND PORTION OF THE NORTH-SOUNTH EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL InSAR SURFACE DEFORAMTION (APRIL 17, 2020 TO OCTOBER 12, 2020)

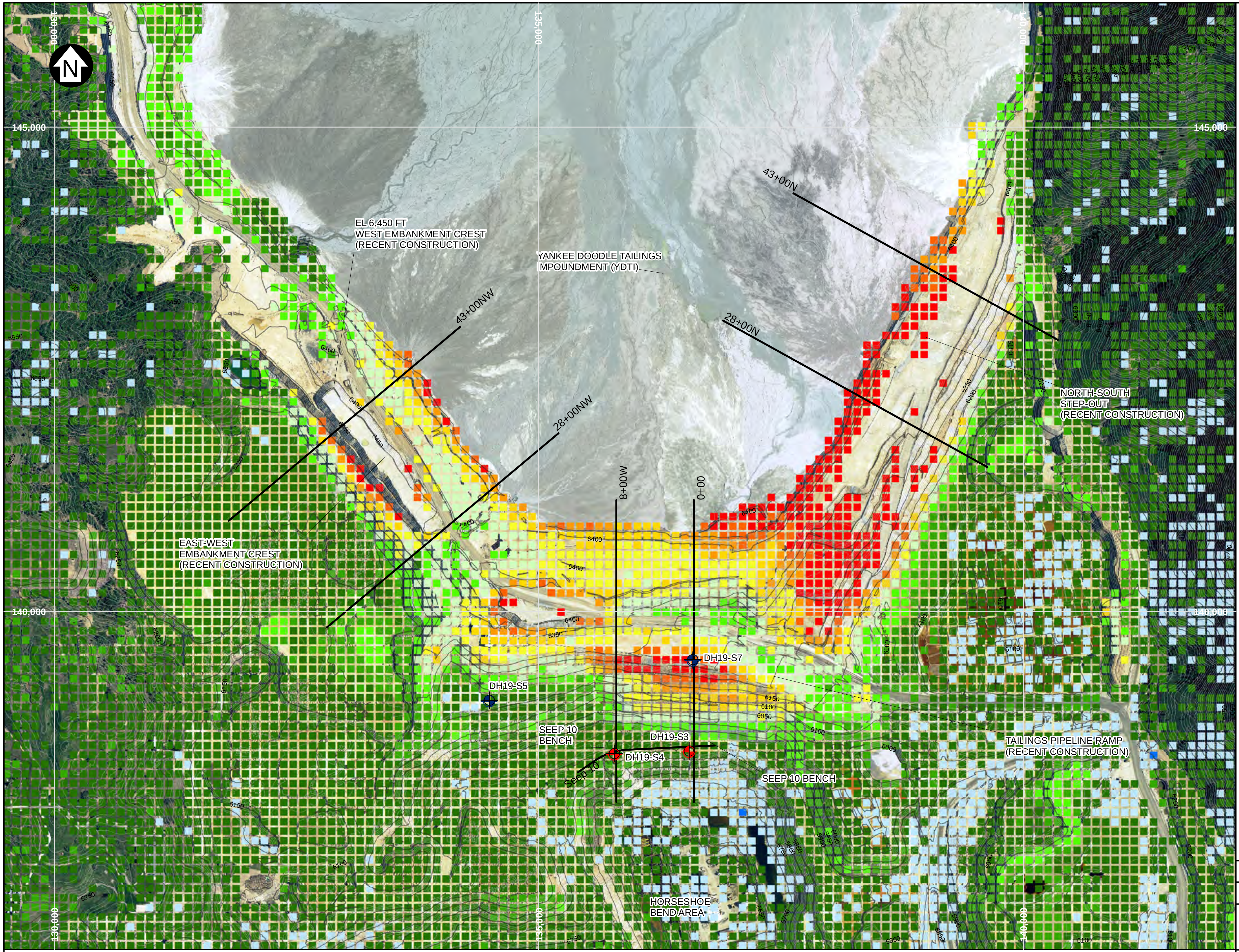
Knight Piésold CONSULTING

P/A NO.	REF NO.
VA101-126/23	5

FIGURE D1.5 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\GIS\Figs\Report 5 - 2020 YDTI Data Analysis Report\Rev0\Fig_D1-5_CumulativeVerticalInSARSurfaceDeformation_Apr2020ToOctober2020_r0.mxd; Jun 29, 2021 4:49 PM; bhedji



LEGEND:

GENERAL

- IN-PLACE INCLINOMETER AND GNSS INSTRUMENTATION
- IN-PLACE INCLINOMETER, GNSS AND PORE PRESSURE INSTRUMENTATION
- SECTION
- ELEVATION INDEX CONTOUR 50 FT
- ELEVATION CONTOUR 10 FT

VERTICAL DISPLACEMENT RATE (in/yr)

- < -7.00
- -7 - -6
- -6 - -5
- -5 - -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - -0.5
- -0.5 - 0
- 0 - 0.5
- 0.5 - 1
- 1 - 2

NOTES:

1. BASE MAP: AERIAL IMAGERY AND TOPOGRAPHY ARE FROM JULY 2020.
2. COORDINATE GRID IS IN FEET. COORDINATE SYSTEM: MR2007.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:12,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. AVERAGE VERTICAL InSAR DEFORMATION RATES REPRESENT A LONG-TERM AVERAGE OVER THE MONITORING PERIOD FROM APRIL 2020 TO OCTOBER 2020.
5. NEGATIVE InSAR DISPLACEMENTS ARE INDICATIVE OF SETTLEMENT/DOWNWARD DEFORMATION.
6. NO InSAR COVERAGE IS AVAILABLE FOR THE EAST-WEST EMBANKMENT CREST, WEST EMBANKMENT CREST AND PORTION OF THE NORTH-SOUTH EMBANKMENT WHERE RECENT CONSTRUCTION HAS RESULTED IN OBSTRUCTION OF LONG-TERM InSAR CONTINUITY.
7. PIEZOMETRIC MONITORING INSTRUMENTATION HAS BEEN OMMITED FOR CLARITY.

400 200 0 400 800 1,200 1,600 2,000 Feet

MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

AVERAGE VERTICAL InSAR SURFACE DEFORAMTION RATES (APRIL 17, 2020 TO OCTOBER 12, 2020)

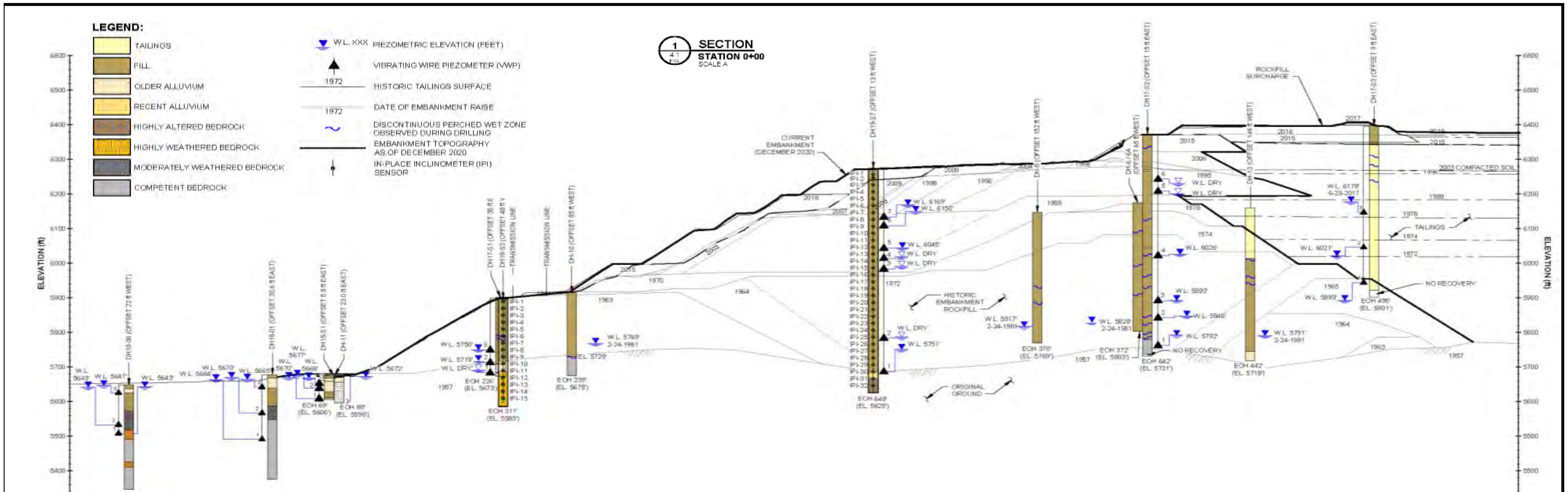
Knight Piésold CONSULTING

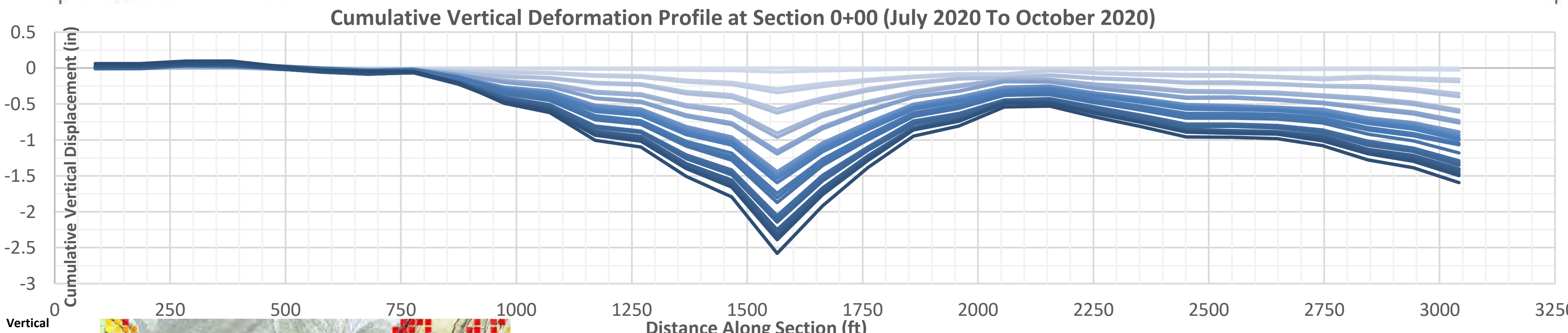
P/A NO.	REF NO.
VA101-126/23	5

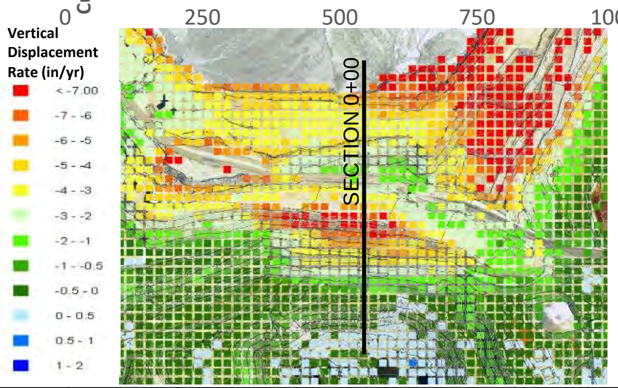
FIGURE D1.6 REV 0

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	29JUN'21	ISSUED WITH REPORT	KTD	KK	DDF

SAVED: \\KPL\VA-Prj$\1\01\00126\23\A\GIS\Figs\Report 5 - 2020 YDTI Data Analysis Report\Rev0\FigD1-6_AverageVerticalInSARSurfaceDeformationRates_Apr2020ToOctober2020_r0.mxd; Jun 29, 2021 4:51 PM; bhedji







NOTES:

1. THE SERIES SHOWN ABOVE REPRESENT CUMULATIVE DISPLACEMENTS AT EACH INSAR SURVEY BETWEEN JULY 1, 2020 AND OCTOBER 12, 2020. MORE INCREASINGLY RECENT SERIES ARE DISPLAYED WITH SEQUENTIALLY DARKER LINETYPE.
2. PIEZOMETRIC ELEVATIONS SHOWN ON THE CROSS-SECTION ARE FROM DECEMBER 31, 2020.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL inSAR DISPLACEMENTS MONITORED ALONG SECTION 0+00 (JULY 1 TO OCTOBER 2020)

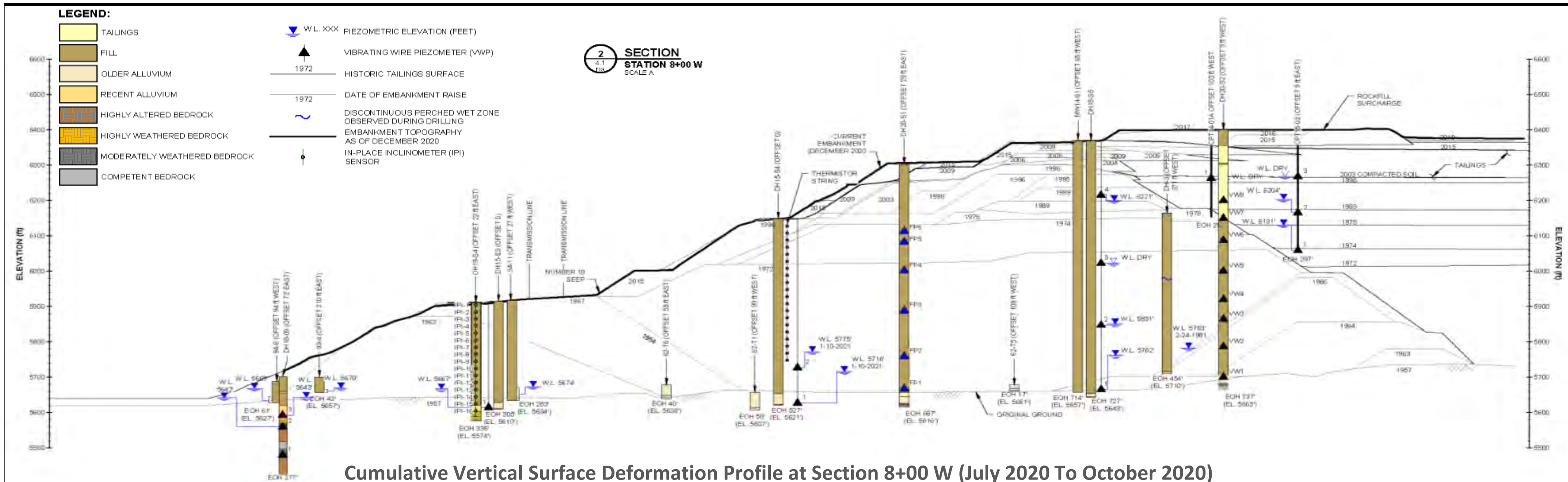
Knight Piésold CONSULTING

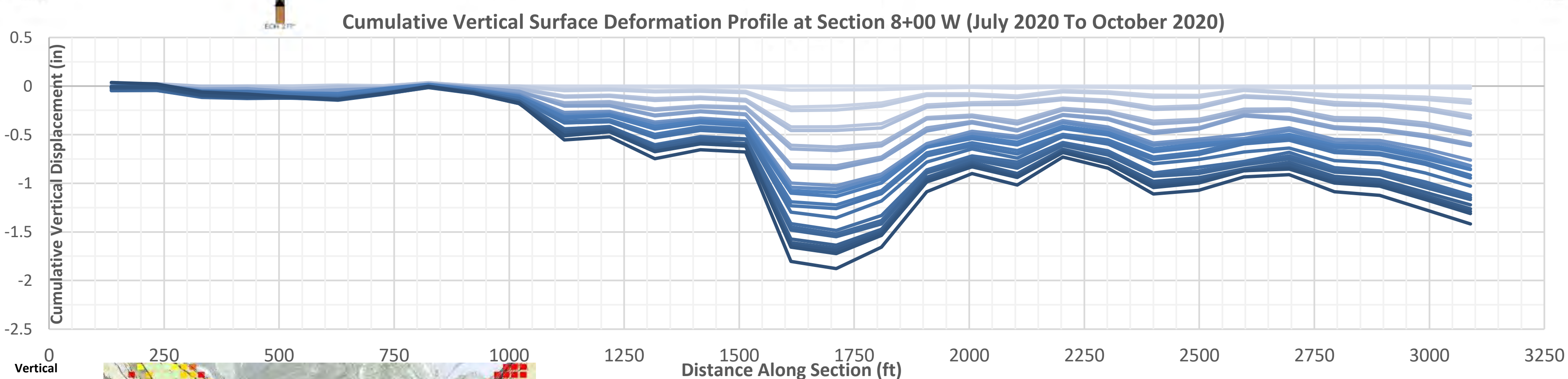
P/A NO. VA101-00126/23

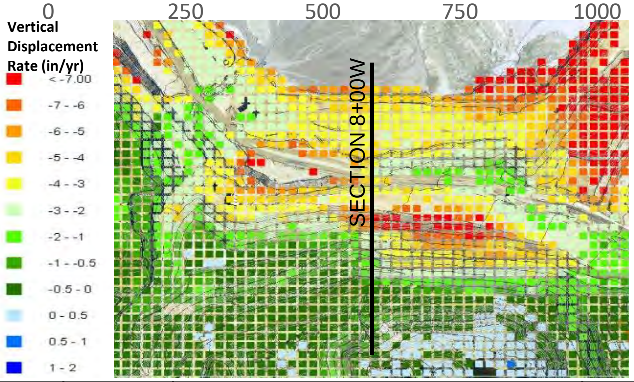
REF. NO. 5

FIGURE D1.7

REV 0







NOTES:

1. THE SERIES SHOWN ABOVE REPRESENT CUMULATIVE DISPLACEMENTS AT EACH INSAR SURVEY BETWEEN JULY 1, 2020 AND OCTOBER 12, 2020. MORE INCREASINGLY RECENT SERIES ARE DISPLAYED WITH SEQUENTIALLY DARKER LINETYPE.
2. PIEZOMETRIC ELEVATIONS SHOWN ON THE CROSS-SECTION ARE FROM DECEMBER 31, 2020.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL inSAR DISPLACEMENTS MONITORED ALONG SECTION 8+00W (JULY 1 TO OCTOBER 2020)

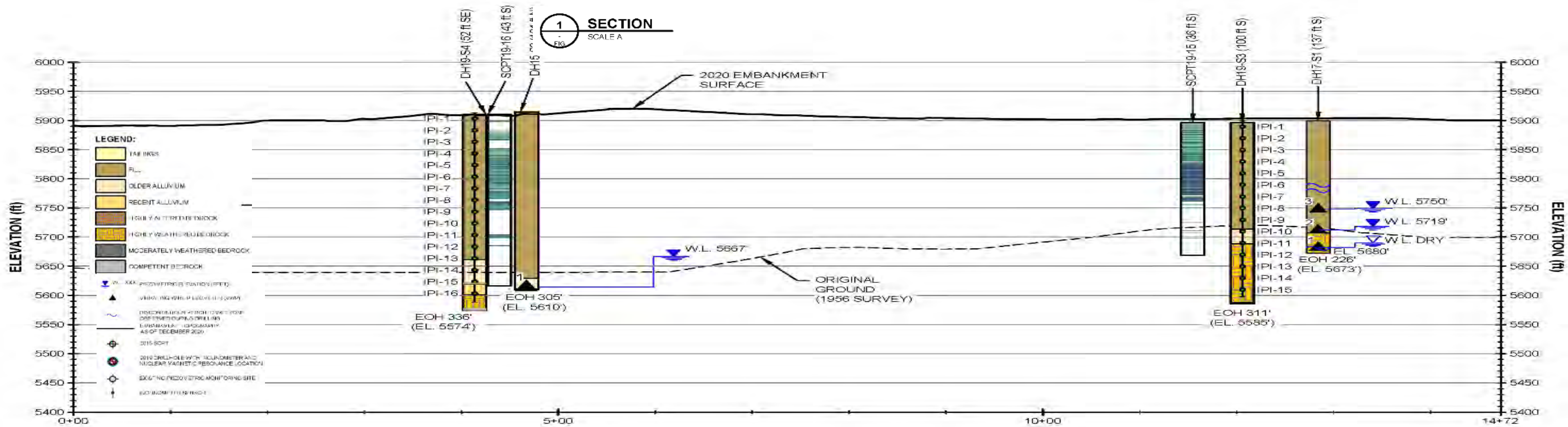
Knight Piésold CONSULTING

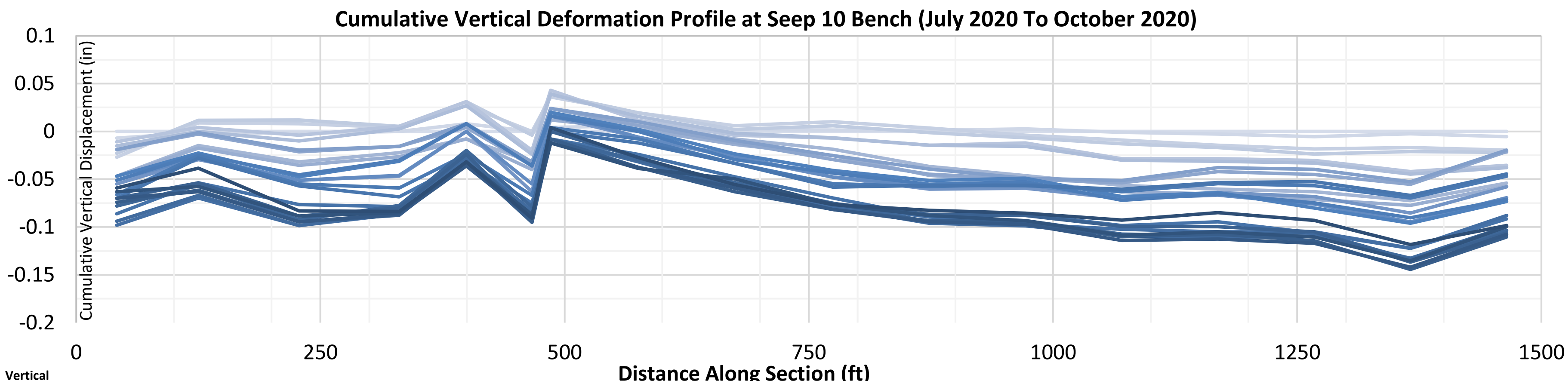
P/A NO. VA101-00126/23

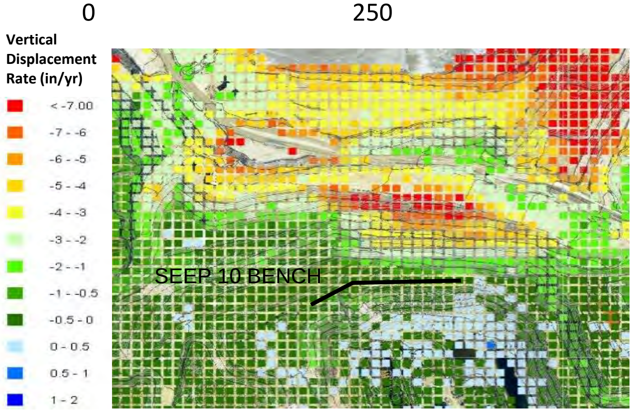
REF. NO. 5

FIGURE D1.8

REV 0







NOTES:

1. THE SERIES SHOWN ABOVE REPRESENT CUMULATIVE DISPLACEMENTS AT EACH INSAR SURVEY BETWEEN JULY 1, 2020 AND OCTOBER 12, 2020. MORE INCREASINGLY RECENT SERIES ARE DISPLAYED WITH SEQUENTIALLY DARKER LINETYPE.
2. PIEZOMETRIC ELEVATIONS SHOWN ON THE CROSS-SECTION ARE FROM DECEMBER 31, 2020.

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL inSAR DISPLACEMENTS MONITORED ALONG SEEP 10 BENCH (JULY 1 TO OCTOBER 2020)

Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE D1.9

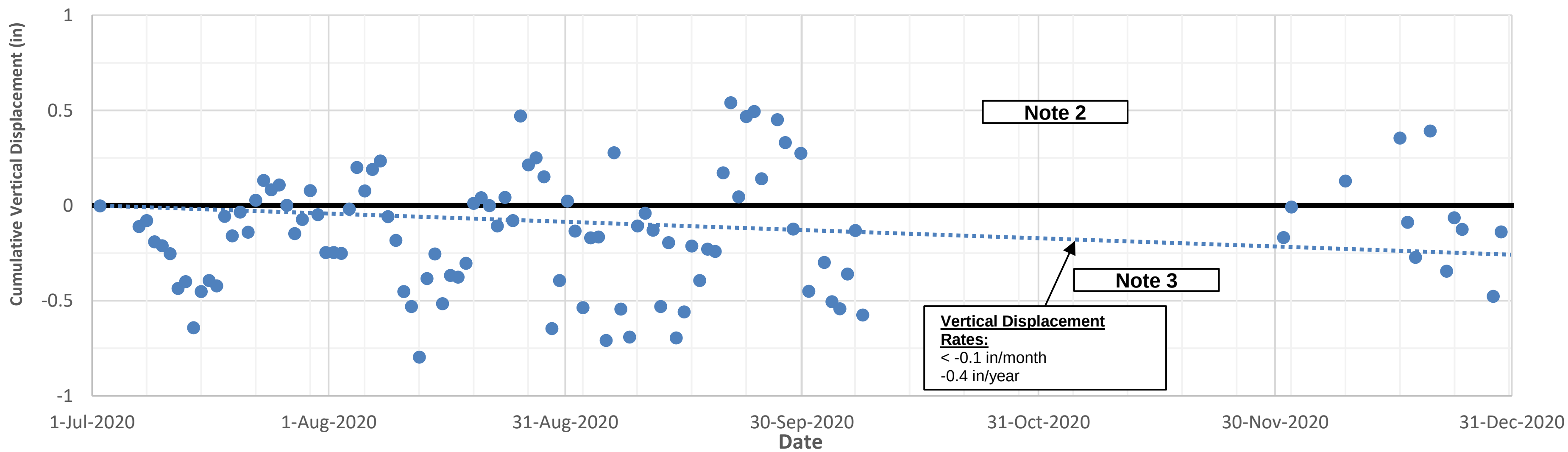
REV 0

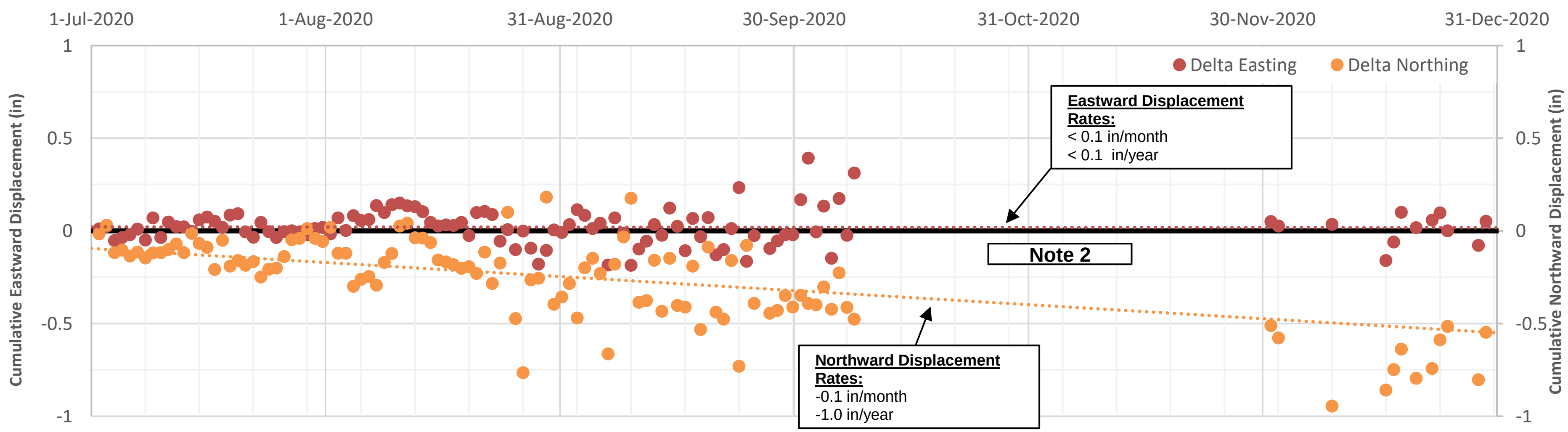
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

APPENDIX D2

GNSS Monitoring Data

(Figures D2.1 to D2.8)





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.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

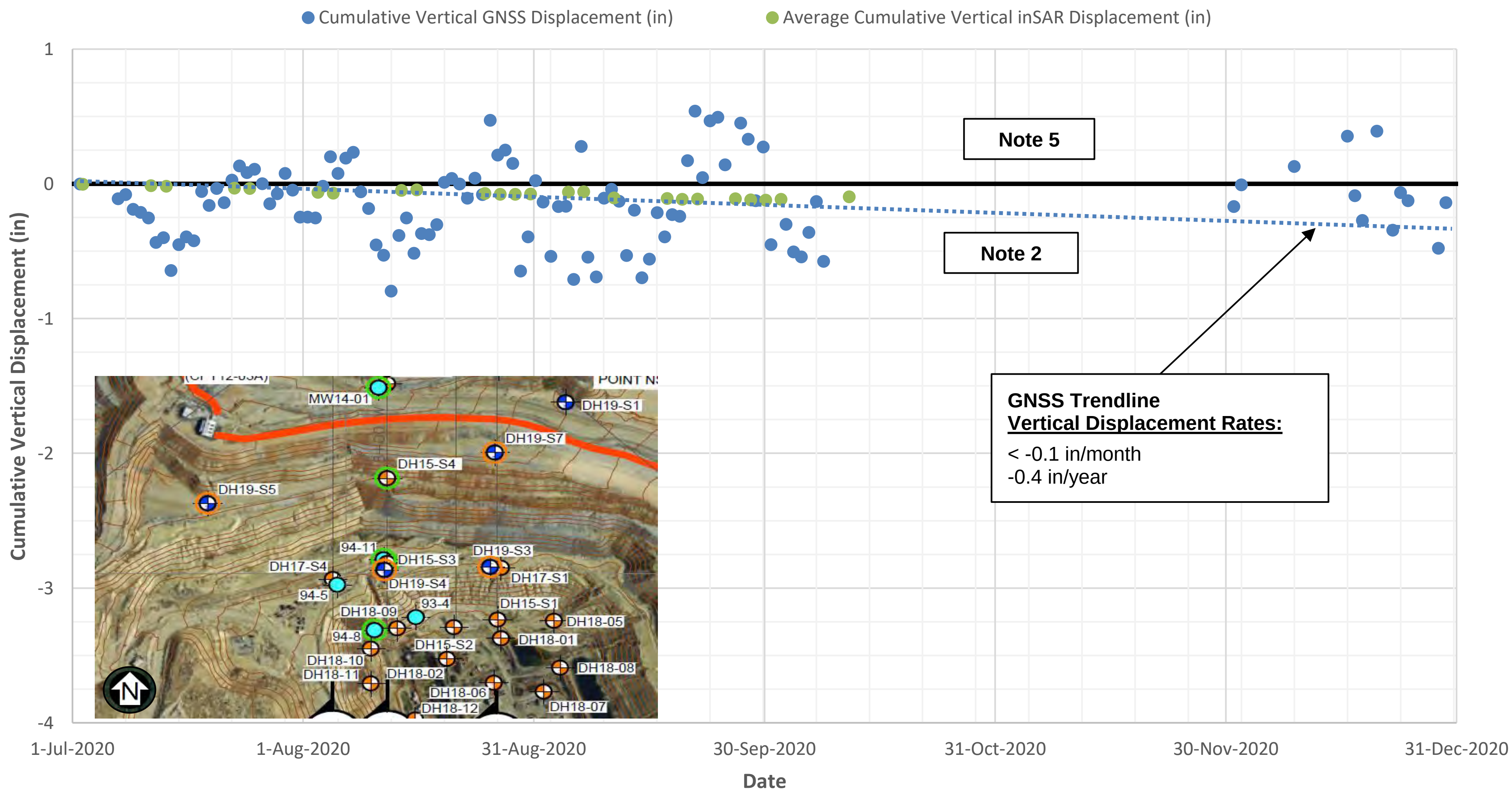
MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S3 (JULY 1, 2020 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

P/A NO. VA101-00126/23	REF. NO. 5	
FIGURE D2.1		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-S3.
5. NO INSAR DATA ARE AVAILABLE AFTER OCTOBER 2, 2020 DUE TO THE ONSET OF WINTER

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

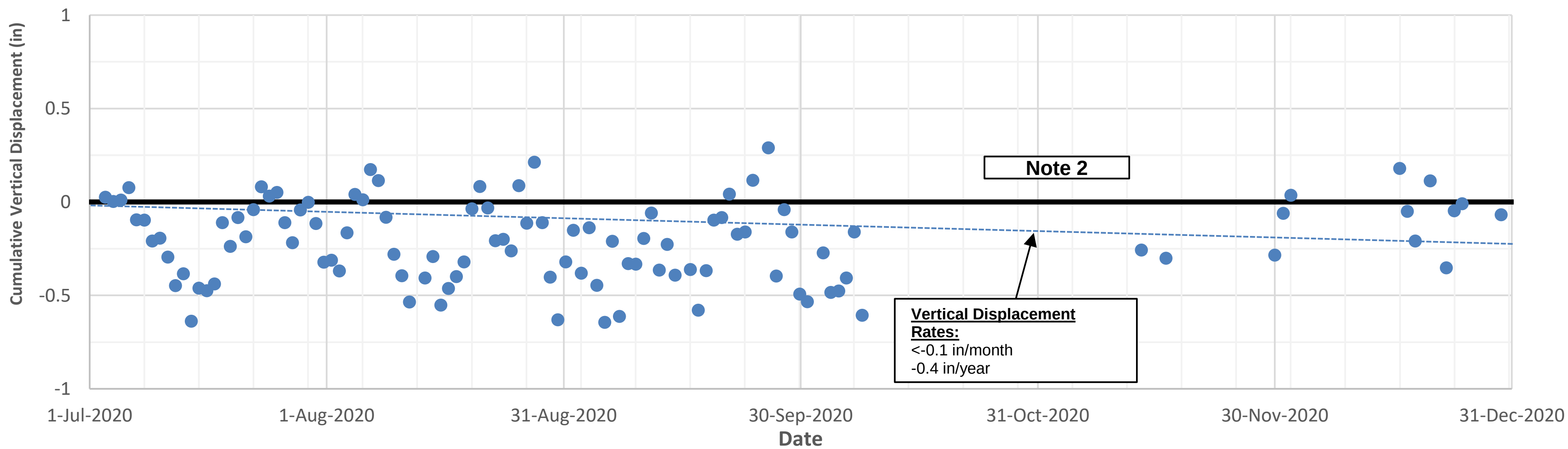
YANKEE DOODLE TAILINGS IMPOUNDMENT

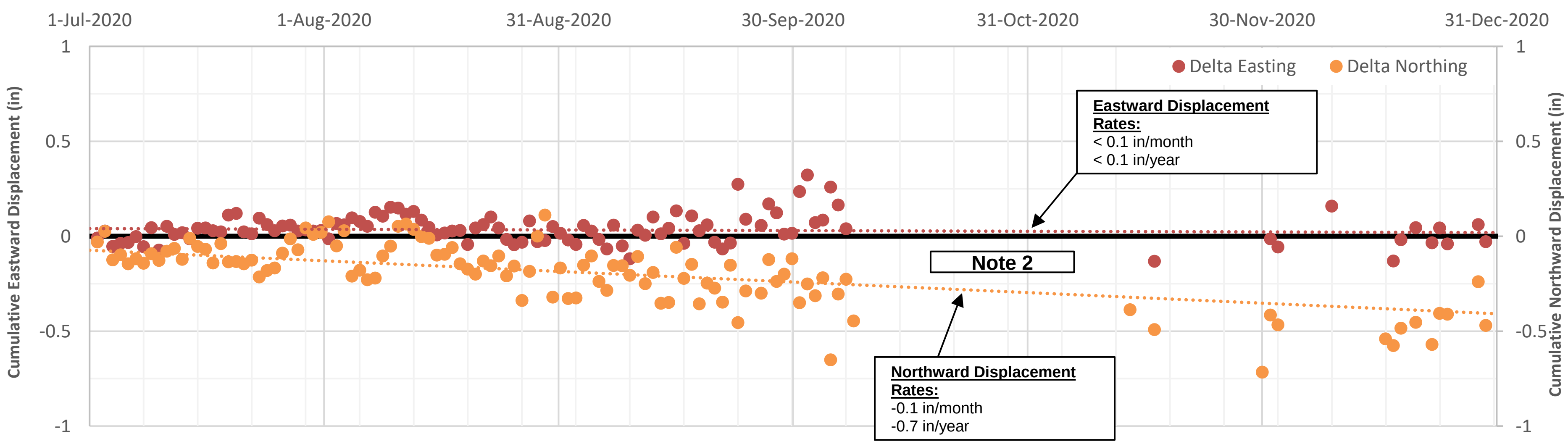
CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S3 (JULY 1, 2020 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE D2.2 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.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S4 (JULY 1, 2020 TO DECEMBER 31, 2020)

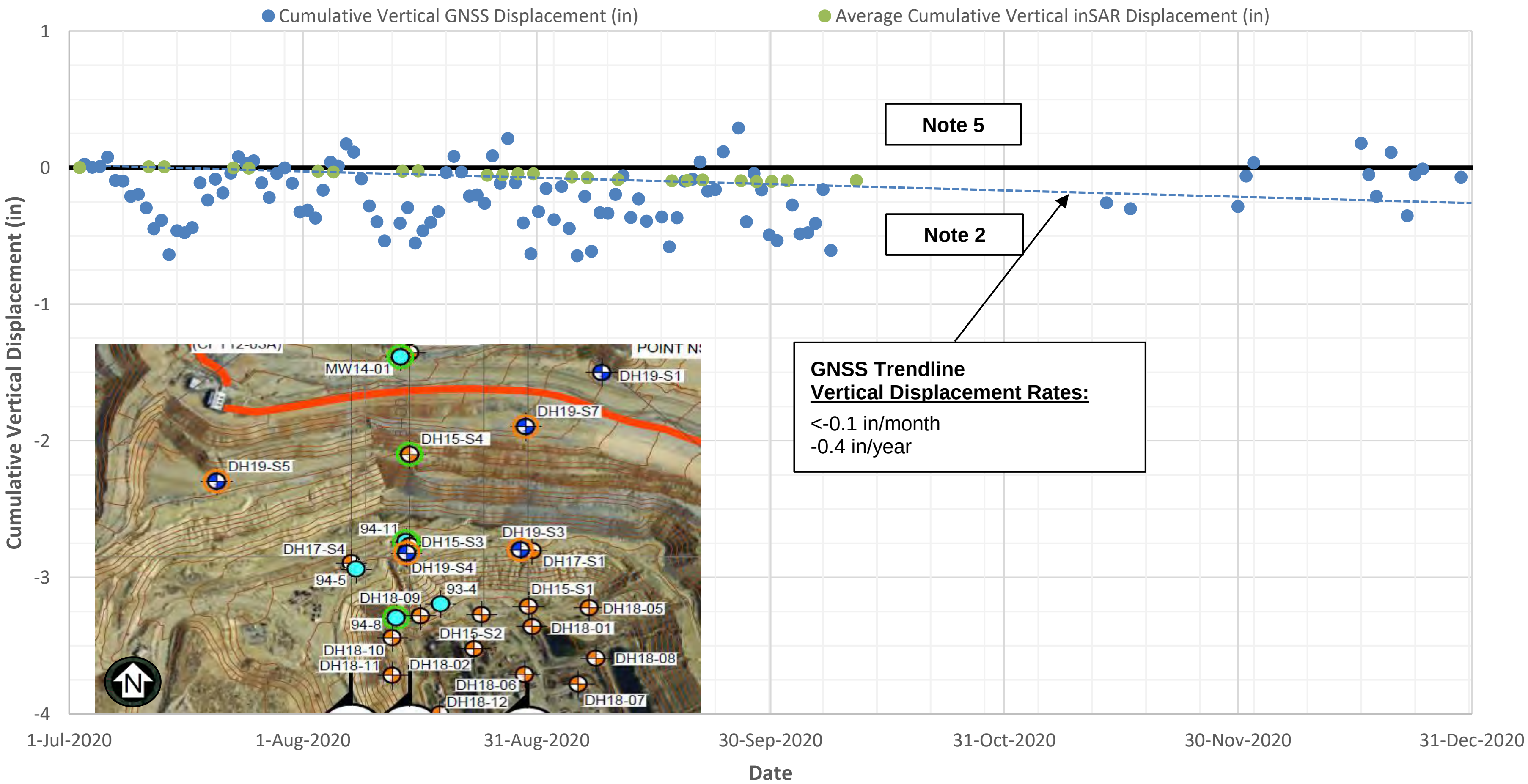
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE D2.3

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 INSAR DATA ARE AVAILABLE AFTER OCTOBER 2, 2020 DUE TO THE ONSET OF WINTER CONDITIONS.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

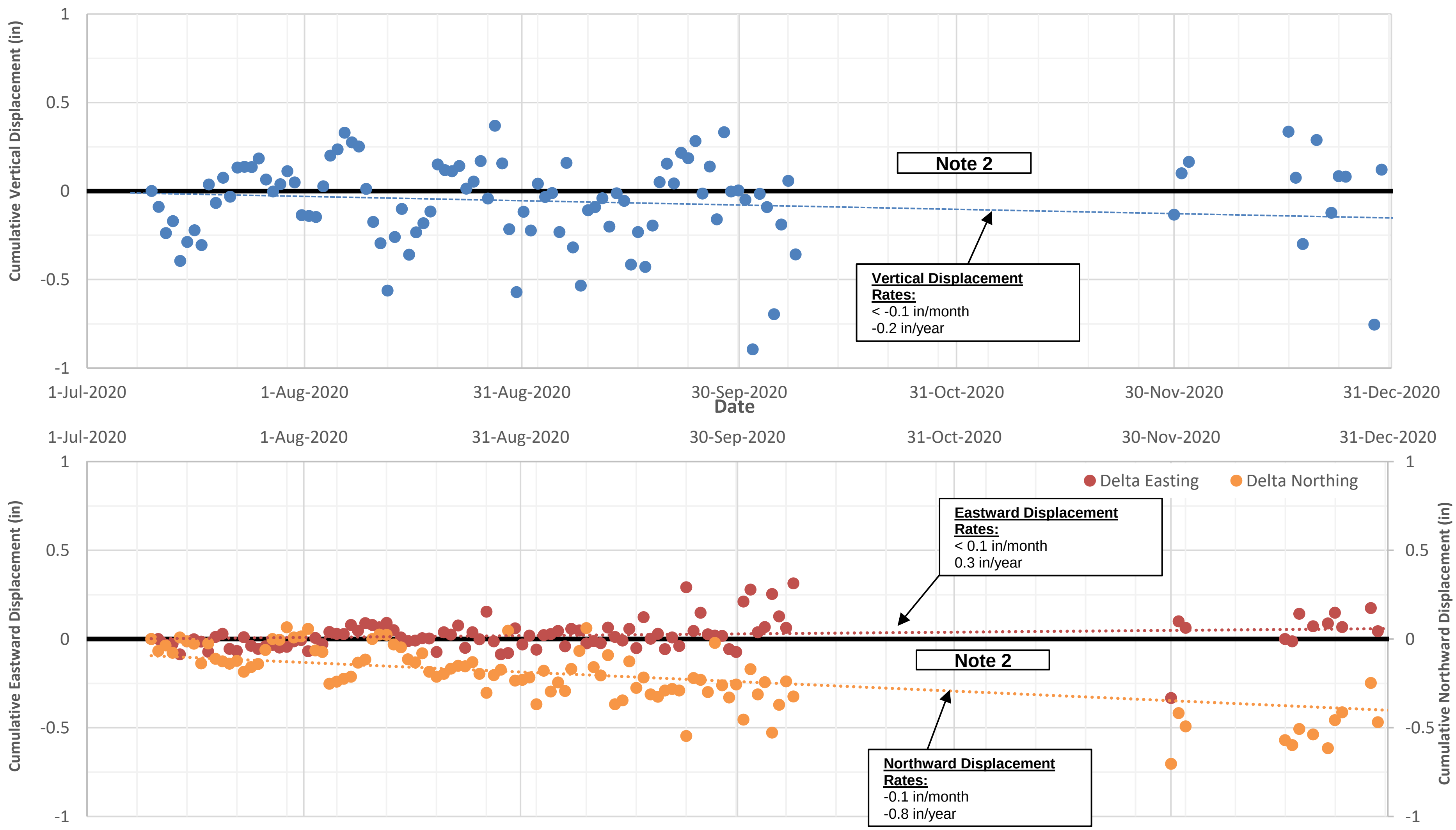
YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S4 (JULY 1, 2020 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-00126/23	5

FIGURE D2.4 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.

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MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S5 (JULY 1, 2020 TO DECEMBER 31, 2020)

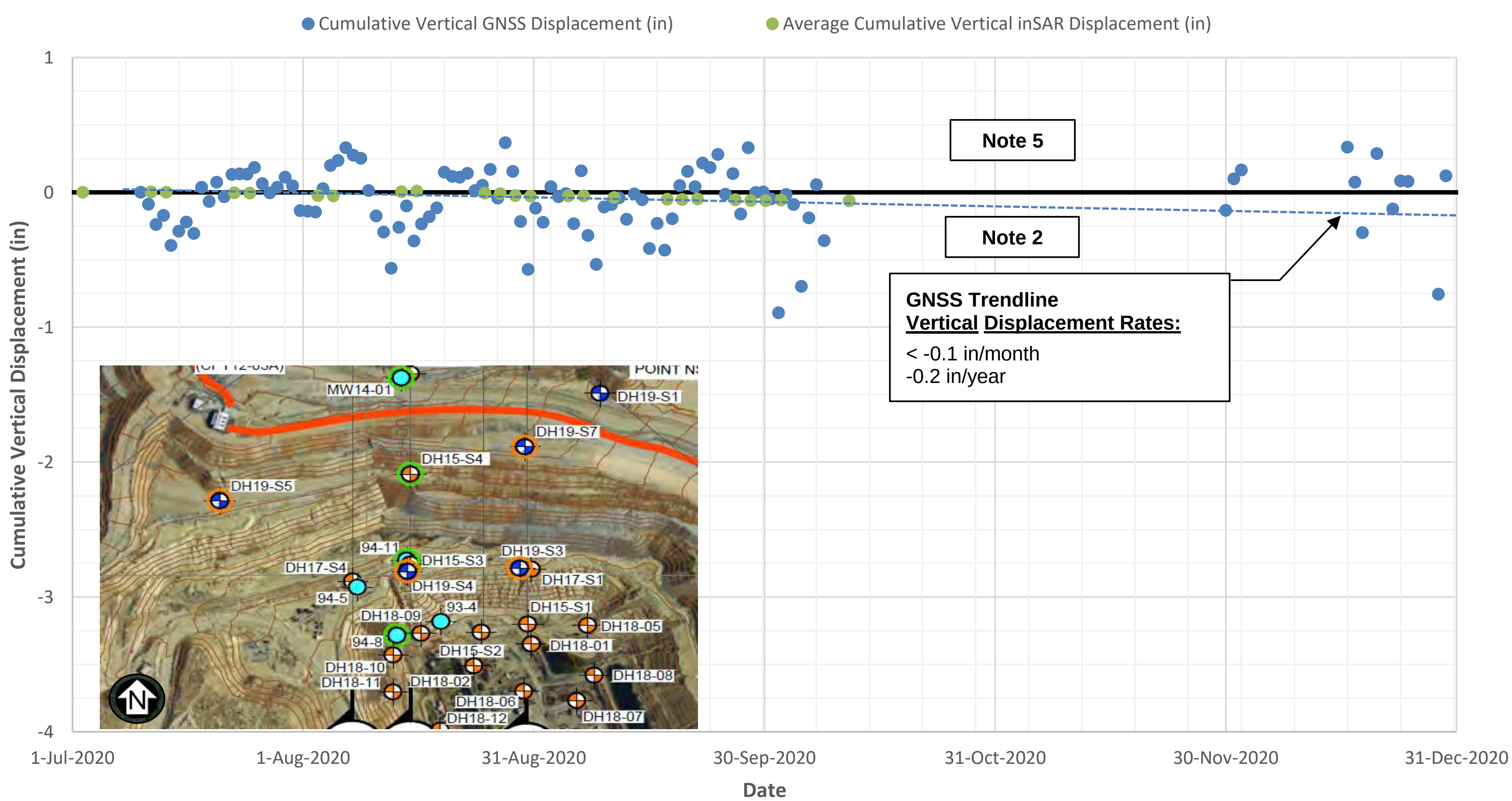
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE D2.5

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 INSAR DATA ARE AVAILABLE AFTER OCTOBER 2, 2020 DUE TO THE ONSET OF WINTER CONDITIONS.

0	29JUN'21	ISSUED WITH REPORT	SY3	KTD
REV	DATE	DESCRIPTION	PREP'D	RVW'D

MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S5 (JULY 1, 2020 TO DECEMBER 31, 2020)

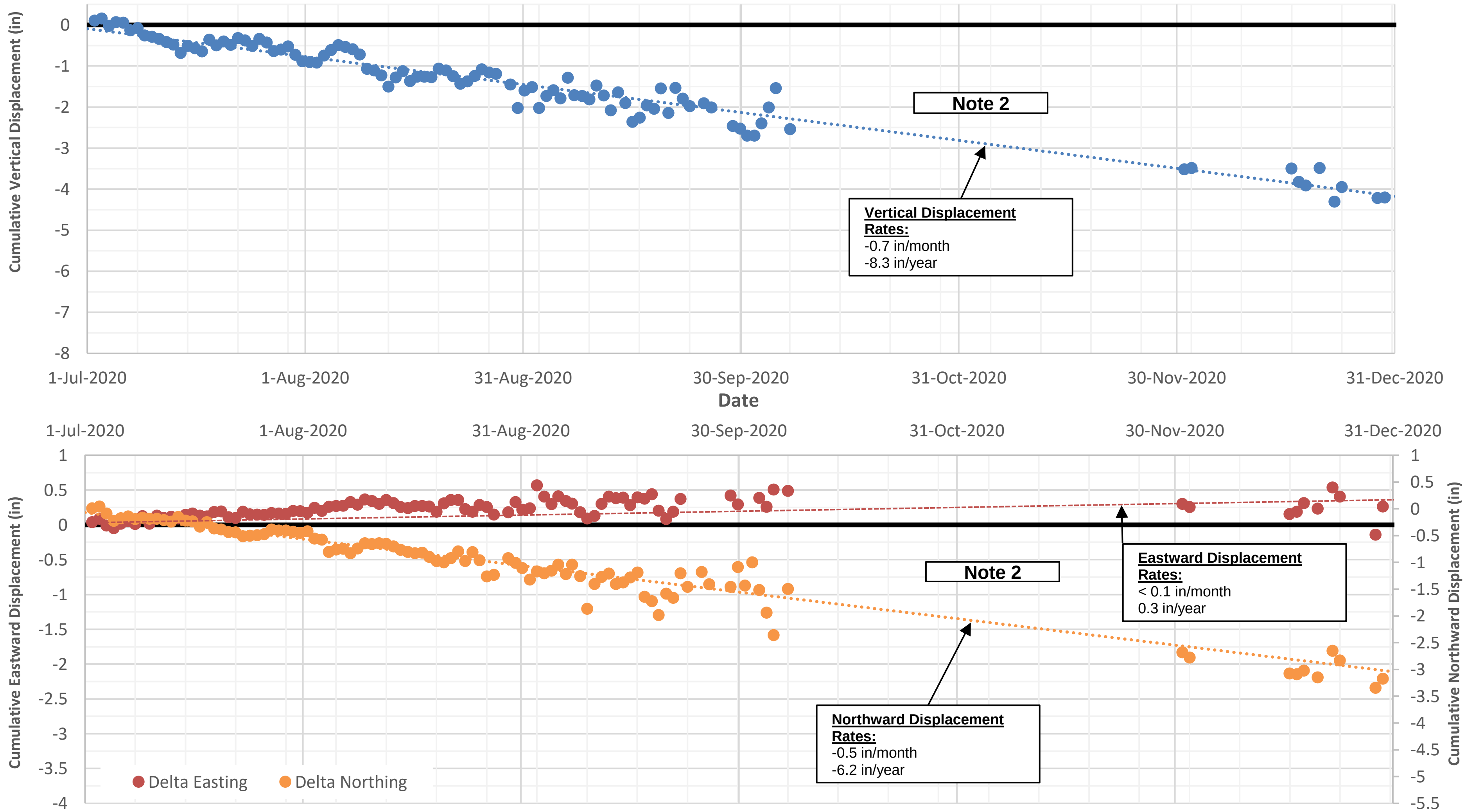
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE D2.6

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.

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MONTANA RESOURCES LLP.

YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL & LATERAL DISPLACEMENTS MONITORED AT DH19-S7 (JULY 1, 2020 TO DECEMBER 31, 2020)

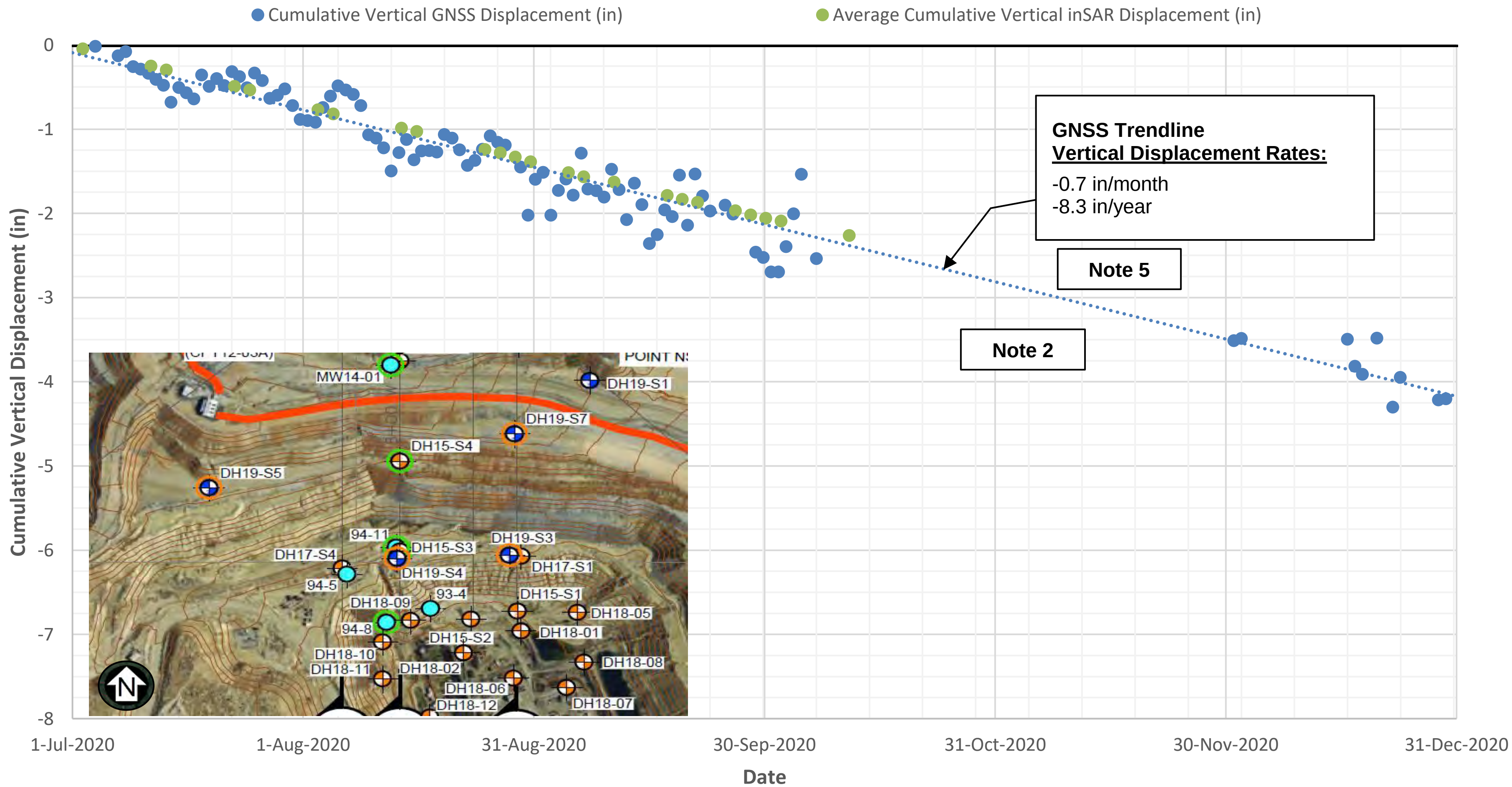
Knight Piésold CONSULTING

P/A NO. VA101-00126/23

REF. NO. 5

FIGURE D2.7

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 INSAR DATA ARE AVAILABLE AFTER OCTOBER 2, 2020 DUE TO THE ONSET OF WINTER CONDITIONS.

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YANKEE DOODLE TAILINGS IMPOUNDMENT

CUMULATIVE VERTICAL DISPLACEMENTS MONITORED AT DH19-S7 (JULY 1, 2020 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

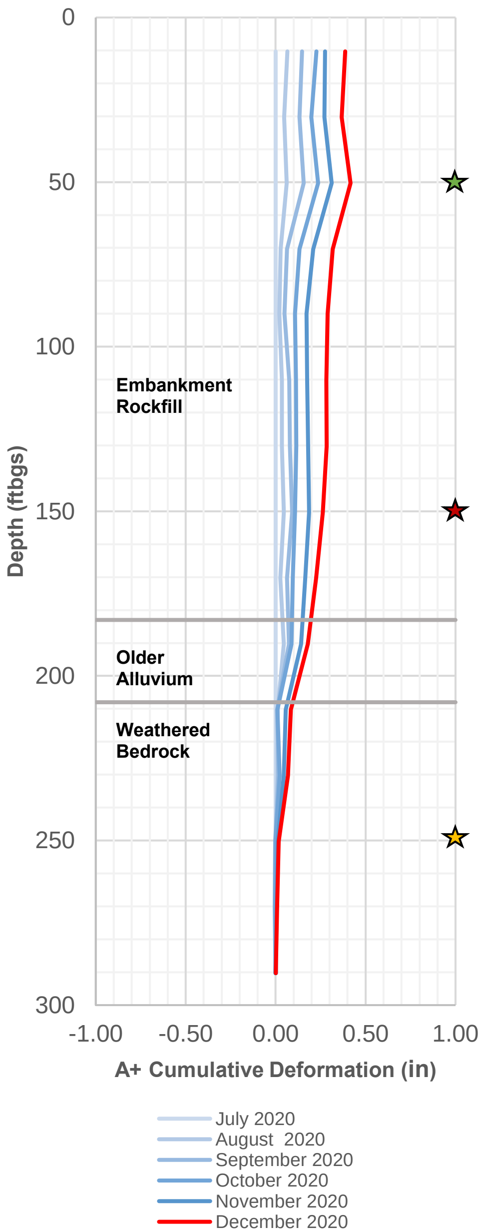
P/A NO.	REF. NO.
VA101-00126/23	5

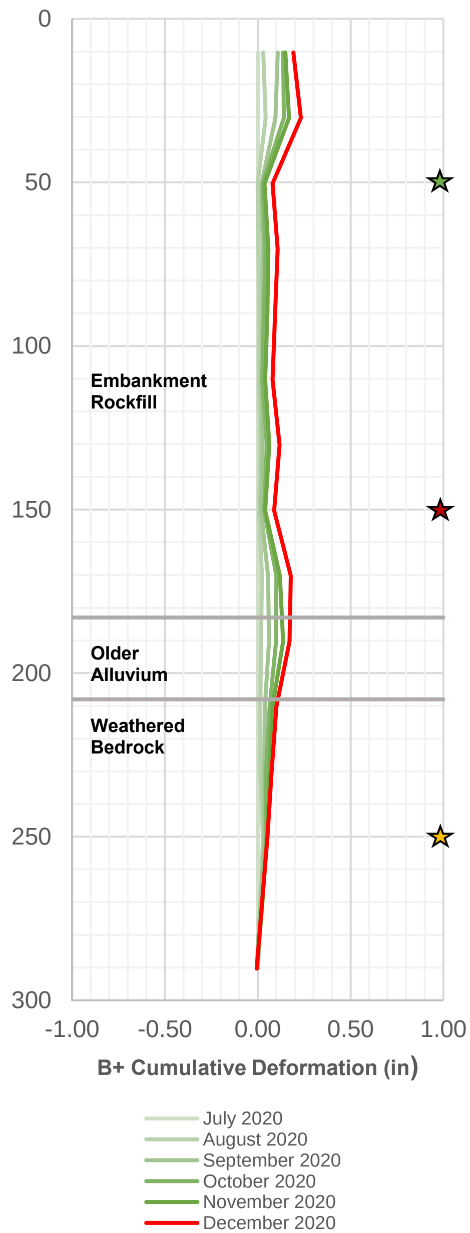
FIGURE D2.8 REV 0

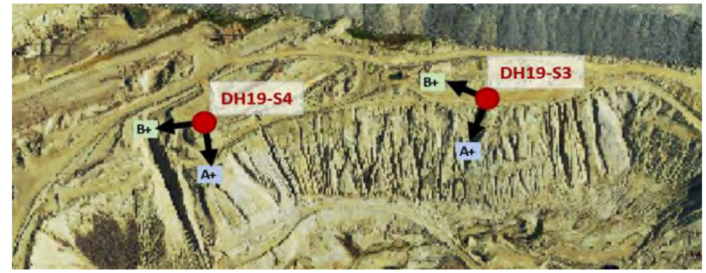
APPENDIX D3

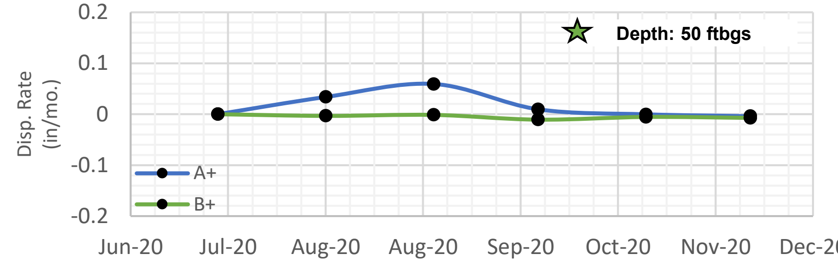
Inclinometer Monitoring Data

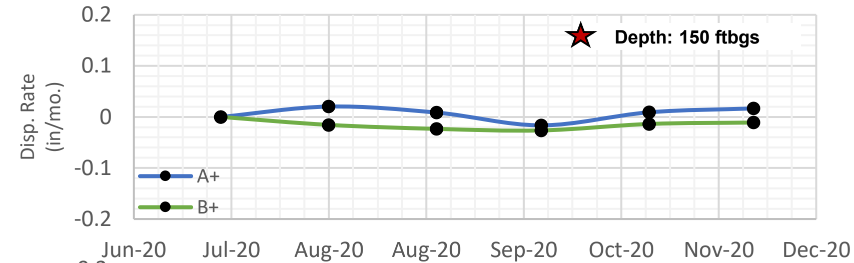
(Figures D3.1 to D3.10)

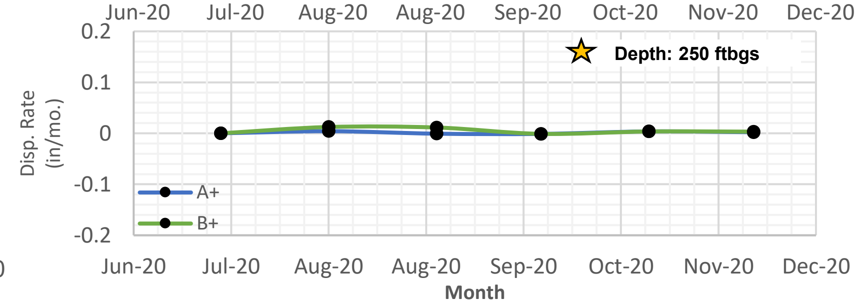












NOTES:
1. CUMULATIVE DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.

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

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE CUMULATIVE DEFORMATION DRILLHOLE DH19-S3 (JULY 2020 TO DECEMBER 2020)

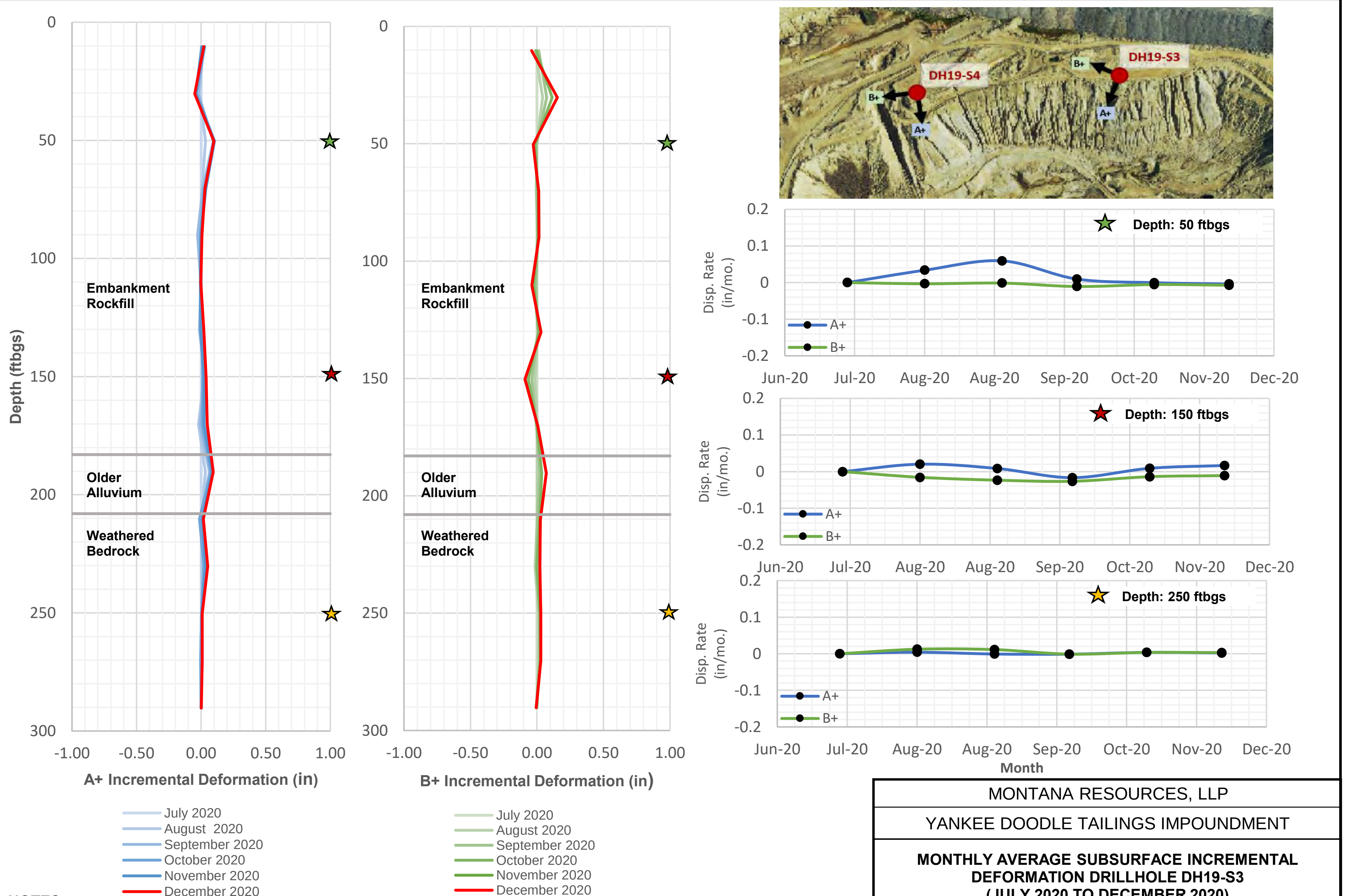
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE D3.1

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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0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

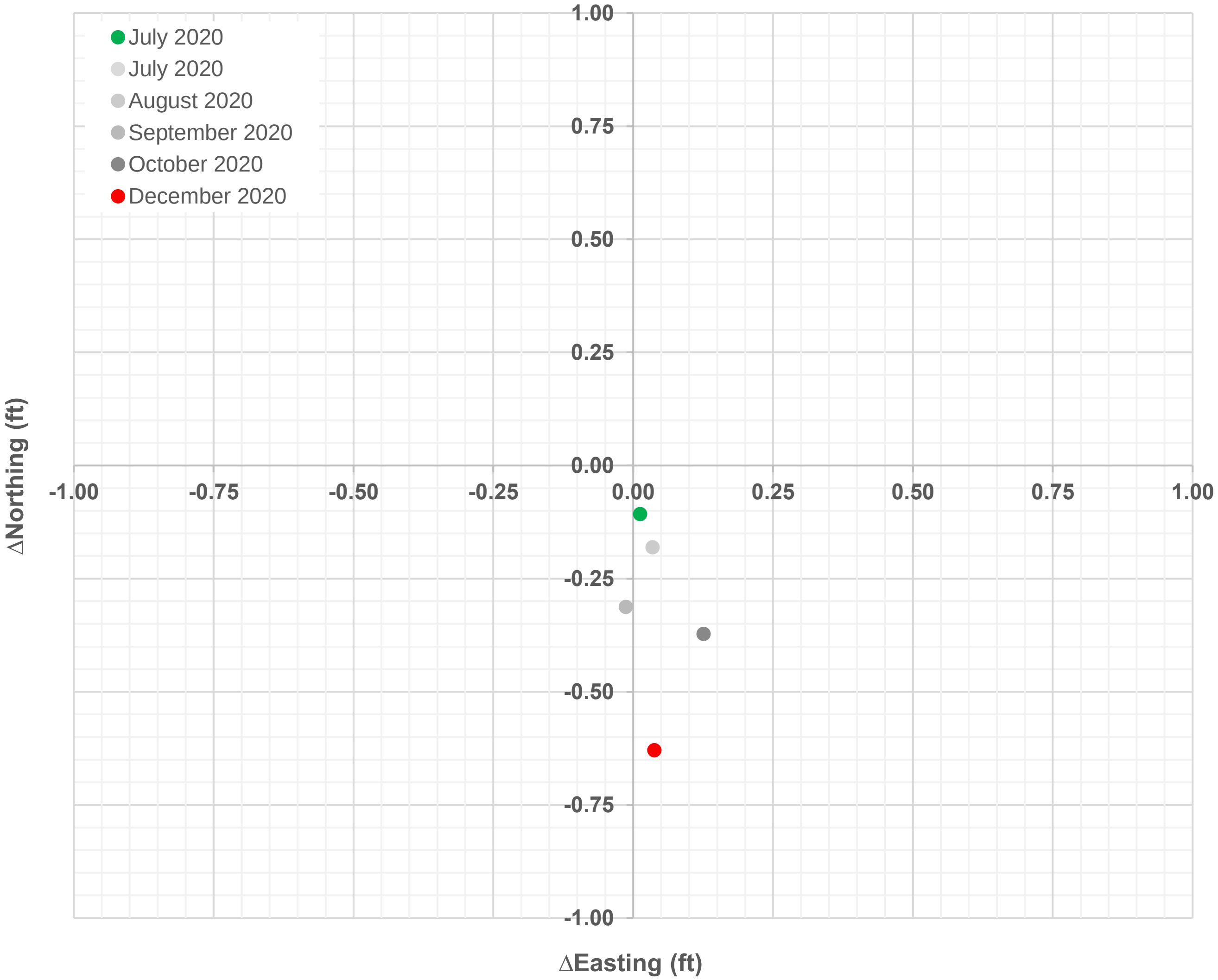
MONTANA RESOURCES, LLP

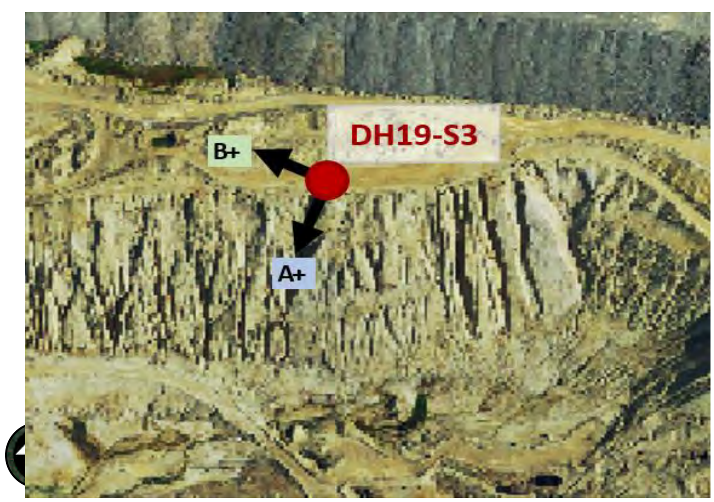
YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE INCREMENTAL DEFORMATION DRILLHOLE DH19-S3 (JULY 2020 TO DECEMBER 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE D3.2		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 AS THE INSTRUMENTATION WERE OFFLINE DUE TO A POWER MANAGEMENT ISSUE.

REV	DATE	DESCRIPTION	PREP'D	RVW'D
0	29JUN'21	ISSUED WITH REPORT	SY3	KTD

MONTANA RESOURCES, LLP

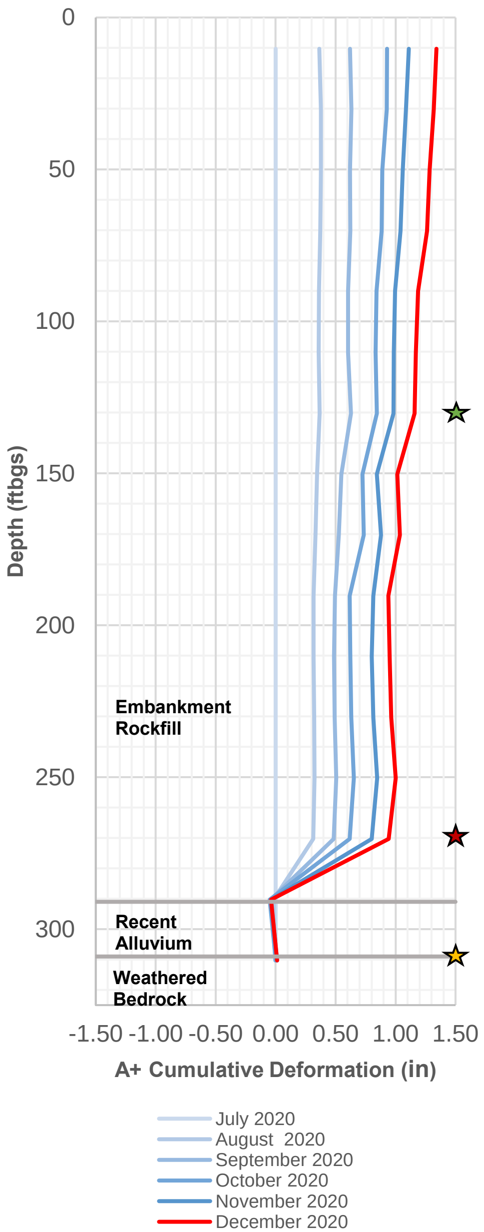
YANKEE DOODLE TAILINGS IMPOUNDMENT

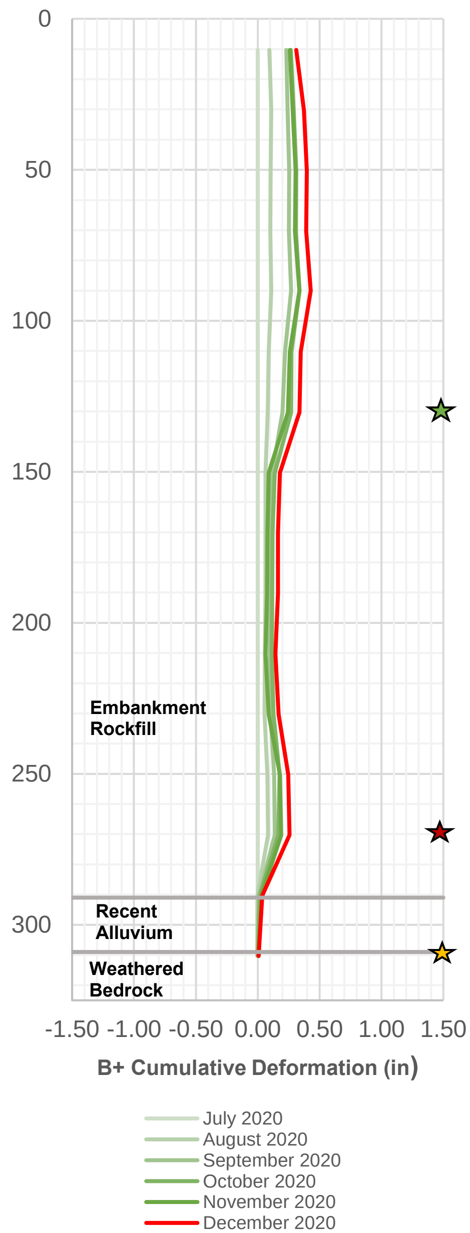
DH19-S3 GNSS-BASED INCLINOMETER COLLAR WANDER (JULY 1 TO DECEMBER 31, 2020)

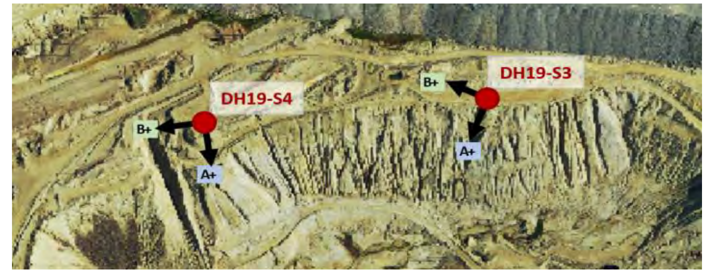
Knight Piésold CONSULTING

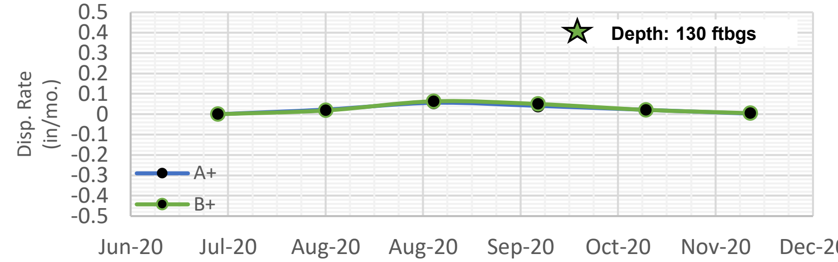
P/A NO.	REF. NO.
VA101-126/23	5

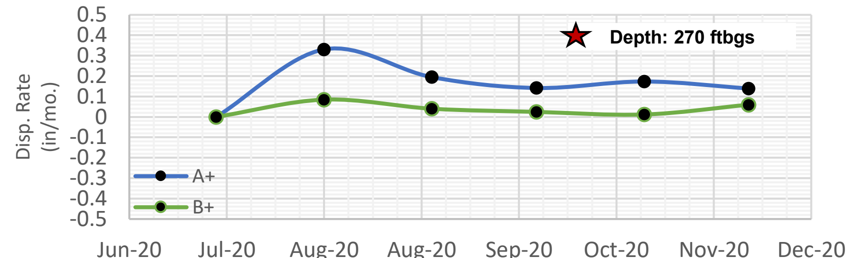
FIGURE D3.3 REV 0

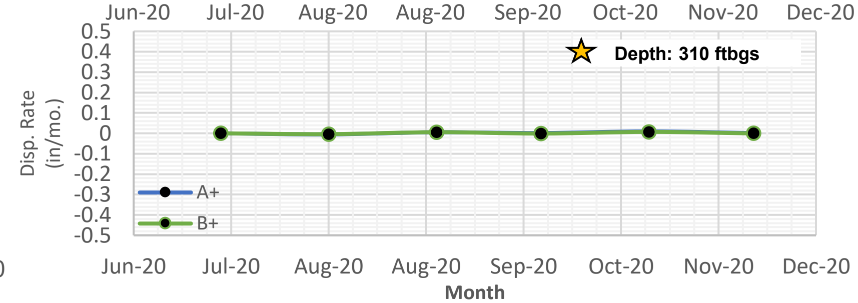












NOTES:

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2. POSITIVE A+ AND B+ DEFORMATIONS INDICATE SOUTHWARD AND WESTWARD DISPLACEMENTS, RESPECTIVELY.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE CUMULATIVE DEFORMATION DRILLHOLE DH19-S4 (JULY 2020 TO DECEMBER 2020)

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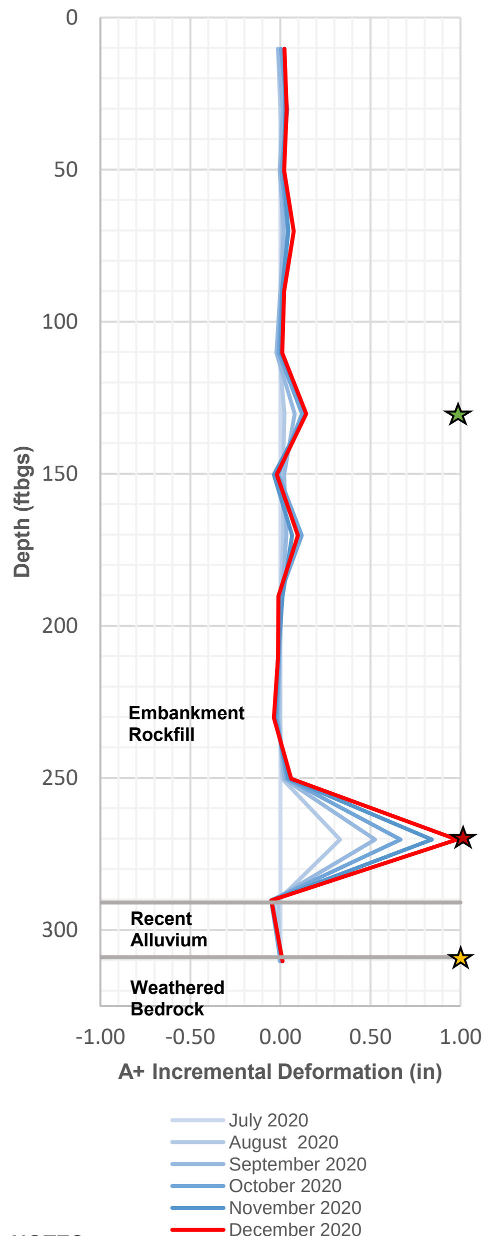
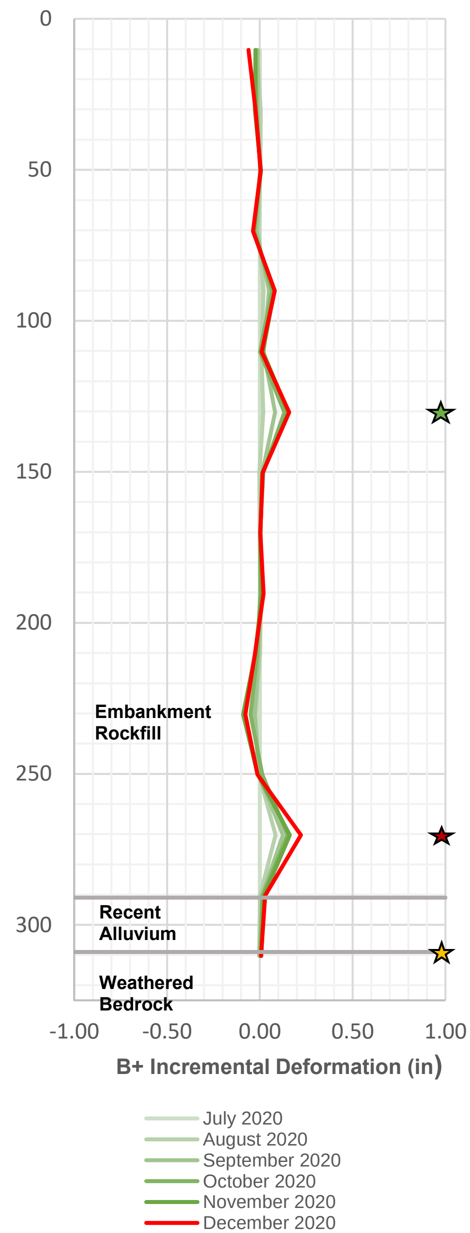
P/A NO. VA101-126/23

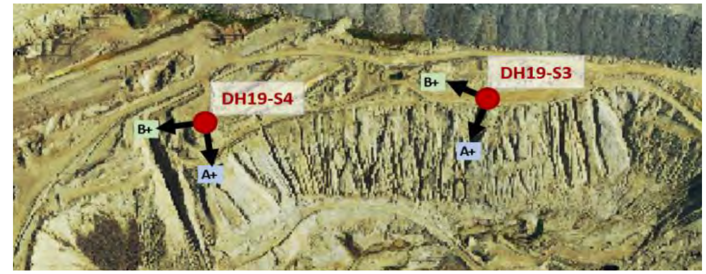
REF. NO. 5

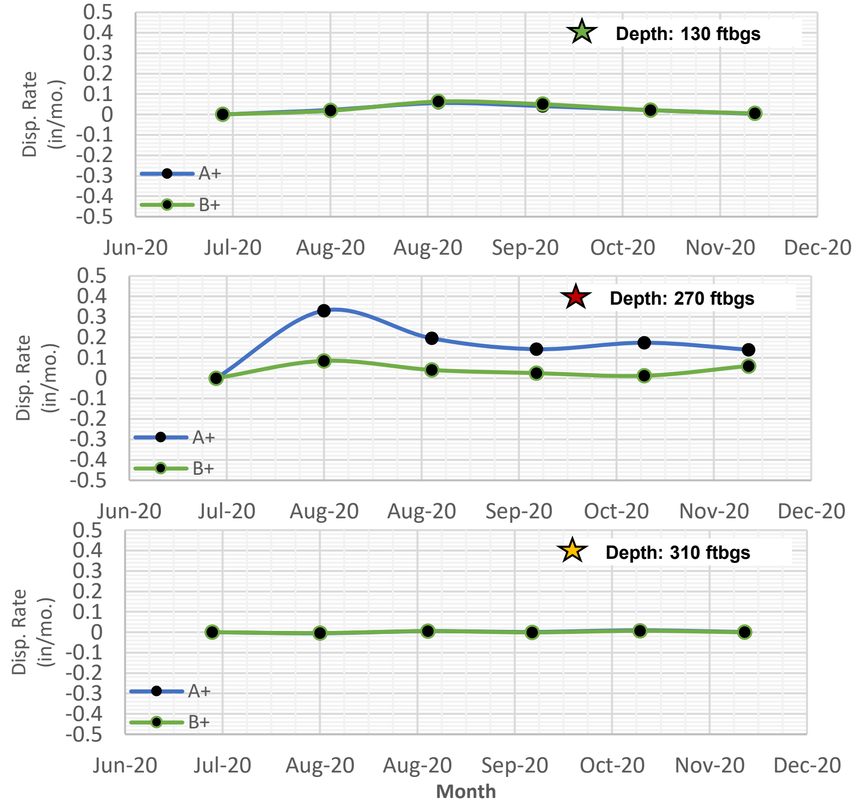
FIGURE D3.4

REV 0









NOTES:
1. INCREMENTAL DEFORMATION MAGNITUDES AND RATES ARE PRESENTED AS MONTHLY AVERAGES.
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YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE INCREMENTAL DEFORMATION DRILLHOLE DH19-S4 (JULY 2020 TO DECEMBER 2020)

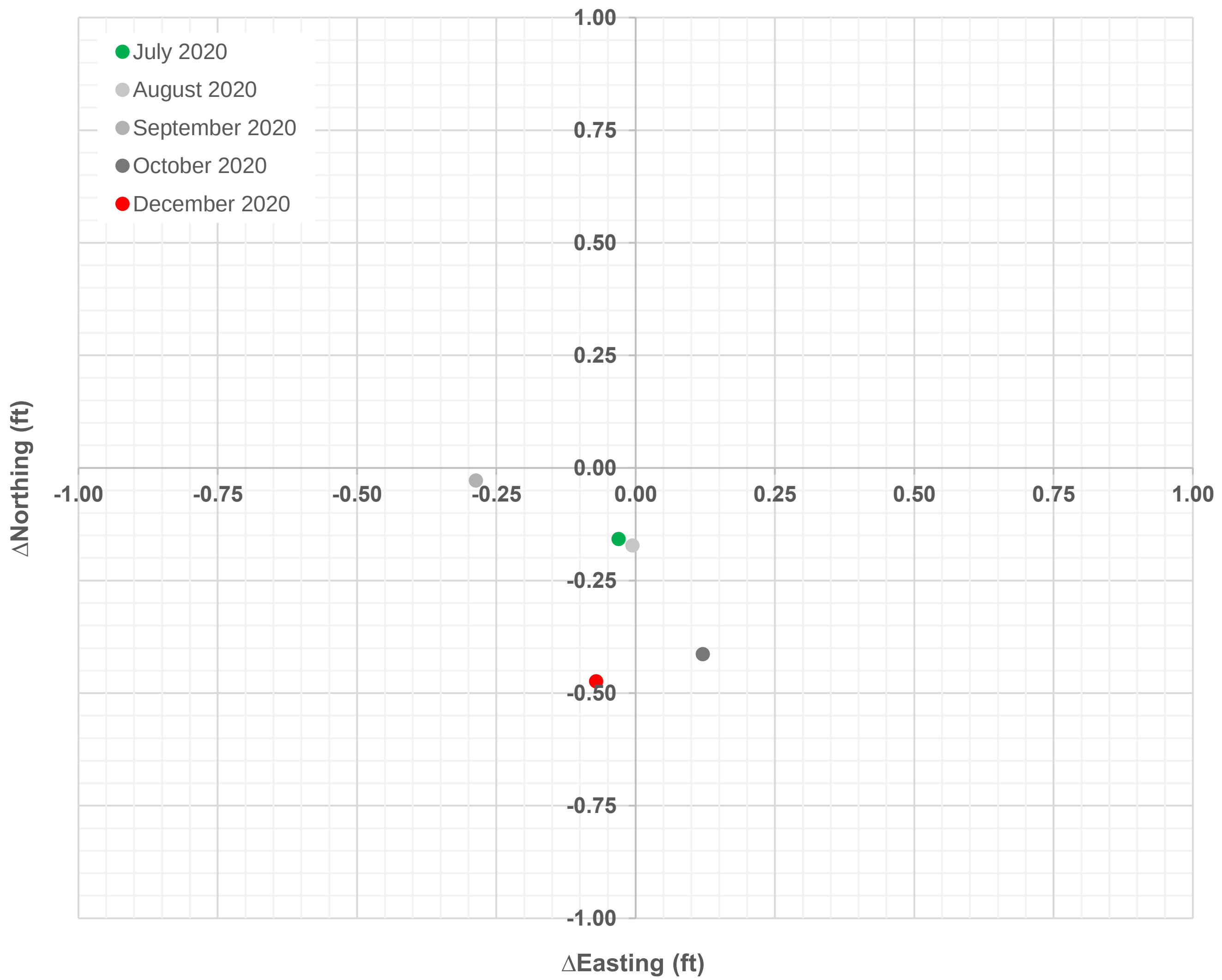
Knight Piésold CONSULTING

P/A NO. VA101-126/23

REF. NO. 5

FIGURE D3.5

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 AS THE INSTRUMENTATION WERE OFFLINE DUE TO A POWER MANAGEMENT ISSUE.

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

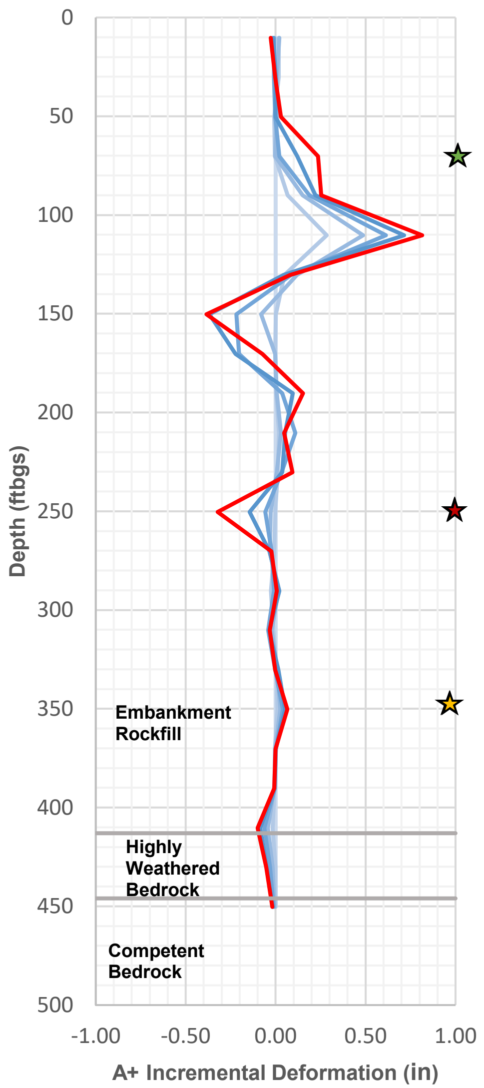
DH19-S4 GNSS BASED INCLINOMETER COLLAR WANDER (JULY 1 TO DECEMBER 31, 2020)

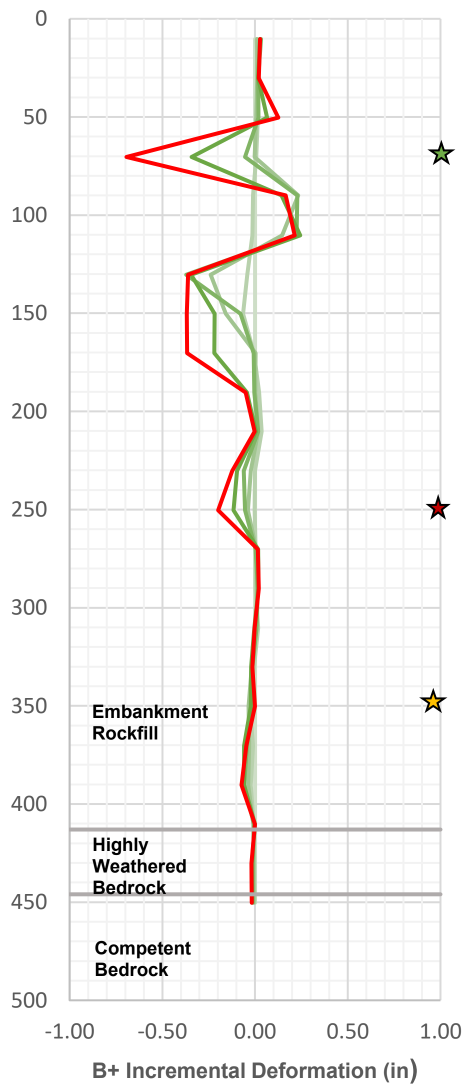
Knight Piésold CONSULTING

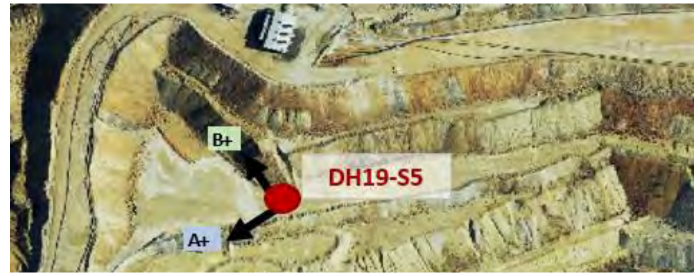
P/A NO.	REF. NO.
VA101-126/23	5

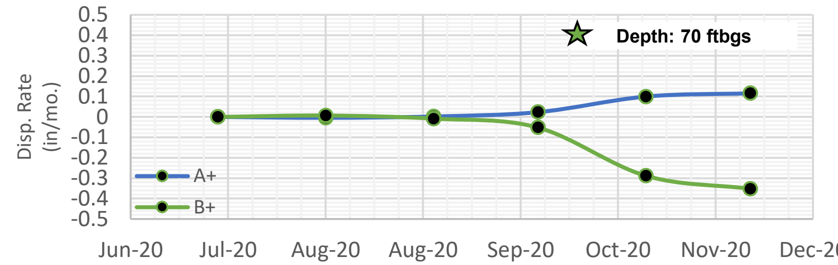
FIGURE D3.6

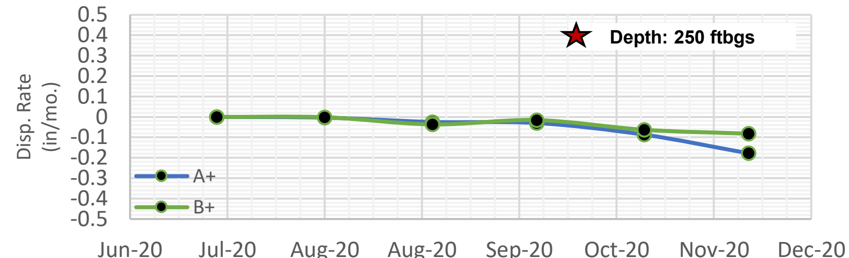
REV 0

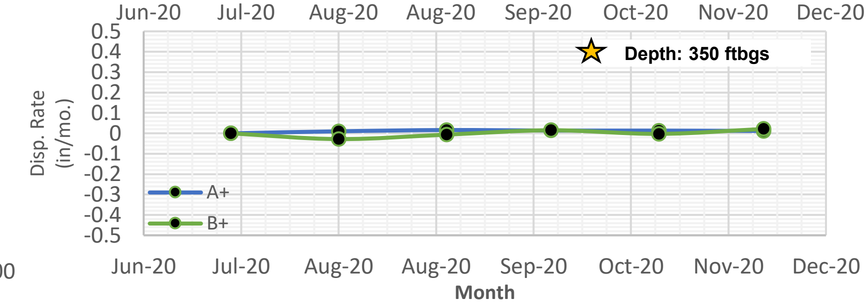












NOTES:
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MONTANA RESOURCES, LLP

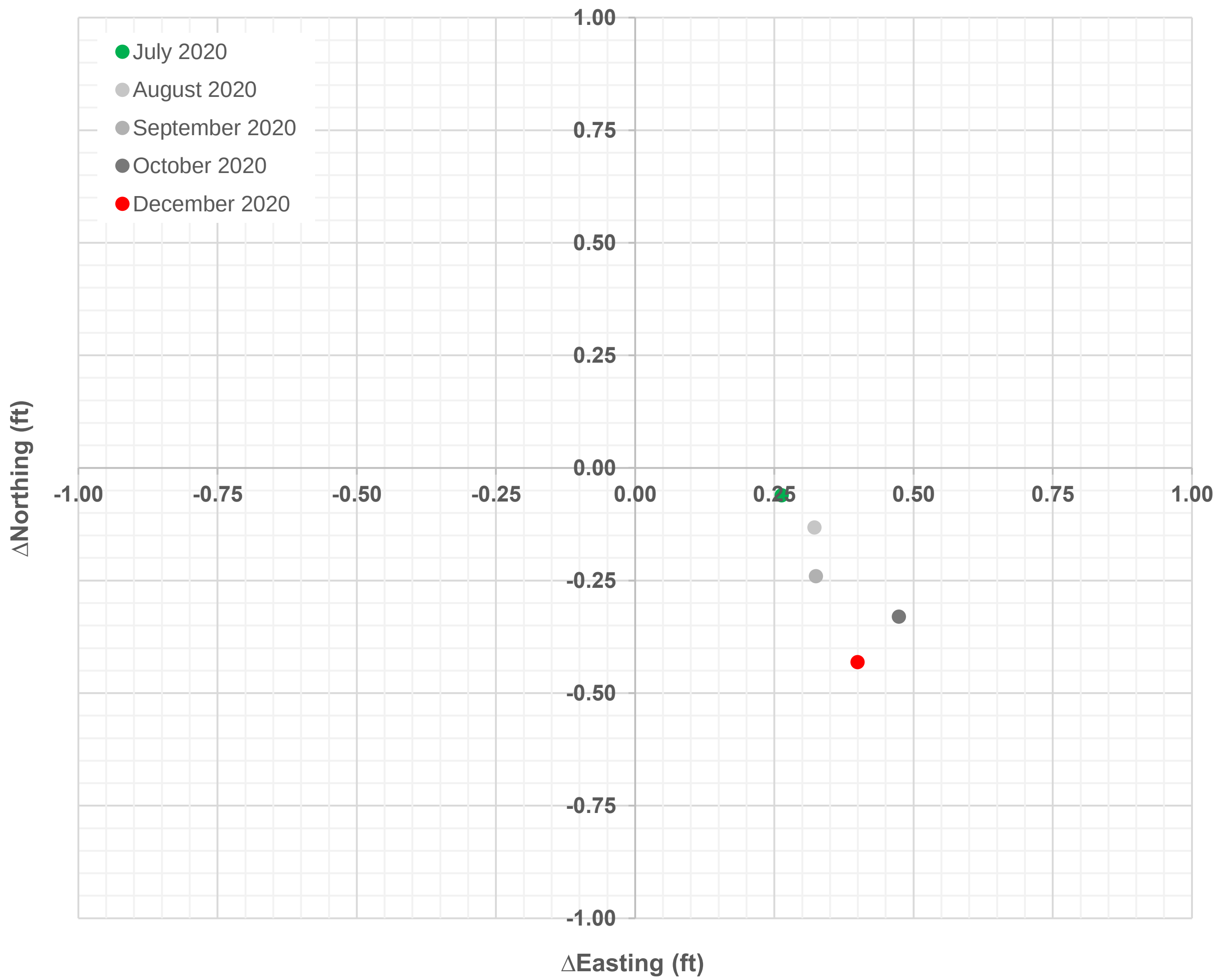
YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE INCREMENTAL DEFORMATION DRILLHOLE DH19-S5 (JULY 2020 TO DECEMBER 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE D3.7 REV 0



NOTES:

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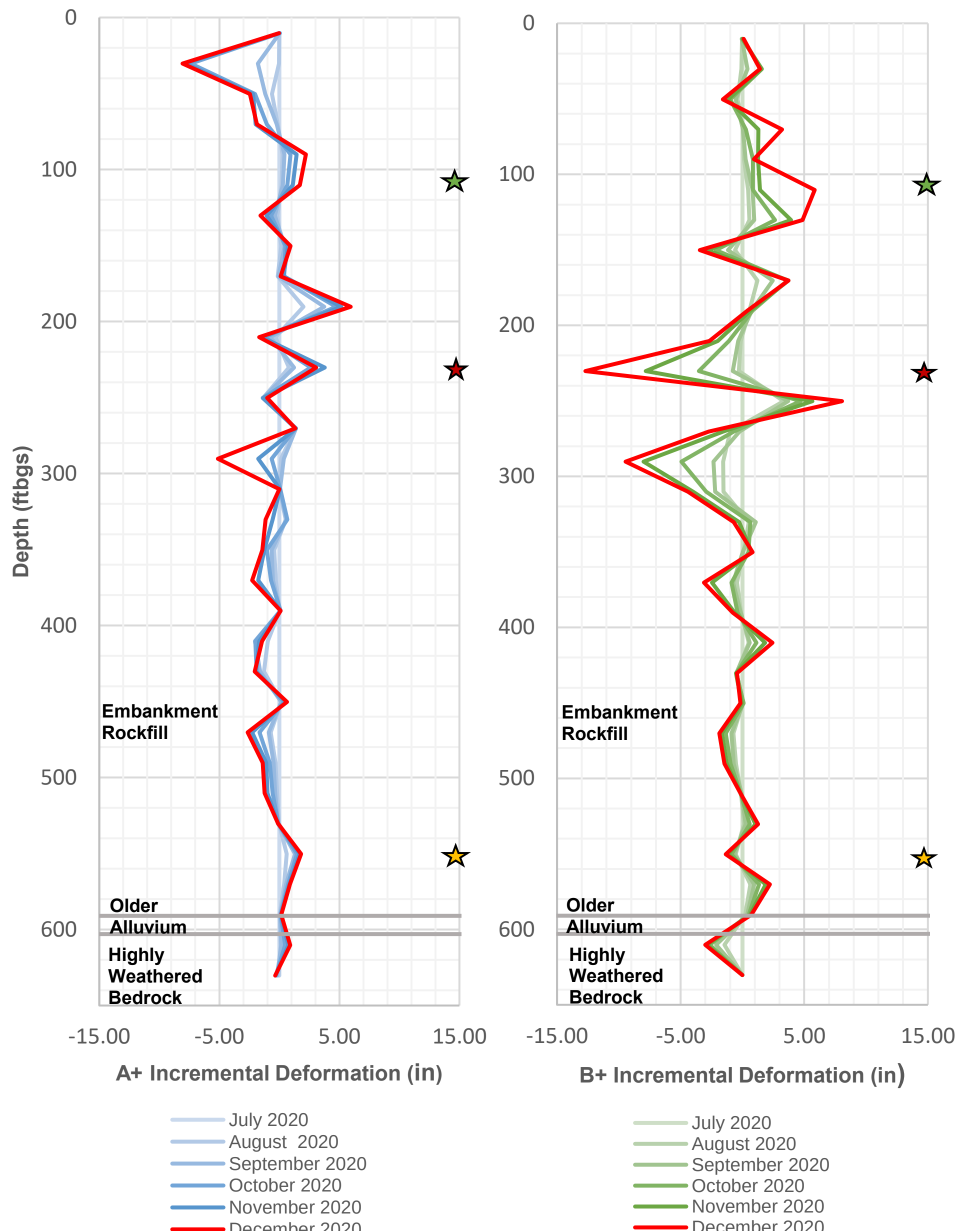
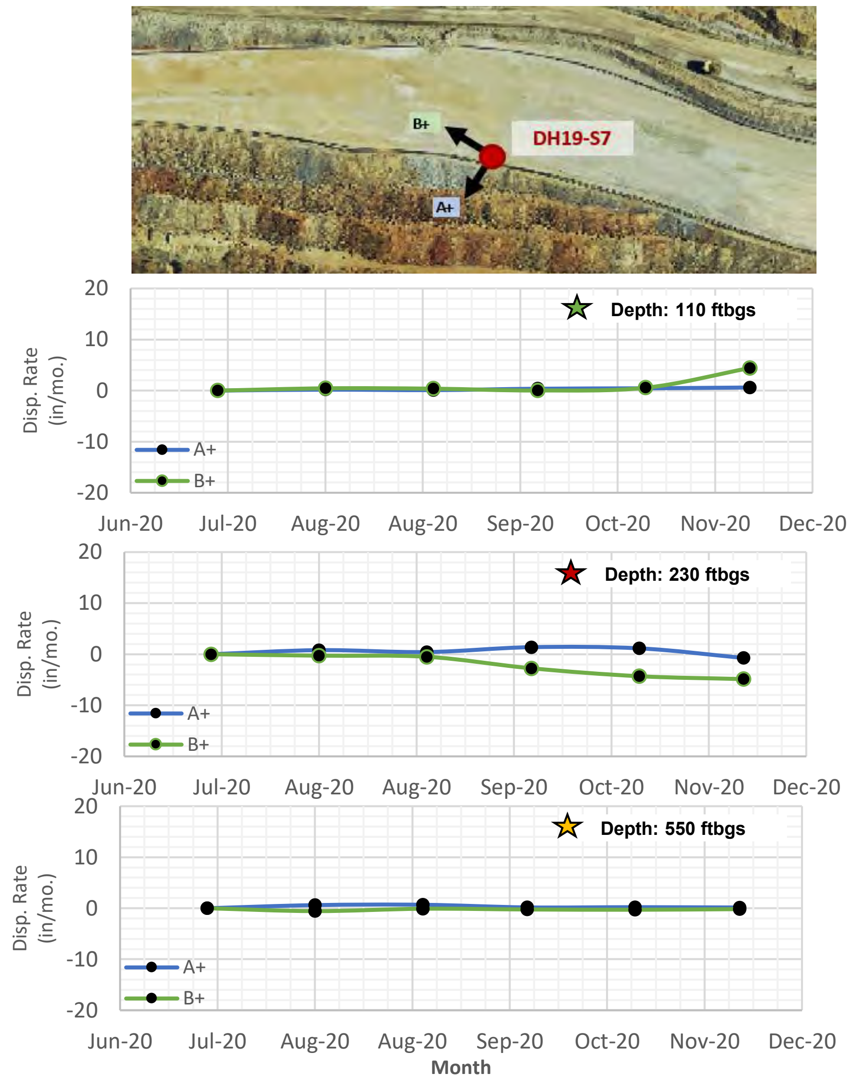
YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S5 GNSS BASED INCLINOMETER COLLAR WANDER (JULY 1 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

P/A NO. VA101-126/23	REF. NO. 5	
FIGURE D3.8		REV 0





NOTES:

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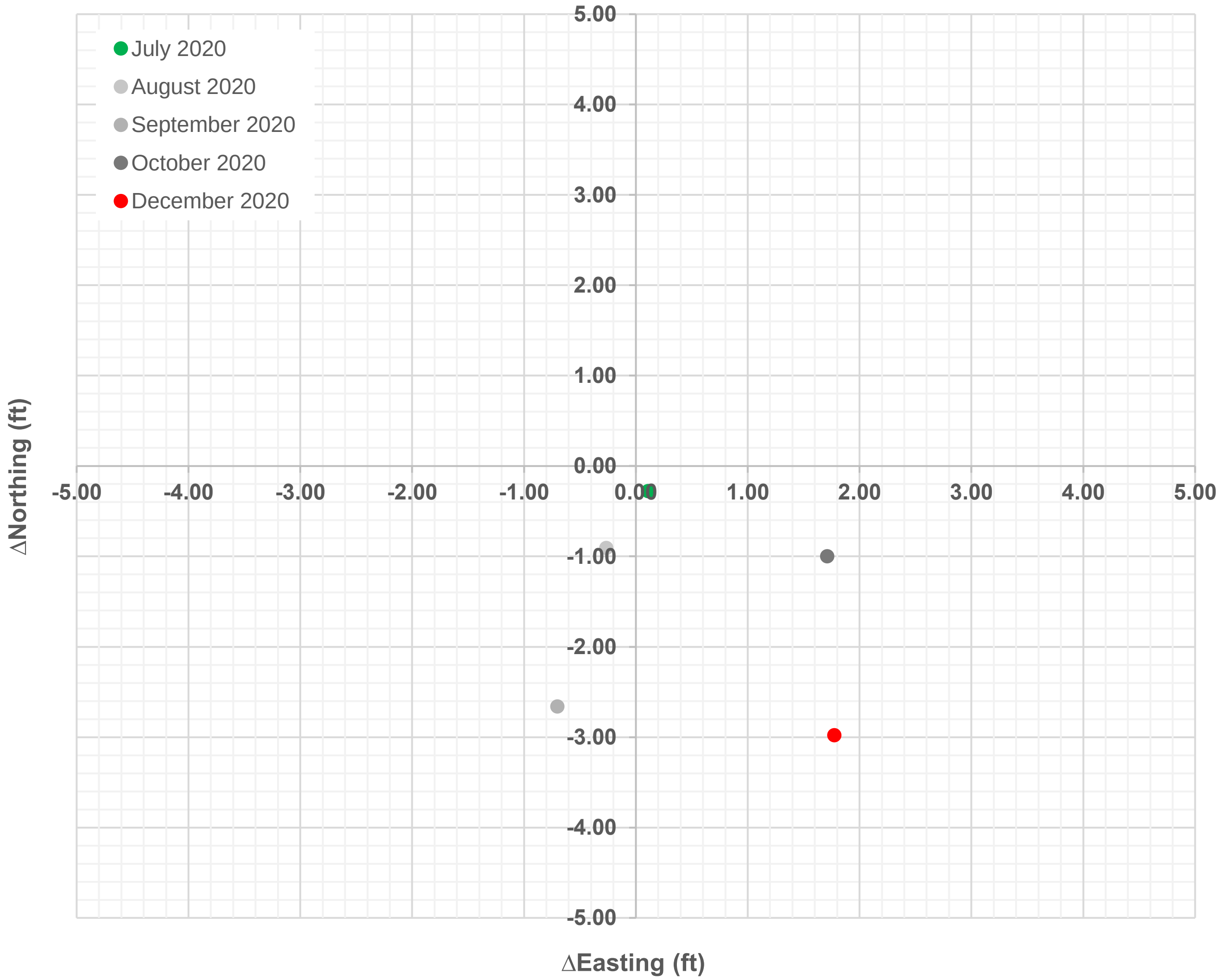
MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

MONTHLY AVERAGE SUBSURFACE INCREMENTAL DEFORMATION DRILLHOLE DH19-S7 (JULY 2020 TO DECEMBER 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.	
VA101-126/23	5	
FIGURE D3.9		REV 0



NOTES:

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MONTANA RESOURCES, LLP

YANKEE DOODLE TAILINGS IMPOUNDMENT

DH19-S3 GNSS BASED INCLINOMETER COLLAR WANDER (JULY 1 TO DECEMBER 31, 2020)

Knight Piésold CONSULTING

P/A NO.	REF. NO.
VA101-126/23	5

FIGURE D3.10 REV 0