



2022 Annual Reclamation Report No. J20185690.1 RPA

Upland Mining Lease No. 9100759

Palmer Project
Porcupine Mining District, Alaska

Prepared by: Constantine Mining LLC.

February 2023

Table of Contents

Table of Contents	2
Location and Activity Description	1
Location.....	1
Project Activity	1
Site Disturbance	5
Reclamation	9
Financial Responsibility	9
Monitoring	9
Compliance Monitoring – Waste Management Permit	9
Other Monitoring and Studies	9
Appendix A:	10
Waste Management Permit – 2022 Annual Monitoring Report	10

Location and Activity Description

Location

The Palmer Project is a copper-zinc-gold-silver (barite) exploration project located 34 miles northwest of the town of Haines in Southeast Alaska, USA. The Palmer Project is being advanced as a joint venture partnership, Constantine Mining LLC, between American Pacific Mining Corp, incorporated in Alaska (a wholly owned subsidiary of American Pacific Mining Corp) and Dowa Metals & Mining Alaska Ltd. (Dowa) incorporated in Alaska (a wholly owned subsidiary of Dowa Metals and Mining Co. Ltd. of Japan), with Constantine North Inc. as operator.

The Project is in the Porcupine Mining District on the eastern margin of the Saint Elias mountain range. Figure 1 shows the location of the Project. The western boundary of the Project is the international border with the Canadian province of British Columbia. The Project is located proximal to the paved Haines Highway (Alaska Hwy 7), which leads to the town of Haines, Alaska, to the southeast. A secondary gravel logging road connects the project area to the Alaska Hwy 7 via a bridge across the Klehini River at 26-mile. Drill core storage and camp facilities are located on privately-owned land at the Big Nugget Camp located on Porcupine Creek, approximately 7 miles from the 26-mile bridge.

Project Activity

2022 Summary and Background

Constantine had a surface exploration drill program in 2022, with two diamond drills onsite drilling a total of ~3,500 m. Existing access to the Glacier Creek valley is via a gravel road that extends approximately 4 miles from existing logging roads on State and BLM lands. The road extension and disturbance associated with surface drilling are bonded through a state-wide pool and is addressed under a separate annual reclamation report, submitted to DNR under APMA 5960 (CNI, 2022).

Currently, Constantine is proposing the development of an underground exploration ramp to support underground drilling. The underground development includes the construction of the supporting surface infrastructure and operation of the wastewater disposal system (Land Application Disposal system or LAD). Works associated with underground exploration are on fee simple and split estate Mental Health Trust (MHT) lands. The MHT lands are leased to Constantine under MHT Upland Mining Lease No. 9100759 (Figure 1).

Construction supporting the underground exploration is bonded through RPA J20185690, originally issued in 2018 (Phase I) and amended in 2019 (Phase II). Surface construction was initiated in 2018 and then paused from 2019 to 2021 while Constantine updated the LAD and road design. Approval for the updated design was obtained in May 2022 with a modification to the Reclamation Plan and associated financial assurance (J20185690.1).

Construction activities in 2022 focused on surface facilities to support future underground development. Construction continued on the road switchbacks and the avalanche deflection structures. Earthworks associated with the Land Application Disposal (LAD) system were initiated

and included the partial excavation of the sediment ponds and grubbing for pipelines. The access road for the portal was 60% complete at the end of the 2022 field season.

This report summarizes disturbance as of the end of 2022 associated with the Phase II Plan of Operations and fulfills the annual reporting requirements for the ADNR Reclamation Plan Approval (no. J20185690.1 RPA).

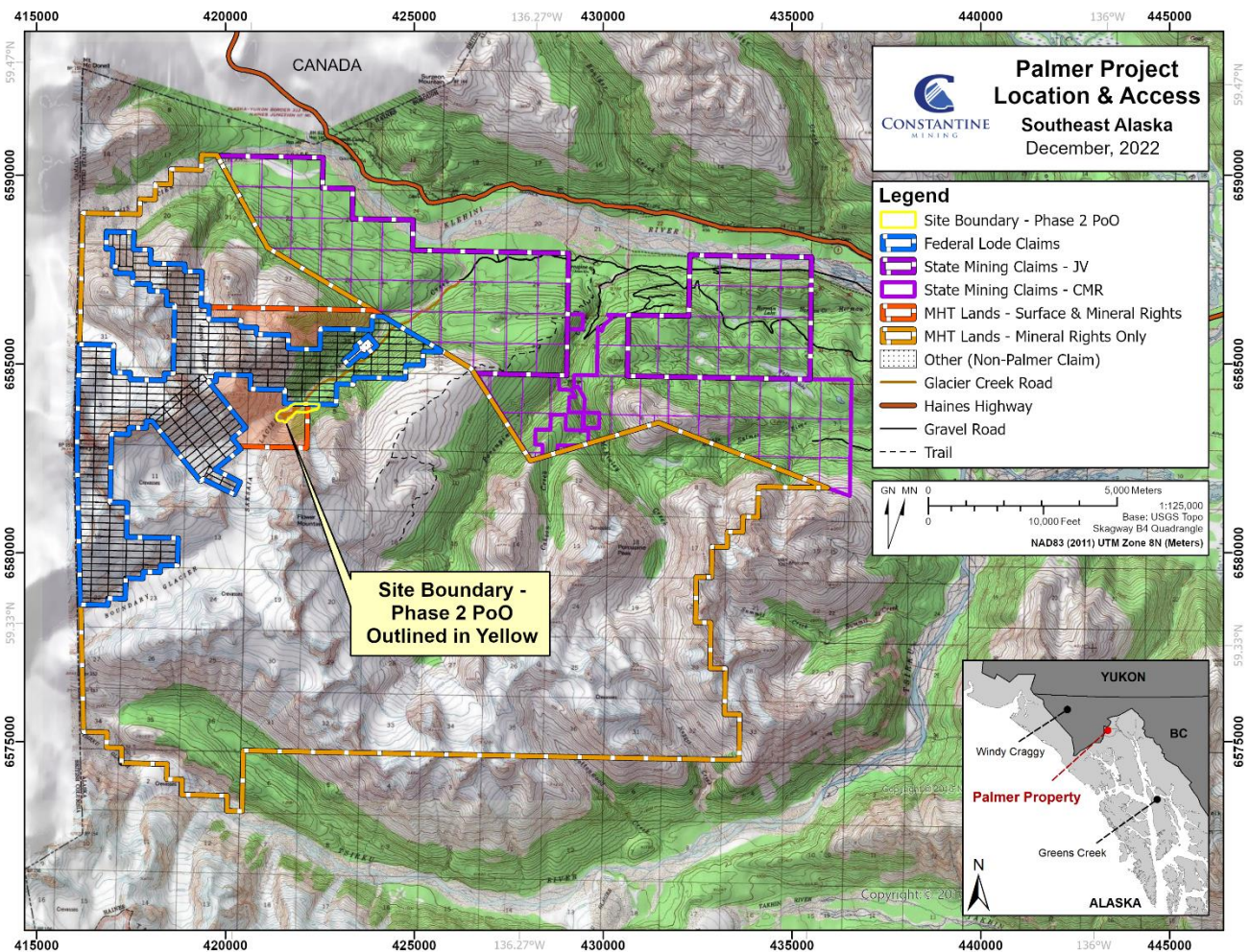


Figure 1 Palmer Project Property Map showing Site Boundary area under J20185690.1.

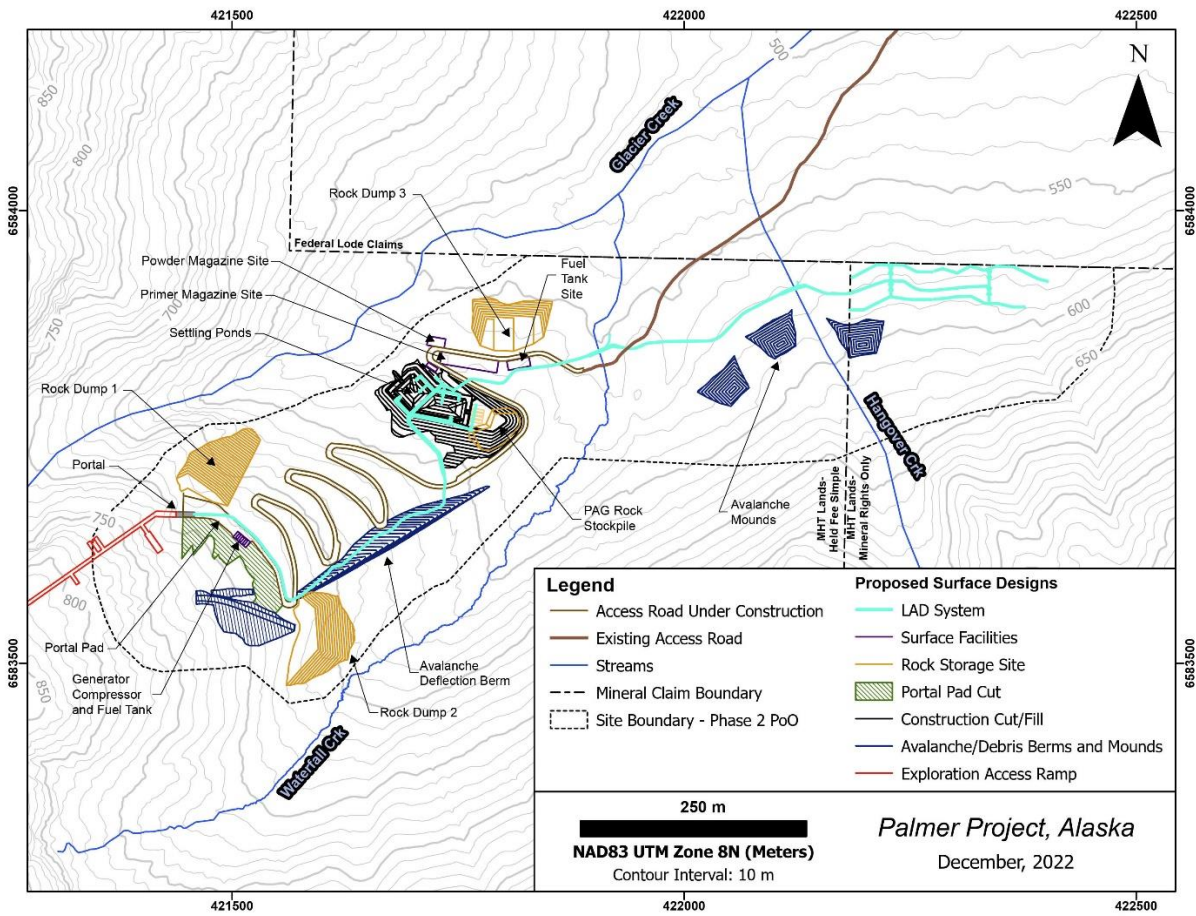


Figure 2 Conceptual designs for site facilities approved under J2015690RPA.1.

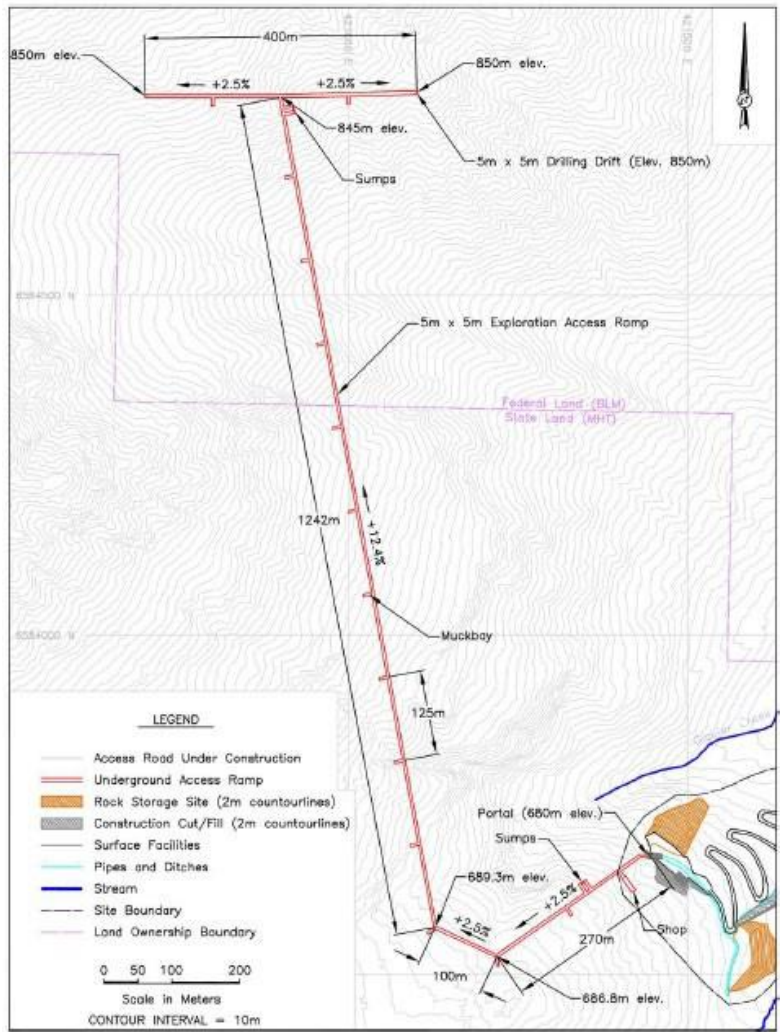


Figure 3 Conceptual design for Phase II exploration access ramp.

Site Disturbance

Constantine has prepared reclamation plans for both temporary closure and permanent closure scenarios, approved by the ADNR. The access road on Trust lands will be left in-place at closure per an understanding with the Trust.

In 2022, construction continued on the proposed portal access road switchbacks and planned infrastructure area. The Phase II site boundary was updated to account for disturbance related to the revised LAD, and the boundary now reaches into MHT Parcel C81210 (Subsurface Rights Only). Due to the expanded boundary, **0.42 acres** of surface disturbance from 2021 overburden drilling are now added to the total disturbance covered in this report (Figure 4). An estimated total of **3.71 acres** were disturbed in 2022 within the modified Phase II site boundary, of which **1.22 acres** were associated with access road work. New disturbance was created along and around the portal access road and switchbacks, the portal pad area, the avalanche berm and mounds area, the sediment pond and PAG storage area, and the LAD clearing area. Total disturbance increased to an estimated total of **10.54 acres** (excluding the road), approximately 2.49 acres greater than 2021. Disturbances are tabulated below and shown on Figure 5.

Table 1 Summary of Disturbance Components and Associated Acreage of Disturbance, 2022

Item	Acreage
Road	11.05
Portal Pad	1.53
Avalanche Berm and Mounds	3.52
Sediment Pond and PAG Storage	3.08
LAD Clearing	1.96
2021 Overburden Drilling	0.42
Monitoring Wells	0.03
TOTAL	21.59
TOTAL (Excluding Road)	10.54

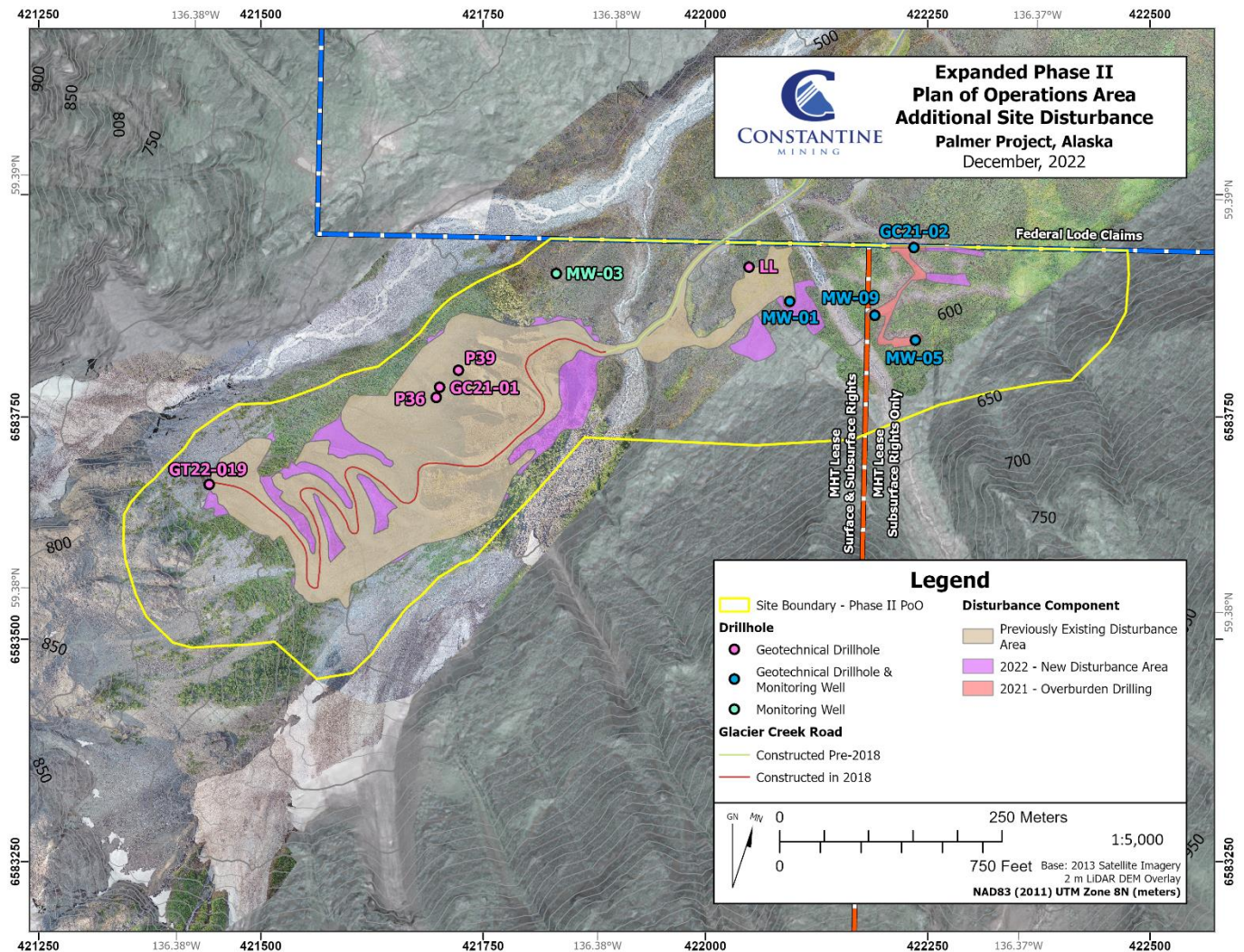


Figure 4 Location map of disturbance created during 2022 and of 2021 overburden drilling disturbance added to the Phase II Plan of Operations area. 2.49 acres of additional non-road related disturbance was created in 2022.

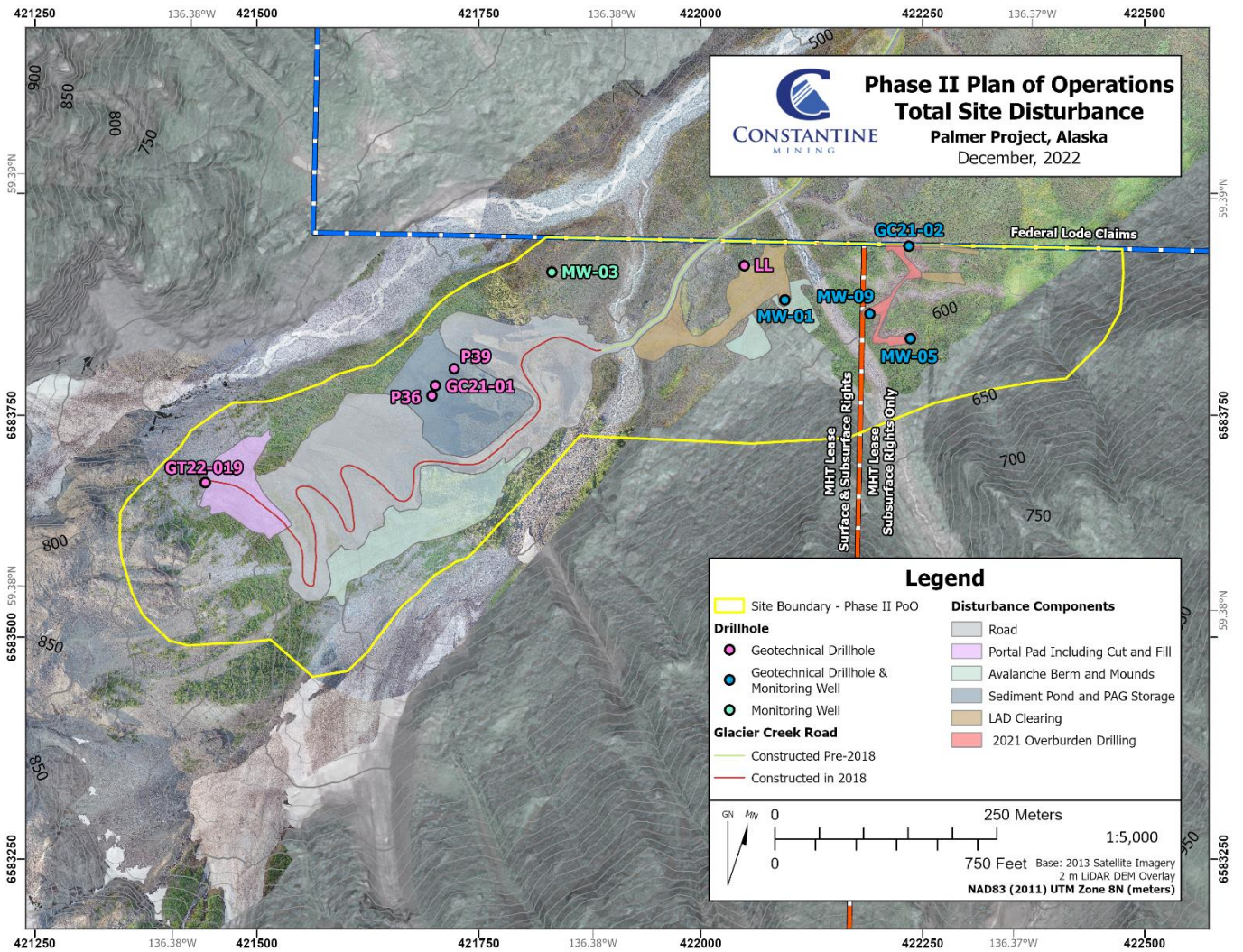


Figure 5 Location map of all disturbance components as of 2022.



Photo 1 Disturbance from 2021 overburden drilling included in expanded Phase II Plan of Operations Boundary (upper). Aerial photo (taken August 16 2022), looking SE, showing land clearing associated with Phase I & II Plan of Operations on MHT Lands (lower)

Reclamation

No permanent reclamation was performed in 2022.

Financial Responsibility

Financial responsibility was updated in 2022 with the modification of the RPA, issued on May 13, 2022. A total financial assurance amount of \$1,074,000 was approved by ADNOR for the Palmer Project. On June 13, 2022, Constantine requested a phased approach to the financial assurance. Constantine proposed providing an initial financial assurance in the amount of \$392,000 for the existing disturbance and the proposed surface disturbance for the 2022 season. Prior to the construction of the 2023 season (i.e. underground development), Constantine would further amend the financial assurance to the full amount of the approved Cost Estimate. Constantine provided financial assurance for the initial \$392,000 for the 2022 season on June 21st.

Monitoring

Compliance Monitoring – Waste Management Permit

The Waste Management Permit #2019DB0001 (WMP) was issued to Constantine Mining LLC by the State of Alaska, Department of Environmental Conservation (ADEC) on July 17th, 2019. The WMP authorizes the management and disposal of underground seepage water and waste rock associated with Phase II.

The WMP was remanded by ADEC in September 2019 for an informal review largely due to the Maui v. Hawaii Wildlife Case which challenged the permitting authority for disposal of wastewater to groundwater. In August 2020 Constantine notified ADEC that an evaluation and re-design of the LAD system was underway to ensure that the LAD was compliant with the changing legal environment. Constantine collected additional information on site hydrogeology to inform the LAD re-design. The re-designed LAD and results of supporting hydrogeological studies were submitted to the ADEC on April 14th, 2022 (available from ADEC upon request). Subsequently, conditional approval for construction of the LAD was provided by the ADEC on May 27th, 2022. The approval was withdrawn on September 6 to account for new information submitted by a third party. On October 4th the conditional approval for the LAD construction was re-issued and the WMP remand was lifted. During this time period, Constantine has continued to meet the monitoring requirements outlined in the WMP.

Quarterly sampling has been conducted on surface water (4 stations) and groundwater (2 stations) as required by the WMP. This sampling is summarized in the 2022 Annual (4th Quarter) Monitoring Report submitted to the ADEC in February 2023. The annual report is included as Appendix A: Waste Management Permit - 2022 Annual Monitoring Report.

Other Monitoring and Studies

Other environmental monitoring activities conducted in 2022 are summarized in Appendix A: Waste Management Permit - 2022 Annual Monitoring Report, and include:

- Hydrometric surveys of surface water (voluntary)
- Groundwater level and temperature monitoring (voluntary)
- Meteorological monitoring (voluntary)

Appendix A: Waste Management Permit – 2022 Annual Monitoring Report

*Note: appendices of the Waste Management Permit annual report are available from the
ADEC*

2022 Annual (4th Quarter) Monitoring Report

Palmer Advanced Exploration Project Haines, Alaska

Waste Management Permit 2019DB0001



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Table of Contents

1.0	INTRODUCTION	4
1.1	BACKGROUND	4
1.2	PROJECT ACTIVITIES	4
2.0	ENVIRONMENTAL MONITORING.....	5
2.1	SURFACE WATER MONITORING	5
2.1.1	Background	5
2.1.2	Water Quality.....	6
2.1.3	Water Quantity.....	9
2.2	GROUNDWATER MONITORING.....	9
2.2.1	Background	9
2.2.2	Water Quality.....	11
2.2.3	Groundwater Level and Temperature	12
2.3	METEOROLOGICAL MONITORING.....	13
3.0	OTHER COMPLIANCE ITEMS, UPDATES AND STUDIES	14
3.1	WMP COMPLIANCE	14
3.2	HYDROGEOLOGY WORK	15
4.0	FINANCIAL RESPONSIBILITY.....	15
5.0	SUMMARY	15
6.0	REFERENCES	17

LIST OF TABLES

Table 1 Surface water monitoring stations6

Table 2 Surface water monitoring stations sampled in 20227

Table 3 Q4 Surface water quality results compared to WMP trigger limits7

Table 4 Annual surface water quality results compared to AWQS.....8

Table 5 Groundwater monitoring stations 10

Table 6 Groundwater monitoring stations sampled in 2022 11

Table 7 MW-02 Q4 water quality results compared to WMP trigger limits..... 11

Table 8 Annual groundwater quality results compared to AWQS 12

LIST OF FIGURES

Figure 1 WMP Surface water quality monitoring stations.....5

Figure 2 Flow measurements collected from surface water monitoring stations over time9

Figure 3 WMP Groundwater quality monitoring stations..... 10

Figure 4 MW-01: Groundwater level and temperature over time 12

Figure 5 MW-02: Groundwater level and temperature over time 13

LIST OF APPENDICES

Appendix A Water quality graphs

Appendix B Water quality data (digital file)

1.0 INTRODUCTION

1.1 BACKGROUND

The Waste Management Permit #2019DB0001 (WMP) was issued to Constantine Mining LLC (Constantine) by the State of Alaska, Department of Environmental Conservation (DEC) on July 17th, 2019. The WMP authorizes the management and disposal of underground seepage water and waste rock associated with advanced exploration at the Palmer Project (the Project) and is effective until July 16th, 2024.

On August 10th, 2020, Constantine submitted a letter informing the DEC of their intent to modify the Wastewater Discharge System Design as set out in Appendix A of the WMP. On August 31st, 2020, the DEC accepted a redesign with the condition that no construction can commence until the design is complete. Constantine collected additional hydrogeological information in 2020 and 2021 to support the new Wastewater Discharge System Design. The revised design was submitted to DEC on April 14th, 2022, with minor revisions submitted on May 24th, 2022. The revised design was conditionally approved by DEC on May 27, 2022, allowing construction of the revised Wastewater Discharge System. Approval was briefly vacated from September 6th – October 4th, 2022. Monitoring requirements stipulated by the WMP have remained in place throughout this period.

The WMP outlines monitoring and reporting requirements (Sections 2.5 and 2.6). This report includes the monitoring period for the fourth quarter of 2022 and satisfies Section 2.6.3, which requires annual reporting on monitoring activities. This is the fourth annual reporting period since the issuance of the WMP in July 2019, and includes data collected in 2022.

1.2 PROJECT ACTIVITIES

The surface construction described in the WMP and Plan of Operations (approved by DNR under J20185690RPA) has commenced. Underground development has not yet commenced therefore waste authorized by the WMP has not been generated to date. As a result, monitoring associated with operating site infrastructure is not included in this report (as described in Sections 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5.3, and 2.5.5.4 of the WMP) and data presented in this report continues to characterize near baseline conditions.

Constantine started the 2022 field season on June 13th. A road construction crew was mobilized on June 20th, 2022, to begin working on the switchbacks to the proposed portal site. Two diamond drills were mobilized during the first half of August. Activities related to diamond drilling and switchback construction are not expected to impact the water quality presented in this report. Excavation of the LAD system sediment pond #1 began in late August 2022 and is 80% complete. No other work was done on the LAD system. Diamond drilling and construction activities ended at the end of September. Intermittent environmental work continues year-round.

2.0 ENVIRONMENTAL MONITORING

2.1 Surface Water Monitoring

2.1.1 BACKGROUND

Four surface water stations in the Project area have been monitored since as early as 2008: P01 (Glacier Creek upstream), P27 (Glacier Creek midpoint), P25 (Waterfall Creek), and P26 (Hangover Creek; see Figure 1 and Table 1). Water quality sampling and analytical procedures are performed in accordance with Constantine’s Quality Assurance Project Plan (QAPP), prepared by Integral Consulting in 2018 and revised by HDR in October 2019 (as per Section 2.5.5.6 of the WMP). Samples are analyzed by ALS Environmental Laboratory for conventional parameters, settleable solids, cations/anions, total/dissolved metals following SM and EPA methods. Field parameters including pH are also collected at each site during the sampling event (more detail is available in the Project QAPP).

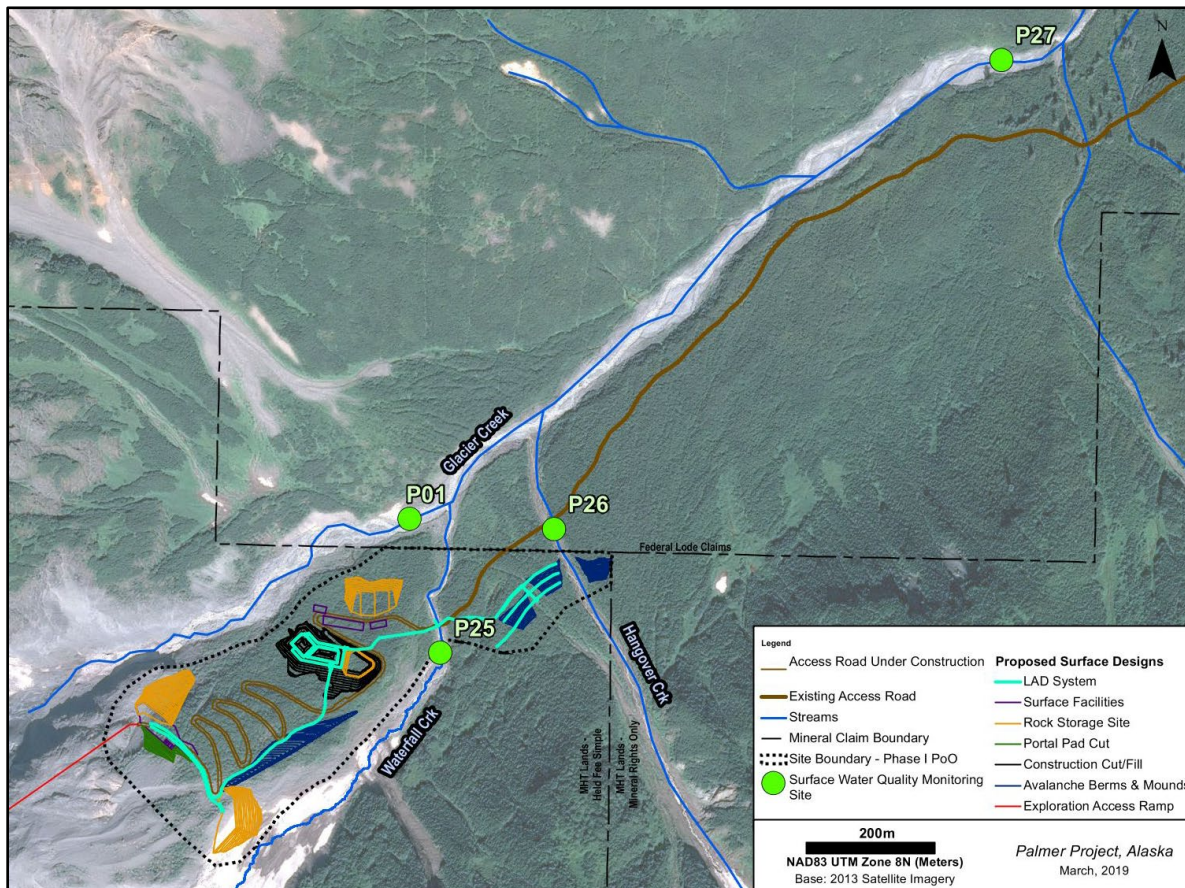


Figure 1 WMP Surface water quality monitoring stations

Table 1 Surface water monitoring stations

Station	Station Location	Description	Date sampling initiated	No. of water quality sampling events
P01	Upper Glacier Creek	Upstream of exploration impacted area; near source of Glacier Creek	September, 2008	34
P27	Midpoint of Glacier Creek	Below exploration impacted area	February, 2017	34
P25	Waterfall Creek	Downgradient of the proposed LAD upper diffuser	February, 2017	23
P26	Hangover Creek	Downgradient of the proposed LAD lower diffuser	July, 2017	22

2.1.2 WATER QUALITY

As per the WMP (Section 2.5.5.2), surface water is monitored on a quarterly basis at four sites: P01, P27, P25, and P26 (see Figure 1 and Table 1). All sites were sampled in the fourth quarter of 2022 (Table 2).

Trigger limits are defined in the WMP for P27, P25, and P26. All water quality parameters fell below the defined trigger limits during the fourth quarter of 2022 (see Table 3).

P01, the upper sampling station on Glacier Creek, was sampled during the 1st through 4th quarters. Metal exceedances of AWQS were observed in 2nd, 3rd, and 4th quarters for total aluminum, total iron, total manganese, and total vanadium (Table 4). Concentrations of the four metals were higher than those sampled in the previous year but similar to concentrations in 2018 with exceedances being multiple times higher than the AWQS.

P25 is located on Waterfall Creek, a tributary of Glacier Creek's uppermost headwaters, and was sampled during the 1st through 4th quarters. As in previous years, exceedances of AWQS occurred for selenium, sulfate, and TDS (Table 4). Concentrations of selenium, sulfate and TDS were similar to previous years with concentrations being slightly above AWQS. None of the AWQS exceedances for P25 were above the WMP triggers in 2022.

P26 is located on Hangover Creek, a tributary of Glacier Creek, and was sampled during the 1st through 4th quarters. Exceedances of AWQS occurred for aluminum, iron, and manganese with all exceedances occurring during the 3rd quarter sampling event (Table 4). Concentrations of the three metals were similar to those seen in past years and are consistent with a general trend of higher concentrations around the 2nd and 3rd quarters and lower concentrations during the 1st and 4th quarters. None of the AWQS exceedances for P26 were above the WMP triggers in 2022.

P27, the midpoint sampling station on Glacier Creek, was sampled during the 1st through 4th quarters. Exceedances of AWQS for total aluminum, total iron, total manganese, pH, and total vanadium occurred during the 2nd and 3rd quarter sampling events (Table 4). Like concentrations at P01, concentrations of total aluminum, total iron, total manganese, and total vanadium at P27 were higher than those sampled in the previous year but similar to concentrations in 2018. Again, as with P01, 2022 concentrations were above AWQS criteria. Concentrations of iron, lead and mercury exceeded WMP trigger limits in the 2nd quarter of 2022; lead and mercury AWQS criteria are hardness-dependent and reported concentrations did not exceed calculated AWQS criteria. Concentrations of cadmium, iron and lead exceeded WMP trigger limits in the 3rd quarter of 2022; cadmium and lead are hardness-dependent and reported concentrations did not exceed calculated AWQS criteria. Concentrations of total aluminum, total

manganese, and total vanadium as well as pH levels which exceeded AWQS criteria at P27 in 2022 did not exceed WMP trigger limits.

Concentrations of water quality parameters at each surface water monitoring station over time are presented graphically in Appendix A, and raw water quality data is digitally available in Appendix B.

Table 2 Surface water monitoring stations sampled in 2022

Station	Quarters Sampled
P01	1, 2, 3, 4
P25	1, 2, 3, 4
P26	1, 2, 3, 4
P27	1, 2, 3, 4

Table 3 Q4 Surface water quality results compared to WMP trigger limits

Parameter	Units	P25		P26		P27	
		Result	Trigger	Result	Trigger	Result	Trigger
aluminum	mg/L	0.0578	10	0.0244	21	0.04	43
arsenic	µg/L	<0.1 U	10	0.13	10	<0.1 U	10
cadmium	µg/L	0.0386	0.37	0.0208	0.79	0.0916	0.39
calcium	mg/L	149	NA	114	NA	97.5	NA
copper	µg/L	<0.5 U	24	<0.5 U	70	<0.5 U	133
iron	mg/L	0.110	16	0.04	39	0.08	16
lead	µg/L	<0.05 U	4.3	<0.05 U	4.3	0.087	6.4
magnesium	mg/L	19.8	NA	7.45	NA	12.4	NA
manganese	µg/L	3.38	290	1.14	970	6.7	2200
mercury	µg/L	<0.0050 U	0.012	<0.0050 U	0.012	<0.0050 U	0.012
nitrate as N	mg/L	0.220 J	10	0.0636 J	10	0.28 J	10
pH	s.u.	7.72	<6.5 or >8.5	7.91	<6.5 or >8.5	7.87	<6.5 or >8.5
selenium	µg/L	6.03	8.2	4.13	5	2.26	5
sulfate	mg/L	444	650	223	299	219	268
total dissolved solids	mg/L	700 J	1037	391	573	406	500
zinc	µg/L	<3.0 U	146	<3.0 U	147	60.0	470

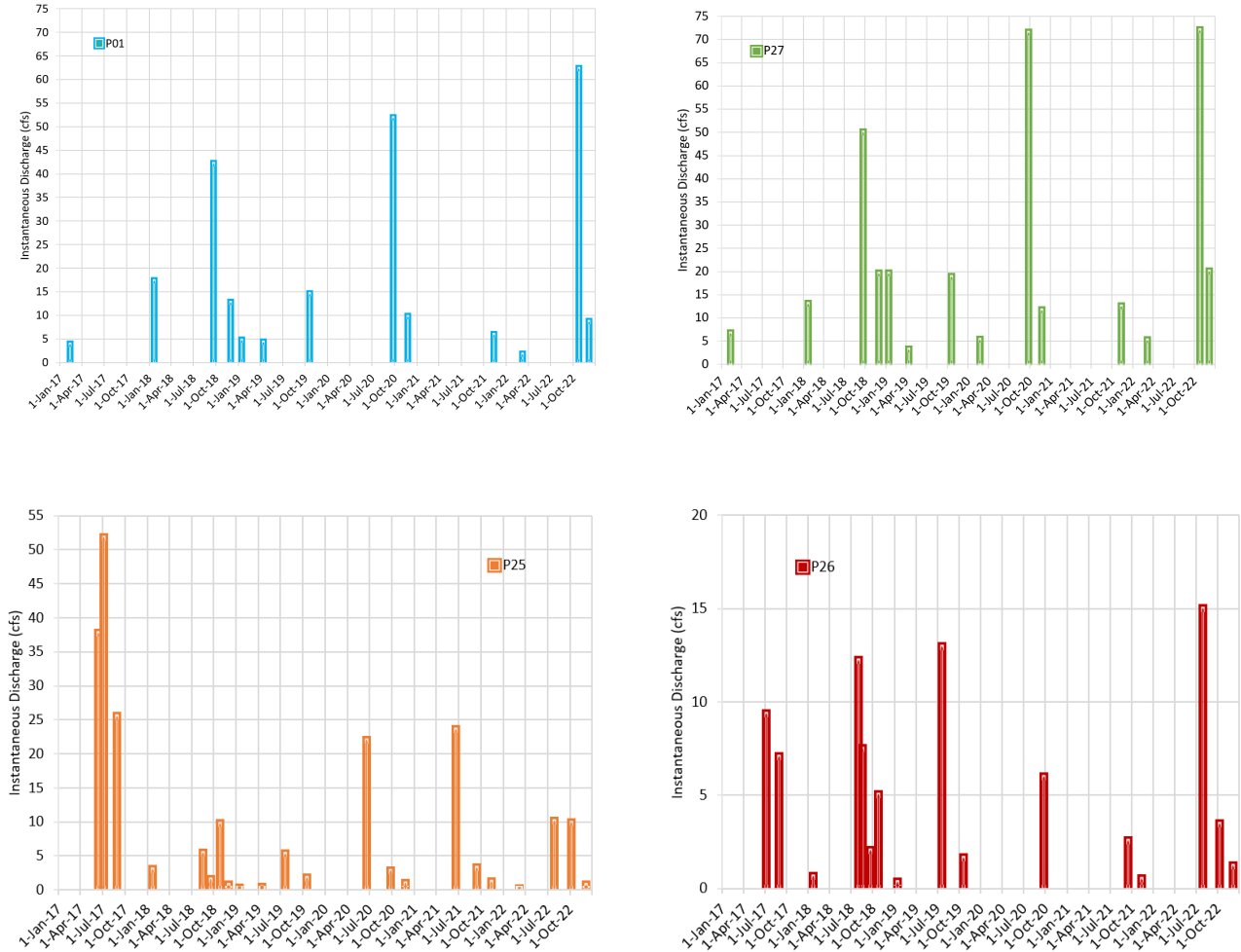
Table 4 Annual surface water quality results compared to AWQS

Station ID	Parameter	Date of Exceedance	Concentration (mg/L, STD)	AWQS (mg/L)*
P01	Aluminum-Total	17-Jun-2022	14.5, 13.2	0.087
		27-Sep-2022	29.8	
		5-Dec-2022	0.158	
	Iron-Total	17-Jun-2022	25.0, 23.0	1.00
		27-Sep-2022	56.5	
	Manganese-Total	17-Jun-2022	0.690, 0.574	0.100
27-Sep-2022		1.49		
Vanadium-Total	27-Sep-2022	0.138	0.100	
P25	Selenium-Total	5-Dec-2022	0.00603	0.005
	Sulfate (SO4)	7-Mar-2022	310, 310	250
		27-Sep-2022	280, 277	
		5-Dec-2022	444	
	TDS	7-Mar-2022	529	500
5-Dec-2022		700		
P26	Aluminum-Total	27-Sep-2022	1.58	0.087
	Iron-Total	27-Sep-2022	2.72	1.00
	Manganese-Total	27-Sep-2022	0.0602	0.100
P27	Aluminum-Total	17-Jun-2022	11.6	0.087
		27-Sep-2022	20.8	
	Iron-Total	17-Jun-2022	21.9	1.00
		27-Sep-2022	40.3	
	Manganese-Total	17-Jun-2022	0.575	0.100
		27-Sep-2022	1.00	
pH	27-Sep-2022	8.94	6.5-8.5	
Vanadium-Total	27-Sep-2022	0.101	0.100	

* ADEC 2008, Amended as of 2022

2.1.3 WATER QUANTITY

Constantine voluntarily collects hydrometric data from the monitoring stations, when safe to do so. Data was collected from all four surface water sites during the fourth quarter of 2022 (see Figure 2)).



Note: P01 and P27 October 2022 measurements collected at gaging sites SG01 and SG27, respectively.

Figure 2 Flow measurements collected from surface water monitoring stations over time

2.2 Groundwater Monitoring

2.2.1 Background

In 2018 Constantine developed two groundwater monitoring wells above and below the proposed LAD lower diffuser site (MW-01 and MW-02, respectively), and began sampling on roughly a quarterly basis. Groundwater monitoring sites are depicted in Figure 3.

Water quality sampling and analytical procedures have been performed in accordance with Constantine’s QAPP, prepared by Integral Consulting in 2018 and revised by HDR in October 2019 (as per

Section 2.5.5.6 of the WMP). Samples are analyzed by ALS Environmental Laboratory for conventional parameters, settleable solids, cations/anions, total/dissolved metals following SM and EPA methods. Field parameters including pH are also collected at each site during the sampling event (more detail is available in the Project QAPP).

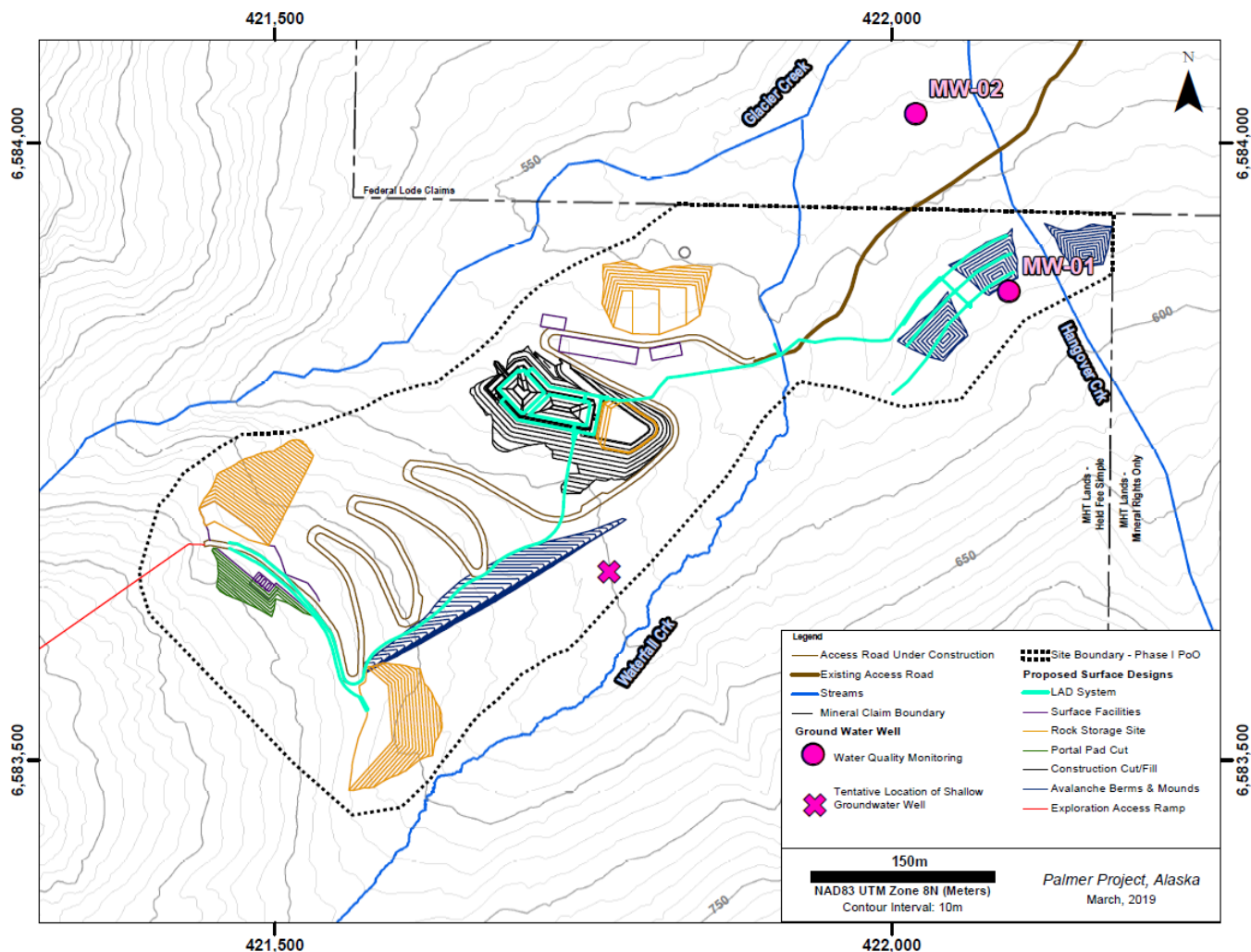


Figure 3 WMP Groundwater quality monitoring stations

Table 5 Groundwater monitoring stations

Station	Description	Date sampling initiated	No. of water quality sampling events
MW-01	Upgradient of proposed LAD lower diffuser	September, 2018	17
MW-02	Downgradient of proposed LAD lower diffuser	September, 2018	17

2.2.2 Water Quality

As per the WMP (Section 2.5.5.1), groundwater is monitored on a quarterly basis at two well sites: MW-01 and MW-02 (Figure 3 and Table 5). Both wells were sampled during the fourth quarter of 2021.

Trigger limits have been defined in the WMP for MW-02. All parameters fell below permit trigger limits during the fourth quarter of 2022 (see Table 7).

MW-01 was sampled in all four quarters of 2022 (Table 6). There was one exceedance of AWQS at this location for pH (a pH of 9.39 was recorded on June 23, 2022).

MW-02 was also sampled in all four quarters of 2022 (Table 6). Exceedance of aluminum AWQS (0.087 mg/L) occurred during the 2nd and 3rd quarter sampling events for aluminum with concentrations of 0.229 mg/L and 0.135 mg/L, respectively. None of the exceedances were over the WMP triggers for this site. No other parameter concentrations exceeded AWQS in 2022.

Concentrations of water quality parameters at groundwater monitoring stations over time are presented graphically in Appendix A, and raw water quality data is digitally available in Appendix B.

Table 6 Groundwater monitoring stations sampled in 2022

Station	Quarters Sampled
MW-01	1, 2, 3, 4
MW-02	1, 2, 3, 4

Table 7 MW-02 Q4 water quality results compared to WMP trigger limits

MW-02	Result	Trigger	Units
aluminum	0.0560	15	mg/L
arsenic	<0.1 U	10	µg/L
cadmium	<0.005 UJ	0.4	µg/L
calcium	57.1	NA	mg/L
copper	<0.5 U	53	µg/L
iron	0.112	29	mg/L
lead	<0.05 U	6.2	µg/L
magnesium	3.38	NA	mg/L
manganese	9.78	550	µg/L
mercury	<0.0050 U	0.012	µg/L
nitrate as N	0.578 J	10	mg/L
pH	7.53	<6.5 or >8.5	s.u.
selenium	2.08	5	µg/L
sulfate	69.0	250	mg/L
total dissolved solids	221	500	mg/L
zinc	<3.0 U	186	µg/L

Table 8 Annual groundwater quality results compared to AWQS

Station	Parameter	Date of Exceedance	Concentration (mg/L, STD)	AWQS* (mg/L)
MW-01	pH	23-Jun-2022	9.39	6.5-8.5
MW-02	Aluminum-Total	24-Jun-2022	0.229	0.087
		8-Sep-2022	0.135	

* ADEC 2008, Amended as of 2022

2.2.3 Groundwater Level and Temperature

Groundwater depth and temperature has been voluntarily collected since August 2018 when the wells were installed. Groundwater level is measured in each groundwater monitoring well once every 6 hours, using transducers installed at the bottom of each well. Pressure transducer depth is compensated using barometric pressure, and depths are verified with manual measurements of the water level recorded during each sampling event.

Groundwater level data was downloaded at MW-01 and MW-02 during the fourth quarter sampling event of 2022 (see Figure 4 and Figure 5).

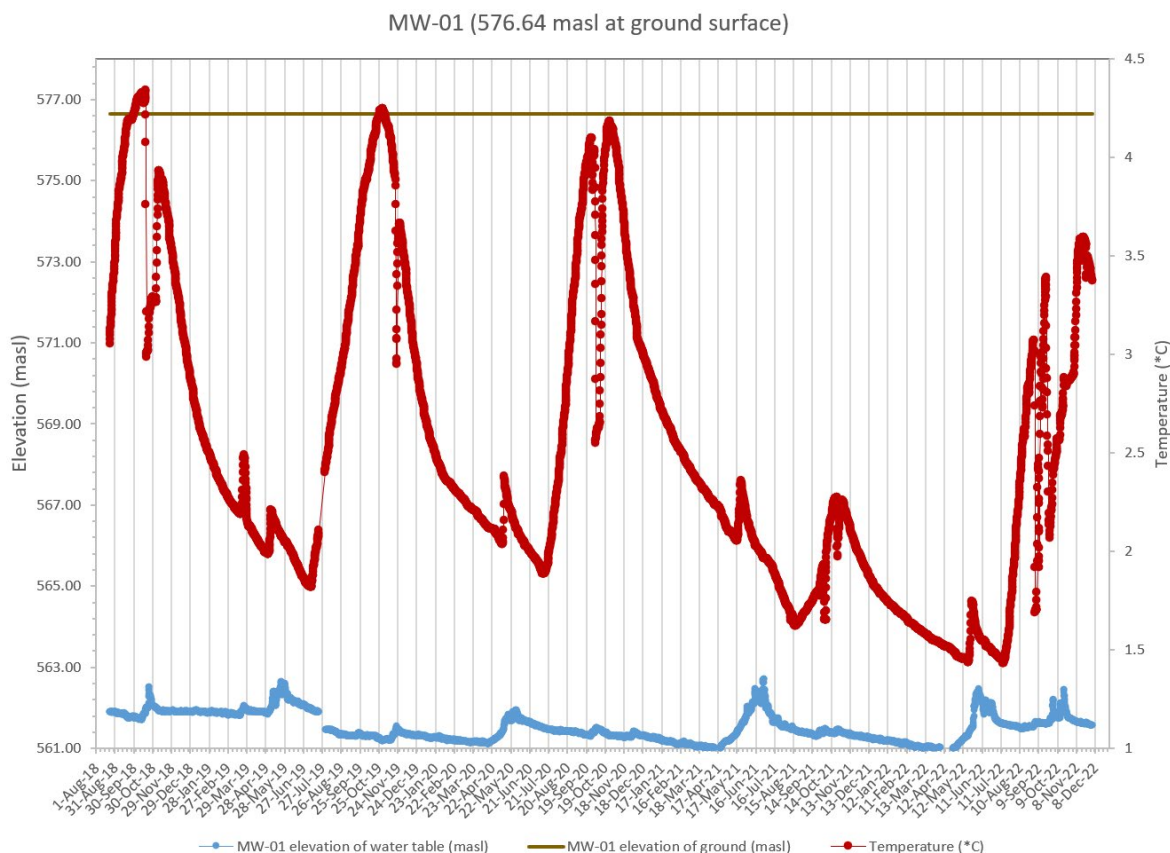


Figure 4 MW-01: Groundwater level and temperature over time

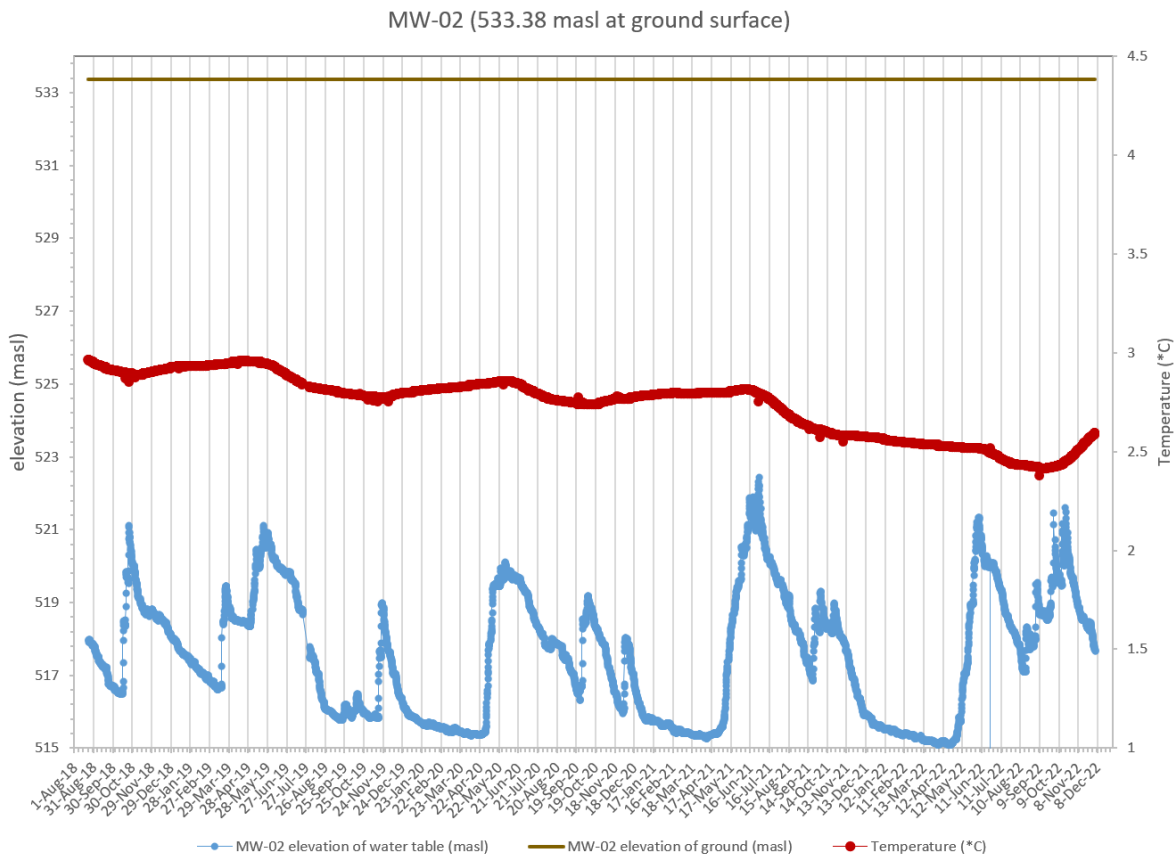


Figure 5 MW-02: Groundwater level and temperature over time

2.3 Meteorological Monitoring

Constantine voluntarily collects hourly meteorological data from two stations in the Project Area. The Annual Meteorological Report (2021/2022) is available to State regulators upon request.

3.0 OTHER COMPLIANCE ITEMS, UPDATES AND STUDIES

3.1 WMP COMPLIANCE

The following deliverables have been completed in compliance with the Waste Management Permit:

	WMP Section	Detail
1	Section 2.5	The monitoring plan (initially submitted in March 2019) was updated and submitted to the DEC on October 15, 2019.
2	Section 2.5.5.6	An updated QAPP was finalized by HDR and submitted to DEC on October 15, 2019.
3	Section 2.6.2	A quarterly report summarizing monitoring activities for Q3 was submitted to DEC on November 29, 2019. This report included historical data; all stations were successfully sampled.
4	Section 2.6.3	An annual report summarizing 2019 monitoring activities (Q3 and Q4) was submitted to DEC on February 29 th , 2020. This report included historical data.
5	Section 2.6.2	A quarterly report summarizing monitoring activities for Q1 was submitted to DEC on May 28, 2020. This report included historical data. Note that despite several attempts, only P27 was collected during the Q1 sampling event due to safety issues (avalanche and evolving COVID-19 situation)
6	Section 2.6.2	A quarterly report summarizing monitoring activities for Q2 was submitted to DEC on Aug 29, 2020. This report included historical data; all stations were successfully sampled.
7	Section 2.6.2	A quarterly report summarizing monitoring activities for Q3 was submitted to DEC on Nov 20, 2020. This report included historical data; all stations were successfully sampled.
8	Section 2.6.2	An annual report summarizing 2020 monitoring activities was submitted to DEC on February 27 th , 2021. This report included historical data.
9	Section 2.6.2	A quarterly report summarizing monitoring activities for Q1 was submitted to DEC on May, 28, 2021. This report included historical data. Note that sampling for the first quarter of 2021 was not completed due to health and safety concerns in the field and complications due to the ongoing COVID-19 pandemic.
10	Section 2.6.2	A quarterly report summarizing monitoring activities for Q2 was submitted to DEC on August 28, 2021. This report included historical data; all stations were successfully sampled.
11	Section 2.6.2	A quarterly report summarizing monitoring activities for Q3 was submitted to DEC on November 4, 2021. This report included historical data; all stations were successfully sampled.
12	Section 2.6.3	An annual report summarizing 2021 monitoring activities was submitted to DEC on February 28 th , 2022. This report included historical data.
13	Section 2.6.2	A quarterly report summarizing monitoring activities for Q1 was submitted to DEC on May 30, 2022. This report included historical data; all stations were successfully sampled.
14	Section 2.6.2	A quarterly report summarizing monitoring activities for Q2 was submitted to DEC on August 30, 2022. This report included historical data; all stations were successfully sampled.
15	Section 2.6.2	A quarterly report summarizing monitoring activities for Q3 was submitted to DEC on November 30, 2022. This report included historical data; all stations were successfully sampled.
16	Section 2.6.3	An annual report summarizing 2022 monitoring activities was submitted to DEC on February 24, 2022. This report included historical data; all stations were successfully sampled.

3.2 HYDROGEOLOGY WORK

Constantine conducted hydrogeological work in 2020 and 2021 to support the redesign of the Wastewater Discharge System. On April 14, 2022, Constantine formally requested an ADEC Nondomestic Wastewater System Plan Review of the updated design for the entire wastewater discharge system, including the design for the water treatment plant. On May 27, 2022, ADEC granted conditional approval to construct the redesigned Wastewater Discharge System. During the 2022 field season Constantine continued to monitor ground water level and temperature in order to build upon the hydrogeological dataset in the vicinity of the Wastewater Discharge System. In addition to the wells in the vicinity of the Wastewater Discharge System, Constantine monitored water level and temperature in wells throughout the Project site.

4.0 FINANCIAL RESPONSIBILITY

Addressing Annual Reporting Section 2.6.3.3:

Financial responsibility was updated in 2022 with the modification of the Reclamation Plan Approval, issued on May 13, 2022. A total financial assurance amount of \$1,074,000 was approved by ADNR for the Palmer Project. On June 13, 2022 Constantine requested a phased approach to the financial assurance, with Constantine providing an initial financial assurance in the amount of \$392,000 for the existing disturbance and the proposed surface disturbance for the 2022 season. Prior to the construction of the 2023 season (i.e. underground development), Constantine would further amend the financial assurance to the full amount of the approved Cost Estimate. ADNR approved this proposal on May 13, 2022. Constantine provided financial assurance for the initial \$392,000 on June 21 2022.

Construction of the revised Wastewater Discharge System, approved by the DEC was initiated in Q3 2022, with 80% of pond #1 excavated and minor grubbing and earthworks to prepare for pipeline installation. No other earthworks related to the LAD construction were conducted.

Prior to the initiation of any underground development of the approved exploration ramp, Constantine will provide a new Financial Assurance that reflects the complete cost estimate for surface and underground reclamation as proposed and subject to any adjustments (\$1,074,000).

5.0 SUMMARY

Construction of the revised Wastewater Discharge System, approved by the DEC was initiated in Q3 2022, with 80% of pond #1 excavated and minor grubbing and earthworks to prepare for pipeline installation. No other earthworks related to the LAD construction were conducted. Reporting for 2022 is abbreviated, as underground development has not yet begun. Therefore, visual, development rock, and water quality monitoring associated with proposed Project infrastructure has not yet begun.

Quarterly sampling was successfully completed at all locations in 2022. Parameters at P25, and P26 were below WMP trigger limits during each quarterly sampling event in 2022. P27 exceeded WMP trigger limits for multiple parameters during the second and third quarters of 2022 (Table 9).

Table 9 Annual WMP Trigger Limit Exceedance

Quarter	Parameter	Units	P27	
			Result	Trigger
Q2	iron	mg/L	<u>21.9</u>	16
	lead	µg/L	<u>9.14</u>	6.4
	mercury	µg/L	<u>0.017</u>	0.012
Q3	cadmium	µg/L	<u>0.675</u>	0.39
	iron	mg/L	<u>40.3</u>	16
	lead	µg/L	<u>15.3</u>	6.4

Exceedances of AWQS were recorded for the following stations: P01 (t-Al, t-Fe, t-Mn, t-V), P25 (t-Se, SO₄, TDS), P26 (t-Al, t-Fe, t-Mn), P27 (t-Al, t-Fe, t-Mn, pH, t-V), MW-01 (pH), and MW-02 (t-Al).

Additional monitoring in 2022 included hydrometric surveys at surface water sites, groundwater level and temperature measurement, and the ongoing collection of meteorological data.

6.0 REFERENCES

ADEC 2008. Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances. Amended as of September 8, 2022. Available at: <https://dec.alaska.gov/media/11546/alaska-water-quality-criteria-manual-for-toxic-and-other-deleterious-organic-and-inorganic-substances.pdf>. Alaska Department of Environmental Conservation. September 2022.

ADEC 2020. 18 AAC 70 Water Quality Standards. Amended as of November 13, 2022. Available at <https://dec.alaska.gov/media/eovgrgs5/18-aac-70.pdf> Alaska Department of Environmental Conservation. November 2022.