Appendix 31

Whale Tail Mine Operational ARD-ML Sampling and Testing Plan Version 7.1

AGNICO EAGLE

Meadowbank Complex

Operational ARD-ML Sampling and Testing Plan – Whale Tail Mine

FEBRUARY 2023

VERSION 7.1

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited – Meadowbank Complex (Agnico Eagle) continues to operate the Whale Tail and IVR Pits, an underground operations and Haul Road, a satellite deposit located on the Whale Tail property, to continue mine operations and milling at Meadowbank Mine.

The Whale Tail property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut. The deposits are mined as an open pit (i.e., Whale Tail and IVR Pits), and underground mining below Whale Tail and IVR Pits. Ore is hauled to the approved infrastructure at Meadowbank Mine for milling.

Two waste rock storage facilities are currently in operation: the Whale Tail WRSF, located north-west of the Whale Tail pit, and the IVR WRSF, located east of the IVR pit. Waste rock and overburden will be trucked to both facilities until the end of operations. The Underground WRSF, located east of the Whale Tail Pit, is a temporary facility as all mine waste rock from underground operations will be temporarily stored there before being returned underground as backfill material.

Waste rock, overburden and lake sediment were sampled and tested as part of a geochemical program presented in Volume 5, Appendix 5-E (Golder 2018). Among the six lithologies tested, two have low acid generating and metal leaching potential, while the remaining lithologies are either potentially acid generating and/or metal leaching rock. The overburden is non-potentially acid generating and non-metal leaching while the lake sediment is potentially acid generating and metal leaching. Testing will be completed on waste rock to identify material that is non-potentially acid generating and low leaching that can be used as construction and closure rock.

An approach is proposed to define if the waste rock lithologies can be used as construction/closure material or must be piled in the Whale Tail and IVR Waste Rock Storage Facility.

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	June 2016			The Operational ARD-ML Sampling and Testing Plan as Supporting Document for Type A Water Licence Application, submitted to Nunavut Water Board for review and approval	Golder Associates Ltd.
2	June 2018	All	All	Updated to address Term and Condition 8 (NIRB project certificate 008; March 15, 2018). Includes update to project nomenclature to reflect current usage.	Golder Associates Ltd.
3	November 2018	All	All	Update to address recommendation of CIRNAC and ECCC	Agnico Eagle
4_NIRB	November 2018	All	All	Update in support amendment to NIRB PC No. 008	Golder Associates Ltd.
4	March 2019	All	All	2018 Annual report updated version	Agnico Eagle
5	April 2019	All	All	Updated for the Expansion Project in support of the Nunavut Water Board (NWB) Type A Water License Amendment Process	Agnico Eagle
6	November 2020	All	All	Updated to reflect current operation at Whale Tail	Agnico Eagle
		3.1	6	Updated to reflect sampling frequency reduce in Whale Tail Pit	
		Appendix C		Added Whale Tail waster rock sampling rate reduction study	
7	December 2022	All	All	Updated to reflect current operation at Whale Tail	Agnico Eagle
		3.1	5	Updated to reflect sampling frequency reduce in IVR Phase 1 pit	
		Appendix D	21	Added IVR Phase 1 pit assay results for both NPR values and Arsenic values for the past three benches.	

7.1	February 2023	Appendix B	19	As per CIRNAC comments on Version 7 of the plan, flow chart has been revised to include the correct sampling frequency for uncertain samples classified as NPAG as outlined in Table 3.2 of this plan	Agnico Eagle
		Appendix C	20	As per CIRNAC comments on Version 7 of the plan, Appendix C has been added to the submission.	

Prepared by: Environment and Geology Department

Approved by:

Alexandre Lavallee
Geology Superintendent

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ACRONYMS

ABA	Acid-Base Accounting
Agnico Eagle	Agnico Eagle Mines Limited – Meadowbank Complex
ARD	Acid Rock Drainage
HCT	Humidity Cell Test
LOM	Life of Mine
MEND	Mine Environment Neutral Drainage
MPA	Maximum Potential Acidity
ML	Metal (and arsenic) Leaching
NML	Not Metal Leaching
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
NP	Neutralization Potential
NPR	Net Potential Ratio
NPAG	Non-Potentially Acid Generating
Mine	Whale Tail Mine (including Pits and Underground)
PAG	Potentially Acid Generating
QA/QC	Quality Assurance / Quality Control
SFE	Shake Flask Extraction
TDS	Total Dissolved Solids
TIC	Total Inorganic Carbon
WRSF	Waste Rock Storage Facility

UNITS

%	percent
kg	kilogram(s)
km	kilometer(s)
km^2	square kilometer(s)
mg/kg	milligram per kilogram
Mt	million tonne(s)
ppm	parts per million
t	tonne(s)
µg/g	micrograms per gram
wt%	weight percent

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited – Meadowbank Complex (Agnico Eagle) will continue to operate the Whale Tail and IVR Pits, an underground operations and Haul Road, a satellite deposit located on the Whale Tail property, to continue mine operations and milling at Meadowbank Mine.

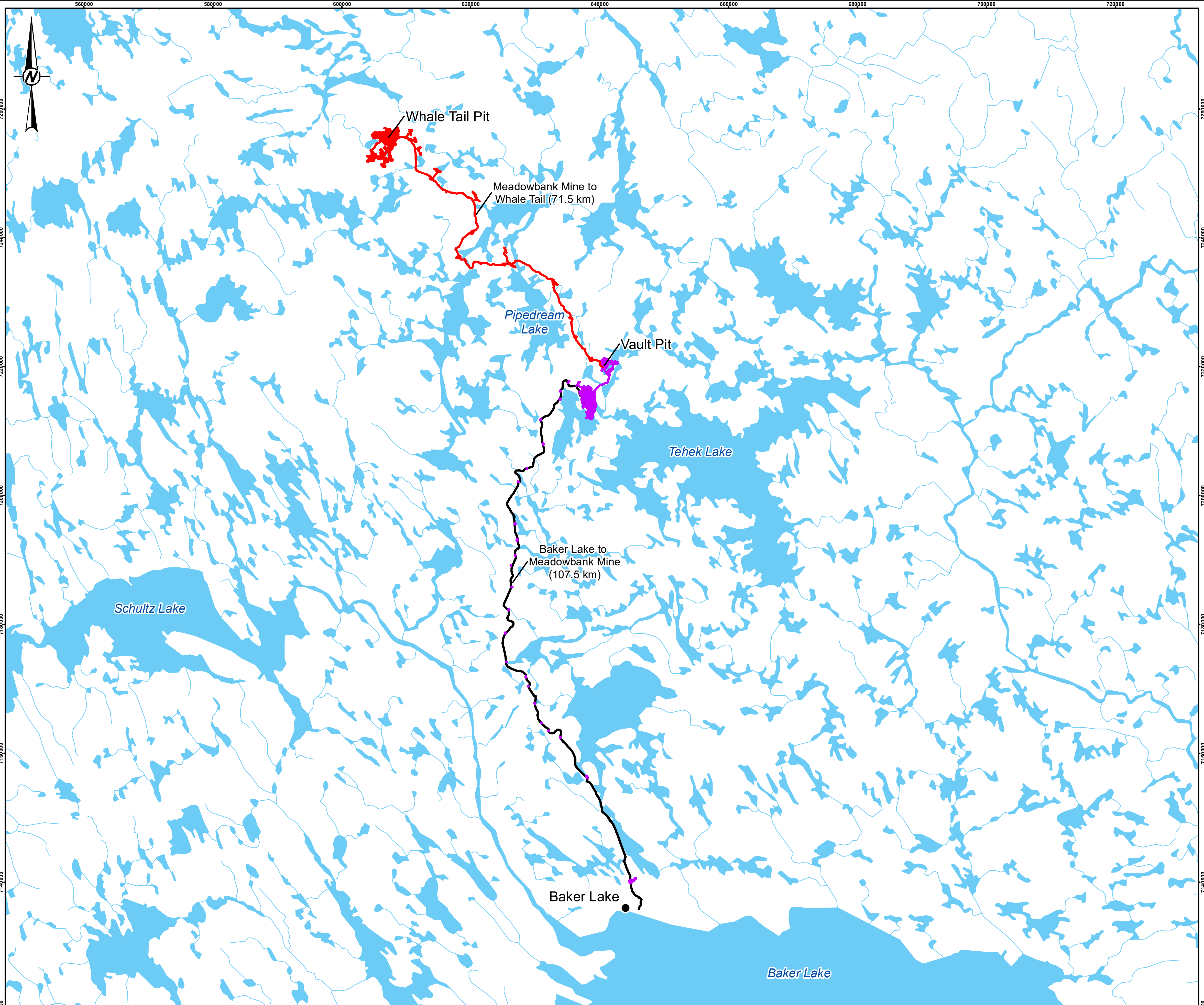
The Whale Tail property is a 408 square kilometre (km^2) site located on Inuit Owned Land approximately 150 kilometres (km) north of the hamlet of Baker Lake and approximately 50 km northwest of Meadowbank Mine in the Kivalliq Region of Nunavut. The deposit is mined as an open pit (i.e., Whale Tail and IVR Pits), and underground mining below Whale Tail and IVR Pits. Ore is hauled to the approved infrastructure at Meadowbank Mine for milling.

The general mine site location for the Mine is presented in Figure 1.1.

This document presents an update to the Operational Acid Rock Drainage (ARD) and Metal Leaching (ML) Sampling and Testing Plan (Plan), with the exception of thermal monitoring of waste rock, which is addressed in the Whale Tail - Thermal Monitoring Plan. The Plan is closely associated with the Whale Tail – Waste Rock Management Plan and the Whale Tail - Water Management Plan.

The objectives of the Plan are to define the sampling, analysis, and testing procedures that are to be implemented to define the acid generating and metal leaching potential of waste rock for the Mine. This characterization is to be used by mine staff to ensure that waste rock, overburden (till), and lake sediments are identified, managed, segregated and disposed of in an environmentally appropriate manner, as designated in this Plan. The Plan will also define if the waste rock, the overburden, and the lake sediment can be used as construction/closure material.

This Plan will be updated as required to reflect any changes in operation or economic feasibility occurs, and to incorporate new information and latest technology, where appropriate.



LEGEND

- COMMUNITY
- HAUL ROAD
- ALL WEATHER ROAD
- WHALE TAIL PIT
- MEADOWBANK OPERATION AND INFRASTRUCTURE
- WATERCOURSE
- WATERBODY

0 12 24

1:600,000 KILOMETRES

REFERENCE(S)

1. HAUL ROAD OBTAINED FROM AGNICO EAGLE MINES LIMITED. 2015-10-14 FROM 6103-117-230-200_R0.DWG
2. WATERCOURSE AND WATERBODY DATA OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
3. INSET MAP DATA OBTAINED FROM ESRI.

DATUM: NAD 83 CSRS PROJECTION: UTM ZONE 14

CLIENT

AGNICO EAGLE

AGNICO EAGLE MINES LIMITED:
MEADOWBANK DIVISION

PROJECT

WHALE TAIL PIT - EXPANSION PROJECT

TITLE

PROJECT LOCATION

CONSULTANT

GOLDER

YYYY-MM-DD	2018-10-30
DESIGNED	JR
PREPARED	CDB
REVIEWED	JR
APPROVED	DF

PROJECT NO.	CONTROL	REV.	FIGURE
1896037	1300/1340	0	1.1-1

SECTION 2 • WASTE ROCK MANAGEMENT

2.1 Lithologies

There are six major bedrock types (or lithologies) found at Whale Tail and IVR deposits: komatiite, greywacke, chert, iron formation, basalt, and diorite. Overburden and lake sediments are also included in this Plan.

The ARD and ML potential of each waste rock lithology, overburden, and lake sediments was evaluated through a static and kinetic testing program (Golder 2018). Geochemical data collection is on-going and will continue throughout mining, per this plan. Details on the test methods used and results obtained are provided in Golder (2018; summarized in Appendix A). The anticipated ARD/ML potentials for each waste material type are shown in Table 2.0. While the bulk of some of the lithologies is PAG and/or ML, these lithologies do contain some material that is less reactive and non-potentially acid generating (NPAG) and/or non-metal leaching (NML).

Table 2.0 Anticipated ARD/ML Potential of Waste Rock Types at Whale Tail (Golder 2018)

Rock Type	Rock Unit Code	ARD Potential	ML Potential[1]	Tonnages (t)
Komatiite North	V4a – 0a	No	High	16,197,267
Komatiite South	V4a – 0b	No	Moderate	35,947,823
Greywacke Central	S3C – 3b	Yes	Variable	7,058,908
Greywacke South	S3S – 3b	No	Low	20,607,637
Greywacke North	S3N-3b	Variable	Variable	12,765,866
Chert	S10 – 3b	Yes	Variable	16,028,617
Iron Formation	S9E – 3b	No	High	15,953,228
Basalt South	V3 – 1b	No	Moderate	15,324,398
Basalt North / Gabbro	V3 – 1a / I3A	No	Moderate	8,872,277
Diorite	I2S	No	Low	18,191,772
Overburden	n.a.	No	Low[2]	11,343,574[3]
Lake Sediment	n.a.	No	High[2]	

n.a. not applicable
[1] based on large column kinetic test results
[2] based on Shake Flask Extraction results
[3]Overburden and Lake sediment are considered as the same unit in the geological model

The NPAG waste rock tonnage required for the construction of a 4.7 m thermal cover can be consulted in the ICRP and is approximately 6,190,000 m^3 for the Whale Tail WRSF and 3,850,000 m^3 for the IVR WRSF. The quantity of available rock from south greywacke and diorite, targeted for use as cover, is estimated to be 37,305,130 tonnes (18,652,565 m^3) during mine life.

2.2 Waste Rock Segregation

Waste material segregation is described below. Further details on waste rock management can be found in the Whale Tail – Waste Rock Management Plan. Overburden generated from the Whale Tail Pit will be placed in the Whale Tail Waste Rock Storage Facility (WRSF) and overburden generated from the IVR Pits will be placed in the IVR Waste Rock Storage Facility (WRSF).

Waste Rock from Open Pits

Characterization of ARD/ML potential in the excavated waste rock is required in order to properly segregate it for use or disposal, as follows:

- **General Construction and/or Closure** – Only rock that is NPAG and NML can be used for site construction, including dewatering dikes, WRSF cover construction and other closure requirements. It is the responsibility of the Geology Superintendent to ensure that all waste rock being used for construction or reserved for future use during closure has been characterized and verified as being NPAG and NML.
- **Disposal** – All other waste rock (PAG and/or ML), as well as overburden, will be placed within the Whale Tail WRSF or IVR WRSF for permanent storage.

Waste Rock from Underground

Waste rock from Underground will be stockpiled temporarily on surface in the Underground WRSF and will not be used for construction purposes. This rock will be entirely used as backfill in the mine such that no waste rock from underground will remain on surface after mine closure.

2.2.1 Waste Rock Storage Facility Design

The majority of waste rock generated at the Whale Tail Mine will be placed in the WRSFs. Waste rock and overburden from the Mine not used for site development purposes will be trucked to the Whale Tail WRSF and IVR WRSF until the end of mine operations. More details about the configuration of the WRSFs can be found in the approved design report submitted to NWB ‘Whale Tail WRSF Expansion and IVR WRSF Design Report and Drawings (December 2019)’.

SECTION 3 • ASSESSMENT OF ARD/ML POTENTIAL AT WHALE TAIL AND IVR PITS

Sampling and testing of waste materials for ARD and ML will be conducted during mine operation in order to segregate suitable waste for use in construction and for closure (Section 2.2) from that which will report directly to the Whale Tail WRSF or IVR WRSF. This section discusses field sampling methods, analytical testing, ARD/ML evaluation criteria, and the delineation of waste rock from the open pits.

Appendix B includes a flow diagram of the process to be followed for waste rock sampling, testing, and segregation.

3.1 Field Sampling

Blast holes will be sampled for testing as part of the ARD/ML evaluation (Section 3.2). Sampling will proceed according to the following guidelines that are currently authorized:

- The default sampling frequency is every fourth blast hole in each blast hole pattern. The shallow benches in Whale Tail and IVR Pits will be sampled at a frequency of one sample every two blast holes.
- Drill holes will be spaced to ensure an even distribution of samples throughout the planned blast area.
- Drill cuttings are collected and fully mixed in a stainless steel sampling tray placed beside the drill.
- The stainless steel sampling tray contents will be transferred into a clean polyethylene plastic bag.
- Each sample will be collected from drill cuttings and will weigh at least 1 kilogram (kg).
- The samples will be labeled using a convention that is readily traceable back to the production blast hole numbers.

The Geology Superintendent will evaluate the default frequency based on the experience gained during the mining of the Whale Tail and IVR Pits from previous drilling, sampling analysis results and visual inspections. The sampling frequency will be reviewed periodically and the rationale for any changes will be clearly documented and implemented only with the prior approval of the Nunavut Water Board.

After one year of mining activity in the Whale Tail Pit and after accumulating substantial information and knowledge of the Whale Tail deposit, the Mine Geology team deemed necessary to review the waste sampling default ratios defined by the "Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Expansion Project". The Geology Superintendent evaluated the default sampling frequency of the waste rock based on the experience gained during the mining of Whale Tail pit from previous drilling, sampling analysis and visual inspections and concluded:

- Central and northern part of the Whale Tail pit systematically return values either with a NPR below 1 or an Arsenic content above 75 ppm.

- South Part of the Whale Tail pit is mainly returning NAG with a few odd occurrences of PAG/ML material.
    - Assay results show NAG/PAG boundary is consistently controlled by south sediment contact with ultramafic volcanics (komatiite) over the seven mining benches.

Based on the above observations, the Geology Superintendent recommended:

- Maintain a 1 /4 sampling ratio south of the Sediment/Komatiite contact (Only area with potential for NAG/non ML material); and
- Decrease the sampling frequency for Carbon/Sulfur and Arsenic north of that same lithological contact to 1/16.

Appendix C present the complete Whale Tail Pit waste rock sampling rate reduction study supporting the above changes to the plan. This modification to sampling frequency was approved by NWB on January 22, 2021 and detailed in Table 3.0 below.

In 2022, after two years of mining in IVR Phase 1 pit, and after accumulating substantial information and knowledge of the IVR deposit, the Mine Geology team deems necessary to review the waste sampling default ratios defined by the "Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Project". The Geology Superintendent evaluated the default sampling frequency of the waste rock based on the experience gained during the mining of IVR Phase 1 pit from previous drilling, sampling analysis and visual inspections and concluded:

- IVR Phase 1 pit has been systematically returning carbon and sulfur assay values translating in CaNPR values (as defined in section 3.2 of this document), well above the threshold value of 2 for the past three benches and typically ranging between 50 and 300.
- On the other hand, the arsenic content returned systematic values well above 75 ppm for the same set of samples and even systematically in the high hundreds of ppm's (usually ranging between 300-1000 ppm).

Based on the above observations, although non acid generating per the NPR calculation, the material has to be systematically classified as PAG due to its high content of Arsenic and associated leachability potential. For this reason, the Geology Superintendent recommends to:

- Decrease the sampling frequency for Carbon/Sulfur and Arsenic in IVR Phase 1 pit to 1/16. This would be applied to all remaining mining benches in the IVR phase 1 pit (bench 5053 and downward).

Appendix D presents the complete IVR Phase 1 Pit waste rock sampling results for both NPR and Arsenic values for the past three benches.

Table 3.0 Recommended Sampling Frequency by Rock Type

Rock Type WT Pit	Rock Unit Code WT Pit	Current Sampling Frequency in WT Pit	Approved Sampling Frequency in WT Pit
Komatiite North	V4a – 0a	Every 4th hole	Every 16th hole
Komatiite South	V4a – 0b	Every 4th hole	Every 4th hole
Greywacke Central	S3C – 3b	Every 4th hole	Every 16th hole
Greywacke South	S3S – 3b	Every 4th hole	Every 4th hole
Greywacke North	S3N – 3b	Every 4th hole	Every 16th hole
Chert	S10 – 3b	Every 4th hole	Every 16th hole
Iron Formation	S9E – 3b	Every 4th hole	Every 16th hole
Basalt South	V3 – 1b	Every 4th hole	Every 4th hole
Basalt North Gabbro	V3 – 1a / I3A	Every 4th hole	Every 16th hole
Diorite	I2 – 8b	Every 4th hole	Every 4th hole

Rock Type IVR (PH1 and PH2)	Rock Unit Code IVR (PH1 and PH2)	Approved Sampling Frequency in IVR (PH1 and PH2)	Proposed Sampling Frequency in IVR Pit PH1 Only
IVR-1 Komatiite North	V4A_0a	Every 4th hole	Every 16th hole
IVR-1 Komatiite South	V4A_0b	Every 4th hole	Every 16th hole
IVR-1 Mafics	I3A	Every 4th hole	Every 16th hole
IVR-1 Central Greywache	S3C-3b	Every 4th hole	Every 16th hole
IVR-2 Komatiite North	V4A_0a	Every 2nd hole above 5144 elevation and every 4th hole below 5144.	NA
IVR-2 Komatiite South	V4a – 0b	Every 2nd hole above 5144 elevation and every 4th hole below 5144.	NA
IVR-2 Mafics	I3A	Every 2nd hole above 5144 elevation and every 4th hole below 5144.	NA
IVR-2 Central Greywache	S3C-3b	Every 2nd hole above 5144 elevation and every 4th hole below 5144.	NA

IVR PH 1open pit operation started in October 2020. The first two benches sampling frequency was every second hole and decreased to every 4th hole thereafter. Agnico propose to reduce further the sampling frequency in IVR PH 1 to every 16th hole.

3.2 Evaluation of ARD/ML Potential at Whale Tail and IVR Pits

The ARD and ML potential of all samples collected (Section 3.1) will be evaluated through laboratory testing, as described below.

3.2.1 ARD Testing and Classification of ARD Potential (PAG / NPAG)

The most conventional method of characterizing the ARD potential of waste rock is to classify it as PAG, NPAG or of uncertain acid generating potential (uncertain ARD potential) based on the net potential ratio (NPR) value. The NPR is the ratio of the acid-buffering potential (neutralization potential or NP) and the acid generation (maximum potential acidity or MPA; assumed to be due to sulphide sulphur content, or total sulphur minus sulphate sulphur).

The geochemical characterization study (Golder 2018) examined the use of carbonate NP as a surrogate for bulk NP using data obtained from exploration drilling (Golder 2018). The carbonate NP and bulk NP correlate well (R^2= 0.97), implying that NPR calculated using carbonate NP is a safe assessment of available buffering capacity. Further, MPA is calculated based on the total sulphur content of the samples (rather than sulphide content), on the basis that there are no sulphate minerals present in any lithologies, which is conservative. This approach to ARD classification is based on observed trends in rock chemistry, mineralogy, and reactivity of neutralizing minerals (Golder 2018).

The ARD potential of waste rock is traditionally characterized through acid-base accounting (ABA) analyses, which involves a suite of analytical tests that include paste pH, total sulphur, sulphate sulphur, neutralization potential, and carbonate neutralization potential based on total inorganic carbon. Since ABA analyses are relatively slow to complete at a commercial laboratory and require several different types of equipment, the Meadowbank onsite assay laboratory is equipped to analyze total sulphur and total inorganic carbon overnight for the samples of drill cuttings. Mine staff will use these results to calculate the NPR value for each sample as follows:

- Total sulphur is converted into **MPA** by multiplying the total sulphur wt% by 31.25, which yields an MPA value in kg $CaCO_3$ equivalent.
- Total inorganic carbon is similarly converted into a carbonate NP (**CaNP)** by multiplying the total wt% inorganic carbon (reported as %C) by 83.34 which yields an NP value in kg $CaCO_3$ equivalent.
- The carbonate NPR for the blast hole drill cutting sample is then calculated as
  CaNPR = CaNP/MPA.

This approach is consistent with the use of total sulphur and total inorganic carbon to calculate the MPA and CaNP of waste rock material for the geochemical characterization study (Golder 2018).

The ARD potential of waste materials will be classified first based on total sulphur content and then using the NPR-based guidelines published by MEND (2009). Total sulphur will be used as an initial screening criteria to identify NPAG material, whereby a sample will be considered NPAG when it contains less than 0.1 wt% sulphur, regardless of the CaNP (Golder 2018). Where total sulphur is above 0.1%, the calculated carbonate CaNPR value will be used for sample classification, as summarized in Table 3.1.

Table 3.1 ARD Classification of Waste Rock and Overburden

Total Sulphur Screening Criteria	NPR Screening Criteria (based on Carbonate NP)	ARD Potential
Total S < 0.1%	-	Non-potentially acid generating (NPAG)
Total S > 0.1%	CaNPR > 2	
	1 ≤ CaNPR < 2	Uncertain or low acid generating potential
	CaNPR < 1	Potentially acid generating (PAG)

3.2.2 Metal Leaching Potential Testing and Evaluation

Waste rock materials can also potentially leach metals (and other elements) when they come into contact with water and air, which is referred to as ML potential and can occur even if the materials are non-acid generating. Arsenic is identified as a parameter of environmental interest based on laboratory leaching tests completed to date (Golder 2018).

Standard laboratory techniques for analysis of ML potential include Shake Flask Extraction (SFE) and humidity cell tests (HCT). Both tests involve exposing the samples to water and measuring the metal content of the water after a prescribed period of contact time. The turn-around time for analytical results is too long for either of these tests to be used as a decision-making tool on a day-to-day basis as required during mine operations. Consequently, it is not feasible to segregate waste materials based on measured ML potentials derived from leaching tests.

However, the amount of arsenic released by leaching has been shown to be proportional to the total arsenic content of the sample (Golder 2018), whereby samples with total arsenic content below approximately 75 ppm (as µg/g or mg/kg) indicate a low potential to leach arsenic. This has been selected as a suitable identifier of arsenic leaching. Total arsenic will be analyzed at the Meadowbank on-site laboratory, and arsenic leaching potential be inferred based on the total arsenic content.

A surface runoff water monitoring program will be implemented for the Mine like it is at the other deposits of Meadowbank to detect ML in site contact waters. Further details on the water quality monitoring program are provided in Section 4.2.1.

3.2.3 Quality Assurance / Quality Control (QA/QC)

Mined rock samples will be subjected to the same quality assurance / quality control (QA/QC) program currently in use at Meadowbank, which includes the use of certified reference materials and duplicate analyses by an accredited external laboratory. Duplicate analyses include more complex testing described above for ARD classification (Acid Base Accounting or ABA), and metal leaching evaluation (bulk metal content and Shake Flask Extraction or SFE).

For the duplicate samples, the testing frequency of 75 samples per quarter that is currently in place at Meadowbank will be followed, however this frequency will be evaluated and altered as necessary as the database increases. An approach was implemented in 2022 to establish the number of QA/QC samples required by rock type by quarter to achieve a good distribution in regard to the proportion of each lithology to be mined during the quarter in progress. This ratio is based on the vertical advance of the pits defined in the three months rolling plan produced by the engineering department.

Further, the duplicate test results will be used to confirm the total sulphur (0.1 %) and total arsenic (75 ppm) threshold values in place for waste classification. SFE results from the duplicate analyses will be evaluated against the proposed Effluent Quality Criteria for arsenic (0.1 mg/L) and the 75 ppm value will be modified as necessary based on the results.

3.3 Waste Rock Delineation and Tracking

Following laboratory analysis, geology staff will classify waste rock into the following types of material as defined in Table 3.2.

Table 3.2 ARD Guidelines used to Classify Waste Rock and Overburden

Waste Type	Criteria for Classification	Frequency of Outlying Data
NPAG/NML	Total S < 0.1% and/or CaNPR > 2 ***and*** Average Total Arsenic < 75 ppm	• No more than one PAG (S>0.1% and CaNPR<1) for every 8 NPAG samples. • No more than one uncertain sample (S>0.1% and 1≤CaNPR<2) for every 4 NPAG samples. • Average total arsenic value is below 75 ppm
PAG/ML	Total S > 0.1% and CaNPR < 2 ***and/or*** Average Total Arsenic > 75 ppm	• Two or more PAG (S>0.1% and CaNPR<1) for every 8 NPAG samples. • Two or more uncertain samples (S>0.1% and 1≤CaNPR<2) for every 4 NPAG samples. • Average total arsenic value is above 75 ppm

NPAG/NML waste can be used for construction (i.e. pads, roads, and dykes) and closure (i.e., WRSF cover material and other closure requirements) while waste rock classified as PAG/ML must be stored in the Whale Tail WRSF or the IVR WRSF. The criteria outlined in Table 3.2 can be re-evaluated when judged relevant by the Geology Superintendent in consultation with the mine engineer, as additional test data become available. The ARD/ML classification of all samples will be logged in a database for the Mine, and will be available as required for annual reports or upon request. The rationale for any changes will be clearly documented and implemented only with the prior approval of the Nunavut Water Board.

CaNPR and total arsenic values will be transferred to the mine plans for each specific blast. Once blasting is complete the mine surveyor will identify the two waste categories: 1) suitable for use in construction or capping (NPAG/NML) and 2) non-suitable material (PAG/NML-ML and NPAG/ML). Outlines from the drill pattern will be used to outline the respective dig limits in the open pit for each type of material. The different material types or packets will be identified in the field using stakes, wire flags and flagging tape so that each type of material can be excavated and sent to the appropriate destination (see Section 2.2).

Both waste types 1) NPAG/NML and 2) PAG/NML-ML and NPAG/ML will be assigned a unique identification number and tracked in the Mine's fleet management system to their final location.

3.4 WRSF thermal cover material sampling/testing program

The sampling frequency proposed (every fourth hole) will result in 10's of thousands of samples tested to ensure non-PAG and non-metal leaching material is used for the thermal cover. This is far in excess of industry standards, but Agnico Eagle is committing to this sampling frequency to ensure clean cover material is used. In addition, the planned segregation program (Table 3.2) does not tolerate ARD generating material, further decreasing the chance for material with ARD-ML potential in the cover.

Despite the level of effort to segregate rock during mining, Agnico Eagle will also confirm the cover properties after placement. Sampling of cover material would include approximate 80 samples based on MEND (2009) guidance collected from well spaced locations from the sides on top layer of the cover.

Monitoring of thermal properties of the pile and water quality generated from run-off are also included in the monitoring plan (described in Section 4), with results from both used to validate prediction models and determine if any changes will be needed to ensure the cover functions as designed.

SECTION 4 • PLAN REVIEW, PERFORMANCE MONITORING & REPORTING

4.1 Plan Review

The Mine Geology Superintendent will be responsible for implementing the Operational ARD-ML Sampling and Testing Plan. The plan is to be reviewed as required by the Geology Superintendent and updated if necessary to reflect any adaptive changes made in the Operational ARD-ML Sampling and Testing Plan. The changes should be made in consultation with the mine engineer and chief assayer. Revised versions should be sent according to the Distribution List.

4.2 Performance Monitoring

The Operational ARD-ML Sampling and Testing Plan is the primary tool to ensure that all overburden and waste rock generated during the Mine is appropriately characterized and managed to prevent the future release of contaminants from the Whale Tail WRSF and IVR WRSF into the receiving environment.

In addition to the analytical QA/QC procedures outlined in Section 3.0, performance monitoring activities will include those activities outlined below.

4.2.1 Water Quality Monitoring

Water quality will be sampled and monitored by Agnico Eagle in accordance with the Type A Water Licence. The details of this monitoring program are described in the Whale Tail - Water Quality and Flow Management Plan. The data from this monitoring is to be provided to the NWB through annual reporting, as per the Type A Water Licence.

4.2.2 Permafrost Development

Thermistors will be installed within the Whale Tail WRSF and IVR WRSF to determine if permafrost formation is observed. More information is provided in the Whale Tail - Thermal Monitoring Plan. Thermal monitoring results are provided in Agnico Eagle’s annual report submitted to the NWB.

SECTION 5 • ADAPTIVE MANAGEMENT

5.1 Management Actions

Adaptive management will be achieved through performance monitoring (Section 4) and management actions that will triggered by scenarios outlined in Table 5.1. Action level responses taken during the year will be documented in Agnico Eagle's annual report submitted to the NWB.

Table 5.1 Adaptive Management Actions Associated with the ARD/ML Plan

Thresholds	Mitigation Strategies	Potential Issues	Steps	Management Responses
Significant variations from model predictions are observed suggesting potential for ARD/ML drainage	Use only NPAG/NML waste rock for site construction and closure	Observations of visible sulphide minerals or staining, inferring PAG rock was used in construction material across the site	• Notify management • Note location and estimate dimensions of potential PAG/ML material • Collect samples of material from the observed area for analysis (Section 3.2) • Review results; if samples are PAG/ML, establish a monitoring station down gradient of the location • Review water quality sampling; if elevated metal concentrations are detected, proceed to management response.	• Consider relocation of material to WRSF or cover with additional NPAG/NML rock if possible, otherwise investigate other mitigation strategies. • Review the application of the ARD/ML sampling plan (i.e. sampling frequency, total sulphur and total arsenic threshold value, and material classification)
	Confirm that waste rock being encountered exhibits the anticipated range of behaviour from baseline study	Higher proportion of waste rock is PAG/ML than anticipated	• Geology to document the location and classification of samples to identify trends outside the anticipated geochemical behaviour of the rock types • Notify management if unanticipated trends are observed • Investigate options to source NPAG externally.	• Confirm the availability of sufficient NPAG/NML waste rock for closure • Confirm the availability of sufficient space in the WRSF for PAG/ML waste rock • Initiate a follow-up investigation to evaluate the implications
	Prevent contamination of the thermal cover with PAG/ML waste rock	Waste rock used to construct the cover material is contaminated with PAG/ML waste rock	• Continue to use Agnico Eagle Wenco System (dispatch system), to track and georeference each load of waste rock used to construct the thermal cover. • Once timing, location and quantity of the material placed is identified, assess alternatives to manage the potential contamination. Some alternatives include: - Revisiting and updating the block model to identify lithology and geochemistry of waste material, - Re-running water quality model to evaluate impact of contamination on water quality, in the short term. - Excavating the material out of the waste rock cover. - Reinforcing training and to operational personnel.	• Evaluate the causes of potential contamination and facilitate the resources to prevent and control the occurrence of future
Significant variations from model	Manage contact water quality to	One contact water quality monitoring sample is different than predicted	• Collect and analyze follow up confirmation samples to confirm results • If confirmed, notify management	• Initiate an investigation to reduce the effects of contact water quality, if possible

Thresholds	Mitigation Strategies	Potential Issues	Steps	Management Responses
predictions are observed in the water quality of the WRSF pond	avoid exceedance to predicted levels	Water quality monitoring program identifies trends outside of those predicted, for a significant period of time (i.e. greater than two months)	• Increase monitoring frequency • Notify management	• Investigate alternative strategies to control effects to water quality • Investigate strategies to reduce seepage and runoff from identified sources
	Progressive covering of WRSF with thermal cover to minimize water in contact with PAG/ML rock during operation and closure	Cover placement is incomplete or not of sufficient thickness	• Monitor the placement of cover material on the WRSF to ensure appropriate thickness of cover • Monitor temperature of cover and waste rock • Monitor contact water quality • Modify cover thickness with placement of additional material when thickness is not sufficient	• Waste Rock Facility Monitoring program to confirm completeness of cover on WRSF
		Thermal monitoring confirms that the waste rock cover freeze back is not occurring as anticipated	• As per Whale Tail Adaptive Management Plan	• As per Whale Tail Adaptive Management Plan

SECTION 6 • REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2016. Whale Tail Pit Project - Meadowbank Mine Final Environmental Impact Statement and Type A Water Licence Amendments. Amendment/Reconsideration of the Project Certificate (No. 004/ File No. 03MN107) and Amendment to the Type A Water Licence (No. 2AM-MEA1525). Submitted to the Nunavut Impact Review Board. June 2016.

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NIRB (Nunavut Impact Review Board). 2020. NIRB Project Certificate [No. 008]. February 19, 2020.

NWB (Nunavut Water Board). 2020. Amended Water Licence #2AM-WTP1830, Whale Tail Project. May 2020.

APPENDIX A • SUMMARY OF THE ARD/ML POTENTIAL OF WHALE TAIL AND IVR MINE WASTES

The acid rock drainage (ARD) and metal leaching (ML) potential of waste material to be produced at Whale Tail Pit, IVR Pit, and Underground has been evaluated through both static and kinetic testing (Golder 2018). The static tests conducted for this purpose included the following:

- Mineralogy;
- Whole rock analysis;
- Elemental solid phase analysis (multi-acid digestion);
- Acid base accounting (ABA);
- Net acid generation tests; and
- Shake Flask Extraction.

Test methods and results are provided in (Golder 2018).

Kinetic testing was conducted on representative samples of waste rock from each lithology using standard 1 kg humidity cell tests, and on a subset of lithologies using 12 to 60 kg composite column tests, a 40 kg composite submerged column, and two 8 kg field cells. Test methods are provided in (Golder 2018).

Table A.0-1 summarizes the ARD/ML potential for the overburden (till), lake sediments, and pit rock, based on the results of static and kinetic testing (Golder 2018). ARD potential was evaluated by comparing ABA results to the Canadian guidelines presented in MEND (2009). ML potential was evaluated by comparing kinetic test leachate results from each rock type to identify rock types with lower-end and higher-end leaching potential.

Table A.0-1 Summary of ARD/ML Potentials of Waste Types

Waste Type	Unit	ARD Potential[1]			Effluent Quality Criteria Exceedances in Test Leachate[2]	ML Potential[2]
		% PAG	% Uncertain	% NPAG		
Komatiite North	V4a – 0a	5	-	95	As	High
Komatiite South	V4a – 0b	29	-	71	As	Moderate
Greywacke Central	S3C – 3b	58	29	13	As	Variable
Greywacke South	S3S – 3b	-	-	100	-	Low
Greywacke North	S3N – 3b	16.6	16.6	66.6	Ni	Variable
Chert	S10 – 3b	87	4	9	As	Variable
Iron Formation	S9E – 3b	27	4	69	As	High
Basalt	V3 – 1b	-	3	97	As	Moderate
Basalt North / Gabbro	V3 – 1a / I3A	4.3	8.7	87	As	Moderate
Diorite	I2 – 8b	15	15	70	-	Low
Overburden	n.a.	-	-	100	Al, Cu, Fe	Low
Lake sediment	n.a.	-	-	100-	Al, As, Fe, Ni	High

[1]Percentage of total samples analyzed (Golder 2018), where PAG = potentially acid-generating; NPAG = not potentially acid-generating
[2]Based on the results corresponding to the bulk column composite samples (Golder 2018) with the exception of diorite which is based on humidity cell test results and overburden and lake sediment which are based on SFE results
n.a. = not applicable

APPENDIX B • FLOW CHART FOR WASTE ROCK DELINEATION AND SEGREGATION

ARD/ML Plan Attachment B: Flow Chart

STEP 1: SAMPLE COLLECTION[1,2]

Responsibility: Geology Superintendent

Rock Type	Rock Unit Code	Sampling Frequency
Komatiite North	V4a – 0a	Every 4th hole
Komatiite South	V4a – 0b	Every 4th hole
Greywacke Central	S3C – 3b	Every 4th hole
Greywacke South	S3S – 3b	Every 4th hole
Greywacke North	S3N – 3b	Every 4th hole
Chert	S10 – 3b	Every 4th hole
Iron Formation	S9E – 3b	Every 4th hole
Basalt South	V3S – 1b	Every 4th hole
Basalt North / Gabbro	V3 – 1a / I3A	Every 4th hole
Diorite	I2 – 8b	Every 4th hole

1. Identify rock types to be excavated using block model →
2. Define sample frequency per Table →
3. Plan and map sample locations to ensure an even distribution throughout the planned blast area, sufficient for packet definition →
4. Collect each sample from drill cuttings (>1 kg) and label using production drill hole numbers →
5. Document for each sample:
- Date
- Blast pattern / GPS location
- Sample ID
- Rock Type

→ 6. Submit samples to Assay Lab Manager for analysis.
- Include documentation (Step 2)
- CC the Environmental Coordinator on submission

STEP 2: LABORATORY ANALYSIS[1,2]

Responsibility: Assay Laboratory

1. Prep samples (crush and homogenize) →
2a. Initiate on-site analysis:
- Total Sulphur (S)
- Total Inorganic Carbon (TIC)
- Total Arsenic

⇢ 3. Quarterly analysis (minimum of 75 duplicate samples). Send subset of samples to off-site laboratory for QA/QC:
- Tests: ABA, Bulk Metals, SFE
- Include Chain of Custody

→ Copy Environmental Coordinator on COC → Data QA/QC See Page 2 (reverse)

STEP 3: DATA EVALUATION AND ROCK CLASSIFICATION[1]

Responsibility: Geology Superintendent

1. Compile on-site data with sample information:
- Total Sulphur
- Total Inorganic Carbon
- Total Arsenic
- Sample documentation

→ Send compilation to Environmental Coordinator

2. Compare Total Sulphur with Cut-off (0.1%)
- Total S < 0.1% **= NPAG**

3. Calculate CaNPR from Total Sulphur (S) and Total Inorganic Carbon (TIC) to determine ARD potential:

CaNPR = [TIC%*83.34] / [S%*31.25]

- Total S > 0.1% *and* CaNPR>2 **= NPAG**
- Total S > 0.1% and 1≤ CaNPR<2 **= Uncertain**
- Total S > 0.1% and CaNPR<1 **=PAG**

4. Evaluate arsenic leaching potential with Total Arsenic (As)
- Total As < 75 ppm **=NML**
- Total As > 75 ppm **= ML**

→ NPAG/NML Samples | Uncertain Samples | PAG/ML Samples

Data QA/QC See Page 2 (reverse)

STEP 4: ROCK SEGREGATION AND MANAGEMENT[1]

Responsibility: Geology Superintendent, Engineering, Environmental Coordinator, Construction Supervisor

1. Log results in database. Map the distribution of samples and define the groups of material for each blast

NPAG and NML Material
- ≤1 PAG sample per 8 NPAG samples
- ≤1 Uncertain sample per 4 NPAG samples
- Average total arsenic <75 ppm

PAG and/or ML Material
- ≥2 PAG samples per 8 NPAG samples
- ≥2 Uncertain samples per 4 NPAG samples
- Average total arsenic >75 ppm

2. Field Segregation of Waste Types:
- Outline dig limits using stakes, wire flags, and flagging tape
- Track in WENCO

3. Record the following with each Packet:
- Packet number
- Sample Results (Total S, TIC, As, NPR)
- Block model rock type
- Final location in WRSF

No Restrictions for Re-Use as Construction and/ or Cover Material

Suitable for the following:
- Pads
- Roads
- Dykes
- WRSF sides and cover material

Not Approved for Re-Use; must be managed to control ARD/ML

Disposal and Management Requirements:
- Encapsulated within NPAG/NML rock that hosts the thawed layer, and encouraged to freeze
  - Placed on a pad of NPAG/NML rock
  - Placed in centre of the pad (≥4m from edge)
  - Covered with ≥4 m of NPAG/NML rock
- Placed away from permanent water contact
- Monitor temperature and seepage quality

⇠ Whale Tail WRSF
IVR WRSF
Waste Rock Exploration Pad

ARD/ML Plan Attachment B: Flow Chart

STEP 3a. DATA QA/QC – EXTERNAL LABORATORY
Responsibility: Geology Superintendent / Environmental Coordinator

1. Confirm ARD Potential using external lab results (ABA). Calculate NPR using the Total Sulphur and Total Inorganic Carbon reported by external lab to compare directly with Meadowbank assay lab data.

↓

2. Confirm arsenic leaching potential using external lab results.

Arsenic leaching potential is considered high if:
- Total arsenic > 75 mg/kg

and

- Leachable arsenic (SFE) > 0.1 mg/L

↓

3. Complete QA/QC of data against onsite results by calculating an RPD value. RPD values below 35% are considered acceptable[3].

↓

4. If the ARD and/or ML designation determined by the external lab data are different than that determined by the onsite lab, a more rigorous QA/QC program is required and refinements must be considered in the block model designation.

↓

5. If required, revisit the cut-off criteria for total arsenic based on updated leach test data.

LIST OF ACRONYMS

ARD: acid rock drainage
PAG: potentially acid generating
NPAG: not potentially acid generating
NPR: net potential ratio
ML: metal leaching
NML: not metal leaching
ABA: acid base accounting
Bulk metals: total metals by ICP
WRA: whole rock analysis
SFE: metal leaching by shake flask extraction
XRF: x-ray fluorescence
ppm = parts per million
S = sulphur
C = carbon
As = arsenic

LIST OF ANALYTES AT EXTERNAL LAB

ABA: acid base accounting by Modified Sobek method. Includes paste pH, Bulk NP, analysis of total S and Total C by C/S analyzer (LECO Furnace), Acid Leachable Sulphate and Sulphide by difference.

Bulk metals: trace metals scan by aqua regia digest and analysis by ICP-MS and ICP-OES. Includes Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, U, V, Zn

WRA: whole rock analysisor major oxides by Borate Fusion XRF. Includes SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, TiO_2, P_2O_5, MnO, Cr_2O_3, V_2O_5, LOI

SFE: metal leaching by shake flask extraction, 24 hr leach extraction using DI water at 4:1 L/S ratio, and filtered leachate through 0.2 micron filter. Analysis of leachate includes pH, alkalinity, conductivity, anions (Cl, SO_4, NO_2, NO_3, Br), ortho-phosphate, fluoride, mercury (by CVAAS), and trace metals by ICP-MS and ICP-OES (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Ti, Tl, U, V, Zn).

References:
1-*Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Addendum (Golder 2016)*
2- *Procedure AMQ-ENV-PRO- Quarry and borrow pit ARD-ML Sampling for Construction*
3-*EPA Guidelines for Inorganic Data Review, 1994*

APPENDIX C • WHALE TAIL PIT WASTE ROCK SAMPLING RATE REDUCTION STUDY

NOVEMBER 19TH, 2020

WHALE TAIL PROJECT OPERATIONAL ARD-ML SAMPLING TESTING PLAN

WASTE ROCK SAMPLING RATE REDUCTION STUDY

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Executive Summary

After 1 year of mining activity in the Whale Tail pit at the Amaruq project and after accumulating substantial information and knowledge of the Whale Tail deposit, the Mine Geology team deems necessary to review the waste sampling default ratios defined by the *"Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Expansion Project".*

As mentioned in the document, *"…the Geology Superintendent will evaluate the default sampling frequency of the waste rock based on the experience gained during the mining of Whale Tail pit from previous drilling, sampling analysis and visual inspections*."

To do so, seven subsequent benches worth of packet design have been compiled. Ranging from the elevation 5144 all the way down to 5102, the vertical advance in the pit allowed us to confirm a strong correlation between the different lithologies in the pit and their respective geochemistry in terms of Carbon/Sulfur and Arsenic contents.

Findings and conclusions

- Central and northern part of the Whale Tail pit systematically return values either with a NPR below 1 or an Arsenic content above 75 ppm.
- South Part of the Whale Tail pit is mainly returning NAG with a few odd occurrences of PAG/ML material.
    - Assay results show NAG/PAG boundary is consistently controlled by south sediment contact with ultramafic volcanics (komatiite) over the 7 mining benches.

Recommendations:

- Maintain a 1 /4 sampling ratio south of the Sediment/Komatiite contact (Only area with potential for NAG/non ML material).
- Decrease the sampling frequency for Carbon/Sulfur and Arsenic north of that same lithological contact to 1/16.

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Section 1.0 – Introduction

The main objective of this study is to be able to decrease the number of samples generated from the open pit for the NAG/PAG determination. By doing so, we expect that this will decrease the workload of the assay lab who will in turn be able to divert some workforce to catch on the sample back log of more critical areas of the pit.

The study is based on the fact that the Mine Geology staff has gathered enough confidence after multiple months of mining in the same deposit to be able to prove that the actual sampling ratio used in the waste rock can be increased without impacting the results obtained. I.E. Waste rock classification (NAG/PAG).

1.1 Methodology

Since the beginning of the mine operations at Amaruq, the sampling criteria defined by the *"Operational ARD-ML Sampling and Testing Plan – Whale Tail Pit Expansion Project"* have been followed thoroughly with a sampling ratio of one on every four holes for Inorganic Carbon, Total Sulfur and Arsenic determination.

From there, the results have been stored in a database and used for the design of the two different categories of waste material (NAG/PAG). This, while following the criterias for classification defined in reference document (Figure 1):

3.3 Waste Rock Delineation and Tracking

Following laboratory analysis, geology staff will classify waste rock into the following types of material as defined in Table 3.3.

Table 3.2 ARD Guidelines used to Classify Whale Tail Pit Waste Rock and Overburden

Waste Type	Criteria for Classification	Frequency of Outlying Data
NPAG/NML	Total S < 0.1% and/or NPR > 2 ***and*** Average Total Arsenic < 75 ppm	• No more than one PAG (S>0.1% and NPR<1) for every 8 NPAG samples. • No more than one uncertain sample (S>0.1% and 1≤NPR<2) for every 4 NPAG samples. • Average total arsenic value is below 75 ppm
PAG/ML	Total S > 0.1% and NPR < 2 ***and/or*** Average Total Arsenic > 75 ppm	• Two or more PAG (S>0.1% and NPR<1) for every 8 NPAG samples. • Two or more uncertain samples (S>0.1% and 1≤NPR<2) for every 4 NPAG samples. • Average total arsenic value is above 75 ppm

Figure 1 : Page 8 of Operational ARD-ML Sampling Plan - Whale Tail Pit Expansion Project - April2019

From there, the “packets” designed have been implemented in the field and mined following the usual process of quality control assured by the field technicians and the production geologists.

The different types of waste have been segregated and treated in regard to their respective classification. I.E. PAG sent to the WRSF and NAG sent to another stockpile or used for construction projects.

1.2 Data Collection

The Data used in this study has been gathered from multiple benches in Whale Tail pit covering 49 meters vertically in most of the Whale Tail pit Phase 2 footprint area. These benches go as follow: 5144, 5137, 5130, 5123, 5116, 5109 and 5102.

For all these benches, the following data have been gathered:

1. All available Packet designs for every bench mentioned above.
2. Outline of the Main controlling lithology 3D model.
3. Georeferenced assays for every blast holes including:
    a. Inorganic Carbon content
    b. Total Sulfur
    c. Arsenic content
    d. NP value *
    e. MPA value *

f. NPR value *
(calculated using the formulas in the document – referenced in figure 2).

- Total sulphur is converted into **MPA** by multiplying the total sulphur wt% by 31.25, which yields an MPA value in kg $CaCO_3$ equivalent.
- Total inorganic carbon is similarly converted into a carbonate NP **(CaNP)** by multiplying the total wt% inorganic carbon (reported as %C) by 83.34 which yields an NP value in kg $CaCO_3$ equivalent.
- The carbonate NPR for the blast hole drill cutting sample is then calculated as **NPR = CaNP/MPA**.

This approach is consistent with the use of total sulphur and total inorganic carbon to calculate the MPA and CaNP of waste rock material for the Whale Tail Pit geochemical characterization study (Golder 2016).

Figure 2 : Page 6 of Operational ARD-ML Sampling Plan - Whale Tail Pit Expansion Project - April2019

Section 2.0 – Results

2.1 Lithological controls – Plan views

Figure 4 to Figure 10 are plan views showing the vertical consistency between the PAG (North) domain and the NAG (South) domain. Reference can also be made to the Lithological model (3D wireframe cut section) of the South Sediment unit which is understood to be the geochemical boundary between the 2 domains mentioned before.

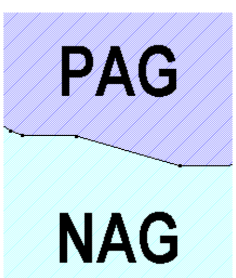


Figure 3 : PAG/NAG packets color legend

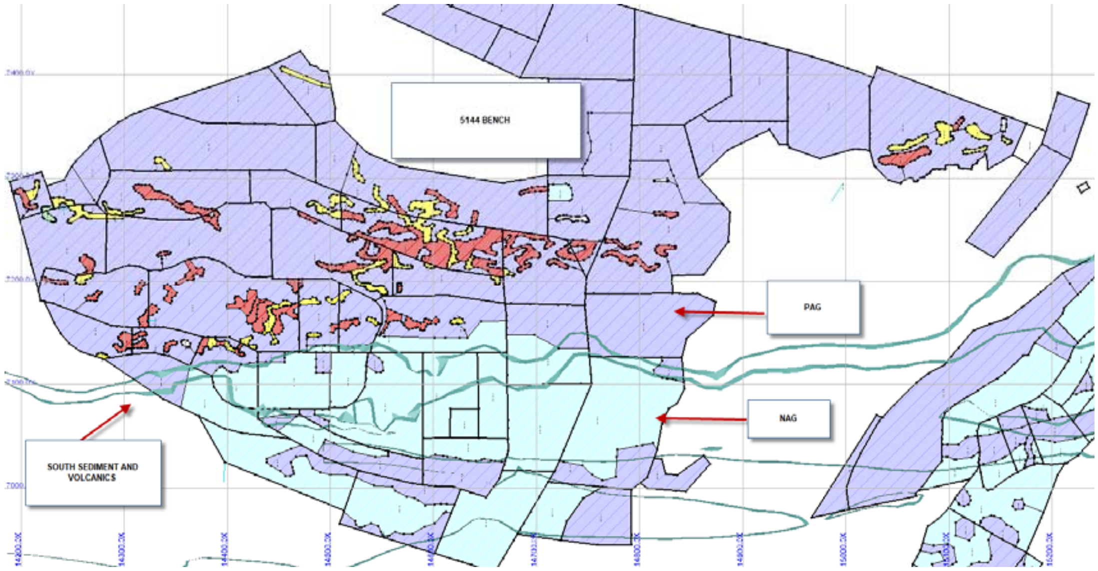


Figure 4 : Planview of all packets on bench 5144

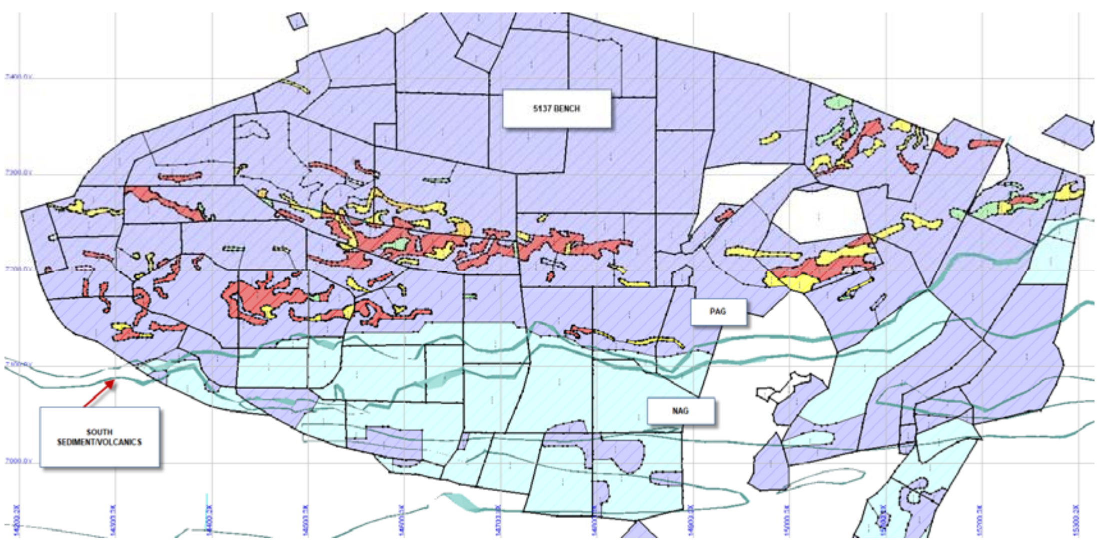


Figure 5 : Planview of all packets on bench 5137

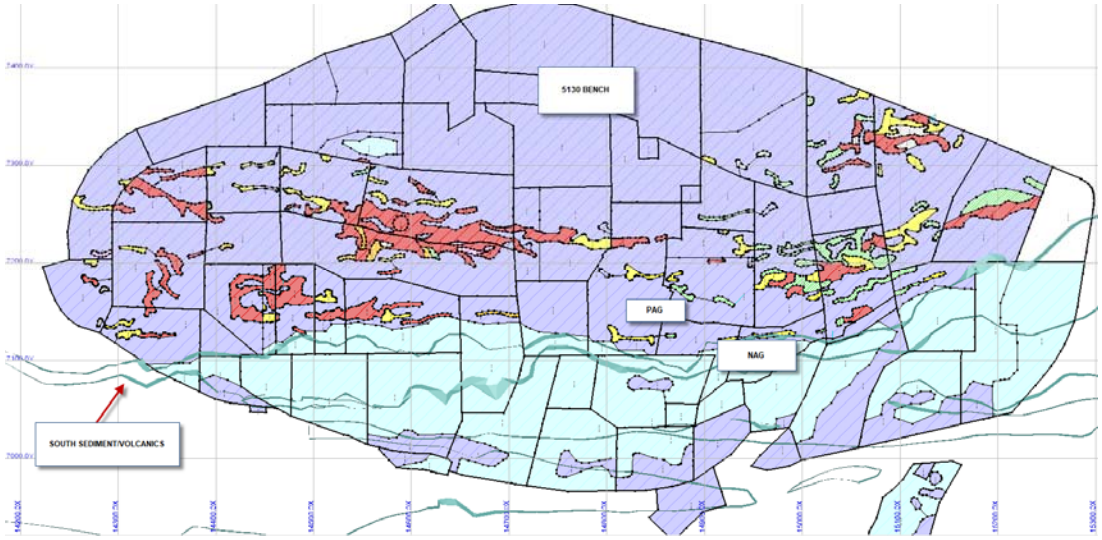


Figure 6 : Planview of all packets on bench 5130

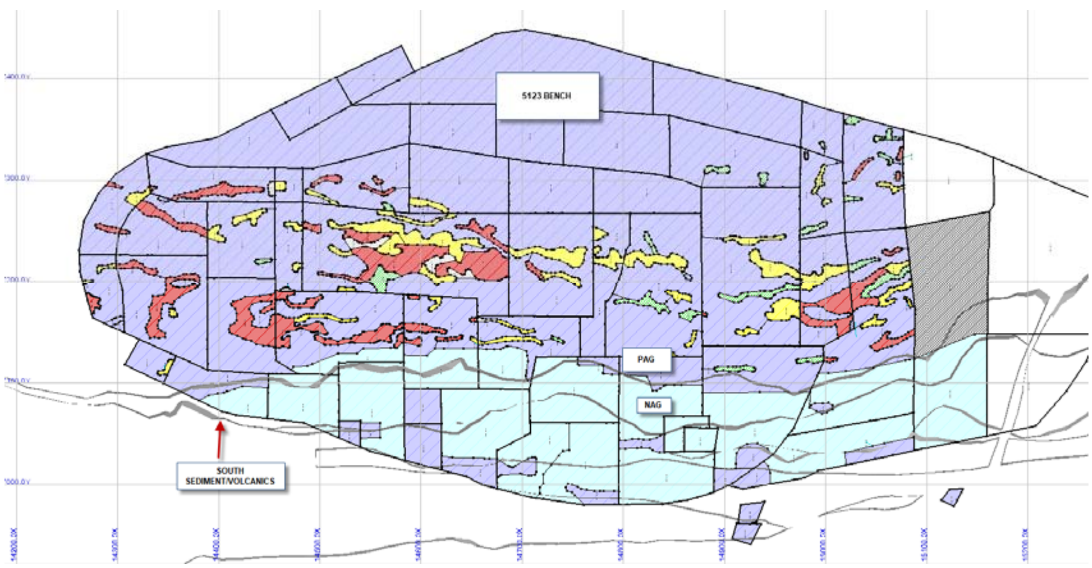


Figure 7 : Planview of all packets on bench 5123

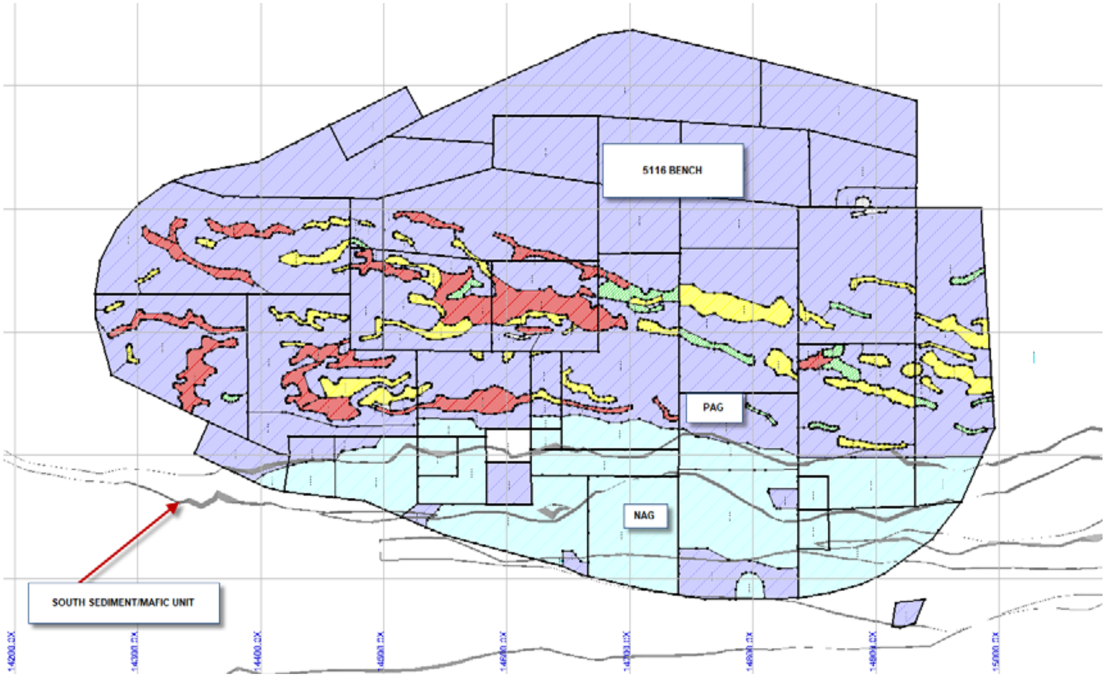


Figure 8 : Planview of all packets on bench 5116

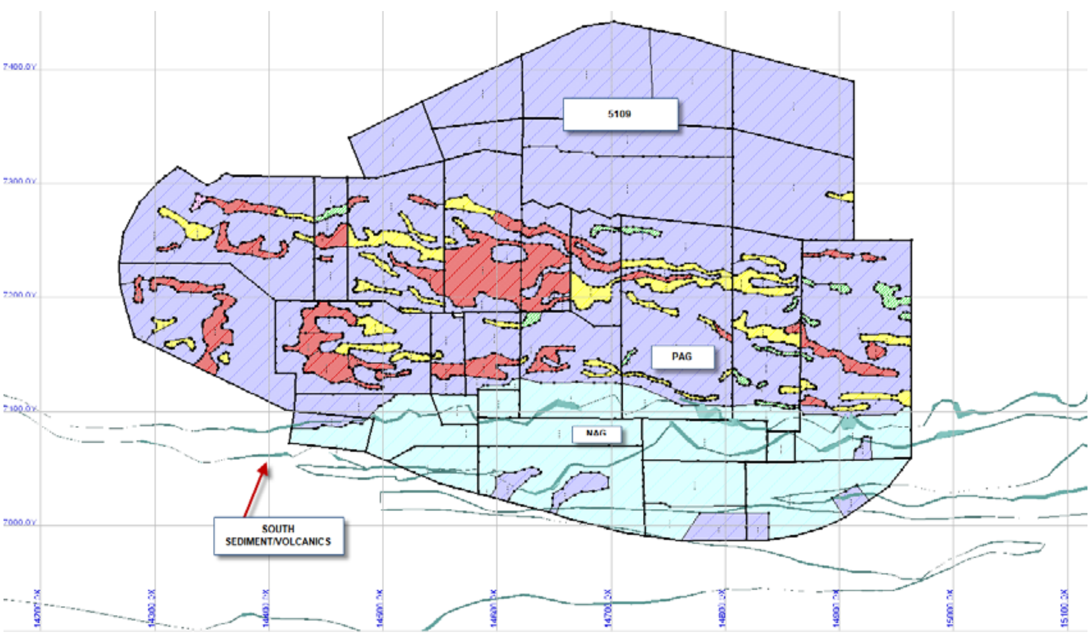


Figure 9 : Planview of all packets on bench 5109

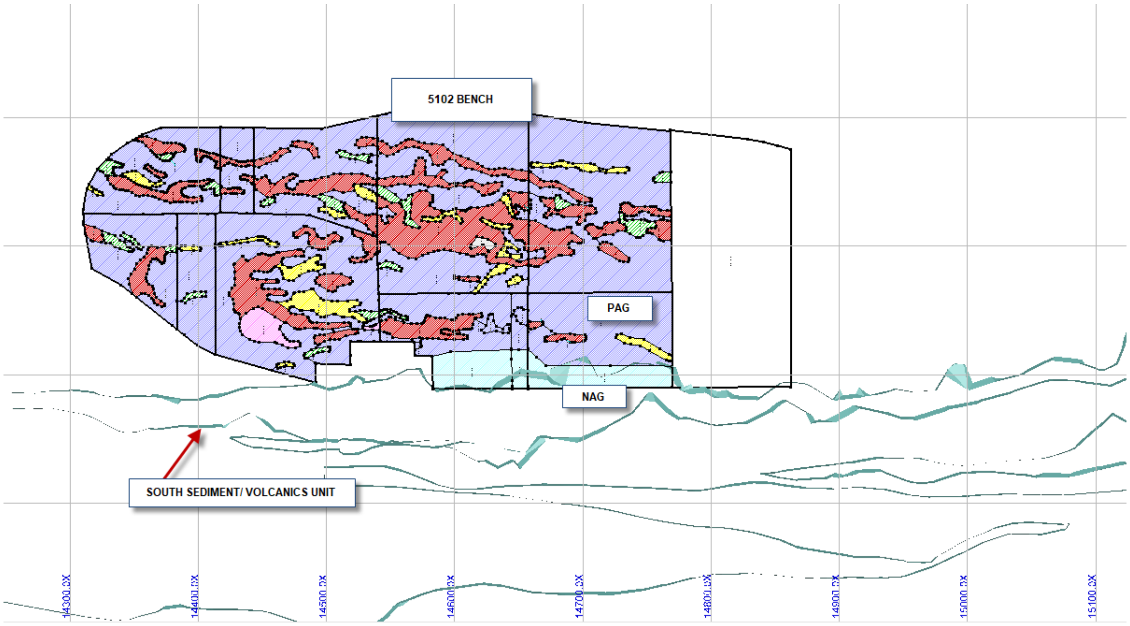


Figure 10 : Planview of all packets on bench 5102

2.2 Lithological Controls – cut sections

Following the same logic, Figure 11 and Figure 12 are schematic cut sections taken randomly in the pit with a view looking west. Again, it is observed that the North domain (to the right) is consistently showing PAG waste rock and the South domain (to the left) shows mainly NAG waste rock although a few pockets of PAG are showing up here and there.

The thick red line on the Figure 11 represents the hard boundary between the 2 domains that is consistent with the geological interpretation of our lithology domains. That boundary is the contact between the Volcanic and South sediment rocks and the Ultramafic rock unit .

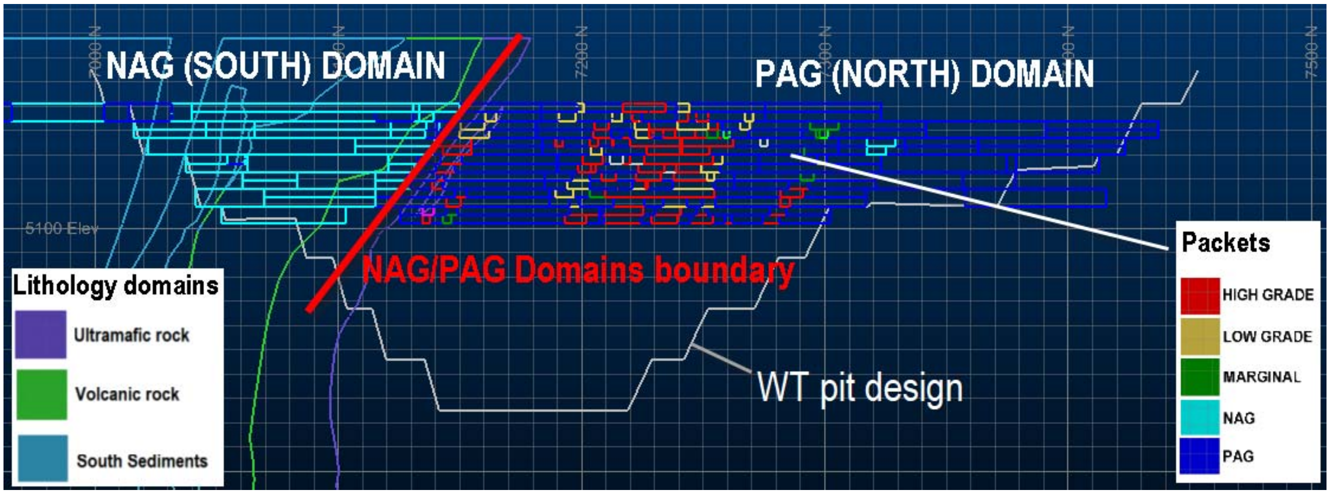


Figure 11 : Cut section looking west – NAG/PAG domain correlation to geology domains

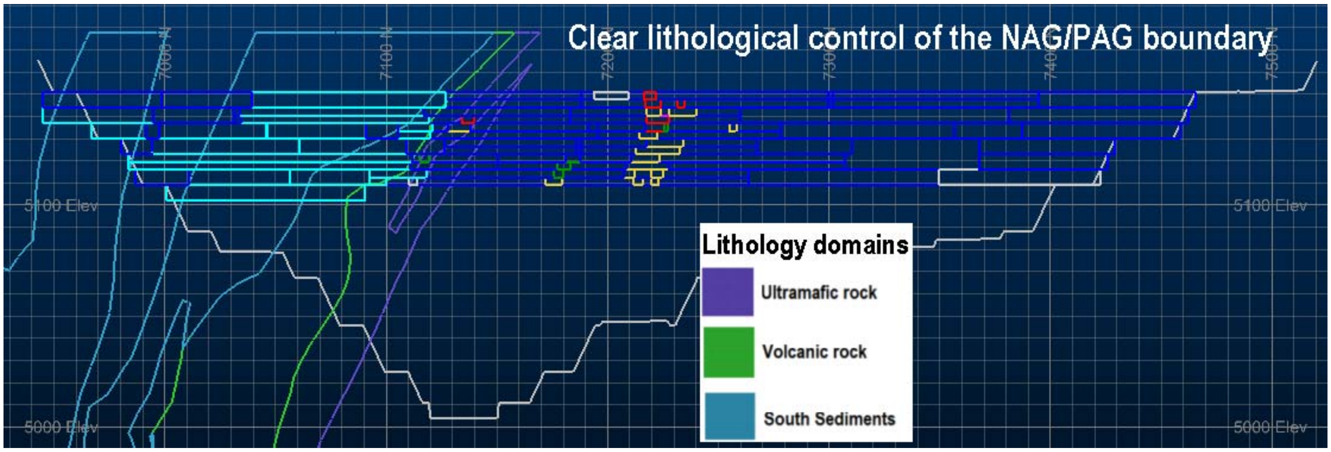


Figure 12 : Cut section looking west - Packets Vs Lithology Wireframes

2.3 Lithological Controls – Basic Statistics

Table 1 shows the statistics of sampling by bench in the Whale Tail Open pit South and North of the marker lithological contact. South of contact statistics show that more than 90% of the samples reach "NAG" criteria in opposite to only 10% North of the contact which is supporting the robustness and efficiency of this lithological contact as a guide for sampling frequency establishment.

Table 1 Basic statistics for sampling by bench in the Whale Tail Open Pit

Sector	Bench Elevation	Frequency of Waste Sampling	Total Samples Taken	Total Waste Samples Taken	PAG	NAG	ML	NON-ML	%PAG	%ML	% NAG
South of Contact	5102	48%	1,003	479	9	470	14	454	2%	3%	93%
	5109	47%	1,455	691	21	670	17	651	3%	2%	91%
	5116	43%	1,972	854	29	825	20	834	3%	2%	94%
	5123	54%	2,100	1,125	34	1,091	30	1,116	3%	3%	95%
	5130	64%	2,398	1,538	99	1,439	84	1,459	6%	5%	89%
	5137	58%	1,689	983	46	937	48	975	5%	5%	91%
	5144	62%	1,196	744	37	707	40	704	5%	5%	91%

Sector	Bench Elevation	Frequency of Waste Sampling	Total Samples Taken	Total Waste Samples Taken	PAG	NAG	ML	NON-ML	%PAG	%ML	% NAG
North of Contact	5102	24%	10,478	2,509	1,497	1,012	1,856	421	60%	74%	6%
	5109	27%	13,326	3,575	1,949	1,626	1,905	619	55%	53%	7%
	5116	27%	16,291	4,347	2,341	2,006	3,332	1,001	54%	77%	8%
	5123	24%	19,322	4,720	2,438	2,282	3,919	871	52%	83%	7%
	5130	27%	21,968	5,873	3,051	2,822	4,569	1,060	52%	78%	9%
	5137	30%	15,760	4,776	2,325	2,451	4,137	1,013	49%	87%	9%
	5144	28%	9,510	2,691	1,417	1,274	1,827	842	53%	68%	17%

3.0 Discussion

Following the observations detailed in section two, the gain of knowledge of the deposit after one year of mining is significant and allows starting considering an increase in the sampling ratio **of the North part only** from a 1/4 ratio to a 1/16 ratio.

3.1 – North domain (PAG) 1/4 sampling ratio

Below is an example of the sample coverage at a 1/4 ratio of an area from the North of the pit and falling inside the North Sediments geology domain. Refer to Figure 13 for the localization in the pit of the area of interest and then to figure 14 for the "Zoom In" with the Blast Holes Assay values.

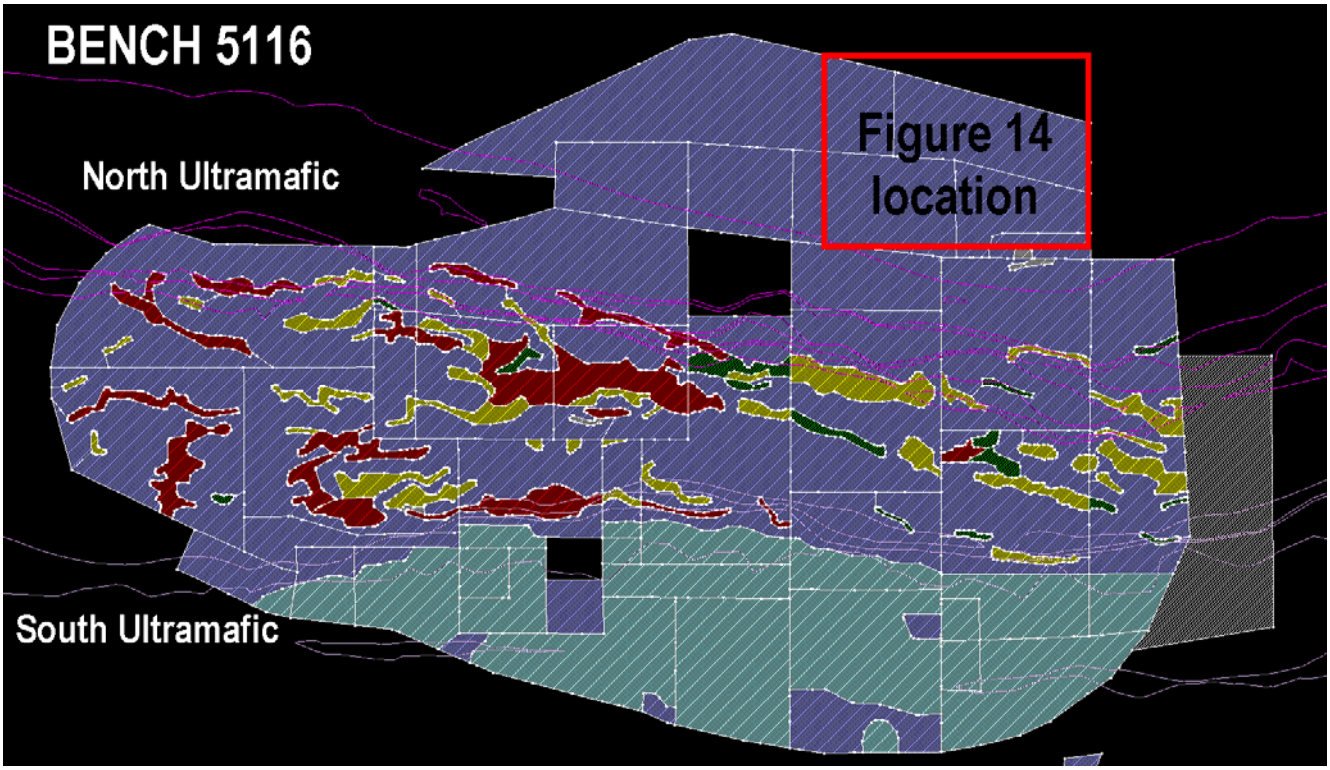


Figure 13 : Open pit view showing the location of the following example

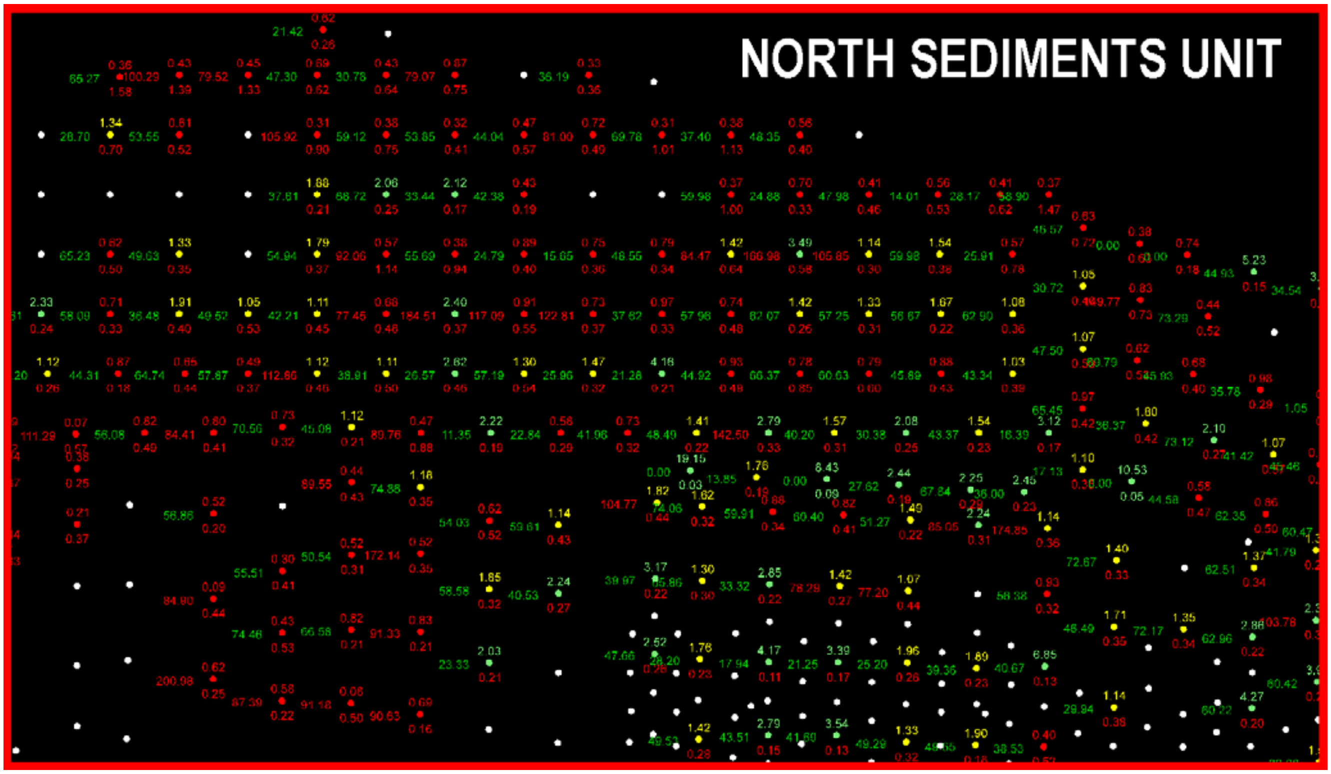


Figure 14 : Sample coverage at a 1/4 ratio - North of the pit

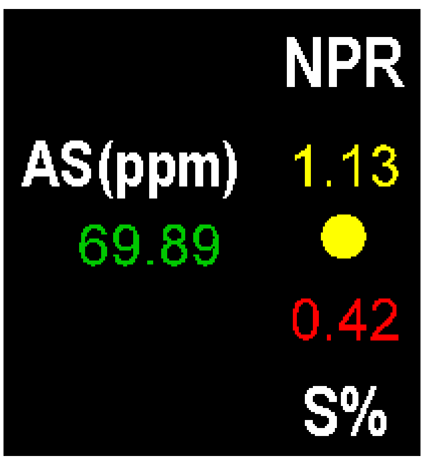


Figure 15 : Blast hole assays display legend

The geology in that area has been showing a consistent geochemistry over the 7 benches of the study giving systematic NPR values below 2 due to low carbonates and omni-presence of Iron sulfides content (Mainly Pyrite and Pyrothite).

3.2 North domain (PAG) 1/16 proposed sampling ratio.

Below is a simulation, in the exact same area, of what a 1/16 sampling ratio would have looked like. At the end, the design made by the production geologist would have still brought the whole area in the PAG category since the parameters used for the design (Carbon/Sulfur/Arsenic) are directly associated to the lithology of that area which has shown consistent geochemical signature over the past 7 benches. Since the geology is sub-vertical in Whale Tail deposit and no geochemical changes are expected going deeper, the same range of Carbon, Sulfur and Arsenic contents should continue at depth, hence, ending up as PAG waste rock.

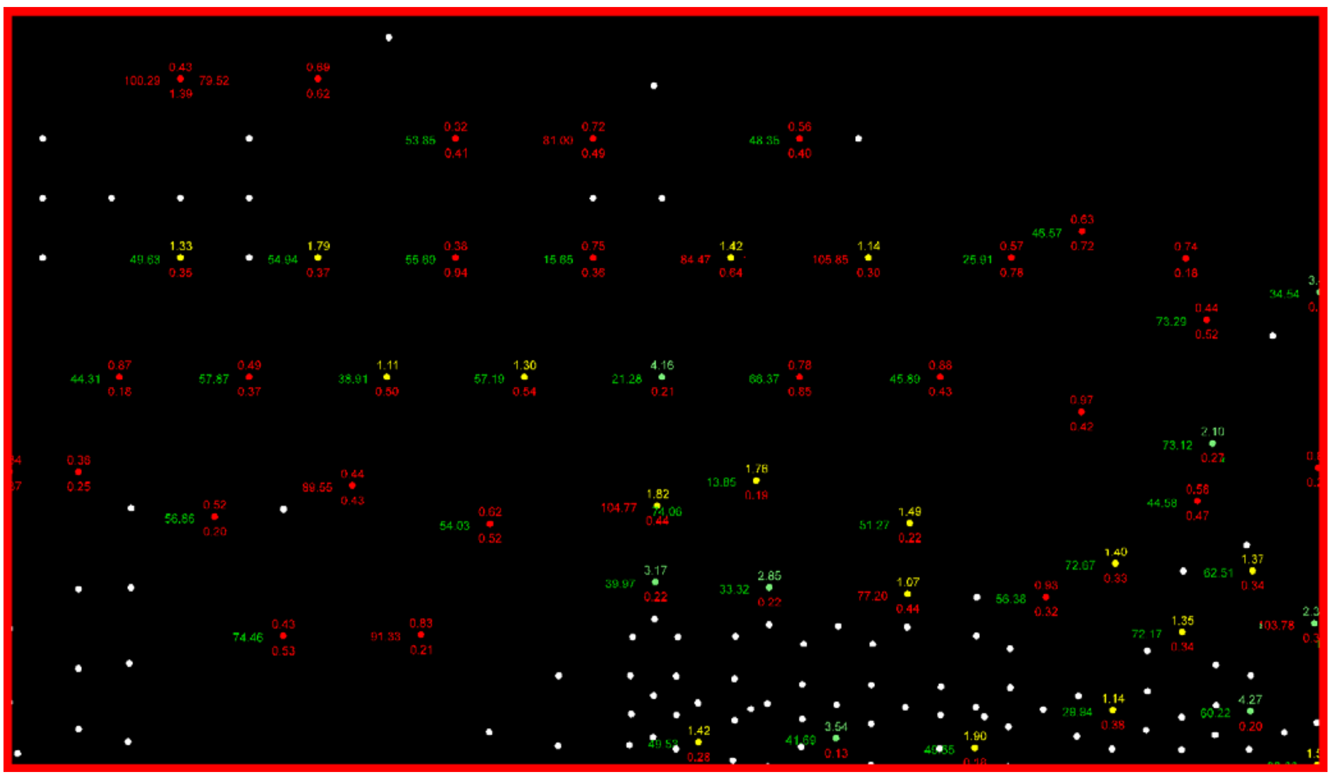


Figure 16 : Sample coverage at a 1/16 ratio - North of the pit

*Take note that the area presented above is the area associated with the lithology presenting the lowest concentration of Sulfurs and Arsenic within the North (PAG) domain of the deposit. The rest of the domain (closer to the ore) has usually higher values of Arsenic and Sulfur.

3.0 Conclusion

Following this, as illustrated in the Figure 17, it is recommended to change the sampling ratio in the north domain (PAG) to a 1/16 instead of 1/4. It has been demonstrated that this ratio will provide enough coverage to confirm the quality of the material as PAG and remove, by doing so, an unnecessary burden to our laboratory facility.

The sampling ratio in the south of the pit will still remain 1/4 to be able having a tighter coverage and define all the NAG material available for construction usage and future WRSF capping needs. Estimated tonnage required for building the cover and the reclamation works is about 20 Mt which is under the available NAG material estimated at 37 Mt.

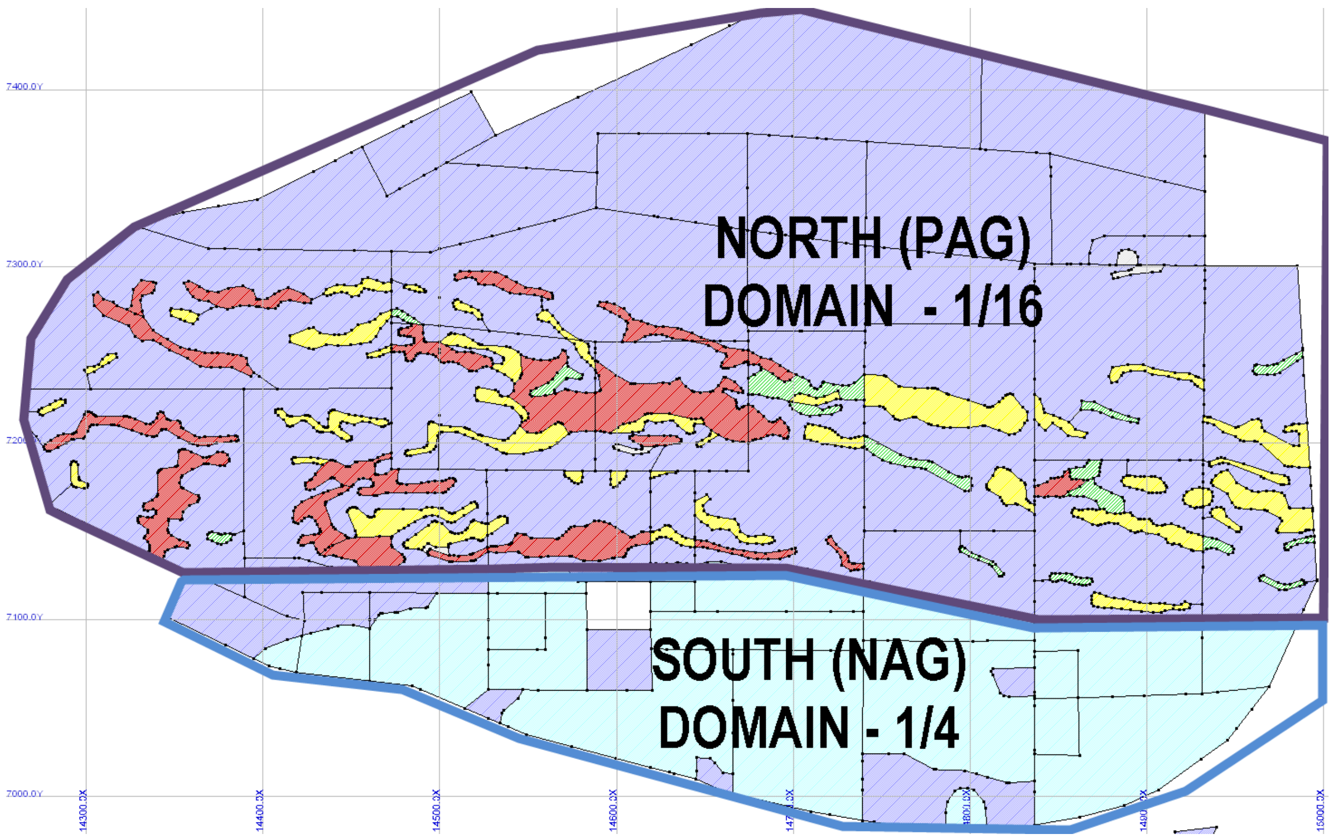
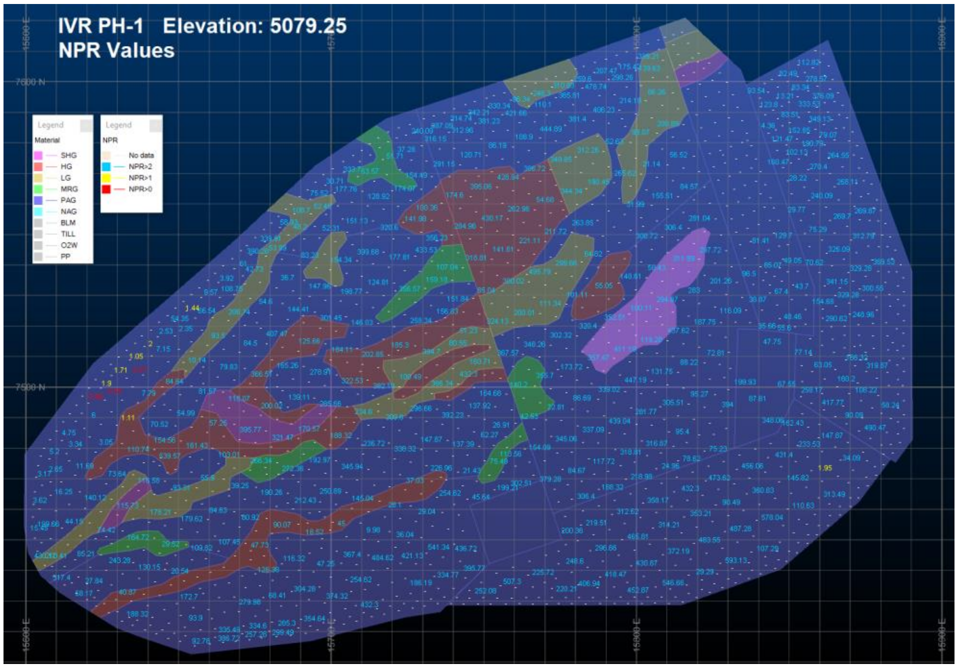


Figure 17 : Definition of North (PAG) and South (NAG) domains

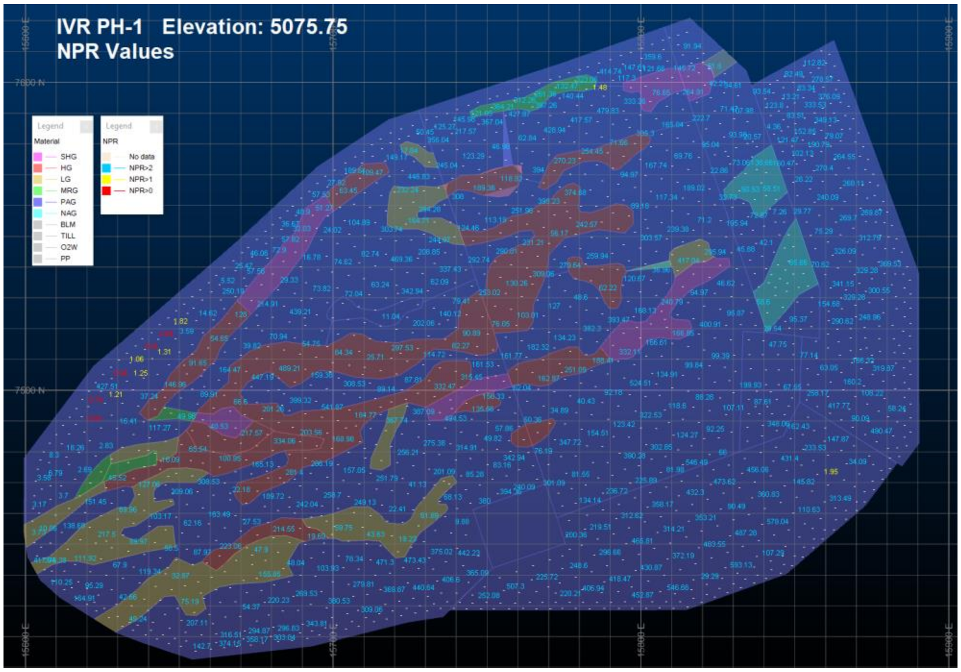
APPENDIX D • IVR PH1 PIT WASTE ROCK SAMPLING RATE REDUCTION STUDY

IVR Pit Phase 1 NPR Values

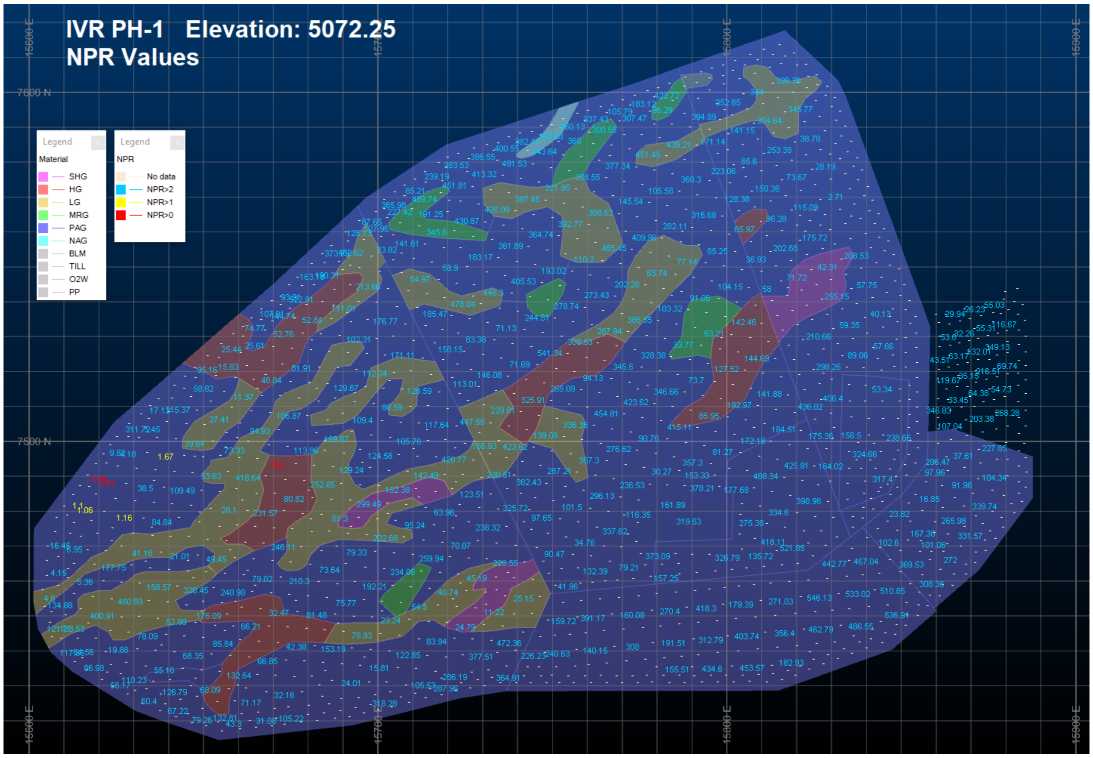
Bench 5074 – Top Bench flitch



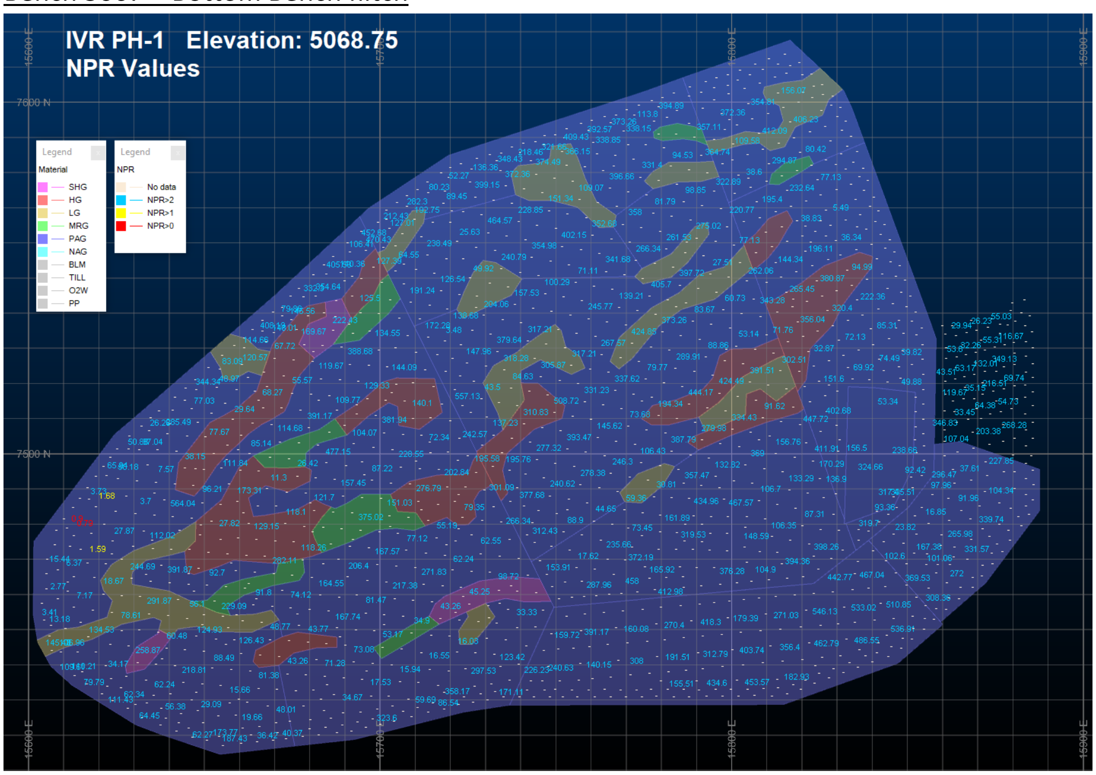
Bench 5074 – Bottom Bench flitch



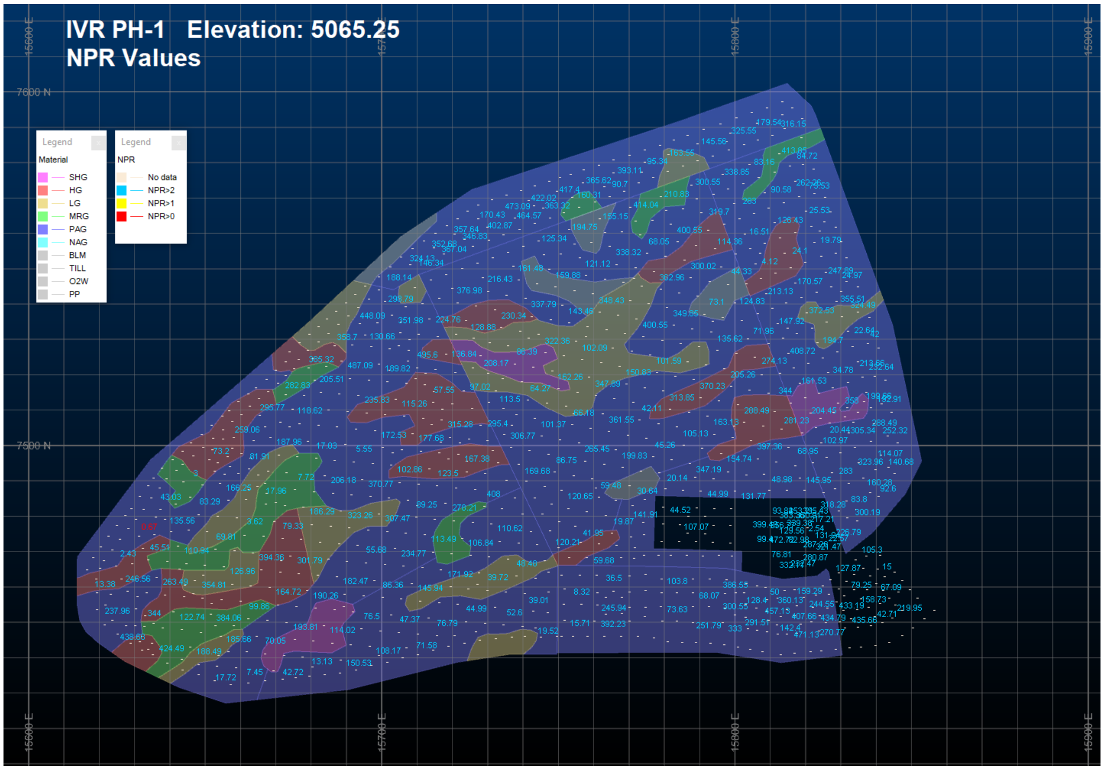
Bench 5067 – Top Bench flitch



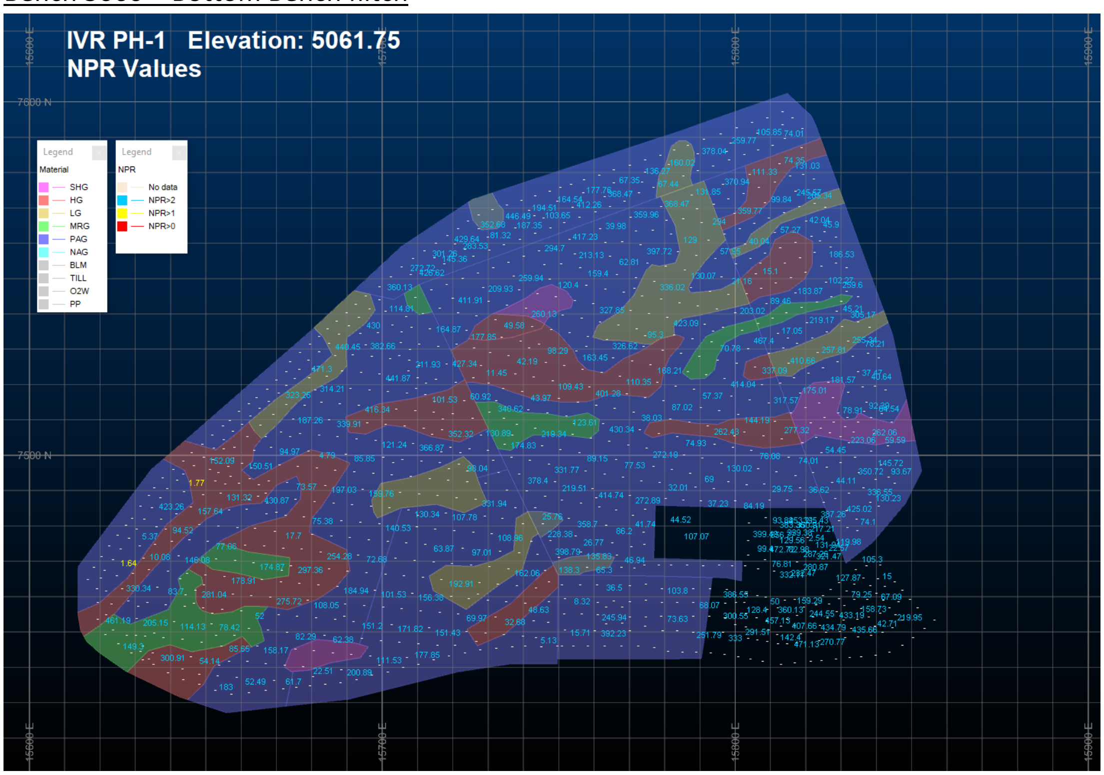
Bench 5067 – Bottom Bench flitch



Bench 5060 – Top Bench flitch



Bench 5060 – Bottom Bench flitch



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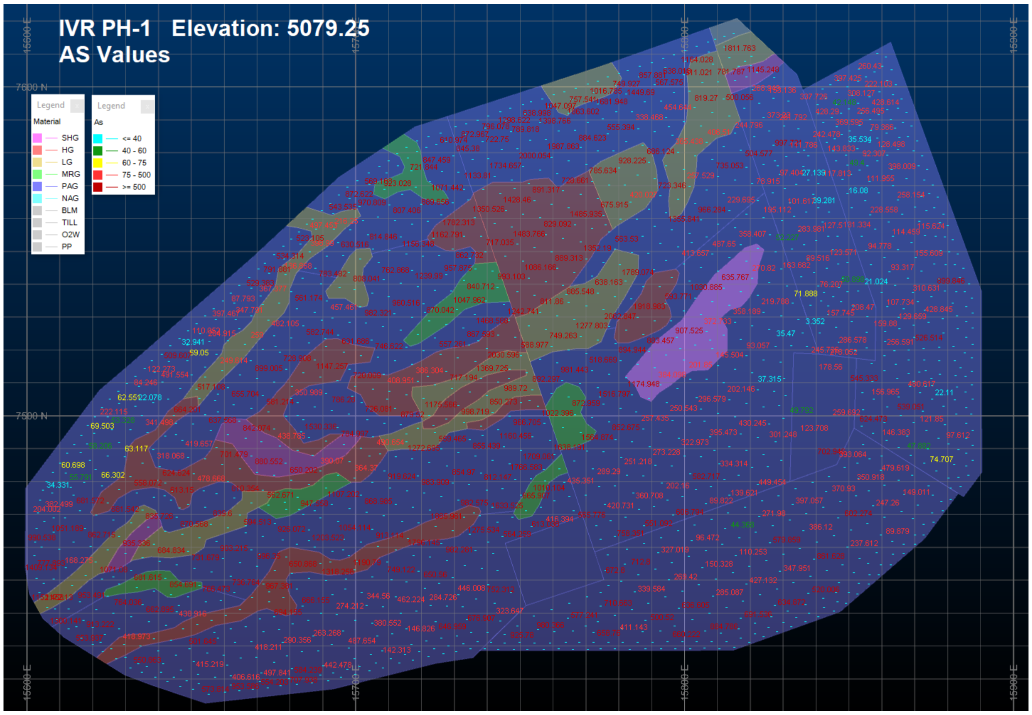
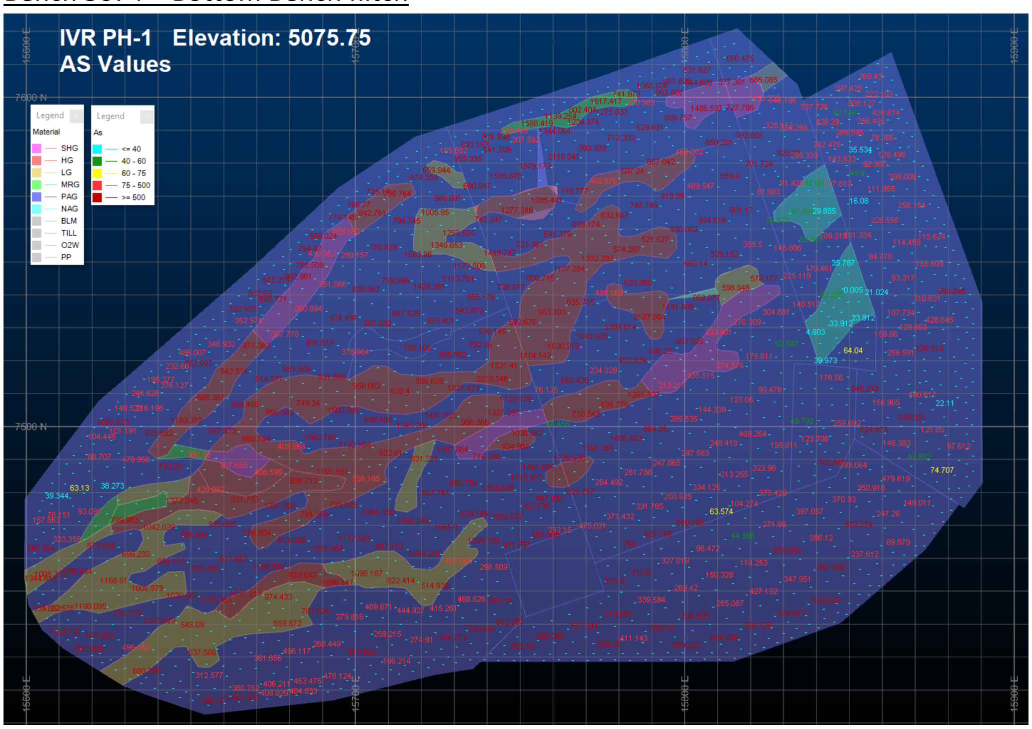
IVR Pit Phase 1 Arsenic (AS) Values (ppm)

Bench 5074 – Top Bench flitch

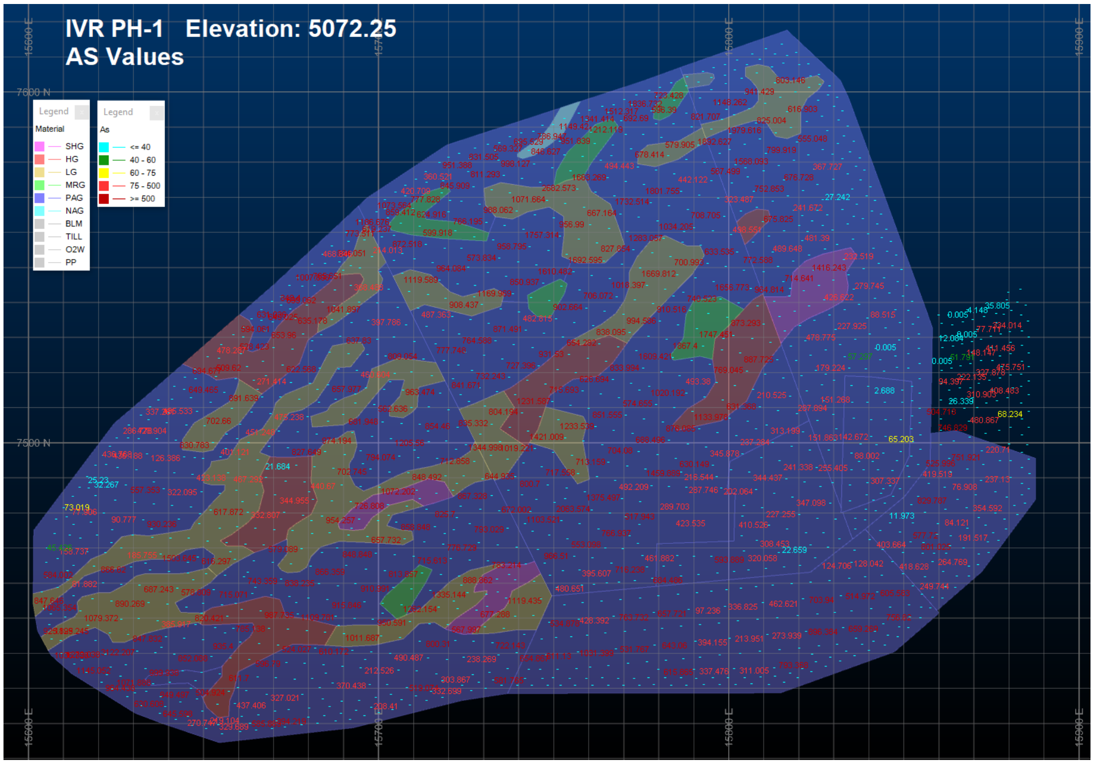


Bench 5074 – Bottom Bench flitch

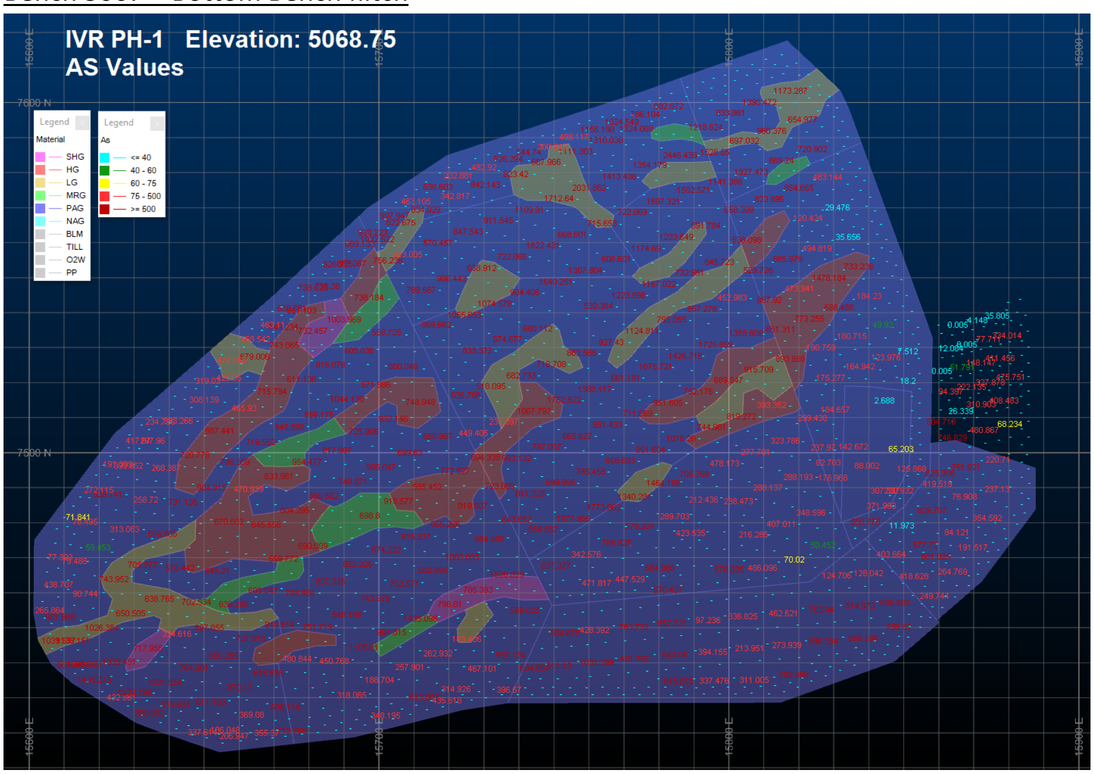


AGNICO EAGLE

<u>Bench 5067 – Top Bench flitch</u>

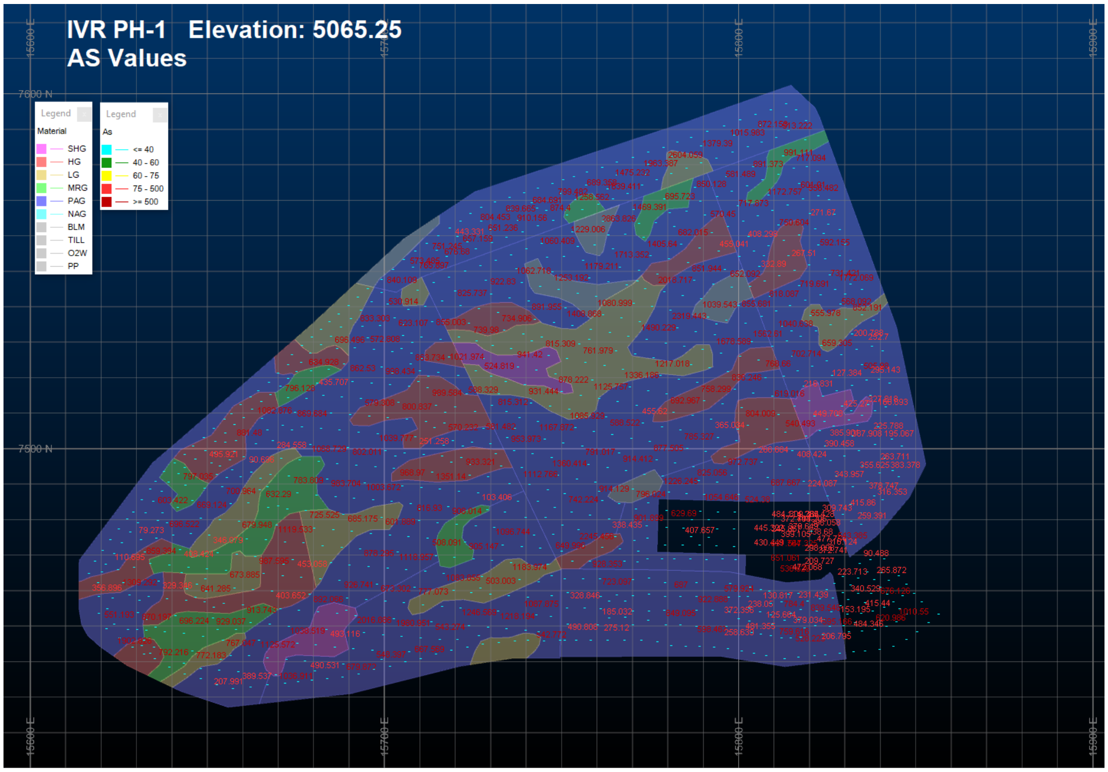


<u>Bench 5067 – Bottom Bench flitch</u>



AGNICO EAGLE

Bench 5060 – Top Bench flitch



Bench 5060 – Bottom Bench flitch