



REPORT

Response to CIRNAC on Progressive Reclamation Cost Update

Lupin Mine, Nunavut

Submitted to:

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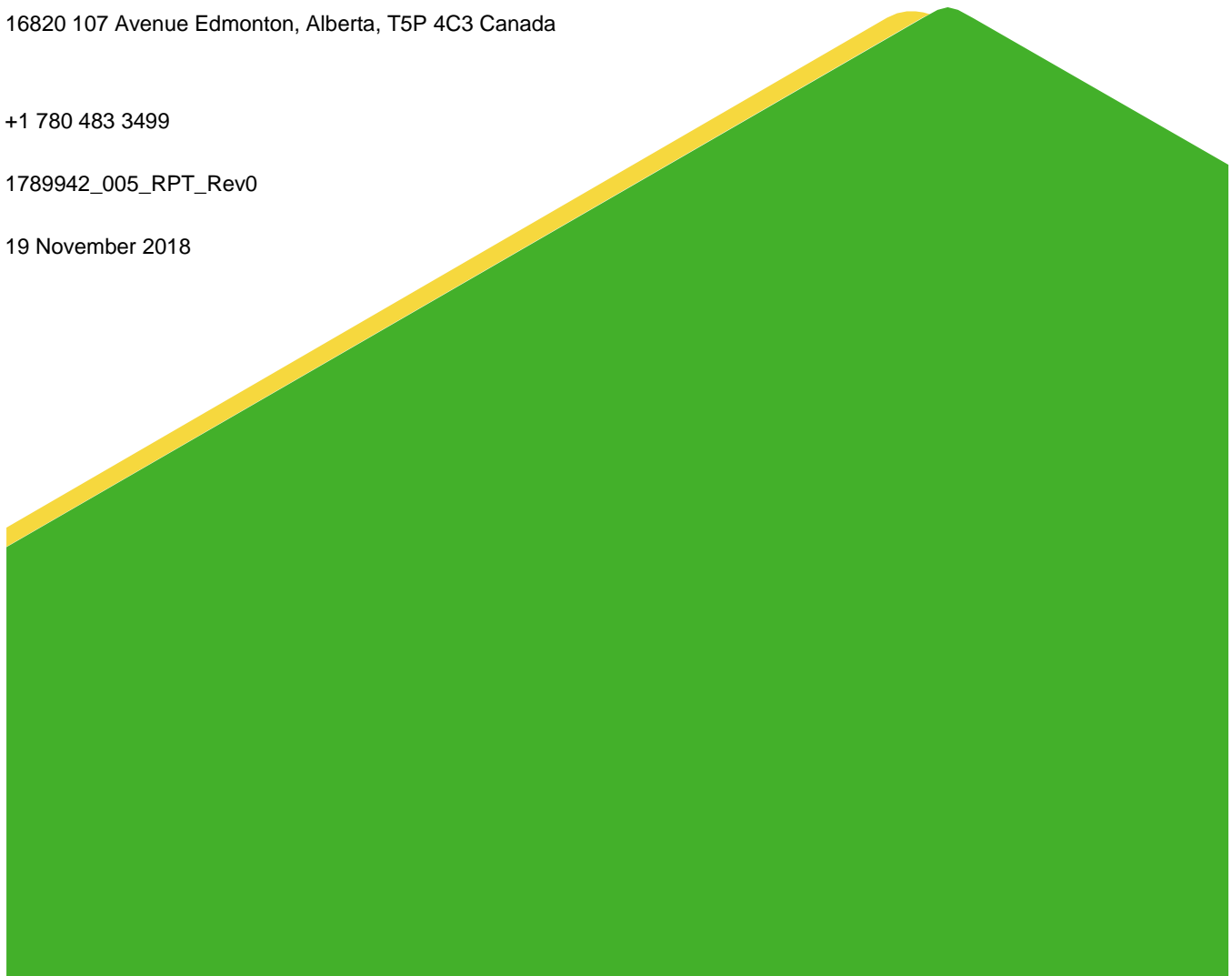


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APPENDIX A

Updated Estimate of Progressive Reclamation Credit

APPENDIX B

Work Plan for Winter 2018 - 2019

1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Lupin Mines Incorporated (LMI) to update the closure cost estimate for the Lupin Gold Mine located in Nunavut.

2.0 BACKGROUND

LMI is currently applying to the Nunavut Water Board (NWB) for a renewal of their Water Licence (2AM-LUP1520). Lupin intends to carry out final closure of the Site and submitted a Final Closure and Reclamation Plan (FCRP) (Golder, 2018a) on July 30, 2018. A cost estimate to implement final closure of the Site is appended to the FCRP. The FCRP and the associated cost estimate are currently in the permitting process and have not yet been approved.

In the meantime, LMI is continuing to carry out progressive reclamation works consistent with the existing Water Licence and the Interim Closure and Reclamation Plan (ICRP, approved July 20, 2018). LMI is planning to continue progressive reclamation work throughout the winter of 2018 - 2019.

On 24 September 2018, LMI submitted a report (Golder, 2018b) which documented the progressive reclamation work that had been completed as of July 5, 2018, as well as the work that is planned to be completed during the winter of 2018 – 2019. The report (referred to herein as the Progressive Reclamation Cost Update, or PRCU) also provides estimates of the amounts by which the closure financial liability had been reduced by July 5, 2018 and will be reduced by the end of the winter of 2018 – 2019. This information was provided in response to an e-mail request (NWB, 2018c) from NWB to LMI.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) provided a response to the PRCU in a letter (CIRNAC, 2018). The following sections of the current report provides responses to the CIRNAC (2018) letter. The CIRNAC comments are reproduced in boldface italic, followed by LMI responses in plain font.

3.0 RESPONSES TO CIRNAC COMMENTS

3.1 Recommendation 1:

LMI should provide CIRNAC with the FCRP and the final schedule / timelines and revised cost estimate in keeping with the FINAL CP. Not having this information at this time, limits our assessing the PRCU based on our numbers from earlier closure plans reviews.

It is important to note that the FCRP and the associated cost estimate are currently in the permitting process and that they have not been approved. As a result, the FCRP cost estimate cannot currently form the basis for evaluation of the value of progressive reclamation work completed.

The FCRP document (Golder, 2018a) was submitted to the Nunavut Water Board on July 20, 2018. The full documentation is publicly available on the NWB ftp site at:

ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-LUP1520%20LMI/1%20APPLICATION/2018%20Amendment/180727%202AM-LUP1520%205_0_Final_Closure_Reclamation_Plan%20Ver.0-IMLE.pdf

The RECLAIM cost estimate, which forms Appendix G to the FCRP document is also available on the NWB ftp site at:

ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-LUP1520%20LMI/1%20APPLICATION/2018%20Amendment/180727%202AM-LUP1520%205_G%20Reclaim_Cost_Estimate-IMLE.pdf

3.2 Recommendation 2:

In general, LMI should provide additional information that will allow us to:

- *verify the work as stated Section 2.3 of the PRCU has been performed,*
- *confirm that the work has been carried out in accordance with the design specification and in accordance with the Final Closure Plan, and*
- *confirm that works completed and/or planned are consistent with the Final Closure Reclamation Plan.*

Documentation of the completion of the listed PRCU work is provided below in Section 3.4. The works completed and/or planned are being implemented in accordance with the currently approved ICRP. That said, the PRCU works are also in all respects consistent with the work program outlined in the FCRP. (It is possible to compare each of the specific items listed in Section 2.3 of the PRCU report directly to line items listed in the FCRP in Table 14: “Summary of Measures for Final Closure”.)

3.3 Comments on Section 1

Comment: *It is not clear if this is the same plan as the Interim Closure Restoration Plan (ICRP) dated October 2017.*

Recommend: *LMI clarify if IARP and ICRP are the same, or if not note the difference.*

In October of 2017, when LMI submitted the update to the previous Interim Abandonment and Reclamation Plan (IARP), they retitled the updated document as an “Interim Closure and Reclamation Plan”. This decision was meant to reinforce that LMI intended to properly “close” Lupin Mine rather than to “abandon” it. This is also in keeping with CIRNAC’s change in terminology from ‘abandonment’ to ‘closure’ in their policy and guidelines. It is noted that subsequent correspondence from the Nunavut Water Board continues to use the older IARP term. For current purposes IARP and ICRP refer to the same document.

Section 1.0 is indicating that the ongoing progressive reclamation work is being carried out in accordance with the latest approved version of the Interim Closure and Reclamation Plan (ICRP). For clarity, the latest approved version is the ICRP document dated October 2017. This document was reviewed and accepted by CIRNAC in a letter dated May 18, 2018. The ICRP was approved by NWB on July 20, 2018

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-LUP1520%20LMI/3%20TECH/10%20A%20and%20R%20%28I%29/2018/180720%202AM-LUP1520%20ICRP%20Approval-OLAE.pdf>

3.4 Comments on Section 2

Comment: *As stated in section 2.1 it is noted that the progressive cost estimate is based on the KP cost estimate, not the Final Closure Plan Cost estimate.*

Recommend: *LMI identify differences between the KP and Final Closure Plan Cost estimate.*

The progressive cost estimate is not and cannot be based on the FCRP cost estimate because it has not been approved. The progressive cost estimate needs to be compared to the KP (2016) cost estimate because that is the estimate that has been approved by NWB and accepted by CIRNAC. The KP estimate, which has previously been reviewed, amended within the Licence by NWB as Amendment No. 2 (NWB, 2018), is the current estimate and determined the amount of reclamation security that is currently being held for the Lupin Mine site (i.e., \$29,305.00).

Comment: *Note that a significant portion of the reduction was related to the usability of the fuel. Since the usability of fuel on site has already been accounted for in the last security reduction, it is not clear to CIRNAC if a further reduction in security includes fuel.*

Recommend: *LMI provide value of progressive reclamation reduction not including value of fuel, since it has already been accounted for in an earlier reduction*

Amendment No. 2 (NWB, 2018) reduced the amount of the reclamation security by \$5.345 M from \$34.65 M to \$29.305 M, and the recognition of the usability of the fuel on the site accounted for \$2.770352 M of that reduction. The calculation of the incremental progressive reclamation amount in Appendix A to the PRCU report (Golder, 2018b) explicitly shows and deducts the amount of Amendment No. 2 from all calculations. For example, the progressive reclamation completed as of July 5, 2018 is valued at \$8.430855 M. Deducting the Amendment No. 2 amount of \$5.345 M leaves an incremental reduction of \$3.085855 M. The latter amount does not include the fuel, or any other credit associated with Amendment No. 2.

Comment: *During the site visit LMI was in the process of preparing for lime treatment, but treatment had not started.*

Recommendation: *Confirm when in 2018 the lime treatment and discharge started and ended at the site.*

Field records indicate that treated water was discharged from Pond 2 between August 21 and September 19, 2018. Further details are provided in the responses below.

Comment: *Golder states that the numbers presented have been “reviewed for reasonableness” but otherwise Golder has relied on what they call “information”. No verification or supporting information has been provided to confirm that these activities and quantities as stated have been completed or that they are in accordance with the ICRP or FRCP.*

Recommend: *LMI should provide verification of information.*

Documentation for the listed items is provided below:

- In accordance with the ICRP and approved Tailings Containment Area Closure Plan presented in the FRCP, exposed tailings areas in Cell 5 continued to be covered with esker material during the 2018 season. Field records summarized in Table 1 indicate that an additional 19,385.75 m³ of esker material

was hauled to Cell 5 between July 6 and October 18, 2018 and was placed over tailings to achieve a minimum 1m thickness;

- In accordance with the plans outlined in the ICRP and the March 2013 Care and Maintenance Plan “*Lupin Mine Liquid Waste Management Plan*” and following Metal Mining Effluent Regulations (MMER) and requirements stated in the Lupin NWB Water License 2AM-LUP1520, 2,004,295 m³ of treated water was discharged from Lupin TCA Pond 2 in 2018. Flow meter and daily discharge records, presented in Table 2, indicate that this volume of water was discharged between August 22 and September 19, 2018. This activity lowered the Pond 2 water level by approximately 2.0 m. The quality of the water was monitored and analyzed as per Licence requirements and will be reported in the 2018 Annual Report to be submitted to the NWB prior to March 31, 2109.;
- As part of the planned activities outlined in the ICRP, a total of 4,000 m of tailings pipeline was removed, in accordance with procedures outlined in the approved 2013 Care and Maintenance Plan and its associated Lupin Mine Waste Management Plan (Solid and Hazardous);
- As part of the planned activities outlined in the ICRP, approximately 3,000 m of power cable between the TCA and the former Explosives Plant has been removed in accordance with procedures outlined in the approved 2013 Care and Maintenance Plan and its associated Lupin Mine Waste Management Plan (Solid and Hazardous. The power cables are currently coiled in the cable laydown area located adjacent to the boneyard and are awaiting landfill disposal as per the current Lupin Mine Waste Management Plan (Solid and Hazardous);
- The generator has been removed from the Freshwater pump house and is currently being used to power the equipment shop. It will remain on site for use during closure activities and then will be salvaged if usable/economical or disposed on site as per the Lupin Mine Waste Management Plan (Solid and Hazardous);
- There are number of existing thermistors installed within the Lupin TCA dams and cells to monitor dam and esker cover performance. The dam thermistors are read annually during geotechnical inspection, along with cover thermistors where feasible, and thermistor monitoring results are outlined in the annual geotechnical inspection reports. In August 2018, additional instrumentation was installed and consisted of two strings of soil moisture, temperature and conductivity sensors with dataloggers installed in the TCA cells 2 and 3. Each string consists of 5 sensors spaced 0.2m apart installed between 0.5m to 1.5m below the esker cover surface. They were installed by the Lupin TCA Engineer of Record and data will be download annually during TCA geotechnical inspections and reported with the thermistor results;
- In August 2018, a total of 26 fuel storage tanks have been cleaned and certified by a Nunavut Registered Mechanical Engineer to be gas free and suitable for demolition. Certification records for each tank are located at site;
- A fleet of equipment at Ulu Mine has been evaluated and is now being serviced in preparation for potential shipment back to Lupin during the winter of 2018 – 2019; and
- Records indicate that approximately 21.8 tonnes (48,000 pounds) of hazardous waste material was removed from the site during the summer of 2018. This item has been added to the updated PRCU.

Comment: CIRNAC understands this section of the document to suggest that all of the work listed will be completed in the winter 2018-2019. Based on our understanding of the site and work elements, we need LMI to provide more information on how these tasks will be completed in the timeline suggested.

On review of the Estimate of Progressive Reclamation Reimbursement cost tables in Appendix A, we noted that not all of the work identified in Section 2.3 Progressive Reclamation Planned for the Winter 2018-2019 was actually being costed as being completed (100%) in winter 2018-2019 as the tables provided indicate 15% is expected to be performed during the period.

The work towards building removal planned for the winter of 2018 – 2019 comprises gutting of removable materials. The remaining building removal work will be completed later by a demolition Contractor. The value of the gutting is estimated to represent 15% progress towards the overall value of the demolition. It is noted that the remaining allowance for the future demolition work is 85% of \$128/m² or \$108.80/m². This is still significantly higher than the high value in RECLAIM7 of \$65/m², so ample security remains for the completion of the demolition work.

Recommend: CIRNAC would request that LMI be more specific and clarify what and how much work is actually planned to be performed in the winter of 2018-2019 against the bulleted general line descriptions listed in Section 2.3. As well as providing more information on how these tasks will be completed in the timeline provided.

Appendix B to this report provides an itemized plan for work to be conducted during the winter of 2018 – 2019.

4.0 RESPONSES TO ATTACHMENT B

Attachment B to CIRNAC (2018) contains 11 points.

Points 1 through 6 appear to provide comments on the FCRP document (Golder, 2018a). These comments are constructive and will be addressed during the process of approvals for the FCRP and the Water Licence amendment and renewal. They are not however material to the PRCU calculation.

Points 7 through 11 are addressed below.

7. Major earthwork stabilization addition at M Dam was carried out through the placement of esker materials, not rip rap. Esker materials do not appear to be at 2:1 slope and are slumping. Add rip rap cover to outer shell.

The progressive reclamation tension crack earthwork stabilization work at M Dam was completed in 2016 through the placement of an esker material reinforcement buttress and crest surface backfill, as prescribed by the TCA Engineer of Record (EOR). This work was inspected in 2017 by the EOR who noted “Maintenance and repair of the tension cracks were completed on Dam M”; with details included in the quoted publicly available “2017 Lupin Mine Tailings Containment Area Geotechnical Inspection” report (Norwest 2017). This completed and inspected work is what contributed to the M Dam PRCU calculation.

At closure, a dozer will be used to re-slope the existing materials used to construct the above described buttress, to a minimum of 2:1 and up to 2.5:1 as directed by the EOR. The existing esker materials will be used for the re-slope in addition to the existing rip-rap, which will be salvaged and replaced on the flattened slope. After the adjustment in the PRCU, there remains an allowance of \$152,000, which is ample to complete this remaining work.

- 8. The ICRP in Section 6.5.3 page 41 states that “a major program of dam enhancement is planned during closure activities. The sides of all dams will be brought to 2.5H:1V slope by the addition of quarried rip rap”. Section 6.10 notes that “a riprap quarry will be developed to provide the coarse (nonPAG) broken rock needed to enhance dam stability and provide additional armour for the faces of the dams...”. Field comments during the site visit stated that there were no plans to quarry rock. This is a material change of design and will reduce the long term stability and erosion resistance of the embankments. See also issue 9 below. This is a material change that should likely not be accepted. If proceeding with this course of action it is likely that some form of long-term maintenance will be required.**

It is correct that plans have changed between the ICRP and the FCRP; however the changes do not apply to the completed work described above, since it was completed as Dam M progressive reclamation work. At closure, as described in the FCRP, rip-rap salvaged from higher elevations will be placed along the toes of the re-sloped dams where they will be exposed to wave action, and only if the rip rap currently in those areas is deemed inadequate. The dams will be re-sloped as per the direction of the EOR and there are no plans to use rip rap as general fill to flatten the slopes.

- 9. In ICRP closure costing LMI noted that Rip Rap costs should use actual costs as incurred in M Dam work. However, based on field observations, M Dam work as noted above was carried out using esker material not rip rap materials and do not appear to be at 2.5:1 slope.**

See response to 7 and 8 above. To the extent that rip rap is required, it will be salvaged from areas that are above the final closure water level rather than producing new material from a quarry. The unit cost will be lower than the \$15.20/m³ that is currently in the security estimate. Nonetheless, this unit cost has not been changed in the PRCU.

- 10. Temporary portal plug exists on site. Draft closure plan does not include for an engineered plug for the portal. Need to include for engineered design and construction of permanent portal plug.**

The final FCRP will include plans and a cost allowance for construction of a permanent plug in the portal entrance.

- 11. The ICRP in Section 6.4 indicated that waste rock will either be excavated and placed underground/or in the TCA; or left in place contoured and covered. The final draft closure plan presents a material change in waste rock management as it is now proposed to consolidate most of the waste rock in place at the mill site and cover with esker materials. PAG waste rock should be placed U/G as much as possible. We are concerned that the proposed cover will only act as an intrusion barrier and not prevent flushing of acid seeps. The proponent needs to demonstrate how placement of an esker cover over contoured waste rock will mitigate surface drainage of acidic water.**

It is correct that the strategy for managing waste rock has been changed from the ICRP to the FCRP. This will be discussed during the approvals process. In the meantime, no adjustment has been made in the PRCU; the allowance remains unchanged at \$2.8 M.

5.0 UPDATED COSTS

The spreadsheet in Appendix A provides calculations of the following:

- The value of the progressive reclamation work that had been completed as of the site visit of July 5, 2018, (bordered in yellow) and
- The value of the progressive reclamation work that is planned to be completed over the winter of 2018 – 2019.

In both cases, the values were calculated with specific correspondence to the items, quantities and unit costs used in the estimate of KP (2016). The items (totalling \$5,345,000) that were included in the security reduction under Amendment No. 2 are identified separately. The incremental reduction in security (over and above Amendment No. 2) that was in place as of July 5, 2018 is estimated at \$3,085,855. The incremental reduction in security that will be in place as of the end of the winter of 2018 – 2019 is now estimated at \$6,156,531. The latter number has been adjusted slightly downwards from the estimate of September 24, 2018 in Golder (2018b). The adjustment reflects field measured quantities discussed in Section 3.4 of this report.

6.0 CLOSURE

We trust this report adequately addresses the questions raised by CIRNAC in response to the PRU. If you have any questions on this report, please do not hesitate to contact us.

Golder Associates Ltd.



Ken Bocking, P.Eng.
Principal

KAB/jr

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REFERENCES

- Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) (2018), “2AM-LUP1520 – Review of Progressive Reclamation Cost update – Lupin Mine Property - Kitikmeot Region, Nunavut”, Letter to NWB, November 2, 2018.
- Golder Associates Ltd., (2018a), “Lupin Mine Site, Final Closure and Reclamation Plan”, Report No. 1789942_003_RPT_Rev0, July 2018.
- Golder Associates Ltd., (2018b), “Progressive Reclamation Cost Update, Lupin Mine, Nunavut”, Report No. 1789942_004_RPT_Rev0, September 24, 2018.
- Knight-Piesold Ltd., (KP, 2016), Third Party Technical Review of Reclamation Security Estimates for the Lupin Gold mine, Nunavut, December 6, 2016.
- Norwest Corporation, (2017), “2017 Lupin Mine Tailings Containment Area Geotechnical Inspection”, September 24, 2017.
- Nunavut Water Board, (NWB, 2018a), Licence No. 2AM-LUP1520, Type “A” – Amendment No. 2, April 18, 2018.
- Nunavut Water Board, (2018b), “Licence No. 2AM-LUP1520 – Nunavut Water Board (NWB) Decision Regarding Request of Lupin Mines Incorporated (LMI) to Amend the Amount of Security Held under Part C, Item 1 of the Licence and further NWB Guidance regarding the Approval of the *Interim Abandonment and Restoration Plan* and *Closure Cost Estimate* under the Licence, Part C, Item 4 and Part I, Item 2”, April 18, 2018.
- Nunavut Water Board, (NWB, 2018c), E-mail from NWB (Karen Kharatyan) to LMI (Karyn Lewis), September 13, 2018.

Table 1: Field Records of 2018 Fill Placement in Cell 5 TCA

Date	Truck Load Count	Esker Volume Hauled from Fingers Pit (m³)	Esker Volume Placed in Cell 5 (m³)	Total Volume Placed in Cell 5 (m³)
06-Jul-18	2	13.5	13.5	13.5
07-Jul-18	15	101.25	101.25	114.75
08-Jul-18	15	101.25	101.25	216
09-Jul-18	15	101.25	101.25	317.25
10-Jul-18	6	40.5	40.5	357.75
11-Jul-18	18	121.5	121.5	479.25
12-Jul-18	18	121.5	121.5	600.75
13-Jul-18	17	114.75	114.75	715.5
14-Jul-18	20	135	135	850.5
15-Jul-18	34	229.5	229.5	1080
16-Jul-18	42	283.5	283.5	1363.5
17-Jul-18	46	310.5	310.5	1674
18-Jul-18	46	310.5	310.5	1984.5
19-Jul-18	46	310.5	310.5	2295
20-Jul-18	47	317.25	317.25	2612.25
21-Jul-18	24	162	162	2774.25
22-Jul-18	41	276.75	276.75	3051
23-Jul-18	37	249.75	249.75	3300.75
24-Jul-18	5	33.75	33.75	3334.5
25-Jul-18	0	0	0	3334.5
26-Jul-18	0	0	0	3334.5
27-Jul-18	0	0	0	3334.5
28-Jul-18	0	0	0	3334.5
29-Jul-18	0	0	0	3334.5
30-Jul-18	0	0	0	3334.5
31-Jul-18	0	0	0	3334.5
01-Aug-18	0	0	0	3334.5
02-Aug-18	0	0	0	3334.5

Date	Truck Load Count	Esker Volume Hauled from Fingers Pit (m³)	Esker Volume Placed in Cell 5 (m³)	Total Volume Placed in Cell 5 (m³)
03-Aug-18	0	0	0	3334.5
04-Aug-18	0	0	0	3334.5
05-Aug-18	0	0	0	3334.5
06-Aug-18	0	0	0	3334.5
07-Aug-18	0	0	0	3334.5
08-Aug-18	0	0	0	3334.5
09-Aug-18	0	0	0	3334.5
10-Aug-18	18	121.5	121.5	3456
11-Aug-18	26	175.5	175.5	3631.5
12-Aug-18	33	222.75	222.75	3854.25
13-Aug-18	39	263.25	263.25	4117.5
14-Aug-18	36	243	243	4360.5
15-Aug-18	39	263.25	263.25	4623.75
16-Aug-18	42	283.5	283.5	4907.25
17-Aug-18	40	270	270	5177.25
18-Aug-18	41	276.75	276.75	5454
19-Aug-18	40	270	270	5724
20-Aug-18	43	290.25	290.25	6014.25
21-Aug-18	39	263.25	263.25	6277.5
22-Aug-18	43	290.25	290.25	6567.75
23-Aug-18	42	283.5	283.5	6851.25
24-Aug-18	34	229.5	229.5	7080.75
25-Aug-18	38	256.5	256.5	7337.25
26-Aug-18	39	263.25	263.25	7600.5
27-Aug-18	49	330.75	330.75	7931.25
28-Aug-18	50	337.5	337.5	8268.75
29-Aug-18	44	297	297	8565.75
30-Aug-18	43	290.25	290.25	8856
31-Aug-18	31	209.25	209.25	9065.25

Date	Truck Load Count	Esker Volume Hauled from Fingers Pit (m ³)	Esker Volume Placed in Cell 5 (m ³)	Total Volume Placed in Cell 5 (m ³)
01-Sep-18	39	263.25	263.25	9328.5
02-Sep-18	35	236.25	236.25	9564.75
03-Sep-18	36	243	243	9807.75
04-Sep-18	31	209.25	209.25	10017
05-Sep-18	38	256.5	256.5	10273.5
06-Sep-18	36	243	243	10516.5
07-Sep-18	37	249.75	249.75	10766.25
08-Sep-18	15	101.25	101.25	10867.5
09-Sep-18	21	141.75	141.75	11009.25
10-Sep-18	22	148.5	148.5	11157.75
11-Sep-18	21	141.75	141.75	11299.5
12-Sep-18	43	290.25	290.25	11589.75
13-Sep-18	38	256.5	256.5	11846.25
14-Sep-18	41	276.75	276.75	12123
15-Sep-18	38	256.5	256.5	12379.5
16-Sep-18	33	222.75	222.75	12602.25
17-Sep-18	38	256.5	256.5	12858.75
18-Sep-18	36	243	243	13101.75
19-Sep-18	38	256.5	256.5	13358.25
20-Sep-18	36	243	243	13601.25
21-Sep-18	41	276.5	276.5	13877.75
22-Sep-18	38	256.5	256.5	14134.25
23-Sep-18	36	243	243	14377.25
24-Sep-18	37	249.75	249.75	14627
25-Sep-18	37	249.75	249.75	14876.75
26-Sep-18	38	256.5	256.5	15133.25
27-Sep-18	37	249.75	249.75	15383
28-Sep-18	37	249.75	249.75	15632.75
29-Sep-18	33	222.75	222.75	15855.5

Date	Truck Load Count	Esker Volume Hauled from Fingers Pit (m ³)	Esker Volume Placed in Cell 5 (m ³)	Total Volume Placed in Cell 5 (m ³)
30-Sep-18	29	195.75	195.75	16051.25
01-Oct-18	41	276.75	276.75	16328
02-Oct-18	22	148.5	148.5	16476.5
03-Oct-18	39	263.25	263.25	16739.75
04-Oct-18	41	276.75	276.75	17016.5
05-Oct-18	40	270	270	17286.5
06-Oct-18	39	263.25	263.25	17549.75
07-Oct-18	37	249.75	249.75	17799.5
08-Oct-18	37	249.75	249.75	18049.25
09-Oct-18	40	270	270	18319.25
10-Oct-18	40	270	270	18589.25
11-Oct-18	24	162	162	18751.25
12-Oct-18	14	94.5	94.5	18845.75
13-Oct-18	14	94.5	94.5	18940.25
14-Oct-18	12	81	81	19021.25
15-Oct-18	17	114.75	114.75	19136
16-Oct-18	15	101.25	101.25	19237.25
17-Oct-18	15	101.25	101.25	19338.5
18-Oct-18	7	47.25	47.25	19385.75
Total	2872	19385.75	19385.75	19385.75

Table 2: Field Records of 2018 Treated Discharge from Pond 2

Date	Syphon 1		Syphon 2		YTD Meter Total (m³)
	YTD Meter Total (m³)	Daily Meter Output (m³)	YTD Meter Total (m³)	Daily Meter Output (m³)	
20-Aug-18	14831	14831	12282	12282	27,113
21-Aug-18	46544	46544	43166	43166	116,823
22-Aug-18	67537	20993	63427	20261	158,076
23-Aug-18	113496	45959	108054	44627	248,662
24-Aug-18	0	0	125074	17020	265,682
25-Aug-18	161180	47684	147372	22298	335,663
26-Aug-18	206793	45613	169814	22442	403,718
27-Aug-18	254539	47746	192133	22320	473,784
28-Aug-18	300294	45755	214578	22444	541,984
29-Aug-18	346228	45934	236141	21563	609,481
30-Aug-18	391854	45627	259562	23422	678,529
31-Aug-18	437458	45603	265970	6408	730,540
1-Sep-18	481052	43595	292362	26391	800,526
2-Sep-18	525865	44812	318134	25773	871,111
3-Sep-18	570263	44398	346481	28346	943,856
4-Sep-18	614407	44144	370962	24482	1,012,481
5-Sep-18	658460	44053	395629	24667	1,081,201
6-Sep-18	700586	42126	420016	24387	1,147,715
7-Sep-18	746425	45839	444635	24617	1,218,171
8-Sep-18	788469	41682	469187	24552	1,284,767
9-Sep-18	831373	42904	494937	25751	1,353,422
10-Sep-18	873389	42378	521051	26114	1,421,914
11-Sep-18	916593	43204	547487	26436	1,491,554
12-Sep-18	957982	40989	573384	27808	1,560,351
13-Sep-18	998139	40577	601115	27731	1,629,680
14-Sep-18	1038952	40812	629531	28416	1,698,908
15-Sep-18	1078813	39861	658863	29332	1,768,101

Date	Syphon 1		Syphon 2		YTD Meter Total (m³)
	YTD Meter Total (m³)	Daily Meter Output (m³)	YTD Meter Total (m³)	Daily Meter Output (m³)	
16-Sep-18	1118500	39737	688376	29513	1,837,369
17-Sep-18	1157897	39347	718217	29841	1,906,557
18-Sep-18	1196890	38993	747176	28959	1,974,509
19-Sep-18	1218944	22054	754908	7732	2,004,295

APPENDIX A

Updated Estimate of Progressive
Reclamation Credit

APPENDIX B

Work Plan for Winter 2018 - 2019

Proposed Lupin Mine Reclamation Activities

Mine site Buildings and associated Facilities – November 2018 to July 2019

- Remove all special / Hazardous wastes (i.e. Paints, Chemicals, Reagents, Cleaning Supplies, Miscellaneous process additives, etc.) throughout Powerhouse, Mill, sections of campsite not intended for use during reclamation activities
- Remove all Moldy ceiling tiles and Moldy office furniture
- Remove all wet/moldy files from Powerhouse, Mill, old kitchen complex, etc., and incinerate
- Remove all old personal clothing left behind from previous workers
- Remove identified Asbestos containing materials where appropriate
- Remove Glycol from heating system in sections of campsite not intended for use during reclamation activities (i.e. Old offices area, old kitchen area, etc.)
- Stockpile and segregate wastes within Cold Storage Buildings pending approved disposal
- Transfer usable fuel from the various tanks within the MTF (that is considered essentially empty) to 2 or 3 of the 1.3 million litre tanks in preparation for cleaning and demolition of the tanks
- Remove all fuel tanks from Powerhouse and Mill not required to support reclamation activities, in preparation for cleaning and demolition
- Remove all appliances and equipment from the old kitchen and recreation area, and old laundry area
- Remove all appliances containing refrigerants throughout the mine site (with the exception of those required to support campsite operations)
- Remove contents of former Explosives buildings (2), former Water Treatment Plant building (1) (also known as Arsenic Plant), various Pump stations and Transformer shelters along Tailings line
- Remove contents of former Cold Storage buildings (2) (also known as RTL shops)
- Remove contents of former Cold Storage buildings (2) adjacent to the intersection with the Winter Road
- Remove the contents of the former Freshwater Pump house in preparation for demolition
- Remove the contents of the former Sewage Pump station building, including the effluent discharge building at the Upper sewage pond
- Remove the entire contents of all dormitories not required to support reclamation activities (100 wing to 500 wing; 700 wing; and 1000 wing to 1200 wing) (assuming that 600 wing, 800 wing, and 1300 wing will be required to support reclamation activities)
- Remove the contents of the former Carpentry shop (1), small support buildings around the equipment service shop / satellite tank farm pump stations (4), etc.
- Remove the contents of the former Airport building