

September 2, 2010

Project No. 07-1413-0077  
Doc. No. 150

Mr. Paul West-Sells  
President & Chief Operating Officer  
Western Copper Corporation  
2050 - 1111 West Georgia Street  
Vancouver, BC  
V6E 4M3

**ANNUAL INSPECTION, JULY 8, 2010  
CARMACKS COPPER PROJECT, CARMACKS, YUKON**

Dear Mr. West-Sells,

Golder Associates Ltd. (Golder) completed an inspection of the Carmacks Copper project site for Western Copper Corporation on July 8, 2010. The inspection of the proposed future site of Carmacks Copper's mine was completed as part of the requirement of the Quartz Mining License (QML – 0007) for an annual inspection. The inspection was to evaluate the condition and stability of the existing facilities in the area of the heap leach pad facility, the open pit mine area, the waste rock storage area, the processing plant facilities, ore preparation facilities, ore stockpiles, any water diversion structures and/or other related operations or facilities. The inspection was limited in that there are no structures on site at present with the exception of the mine exploration camp. An inspection was however, completed of the entire project area.

## **1.0 INSPECTION**

The inspection by Golder was completed by Ms. Fiona Esford along with Scott Casselman – a representative of Western Copper Corporation. The inspection focused on the existing site conditions and the limited site infrastructure. Photographs of the site at the time of the inspection are presented in Appendix A.

The project is in the advanced exploration stage and final permitting for the proposed future mine. As noted the only infrastructure on site, at present, is the exploration camp and a series of access roads to the proposed open pit mine area and other areas of the property. The access roads were developed to provide access for exploration activities.



**Golder Associates Ltd.**

500 - 4260 Still Creek Drive, Burnaby, British Columbia, Canada V5C 6C6  
Tel: +1 (604) 296 4200 Fax: +1 (604) 298 5253 [www.golder.com](http://www.golder.com)

**Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America**

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation.



The inspection of the camp area indicated the camp is well maintained and there is no erosion of sediments from the pad area into the surrounding natural area. The slope behind or west of the camp is stable and is not impacting or causing any safety issues with the camp structures or operations. There is minor slumping of small sections of the slope, but these are not impacting camp safety nor would they represent an issue to workers on the project.

The inspection included the area proposed for the heap leach facility, events pond structure, and the heap leach sediment pond. This portion of the site also includes the area planned for the process plant west of the heap leach embankment. None of these structures have been developed and site preparation in these areas has been limited to the clearing of trees and organic soils (complete in 1997-1998), development of a series of access roads which cross the area, and drilling platforms established as part of the exploration programs. Since the initial clearing, vegetation re-growth has been occurring. Erosion and sediment control measures in this area were initially put into place in September 2008 and further maintained in September 2009. These include a series of ditches and berms to divert water into vegetated areas and to break up flow to reduce the potential for erosion, and silt fences. Additionally, there are several small sediment catch basins. The inspection indicated that there has been some erosion of sediments along the access roads and that the sediment basins are trapping and containing the sediment adequately. Additional capacity remains within these catch basins.

Further down slope, closer to Williams Creek, a series of silt fences have been installed and the area seeded. At the time of the inspection, re-growth in the area seeded in 2009 was observed to be occurring. Minor movement of sediment was observed beyond the lower silt fence. Sediment was observed to have entered a vegetated area beyond this silt fence, but there is no evidence that sediment has entered Williams Creek. On August 5, 2010, additional maintenance of the erosion control measures occurred. An additional silt fence was added to control further sediment movement beyond the existing fence. This work is deemed to be adequate at the current time. As with all temporary erosion control measures, annual inspection and ongoing minor maintenance activities should be anticipated.

The area where the open pit is to be developed was inspected. The excavation slopes of the trenches developed as part of the effort to obtain bulk samples during exploration activities were observed to be in reasonable condition and there was no observed slumping of the excavation slopes or failures of these slopes. There were no visual signs of erosion observed in the area of the proposed open pit. Several of the closed drill pads were inspected and there did not appear to be any erosion noted from these areas that require attention.

The area of the proposed waste rock storage area and the present access road crossing at North Williams Creek were inspected. The waste rock storage area is still tree covered and the drill pads in the area of the proposed waste rock storage area did not have any signs of sediment movement into the surrounding area. The small sediment catch basins at the drill pads still have capacity to manage more sediment, if required. Minor erosion along the ditches of the access road on the north side of North Williams Creek was observed. Small amounts of sediment had eroded and been trapped by the silt fences installed near the access road's crossing of North Williams Creek. The silt fences have reached their capacity to contain more sediment and require minor maintenance. On August 5, maintenance work was conducted in this area. A series of diversion ditches were created along the access road to divert water and sediment from the road area into adjacent vegetated areas. It is anticipated that this work will effectively reduce the movement of sediment towards North Williams Creek. Annual inspection and the requirement for minor maintenance of these sediment control measures should be anticipated.

The process plant and the crusher / truck shop areas were also inspected. The process plant site is partially cleared and the crusher / truck shop site is still tree covered. There was no apparent erosion along any of the access roads in these two areas or at the weather station located just to the west of the crusher / truck shop area.

The new camp site was inspected and it is still tree covered. The site adjacent to the camp where the new water wells were installed was also inspected and there is no apparent movement of sediment beyond the work pads around the wells.

The general site development has not started yet. Therefore, there are no stability concerns associated with the undeveloped facilities and no maintenance required. No permanent water diversion structures are in place. There are however, temporary water management diversion structures (*i.e.*, ditches and sediment catch basins) in place that are appropriate for the exploration stage of the property. It is recommended that they continue to be inspected annually and that ongoing maintenance be conducted, as deemed necessary. All areas observed to require maintenance on July 8, 2010 have subsequently been adequately repaired.

## **2.0 ADDITIONAL HEAP LEACH GEOCHEMISTRY TEST RESULTS**

As part of the annual review, we summarize the ongoing geochemical testing of the leached ore obtained from columns using typical ore samples from the site.

The geochemical testing of samples obtained from leached, rinsed, and neutralized ore has been on-going to assess long term geochemical properties of the material and chemical constituents associated with water that would percolate through the material. Testing of samples obtained from two columns were completed in March 2010 and full results have been reported in Golder Doc. No. 105 "*Results of the 2008 Supplemental Geochemical Test Work on Waste Rock and Neutralized Spent Ore*" (March 26, 2010) and further testing conducted on residual material from the long term testing in Golder Doc. No. 145 "*Results of Static Tests on Terminated Humidity Cell Residual Results*" (August 4, 2010).

The leached, rinsed and neutralized column samples underwent testing for major and trace element whole rock analyses, short term leach testing using shake flask extraction (SFE), acid base accounting (ABA) testing, mineralogy and long term leach testing using humidity cells. Following the long term leach testing, residue from the columns was further tested for ABA, and whole rock major and trace element analyses.

The analyses of ABA data from the pre and post leaching (kinetic) test samples suggest that the samples are considered non-acid generating based on both ABA Net Potential Ratio (NPR) and Net Acid Generating (NAG) test results. Using the more conservative criteria CaCO<sub>3</sub> NPR, the samples have more variable acid rock drainage (ARD) characteristics ranging from non-acid generating to potentially acid generating. Changes between the pre and post whole rock analyses test result for major and trace element concentrations are variable, but some variability is likely attributed to sample heterogeneity and sample splits. Depletion calculations on both the pre and post samples indicate that two of the three samples will not go acid due to their low sulphide concentrations in the samples. However, one sample has the potential to go acid.

The SFE leachates for the neutralized ore samples were slightly alkaline for two samples and acidic for one sample. Leachates from the SFE comply with MMER guidelines with the exception of the pH from one of the samples (acidic pH of 5.96 compared to the guidelines of 6.0).

Humidity cell (also referred to as kinetic) testing was conducted over a period of 100 weeks for two column samples and 55 weeks for the third column sample. These results show that the leachate derived from the neutralized ore is neutral to alkaline and within MMER guideline limits, with the exception of one of the samples which is slightly acidic and less than or equal to the minimum MMER guideline (pH of 6.0). MMER metals concentrations of the humidity cell leachate are all below MMER – Maximum Monthly Mean concentrations and appear to have been declining over time.

Overall, the test results indicate that the leached, rinsed, neutralized, ore has a low potential for acid rock drainage or metal leaching. Over the short term, the residual alkali amendment from the neutralizing step will maintain circum-neutral to alkaline pH values in leachate from the heap leach pad. At the beginning of the test program the concentrations of Metal Mining Effluent Regulation (MMER) metals were below the guidelines and continued to decline over time indicating that metal leaching should not be an issue over the short or long term. Metals mobile under alkaline pH conditions likewise generally declined with time or reached a steady state concentration. Weathering rates observed in humidity cell tests are generally considered an order of magnitude higher than in the field (ASTM D5744-96, 2001) such that the observed neutral pH of the samples after 100 and 55 weeks of testing may translate to almost 20 years of leaching at the site with no apparent signs of a decline in pH. In addition, the proposed cover design for the heap leach pad will reduce the rate of infiltration of precipitation into and through the heap, thereby reducing the rate at which residual alkali amendment is dissolved and prolonging the residence time of the amendment in the field to maintain a circum-neutral pH condition. It is possible the pH may eventually decline with time. However, the low concentrations and generally rapid depletion rate of sulphide sulphur suggest that sulphides should not be a long term source of mineral acidity.

A large 8 m high column of leached, rinsed, and neutralized ore has just been dismantled and a new series of testing, as was conducted on the other column samples (*i.e.*, ABA, SFE, whole rock analysis, humidity cell testing, and residue testing following completion of the humidity cell testing), will begin approximately in mid-August.

### **3.0 RECOMMENDED ACTIONS**

The inspection of the proposed mine site for the Carmacks Copper was completed on July 8, 2010 and indicated that as the site development has not been started yet, there is limited infrastructure and limited requirements for maintenance or further investigations. The required maintenance to manage some minor erosion items in the area of the events pond, the future heap leach sediment pond, and access road area near North Williams Creek was completed successfully in early August 2010. There is no further maintenance work related to this inspection required at this time.

We trust that this letter satisfies your requirements. If you require additional information, please do not hesitate to contact us.

Yours very truly,

**GOLDER ASSOCIATES LTD.**

**ORIGINAL SIGNED**

Fiona Esford, P.Eng.  
Senior Geotechnical Engineer

FE/JAH/fe/aw/rs

Attachments: Appendix A – Photographs

**ORIGINAL SIGNED AND SEALED**

John Hull, P.Eng. (BC, NWT, NU, YK)  
Principal

\\bur1-s-filesrv2\final\2007\1413\07-1413-0077\doc 150 let 0819\_10 annual inspection\doc 150 let 0902\_10 carmacks annual inspection-final.doc

## REFERENCES

Golder Doc. No. 105 "*Results of the 2008 Supplemental Geochemical Test Work on Waste Rock and Neutralized Spent Ore*" (March 26, 2010).

Golder Doc. No. 145 "*Results of Static Tests on Terminated Humidity Cell Residual Results*" (August 4, 2010).

## **APPENDIX A**

### **Photographs**





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photographs 1 - 4: Carmacks Exploration Camp Infrastructure, which includes an office, core shack, equipment shed, temporary trailers for accommodations and kitchen facilities, and drill core storage area.*

*Date Taken: July 8, 2010*





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photographs 5 - 6: Drill pad access road located north of Williams Creek and downstream of the area of the proposed heap leach facility sediment pond. Photographs show vegetation re-growth which has occurred and is assisting in stabilizing previously transported sediments.*

*Date Taken: July 8, 2010*





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photograph 7: Silt fences located between the area of the proposed heap leach facility sediment pond and Williams Creek were generally in good condition, however, some sediment was observed to have travelled beyond (bypassed) the silt fence in the foreground. However, no evidence of sediment entering Williams Creek was observed at the time of the inspection.*

*Date Taken: July 8, 2010*



## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photograph 8: An additional row of silt fencing was added beyond the green silt fence on August 5 to control further sediment movement towards Williams Creek.*

*Date Taken: August 5, 2010*





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photograph 9: View of proposed heap leach facility and plant site area, taken from area of proposed open pit, looking southwest.*

*Date Taken: July 8, 2010*



## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photographs 10 - 11: Access roads within the proposed waste rock storage area.*

*Date Taken: July 8, 2010*





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photograph 12: Access road east of North Williams Creek.*

*Date Taken: July 8, 2010*





## APPENDIX A

### Photographs

#### Carmacks Copper Project Annual Inspection



*Photograph 13: Yellow areas show where diversion ditches were excavated to redirect surface water runoff from the road side into the vegetated areas on either side of the access road.*

*Date Taken: August 5, 2010*

\\bur1-s-filesrv2\final\2007\1413\07-1413-0077\doc 150 let 0819\_10 annual inspection\appendix a - photographs-final.docx