TECHNICAL MEMORANDUM

To: Jeff Smith, New Mexico Copper Corporation jsmith@themacresourcesgroup.com

From: Steve Finch, Principal Hydrogeologist-Geochemist

Date: September 26, 2017

Subject: Copper Flat open pit area groundwater chemistry data and application to SRK geochemistry model

John Shomaker & Associates, Inc. (JSAI) has evaluated the water quality data regarding Copper Flat open pit influent groundwater chemistry in order to assist SRK with completion of the open pit geochemistry model. All historical data and the Stage 1 abatement data were compiled and reported in JSAI (2014). JSAI used the water quality database, well construction data, and groundwater flow model results to determine the most representative groundwater flow chemistry to the existing and future open pits.

Groundwater quality data for the open pit area come from wells GWQ96-22(A,B), GWQ96-23(A,B), GWQ11-24(A,B), and GWQ11-25(A,B). Monitoring wells GWQ96-22(A,B) and GWQ96(A,B) represents groundwater in the andesite, where monitoring wells GWQ11-24(A) represents groundwater in the quartz monzonite ore body, and GWQ11-24(B) and GWQ11-25(B) represent parts of the quartz monzonite with lower grade of the ore body. Piezometers GWQ11-24(A) and GWQ11-25(A) may have been affected by oxidation of sulfides in fractures during well development, and not representative of groundwater reporting to the open pit. Further analysis of GWQ11-25(A) provided evidence that it represents a localized and isolated fracture system recharged by oxygenated meteoric water that is not connected to the open pit (JSAI, 2014).

Existing Open Pit Influent Groundwater Chemistry

Table 1 is a summary of groundwater chemistry potentially influencing the existing open pit. Individual samples with values less than detection limits were assigned a value of one-half the detection limit. Results for selenium, mercury, and vanadium were evaluated for the lowest possible detection limit. Not all of the constituents analyzed in the baseline data report were analyzed as part of the Stage 1 abatement investigation, so results for GWQ11-24(A,B) and GWQ11-25(A,B) are limited by the Stage 1 constituent list (see Table 1).

EXHIBIT 14

Future Post-Mining Open Pit Influent Groundwater Chemistry

Based on the mining plan, a good portion of the quartz monzonite is removed by mining and the remaining quartz monzonite is dewatered. The groundwater flow model simulates localized dewatering rates and volumes (JSAI, 2014a). Groundwater representative of the andesite rocks reports to the future pit, and all of the groundwater in the quartz monzonite surrounding the future pit is dewatered during mining and replaced with groundwater from the surrounding andesite (JSAI, 2014a). The calculated volume of groundwater in the quartz monzonite is removed and flushed three times by inflow of groundwater representative of andesite. A volume of 500 acre feet is calculated to be dewatered during mining of the proposed open pit of which 165 ac-ft represents groundwater stored in quartz monzonite.

A summary of groundwater chemistry potentially influencing the future open pit during post mining conditions is listed in Table 1. Groundwater chemistry representative of the future pit was determined by using data representative of the andesite rocks (column A). These “Column A” sample results represent groundwater from the andesite rocks after dewatering and mining to create the future pit.

Attachments

Table 1. Summary of groundwater chemistry for Copper Flat open pit area

References

JSAI, 2014, Results of first year of Stage 1 investigation at the Copper Flat Mine Site, Hillsboro, New Mexico: Consultant’s report prepared by Steven T. Finch of John Shomaker & Associates, Inc. for New Mexico Copper Corporation.

[JSAI] John Shomaker & Associates, Inc., 2014a, Model of groundwater flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico: consultant’s report prepared for New Mexico Copper Corporation, August 15, 2014, 89 p. plus figures and appendices.

Table 1. Summary of Copper Flat open pit influent groundwater chemistry

		Column:	A	B	C	AVERAGE A-C	
parameter	parameter name	unit	Groundwater chemistry (average of samples collected from wells GWQ96-22(A,B), GWQ96-23(A,B) between 1996 and 2013)	GWQ11-24B 2013 average	GWQ11-25B 2013 average	Blended Groundwater chemistry representative of inflow to current open pit[b]	Groundwater chemistry representative of inflow to future open pit
pH	pH	s.u	7.85	6.44	6.45	6.91	7.85
HCO3	bicarbonate	mg/L	408	191	350	316.3	408
Ag	silver	mg/L	0.009	nm	nm	0.009	0.009
Al	aluminum	mg/L	0.029	0.013	0.308	0.12	0.029
As	arsenic	mg/L	0.0023	nm	nm	0.0023	0.0023
B	boron	mg/L	0.136	nm	nm	0.136	0.136
Ba	barium	mg/L	0.089	nm	nm	0.089	0.089
Ca	calcium	mg/L	85.8	442	481	336	85.8
Cd	cadmium	mg/L	0.0008	0.001	0.001	0.001	0.0008
Co	cobalt	mg/L	0.008	0.017	0.004	0.010	0.008
Cr	chromium	mg/L	0.0066	nm	nm	0.0066	0.0066
Cu	copper	mg/L	0.0061	0.0024	0.0026	0.0	0.0061
F	fluoride	mg/L	2.1	3.80	7.90	4.60	2.1
Fe	iron	mg/L	1.48	nm	nm	1.48	1.48
Hg	mercury[a]	mg/L	0.000002	nm	nm	0.000002	0.000002
K	potassium	mg/L	2.96	6.2	4	4.4	2.96
Mg	magnessium	mg/L	19.3	79	75	57.8	19.3
Mn	manganese	mg/L	0.66	3.5	3.25	2.47	0.66
Mo	molybdenum	mg/L	0.012	nm	nm	0.0119	0.012
Na	sodium	mg/L	119	94	131	114.5	119
Ni	nickel	mg/L	0.0125	nm	nm	0.0125	0.0125
Pb	lead	mg/L	0.0025	nm	nm	0.0025	0.0025
Sb	antimony	mg/L	0.0009	nm	nm	0.0009	0.0009
Se	selenium	mg/L	0.0015	0.0024	0.0028	0.0022	0.0015
U	uranium	mg/L	0.0015	nm	nm	0.0015	0.0015
V	vanadium[a]	mg/L	0.0009	nm	nm	0.0009	0.0009
Zn	zinc	mg/L	0.03	0.18	0.02	0.08	0.03
SO4	sulfate	mg/L	84	1408	1370	954	84
Cl	chloride	mg/L	49	27	27	34	49
TDS	total dissolved solids	mg/L	649	2,440	2,540	1,876	649

notes:

nm = not measured

[a] = results from sample analyzed for low detection limits for SRK geochemical model (samples collected July 10, 2013)