



November 6, 2017

WPC File Number: 1508.62.001

Darwin Green
Constantine North, Inc.
800 West Pender Street, Suite 320
Vancouver, British Columbia
V6C 2V6 Canada

Re: Conditional Approval to Discharge Artesian Well Water at the Palmer Project Exploration Site

Dear Mr. Green:

On October 18, 2017, the Department received a request for plan review and approval to discharge water from an artesian well (hereby identified as GT14-01) as a part of the Palmer Project from Constantine North, Inc. (Operator). Departmental authorities to conduct this review and issue this plan review approval are granted by Alaska Statute (AS) 46.03.100(c) and Title 18 of the Alaska Administrative Code (AAC) Chapter 72 Article 6 Section 600 (18 AAC 72.600), Nondomestic Wastewater System Plan Review Regulations.

Background

The Palmer Project is a copper-zinc sulfide deposit located in the Juneau Mining district, about 34 miles by road, northwest of Haines in southeast Alaska. The project is being explored as a Joint Venture between Constantine North Inc. and Dowa Metals and Mining Alaska. The property is a contiguous block of land consisting of 340 federal unpatented lode mining claims, which cover an area of approximately 6,765 acres. The project is currently in the exploration phase conducting drilling activities to delineate the mineral resource and collect water quality data. The geology of the resource area consists primarily of calcareous basalts with acid neutralizing characteristics and low potential for acid generation.

Exploration drilling has encountered artesian groundwater conditions. In a memorandum titled, *Artesian Well Temporary Plug-in – 2017 Update – APM #5690, October 10, 2017*, Constantine describes artesian conditions at drill sites “Pocket,” “Hari” and “U6.” The boreholes at “Pocket” and “Hari” have been temporarily sealed and do not discharge water. In 2014, as part of the company’s exploration program, borehole GT14-01 (“U6”) was completed for geotechnical, water quality, and hydrogeological information. The borehole was drilled at a shallow angle into the mountainside with casing and rods cemented into the hole to allow free flowing water for water quality sampling and to support hydrogeology studies. Water quality monitoring is intended to be conducted over multiple years to collect baseline data for groundwater conditions at the site. Constantine reports that borehole GT14-01 is temporarily capped using a system of valves that are kept closed during the summer field season, except when water quality sampling is performed or if water is required to support exploration drilling. Because of the unique combination of site conditions – high water pressure, high rates of flow, geometry and exposure of the well casing and valve system, and instrumentation necessary for ongoing data collection – Constantine determined that the well, if capped in its current configuration, was vulnerable to freezing and damage during the winter. Damage to the casing and valves from freezing would jeopardize the ability to control flow, and potentially lead to uncontrolled discharge of high volumes of groundwater.

It's important to note that Constantine reported the boreholes with artesian conditions to the Department, as required under the Department of Natural Resources (DNR) Miscellaneous Land Use Permit (MLUP). In late 2017, an inquiry regarding flowing boreholes at the Palmer Project elicited follow-up by the Department and DNR. The Department determined that Constantine met their regulatory obligations by reporting the artesian conditions at GT14-01 in 2014. At that time, the Department provided technical support to Constantine that allowed the discharge to occur during the winter months of 2014 through 2016.

DNR Miscellaneous Land Use Permit & Temporary Water Use Permits (TWUP)

Borehole GT14-01 is permitted under multi-year MLUP #5690 issued by DNR on April 25, 2014 and expiring on December 31, 2018. Water use from GT14-01 is authorized by DNR Temporary Water Use Authorization (TWUA) F2014-102.

Water Quality

Water quality data from borehole GT14-01 collected from the 2014 through the 2016 season was evaluated as a part of this plan review. The water quality data reviewed included an extensive array of metal parameters, pH, hardness and temperature. No exceedances of Alaska Water Quality Standards were noted in the review of the data set.

Approval

The Operator is approved to discharge water from borehole GT14-01 under the following stipulations and conditions:

1. Location: Groundwater from borehole GT14-01 is approved for discharge at an outfall located within the Copper River Meridian, T029S, R054E, Section 6 at Latitude 59.39355, Longitude -136.37698.
2. Period of Discharge: The period of approved discharge is during the months prone to freezing from September 15th through May 31st of the following year.
3. Discharge Rate: The discharge rate may not exceed 20 gallons per minute.
4. Discharge Area: The area approved for discharge is a 50 feet by 50 feet area of blocky talus field located immediately downgradient of borehole GT14-01. Discharge is from the end of a 1.25" diameter high-pressure hose that discharges into an open space between talus boulders where it infiltrates into the ground.
5. Monitoring and Reporting:
 - a. Visual Monitoring: The Operator will conduct visual monitoring and inspection of the condition of the borehole and infrastructure and the discharge area as a part of the seasonal opening and closing of the valve. In addition, at least once per year during the period of authorized discharge and on an incidental basis during the winter months, the Operator will conduct an aerial survey of the borehole GT14-01 and the discharge area to verify that the equipment is functioning as intended and that the discharge does not flow outside of the approved discharge area and does not cause excessive glaciation. Visual monitoring reports

must be submitted within five working days after completion of the monitoring. Reports must be submitted via email to Allan Nakanishi, PE at Allan.Nakanishi@alaska.gov.

- b. Water Quality Monitoring: A water quality sample will be collected annually for all parameters that were monitored in the 2014 through 2016 water quality monitoring program. Water quality monitoring results must be compiled into an Excel spreadsheet and submitted via email to the Department within 30-days after receiving the analytical results to Allan Nakanishi, PE at Allan.Nakanishi@alaska.gov.
- c. Noncompliance Reporting: The Operator shall report any noncompliance event related to this authorization. A report must be made orally within 24 hours after the Operator becomes aware of the circumstances and in writing within five days after the Operator becomes aware of the circumstances. A report must include the following information:
 - i. A description of the noncompliance and its causes, including the estimated volume or specific details of the noncompliance;
 - ii. The period of noncompliance, including dates and times;
 - iii. If the noncompliance has not been corrected, a statement regarding the anticipated time the noncompliance is expected to continue; and
 - iv. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Oral noncompliance reports must be reported to the Department's noncompliance reporting hotlines at 1-907-269-4114 (from Alaska) or 1-877-569-4114 (nationwide). Written noncompliance reports must be submitted via email to Allan Nakanishi, PE at Allan.Nakanishi@alaska.gov and the DEC Water Compliance Program at dec-wqreporting@alaska.gov.

6. This authorization expires on December 31, 2018.
7. The Operator may re-apply to continue this authorization upon DNR acceptance of a renewal Application for Permits to Mine in Alaska (APMA) for this project and the timely submittal of all monitoring and reporting requirements.

Limitations

Approval of submitted plans is not approval of omissions or oversights by this office or noncompliance with any applicable regulation or permit requirement. The Department's plan review approval does not guarantee correctness or the functionality of the design, or waive the owner's responsibility for continued compliance with State regulations.

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195- 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby, Suite 303, Juneau, Alaska 99811, within 15 days of the permit decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811, within 30 days of the permit decision. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions, please contact me at (907) 269-4028 or allan.nakanishi@alaska.gov.

Sincerely,



Allan Nakanishi, PE
DEC Wastewater Discharge Authorization Program
Mining Section Manager

cc: Liz Cornejo, Constantine Resources
Kyle Moselle, DNR OPMP
Hollie Chalup, DNR DMLW
David Khan, DEC Water, Permitting
Andrew Sayers-Fay, DEC Water, Compliance