

# KNIFE RIVER

Woodward and Vanier Mining Cells



WENCK port Stantec

Figure 4

CROOK COUNTY

# KNIFE RIVER

Proposed Baseline Monitoring Wells and Springs

**AUG 2021** 

Figure 3

WENCK port of Stantec

- Knife River Proposed Condition of Approval "Groundwater Guarantee": PLANNING DEPT

  A. In the event that corrective action for groundwater necessitates well deepening replacement or replacement water, the Operator shall take and DOGAMI or as otherwise agreed between \*\*

  undue delay.

  B. With sor
  - B. With respect to part "A" above, the Operator shall guarantee the quality and quantity of water available at neighboring wells specified above commensurate with the use—domestic, livestock and/or irrigation. Potable water is required for the replacement of domestic wells. Livestock quality water is required for replacement of any livestock wells. Irrigation quality water is required for the replacement of all irrigation wells. Any interruption in the water service or diminished quality occurring beyond the well head, in delivery or pumping systems is not the Operator's responsibility but remains the sole responsibility of the well owner or users. Maintaining any part of the electrical connections, servicing or replacing pumps within the wells shall also remain the sole responsibility of the well owners or users.
  - C. The Operator is not required by this condition to and does not make any representations as to the current or past quality or quantity of the water available to the wells or its suitability or legality for domestic or other use. The well owners or users retain responsibility for compliance with existing or future water standards or requirements except to the extent that the Operator's actions have caused those standards or requirements to be violated.
  - D. Prior to mining and throughout the life of the project, the Operator shall examine the waters of various springs, sloughs or neighboring wells to the extent that permission from the landowner is granted. To ensure that water levels are not lowered or that spring flow is not decreased, the Operator has proposed an infiltration trench or series of infiltration trenches. The Operator shall collect these monitoring data monthly and shall share quarterly with the surface owner, who has granted access and sampling permission. Prior to mining through a trench or a monitoring well, all previously collected groundwater data will be reviewed by licensed professional geologist or engineer. This data analysis shall consider the relocation and placement of the next infiltration trench and monitor wells as well as any potential adverse impacts to surrounding properties. The Operator shall make adjustments to his Mine Plan to minimize or eliminate any mine related adverse impacts. All data shall be maintained on file by the Operator for 5 years and shall be made available to the County, DOGAMI or affected residents upon written request.

### 08.21.2021

## Memorandum



To Matt Ropp Manager of Land Planning Knife River Corp

From Amber L. Hudspeth Hudspeth Land+Water

Re Water Quality Sampling Recommendation

#### **Project: Vanier Expansion**

As part of the proposed expansion the water quality has been questioned and the quality can be monitored and addressed through analytical analysis and verification. The water table has been adequate at the Site and in the surrounding area and with a measured program of analysis and data collection the drinking water quality issues can be tracked and confirmed.

As part of the analysis there are several categories of water quality issues that can be monitored. As with any ongoing or comprehensive program the initial analysis would be a "baseline" data collection and would be a more extensive analysis of many parameters for analysis of the drinking water chemistry.

Included in the baseline sampling would be testing for ambient conditions, physical water quality data parameters and identifying data changes and trends. Analysis of trends can notify us of changes and the possibility of any quality issues that could identify the need for a change in or expansion of the sampling parameters should an unexpected issue arise.

The initial suggested baseline analysis would include analysis of physical parameters like water level, pH, and turbidity, volatile organic (solvents and oily wastes), synthetic organic (pesticides), inorganic compounds (metals, nitrates, and minerals) and microorganisms (E. Coli and coliforms). This would be in alignment and verified by comparison to the EPA National Primary and Secondary Drinking Water Regulations. The EPA water quality guidelines cover not only the potential health effects from long term exposure to compounds but also contaminants that can cause issues with the aesthetics of water to include taste, color and odor. This comprehensive panel of testing for

### **HUDSPETH LAND+WATER**



# 08.21.2021 **Memorandum**



stability of the drinking water and analysis of the data will verify the continued quality of the water table.

The water quality in the local basin has some issues with background levels of arsenic and sulfur and varied physical parameters including odor and turbidity that can be affected by the water year and precipitation levels as well as whether the irrigation water and canal is seasonally operational. These are expected trends in the seasonal data that can be seen year over year.

Coordination for access to the water sources at the same location with unchanged well and site conditions will be the key to data that can be compared. Standard protocols for purging, sampling, and testing will be utilized as part of this project. Laboratory data or summarized data will be available to the property owner after the receipt and review of the analytical data report.