

OPPD Nuclear Power Generating Facility
Fort Calhoun, Nebraska
Project No. 05077135
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Terracon

above, gradients and flow velocities would also be expected to change in conjunction with such fluctuations.

5.0 SUMMARY

The area where the hydrogeologic assessment took place is near the banks of the Missouri River. Geology at the site is characterized by unconsolidated alluvial sediments of clay, silt, and sand associated with the Missouri River flood plain. Groundwater is primarily within alluvial sand that is relatively fine-grained. Hydraulic conductivities of the saturated alluvium were measured to be on the order of 1.0×10^{-2} to nearly 1.0×10^{-1} centimeters per second. These conductivities imply a relatively high ability to transmit groundwater. Unconsolidated alluvium is bounded at depth by limestone and shale bedrock reported to be about 70 to 75 feet below the ground surface. Bedrock was not encountered during this hydrogeologic assessment.

River levels are expected to influence water levels, gradients, and flow direction within the assessment area. Variations in pump rates at the plant's water supply well and seasonal variations in precipitation and snow melt events would also be expected to affect water levels, gradients, and flow directions. The river's influence on groundwater conditions (and possibly the influence of changing supply well pump rates) appears evident when making comparisons between different water level monitoring events. A uniform groundwater flow direction toward the plant's water supply well was inferred for the first and second of three monitoring events. For a third monitoring event, groundwater flow was inferred to be toward the water supply well for the western part of the site but toward the river for the eastern part of the site.

The setting of the plant appears to be within a dynamic groundwater environment influenced by pumping at a water supply well, river levels in the nearby Missouri River, and seasonal amounts in precipitation. Consequently, a groundwater monitoring program must account for the potential variations in groundwater flow directions that can result from this dynamic environment. The groundwater flow information presented herein should be used when choosing locations and depths of monitoring wells that will be used for future monitoring with respect to apparent radionuclide source areas.

6.0 GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon the data obtained from the indicated wells installed at the indicated locations and from other information discussed in this report. This report does not reflect any variations in subsurface stratigraphy or geohydrology which may occur beyond the indicated well locations or across the site.

This report is prepared for the exclusive use of OPPD for specific application to the project as discussed and has been prepared in accordance with generally accepted local assessment