EXHIBIT 76

Kip K. Allander

<u>Outline of Expert Witness Testimony</u>

Lower Walker River Basin Hydrology

Kip Allander is a hydrologist and groundwater specialist with the US Geological Survey Nevada Water Science Center. Since 2004, Mr. Allander has primarily worked on hydrologic issues in the Walker River basin. The hydrology of the lower Walker River Basin has been his main area of focus, which is downstream of the Walker River at Wabuska streamgage at the outflow of Mason Valley. Mr. Allander was the principle investigator in a project to improve estimates of discharge from the lower Walker River basin by studying evapotranspiration from open water, natural and agricultural vegetation. He was the lead hydrologist in an extensive groundwater and groundwater/surface water study to improve understanding of the hydrologic framework and water budgets of the lower Walker River basin. Currently Mr. Allander is the principle investigator developing numerical models that simulate the hydrology of the lower Walker River basin.

The evapotranspiration study was from 2004 – 2007. Evapotranspiration rates were measured from Walker Lake and a variety of natural and agricultural vegetation locations and were applied to landscapes with similar evapotranspiration rates (ET units) to estimate discharge. The study estimated evapotranspiration from Riparian, Saltcedar, phreatophytic, grassland, irrigated croplands, and from Walker Lake and Weber Reservoir and was published in Allander and others (2009).

The hydrologic framework and water budget study of the lower Walker River basin was from 2004 – 2009. This study established a groundwater, stream, and lake monitoring network; conducted a series of aquifer tests to estimate aquifer properties; and used geophysics to estimate geometries of basin fill aquifers in key locations. This information was used to estimate groundwater fluxes entering and leaving the lower Walker River basin through hydrographic boundaries, groundwater discharge to Walker Lake, and groundwater exchanges with Walker River. The data and information acquired through this study were used to refine the hydrologic setting and conceptual understanding of the lower Walker River basin hydrologic system and was published in Lopes and Allander (2009a). The data and information were also used to estimate the water budgets for Walker River, Walker Lake, and the groundwater system and was published in Lopes and Allander (2009b).

The development of numerical models to simulate the hydrology of the lower Walker River basin began in 2009 and is ongoing. Three principle models have been developed and are being documented in two reports: A watershed model that simulates surface and shallow subsurface response to climate variability using PRMS (PRMS model); a groundwater flow model that simulates groundwater, Walker Lake and Weber Reservoir, and Walker River using MODFLOW (MODFLOW model); and an integrated watershed and groundwater flow model that simulates groundwater and surface water interactions and other hydrologic processes with greater temporal and physical resolution using GSFLOW (GSFLOW model).

The main purpose of the PRMS model was to provide the climate, surface, and shallow subsurface framework for the GSFLOW model and to provide an estimate of groundwater recharge distribution for the MODFLOW model. The PRMS model was calibrated using generalized ephemeral discharge characteristics from drainages originating in the lower Walker River basin as well as estimated groundwater recharge. This model does not simulate Walker River flows and is not intended to be used for evaluating streamflows from individual drainages in the lower Walker River basin.

The main purpose for the MODFLOW model is to provide a tool for simulating long period response of the lower Walker River hydrologic system to changes in water management and to provide the groundwater, stream and lake frameworks for the GSFLOW model. The MODFLOW model is used to project lake, stream, and groundwater conditions; and lake TDS concentrations into the future based on a given set of criteria (Scenario). The MODFLOW model can simulate the response of the system for different management styles for Weber Reservoir. Using either historic operation rules (store all water possible) or using a pass-through operation rule. The report documenting the PRMS and MODFLOW models is in review and is expected to be published this summer.

The main purpose for the GSFLOW model is to provide a tool for understanding lower Walker River basin hydrologic processes at daily and seasonal time scales. This model is still being refined and documentation is expected near end of 2014.

If Mr. Allander is approved to be an expert witness by the Department of Interior, then he will be prepared to testify on the above and on the following aspects of hydrology in the lower Walker River basin:

- Overall hydrology.
- Walker River streamflows, gains and losses, USGS gages, USGS streamflow data.
- Groundwater levels, movement, aquifer properties, discharge.
- Groundwater and surface water interactions.
- Evapotranspiration.
- Water budgets.
- Walker Lake stage, volume, area, and TDS concentrations.
- Lower Walker River basin MODFLOW model.

References

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Lopes, T.J., and Allander, K.K., 2009a, Hydrologic setting and conceptual hydrologic model of the Walker River Basin, west-central Nevada: U.S. Geological Survey Scientific Investigations Report 2009-5155, 84 p.

Lopes, T.J., and Allander, K.K., 2009b, Water budgets of the Walker River Basin and Walker Lake, California and Nevada: U.S. Geological Survey Scientific Investigations Report 2009-5157, 44 p.

Allander, K.K., Smith, J.L., and Johnson, M.J., 2009, Evapotranspiration from the Lower Walker River Basin, West-Central Nevada, Water Years 2005-07: U. S. Geological Survey Scientific Investigations Report 2009-5079, 63 p.