

Attachment G – Well Protection Protocol

Agreement Among the Yavapai-Apache Nation, the United States of America, and the Town of Camp Verde

Well Protection Protocol

Definitions: The following definitions shall apply for purposes of this Well Protection Protocol between the Yavapai-Apache Nation and the Town of Camp Verde.

“Alert Level” means the depth to water in a monitoring well corresponding 50% of the anticipated 10-year Drawdown.

“Analytical Model” means a solution to a mathematical equation describing flow through an aquifer, aquifer water level with distance from the pumping well, and aquifer storage change over time.

“Drawdown” means a decline in groundwater level caused by groundwater pumping

“Drawdown Limit” means a 10 feet of decline in groundwater level in a well owned by one Party after 20 years of pumping in a proposed or existing new well owned by the other Party.

“Existing Well” means the wells identified in Schedule 1 and future Large-Capacity Production Wells in then in service, which excludes abandoned wells or wells not used in the previous three (3) years. Schedule 1 shall be updated by the Town and the Nation as new Large-Capacity Production Wells are added.

“Impact” means a Drawdown in one well caused by pumping in another well.

“Large-Capacity Production Well” means a production well with a casing diameter of greater than 6 inches and a pumping capacity exceeding 100 gallons per minute.

“Replacement Well” means a well: (a) constructed to replace a well in existence on the date of enactment of the Act; (b) that is located no more than 660 feet from the well being replaced; and (c) with a pumping capacity and case diameter that does not exceed the pumping capacity and case diameter of the well being replaced.

“Numerical Model” means an industry standard groundwater or integrated hydrologic computer code such as MODFLOW or MIKE SHE.

“Parties” means the Yavapai-Apache Nation and the Town of Camp Verde (and not the United States in any capacity).

“Warning Level” means the depth to water in a monitoring well corresponding 80% of the anticipated 10-year Drawdown.

Pursuant to Subparagraph 12.2.6 of the Agreement, the Town of Camp Verde and the Yavapai-Apache Nation have developed the following Well Protection Protocol:

1.0 Before finalizing the location of a new Large-Capacity Production Well that is not a replacement well, the well-drilling Party shall estimate the potential Impact of its future groundwater withdrawals on the target aquifer or aquifers by using an Analytical Model such as the Theis non-equilibrium radial-flow equation or other analytical solution appropriate to the aquifer conditions at the proposed well site. The pumping rate used in the model shall correspond to two-thirds of the design pump capacity for the proposed well.

2.0 The Parties shall confer and mutually agree on the model and aquifer parameters to be used in the Analytical Model analysis. The model must evaluate a reasonable range of aquifer parameters to develop a range of reasonably expected Impacts to the other Party's well(s). If the average of the Analytical Model results predicts an Impact to the other Party's existing well of less than the Drawdown Limit, then no further analysis or mitigation is necessary.

3.0 If the average of the Analytical Model predictions shows an Impact to the other Party's well or wells greater than the Drawdown Limit, then the well-drilling Party, prior to drilling and operating the proposed well, shall either (a) commit to the Avoidance, Minimization, and Mitigation measures described below; or (b) use a 3-dimensional, calibrated Numerical Model (agreed to by both Parties) to further evaluate the potential Impacts to the other Party's well(s) from pumping in the proposed well.

3.1 If the Numerical Model, using a reasonable and mutually agreed-upon range of aquifer parameters, predicts that the new well's Impacts will not exceed the Drawdown Limit, then no further analysis or mitigation is necessary.

3.2 If the Numerical Model predicts that the proposed new well's Impacts would exceed the Drawdown Limit, then the Parties shall confer and agree upon next steps to avoid, minimize, or mitigate damages, as described in Subparagraphs 4.0, 5.0, and 6.0, below.

4.0 Avoidance and Minimization Measures

The Parties agree that the following actions constitute appropriate avoidance and mitigation measures for purposes of this Well Protection Protocol:

4.1 The well-drilling party shall move the proposed well to a location indicated by the Numerical Modeling where its predicted Impacts would not exceed the Drawdown Limit; or

4.2 The well-drilling party shall propose and commit to various operational controls (e.g., reduced pumping) on the well to prevent anticipated future exceedance of the Drawdown Limit as supported by the Numerical Modeling; or

4.3 The well-drilling party shall install one or more monitoring well(s) to anticipate Drawdown Impacts that may exceed the Drawdown Limit; or

4.4 The well-drilling party shall use a combination of strategies described in Subparagraphs 4.1, 4.2, and 4.3, above.

5.0 Monitoring Well Provisions

The Parties agree that the following procedures shall apply to the use of monitoring wells for purposes of this Well Protection Protocol:

5.1 The monitoring well(s) shall be located between the new proposed production well and the other Party's potentially Impacted well(s).

5.2 Using the existing numerical or Analytical Model, the Parties shall identify an Alert Level and a Warning Level in each monitoring well.

5.3 The monitoring well owner shall, for a minimum of 20 years, collect and record monthly depth-to-water measurements in the monitoring well(s).

5.4 The monitoring well owner shall share all groundwater-level data collected from the monitoring well(s) with the other Party on an annual or more frequent basis.

5.5 If the depth-to-water in the monitoring well reaches or exceeds the Alert Level, the owner of the monitoring well will document the occurrence and report it to the other Party.

5.6 If the depth-to-water in the monitoring well reaches or exceeds the Warning Level, the owner of the monitoring well will document the first date of the occurrence and report it to the other Party as well as immediately implementing one or more of the Mitigation Measures below.

6.0 Mitigation Measures

Mitigation Measures shall be implemented if (a) a Warning Level is documented in one or more monitoring well; or (b) the Drawdown Limit is reached or exceeded. Mitigation measures, may include, but not be limited to, the mitigation measures listed in Subparagraph 6.1, 6.2, 6.3, and 6.4, and 6.5, below.

6.1 The owner of the well shall restrict pumping in the new well to a level that will avoid an exceedance of the Drawdown Limit. If this mitigation measure is selected, the Parties shall work together to recalibrate of the Numerical Model (as needed) to predict the new pumping rate that will protect the other Party's well from an exceedance of the Drawdown Limit.

6.2 The owner of the well shall deliver water from the new well or from other legal source to the other Party in an amount sufficient to reasonably mitigate for the harm to the other Party's well.

6.3 The owner of the well shall financially compensate the other Party for the costs associated with the adverse Impact to the production capability of the other Party's well.

6.4 The owner of the well shall deepen or replace the other Party's well.

6.5 The owner of the well and the other Party may mutually agree to any other method of mitigation.

7.0 Qualified Neutral Third-Party

7.1 In the event of any dispute, question, or disagreement between the Parties arising from or relating to this Well Protection Protocol, the Parties agree to use their best efforts to settle the dispute, question, or disagreement. To this effect, they shall consult and negotiate with each other in good faith and, recognizing their mutual interests, attempt to reach a just and equitable solution satisfactory to both Parties. If they do not reach such solution within a period of 60 days, then, upon notice by either Party to the other under Subparagraph 20.16 of the Agreement, the Parties shall select a qualified neutral third-party to mediate the dispute, question, or disagreement.

7.2 If the Parties are unable to agree upon a qualified neutral third party to mediate the dispute, question, or disagreement between the Parties, or if the qualified neutral third party is unable to finally resolve the dispute, question, or disagreement, then the matter shall be resolved under Subparagraph 18.0 of the Agreement.