

Edwards Aquifer Habitat Conservation Program

Preliminary Technical Evaluation of Increasing VISPO Leases and Reducing ASR Leases (Primary) and Substituting ASR Forbearance Leases (Optional)

DRAFT Scope of Work HDR Engineering, Inc. / Todd Groundwater October 29, 2014

The approved Edwards Aquifer Habitat Conservation Plan (EAHCP) includes four flow protection minimization and mitigation measures focused on maintenance of discharges from Comal and San Marcos Springs. These flow protection measures are identified as Voluntary Irrigation Suspension Program Option (VISPO), Regional Water Conservation Program, SAWS ASR Trade-Off, and Emergency Stage V Critical Period Management Reductions. Technical evaluation of these flow protection measures is summarized in an October 2011 report prepared by HDR Engineering, Inc. (HDR) and Todd Engineers which is included as Appendix K of the EAHCP.

Pursuant to the request of the EAHCP Program Manager, HDR proposes this Scope of Work to quantify the effect of increasing VISPO leases on potential reductions in ASR leases while meeting approved springflow minima as the Primary Task. In other words, if VISPO leases are increased by a given amount, how much can the ASR leases be reduced and still achieve the same minimum springflow protection criteria established in the EAHCP. An Optional Task in this proposal is to evaluate modifications of the three tier SAWS ASR Trade-Off leases. The modifications keep tier one leases where the water is either pumped to fill ASR or idled and convert tiers two and three into a single ASR forbearance tier. The question answered by the Optional Task is “what is an appropriate J-17 trigger level for implementing an ASR forbearance program that will achieve the same minimum springflow protection criteria established in the EAHCP?”

Specific Primary and Optional Task work elements are summarized as follows:

1) PRIMARY: Prepare Technical Assumptions and Conduct Modeling with Increased VISPO Leases

Perform Edwards Aquifer simulations with increased VISPO leases using modeling steps and technical assumptions defined in consultation with the Program Manager and permittees. These steps and assumptions are expected to include the following:

- a) Use the same Edwards Aquifer (MODFLOW) Model that was documented in the October 2011 report.
- b) Conduct verification simulations.

- c) Update the geographic distribution of VISPO leases in the model at the county level in accordance with the October 7, 2014 Final VISPO Enrollment. ASR tier 1 leases will continue to be prorated reductions across all irrigation wells and fixed at 16,667 acft/yr.
- d) Conduct Bottom-Up Program simulation with actual VISPO leases at 40,951 acft/yr.
- e) Use the same ASR filling and recovery schedule and rates as documented in the October 2011 report.
- f) Conduct a series of trial and error model simulations with increased VISPO leases (up to a total of 60,000 acft/yr) and decreased ASR leases. ASR tier 3 leases (up to 16,667 acft/yr) will be reduced first. If needed, simulate reductions in ASR tier 2 leases (up to 16,667 acft/yr).
- g) Continue the trial and error simulations until the minimum monthly springflow at Comal Springs is nearly the same as determined in the Bottom-Up Program simulation described in work element d above.
- h) Prepare a table and/or curve to illustrate the effects of increased VISPO leases on ASR leases needed to achieve the EAHCP minimum springflow objectives. Interpret the results to approximate the effectiveness of increasing VISPO leases on ASR leases (e.g., identify a generally applicable ratio).

2) OPTIONAL: Prepare Technical Assumptions and Conduct Modeling with ASR Forbearance Leases

Perform Edwards Aquifer simulations with ASR forbearance leases using modeling steps and technical assumptions defined in consultation with the Program Manager and permittees. These steps and assumptions are expected to include the following:

- a) Primary Task work elements a, c, d, and e are applicable to this Optional Task.
- b) Conduct two series of trial and error model simulations with different amounts of Tier 1 ASR leases and Tier 2 ASR forbearance leases. Both series would fix the VISPO leases at a total of 40,951 acft/yr distributed as defined in the PRIMARY task. The first series would set the Tier 1 ASR leases at 16,667 acft/yr, as in the current implementation agreement, and 33,333 acft/yr in ASR forbearance leases applied at the county level. The second series would set the Tier 1 ASR leases at 25,000 acft/yr and include 25,000 acft/yr in ASR forbearance leases. The trial and error model simulations will determine a J-17 trigger level for the Tier 2 ASR forbearance leases so that springflow protection is maintained at baseline conditions. These ASR forbearance leases will come from the municipal, industrial, and irrigation use sectors in amounts and proportions specified in consultation with the Program Manager and permittees. Activation of the ASR forbearance leases would be based on J-17 levels on October 1 of the previous year, like VISPO forbearance leases. For the first series (ASR lease/forbearance split of 16,667/33,333), ASR will be filled and water recovered at the same rates and schedule as was done for the October 2011 report. For the second series (ASR lease/forbearance split of 25,000/25,000), the ASR fill rate will be increased, but the recovery will remain the same as in the October 2011 report.

- c) Continue the trial and error simulations varying J-17 trigger levels until the minimum springflow at Comal Springs is nearly the same as determined in the Bottom-Up Program simulation described in Primary Task work element d above.
- d) Summarize modeling results.

3) Deliverables, Meeting, & Schedule

- a) Primary:
 - i. Develop presentation materials summarizing pertinent assumptions and results of modeling and sensitivity tests. Submit summary presentation materials to the Program Manager within approximately eight (8) weeks of receipt of notice to proceed and direction regarding technical assumptions.
 - ii. Prepare a Technical Memorandum.
 - iii. Prepare for and participate in one (1) meeting to present modeling results.
- b) Optional:
 - i. Develop presentation materials summarizing pertinent assumptions and results of modeling and sensitivity tests. Submit summary presentation materials to the Program Manager within approximately eight (8) weeks of receipt of notice to proceed and direction regarding technical assumptions.
 - ii. Integrate results of optional task into Technical Memorandum for Primary Task.
 - iii. Prepare for and participate in one (1) meeting to present modeling results.

Estimated Budget (Primary Only) = \$34,600

Estimated Budget (Optional Only) = \$32,200

Estimated Budget (Primary and Optional) = \$51,300