Edwards Aquifer
Recovery Implementation Program Retreat
January 25-26, 2010
Meeting Summary

Facilitator comments

Planned retreat goals (and ***results achieved***):

1. Confirm our goal of having a conceptual framework of 'covered activities' by February, 2010 (***we confirmed this, yet are somewhat behind schedule***).
2. Clarify, at a conceptual level, each of the proposed options (quarries, ASR, etc.) for providing water to the species (***we achieved some clarity but greater clarity and information on the options are needed***).
3. Identified a useable range of storage volumes that permits HDR (engineering consultant) to begin a rough assessment of the potential effectiveness and cost of the various storage options (***we discussed ranges of needed storage volumes but the range as defined currently may be too broad to assist in decision making***).
4. Developed one or more conceptual frameworks of covered activities that we can clarify, discuss and improve at the February meeting (***although the matrix of options has been refined, we will not likely be able to refine the options by February***).

The Facilitators believe the RIP made substantial progress in understanding the range of options (such as quarries and ASR) and methods of assessing the storage volumes. At this point, the need for more information about each option now limits the EARIP from narrowing the list of options but does allow more time to understand each in greater detail. It appears that the needed additional information will be developed in February-March 2010. The EARIP should be prepared for preliminary decisions in April and May of 2010 that will permit the HCP consultant to begin more detailed work in the summer of 2010 to maintain the necessary schedule.

DAY 1

ASR Presentation

Phil Cook, SAWS presented information on ASRs to help the EARIP better understand how and whether ASR presents an option for providing water to the species. Phil described how ASR fits into SAWS portfolio. He described the general concept, and he discussed issues with cost and feasibility. Much of the question and answer period focused on recovery

details – specifically, how much water can feasibly be recovered from ASRs (for example, what percent of water placed in storage is recoverable for use?). Another issue was the chlorination in the potable water that sits in the 27 miles of pipe going to and from the ASR site. SAWS keeps that water moving back and forth so the water can be used before the chlorine dissolves. The question was raised whether an ASR must be in continuous operation to be effective. ***See website for his presentation***.

Confirmation of our timing goals and focus for January-February

In earlier RIP meetings, it became apparent that the RIP needed to establish a conceptual plan for covered activities so that the HCP could be developed in time to meet statutory deadlines. At the January 2010 retreat, one concern with the current timeline for goals is: how can we plan to move along in the same way that the regional planning process moves along? The regional process takes a long time, and this EARIP process may not be able to move faster.

The Facilitation Team noted that presently (January-February) the EARIP is working at the conceptual level. Later (likely March-May), the EARIP will start to consider feasibility and cost – at least at a preliminary level. The Facilitation Team asked the RIP members to stay open: "We'll ask the questions along the way: How we might improve the package at each step? How do we make this work better?"

Participant comments: There's a lot of overlap between Region L and EARIP participants, and one question was if there been any thought to how those plans might be meshed. Region L has it's own schedule. The facilitator noted that the RIP doesn't stand alone – there are many processes happening simultaneously and participants are all connected in many ways. Once the RIP gets to a more defined level, this group will likely work more closely with Region L.

Brief Review of documents sent out since the last meeting

The Facilitation Team reviewed the various documents sent out in prior emails. The documents reviewed briefly were:

- Final sample of options;
- Final time below specific flow levels;
- Descriptions of: off-channel storage, ASR, quarries, other options, CPM, the Uvalde water project.

The following comment arose. Do we know the legal ramifications of taking underground water, turning it into surface water, and understanding how it works. Is that a legislative deal? The facilitator noted that there will be lots of questions in the future, but the idea is to develop a set of things to turn over for HDR to look at it. Is there a way to get a head start legislatively? This is part of that process.

Using a "Matrix of Options to Develop a Framework of Proposed Actions"

The EARIP discussed the "Matrix of Options." Most participants felt like the matrix was a good structure for refining options and decision making. This matrix has a whole subset of issues that will need to be fleshed out later; we should keep these in mind. Although the final HCP will be very comprehensive, the January 25-26 meeting focused on options 1.1-1.4 --which all refer to storage.

Assistance from HDR. Sam Vaughn from HDR will be assisting the RIP on assessing storage options. Some of the matrix options are "off the shelf" for HDR (for example HDR is familiar of details and costs), but other options will require new analysis. Some participants expressed that HDR needs to take an active role and let the EARIP know if we have missed an option. Their work shouldn't be limited to evaluating the options the EARIP has come up with; HDR should make suggestions if they are aware of another idea.

Comments-questions about the matrix:

- Why do we not have an option to bring in outside water (water from another aquifer)? It was noted that this may come into the process later, but that new water doesn't directly influence the species. It's on the matrix in the form of the option – storage of surface water. That water could come from another aquifer.
- The source will need to be discussed on many of the options.
- The package is meant to be continually refined: options added, merged, or dropped,

For storage, how much water is needed to meet species needs?

The EARIP discussed the possible storage needs for water for sufficient spring flow given different potential flow needs. The storage chart attached to some of the option descriptions was discussed.

The tables below were used in the January RIP meeting and compare the estimated amount of water needed to be stored to reach certain flow targets with a 340,000 and 320,000 CPM floor.

ESTIMATED COMBINED STORAGE REQUIREMENTS FOR COMAL AND SAN MARCOS BASED ON NEEDED FLOWS AND A 340,000 CPM FLOOR								
			Comal flow needs					
			5 cfs	30 cfs	40 cfs	50 cfs	60 cfs	70 cfs
			8,800	65,400	93,300	124,900	160,600	201,500
San Marcos flow needs	52 cfs	16,700	25,500	82,100	110,000	141,600	177,300	218,200
	65 cfs	32,800	41,600	98,200	126,100	157,700	193,400	234,300
	75 cfs	54,600	63,400	120,000	147,900	179,500	215,200	256,100

ESTIMATED COMBINED STORAGE REQUIREMENTS FOR COMAL AND SAN MARCOS BASED ON NEEDED FLOWS AND A 320,000 CPM FLOOR								
			Comal flow needs					
			5 cfs	30 cfs	40 cfs	50 cfs	60 cfs	70 cfs
			2,800	25,500	40,200	58,900	81,000	107,300
San Marcos flow needs	52 cfs	3,900	6,700	29,400	44,100	62,800	84,900	111,200
	65 cfs	12,800	15,600	38,300	53,000	71,700	93,800	120,100
	75 cfs	28,400	31,200	53,900	68,600	87,300	109,400	135,700

Calculation notes: The above acre foot estimates are made based on (flow rate in cfs) x (days the flow is needed) x 1.98, and are rounded to the nearest 100 AF.

The EARIP shouldn't over interpret the combined storage requirements chart. The numbers developed for the chart are based on the historical, hydrograph – 1947 to 2000.

Comments:

- Members recognized that there will inevitably be other elements that can be combined with storage, thereby potentially reducing to total needed storage (for example, mitigation measures). They felt other potential activities might be implemented so considering smaller packages will provide more flexibility.

- One suggestion was to think of activities as Leggo® blocks. The group needs to know the details about the small pieces, so they can be added together. When adding activities, we could take apart our structure and reassemble to optimize our results.

- Another suggestion was to have units of scale. A 100,000 option isn't necessarily comprised of 10 separate 10,000 projects. Maybe we have 12,000, 50,000 and 100,000.

- One participant suggested that the science committee update the 13,000 allocated for exempt wells, along with an update for all pumping numbers.

Darcy Frownfelter's Presentation on EAA ability to pump for storage purposes

EEA's general counsel made the following points in his presentation. All withdrawals from the aquifer are not subject to the 572,000 cap. There are withdrawals that can be made to the aquifer without being counted toward the cap. Under the Edwards Aquifer Authority

Act, the 572 is the cap for regular withdrawals pursuant to "regular permits." All those regular permits have been issued – there's no more water to be permitted under regular permits. There's an "additional regular permit" category, but there wasn't extra water to give to that category. The EAA Act has a fundamental purpose of protecting species at San Marcos and Comal. Types "Term Permits" under very narrow aquifer and spring permits. Can withdraw water when the aquifer is very full. "Emergency permits" are short term 60 day permits for the protection of life (not just human lives, threatened & endangered species could be protected), and health, safety and welfare. "Recharge and recovery permits" are designed to pull water out of the aquifer. Aquifer recharge and storage permits" are designed to put water into the aquifer. "

The Act requires the EAA to implement programs (water management practices procedures and methods) to protect the species. Those practices, procedures, and methods are water recharge, regulation of withdrawals, etc. These actions were not specifically defined by SB3, but the EAA still has to implement them. The EAA has all power to do that (not some, or any, but all). Legislature gave the authority express legal authority to build any kind of recharge structure.

For recharge projects, water may be drawn from the aquifer in excess of the cap.
The exact nature of the legal authority will depend on two things: the type of project and the sponsor. If the project is a recharge project having the primary purpose of protecting spring flow and the project is not an Authority project, it is legal to make withdrawals over 572. The same authority applies if it's not an EAA project.

If the project is a non-recharge project that somehow benefits spring flow for species, whether Authority or non authority, pumping above 572 is legal. If a project doesn't have at it's primary purpose the maintenance of spring flow, but protects species, the authority can't pump over 572.

There are several entities that could do these projects besides the EAA: individuals, corporations, political subdivisions, stage government, and federal government.

EAA has legal authority to take water and put it in the storage devices for recharge to the springs without compensating for the water. This may obviate concerns about how you move water from one location to another location a long distance away from the original location. With this new understanding of EAA's ability to pump beyond the cap, it is feasible to take the water from near the storage device, obviating the need for expensive pipelines. This could be done without any change in the existing law. You can minimize if not avoid much of the cost of water. You can avoid some of the cost of expensive transportation systems. Third, it's legally feasibly.

To pump under term permits, the aquifer must be over 650 at J17. This analysis is reconnaissance level and is not intended to provide specific or detailed guidance

DAY 2

Options Discussion

The following were comments on the various options in the sample options chart.

Option 1 – Getting water directly to the springs

- Spring supplementation should be more than just putting water into the spring or into a crack near a spring, it's also the idea of replacing pumping. Physically there to offset pumping close to the springs. We don't know what that radius is. Pumping groundwater in San Marcos (and New Braunfels) is limited, and reducing that pumping will not be significant at the springs. Others think this issue gets more at the need to diversify supply aquifer wide. There's a need for more information.
- On all of these issues, we need to look at consequences and potential risks. One suggestion is to expand this Sample Options list to include a column or designation for risk.
- There is an option to put water in Canyon Lake, and there are ways to get that water to water treatment plants. When the aquifer is full, there may not be room in the lake to pump Edwards water into the lake for storage, but it may be useful to look at that lifecycle to see when the lake is full and when it is not. There may be value in using a surface storage entity and treatment facilities that have already been constructed. There may be legal challenges with this, but there may be value in exploring this option. Other examples of using structures that have been constructed (or will be constructed) are flood control devices in Comal and Medina Lake.

Option 2 - Recharge

- Need to add all recharge options within Region L and flesh those out as we move along. Lower Blanco recharge project offers the dual purpose as options for generating water that could be stored. Brush management should be tied to rangeland management or watershed restoration. Land Stewardship is separate.

Option 3 – Minimization and Mitigation

Option 4 - Other

- Request that USGS put together a plan for what would be required to improve the gauges – a separate study might not be required. There may be an adaptive management approach that continues to refine the gauging.

Option 7 - Comment and questions

- Since there are two items about CPM, we should look at the CPM rules. The rules may not allow, in a timely manner, you to see whether you've done what you need to

do. Some evaluation is needed on the effectiveness of enforcement. Want to be sure that something in a proposed covered action isn't prohibited in the CPM rules.

- "Reasonably certain to occur" is necessary with the dry year option, more so than perhaps the others since all of the options need to have some certainty of occurring. The dry year option was tried in the past. The notion of voluntary is what makes it work for farmers – they can make a business decision. There has to be some certainty, not just that there will be a dry year option, but also to what degree does the option will go. A lot of people are interested in the idea but we need to have some discussion on it. There is a 1997 report that analyzes the effectiveness of a dry year option. We want to make sure the agricultural interests are present to discuss how the details could be worked out.
- Does 7.1 include the idea of buying down pumping rights?
- There was discussion regarding military bases, and whether it would be appropriate to ask the base to participate in the process. IF this process comes out with a permit for longer timeframe than the military permitting process is for their base, the EARIP could help the base with the base's own plan.

Option 8 – Recharge Enhancement

- The consultant's study should include the development of operation rules (how do you direct the water from the storage units to the specific locations/springs).

Option 9 – Increase water quantity in the aquifer

- The intent of 9.4 is not to put another straw in the aquifer. It is to move some of the straws further from the springs.

Drought Management – Conservation Presentation

Karen Guz of SAWS described the SAWS conservation department's goal to change behavior – specifically, the general public's water consumption behavior. There has been a shift in the public's attitude toward water use in last 10-15 years. San Antonio uses a tiered system to reduce water use during drought. Other regions have tried to prolong action until the point where they ban uses, with unsuccessful results in their aquifers. San Antonio has a lot to share with other regions on water conservation.

The year round conservation rules and drought rules now apply to the full ETJ, regardless of source (Canyon Lake water, ground water, etc.). Treated effluent water is an exception and has its own rules. There have been focused efforts to work with stakeholders, both passing the city ordinances that created the conservation rules as well as implementation of the rules (builders, realtors, irrigators, powerwashers, etc.).

The bulk of savings comes from lawn water. Must of the ruled focus on lawn watering, and the tiered water use reductions affect the frequency and length of lawn watering. Customers

responded quickly to the new trigger and complied with the State? 2 rules. If they'd had to go to Stage 3, they think they would have gotten compliance and achieved the cutbacks required.

When considering "raising the bar" for their conservation programs, one participant asked if SAWS considered going into Stage 1 restrictions year-round (maybe they wouldn't be called Stage 1 at that point). SAWS currently tells people that watering once a week is enough. People who use above ground hoses, or "hose draggers," always use less water, and if they are told to water specific times on specific days, they will likely switch to irrigation systems which use more water. SAWS currently encourages tree watering systems (bubbles), drip irrigation systems, and xeroscapes.

Karen shared SAWS plans for reevaluating rate structures to address users who use more than SAWS think is needed for commercial and residential users. They will still be able to use more than the average amount of water, but it will become more expensive for those users to use excess water. In the near future, conservation efforts by all users – commercial, industrial, redidential, and recycled water clients – will be part of the SAWS conservation strategy.

Miscellaneous issues

Meeting feedback concerning providing documents to members. Participants would like to have meetings on Tuesday or later in the week so there is lead-time to review documents before the meeting. Robert and the facilitation team recognize that documents should be provided earlier that has been done in some circumstances.

Next steps

Schedule:

- *Additional Studies* (early February): further scope work
- *February 16, Tuesday, GBRA, 9 - 4*: one day for EARIP business, future meeting dates, Uvalde presentation, scopes of work
- *February:* work sessions on implications of storage options and Ecological Restoration Subcommittee
- *February 18:* Biological modeling meeting
- *Early March (11th?)*: work session on HDR (or one of the above) and engineering analysis of options
- *March 22*: DC FWS meeting for interested parties
- *In*-Between: Must learn about work prior to April 8,9.
- *April 8,9:* EARIP meeting to bring together various work and begin serious choice-making

We need most of our time to make decisions. April 8th meeting needs to be productive, so if you don't go to some of the work sessions offered during March, follow the emailed documents distributed to catch up to the group prior to the April meeting.

Meeting Assessment