

MEMORANDUM

TO: EARIP Steering Committee Members and Stakeholders

FROM: Robert L. Gulley

DATE: October 18, 2010

SUBJECT: Support Information for the October 21, 2010 EARIP Meeting

INTRODUCTION

At the September 23 and 24 meeting, the EARIP made significant progress with respect to a phased approach to implementing the Habitat Conservation Plan (“HCP”), the minimum flow requirements, and a “bottom up” package of actions to enhance springflow during a severe drought. As discussed below, it is important that the EARIP makes further progress with respect to the “bottom up” package we discussed on September 24.

This memorandum sets out the tentative agreements the EARIP reached on September 23-24, provides additional information developed after that meeting, and sets out a plan for the remainder of the year if we are successful in reaching consensus on the “bottom up” package.

I. Phased Approach to the Implementation of the Habitat Conservation Plan

A. Tentative Agreements and Understandings

The EARIP strongly supported the use of a phased approach to implementing the HCP. The essential elements of that approach, and the understandings reached, at the September 23 EARIP meeting, are outlined below.

1. The term of the Incidental Take Permit will be 15-to-25 years.
2. The permit term will be divided into three phases:
 - a. Initial Adaptive Management Phase (discussed below)
 - (1) Implementation of a package of actions to protect springflow, mitigation measures, monitoring, and Initial Adaptive Management Process (Years 0-7).
 - b. Implementation of Long-Term Measures (discussed below)
 - (1) If needed, implementation of a long-term solution that will attain springflows determined through the adaptive management

process (probably an Aquifer Storage and Recovery (“ASR”) facility).

c. Monitoring and further adaptive management.

3. Initial Adaptive Management Phase

a. All restoration, minimization and mitigation measures will be in place or implemented promptly on the issuance of the permit. *See Attachment 1 for a list of measures that have been tentatively agreed to by the EARIP.*

b. The “bottom up” package of actions will begin to be implemented immediately upon issuance of the permit.

c. The Initial Adaptive Management Process will include:

- monitoring the effectiveness of the actions and measures implemented;
- conducting a long-term bio-monitoring program;
- making any adjustments needed to maintain effective actions and measures;
- designing and overseeing studies in the Old Channel Environmental Restoration and Protection Study Area;
- updating the MOD-FLOW model;
- setting long-term springflow levels based on the results of the adaptive management process; and
- deciding whether additional actions are needed to achieve the long-term flow levels and, if so, what actions are needed.

4. Implementation of Long-Term Measures

a. The HCP and Implementing Agreement will contain a commitment to begin implementing by Year-8 of the permit actions needed to achieve the springflows determined by the Initial Adaptive Management Process.

5. The phased process will require the EARIP to continue at least through Initial Adaptive Management Phase, although meetings are likely to be less frequent than monthly meetings.

B. Additional Information and Recommendations

I do not believe that any additional work on this issue is required at this time. After we determine whether a “bottom up” package can be put together that the EARIP believes will meet issuance criteria in the short term, it will be necessary to reach consensus on the phased

approach. If the EARIP decides to proceed with this approach, then it will need to spend some time fine tuning the specifics of the approach.

II. Continuous Minimum Springflows

A. Tentative Agreements and Understandings

The EARIP reached consensus that the following minimum flows should be used for the evaluation of actions for the HCP:

Comal Springs

- 30 cfs monthly average
- 30 cfs daily average
- 50 cfs daily average

San Marcos Springs

- 45 cfs monthly average
- 45 cfs daily average
- 65 cfs daily average

No agreement has been reached regarding how a daily average would be converted to a monthly average. HDR has suggested a conversion factor that takes the mean of the 30-day rolling monthly average minus the 30-day minimum flow. This yields a 16 cfs conversion factor for Comal Springs and an 8 cfs conversion factor for San Marcos Springs that would be applied to each of the daily averages above.¹

B. Additional Information and Recommendations

The members of the Science Subcommittee have provided their comments on Thom Hardy's presentation on the minimally protective flows at Comal and San Marcos springs. http://earip.tamu.edu/EARIPMeetings/Oct2110/10-06-10%20Hardy_comments_w_Brandt_Waugh.pdf

Thom Hardy has agreed to have his draft final report by October 31, 2010. That report will provide an analysis of a full range of flows -- not simply the flows he identified as being the minimally protective flows. In addition, Thom has told me that the report will also address the issue of how the habitat will respond to biological pulses of 80 cfs for a period of several months.

Ed Oborny will finalize his report on ERPA's within two weeks of receiving the Hardy report. I have asked Robert Mace to set up a review and comment of both documents by the

¹ Alternatively, one could use the median of the 30-day rolling monthly average minus the 30-day minimum flow. This would yield a 12 cfs conversion factor for Comal Springs and an 8 cfs conversion factor for San Marcos Springs.

members of the Science Subcommittee as soon as they are complete. I doubt that all of this will be done before the November 11 meeting. **Thus, I recommend that the EARIP delay any further discussion of the minimum flow issue until the December meeting.** I believe the tentative decisions the EARIP has reached along with the biological reports will be sufficient to allow the consultants to proceed for now.

The region has grown used to thinking in terms of “jeopardy numbers.” But the real focus should be on the overall biological risk posed to the listed species by a set of actions and mitigation and minimization measures. In the end, the biological risks posed at lower flow levels may relate to a range of flows rather than a single flow level. If so, specific flow levels may be more important in sizing the long-term solution to ensure that unacceptable risks are not realized than in defining those risks. If the EARIP continues with the phased implementation of the HCP, our time may be better spent now in understanding and discussing the biological risks and their sources than in arguing about a specific flow target.

III. “Bottom Up” Approach

The EARIP has tentatively agreed to use a “bottom up” approach in putting together the actions for the HCP.

As originally conceived, the “bottom up” approach would stack up projects that involved only administrative actions, such as the dry-year option, or other actions that involve less cost than the construction of an engineered solution such as a large ASR. This approach would have allowed the EARIP to identify any “gap” that had to be filled to achieve minimum flows. As a result, it was thought that a much smaller, less expensive engineered solution (*e.g.*, a smaller ASR) would be needed to attain the minimum flow targets.

It is my sense that the EARIP gravitated to the phased approach for the HCP because of: concerns regarding the efficacy of the MOD-FLOW model, difficulties in reaching consensus on minimum flow targets, and about possibly spending money unnecessarily.²

In the context of the phased implementation of the HCP, the “bottom up” approach stacks up a “package” of actions that allows the species to be protected while decisions are made during the Initial Adaptive Management Process and commits to closing any “gap” identified during that process. This approach obviates having to decide on final springflow levels now and, thus, also puts off identifying a specific action to close the “gap.” Importantly, this phased approach allows the EARIP to learn as its goes, taking key actions now, and adjusting those actions through experience and further information.

A. Tentative Agreements and Understandings

The EARIP reached consensus on asking HDR to evaluate the contributions to springflow of the following actions:

² Karl Dreher pointed out to me that business process decision-making often uses a very similar approach which is referred to as “No Regrets Incremental Protective Measure Implementation.” I agree with Karl that this title aptly, and perhaps more professionally, describes the approach the EARIP is using.

- Dry-year option;³
- Conservation Measures;
- Brush management above the Canyon Reservoir;
- Expanded use of the SAWS ASR with the trade-off option (discussed below); and
- Emergency Stage V Critical Period Management (“CPM”) pumping reductions to 320,000 acre-feet (discussed below).

The EARIP also agreed to at least discuss the use of wells near the SAWS Naco facility (in addition to the SAWS ASR with a trade-off option) and Type II recharge facilities in considering the “bottom up” package although HDR will not specifically analyze them as part of the “bottom up” package at this time.

1. SAWS ASR with the Trade Off Option

With respect to the SAWS ASR with the trade off option, 50,000 acre-feet of Edwards Aquifer water would be obtained by leasing Edwards Aquifer irrigation permits and/or using 1.14(h) water. This water would be stored in the existing SAWS Twin Oaks ASR facility and delivered into SAWS water distribution system during severe drought to reduce or off-set SAWS’ pumping of the Edwards Aquifer by an equal amount.

2. Emergency Stage V Reduction in CPM Floor

With respect to the possibility of a Stage V reduction in the CPM floor to 320,000 acre-feet, the following understandings were reached.

- Stage V is intended to be a reduction that is triggered only when other measures have not proven sufficiently effective in maintaining springflow during a severe drought.
- Any reductions in pumping under Stage V will be accompanied by measures to ameliorate the effects on small communities and agriculture.
 - One such measure may be to lease some of the water obtained for refilling the SAWS’ ASR facility to those permit holders that can demonstrate hardship that prevents them from obtaining additional sources of water.
 - A second measure may be to extend the dry-year option to Uvalde County. This would not only provide additional springflow during severe drought but and would also allow irrigators that voluntarily opt in to the program to have the same “insurance policy” against Stage V as the irrigators will be offered in Bexar and Medina counties.

B. Additional Information and Recommendations

1. HDR’s Analysis of the “Bottom Up” Package

³ The Dry-Year Option Work Group has suggested that, going forward, the dry-year option should be referred to as the Irrigation Suspension Program Option or “ISPO.”

HDR will report on its analysis of the “bottom up” package on October 21, 2010.

a. Elements in HDR’s Analysis

HDR’s analysis will include some different elements from that which was discussed at the September 24 meeting. As requested by the EARIP, the Dry-Year Option Work Group met on October 8, 2010, to discuss the EARIP’s request that it determine if the dry-year option program could be expanded. The Work Group will recommend, at the October 21 meeting, leaving the program as a ten-year program but expanding the program from 20,000 acre-feet to 40,000 acre-feet. The program would target 5,000 acre-feet from Bexar County, 20,000 acre-feet from Medina County, and 15,000 acre-feet from Uvalde County.⁴ Accordingly, HDR will model this expanded dry-year option in the “bottom up” package.

In addition, subsequent to the September 23-24 meeting, while preparing for a meeting with the TCEQ on the brush management-Canyon Reservoir option, a number of significant, unanticipated obstacles were identified to permitting this action. As a result, the meeting with TCEQ was postponed to allow the Rangeland Restoration Work Group to better understand all of the issues before meeting with TCEQ.

The Rangeland Restoration Work Group is working to determine if the obstacles can be overcome. As a first step, Steve Raabe, Kirby Brown, and I are meeting on October 21 with GBRA that holds the surface water permit for the Canyon Reservoir. The obstacles that have been identified would not preclude, and, indeed, may argue in favor of, the inclusion of the project in the HCP as a demonstration project for the Initial Adaptive Management Process rather than as part of the “bottom up” package. For all of these reasons, HDR will not include the brush management-Canyon Reservoir option in its analysis for October 21.

Finally, the EARIP tentatively approved two programs recommended by the Conservation Work Group for analysis in the “bottom-up” package: an Agricultural Program and Combined Component 3 in the Voluntary Dedicated Water Supply Program. See “White Paper-Water Conservation Program” <http://earip.tamu.edu/EARIPMeetings/Sep0910/09-03-10%20Attachment%202%20Conservation%20Work%20Group%20Recommendations.pdf> Because of concerns with double counting, HDR will not analyze the benefits of the Agricultural Program unless this concern can be resolved.

In summary, HDR’s presentation on October 21 will include the following elements:

- Expanded dry-year option;
- Purveyor conservation measures;
- Expanded use of the SAWS ASR with trade-off option; and
- Emergency Stage V CPM pumping reductions to 320,000 acre-feet.

HDR’s technical assumptions for these elements are attached as Attachment 2. HDR will be prepared on October 21 to provide some insight on how the inclusion of the Type II structures,

⁴ http://earip.tamu.edu/EARIPMeetings/Oct2110/10-15-10%20Attachment%203_%20Dry-Year%20Option%20Work%20Group%20Report.pdf .

SAWS ASR Naco option, brush-management-Canyon Reservoir and agricultural conservation program might impact springflows if included in the package.

b. Triggers for the Analysis of the Emergency Stage V Reductions.

HDR will use a J-17 water level of 625 feet-msl as the trigger for Stage V in the San Antonio pool. This water level has occurred only 4 times since 1947. *See* Attachment 3. Moreover, not all of those periods were long enough to have actually triggered the proposed Stage V CPM reductions. Further, all of those occurrences were before a Critical Period Management plan was in place.

There was no discussion on September 23-24 regarding whether or not the trigger for the Uvalde pool would be based on J-27 or J-17. If J-27 well is used, HDR has suggested using 840 feet-msl as the trigger level. Since 1947, that water level in J-27 has only occurred during the depth of the drought of record. *See* Attachment 4.

HDR’s analysis on October 21 will evaluate the contribution to springflow for this action using both the J-17 and J-27 triggers for the Uvalde pool. HDR will be prepared on October 21 to discuss differences in the impacts of triggers on CPM in the Uvalde pool.

2. Background for the Discussions on October 21.

To assist you in your preparations for the meeting, Table 1 below is an example of what a complete set of actions including the “bottom up” package being analyzed by HDR might look like. It includes the current cost estimates for the actions. A note of caution, HDR is reanalyzing the cost estimates for the “bottom up” package so those estimates may change.

TABLE 1: POSSIBLE COMPLETE SET OF ACTIONS AND MITIGATION & MINIMIZATION MEASURES INCLUDING THE BOTTOM UP PACKAGE	
Activity	Estimated Annual Cost
Achieve Minimum Flow Requirements Determined through Initial Adaptive Management Process	?
Create CPM Stage V with Floor at 320,000 Acre-Feet	Not Evaluated
SAWS ASR Trade Off	\$ 14,900,000
Purveyor Conservation Program	\$ 2,300,000

Expanded Dry Year Option ⁵	\$ 8,675,206
Measures to Reduce the Impacts of Drought and Enhance the Viability of the Listed Species ⁶	\$ 1,031,000
ERPAs at Comal Springs ⁷	\$ 250,000
Gill Parasite Control ⁸	\$ 25,000
Wild Rice Transplantation and Maintenance at San Marcos Springs ⁹	\$ 25,000
NFH&TC Refugia ¹⁰	?
LID/Water Quality	?
	\$ 27,206,206 ¹¹

OTHER ACTIONS THAT MAY BE CONSIDERED FOR INCLUSION IN THE "BOTTOM UP" PACKAGE	
Wells from Naco to Injection Site	\$ 22,964,000
Ag Conservation Program ¹²	\$ 780,000
Type II Recharge Facilities	\$ 12,847,000
Brush Mgmt - Canyon Reservoir	\$ 8,800,000

The EARIP should attempt to reach agreement on an initial “bottom up” package on October 21 because, even after this decision is made, it will take significant time to determine whether it is truly a viable package.

To keep the EARIP on schedule, RECON plans to have a draft of the HCP available for comment by the end of January. The EARIP needs to facilitate RECON’s ability to achieve this goal. If changes are made to the package HDR is analyzing, the new package will need to be evaluated by HDR. In addition, to learn whether this package will be adequately protective over the initial phase of the permit, it will need to be reviewed by Hardy and Oborny and the Science

⁵ The estimated annualized costs range from \$8.1 million to \$10.2 million depending on the number of subscribers in the 5- and 10- year options. The estimate here assumes that 75 percent of the subscribers initially subscribe to the 5-year option.

⁶ \$6,185,000 in additional initial costs. See <http://earip.tamu.edu/EARIPMeetings/Sep0910/09-03-10%20Attachment%205%20Ecosystem%20RestorationSubcommittee%20Final%20Report.ppt.pdf>

⁷ \$2,500,000 in additional initial costs

⁸ Estimated \$50,000 in additional initial costs

⁹ Estimated \$225,000 in additional costs for the first two years for a pilot study with an additional \$25,000 in costs for the next 3 years.

¹⁰ The Refugia Work Group met with Tom Brandt on October 14, 2010, to discuss the Service’s proposal for setting up and maintaining refugia at its National Fish Hatchery & Training Center (“NFH&TC”). At the request of the Work Group, Tom is reworking some of the cost estimates. The Work Group will report on its discussions on October 21 and probably make a recommendation on how to proceed with the refugia proposal.

¹¹ Total additional initial costs = \$9,260,000.

¹² This cost estimate assumes that the remaining 70 percent of the costs will be funded through AWEF.

Subcommittee to evaluate the magnitude of the risks posed by the flow levels that will be attained by the “bottom up” package. Finally, RECON also will need to conduct a probabilistic analysis of the likelihood that a severe drought like the drought of record will occur before the long-term solution will be implemented.

It is also important that we get an agreement on a package now because this package is a threshold issue for other issues. For example, the EARIP needs to begin wrestling with the issues related to adaptive management, the thorny issue of “who pays,” and the Implementing Agreement. Meaningful discussion of these issues requires the context of the proposed action. Moreover, it is important that the EARIP begin discussing the possibility of federal funding for the implementation of the HCP. From our earlier discussions with congressional staff, we were told that future discussions of funding would only be meaningful in the context of a specific proposal.

My sense is that the primary obstacle we face in making progress on the “bottom up” package is whether we can reach consensus on the Emergency Stage V reduction.

A preliminary simulation of the Stage V option as a stand-alone action¹³ using the J-27 well as the trigger for the Uvalde pool shows that this option may reduce the number of months below zero at Comal Springs by 11 months and the number of months below 52 cfs at San Marcos Springs by 7 months.¹⁴ As a rough estimate of its benefit to springflow, the Emergency Stage V and the expanded SAWS ASR options alone could result in no months below zero at Comal Springs and a springflow above 52 cfs at San Marcos Springs. With this result, the remaining options would simply contribute a yet-to-be-determined amount to minimum springflow at Comal Springs and to springflow above 52 cfs at San Marcos Springs. This potential benefit is illustrated in Table 2 below.

TABLE 2: POSSIBLE BOTTOM UP ACTION			
Effect on Springflow at San Marcos Springs	Activity	Effect on Springflow at Comal Springs	
Contribute To Any Required Additional Flow	Additional Actions, If Necessary, to Achieve Minimum Flow Requirements Determined Through Adaptive Management	Contribute To Any Required Additional Flow	Phase II of HCP
Maintains Flows Above 52 cfs	Purveyor Conservation	Contribute To Minimum Flows	Phase I of HCP

¹³ HDR is now modeling this option with the other elements. Consistent with its role as an “emergency” option, it will be modeled after the other elements have been simulated.

¹⁴ With the J-17 trigger for the Uvalde pool, this option may reduce the number of months below zero at Comal Springs by 10 months and the number of months below 52 cfs at San Marcos Springs by 6 months

Maintains Flows Above 52 cfs	Expanded Dry Year Option	Contribute To Minimum Flows	
0 mos. Below 52 cfs ¹⁵	SAWS ASR Trade Off	Improve Baseline to 0 mos. below 0	
13 mos. Below 52 cfs	Create CPM Stage V with Floor at 320,000 acre-feet	Improve Baseline to 27 mos. below 0	
20 mos. Below 52 cfs	Baseline S.B. 3 w/ Maximum Allowable Permitted Pumping	38 mos. below 0	

I believe that it will be very difficult for the EARIP to come up with a “bottom up” package that has any reasonable chance of satisfying the issuance criteria, even in the short-term, without this option. **Therefore, if this option is unacceptable, please try to come to the October meeting with alternatives for the package that would satisfy the requirements the EARIP needs to have a viable HCP.**

IV. Future Agendas

If we are successful in making progress on the covered actions, future meetings will focus largely on the actual development of the HCP and draft Environmental Impact Statement and the issue of “who pays.” I believe that the RECON team will play a more prominent role in our meetings and many of our discussions will key off of RECON’s draft documents. I will ask them to give us a status report on the team’s activities at each meeting. Their current plan is to have a draft HCP available for comment by the end of January.

The following are my thoughts on the issues that would be covered in November and December.

Topics for discussion at the November 11, 2010 EARIP meeting at may include:

1. Discussion and decision on the 2011 Project Management Budget.
2. Report from RECON on the status of development of the HCP and draft Environmental Impact Statement.
3. Adaptive Management Plan
 - Proposed structure of an adaptive management plan and a schedule and process for preparing the plan (Fromer)
 - Appoint a Work Group to work with RECON on the Adaptive Management Plan

¹⁵ The simulation of the SAWS ASR with the trade off option shows that this option actually reduces the number of months below 52 cfs at San Marcos Springs by 15 months; thus, the combination of this option and the Emergency Stage V option would bring the simulated springflow at San Marcos Springs to above 52 cfs.

- Appoint a Work Group to work with RECON specifically with respect to the management of recreation at New Braunfels as part of the Adaptive Management Plan.
4. Discussion of draft description of alternatives and preferred alternative (RECON).
 5. Decision on who will be the applicant(s).
 6. Report and Possible Decision on the Covered Species Work Group.
 7. Establishment of Work Groups to work out the details of elements of the “bottom up” package, such as the use of the SAWS ASR.

Topics for discussion at the December 9, 2010 EARIP meeting (at a site to be determined) may include:

1. Report from RECON on the status of development of the HCP and draft Environmental Impact Statement.
2. Minimum Flows
 - Discussion of the final reports from Hardy and Oborny and the SSC comments on the reports.
 - Discussion of the “conversion factor” for going from daily to monthly average flows.
3. Report from the Financing Work Group and initial discussion regarding how to finance the HCP and “who pays.”
4. Report and outline of Adaptive Management Plan (Fromer).
5. Discussion of the Management and Oversight of the HCP (Gulley/Fromer).
 - Establish a Work Group to make recommendations on the management and oversight of the implementation of the HCP.