




To: Roland Ruiz, General Manager

From:  Marc Friberg, Executive Director, External & Regulatory Affairs

Date: May 14, 2019

Subject: Joint Base San Antonio's use of the Edwards Aquifer and its relation to the Edwards Aquifer Habitat Conservation Plan

The purpose of this document is to detail the use by Joint Base San Antonio (JBSA) of the Edwards Aquifer and its relation to the Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan (EARIP HCP or EAHCP), its associated Incidental Take Permit (ITP), and Edwards Aquifer Authority (EAA) rules.

Background: Regulatory Treatment of Federal Use of the Edwards Aquifer - Sovereign Immunity and the Law:

EAA Rules:

Certain Federal facilities within the EAA's jurisdictional boundaries received exempt well status from EAA permitting in 2003. The exemption was provided through rulemaking, based on an assertion by the federal government of sovereign immunity from EAA regulation – specifically, federal Edwards wells qualified for exempt status under EAA rules if the wells were, “located on and operated by, or for the benefit of, a federal facility, and prior to September 1, 2003, the [EAA had] not approved the transfer of ownership of an application for an initial regular permit related to the well from the federal facility to another person.”¹

Endangered Species Act:

While the federal government asserted sovereign immunity from EAA regulation, it could not make such an assertion from the requirements of the federal Endangered Species Act (ESA). Section 7 of the ESA requires that all federal agencies consult with the United States Fish and Wildlife Service (USFWS) to ensure that discretionary federal actions authorized, funded, or carried out by such agencies do not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. Since 1996, the Department of Defense, U.S. Air Force, and the U.S. Army in the San Antonio area have coordinated with USFWS on their endangered species responsibilities. Since that time, three biological opinions have been issued regarding federal facility use of the Edwards Aquifer – in 1999, 2008, and 2013. The focus of this memorandum is on the most recent biological opinion, issued on August 5, 2013, for Fort Sam Houston, Lackland AFB, and Randolph AFB (the JBSA BO).²

Edwards Aquifer Habitat Conservation Plan:

¹ 711.20(a)(4), *Edwards Aquifer Authority Rules*

² Kelly AFB has been privatized; therefore, it is not included in the most recent JBSA BO.

Federal use of the Edwards Aquifer is included in discussions and analyses within the EAHCP regarding exempt withdrawals from the Edwards Aquifer, however such use is not granted incidental take coverage. Under the EAHCP, exempt wells are described as follows:

Exempt wells are those wells that are exempt from the duty to obtain a groundwater withdrawal permit from the EAA and to meter withdrawals. (EAA Act §§ 1.15, 1.16c, and 1.33). A well qualifies for exempt well status if: “(1) it is capable of producing no more than 25,000 gallons of water a day; (2) it will be used solely for domestic or livestock use; and (3) it is not within or serving a subdivision requiring platting; or (4) the well is located on and operated by, or for the benefit of, a federal facility, and prior to September 1, 2003, the EAA has not approved the transfer of ownership of an application for an Initial Regular Permit related to the well from the federal facility to another person.” (EAA Rules §§ 702.1(b)(24) and 71.20). Further, Aquifer withdrawals made from exempt wells are not subject to or limited by the Aquifer-wide withdrawal cap that is discussed above in relation to Initial Regular Permits. However, the EAA requires owners of exempt wells to register the well. In so doing, the EAA can be sure that the well qualifies for exempt status.³

While included in the overall discussions and analyses of exempt well use from the Edwards Aquifer in the EAHCP, exempt federal use is separated from other exempt uses when it comes to incidental take coverage under Section 10(a) of the ESA.⁴ Through the EAHCP, the EAA sought incidental take coverage for its exempt well determinations; however, any “take” of federally listed species resulting from the withdrawal of water from the Edwards Aquifer by a federal entity was specifically excluded as a “covered activity.” Specifically, “Any ‘take’ of federally listed species resulting from withdrawal of water from the Aquifer by a federal entity is not included as a Covered Activity in this HCP.”⁵ Such incidental take coverage is maintained by JBSA through the JBSA BO and the Incidental Take Statement set out therein. This non-coverage in the EAHCP of the incidental take of federally listed species associated with withdrawals from the Edwards Aquifer by federal facilities is expressly stated in the ITP issued by USFWS for the EAHCP.⁶ Therefore, the permittees associated with the EAHCP and its associated ITP are not responsible for “take” associated with the federal activities and, accordingly, have not proposed any Conservation Measures to minimize or mitigate for such take.

Background: Hydrologic Modeling of Federal Use of the Edwards Aquifer in the EAHCP:

Withdrawal amounts:

Recognized withdrawal amounts attributable to federal facilities vary throughout the EAHCP and its appendices. However, from a modeling standpoint, the original MODFLOW (model) pumping assumptions serving as the basis for the EAHCP used 6,907 ac-ft/yr⁷ as the input for federal use, while the updated model used for EAHCP Phase II MODFLOW determinations used 6,000 ac-ft/yr as the input.⁸

³ Section 2.2.1.2, p. 2-4, *Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan* (Nov. 2012).

⁴ Incidental take coverage for federal action is provided by Section 7(b)(4)(B) and (o)(2) (Sec. 1536(b)(4)(B) and (o)(2), 16 U.S.C.) of the ESA.

⁵ *Id.*, Section 2.2.1.2, p. 2-5; and see also Section 2.2, p. 2-2.

⁶ Section F., p. 2, *Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan Incidental Take Permit No. TE-63663A-1* (originally issued 02/05/2013).

⁷ Section 5.8.1, p. 5-44, *Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan* (Nov. 2012).

⁸ Pence, Nathan, Memo to the EAHCP Committees re: SAMP Model Runs Inputs and Assumptions, p. 4 (June 21, 2018).

Over the past 13 years, use reporting from the federal facilities has been somewhat sporadic, but the EAHCP assumptions are conservatively accurate based on the following table of JBSA use:

| Year | JBSA Withdrawals |
|------|------------------|
| 2007 | 6,714 |
| 2008 | 6,714 |
| 2009 | 4,483 |
| 2010 | 4,678 |
| 2011 | 5,160 |
| 2012 | 5,046 |
| 2013 | - |
| 2014 | 5,089 |
| 2015 | - |
| 2016 | - |
| 2017 | - |
| 2018 | - |

Drought response:

Because of the assertion of sovereign immunity and the resulting exemption from EAA rules, federal facilities are not required by state law to follow the EAA's Critical Period Management Plan (CPMP), including its phased implementation of drought withdrawal reductions. However, because each federal facility has its own drought management plan requirements in the JBSA BO, the federal facilities are required by federal law to follow a plan that is closely aligned to that of the EAA's CPMP. For this reason, the EAHCP and associated modeling assumed that federal water use would be reduced during drought conditions by reduction factors equivalent to EAA critical period management.⁹ Accordingly, these drought reductions are specified in the JBSA BO and were also incorporated into EAHCP modelling, hence the use of 6,000 ac-f/yr.

2013 Biological Opinion for Federal Facilities

As mentioned above, this memorandum focuses on the most recent JBSA BO issued on August 5, 2013. The essential federal action associated with the JBSA BO is withdrawal of groundwater to support national security initiatives at JBSA and includes the following:

- JBSA's baseline Edwards Aquifer withdrawal rate of 12,012 acre-feet of groundwater annually when the region is not in any of the five stages of the EAA's Critical Period Management Plan (CPMP); and
- Reduced groundwater withdrawal rates during those periods when the region is in a stage of the EAA's CPMP.

⁹ Section 2.1.2, p. 2-6, *Evaluation of Water Management Programs and Alternatives for Spring Flow Protection*(HDR 2011) (*Appendix K to the Application for an Incidental Take Permit filed with USFWS on Jan. 6, 2012*).

The percent reduction from baseline groundwater use and the monthly maximum groundwater withdrawal rate required under the JBSA BO during each stage of CPMP is provided for in Table 1 of the JBSA BO and can be summarized as follows:

| Critical Period Stage | J-17 (msl)* | Comal Springs (cfs)* | San Marcos Springs (cfs)* | Percent Reduction | Monthly Maximum Withdrawal (acre-feet) |
|------------------------------|--------------------|-----------------------------|----------------------------------|--------------------------|-----------------------------------------------|
| N/A | >660 | >225cfs | >96cfs | 0% | 1,001.00 |
| I | <660 | <225 | <96 | 20% | 800.80 |
| II | <650 | <200 | <80 | 30% | 700.70 |
| III | <640 | <150 | N/A | 35% | 650.65 |
| IV | <630 | <100 | N/A | 40% | 600.60 |
| V | <625 | <45* <40** | N/A | 44% | 560.65 |

* 10 day average

** 3 day average

The time frame covered by the Section 7 consultation for the JBSA BO is through March 31, 2028, which happens to coincide with the end of the EAHCP's ITP (through March 31, 2028),¹⁰ and coverage decisions are largely based on the following three determinations within the JBSA BO:

I.

From 2008 through 2011, the JBSA pumped an average of 4,786 acre-feet per year, or about 39.8 percent of its 12,012 acre-feet per year maximum. During the same period, the average total amount of groundwater pumped from the Edwards Aquifer was 406,200 acre-feet per year. The JBSA's withdrawal averages about 1.2 percent of the total amount of groundwater withdrawn annually from the [Edwards Aquifer].¹¹

II.

Previous analyses associated with the EARIP HCP (HDR Engineering, Inc. et al. 2011) estimated Comal and San Marcos springflows over a 54-year period, including [Drought of Record] conditions. The analyses relied on modeled springflow regime that included Edwards Aquifer use of 6,714 acre-feet per year in Bexar County by JBSA. On average, in recent years, National Fish Hatcheries have averaged less than 300 acre-feet per year. Since this modeled federal pumping rate likely exceeds the current average Federal pumping rate (combined Edwards Aquifer use of JBSA and [USFWS] fish hatcheries), we use the EARIP HCP modeled springflows to conservatively assess the effects of the considered action (JBSA Edwards Aquifer use).¹²

III.

¹⁰ Section 7.a.2, p. 70, *Biological Opinion for Joint Base San Antonio Edwards Aquifer Use*; Consultation No. 02ETAU00-2013-F-0060 (08/05/2013).

¹¹ *Id.*, Section 2, p. 3.

¹² *Id.*, p. 52.

After reviewing the current status, the environmental baseline, the effects of the proposed action and the cumulative effects, it is the [USFWS's] biological opinion that the action, as proposed, is: (1) not likely to jeopardize the continued existence of Texas wild-rice, Peck's cave amphipod, Comal Springs dryopid beetle, Comal Springs riffle beetle, San Marcos gambusia, fountain darter, San Marcos salamander, or Texas blind salamander; and (2) is not likely to destroy or adversely modify designated critical habitat for Texas wild-rice, Peck's cave amphipod, Comal Springs dryopid beetle, Comal Springs dryopid beetle [sic],¹³ San Marcos gambusia, fountain darter, or San Marcos salamander [sic].^{14 15}

Consequently, through the JBSA BO, the USFWS provided JBSA with an incidental take statement for the Peck's cave amphipod, the Comal Springs dryopid beetle, the Comal Springs riffle beetle, the San Marcos gambusia, the fountain darter, and the San Marcos salamander.¹⁶ The USFWS did not anticipate incidental take of the Texas blind salamander. Covered take amounts are summarized as follows and are based on 1.2% of the total take associated with one drought of record event and one non-drought of record low flow event.

| Species | Incidental Take Determination for JBSA Edward Aquifer Use |
|---------------------------------------------------------------------|-----------------------------------------------------------|
| Peck's cave amphipod Comal, surface | 283 |
| Comal Springs dryopid beetle Comal, surface | 26 |
| Comal Springs riffle beetle Comal, surface | 172 |
| Fountain Darters Comal and San Marcos Spring Systems | 19,224 |
| San Marcos salamander Spring Lake and Nearby Areas Downstream | 3,898 |

Questions Presented:

Q1. Does the EAHCP or Incidental Take Permit require modeling of the full baseline amount authorized under the JBSA BO (12,012 acre-feet per year)?

No. EAHCP modeling of exempt withdrawals was predicated on assumed use of the Edwards Aquifer – such modeling was approved by consensus during the EARIP process and by the USFWS through approval of the EAHCP and its associated ITP and through the issuance of the JBSA BO and is considered by USFWS to “conservatively assess the effects of [JBSA Edwards Aquifer use].”

¹³ Although the Comal Springs riffle beetle was referenced above in the same paragraph, at this location USFWS stated Comal Springs dryopid beetle twice and omitted the Comal Springs riffle beetle. It is assumed that the Comal Springs riffle beetle was intended to be included in the discussion regarding critical habitat. *See id.*, p. 67.

¹⁴ Although referenced above in the same paragraph, USFWS omitted the Texas blind salamander at this location. It is assumed in this memo that the Texas blind salamander was intended to be included in the discussion regarding critical habitat. *to See id.*

¹⁵ *Id.*

¹⁶ *Id.*, pp. 69-70.

Q2. Are the EAHCP permittees responsible for the actions of the federal facilities?

No. The EAHCP has incidental take coverage for all exempt uses of the Edwards Aquifer except for exempt uses by federal facilities. The EAHCP specifically excluded incidental take coverage for actions by federal facilities in its request for an Incidental Take Permit and federal use is not included in the EAHCP ITP.¹⁷ Any take associated from the activities of federal facilities is the sole responsibility of JBSA and is accounted for in the JBSA BO.

Q3. What actions does the EAHCP require if actual exempt uses assumed in EAHCP modeling are exceeded?

Non-federal exempt use

In the case of non-federal exempt uses, such a situation is covered under the EAHCP in *Chapter 8: Changed Circumstances, No Surprises, and Other Federal Commitments*. Specifically, Table 8.1 of the EAHCP describes the Changes Circumstance as follow: “Exempt Wells: The EAA registers additional wells exempt from the metering and reporting requirements under the EAA Act (*see* Section 1.33) that cause the amount of actual annual pumping for a particular year or years to exceed the theoretical maximum modeled pumping used for modeling purposes (*see* Section 5.8.1).”¹⁸

In such a situation the proper remedy would be to utilize the adaptive management process “to determine what modifications, if any, are needed to the minimization and mitigation measures such that the anticipated levels if impacts expected in [the EAHCP] and in the event of a recurrence of the drought of record will not be exceeded.”¹⁹

Federal exempt use.

In the case of federal exempt use, there are no Conservation Measures under the EAHCP to address the impacts of such use as federal exempt use is not a Covered Activity under the EAHCP. Instead, incidental take coverage of federal use is provided under the JBSA BO; and therefore, if actual use was to exceed modeled assumptions, additional consultation with and review by the USFWS would be the appropriate course of action. As it relates to the EAHCP, if the assumed amounts of federal exempt use modeled in the EAHCP exceed those amounts at some point, such a circumstance would most likely be considered a changed circumstance not provided for in the EAHCP under Section 8.1.2 and would be subject to the No Surprises Rule. Notably, “[a]ll Covered Species are considered adequately addressed by this HCP for the purposes of the No Surprises Rule.”²⁰ This makes particular sense in light of the fact that any additional take that would occur due to excessive federal exempt use would necessitate additional actions by JBSA which is already covered by the JBSA BO. Specifically, “If during the course of [withdrawal of groundwater to support national security initiatives at JBSA], this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of reasonable and prudent measures provided. The JBSA must immediately provide an explanation of the causes of taking and review with the [USFWS] the need for possible modification of the reasonable and prudent measures [contained in the JBSA BO].”²¹

¹⁷ Section F., p. 2, *Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan Incidental Take Permit No. TE-63663A-1* (originally issued 02/05/2013).

¹⁸ Table 8.1, p. 8-6, *Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan* (Nov. 2012).

¹⁹ *Id.*

²⁰ *Id.*, Section 8.1.2, p. 8-7.

²¹ Section 7.b., p. 71, *Biological Opinion for Joint Base San Antonio Edwards Aquifer Use*; Consultation No. 02ETAU00-2013-F-0060 (08/05/20)