Summary of MAC Comments and District Responses

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Comment ID	HCP Sec.	Commenter	Question	Comment	Date	Response to Comment (Lettered RTCs are provided as supplemental document)
HCP Section 5.2.4 – Take Estimate Methodology						
5-1	5.2	Written comment by Cindy Loeffler and Chad Norris		Chapter 5 Analysis of Impacts Likely to Result from the Takings: It appears that Upper Barton Springs was not included in Take Analysis for Barton Springs salamander. If this is the case please provide an explanation. Was the assumption made that the organisms could move [to] other parts of the system?	4/23/14	The non-lethal harassment/annoyance form of take accompanying habitat loss at UBS was explicitly discussed in Sections 5.2.2 and 5.2.3; additional language has been added elsewhere to these sections to be even more explicit. While the District believes that the ecological setting is such that subterranean migration of the salamander away from UBS does occur, owing to the habitat loss at UBS near the onset of drought conditions, 100% of the UBS population experiences a non-lethal form of take (annoyance, harassment) for almost half of the time. Additional language has been added to Section 5.2.4 to reinforce that the step-wise spreadsheet analysis in this section refers to harm and lethal take due to physiological factors at the perennial spring outlets during drought periods. This would include any organisms from UBS that migrated to the perennial outlets, especially nearby Main Springs. A table summarizing all forms of the estimated take, and an assessment of cumulative take of all forms has also been added in a new subsection 5.2.4.3.
5-2	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	There does not seem to be an understanding of the relationship of DO to the physiology and life history of these aquatic salamanders, which results in an underestimate of take over a 10-month period and the cumulative effects.	4/25/14	See RTC A. Note: The previous take estimate was not over a 10-month period (that was provided to the MAC only for illustration of the mechanics of the spreadsheet), rather over a 3.6-year period in the deepest part of the DOR. The new estimate uses the full 7-year DOR period, and additional language has been added to assert the length of time of both take estimate periods.
5-3	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Method does not use best available, up-to date data and scientific information. DO data are 10 years out of date, thus don't include values from recent droughts of 2009 and 2011.	4/25/14	See RTC B.

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5-4	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Method is not spring site-specific; doesn't include Upper Barton Spring; doesn't include low DO concentrations from Eliza and OMS. Doesn't include site-specific discharge in equations for DO predictions. Site-specific discharge has a direct relationship with DO and will provide better estimate of conditions salamanders will experience in each site. Using combined discharge adds noise to the analysis.	4/25/14	See RTCs A and B. Both the earlier and the new estimate method are spring site-specific and include UBS.
5-5	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Method doesn't include predictions of site-specific discharge under proposed withdrawal limits; these are important for supportable take estimates for each spring site as well as for inferences of cumulative effects at each spring site.	4/25/14	This is a misconception. Section 5.2.4.2 clearly shows outlet-specific DO-discharge relationships. See also RTC B.
5-6	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Method doesn't incorporate complete loss of wetted surface habitat in 2 spring sites (Old Mill and Upper Barton springs) and habitat deterioration in Eliza Spring.	4/25/14	See RTC A.
5-7	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Define "Main other Habitat (Pool)"...does this include the other 3 spring sites? Under worst-case scenario, the other 3 sites will be dry so this represents loss of entire populations.	4/25/14	This terminology is no longer used, so no explanation is now required.
5-8	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	The claim that there is very little DO data at low flow/drought conditions is not accurate.	4/25/14	The statement referred to **extreme** drought conditions, at or below combined flows of less than 14 cfs. That statement is accurate.
5-9	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Method doesn't incorporate progressive decline in population health as drought approaches.	4/25/14	See Tables 5-5 and 5-6 and related discussions in Section 5.2.4.2.1. Method incorporates progressive changes in habitat conditions related to DO changes and pumping as drought not only approaches but deepens. Language has been added to Section 5.2.4.2.3 to address and accommodate sub-lethal effects as drought approaches.

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5-10	5.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Projected population size of < 500 for 20 years (the term of the permit) will result in loss of species viability because of genetic effects of inbreeding, and increases the chance that an unforeseen event will cause extinction that otherwise would not.	4/25/14	The District is not projecting population sizes for any period of time, as no consensus population model exists. There are many other factors that will affect those attributes in the comment beyond those controllable by the District. See also RTC A.
5-11	5.2.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Take is calculated by aggregating the max number of individuals counted at all the spring outlets. Each spring outlet is affected differently under different conditions as stated in 5.2.2 and should be addressed individually.	4/25/14	The outlets have individual DO-discharge relationship established and the take estimates are outlet-specific; they are aggregated only for reporting purposes.
5-12	5.2.3	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	What is average abundance in each spring site for periods of previous drought-stages that limited pumping (38cfs or less) in the past? Using these data would provide better insight into 10-month effects as well as cumulative effects.	4/25/14	As discussed in RTC A, the concept of average abundance for these opportunistic and cryptic species is not meaningful. A drought period of any duration and intensity could start with virtually any number of organisms. The estimate of take made by the District used the abundance values reported in the City's HCP as the initial condition for a 7-year drought, not a 10-month period. In the future, perhaps research using a Monte Carlo (random walk) analysis could provide the type of insight being sought in the comment.
5-13	5.2.3	Written Comments - L. Dries/City of Austin		Line 3041 – Has the City ever claimed the wild population(s) is/are stable?? Without reproduction and recruitment, how is this possible?	4/25/14	The statement is referring to a long-term period with several cycles of abundance and non-abundance of these opportunistic species, not just a short-term period involving non-abundance. Reproduction and recruitment have occurred during periods when more resources are present, which has preserved the species over the millennia.
5-14	5.2.3	Written Comments - L. Dries/City of Austin		Line 3088 - The City's HCP uses monthly mean +1SD density for calculating take, not cumulative salamander abundance. Do we ever use the maxima of the ranges?	4/25/14	Language has been added to correct and clarify the intent of the statement. The City's take estimate is necessarily judged on a different basis than the District's, except for UBS, where the same basis is used by the District and the

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5-15	5.2.3	Written comment by Cindy Loeffler and Chad Norris		Section 5.2.3 Spatial and Temporal Analysis of Take: It appears that only 3.6 years of the drought of record were used rather than the full 7 years. If this is the case please provide an explanation.	4/23/14	A full seven years of the DOR and of the more recent droughts are now included in estimating take. See also RTC A.
5-16	5.2.4	MAC Meeting II – Blue Group	Better Methods Available?	Better methods available? Consider simplified approach using only LC_x concentrations without adjusting assumptions to estimate take based on Period of Record frequency for critical flows.	4/14/14	This is essentially what the new take estimate methodology does. See RTC A
5-17	5.2.4	MAC Meeting II – Blue Group		Better methods available? Update DO/Flow regressions with updated data.	4/14/14	Agreed. See RTC B
5-18	5.2.4	MAC Meeting II – Blue Group	Reasonable Planning Tool?	Does this method provide a reasonable planning tool? Connects pumping (District activity) to take of salamanders.	4/14/14	No response required
5-19	5.2.4	MAC Meeting II – Blue Group	Methodology Strengths	Method Strengths: Includes field data.	4/14/14	No response required
5-20	5.2.4	MAC Meeting II – Blue Group		Method Strengths: Includes Poteet et. al. study.	4/14/14	No response required
5-21	5.2.4	MAC Meeting II – Blue Group	Is Method Appropriate?	Method to estimate possible "take" of covered species is appropriate.	4/14/14	No response required
5-22	5.2.4	MAC Meeting II – Blue Group	Methodology Weaknesses	Method Weaknesses: Data only through 2007.	4/14/14	As noted in RTC B, newly available relevant information from 2007-2014 has now been incorporated.
5-23	5.2.4	MAC Meeting II – Blue Group		Method Weaknesses: No harassment (no Upper Barton Springs).	4/14/14	This is not correct. See Response to Comment 5-1 above.
5-24	5.2.4	MAC Meeting		Method Weaknesses: Too many unsupported	4/14/14	See RTC A.

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		II – Blue Group		assumptions (i.e. 50/50 split to higher DO, 0.1 mg/L higher tolerance for Austin Blind Salamander (ABS), Natality (not recruitment).		
5-25	5.2.4	MAC Meeting II – Blue Group		Method Weaknesses: Unclear if annual or cumulative. CLARIFICATION: Please specify whether you are using an explicit number for take or a percentage of the population, and what time period over which you are assuming this population is taken. Consider using an annual time frame to correspond to reporting requirements.	4/14/14	Clarifications added after 5/12/14 meeting. See RTC C.
5-26	5.2.4	MAC Meeting II – Green Group	General Concerns/ Compliments/ Observations	General concerns/compliments: Could turn one knob on model and come up with a different answer.	4/14/14	This is true of virtually all models. The comparisons between the groundwater management scenarios as to both magnitude and direction, with other factors equal, are the more important aspects of the model-based estimation. The new take estimate methodology also reduces the number of "knobs" that are part of the model.
5-27	5.2.4	MAC Meeting II – Green Group		General concerns/compliments: Has the BAT reviewed this section? Might need a subcommittee.	4/14/14	Members of the former BAT are participating with the District's and MAC's review of this section, and the methodology has been revised in response to MAC reviews. The MAC has the wherewithal to form technical and policy review subcommittees on various aspects of the HCP; language has been added to Section 6.5.1.2 to underscore this possibility.
5-28	5.2.4	MAC Meeting II – Green Group		General concerns/compliments: Might need to seek experts to evaluate this section.	4/14/14	
5-29	5.2.4	MAC Meeting II – Green Group		General concerns/compliments: We do not feel qualified to judge the validity of the methodology used to determine the "take" of covered species.	4/14/14	
5-30	5.2.4	MAC Meeting II – Yellow Group	Reasonable Planning Tool?	Does this method provide a reasonable planning tool? No; no data that salamanders move away from low DO areas.	4/14/14	See RTC A.
5-31	5.2.4	MAC Meeting II – Yellow Group		Does this method provide a reasonable planning tool? Even with all the District's pumping controls and implementing this program to obtain an ITP, the take is still	4/14/14	Paraphrased comment. Take is what it is, and while it is minimized and mitigated, there is no threshold standard for take "acceptability," so long as jeopardy is avoided. More than 60,000

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				high. Is it worth it?		people depend on the Aquifer for water supply. The HCP is the vehicle to allow that supply to be furnished legally. The District obviously believes it is worth it.
5-32	5.2.4	MAC Meeting II – Yellow Group	General Concerns/ Compliments/ Observations	General concerns/compliments: Method to estimate possible take of covered species needs to be more site-specific. CLARIFICATION: The example calculation provided to the MAC was not easy to follow and more information should be provided regarding how the methodology applies at different spring sites, including Upper Barton Springs.	4/14/14	Clarifications added after 5/12/14 meeting. The District agrees that there was some confusion by MAC members as to what the example calculation was. The take estimate has been simplified and additional explanatory language added to Sections 5.2.2, 5.2.3, and 5.2.4. See RTC A.
5-33	5.2.4	MAC Meeting IIIa	Comments Related to Take Estimate Methodology	Can District make a simpler, more direct attempt at estimating take (i.e., simplify the assumptions)? This would potentially allow reporting and mitigation measures to be more focused on actual observed take.	5/12/14	See RTC A
5-34	5.2.4	MAC Meeting IIIa	Comments Related to Take Estimate Methodology	Is it possible and/or feasible to use populations genetics to measure take of these cryptic species over the long term?	5/12/14	The District could consider studies of population genetics as possible long-term research projects under its own incremental adaptive management process, but the current information available does not allow this technique to be used for estimating take in prospect or for measuring it annually.
5-35	5.2.4	MAC Meeting IIIa	Comments Related to Take Estimate Methodology	Consider updating take methodology as more information becomes available and allows it to be improved.	5/12/14	This is the District's intent, and any new such information will be part of the content of each Annual Report. Language is being proposed to the Board to be added to 6.5.1.1 to underscore the commitment to make such updates as warranted.
5-36	5.2.4. 2.1	Written Comments - L. Dries/City of Austin		Is 11.6 cfs total pumpage an annual/daily/monthly/authorized pumpage?	4/25/14	11.6 cfs is the current level of authorized annual pumpage under District-issued permits on an un-curtailed, non-drought condition. The take estimate is based on average monthly apportionments of authorized use that are part

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						of the permit, and then the applicable level of curtailment of those monthly amounts per the indicated-by-modeling drought stage.
5-37	5.2.4.2.1	Written Comments - L. Dries/City of Austin		Fig 5.5 – what is the x-axis?	4/25/14	This is a recurrence frequency distribution graph, and the X-axis shows percentiles (which, in this graph, indicate the percentage of time that the flows at Barton Springs are equal to or less than the springflows on the Y-axis for three groundwater management scenarios.
5-38	5.2.4.2.1	Written Comments - L. Dries/City of Austin		Table 5.7 – assuming that 209% is a typo.	4/25/14	Yes, it's a typo. It should have previously been 20%. All of these numbers are now changed with the new take estimate methodology, to be substantially lower percentages of time. They will be correctly shown in the Proposed Draft HCP.
5-39	5.2.4.2.1	Written Comments - L. Dries/City of Austin		Figure 5.6 should label the springs correctly, singular.	4/25/14	The District uses a different naming convention in its HCP than the City does in its HCP. Language has been added in an explanatory footnote in Section 3.1.2.1. Also, see Response to Comment 5-44 below. However, Eliza and Old Mill should in fact be singular and will be correctly designated in the Proposed Draft HCP.
5-40	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Annual take assumes that populations rebound to pre-drought levels before additional take is incurred regardless of the interval; this isn't supported by the data.	4/25/14	This is not a correct statement. The District is not using an annual basis for estimating take, rather multi-year drought periods. The District also is not estimating populations at different times per se, rather making a comparison of the effects of alternative groundwater management strategies on springflow, hence DO, hence salamander lethality (for the perennial springs). A new take summary subsection (5.2.4.3) has been added to reinforce the temporal and cumulative bases for take estimates.
5-41	5.2.4.2	Written Comments - L. Dries/City of	Comments Related to Take Estimate	Table 5.8: Under this HCP, mortality between no pumping and net take with benefits is still 20% or more for each species. This HCP, with	4/25/14	The commenter is imputing that these are "annual loss" estimates but as explained in the response to Comment 5-40 immediately above

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		Austin	Methodology	conservation measures, would allow 1/5th of each species' populations to be killed annually. When the expected take from environmental conditions (i.e. DO under low flow only) is added, cumulative take is up to 36%, greater than 1/3rd of the population. Recovery from this magnitude of population loss by these salamander species would be very difficult unless subsequent environmental conditions supporting reproduction and recruitment extended for at least 6 consecutive months. A prolonged drought, with short periods of higher rainfall, would result in 36% loss in the population every year until the drought ceased. If there was a prolonged drought (longer than a year), this long-term effect would be catastrophic; the populations would be extirpated and the species extinct within a couple of years. Also, UBS is not even considered in the calculations even though withdrawal affects when and how long UBS is dry.		and in RTC C below, that is not the case. The previous cumulative take estimate was for a 3.6-year period, and the new take estimate is for an even more prolonged drought of 7 years. The latest results indicate that the commenter's pronouncements about "catastrophic effects," "extirpated populations," and "extinct species" are rather hyperbolic and unwarranted. Further, the take here is only specifying the estimated amount of loss of individuals that is allocable to the District's Covered Activities, not (necessarily) a reduction in population by that amount, since some amount of reproduction and recruitment will occur over a 7-year period. With respect to comments about UBS, see Response to Comments 5-1 and 5-40 above.
5-42	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Salamander mortality rate from low DO is in addition to natural background mortality from things like old age, disease, etc. Realized mortality rate during drought is higher than Lethal DO concentrations alone, and this does not appear to be reflected in the methodology. Other factors included in the calculations are either rejected by existing data or there are no supporting data, so consideration of cumulative effects of daily mortality is warranted.	4/25/14	We agree with the comment, but what is being estimated as take here is required to be limited to that part of the total mortality that is attributable not to drought but to the difference in drought conditions attributable to groundwater pumping. Further, to our knowledge, there are no data, experimental or otherwise, that would allow cumulative daily effects of DO reductions to be assessed. In any event, the District does not have daily pumping records to evaluate alternative groundwater management scenarios.
5-43	5.2.4.2	Written Comments - L.	Comments Related to	Population size estimate for E. waterlooens is based on density in surface habitat and area of	4/25/14	Nearly the entire population of ABS is subterranean and not countable, so its

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		Dries/City of Austin	Take Estimate Methodology	designated critical habitat assumes that these salamanders reside in and are evenly distributed throughout the entire area of critical habitat. There are no data to support these assumptions.		population must be inferred with liberal use of some assumptions. Lacking data for counts over the entire range, population estimates must be based on density data provided by the City. Table 11 of the City of Austin's HCP provides an estimate of the density of the Austin blind salamander in the vicinity of the three perennial Barton Springs outlets of 0.005 individuals per square foot. However, this density is based on "incidental occurrences" of this mostly subterranean species, and it seems unlikely that this is representative of the density of the overall population. But if we stipulate that actual density within the aquifer is one-half that because the outlet area acts as a "collector" for individuals that migrate/flushed into the epigean environment, the density of the population in the subterranean habitat is 0.0025 per sf. The Critical Habitat range for the ABS is designated by the FWS to be about 122 acres, but let's further stipulate that only an average one-half of that is actually active habitat at any one time, or 61 acres (2.66 million sf). But on an areal basis, not all of even that active habitat area is inhabitable, because at any given water level, a good part of it is solid rock matrix; so we further stipulate that the areal average proportion (think map view of the water table) that is habitable conduits, fissures, and crevices at a given water-table level, is only 15% of that overall area, or about 399,000 sf. So the corresponding number of individuals would be about 996 individuals, call it 1,000 to the nearest significant digit.
5-44	5.2.4.2	Written Comments - L.	Comments Related to	Salamander Movement to Mitigate for Low DO: In City of Austin and other documents except	4/25/14	As mentioned in Response to Comment 5-39 above, the District and City are using different

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		Dries/City of Austin	Take Estimate Methodology	the USGS, the spring in Barton Springs Pool is called Parthenia Spring, NOT Main Spring. Main Spring is one outlet of Parthenia Spring; there are numerous other outlets (Little Main, Side Spring, Main Fissure, Fissures, Beach 1). These are described in the City's HCP (Dries et al. 2013). Since 2003, all of the salamanders observed in Parthenia Spring were found at the spring outlets. Prior to 2003, less than 10 salamanders were observed in locations distant from the outlet of Parthenia Spring. The assumption that half of salamanders were found in other locations is based on a confusion in terminology and/or incorrect interpretation of the data.		naming conventions, as do other entities. We respect the City's need to specify the various individual fissures and conduits in the spring outlets; but the District doesn't, and doing so would add unnecessary complexity to our HCP. We use Main Springs (plural) as a collective term for the subaqueous outlets in Barton Springs Pool that the City calls Parthenia. We use Eliza Spring (singular) for Eliza/Concession Spring, and Old Mill Spring (singular) for Old Mill/Xenobia/Sunken Garden Spring. The new take estimate methodology does not specify migration of individuals away from the outlets, or some fraction in a less DO-depressed environment, so this point is now moot.
5-45	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	What data source provided DO concentrations from other areas of Barton Springs Pool and where were the measurements taken?	4/25/14	This specification is no longer required in the take estimate, so no response to this comment is now required.
5-46	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	The assumption that half of the population will migrate during drought may also include the implicit assumption that it will return when the drought subsides. Is this correct? There should be some discussion and further elaboration of how the District made the conclusions about movement of salamanders, how the subterranean and surface habitats relate to each other (sources, sinks, refugia, shifting roles?). There should be some analysis of the City's abundance data to examine some of these assumptions to fully flesh out the District's view of the population dynamics of these species to see if it is logically consistent.	4/25/14	With the new take estimate methodology, this is now a moot concern. The District would point out though that the habitat restoration efforts currently underway and to be utilized during extreme drought are designed to increase re-aeration and afford a higher DO environment for salamanders, and that the District is required to consider the baseline environment with all the City's conservation measures in place. Further, abundance and density data for opportunistic and cryptic species are probably not a reliable singular way to judge their behavior.
5-47	5.2.4.2	Written Comments - L.	Comments Related to	Any salamander behavior to escape low DO concentration requires metabolic energy. The	4/25/14	With the new take estimate methodology, this is now a moot concern, and the acceptability of that

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		Dries/City of Austin	Take Estimate Methodology	energy required must be less than the energy acquired after the escape behavior. There are no data or studies presented in this HCP demonstrating that energy gained by movement to other areas will greater than energy required to move. Without scientific support, the assumption is not acceptable.		logical assumption doesn't have to be judged.
5-48	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	When determining take, this HCP states that because the complex is not a closed system the salamanders can relocate. While physical counts of salamanders are not possible within the aquifer itself, we have an idea of what those habitats are like, physiochemically speaking, under low flow conditions by monitoring wells, beneath the concrete floor of Eliza Spring, and within the fissures/large fractures of Parthenia Spring. Have these been assessed to determine that they would make for "better" habitat in low flow conditions than the spring pools and runs where the City of Austin monitors them?	4/25/14	See Response to Comment 5-46 above.
5-49	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	It is important to note that the surface connections between these sites have been altered drastically, if not completely removed, prohibiting surface movement for the salamanders. Has there been any consideration of potential effects of competition for resources between Barton Springs and Austin Blind salamanders when Barton Springs Salamanders are driven underground by drought?	4/25/14	No. While not illogical in prospect, to our knowledge there are no data or analyses to support such an evaluation, one way or another. So it has not been evaluated. The re-aeration projects described in Response to Comment 5-40 above may also be on point here.
5-50	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Take is assumed to occur at or close to spring outlets only. What about Eurycea waterlooensis, which is an aquifer-dwelling species? It is rarely observed at the spring outlets and the depth to which it inhabits the	4/25/14	We agree little is known of the habitat characteristics of ABS. We have made a presumption that the DO concentrations at the outlets are representative of the DO throughout the Critical Habitat, not that take only occurs at

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				aquifer is unknown.		the outlets. Our conceptual model, which is now explained better in the text, is that ABS exists in the subsurface at or near the atmosphere-water table interface in the upper, unconfined portions of the Aquifer. This is conjecture, but would seem to explain the resilience and persistence of ABS.
5-51	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Table 5.6 – It is impossible to have DO concentrations when there is no spring flow, that is, when no water is present. Shouldn't the regression lines go through zero to address this? Again, where are the spring runs and pools that have greater DO than the spring outlets that the salamander populations are moving to?	4/25/14	The Old Mill regressions are logarithmic and go through zero, as the data suggest they could. The available data trends for Main Springs and Eliza Spring do not support that situation. Further, water is present in the Aquifer even when no water is flowing at the outlets, and may be replenished by oxygen in the unconfined zone, where it is in contact with an atmosphere.
5-52	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	What are the other habitat characteristics in locations with higher DO? In Barton Springs Pool, areas distant from Parthenia Spring that may have higher DO also have lower flow velocity at the substrate, more sediment, and less shelter for salamanders. Consequently, these areas are not suitable for salamander residence.	4/25/14	With the new take estimate methodology, the implied concerns here are moot, and no response is now warranted. However, the Response to Comment 5-46 may be of interest.
5-53	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	There is no scientific evidence provided for shifting LC values for ABS. Both species have persisted over time, but we are not adjusting the LC values from the experimentally derived values. The mortality curve is not too conservative, as stated, for a species we know so little about.	4/25/14	With the new take methodology, this concern is now moot, and no response is now warranted.
5-54	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	There is no discussion of cumulative take resulting from the City's HCP permitted take in addition to the proposed take for this HCP. Thus, 26% loss is in addition to background natural mortality and permitted take from City's actions. Thus, actual effects on the	4/25/14	The District's take estimate is only that cumulative increment of loss related specifically to the Covered Activities. However, the cumulative take of the Covered Species by the Covered Activities are identified in a new Section 5.2.4.3 and discussed at a high level in Section

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				species are greater than discussed and should be explicitly considered.		5.3 and will be considered in the jeopardy determination. In addition, we would hope that the City would comply with its plan and suspend its Pool maintenance operations and, during extreme drought conditions, even recreational opportunities, such that the aggregated take is not additive at the most critical times.
5-55	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Effects of annual take don't consider cumulative take if drought periods continue for longer than 10 months.	4/25/14	This is a misconception of the length of the modeled drought period. It was 3.6 years, not 10 months; it is now 7 years. And the District may be required to report cumulative take on a drought by drought basis, not (just) annually.
5-56	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	DO is only approached from direct effects on the salamanders, but it does not account for how it could affect the macroinvertebrate community on which the salamanders rely. By not looking at indirect effects on the salamanders, this HCP is incomplete. Indirect effects, at the very least, should be assessed for cumulative effects. Refer to the City of Austin's HCP for examples of direct and indirect effects.	4/25/14	We agree, and some discussion of such indirect effects will be added to complete the cumulative effects assessment, although as with the City's HCP, this will likely be a more qualitative treatment, especially since the DO impacts on the macroinvertebrate community is rather poorly known. The District would welcome any thoughts as to how these indirect effects might be included in our take analysis and estimate.
5-57	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	There are no data or information to support the assertion that a drought-of-record is unlikely during the term of the permit (pg. 107). This means that two or more consecutive years of drought are not considered in the take estimates.	4/25/14	This is a misconception and an erroneous statement. Section 4.2 states that the 1950s 7-year DOR has been estimated to have a recurrence interval of at least 100 years. That is tantamount to its being unlikely to recur during any 20-year period, including the ITP. The previous and the new take estimates consider not just two consecutive years of drought but 3.6 and 7 years of severe drought, respectively.
5-58	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Does time of year factor in to chemical responses to low flow? Would summer temperatures induce changes in water chemistry during higher flow than winter temperatures?	4/25/14	This is a current area of study by USGS. However, please bear in mind that the amount of pumping will not affect the seasonal influences on water temperature, so it is not part of the take estimate.
5-59	5.2.4.	Written	Comments	The term "natality" doesn't make sense as	4/25/14	This is correct, and as derived the term should

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	2	Comments - L. Dries/City of Austin	Related to Take Estimate Methodology	used in this HCP. Natality is simply birth rate. Entire discussion of "natality" is not consistent with basic principles of population dynamics. The natality factor as described does not include juvenile growth and sexual maturation, and subsequent reproduction as an adult, aka recruitment. It also doesn't appear to incorporate the time necessary for reproduction and recruitment to occur in E. sosorum and E. waterlooensis (4-6 months), which is how population growth occurs.		have been natality+recruitment. However, neither natality nor natality+recruitment is now a consideration in the new take estimate, so concerns about its derivation, quantification, and use are now moot, and do not require a response here.
5-60	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	What population model or equation was used for "natality?" What is assumed average baseline "natality" value? Estimate of "natality" is based entirely on unsupported assumptions not consistent with biology of subject salamander species. What data were used to develop estimates of "natality?"	4/25/14	See Response to Comment 5-59 immediately above.
5-61	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Is there an obvious, demonstrable better method to estimate "take" quantitatively? Please describe or cite example. Yes. Include UBS. Calculate take based on each DO LC values associated with each drought trigger stage for each spring site. Incorporate time periods required for reproduction and juvenile growth to adulthood in estimates.	4/25/14	See Response to Comment 5-1 above for UBS concern, and RTC A below for how the take estimate is linked to DO at individual spring outlets at drought triggers (and at all other times). Recruitment is no longer an explicit term in the take estimate methodology.
5-62	5.2.4.2	Written Comments - L. Dries/City of Austin	Comments Related to Take Estimate Methodology	Assumption that take begins at 21.2 cfs combined BS discharge is not supported by existing data. Take begins when the first spring site goes dry, that is, at ~ 40 cfs when UBS surface habitat is dry. Assess take starting at 40 cfs.	4/25/14	See Response to Comment 5-1 above, and RTC A below. Physiologically based take that ranges from harm to lethality is what begins at about 21 cfs, and that is supported by existing experimental data and hydrologic analyses that are in the HCP. See Response to Comment 5-1 above for how UBS has been addressed.
5-63	5.2.4.2	Written Comments - L.	Comments Related to	Method doesn't quantify sub-lethal effects prior to mortality, such as cessation of	4/25/14	These are not *quantified* because a) there are insufficient data to do that across the range of

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		Dries/City of Austin	Take Estimate Methodology	reproduction, cessation of growth, reduction in prey abundance (see Gillespie 2011), intra- and inter-specific competition, etc.		DOs of interest here, to the best of our knowledge; and b) the physiologically based take that begins at 21 cfs with contravention of NOAEL is assumed to also represent the onset of the sub-lethal effects on these species (except the harassment at UBS, which begins at 40 cfs). This assumption has been stated more forthrightly by amending the language in HCP Section 5.2.4.2.3.
HCP Section 6.2.1 - Direct Conservation Measures						
6-1	6.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Avoidance and minimization measures are inadequate. Most don't actually minimize anything that causes take of endangered salamanders. They are largely education, monitoring, or research. The only measures that minimize take are those that explicitly limit groundwater withdrawal.	4/25/14	See RTC K.
6-2	6.2	Written Comments - L. Dries/City of Austin	Additional Measures?	Site-specific conservation measures could be added. Or at least, describe the intended effects of each measure on each spring site.	4/25/14	As described in Section 3.2.2.2.1, the regulation of pumping as the primary covered activity is not outlet-specific and therefore cannot be practically implemented to discretely manage the effects on a particular outlet. Similarly, the effects of diminishing aquifer conditions during drought are described in Chapter 5 and are more a product of the natural flow regime on which the effects of pumping are overprinted.
6-3	6.2	Written Comments - L. Dries/City of Austin	Additional Measures?	Additional minimization measures could be contribution of resources to flow regime and habitat restoration at Eliza, Old Mill, and Barton Springs Pool in cooperation with COA. Restoration of more natural flow regimes (restored streams, modification of dams, etc.) can help minimize decreases in DO as discharge decreases.	4/25/14	The Board has provided preliminary approval of edits to the draft HCP that would include efforts to restore spring-run habitat to allow improved re-aeration at the spring outlets as an example of supported programs under Research and Mitigation Measure R-1.
6-4	6.2	Written Comments - L.	General Concerns/	Consider adding a DO concentration to discharge thresholds for drought stages that	4/25/14	HCP language that notes that the District will include prevailing DO as an additional factor in

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		Dries/City of Austin	Compliments/ Observations	trigger curtailment (e.g., "Stage 4 threshold of 20 cfs and/or DO less than 3.8 mg/L").		making drought stage declarations is being proposed to the Board for approval. Also see RTCs D and G.
6-5	6.2.1	MAC Meeting II – Blue Group	Additional Measures?	Additional measures to be considered: Tie drought triggers to impact at springs with loss of habitat and DO lethality (40cfs = alarm, 30cfs = critical, 20cfs = exceptional). Link 5-1 and 5-2 to take.	4/14/14	See Response to Comment 6-4 and RTC D and G.
6-6	6.2.1	MAC Meeting II – Blue Group	Measures to Delete?	Are there measures that should be removed from proposed actions: Consolidate education measures? CLARIFICATION: Education components were accounted for in several Conservation Measures. Does it make sense to combine into one Measure?	4/14/14	Clarifications added after 5/12/14 meeting. The Direct HCP Measures follow the performance standards and activities in the District MP. Each of these education initiatives has different targeted audiences: permittees, their end-users of the Aquifer, and the public, including children/future users. The District believes that the differentiation should be maintained in the HCP.
6-7	6.2.1	MAC Meeting II – Blue Group	General Concerns/ Compliments	General concerns/compliments: 4-4 articulate more specific goals with Desired Future Conditions (DFCs) and how will that be achieved.	4/14/14	The GMA joint-regional planning process which is defined by statute (TWC §36.108) is referenced throughout the document, specifically in section 4.1.2.1 and as a commitment in Measure 4-4. The actual DFCs are articulated specifically in Measures 8-1 and 8-2. A new citation that has been added in 4.1.2.1 provides a reference that more specifically describes the GMA planning process to facilitate acquisition of additional information by interested parties.
6-8	6.2.1	MAC Meeting II – Blue Group		General concerns/compliments: 5-5 is a great addition.	4/14/14	No response required
6-9	6.2.1	MAC Meeting II – Blue Group		General concerns/compliments: 50% curtailment may not be practically achievable.	4/14/14	See RTC E.
6-10	6.2.1	MAC Meeting II – Blue		General concerns/compliments: 7-2 is important.	4/14/14	No response required

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		Group				
6-11	6.2.1	MAC Meeting II – Blue Group		General concerns/compliments: Be more specific in research and cooperative measures (clearly defined research topics).	4/14/14	The District has added language to better differentiate the Research projects from Mitigation, to clarify the commitments being made by the District, and to specify the scopes for both. However, the District believes the more specific details of the research program are better left to negotiated ILAs and implementation plans that are not included in the HCP, to preclude the necessity of HCP and ITP amendments if those details must be altered due to exigencies in implementation that aren't able to be defined at the time of application.
6-12	6.2.1	MAC Meeting II – Blue Group		General concerns/compliments: Make drought triggers more flexible based as more data becomes available especially related to flow and DO and salamander distribution.	4/14/14	See Response to Comment 6-4 and RTC D and G.
6-13	6.2.1	MAC Meeting II – Blue Group		Proposed Avoidance and Minimization measures are appropriate – they are adequate within regulatory confines but there is still significant impact.	4/14/14	See RTC K.
6-14	6.2.1	MAC Meeting II – Green Group	Additional Measures?	Additional measures to be considered: Austin should be a partner in reducing pumping by extending service to District jurisdiction.	4/14/14	See RTC L.
6-15	6.2.1	MAC Meeting II – Green Group		Additional measures to be considered: proactive water supply options to minimize impacts of aquifer pumping (no group agreement on this).	4/14/14	See RTC L.
6-16	6.2.1	MAC Meeting II – Green Group	General Concerns/ Compliments	General concerns/compliments: Is a 36% salamander population decline with a DOR acceptable or sustainable?	4/14/14	There is no threshold for take acceptability. Only USFWS judges the impact of the Covered Activities, including the magnitude and likelihood of take on the population, in its Biological Opinion on jeopardy and recovery. It should be noted that the probability of a 7-year DOR recurrence during the 20-year ITP term is a very low, worst-case condition.

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6-17	6.2.1	MAC Meeting II – Green Group		General concerns/compliments: Since the population is not declining as fast as it would otherwise, it meets FWS requirements but could this be a low bar?	4/14/14	See Response to Comment 6-16.
6-18	6.2.1	MAC Meeting II – Green Group		General concerns/compliments: Why did District choose to get an individual ITP rather than working with other entities (such as permitees or other stakeholders/entities) to develop & implement strategies – a RIP type document?	4/14/14	See RTC F.
6-19	6.2.1	MAC Meeting II – Yellow Group	General Concerns/ Compliments	General concerns/compliments: 3-2; can this reasonably be accomplished? Are entities involved willing to participate in this?	4/14/14	See RTC L.
6-20	6.2.1	MAC Meeting II – Yellow Group		General concerns/compliments: Add DO to drought triggers threshold.	4/14/14	See Response to Comment 6-4 and RTC D and G.
6-21	6.2.1	MAC Meeting II – Yellow Group		General concerns/compliments: Address opportunities to pursue ILA with areas outside District jurisdiction	4/14/14	See RTC H.
6-22	6.2.1	MAC Meeting II – Yellow Group		General concerns/compliments: Adjust flow values for each stage of drought. Specify more clearly the flexibility of the Board.	4/14/14	See RTC D.
6-23	6.2.1	MAC Meeting II – Yellow Group		General concerns/compliments: Given SH45SW, is this HCP an academic effort (i.e., SH45SW is likely to harm salamanders)? CLARIFICATION: Is there any way to account for the impacts on the Aquifer and/or Covered Species by a particular project with a prescribed area of impact on the recharge zone? Could you address in the document as Changed Conditions? Does the District have any authority or responsibility to address this issue in the HCP?	4/14/14	Clarifications added after 5/12/14 meeting See RTC I and Response to Comment 7-7.
6-24	6.2.1	MAC Meeting II – Yellow Group		General concerns/compliments: Tremendous amount of education. Does District have enough money for this?	4/14/14	Education and public awareness are central activities of the District and are considered critical to help our permittees to achieve

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						curtailments successfully. We will work with various partners, in both formal and informal arrangements, to leverage our in-house staff and financial resources. Staff has analyzed the proposed measures and feels they can be accomplished within the current budget.
6-25	6.2.1	MAC Meeting IIIa	Comments Related to Drought Triggers and Springflow-DO Relationships	Is it feasible to change the triggers to start triggers a little "sooner" to preserve habitat and prevent certain spring outlets from going completely dry?	5/12/14	See RTC D.
6-26	6.2.1	MAC Meeting IIIa	Comments Related to Drought Triggers and Springflow-DO Relationships	Should the District enumerate DO concentrations in declaration factors that are under the various drought stages and Emergency Response Period?	5/12/14	See Response to Comment 6-4 and RTC D and G.
6-27	6.2.1	MAC Meeting IIIa	Comments Related to Drought Triggers and Springflow-DO Relationships	Can the District set target DO concentrations that are associated with specific flows? Or can they be addressed in other portions of the HCP (e.g., the Changed Circumstances section)?	5/12/14	See Response to Comment 6-4 and RTC D and G.
6-28	6.2.1	MAC Meeting IIIa	Comments Related to Drought Triggers and Springflow-DO Relationships	How easy is it/how much flexibility is there in changing drought triggers? What is the timeframe to do so? Perhaps these could be addressed in the HCP?	5/12/14	See Response to Comment 6-4 and RTC D and G.
6-25	6.2.1	MAC Meeting IIIa	Comments Related To Evaluation of Effectiveness Conservation Measures	How do you define if drought triggers or education is working? What is the measurable end goal or outcome? Should those end-goals/outcomes be stated explicitly in the text?	5/12/14	As a condition of the Production Permits via the User Drought Contingency Plans (UDCP), the District permittees commit to comply with monthly pumping curtailments during District-declared drought, and those results are reported monthly to the District by every permittee. The

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						District monitors compliance by performing monthly evaluations of reported pumping relative to the drought pumping limits prescribed in the permittees' UDCPs. Monthly compliance evaluations are performed both individually and in aggregate, and actions are initiated as specified in the Enforcement Plan, as described in Section 6.5.1.4, and as appropriate for the outcomes achieved each month.
6-29	6.2.1	MAC Meeting IIIa	Comments Related To Evaluation of Effectiveness Conservation Measures	Perhaps you could utilize the Management Plan metrics as measures of success in the HCP?	5/12/14	The District has added language to Table 6-1 in Section 6.2.1 that references in the HCP the corresponding performance standards for the HCP measures; each of the standards have metrics specified in the Management Plan that would serve as indicators of success for specific aspects of the conservation program. But the overall measure of success will be: 1) sustained compliance with the curtailments specified in the User Drought Contingency Plans, and 2) achievement and preservation of the DFCs.
6-30	6.2.1	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Since several measures in this HCP are to provide education, consider using terminology that reflects the concepts that would be helpful for groundwater users to know.	4/25/14	The District regularly uses newsletters, direct mail, educational handouts/fact sheets, emails, blog posts, and social media to supplement and explain the oftentimes complex groundwater concepts (and terminology) that drive District policy and regulatory activities. We have a full-time environmental educator who is very active in the local and regional water conservation and education communities and in public outreach.
6-31	6.2.1	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Under severe and extreme drought, can the district use 2-day averages instead of 10-day averages to better reflect the data collected in the Woods et al. (2010) study? At lowest DO concentrations, all salamanders died within 48 hours.	4/25/14	The comment suggests that pumping reductions can be quickly implemented and affect DO when a drought declaration is made; however, this is not the case. The drought triggers were developed with the notion that actual pumping reductions take weeks to be fully implemented by our permittees once a declaration is made

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						(Board meets every 2 weeks). They are a long-term strategy and do not have immediate effect (see also RTC D and G). The 10-day average is used to help smooth out springflow data that is highly variable (sometimes daily variations of up to 30%) and provides a reasonable predictor of trends—a two day average would not achieve that goal in such a highly variable system and could result in more frequent entering into and exiting out of drought stages. Although the Emergency Response Period (ERP) does allow for the Board to take additional action to mitigate drought impacts, the current DTM (Drought Trigger Methodology) is not explicitly triggered by episodic occurrences of unusually low DO. Such low DO that would kill all the salamanders is beyond the influence of pumping reductions and would need to be addressed under Changed Circumstances. For example, even if springflows were increased from 10 to 11 cfs due to immediate reduction in pumping, that corresponds to ~0.1 mg/L increase in DO according to springflow to DO correlations. More sustained and unexpected DO concentrations related to pumping are, however, addressed in Ch. 7 as a changed circumstance.
6-32	6.2.1.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 2-2: What is a compliance review interval that is meaningful? As written, this could mean once per year, once every 5 years, or weekly. Provide initial compliance review intervals and include text "or" regular intervals that are meaningful to the existing aquifer conditions.	4/25/14	The District interprets "regular intervals" that are "meaningful" to be consistent with the current practices for compliance monitoring as reflected in the 2013 MP. Examples include 1) monthly meter reading reporting, 2) monthly pumping compliance checks during drought, 3) annual pumping compliance checks during non-drought (except for Class C Conditional permits which are always monthly), and 4) permittee

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						well inspections every 5 years. These intervals are prescribed in the 2013 MP but not in the HCP to allow the operational flexibility to make minor adjustments as warranted.
6-33	6.2.1.4	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 4-1: What types of data are included in "sampling and collecting groundwater data?" List type of groundwater data to be collected.	4/25/14	The District takes water samples in order to characterize the water quality and illuminate hydrologic processes such as intra- and inter-aquifer flow, surface-groundwater interaction, and source water areas. Sampling varies from year to year based on the project, funding, and hydrologic conditions. Sample parameters include field parameters, major and minor ions, nutrients, organics (hydrocarbons, VOCs etc), isotopes (stable and radiogenic), and bacteria.
6-34	6.2.1.4	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 4-2: "Evaluate site-specific hydrogeological data…" What does site-specific mean in this context? Particularly sampling wells?	4/25/14	Site-specific hydrologic data is a reference to the use of pumping tests and hydrogeological reports to evaluate the effects of pumping under new permits or certain permit amendments on the surrounding environment, including adjacent wells as required pursuant to District Rule 3-1.4 D. The technical criteria for such tests are described in the District's "Pump Test Guidelines." The report requirements and testing procedures are prescribed in the rules and guidance documents but not in the HCP to allow the operational flexibility to make minor adjustments as warranted without triggering an ITP amendment.
6-35	6.2.1.4	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 4-3: Excellent idea.	4/25/14	No response required
6-36	6.2.1.5	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 5-1: What actions and/or oversight will ensure that drought trigger methodology is science based? Is this a measure to be regularly reviewed by the MAC or other	4/25/14	The District's Board of Directors insists that the District utilize the best science available to inform its policies. To that end, the MAC is welcome to review the DTM and provide

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				advisory group?		comments and suggestions as how it can be improved.
6-37	6.2.1.5	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 5-1 – since individual spring sites respond differently at different conditions, could triggers be related to the first spring to chemically respond to low flow conditions? Or better yet, when habitat starts to go dry? Can UBS be incorporated into the triggers also even though the other three spring sites will not have decreases in DO when UBS starts to recede?	4/25/14	See Response to Comment 6-2 and 6-4. See also RTC D and G.
6-38	6.2.1.5	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 5-2 – Would this cover all permit holders, exempt and non-exempt?	4/25/14	As described in Section 4.1.1.1 of the draft HCP, the proposed Covered Activity only includes production from permitted nonexempt wells. The initial draft of the HCP included pumping from exempt wells, however, it was determined by the Service that it could not be included since exempt wells were not subject to mandatory drought-time curtailments enforceable by the District and therefore, could not be included in the description of proposed Covered Activities.
6-39	6.2.1.5	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 5-4: Excellent idea.	4/25/14	No response required
6-40	6.2.1.7	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 7-1: Excellent. Although, this doesn't increase what would be in storage naturally, because naturally would be what is in storage without any withdrawal. This measure increases what is present given a particular amount of withdrawal.	4/25/14	No response required
6-41	6.2.1.8	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measures 8-1 and 8-2 briefly touch upon the District's legal constraints, but they are not outlined in this HCP. It would be more transparent how the District is limited by State	4/25/14	See Response to Comment 6-7.

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				law if it was actually stated within the document.		
6-42	6.2.1.8	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 8-1: A 7-year average of 49.7 cfs still represents a decrease from the current multidecadal average of 53 cfs. The potential detrimental effects on endangered salamanders and their habitats of this anticipated decrease in average discharge aren't discussed. It would be good to include the expected range of discharge; 6.5cfs as a low is presented, but, what is the predicted high value? What are predicted duration of high and low discharges?	4/25/14	Measures 8-1 and 8-2 reflect the exact wording of the Desired Future Conditions (DFCs) adopted for the freshwater Edwards Aquifer by GMA 10 for the Northern Subdivision of GMA 10 which generally encompasses the Barton Springs segment of the Edwards Aquifer. These DFC expressions cannot be modified without going through the process described in Chapter 36 of the Texas Water Code for DFC adoption which includes concurrence of the member Districts of GMA 10 through a majority vote. The 7-year average discharge DFC is intended to place a cap of the total authorized pumping from the Aquifer, to ensure an acceptable acceleration into drought. The average flows only have take significance to the extent that the extreme drought flows are part of that average. The District cannot control high water levels and springflows. See also Response to Comment 6-7.
6-43	6.2.1.8	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure 8-2: "actual withdrawals….no more than 5.2 cfs on an average annual (curtailed) basis during Extreme Drought, which will produce a minimum spring flow of not less than 6.5 cfs during a recurrence of the drought of record." And if this plan doesn't result in 6.5 cfs, but results in < 6.5 cfs, what then? Might want to change the wording to reflect that this is an expected resulting low discharge given what is known, rather than a certain result.	4/25/14	See Response to Comment 6-42.
HCP Section 6.2.2 – Indirect Conservation Measures						
6-44	6.2.2	MAC Meeting II – Blue Group	Additional Measures?	Additional measures to be considered: Consider adding captive breeding well water supply to permit.	4/14/14	The Austin Nature and Science Center well that provides water for the captive breeding program and refugium is a District permittee and will therefore be covered by the prospective ITP. See

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						also Response to Comment 6-62.
6-45	6.2.2	MAC Meeting II – Blue Group		Additional measures to be considered: Elements of the Interlocal Agreement (ILA) with City of Austin could be added to HCP for more mitigation.	4/14/14	Elements of the ILA between the District and the City have not been finalized, but nearly all of them are in support of one or more minimization measures, research measures, or mitigation measures. The prospective existence and use of the ILA with the City is characterized in Section 6.5.3. The ILA is a stand-alone, legal vehicle for assuring agreed, planned collaboration for implementing conservation measures and commitments identified elsewhere in the HCP. See also RTC L.
6-46	6.2.2	MAC Meeting II – Blue Group		Additional measures to be considered: Use MAC to refine studies, objectives (or technical working groups).	4/14/14	The current review/comment/response cycles are a current expression of this use. The MAC also will have an important continuing function in its annual review and recommendations as to HCP improvements. Language has been recommended to the Board to be added to Section 6.5.1.2 to reinforce this intent.
6-47	6.2.2	MAC Meeting II – Blue Group	General Concerns/ Compliments/ Observations	General concerns/compliments: M-1 is important to link City/District HCP.	4/14/14	No response required
6-48	6.2.2	MAC Meeting II – Blue Group		General concerns/compliments: M-2 may be too late if occurs in extreme drought or Drought of Record (DOR); test engineered augmentation sooner, but use measured approach.	4/14/14	The District believes this is a misconception of the planned activities. The DO Augmentation feasibility study and subsequent demonstration testing will commence, under provisions of the ILA and project implementation plan to be finalized, as soon as feasible after the ITP is issued. If judged feasible, the project elements will be installed as soon as requisite authorizations and funding are available, and the system placed in stand-by mode, perhaps with occasional readiness testing, in anticipation of an ERP or Changed Circumstance declaration. We will add language to clarify that this measure will be initiated long before an Extreme Drought
6-49	6.2.2	MAC Meeting II – Blue Group		Proposed Mitigation measures are appropriate, but start augmentation sooner than extreme drought; infrastructure must be in place before drought.	4/14/14	

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						event occurs.
6-50	6.2.2	MAC Meeting II – Blue Group		Proposed Research measures are appropriate, but need to specify objectives/methods because they are too vague.	4/14/14	See Response to Comment 6-7.
6-51	6.2.2	MAC Meeting II – Yellow Group	General Concerns/ Compliments	General concerns/compliments: Concerns regarding the measurement of DO at sites.	4/14/14	The City of Austin will measure DO on a regular basis at all three spring outlets, in accordance with their own HCP, and as stipulated in the prospective ILA. will report the results to the District on a timely basis for both scientific and regulatory purposes. During extreme drought conditions, the measurement frequency will increase. In addition, one of the research programs will be a more detailed characterization of the temporal and spatial variations of DO in the Aquifer, at the outlets, and at sites proximal to but at some distance away from the outlets. See also Response to Comments 6-53 and 6-56.
6-52	6.2.2	Written comment by Cindy Loeffler and Chad Norris		6.2.2.1 Research Measures: The Draft HCP recognizes additional study is needed regarding two additional sources of groundwater recharge not accounted for in the model: 1) water from the Southern Edwards Aquifer and the Blanco River, and 2) indirect recharge from urban pipelines, excessive watering, etc. We agree and recommend BSEACD also take into consideration the potential for declining long-term average flows at Comal and San Marcos Springs, [as a result of one-third less springflows after EARIP implementation that may affect historical contribution from the Southern Edwards to Barton Springs}. Also, given that at least 20% of the State Water Implementation Fund for Texas (SWIFT) is to be used to fund water conservation, replacing leaking water	4/23/14	The District agrees that these two areas are deserving of continuing the research that has recently documented the potential importance of these recharge sources during extreme low flows. Additional language has been added to Measure R-2 to note that its scope specifically includes these two recharge sources. The amount of water bypassing San Marcos Springs during drought is thought to be very low (<5 cfs). The groundwater is thought to bypass (flow) underneath San Marcos Springs toward Kyle and therefore may be a relatively constant flow compared to the amount discharging at the springs. Urban recharge from leaking pipes (water supply and wastewater) is only a portion of the urban recharge phenomenon. Urban recharge also includes increased permeability and

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				distribution lines may in turn reduce the volume of indirect recharge that is occurring. Both of these issues may effectively reduce the historical recharge to the aquifer.		infiltration, and return irrigation flows that would not be affected significantly by increased conservation funds applied to infrastructure. These latter urban recharge sources are thought to be a relatively recent development corresponding to recent growth trends and are unlikely to be reduced as the population continues to grow.
6-53	6.2.2	Written comment by Cindy Loeffler and Chad Norris		6.2.2.1 Research Measures: The Draft HCP readily acknowledges the need to gather more data on the relationship between total springflow and DO at the spring outlets. Recognizing it is difficult to study because these conditions have not been observed, a plan for studying this relationship should be developed prior to reaching low flows so such a study could be implemented as quickly as possible if conditions are right to study.	4/23/14	The description of Research Measure R-1 has been revised to include support of advancing various relevant scientific studies of the DO in the Aquifer and the DO-springflow relationships at flows lower than currently characterized. At these low flow conditions, the recession curve is very flat and the conditions being studied do not change rapidly, affording adequate time for mobilization and data collection. See also Response to Comment 6-51 and 6-56.
6-54	6.2.2	Written comment by Cindy Loeffler and Chad Norris		6.2.2.1 Research Measures: While there are many life history aspects of the salamanders that are not fully understood, certain aspects warrant research given their ties to degradation of water quality and quantity. Factors such as competition, predation, and food source availability become increasingly important as habitat is reduced. As habitat is reduced, competition and predation are likely to increase. Similarly, reduced water quality and quantity may negatively impact food source populations, which would in turn affect the salamanders.	4/23/14	The District agrees with the comment and the need for additional studies such as those identified. The City of Austin will be conducting such studies as part of its HCP, and under the provisions of the prospective ILA will report research and monitoring undertaken, findings, and conclusions reached at least annually to the District, for assessing the need for either additional studies or revisions of the District's conservation program. This is described in Sections 6.3.1 and 6.5.1.1 in the HCP.
6-55	6.2.2	Written comment by Cindy Loeffler and Chad		6.2.2.2 Mitigation Measures: Please provide more information on the refugium. This is an important part of the Draft HCP given the vulnerability of the species and associated	4/23/14	The District agrees that this is a critical component of Mitigation. After consultation with USFWS and the City of Austin, the District has revised Mitigation Measure M-1 to specify

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		Norris		habitat. If planning assumptions are incorrect or unforeseen conditions occur, refugia may be the only source of re-colonization.		that the District will support the operations of an existing refugium with facilities capable of maintaining backup populations of the Covered Species that would enable preserving the capacity to re-establish the species in the event of the loss of population due to a catastrophic event such as an unexpected cessation of springflow or a hazardous materials spill that decimates the species habitat. Such supplemental support would be provided through a commitment of in-kind, contracted support, and/or cash contributions that would contribute to continuing the study of salamander behavior and conserving wild and captive populations. See also Response to Comments 6-62, 6-64, 6-65, and 6-66.
6-56	6.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Qualitative review of research measures (excessive, appropriate, inadequate). Why? The Research Measures are reasonable but do not include measurement of the biologically relevant variable, DO, in all spring sites. These data are critical for evaluating success of conservation measures.	4/25/14	Research Measure R-1 is phrased to commit to studies including "surveys of the temporal and spatial DO variability of the Aquifer and the surface environments around the Barton Springs complex." While the studies to be supported do not identify measurement of DO at all spring sites specifically, such a study would certainly be included under this measure and could be supported under the HCP. See also response to Comment 6-51, 6-53 and 7-3.
6-57	6.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Using a 7-year average value as a target for average discharge from the Barton Springs complex leaves little time to adjust anything should the mitigation measures be inadequate.	4/25/14	See Response to Comment 6-42. The 7-year average was designed to correspond to the length of the DOR, which is also our reference period for estimating take. There also appears to be a misconception that the 7-year average will only be evaluated once every 7 years, at the end of that period. To the contrary, the 7-year period is more or less continuously evaluated, and its compliance reported both to FWS and to TCEQ

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						annually. Also, the 7-year average is just one of the DFCs; the more critical DFC for minimizing take is the Extreme Drought DFC that is a monthly minimum springflow designation.
6-58	6.2.2	Written Comments - L. Dries/City of Austin	Additional Measures?	Site-specific conservation measures could be added. Or at least, describe measures that will affect each spring site.	4/25/14	See Response to Comment 6-2.
6-59	6.2.2	Written Comments - L. Dries/City of Austin	Additional Measures	Staggered pumping limits...Rotate greatest reductions among users, e.g., on a 30-day schedule?	4/25/14	The framework of the permittees' drought curtailment schedule is based on monthly distribution of the annual permitted volume using percent allocations representative of typical use for a given water use type. This distribution may also be customized by a permittee once/year to reflect pumping demand patterns unique to that permittee. A rotating schedule would not likely comport with these distributions. Further, stakeholders have indicated a clear preference for a curtailment schedule that is equitable among all use types rather than placing too great a burden on any specific use type or at any time of year.
6-60	6.2.2	Written Comments - L. Dries/City of Austin	Additional Measures	Revise existing threshold values for each drought category to be more consistent with successive loss of surface habitat and spring site-specific decreases in DO. This could serve two purposes. It would more closely tie the conservation measure of groundwater withdrawal to biologically meaningful, detrimental changes in habitat. It would also help delay or avoid Exceptional and Emergency stages. Suggestion: No Drought: >40cfs (>38cfs) Stage II: 30-40cfs (20-38cfs) UBS, OMS Stage III: 20-30cfs (14-20cfs) Eliza Stage IV: 14-20cfs (10-14cfs)	4/25/14	See Response to Comment 6-2 and 6-4. See also RTC D and G.

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				Stage V: <14cfs (<10cfs) Parthenia		
6-61	6.2.2.1	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure R-1 – It would be great if the District specified monitoring discharge and DO from individual spring sites within the Barton Springs complex.	4/25/14	See Response to Comment 6-51 and 6-56.
6-62	6..2.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure M-1: Do not limit use of cash contributions to City of Austin to the Austin Salamander Conservation Center refugium.	4/25/14	See Response to Comment 6-55. The Board-approved revision of M-1 now commits the District to supporting an "existing refugium" through in-kind, contracted support, and/or cash contributions. This comment suggests that a more firm source of Aquifer water under the Austin Nature Center Permit with relaxed drought restrictions to provide minimum water needs to maintain refugium populations would be more beneficial to preservation of the species than the pumping curtailments that would otherwise be required. Staff is suggesting that M-1 be revised to include revisions to include "other considerations" in addition to in-kind, contracted support, or cash contributions to allow for support of the refugium through other means. Such revisions will be suggested to be considered by the Board.
6-63	6.2.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure M-2: Include surface DO augmentation because it has already been used by the City of Austin with some success and therefore has a known benefit. Also, include a DO concentration associated with "extreme Drought conditions."	4/25/14	Staff agrees that the measure M-2 shouldn't be so limiting as to exclude a surface DO augmentation project in cooperation with the City if it is proven to be the more effective option. Such revisions will be suggested to be considered by the Board.
6-64	6.2.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure M-1 – Does the District currently provide a cash contribution every 5 years? Would this go directly into a fund for the ASCC or to the BSSCF? Who would determine the use of the funding?	4/25/14	The District does not currently provide a specific cash contribution but does contribute indirectly through a conservation credit to the City which reduces the water use fee paid by Austin Water Utilities. This measure also allows other types of support via contracted support or in-kind contributions. Staff anticipates that if cash

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						contributions were made, the protocol that would dictate the management of those funds would be negotiated. The ILA may be the appropriate vehicle to address future conservation credits and fund management protocol.
6-65	6.2.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure M-1 – The language "a protocol for supporting and conditionally using" the COA captive breeding program is vague. Is the District saying they want to "use" the program as mitigation by contributing financially? What does the District mean by establishing a "protocol" for supporting the program?	4/25/14	See Response to Comment 6-55. Should the District enter into an arrangement to support the City refugium, the details of the arrangement will be negotiated, generally under the auspices and as part of the ILA. See also Response to Comment 6-64.
6-66	6.2.2.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Measure M-1 – Monetary contributions to help support the City of Austin's HCP and Salamander Conservation Program should not be limited to the captive populations and facilities.	4/25/14	Under M-2, the District has also committed other studies related to DO augmentation which may include cash contributions. See also Response to Comment 6-64 that describes indirect cash contributions through conservation credits. These funds are not limited in how they are applied by the City.
HCP Section 7.2 – Changed Circumstances and Responses						
7-1	7.2	MAC Meeting II – Blue Group	Additional Circumstances to Consider?	Additional circumstances to be considered: Consider non-abiotic factors (predation, competition) in addition to DO & TDS (could just refer to City's HCP).	4/14/14	See RTC J.
7-2	7.2	MAC Meeting II – Blue Group		Additional circumstances to be considered: Consider increase in wastewater discharge, further decline in water quality in Contributing Zone in relation to DO, flow relationship.	4/14/14	See RTC J.
7-3	7.2	MAC Meeting II – Blue Group		Additional circumstances to be considered: Dissolved Oxygen (DO) continues to decline at Barton Springs.	4/14/14	The District and the City of Austin will collaborate on a periodic DO monitoring program, and the District will assess and report long-term trends in DO concentrations as to cause and provenance annually to USFWS. The District would address unexpectedly lower DO levels that are reasonably attributable to Aquifer

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						pumping as a Changed Circumstance and take appropriate actions as specified in HCP Section 7.2.2.2. See also Response to Comment 6-51, 6-53, and 6-56.
7-4	7.2	MAC Meeting II – Blue Group		Additional circumstances to be considered: Include cave dwelling Eurycea species (e.g., Blowing Sink) likely to be listed.	4/14/14	After consultation with the USFWS, the District is not aware of any salamander or other species likely to be listed in the ITP Area. However, if any new species was proposed for listing as threatened or endangered in the ITP Area, the District would consider that a Changed Circumstance and take appropriate actions as specified in HCP Section 7.2.2.1.
7-5	7.2	MAC Meeting II – Blue Group	General Concerns/ Compliments/ Observations	General concerns/compliments: Prioritizing measures to be implemented without major amendment to ITP not appropriate in response to loss of funding.	4/14/14	Substantial reductions in the wherewithal for the District to execute the proposed HCP will be considered a Changed Circumstance, and as noted will be addressed in accordance with HCP Section 7.2.2.3. Some such changes, if temporary, may be amenable to prioritization of certain conservation measures in the short term, but it will be the USFWS that will make such a determination and authorize delayed or suspended implementation in such circumstances.
7-6	7.2	MAC Meeting II – Blue Group		Proposed responses for changed circumstances are appropriate.	4/14/14	No response required
7-7	7.2	MAC Meeting II – Yellow Group	General Concerns/ Compliments	General concerns/compliments: SH45SW – consider what would happen if it doesn't adequately address effects on Flint Ridge cave, could cause re-evaluation of HCP.	4/14/14	The District has only the limited authority under its Consent Decree with TxDOT to ensure a BMP approach is used in minimizing those adverse effects. That notwithstanding, any unexpected adverse impacts from effects on Flint Ridge Cave, Brodie Cave, and other discrete recharge features has been added to the list of Other Changes in Circumstances that are addressed in Section 7.2.2.4, and technical and other support of the provisions of the Consent Decree will be

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						proposed to the Board to be identified as part of the new Mitigation Measure M-5. See also RTC I.
7-8	7.2	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	The changed circumstances identified and responses for changed circumstances are inadequate. There doesn't appear to be any clearly specified responses to changed circumstances.	4/25/14	Section 7.2.2 provides a set of Changed Circumstances and District responses. The District HCP can only consider circumstances that are foreseeable in the 20-year term of the ITP and that the District can do something about as Changed Circumstances. See also RTC J. We would welcome the MAC's inputs for other possible Changed Circumstances along with potential District responses.
7-9	7.2.1.6	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	7.2.1.6 first paragraph – population has declined (use most recent data!); population has NOT returned to OMS; UBS is not a stable population and should not be used to show that salamanders migrate when environmental conditions are unfavorable.	4/25/14	The text has been corrected. The District stands by the overall thrust of this paragraph.
7-10	7.2.2.1	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Consider that other populations of Eurycea within the BSEACD jurisdiction may become federally listed in the future.	4/25/14	Neither the District nor the FWS is aware of what is being referred to as "other *Eurycea* populations within the District's jurisdiction that may become listed in the future." Unlike ABS recently, no other species are so close to being listed as to warrant being named as Covered Species in the HCP, to the best of our knowledge. In any event, the listing of new species not covered by our HCP is a specific Changed Circumstance with a proposed response.
7-11	7.3	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Unexpectedly low DO concentration is not an unforeseen circumstance.	4/25/14	This is correct. That is why it is identified as a Changed Circumstance, with a proposed set of responses.
7-12	7.3	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Provide riparian vegetation canopy over spring sites to help buffer water from temperature increases.	4/25/14	This may be a good idea, but it is more appropriate to be a conservation/mitigation measure for the City's HCP rather than the District's HCP, since it would not affect the temperature of the water in the Aquifer

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						discharging at the outlet, is not directly related to the Covered Activity, and would not be a mitigation measure for the District's HCP. Further, the District does not have the authority to provide such cover canopy on City-owned land.
Additional Written Comments on Other Sections Received from Individual MAC Members						
AWC-1	GEN	Written Comments - L. Dries/City of Austin	Does the proposed HCP sufficiently avoid, minimize and mitigate take of the covered species?	No.	4/25/14	Perhaps this response really signifies that the District HCP does not remove all concerns for adverse impacts on the Covered Species over the long term, without regard to the existence or amount of take from the District's proposed Covered Activities. We would agree with that. But we disagree with this as it relates to the specific take being addressed here.
AWC-2	3.2.2	Written comment by Cindy Loeffler and Chad Norris		Section 3.2.2.1.2 Variations in Springflows at Barton Springs: This section references the 2004 Smith and Hunt BSEACD Sustainable Yield Study. How did that study define the Drought of Record (DOR)? When did the simulated flow of less than 1 cfs occur? Was it at the end of the DOR?	4/23/14	The Sustainable Yield Study specifically addressed the drought from 1950 through 1956 as the Drought of Record. The model started with 3 average years and then simulated the 7-year drought period, and this is repeated five times for a 50-year planning period with increasing pumping every year. Simulated flows of less than 1cfs occurred at the end of the DOR when pumping increased above 10 cfs.
AWC-3	3.2.2	Written comment by Cindy Loeffler and Chad Norris		Section 3.2.2.1.2 Variations in Springflows at Barton Springs: Lines 947-958 describe conditions at given flow levels. During the April 14 Management Advisory Committee, Chris Herrington with the City of Austin indicated that the more recent observations of DO-total springflow relationships at Old Mill and Eliza Springs during this drought period unexpectedly differed from the relationships	4/23/14	See RTCs A and B.

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				based on historical observations and that were incorporated in the take estimate methodology. Does this affect any of the assumptions or analysis performed on the individual springs in terms of take estimation?		
AWC-4	6.5.1.2	Written comment by Jason Biemer		6.4, Adaptive Management; 6.5.1.2, MAC: Memorialize, in the adaptive management section, a provision that would require the MAC group to review and make recommendations to the Board any proposed AM response before implementation. Helps ensure that the Board is fully knowledgeable of the different stakeholder concerns prior to implementing.	5/22/14	The District staff already was considering such recommendations to be an implicit part of the MAC's role. Staff will propose to the Board that language be added to Section 6.5.1.2 that more specifically describes roles that might be assigned to the MAC at the discretion of the Board.
AWC-5	6.5.1.4	Written Comments - L. Dries/City of Austin	General Concerns/ Compliments/ Observations	Penalties for violating the District drought rules are all monetary. Could the level of the tiers of over-pumpage be stricter? Are there other options for violations that might be more of a deterrent? Could violation of the rules be viewed as a violation of the Federal Permit? That would make violators subject to federal fines and penalties, which are more stringent.	4/25/14	There seems to be an implicit presumption here that the District's drought management and compliance evaluation/enforcement programs are not effective in eliciting compliance with the mandatory pumping curtailments during District-declared drought. That is not the case. In fact, with few exceptions even during severe drought, permittees on an aggregate basis not only meet the overall curtailment targets but some individual permittees were also observed to have voluntarily curtailed pumping even more than required to protect their water supply. The District's enforcement program and penalties are more than sufficient to elicit compliance, either on a deterrent or as-assessed basis.
General Comments From MAC on Whiteboard						
WB-1		MAC Meeting II – At Large		Workgroups didn't have enough time (in this meeting) to address all comments.	4/14/14	The District scheduled two additional meetings and extended the comment period to provide additional time for MAC inputs and comments on responses. After the first additional meeting (MAC IIIa) on May 12, 2014, the MAC decided

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						another meeting was not necessary, then elected a presiding officer and alternate (Laurie Dries and Chris Herrington, respectively) at which point the MAC became self-directed. The MAC also decided to wait for District staff to respond to the initial set of comments before deciding next steps for the MAC, whether additional comments to the Board are necessary, and in what form to provide that input.
WB-2		MAC Meeting II – At Large		It is unclear on what public hearing process (would attend filing an application for ITP/arriving at a Draft HCP).	4/14/14	At the May 12, 2014 meeting, the District subsequently provided the MAC with a revised timeline that would include a Board-approved public hearing and comment period in late July 2014 before finalizing the Draft HCP and applying for the ITP in August 2014 (dates subject to change). This was further communicated via e-mail to the MAC on May 13, 2014. 6/2/14 Update: At the 6/12/14 meeting, staff will be recommending to the Board that final approval of the draft HCP for public comment be delayed until the meeting of 6/26/14 which allows one addition Board meeting and opportunity for the MAC to provide additional input to the Board. This revised schedule would also push the scheduled public hearing from 7/24/14 to 8/14/14.
WB-3		MAC Meeting II – At Large		There are other factors affecting the pace of completion [What external factors, outside the District's control, have been identified that require some assumptions to be made in establishing the overall schedule of acquiring the ITP?]	4/14/14	See RTC M.
WB-4		MAC Meeting II – At Large		(Should try to avoid) potential short-cutting of the last steps (in a long process).	4/14/14	The District has provided extra time for MAC inputs and for addressing responses to comments such as those in this table before finalizing the Draft HCP. It is the District's intent
WB-5		MAC Meeting II – At Large		(Vetting) process is important; don't short-cut it.	4/14/14	

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						for the MAC to provide a consistent, thoughtful, and robust process for feedback on the HCP/ITP, and is committed to responding to MAC concerns as they may from time to time arise. See also Response to Comment WB-2.
WB-6		MAC Meeting II – At Large		(District should) have these comments handled (and answered) before (submitting to) FWS; they have to address ALL (comments that arise during the public comment period, so it is more time-efficient to do that beforehand).	4/14/14	This table evidences a commitment to address every comment made by the MAC, including revising the technical basis for take estimates and mitigation, and where warranted making associated changes in the HCP document.
WB-7		MAC Meeting II – At Large		Another MAC meeting (may be useful and of interest to attendees).	4/14/14	Agreed. In response to this feedback, the District: 1) prepared this table and accompanying document to summarize comments and District responses, 2) scheduled two additional MAC meetings – only one of which was needed - in which the entire MAC met in plenary session to share comments and discuss responses, 3) extended the comment period to provide additional time for MAC inputs and comments on responses, and 4) provided opportunity for the MAC to comment on responses, as deemed needed, directly to the Board at two additional meetings before Board action to approve the basis for a public hearing on the Proposed Draft HCP. See also Response to Comment WB-2.
WB-8		MAC Meeting II – At Large		(Attendees) enjoyed interacting with others (in workgroups).	4/14/14	
WB-9		MAC Meeting II – At Large		(District) needs to summarize these comments and distribute (to the MAC, before its next meeting).	4/14/14	
WB-10		MAC Meeting II – At Large		(Recommend that in the next meeting, have a plenary) session – not broken out (so broader perspectives are provided to and by everyone).	4/14/14	
WB-11		MAC Meeting IIIa		The review of rate structures called for in the District MP is important to effective conservation.	5/12/14	No response required
WB-12		MAC Meeting IIIa		Has the District contemplated the possibility of floor/ceiling values for the various drought stages specified in the Management Plan being mandated in the HCP by FWS? How is this being addressed in the HCP?	5/12/14	The MP and the HCP are complementary, and one does not take precedence over the other, inasmuch as any discrepancies or inconsistencies would need to be reconciled by amending one, the other, or both. The HCP already specifies in Direct Measure 5-2 the

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						maximum 50% curtailment and the Aquifer condition that triggers that requirement as necessary to support achieving the DFC during Extreme Drought. There is little advantage in also specifying the intermediate drought stages and curtailments in the HCP. As it is now, if some change in intermediate drought stages or their requirements were proposed, that would be a public process to amend the Rules or Management Plan but it would avoid the necessity, cost, and time of a new federal review for amending the HCP if it were also in the HCP.
WB-13		MAC Meeting IIIa		What is the best way for the District Management Plan to be included in the HCP (i.e., full appendix, Executive Summary, a URL, or simply a reference).	5/12/14	The District has added language to Section 6.2.3 that reinforces the complementary relationship between the HCP and the MP, and provides a correspondence relating HCP measures to the relevant 2013 MP performance standards in Table 6-1, to illustrate the nature of the tie between the HCP and MP measures. However, the specific linkages are not central to the HCP, and it is proposed that any changes to the performance standards associated with a particular HCP measure would not per se comprise the need for an HCP/ITP amendment. The District has considered whether to utilize a URL to the then-current approved version of the MP that is always on the District website, or to actually include the entire 2013 MP as a new Appendix. It is worth noting that during the term of the ITP, the MP will likely be revised at least five times, so if it is included as an appendix, it will be out of date about 3 years after ITP issuance. In anticipation of these future MP updates, the HCP will refer to the 2013 MP when referenced to avoid confusion. Accordingly, and to avoid the time and costs of

Summary of MAC Comments and District Responses

Highlighted text denotes staff-suggested revisions in response to MAC comments
Highlighted text denotes revisions that have already been approved preliminarily by the Board

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						possible future requirements concerning potential HCP amendments, the District is choosing to just provide a link to the prevailing version of the approved Management Plan as a governing document. See also Response to Comment 6-29.
WB-14		MAC Meeting IIIa		Is the MAC listed as a Conservation Measure? Should it be?	5/12/14	The MAC is not considered either a Direct Minimization Measure or an Indirect Mitigation Measure, i.e., it isn't really a "conservation measure" per se. However, the HCP commits to utilizing the MAC throughout the ITP Term as an advisory body to the Board, and its role in monitoring, reviewing, and reporting HCP progress, issues, and recommendations is prescribed in the HCP Sections 6.3 and 6.5.1.2.