

**Table #-#. Draft Public Review Comments and Responses to the BSEACD dHCP and dEIS.**

<b>Comments to the Draft HCP</b>			
<b>Review Comment #/Letter Page #<sup>1</sup></b>	<b>Review Comment</b>	<b>Response to Review Comment</b>	<b>Section/Page of Text or Figure/Table Change</b>
<b>Letter 1: City of Austin, Watershed Protection Department (COA)</b>			
COA 1, p.3	The premise of the Habitat Conservation Plan (HCP) is the assumption that only animals within the vicinity of the Barton Springs will be affected by reduction of dissolved oxygen (DO) from Covered Activities. We believe this is incorrect.	This was not an assumption, but earlier direction from the Service, before the extent of the new locales for the BSS became apparent habitat that should no longer be ignored. While the Draft HCP (dHCP) in fact acknowledged the existence of some of these locales for the BSS remote from the Barton Springs complex, the District changed the Final HCP (fHCP) narrative in several places to consider this as additional known ("far-field") endangered-species habitat, even if much more poorly characterized. In particular, the population size and take estimates now include the populations in both the areas near to and remote from the Barton Springs complex.	Executive Summary; 3.1.2, 3.2.2.1, 3.2.2.2, 5.1, 5.1.2.1, 5.2.3.1, Old 7.2.2.4 (now deleted)
COA 2, p.4	The desired future condition of a combined 6.5 cfs discharge from Barton Springs could possibly result in Eliza Spring going dry or stagnant.	Insufficient data exists to quantify this probability; it is also as accurate to say that there is a probability that it will not have this result. Further, provided the COA maintains the normal elevation of water within Barton Springs Pool, which is higher than and hydrologically connected to Eliza Spring (or alternatively supplements Eliza with water from the Pool, as it has done at Eliza during work related to the Pool), Eliza would likely not go dry or stagnant, regardless of combined drought flows. Such surface-augmentation provisions are nominally part of Mitigation Measure M-2 in this HCP, and may be part of the scope of the ILA/MOU with the COA. However, the District made changes to the narrative in the HCP to explicitly acknowledge these uncertainties, including revising and broadening the scope of a Changed Circumstance that would accommodate such unexpected but foreseeable effects.	3.1.2.2,, 7.2.2.2
COA 3, p.4	Although we disagree with the singular focus on DO, we believe the general approach to take calculations using a flow threshold can be a workable approach to estimating a single value of take. However, the method should be extended to include an increase in take (or converted sub-lethal take to lethal take) according to the length of time at given low DO thresholds, for example. Take should not be calculated as a rate per month because low DO conditions are	Comment noted. The District made no revisions to the HCP document. Per direction from the USFWS, "take" is defined as a suite of effects ranging from behavioral changes to lethality and no lethal/non-lethal distinction is clearly defined or necessary as it is all generally defined as "take" for the purposes of take quantification. The take estimate methodology already incorporates these characteristics and properties,	-

	persistent once they occur.		
COA 4, p.5	Because groundwater withdrawal is considered a "covered activity" does this imply that gaining access to that water (drilling) and mechanical extraction of that water (pumping) are also covered activities? If so, the analyses, areas, and take calculations should reflect these actions.	Comment noted. The District made no substantive revisions to the HCP document. The District regulates, manages, and investigates Aquifer groundwater and its pumpage in the ITP Area, which are the Covered Activities, but it does not directly extract Aquifer groundwater in the ITP Area for end use, so it is generally unnecessary to consider that a Covered Activity in this HCP. While the District authorizes non-exempt well drilling and construction under a separate part of its regulatory process, the physical criteria for such approval deal only with spacing between wells and property boundaries, and with well construction details for water quality protection. The decision to drill and the exact location of a well are made by the individual well owners. The improbability of their occurrence in areas away from the outlets notwithstanding, any adverse effects on Covered Species that could be inferred to be generally associated with well drilling and extraction <i>per se</i> are associated solely with the well owners' decisions and actions, and therefore are not the District's Covered Activities. (The only District actions related to well drilling and extraction that are reasonably considered as Covered Activities and therefore potentially creating incidental take are certain mitigation and research activities involving well construction and use by the District, and the analysis and take calculations included that possibility,	-
COA 5, p.5	The Appendices to the dHCP are not provided on regulations.gov, and thus it is not possible to provide a complete review of the official HCP draft without this information.	Comment noted. The District provided the Appendices as Volume 2 to the Service both before and during the comment period, but the Service did not initially include that Volume 2 on the federal regulations website. The Service has since made the supporting information in the Appendices available on its website.	-
COA 6a, p.5	Comment 6a is in response to the dEIS, See dEIS comment section below.	See dEIS response comment 6a below	-
COA 6b, p.6	Comment 6b is in response to the dEIS; see dEIS comment section below.	See dEIS response comment 6b below.	-
COA 7, p.6	dHCP p.27 - Revise Eliza Daylighting project completion to Fall (September) of 2017	The District incorporated changes in the HCP to respond to this comment.	3.2.2.1.1. 5.1.2.1
COA 8, p.6	dHCP p.28 - Map is inaccurate and does not reflect the current habitat boundaries identified in COA's 2013 HCP, as suggested.	The District incorporated a new map provided by the COA and revised the text in the HCP accordingly to respond to this comment.	Figure 3-4, 3.2.2.1.1
COA 9, p.6	dHCP p. 28, Fig 3-4 - Why are Incidental Take Permit areas and USFWS Critical Habitat for ABS different. Explain.	Comment noted. The District made no revisions to the HCP document. The District's ITP Area includes the entire area not only where take occurs (including take in the newly designated BSS habitat remote from Barton Springs) but also where conservation measures are applied. The ABS Critical Habitat Area was previously and separately defined by the Service to delineate areas essential to the conservation of ABS and possibly requiring special management. The Critical Habitat Area for	-

		ABS is included in the ITP Area.	
COA 10, p.6	dHCP p.29, Fig 3-5 - Clarify if this is daily/monthly/annual flows.	The District revised the caption of this figure to specify that the hydrograph depicts daily average flows.	Figure 3-5 in 3.2.2.1.2
COA 11, p.6	dHCP p. 30 - Provide supporting data for statement that monthly mean flows would be very similar to weekly or even daily mean flows during drought.	Comment noted. The District made no revisions to the HCP document. Absent stormflows, historical spring flow data supports the assertion that during a prolonged severe drought there is little change in combined springflows day to day or even week to week.	-
COA 12, p.6	dHCP p. 32, Mentioning that if the Barton Springs Pool downstream dam itself or the gates are damaged by flooding or other means that maintaining water levels in BSP will not be possible which means water levels in Eliza are then unmanageable.	Comment noted. The District made no revisions to the HCP document. The Covered Activities have no causal relation to such circumstances.	-
COA 13, p.6	dHCP p. 37 - "the surface-habitat component of the population for Covered Species is approximated by the observed mean abundance values plus one standard deviation... More recent estimates of the total population available for capture at Eliza Spring (for a given point in time) have been generated by COA. the mean plus one standard deviation of counts may be too conservative of an estimate for the average population size at the surface over an eight-year period.	On the basis of new information provided by the COA since the dHCP was issued, a new population estimate has been developed and language revised in the HCP to differentiate between counts and censuses and between populations and superpopulations in estimating abundance. In turn, the new population size affects the take estimate.	3.2.2.2.1, 5.2.3.1
COA 14, p.7	dHCP p. 37 - The biological rationale for why a blind, cave-dwelling obligate species ( <i>E. waterlooensis</i> ) would be restricted only to areas near the spring outlets is not well founded, and these assumptions influence the calculation of take and assessment of jeopardy (e.g., see comment #1)	While the Critical Habitat Area for the ABS designated by the Service was used, along with other assumptions, to derive the <i>stipulated</i> population of ABS proximal to the outlets, no inference was intended as to a limitation on the extent of the habitat. The District revised the narrative to reinforce the more widespread existence of both ABS and BSS.	3.2.2.2.1, 5.2.3.1
COA 15, p.7	dHCP p. 38 - "But for purposes of the take assessment in this HCP, the population distribution among the outlets is assumed to be related to the quantities (and therefore average flow velocities) of water at the individual outlets, and that this relation increases as combined springflows decrease" It is unclear whether this statement is claiming that population size at each site increases with discharge or average discharge, or whether the proportion of the population size occurring at each outlet changes according to discharge levels. Please clarify and include the justification for making this assessment.	The District revised the narrative in the HCP to clarify why and how the apportionment of the stipulated population was used in the take estimate.	3.2.2.2.1
COA 16, p.7	dHCP p. 40 - Clarify what the season water temperature effects on DO are	The District revised the HCP to respond to the comment. It should be understood that DO changes related to temperature arise primarily from seasonal and episodic effects, not from the Covered Activities <i>per se</i> . Further, during severe drought and critical springflow periods, the temperature variations of springflow and water in the Aquifer are muted.	3.2.2.2.2
COA 17, p.7	dHCP p.41 - After the phrase "... from confined parts of the Aquifer" add " discharge from the springs".	The District revised the HCP to clarify the sentence.	3.2.2.2.2
COA 18, p.7	dHCP p. 43, 2 <sup>nd</sup> paragraph - the phrase "...some stationary and some mobile" is unclear.	The District revised the HCP to clarify this sentence.	DO and Springflow in

			3.2.2.2.2
COA 19, p.7	dHCP p. 43 - Paragraph references DO from datasondes but suggests that there isn't a lot of data for DO at low flows, did analysis examine 2011 drought data when springflows dropped in the mid and low teens comparing DO from datasondes and springflow?	The District revised the HCP to clarify what drought regime the assertion refers to.	DO and Springflow in 3.2.2.2.2
COA 20, p.7	dHCP p. 43 - First sentence of 4 <sup>th</sup> paragraph is confusing and unclear, what "influences"?	The District revised the HCP to clarify this sentence.	DO and Springflow in 3.2.2.2.2
COA 21, p.7	dHCP p. 44 - Clarify the sentence "That salinity variation between average flow and the lowest flows is not much more than the salinity variation in typical flows of the same magnitude."	The District revised the HCP to clarify the meaning of this sentence.	Salinity and Springflow in 3.2.2.2.2
COA 22, p.7	dHCP p. 45 - Specific conductance data shown is only for the main spring and doesn't include Old Mill which has a high percentage of saline inflows	The District revised the HCP to note what outlet the data are for and that it is shown to illustrate the trend, rather than characterize all outlets.	Salinity and Springflow in 3.2.2.2.2
COA 23, p.7	dHCP p. 75 - Does not mention identification of Barton Springs salamanders at sites other than the 4 Barton springs locations.	Comment noted. This is not correct, as other locations are mentioned in this subsection and now elsewhere in the HCP, particularly in defining the far-field population of BSS. See RTC to COA Comment 1 above.	3.2.2.2.1
COA 24, p.7	dHCP p. 75 - Should mention Eliza Daylighting project by name.	District revised the sentence here and elsewhere to respond to this comment.	5.1.2.1
COA 25, p.7	dHCP p. 81 Table 5.1 - Under the Source of Concern heading, the District does have an indirect effect on this as the agency can review TCEQ Water Pollution Abatement Plans within its jurisdictional area which focus on Total Suspended Solids as the primary pollutant of concern.	Comment noted. It is not clear to what Threat Factor or Source of Concern the comment specifically refers. However, a footnote was added to clarify that "Affected by District" refers only to direct District actions within its authority as a GCD to respond to and affect a particular concern.	Table 5-1 in 5.1.3
COA 26, p.8	dHCP p. 88, Number 4 - There is no data and only a suggestion to support the statement that the Austin Blind Salamander uses the near-surface habitat more than the Barton Springs salamander.	Comment noted. The District made no revisions to the HCP, as the comment does not comport with the existing language.	-
COA 27, p.8	dHCP p. 91 - "One of the primary findings of Woods et al. (2010)..... Use the correct citation. Only the Poteet and Woods (2007) assessed conductivity.	The District revised the HCP to correct the citation.	5.2.1.2
COA 28, p.8	dHCP p.99 - first paragraph. Organismal effects also result in population effects. Retain the discussion of different effects but remove the false distinction here.	The District revised the HCP in response to this comment, although no such distinction was intended.	5.2.1.3
COA 29, p.8	dHCP p. 99 - Take of Covered Species can occur in the aquifer (i.e. occurrences in Zara well and Blowing Sink).	The District revised the HCP to explicitly acknowledge this circumstance and to include take of the species in these habitats in the take estimate. Also, see response to COA Comment 1.	3.2.2.2.1, 5.2.3.1
COA 30, p.8	dHCP p. 101 - It is incorrect to call the COA survey a census. A census implies a complete count, e.g., see chapter 12 of Williams et al. (2002). From COA mark-recapture surveys we now know with certainty that count surveys performed were not censuses. Underestimation of the surface population size may therefore underestimate the take calculations made in the HCP.	The District revised the HCP to correct the statement. See response to COA Comment 13.	3.2.2.2.1, 5.2.3.1

COA 31, p.8	dHCP p. 101 - "since 2003 has used essentially the same protocols and standards for its surveys." This is no longer correct. Survey frequency and data collected (e.g., capture-recapture data) have changed since 2014.	The District revised the HCP narrative to update this information.	5.2.3.1, 6.3.1
COA 32, p.8	dHCP p. 105 - "To reduce this adversely affected population to a single numerical estimate as required for the ITP, the District has designated the number of individuals experiencing incidents of adverse effects arising from DO-related behavioral or physiological effects at the spring outlets....." Does not incorporate temporal variability and the possibility of multiple take events. This section should be rewritten with this in mind because it implies that there is one single population size and one single take event.	The District revised the HCP narrative to reinforce what is and isn't intended in the methodology and findings of the take estimates. The temporal variability in the magnitude of take as drought deepens and multiple take events are being accounted for on a cumulative basis via the monthly take factors, which includes habitat modification, behavioral, and physiological effects. There is no basis for quantifying variability of lethal and non-lethal take, although the revised narrative does address this circumstance.	5.2.3.1, 5.3.2.2
COA 33, p.8	dHCP p. 106 - "Similarly, it does not quantitatively differentiate the potential adverse effects from either physiological response or behavioral effects from changes in DO concentration. To the District's knowledge, quantitative relationships between and among these factors for the Covered Species do not exist." The Woods et al. studies cited within included assessments of physiological response to DO and conductivity for <i>E. sosorum</i> and its surrogate <i>E. nana</i> , so this is either an incorrect or incomplete statement.	The District revised the HCP narrative to clarify and reinforce what is intended in the subject statement.	5.2.3.1
COA 34, p.8	dHCP p. 102 - "Further, for simplicity, that portion of the Barton Springs salamander population with habitat that is inaccessible from the surface and therefore not accounted for directly in the COA's censuses but that may be adversely affected is <b>considered to be included in the stipulated population at the perennial outlets</b> [emphasis added]." How is this the case when a mean plus one standard deviation applies to surface count data only? What factor has been added to the calculation based on surface counts (mean + 1 SD) to include subterranean animals?	The District revised the HCP narrative and populations estimates to better account for uncounted individuals in the near field and a stipulation as an estimated far-field cohort. The District is no longer relying on the mean-plus-one estimates, rather on abundances from COA's CMR studies, so this comment is now moot.	3.2.2.2.1, 5.2.3.1
COA 35, p.9	dHCP p. 103 - Details for the methods are not presented. The appendices are not available on regulations.gov and were not available on the District's website.	Comment noted. The District made no revisions to the HCP Volume 1. The Appendices are in HCP Volume 2. See response to COA Comment 5.	-
COA 36, p.9	dHCP p. 113 - Not clear how the benefits of DO augmentation were quantified, please explain or reference the data.	The District revised the HCP narrative by providing a new footnote that addresses how the benefits of DO re-aeration and augmentation were quantified.	5.2.3.5
COA 37, p.9	dHCP p. 114 - "Because, as suggested in Figure 5-10, the pre-HCP management scenario represents a dire adverse situation for the Covered Species, possibly including extirpation, any groundwater management measures that minimize or mitigate take such that the situation is less adverse than it otherwise would be should not generally be considered to appreciably reduce the likelihood of survival and recovery of the species. This assertion is germane even if those beneficial actions otherwise might jeopardize survival and recovery of the species." Wording is confusing. How could beneficial actions result in jeopardy? What is meant by "otherwise might"? If a pre-HCP management includes Covered Activities, then mitigation to address those management practices should reduce the likelihood of jeopardy and increase the likelihood of recovery	The District revised the HCP narrative to better explain what is meant and intended. It should be noted that the original assertion is taken essentially verbatim from the EARIP HCP, which has a similar circumstance and conclusion.	5.2.3.5

	compared to pre-HCP management.		
COA 38, p.9	dHCP p. 118 - COA aerated Sunken Garden and Eliza Spring during the past drought, although this did not appear to improve the abundance of salamanders at either site.	Comment noted. The District made no changes to the HCP document.	--
COA 39, p.9	dHCP p. 119 - Statements about the likelihood of drought severity and frequency are not justified. No citations are provided. The probabilities provided need justification and they should account for different climate change scenarios.	The District revised the HCP to explain better how the stated probabilities were calculated and by whom.	5.2.3.5
COA 40, p.9	dHCP p. 120 - "The Covered Species have population characteristics and individual organism traits that appear to represent more an opportunistic" life-history strategy than an "equilibrium" life- history strategy" Provide justification and rationale for this statement, preferably supported by the biological literature.	Comment noted. The District made no changes to the HCP document. The statement is simply a straight-forward comparison made by the District between the documented characteristics of these populations vis a vis the accepted general descriptions of the two life-history strategies.	-
COA 41, p.9	dHCP p. 121 - "Some COA biological staff have recently hypothesized that the salamander population(s) may have established a new, smaller equilibrium, with a lower average size about which the population fluctuates more restrictedly (City of Austin, 2013). This would constitute a rapid shift away from a population with more opportunistic life-strategy characteristics toward one with more equilibrium life-strategy characteristics." This is incorrect. Changing population dynamics does not indicate changes in life-history strategies.	The District revised the HCP narrative to respond to this comment.	5.2.3.5
COA 42, p.9	dHCP p. 122 - "data indicate that DO stress represents the primary factor influenced by the District's activities" This is an unfounded statement.	The District revised the HCP narrative to emphasize this statement relates only to stressors influenced by the District's Covered Activities, and provided an appropriate citation.	5.3.1
COA 43, p.9	dHCP p. 123 - "These thresholds from Woods et al. (2010) appear to represent the best data available for DO stress to any aquatic salamander." Provide justification for this assertion, because other studies of the effects of DO on aquatic salamanders have not been reviewed here (e.g., Issartel et al. 2009).	The District revised the HCP narrative to include the referenced citation and to modify the statement to reflect its intent and source.	5.2.3.5 5.3.1
COA 44, p.10	dHCP p. 123 - "The salamander populations appear rather well-adapted to variability in DO concentrations above this level, although some behavioral changes have been observed, which is not unexpected in this circumstance." Provide evidence for this statement.	Comment noted. The District revised the narrative to reinforce the description of the higher threshold on which behavioral and physiological take onset was actually evaluated in the HCP.	5.2.1.2 footnote; 5.3.1
COA 45, p.10	dHCP p. 126 - "The District believes that an unknown but likely substantial fraction of the Barton Springs salamander population will move away from the surface outlet to water that has higher DO concentrations, although how much higher is also unknown." This assumption ignores other aspects of the ecology of these salamanders.	The District revised the narrative to clarify what is and isn't intended by this statement, and to reinforce what is and isn't known about salamander ecology as it relates to their distribution. Note that this paragraph is in the Uncertainties section.	5.3.2, in Covered Species Population Size and Distribution
COA 46, p.10	dHCP p. 127 - "Notwithstanding the differences in population sizes and their locations, for the most part the two Covered Species are considered to react and behave similarly, in absence of data to the contrary." This is an odd assumption, given the differences in	The District revised the HCP narrative to reinforce what is and isn't being characterized by this statement. Note that this paragraph is in the Uncertainties section,	5.3.2, in Non- modeled Differences Between the

	ecological niche the two species inhabit.		Two Species
COA 47, p.10	dHCP p. 127 -"In fact, it seems to spend a substantially greater part of its life in environments of naturally lower DO concentration than the Barton Springs salamander; so it could be reasonably asserted that the Austin blind salamander might be better adapted genetically to such environments." This statement ignores the populations of <i>E. sosorum</i> that occur within the aquifer.	The District revised the HCP narrative to emphasize what is intended by this statement, and made reference to the remote BSS population. See also the response and changes to COA Comment No. 1 above. Note that this paragraph is in the Uncertainties section.	-5.3.2, in Non-modeled Differences Between the Two Species
COA 48, p.10	dHCP p. 134 Number 1 - The statement " ... maintain a positive DO concentration at all times and minimize the areal extent concentration range... " does not make sense. Clarify intent.	The District revised the HCP narrative to reword this objective and clarify its intent and component parts.	6.1
COA 49, p.10	dHCP p. 140, "HCP Measure 5-5 - Implement a Conservation Permit that is held by the District and accumulates and preserves withdrawals ..... and thereby increase springflow for a given set of hydrologic conditions." It is unclear how the Conservation Permit Works. Does the Conservation Permit also contain the recharge water resulting from enhanced or artificial recharge projects? The consequences of artificial enhancement of both discharge and DO should be carefully studied before implementation.	Comment noted. The District made no changes to the HCP document. In general, the conservation permit serves as a means of aggregating all retired firm-yield freshwater Edwards groundwater production such that it is unavailable in perpetuity. A more comprehensive description of the purpose, function, and use of the Conservation Permit as a regulatory measure (District Rule 3-1.20(E) is in the District Rules and Bylaws document, at <a href="http://bseacd.org/uploads/081816FINAL-BSEACD-Rule_MASTER.pdf">http://bseacd.org/uploads/081816FINAL-BSEACD-Rule_MASTER.pdf</a> .	--
COA 50, p.10	dHCP p. 142 - Since there is a great lack of understanding in Aquifer ecology, including salamander presence, the District should commit to partnering with CoA and other researchers to investigate Aquifer ecology.	Comment noted. The District made no changes to the HCP document. The HCP makes such a commitment in several places, especially in the research and mitigation narratives.	-
COA 51, p.11	dHCP p. 143 - M-1 averages to \$2,000 annually which seems low. This measure should specify what types of actions it could include.	Comment noted. The District made no changes to the HCP document. The COA will be responsible for defining how these funds are best used on a continuing basis.	-
COA 52, p.11	dHCP p. 161 - Regular surveys are now performed by COA on a quarterly, not bi-monthly, basis. Not clear if there is an analysis of the CoA survey data with the water quality and other data the District collects. Clarify.	The District revised the HCP narrative to update the frequency of the surveys and to clarify the scope of the analyses.	5.2.3.1 6.3.1
<b>Letter 2: Save Our Springs Alliance (SOS)</b>			
SOS 1, p.1	SOS supports the pursuit and finalization of an incidental take permit (ITP) and corresponding HCP that furthers the survival and recovery of the Barton Springs Salamander and Austin Blind Salamander. However, the best available scientific information does not support approval of an ITP as currently proposed.	Comment noted. The District made no changes to the HCP document. Comment's conclusion is simply argumentative and is not supported by available information. See other RTCs and revisions to narrative that reinforce, clarify, and amplify the HCP.	--
SOS 2, p.2	The draft HCP demonstrates a fundamental lack of consideration of best available peer- reviewed biological and speleological ecosystem science. There are far too many assertions and statements used to justify proposed scenarios that are refuted by best available science. There are also scientific statements that lack citations for the scientific literature that support them.	Comment noted. The District made no changes to the HCP document. The District is unable to respond substantively to such general statements. Further, the "best available science" is not sufficient to support the comment's conclusion. That notwithstanding, the District's RTCs to several COA comments above provide additional information generally responsive to this assertion. The "best available, peer-reviewed...science" is not unequivocal and is in fact insufficient to remove uncertainties and/or to confirm possible outcomes, one way or another.	--

SOS 3, p.2	<p>dHCP p. 114 - The draft HCP generally approaches ESA compliance under too low a bar. For example, the draft HCP states that the pre-HCP management scenario (i.e., no ESA compliance) is a dire situation for the salamanders, and therefore <u>any</u> measures at all that result in less pumping than otherwise should not generally be considered to appreciably reduce the likelihood of survival and recovery of the species. Further it states that “[t]his assertion is germane even if those beneficial actions otherwise might jeopardize survival and recovery of the species.” <i>Id.</i> It is difficult to make sense of these statements, but what is clear is that they frame the HCP under the wrong legal standard.</p>	<p>The District revised the HCP narrative to better explain the meaning and intent of this statement. It should be noted that the original assertion is taken essentially verbatim from the EARIP HCP, which has a similar circumstance</p>	5.2.3.5
SOS 4, p.3	<p>dHCP p. 114 - “This assertion is germane even if those beneficial actions otherwise might jeopardize survival and recovery of the species.” If the <i>beneficial</i> actions of the HCP otherwise might jeopardize survival and recovery of the species, such that they are causing take, and obviously the non-beneficial actions (the covered activities) are also causing take, it cannot be said that the HCP will not appreciably reduce the likelihood of the species recovery and survival.</p>	<p>The District revised the HCP narrative to eliminate this confusing and unnecessary sentence. That notwithstanding, the conservation measures, including minimization and mitigation measures, for the Covered Activities are, in fact, beneficial under any circumstance . It should be noted that this assertion is taken essentially verbatim from the EARIP HCP, which has a similar circumstance.</p>	5.2.3.5
SOS 5, p.4	<p>The available science supports a conclusion that issuing this permit with the HCP will put both species in jeopardy. The HCP concludes that 50% is an acceptable level of mortality. But that is a huge percentage and number of salamander deaths, and cannot support a finding of no jeopardy.</p>	<p>Comment noted. The District made no changes to the HCP document. The HCP does not conclude that any specific percentage is an “acceptable level of mortality”. The jeopardy determination is made by the Service after considering all facts and factors, The available science is not as compelling as the comment would suggest.</p>	--
SOS 6, p.4	<p>dHCP p.111 - In the draft HCP, the District assumes “that either of the three years of no drought or non-severe drought is long enough for the Covered Species to rebound to the initial condition used in the model.” It then contradicts the just-made assumption by stating: “However, the COA’s continuing low census counts after the recent severe drought period that ended in 2011 suggest that at least some if not all outlets may need more time for their populations to recover.” The draft HCP then goes on to say that: “The slow recovery and continued low abundances numbers may also be exacerbated by other factors.” Yet, the District does not address how these two pieces of information factor into the conclusion that the District’s pumping will not jeopardize the continued existence of the species.</p>	<p>The District agrees with the substance of the comment and has revised the HCP narrative and the scenario for calculating cumulative take to address the stated concern, and to emphasize that this scenario is not a prediction of the future but the basis for quantifying take, if any, in each year of the ITP term and cumulatively.</p>	5.2.3.4
SOS 7, p.5	<p>The dHCP does not adequately account for groundwater withdrawal’s contribution to post-drought effects on populations. Without rebound the populations will go extinct. Stating that there will be 50% mortality every 30 days is admitting that the HCP, even if perfectly implemented, exposes the species to jeopardy and extinction.</p>	<p>Comment noted. The District made no changes to the HCP document. The species is exposed to jeopardy and extinction with or without the Covered Activities. After a drought is over, the Covered Activities will have no substantive continuing effect on the DO or springflow regime that will <i>per se</i> affect rebound. See also RTC to SOS #6 above. Further, there is a legal and practical limitation on how much curtailment of groundwater withdrawal can be imposed under any condition of the Covered Species, as discussed in HCP Section 9.1, Analysis of Potential Alternatives to Avoid Take.</p>	--

SOS 8, p.5	dHCP pp. 108,111,129 - The draft HCP attempts to address uncertainties and potential adverse impacts by referring to the “conservatively high take estimates” and over-estimation of the adverse impacts of pumping that serve to provide a “buffer of additional protection.” By relying on the “conservative take estimates” in disregarding so many potential harmful activities, the District exceeds the alleged “buffer,” if there even was one (which is circumspect due to the lack of scientific justification).	Comment noted. The District made no changes to the HCP document. The comment does not provide any specific justification supported by available science that would reduce the number or the level of uncertainties. “Conservative” estimates and protective “buffers” mentioned in the HCP have a demonstrable, described rationale. The District’s discussion of uncertainties included both positive and negative influences on take. All adverse effects on the salamanders are not invariably due to the District’s Covered Activities.	--
SOS 9, p.5	The identified measures in the dHCP do not minimize or mitigate take “to the maximum extent practicable,” as required by the ESA. <i>See</i> 16 U.S.C. § 1539(a)(2)(A) & (B). Specifically, the dHCP’s upper limit on withdrawals is too high and should be reduced to currently authorized withdrawals.	Comment noted. The District made no changes to the HCP document. The upper limit on withdrawals does not come into play when take is occurring during drought, which in fact has measures that substantially curtail withdrawals below the authorized amount. See also RTCs to SOS Comment 10 and SC Comment 15.	--
SOS 10, p.5	dHCP p. 60 - The upper limit on authorized withdrawals of 16 cfs is not supportable given the ESA’s requirements. Current, non-exempt withdrawals total 11.6 cfs (of which 10.2 cfs is historical pumpage). Thus, under the HCP, the District could authorize up to 4.4 cfs of additional pumping during “non-drought conditions.” This would be a significant increase that is not scientifically justified. If this water is not currently needed by anyone, why not conserve this 4.4 cfs via a conservation permit?	The District revised the HCP narrative to better explain the conditions applicable to the Upper Limit on Authorized Withdrawals. All authorized withdrawals higher than 10.2 cfs and less than 14 cfs would be Conditional Permits that would not allow ANY pumping during drought and accordingly would not produce any take, which is the purview of the ITP. Withdrawals between 14 cfs and 16 cfs are reserved for use in ASR, which are a mechanism for promoting substitution of existing historically-permitted groundwater. See also RTCs to SOS Comment 9, SC Comment 16, and COA Comment 49.	4.1.2.1
SOS 11, p.6	dHCP p. 62 - The dHCP states that 16 cfs has been “established by the District Board to allow an acceptable level of acceleration into drought; that is, approximately one month.” But what is the basis for having one month be the time lapse for the onset of drought? Are all the salamanders going to survive because of that one extra month?	Comment noted. The District made no changes to the HCP document. There is no drought and no take of any kind arising from the acceleration into drought <i>per se</i> . The Board made a policy decision that limited the total amount of pumping so that pumping curtailments for its permittees would begin only one month later than if no upper limit existed, precisely to minimize acceleration into the first stages of drought and its many implications for all users, including endangered species habitat. See also RTC to SC Comment 15.	--
SOS 12 p.6	dHCP p. 60,61 - The District’s current regulatory structure leaves a 0.3 cfs “gap” between levels of maximum aggregate curtailment, and pumping levels required to maintain a Desired Future Condition (DFC) of preserving 6.5 cfs average springflow at Barton Springs during a drought. Until the District can enforce limits on withdrawals to 5.2 cfs during DOR conditions—the limit necessary to achieve DFCs, as determined by the District—then the amount of take cannot be guaranteed, and an ITP should not be issued. Simply put, the Service should not issue an ITP until the District has shown this 0.3 cfs regulatory gap has been closed.	The District has revised the HCP narrative to reinforce the success to date in narrowing the gap because of actions taken by the District and its permittees over the past few years and the reasons why even that small gap is expected to be closed in the near future. Further, as a GCD in Texas, it should be recognized that the District also is legally mandated to ensure that the Extreme Drought DFC is achieved, and it will be monitoring MAG and DFC status on a continuing basis to ensure compliance. The persistence of the gap is not allowable. And the HCP describes emergency measures that the District Board could take if the gap was not closed at the time of a manifested DOR recurrence.	4.1.2.1
SOS 13 p.7	dHCP p. 60 - One of the measures identified to close the gap is “rules incentivizing higher curtailments during severe drought in exchange for proportional increases in permitted withdrawals during non-drought.” This is problematic, because higher withdrawals during non-drought can lead to earlier onset of drought conditions.	Comment noted. The District made no changes to the HCP document. The “problem” described in the comment is the reason that an Upper Limit on withdrawals exists under non-drought conditions. See also the RTCs to SOS Comment 11 and SC Comment 15.	--

	Groundwater withdrawal reduces Barton Springs' discharge under all conditions. The biological effects of groundwater withdrawal may not necessarily be limited to drought. In addition, these incentive programs are completely voluntary and do not ensure any degree of protection.		
SOS 14 p.7	The District should buy pumping rights if that is what is necessary to close the gap, to address its concern about being subject to regulatory takings suits and could also implement a program similar to the Edward Aquifer Authority' Voluntary Irrigation Suspension Program (VISO) to pay pumpers to not pump during drought conditions.	Comment noted. The District made no changes to the HCP document. The District does not have and is unlikely to acquire the financial wherewithal to buy pumping rights,	--
SOS 15 p.8	dHCP p. 61 - The District should commit to a higher minimum discharge than 6.5 cfs during DOR conditions and state that higher discharge target in the HCP.	Comment noted. The District made no changes to the HCP document. There is no science currently available that indicates a springflow of 6.5 cfs during a DOR recurrence will be problematic for the Covered Species. If new countervailing and unequivocal information comes to light in the future, the District Board will consider the need to change this DFC and make such a recommendation to GMA 10.	--
SOS 16 p.8	The District should increase withdrawal curtailment proportions for nonexempt permits during less severe drought stages to reduce acceleration of drought onset.	Comment noted. The District made no changes to the HCP document. Curtailments during drought can not affect the acceleration of onset to drought from non-drought.	--
SOS 17 p.8	dHCP p.110 - The draft HCP has only a cursory discussion of take not related to springflow. How can the Service sufficiently analyze jeopardy without at least coming up with a rough estimate of the total take of various actions?	Comment noted. The District made no changes to the HCP document. The comment did not identify what non-springflow-related actions producing take by the Covered Activities and the conservation measures were not addressed and estimated in the section of the HCP where they were addressed.	--
SOS 18 p.8	dHCP p. 129, The draft HCP states that these cumulative impacts are addressed in the dEIS. The dEIS does discuss cumulative impacts, but it only catalogs them, without discussing how they may impact the species' survival and recovery, or identifying any mitigation measures to reduce such impacts. See dEIS at 5-17. The cumulative take from the covered activities and water-quality degradation must be assessed in terms of whether the species' survival and recovery may be appreciably reduced.	Comment noted. The District made no changes to the HCP document. See DEIS RTC for this same comment	--
SOS 19 p.9	The draft HCP needs to be modified to account for more recent scientific data as to the location of the Barton Springs Salamander and scientific advances in climate-change monitoring.	See RTC for COA Comment 1 and corresponding document revisions. It is unlikely that any <i>new</i> climate change effects on water supply and demand beyond those reflected in the recent period of record will be substantially manifested in the ITP Area during the 20-year term of the ITP/HCP. The District added to the narrative to address the relatively small effect that climate change is anticipated to have during the ITP term.	Executive Summary; 3.1.2, 3.2.2.1, 3.2.2.2, 5.1, 5.1.2.1, Old 7.2.2.4 (deleted); 3.2.3
SOS 20 p.9	dHCP p. 187 - The HCP should be modified to measures related to BSS being found in springs outside the Barton Springs complex.	The District revised the narrative, populations,, and take estimates in numerous locations in the HCP document. See RTC for COA Comment 1 for more information.	Executive Summary; 3.1.2, 3.2.2.2.1, 3.2.2.2.2, 5.2.3.1, Old 7.2.2.4 (deleted)

SOS 21, p.9	Much of the draft HCP's references to climate change are from 2000 to 2007, with two references from the years 2013 to 2014. However, more recent studies of climate change have provided valuable information that should be taken into account in formulating drought-management policy.	Comment noted. The District made no changes to the HCP document. Drought management policy is formulated primarily to address types and amounts of groundwater use and aquifer response to those demands, not climate change <i>per se</i> . Also, it is unlikely that any <i>new</i> climate change effects on water supply and demand beyond those reflected in the recent period of record will be substantially manifested in the ITP Area during the 20-year term of the ITP/HCP.	--
SOS 22, p.10	dHCP p. 113 - The draft HCP states that a MOU/ILA between the District and City of Austin will "be negotiated within the first year after the District's HCP and permit are approved." The ILA/MOU should be negotiated before the ITP is approved, or at minimum, more detailed provisions of what will be included in the MOU/ILA should be provided in the HCP.	The District provided a description of the scope of the ILA/MOU in Section 6.5.2, but it has revised the HCP narrative to include additional information. The ILA/MOU, which is currently in draft form, cannot be finalized until all the requirements and limitations have been established under both the District's and the City's approved HCP/ITP. Both parties are committed to executing the ILA/MOU as quickly as possible after the ITP is issued. The District has committed in the HCP to instituting and implementing the ILA/MOU during the first year of the HCP term.	6.5.3
SOS 23 p.11	There should be annual estimate of exempt well pumping and frequent communication with exempt well owners.	Comment noted. The District made no changes to the HCP document. The State's water planning process requires the District to estimate (or have the TWDB estimate) exempt use in both of its GMAs every five years. The character of the District suggests that exempt well use of the Aquifer in the ITP Area will change only very slowly. Further, exempt well use in the District is a very small portion of the total Aquifer use.	--
SOS 24, p.11	The District should commit to measures to facilitate population rebound, such as a reintroduction program of captive salamanders after drought to bump up the breeding population in the wild.	Comment noted. The District made no changes to the HCP document. It has already committed to working with and supporting programs of the COA to accomplish these and related goals, as a specific mitigation measure (M-1).	--
SOS 25, p.11	The District should provide details of specific legislation they will pursue to allow greater authority in regulating groundwater withdrawal.	Comment noted. The District made no changes to the HCP document. This would be speculative and is not a requirement for issuing an ITP	--
SOS 26, p.11	Because of uncertainties surrounding climate change, increased development and other stressors on our water resources, the term of the permit should be reduced from 20 years. Alternatively, or in addition to a shortened permit term, the District should consider phasing the HCP, such that the HCP would be implemented in adjusted in two or more phases.	Comment noted. The District made no changes to the HCP document. It should be noted that the term of the ITP/HCP was reduced from the initial term of 50 years, consistent with the water planning horizon with the State of Texas, to the current 20 years at the behest of the Service, specifically to better accommodate any new climate change effects that might manifest themselves in the future.	--
<b>Letter 3: Lone Star Chapter of the Sierra Club (SC)</b>			
SC 1, p. 1	dHCP, Section 5.2.3.4, p. 111 - The proposed take amounts of <i>E. sosorum</i> and <i>E. waterlooensis</i> assume that populations of both species will rebound to pre-drought sizes in 3 years of non- drought. What specific actions does this HCP require that will guarantee that populations will rebound as assumed? How will the proposed take avoid jeopardy of the species if this assumption is incorrect?	The District agrees with the substance of the comment and has revised the HCP narrative and the scenario for calculating cumulative take to address the stated concern, and to emphasize that this scenario is not a prediction of the future but the basis for quantifying and evaluating take, if any, in each year of the ITP term and cumulatively.	5.2.3.4
SC 2, p. 1	dHCP, Section 5.2.3.4, p. 111 - The drought/non-drought scenarios assumed by the HCP aren't clear. Does the HCP cover more than 7	The District revised the HCP narrative and the cumulative take scenario to provide additional clarity to respond to the questions in	5.2.3.4, 7.2.2.2

	consecutive years of drought? Does the HCP cover 14 consecutive years of drought? If so, what measures will the District implement to protect salamanders? Actions to respond to such unexpected circumstances, as described under Changed Circumstances (Section 7.2.2.2, p. 185) include DO augmentation <i>if feasible</i> , and requesting some groundwater withdrawal permittees to <i>voluntarily</i> agree to temporary curtailment. Neither of these proposed actions is guaranteed. So, if neither is implemented, what will the District do? Is it feasible to guarantee that the measures described above will be implemented if changed or unexpected conditions occur? Will the population of be wild salamanders be relocated into captivity until conditions improve?	this comment. The actions proposed under the referenced Changed Circumstance do not supplant or replace the curtailments that will be mandated by District Rule under its drought management program, including >50% curtailments for individual permittees, at the Board's discretion in a declared Emergency Response Period. Additional narrative addressing this circumstance has been added. The District has no authority to relocate salamanders that are on COA property, furthermore the COA biologists are best able to judge the necessity and efficacy of such actions.	
SC 3, p. 2	dHCP, Section 6.1, p.134 - It is unclear in the dHCP how frequently DO will be measured during drought. Once per month or multiple times per month?	Comment noted. The District made no changes to the HCP document. This section is simply describing the biological objectives, not the methodologies. The DO measurements will actually be performed by COA staff and reported to the District, as to be specified in the provisions of their prospective ILA/MOU.	--
SC 4, p. 2	Section 6.1, p.134 - Dissolved oxygen concentration and discharge data are collected every 15 minutes in "Main Springs" by the U.S. Geological Survey using automated equipment. These data are posted online in real time. Does the District propose to use these data to monitor conditions in "Main Springs"? Eliza Spring typically has lower DO than "Main Springs", how frequently will DO be measured in this site?	Comment noted. The District made no substantive changes to the HCP document, although some re-wording was made at several places for clarity. The DO measurements will actually be performed by COA staff at intervals they deem appropriate, and reported to the District, under the terms of the provisions of their prospective ILA/MOU and subject to ongoing reviews as part of the proposed Adaptive Management Program, described in Section 6.4.2 of the HCP. The USGS data will be monitored by both the COA and District as a matter of course as part of the joint monitoring program.	--
SC 5, p. 2	Similarly, the measurement frequencies that underlie discharge and withdrawal threshold averages are unclear. It would improve clarity for the HCP to state the measurement frequency.	Comment noted. The District made no changes to the HCP document. The DO measurements and their frequencies will be discussed and negotiated with the COA personnel, and such measurements will incorporate existing COA monitoring plans to the maximum extent possible. The intent is to provide sufficient and representative data to assess compliance with or progress toward the biological objectives, for inclusion in annual reporting. All aspects of the monitoring program in the HCP are subject to ongoing reviews as part of the proposed Adaptive Management Program, described in Section 6.4.2 of the HCP.	--
SC 6, p. 2	How and when will the District measure take or know that take is approaching its limit during a drought? Will take be estimated based on duration of DO concentrations and associated lethal concentration values?	Comment noted. The District made no changes to the HCP document. Take will be evaluated according to the take estimate methodology, which is based on ongoing hydrological drought conditions, and in turn referenced to springflows and corresponding DO concentrations, as described in the HCP.	--
SC 7, p. 2	dHCP, Section 5.2.3.2, Fig. 5-8, p. 108-109 - The HCP and take estimates don't appear to explicitly and numerically state lethal take of Covered Species. The HCP partitions take into "behavioral" and "physiological", with physiological including undefined sub-lethal and lethal effects. What proportion of physiological take is expected to be lethal? Do the take	Comment noted. The District made no changes to the HCP document. The take estimates consider, on a continuing basis, both hydrological springflow characteristics, where applicable, and hydrochemical characteristics of springflow on the Covered Species. The District has not attempted to parse lethal and sub-lethal take related to Aquifer	--

	estimates assume a constant mortality rate?	conditions numerically, as the Service does not distinguish between those in defining take and those are poorly known in the wild. As described in the HCP, the monthly take factor essentially is a metric that incorporates both sub-lethal and lethal take incidents and accounts for progressive risk of increasing mortality as an individual drought endures and cumulatively over the ITP term.	
SC 8, p. 3	How was progressive risk incorporated into take estimates? The HCP take and conservation measures do not appear to incorporate the progressive risk to species during drought and how this affects population size at the end of drought. Cumulative lethal effects on salamander populations are not clearly enumerated in the dHCP. It is possible to estimate progressive and cumulative lethal effects based on information in the dHCP and dEIS. We can estimate duration at particular drought discharge levels, the associated DO concentrations, and the expected lethal effects using Table 4-2 of the dEIS. We can then apply those mortality percentages and durations to the salamander population size to see the loss of individuals (See Table 1 within this comment). Similar explicit estimates of lethal take should be included in the HCP for the proposed 7-year Hybrid drought.	See RTC to SC Comment #7. The District made no changes to the HCP document. The monthly take factor metric is applied to every month of the 20-year ITP/HCP term, as appropriate and indicated by the extant drought condition during that month.	--
SC 9, p.4	What are the assumptions the Service made in their assessment of potential jeopardy of Covered Species? Will the Covered Species be jeopardized by the amounts of lethal take described in Comment 8 above? Assessment of jeopardy should include consideration of background natural mortality rate in addition to the cumulative effects of the actions proposed in this HCP and actions authorized in the City of Austin's HCP for these species. Were these considered?	Comment noted. The District made no changes to the HCP document. The Service will include the factors it considered in its Biological Opinion. It is not appropriate for the District in its HCP to suggest what and how factors are considered by the Service in its Biological Opinion.	--
SC 10, p. 4	Targeted "minimum" discharge of 6.5 ft <sup>3</sup> /s is not a true minimum because it is an average over time. This means it can be lower as well as higher. The same is true for the minimum DO concentration. The HCP should include either a firm minimum threshold value or a range of variation that will be allowed. Since DO concentration varies on a daily cycle, (it is lower at night in the absence of photosynthesis) and 24-hour data are available for Main Springs, perhaps these data could be used to define a range of acceptable concentrations around the threshold.	Comment noted. The District made no changes to the HCP document. As pointed out, there are several factors that affect DO concentration at a given springflow, but only the amount of groundwater discharging from the Aquifer is subject to District's governance. That governance can only be referenced to monthly averages, since the reporting and curtailments of pumping (Covered Activities and Conservation Measures) are able to be adjusted no more frequently than monthly, practically speaking. It should also be noted that there is no photosynthesis within the Aquifer, so DO cycles would not replicate those found in surface water.	--
SC 11, p. 4	dHCP, Section 6.2.2.2, p.143 - Consider shortening the timeline for implementation of DO augmentation infrastructure to 5 or 6 years. Given that we don't know when the next drought will occur and that maintenance of a minimum DO concentration is a conservation measure, the sooner implementation occurs, the better.	The District agrees that the subsurface DO Augmentation feasibility study and its implementation should be completed as soon as possible. However, discussions with the COA staff, which controls access to and ultimately would approve and co-implement such a project, indicate that the time period stipulated in the HCP is realistically needed to avoid take and other damage to the complex. The District has revised the HCP narrative to describe that the mitigation measure will be available as soon as feasible, the time periods stated in the HCP notwithstanding.	6.2.2.2, Measure M-2

SC 12, p. 4	dHCP, Section 6.2.2.2, p.143 - If severe conditions occur before feasibility studies are completed and methods for DO augmentation are built or obtained, what will the District do to protect the species? Will the District help the City of Austin acquire and maintain temporary DO enhancement equipment (pumps, aerators, etc.) between permit issuance and implementation of District DO augmentation systems?	Comment noted. The District made no changes to the HCP document. The District is committed to implementing the conservation measures, including the drought management plan and the mitigation measures. Mitigation Measure M-1 provides for the type of support mentioned in this comment, if requested by the COA and if approved by the District Board. The procedures for such coordination and collaboration will be addressed, as needed and appropriate, in the ILA/MOU.	--
SC 13, p. 4	The assumption that DO conditions in the subterranean areas of the aquifer will be higher than in surface habitat during drought should be fully demonstrated before relying on it for salamander refuge. The additional investigation proposed in the HCP is a good plan. The distribution of DO underground will also help guide feasibility studies of subterranean DO augmentation.	Comment noted. The District made no changes to the HCP document. In addition, the characterization of the BSS population remote from Barton Springs and the factors that determine its spatial and temporal distributions will assist in evaluating the subterranean DO regime.	--
SC 14, p. 4	The HCP states that one of the District's overarching goals is, "Promote recovery of the populations from those decreases to levels required for their long-term viability." The take allotted in this HCP will only maintain current level of endangerment of the species at best because the plan is to support population rebound to pre-drought sizes. The populations must increase beyond these sizes for the species to recover. What measures does the plan include that foster recovery?	Comment noted. The District made no changes to the HCP document. The District maintains that the full implementation of the proposed Conservation Measures, including mitigation, will increase the size of the BSS population in the long term, other factors equal. The population size at the outset and the end of a particular drought episode will vary by episode, regardless of whether Aquifer pumping occurs. The Conservation Measures provide a foundation for recovery of the Covered Species, but the rate and extent of recovery will depend on factors mostly unaffected by the District's Covered Activities.	--
SC 15, p. 5	dHCP, Section 4.1.2.2, Page 62 - The District proposes to increase groundwater withdrawal from the Barton Spring segment of the Edwards Aquifer beyond that currently permitted during non-drought. The plan also states that the increased withdrawal will accelerate the onset of drought by one month and that this is acceptable for protecting the target species. What scientific data or literature supports this assumption? Non-drought is the period during which the populations are expected to rebound to pre-drought sizes, which requires enough time for reproduction and growth of juveniles to reproductive adulthood. For both species, this takes roughly 4 - 6 months (Dries et al. 2013). So, how much capacity for population rebound will be lost due to the acceleration of drought onset?	Comment noted. The District made no changes to the HCP document. The comment does not accurately reflect what the full-time (non-drought and drought) limitation is designed to accomplish. The Upper Limit DFC is set by policy to limit the amount of total water withdrawals to a level that corresponds to only one month earlier acceleration into the first stages of drought; it does not indemnify the non-exempt permittees from applicable curtailments if and when drought is entered. Without that limit, total groundwater production during non-drought would be unlimited, and drought conditions would rapidly return without recourse. Further, the earliest stages of drought, which are entered from a non-drought condition at about 40 cfs, have few to no behavioral or physiological effects, which begin at about 30 cfs, and would not <i>per se</i> substantively inhibit population rebound.	--

**Comments to the Draft EIS**

<b>Review Comment #/Letter Page #1</b>	<b>Review Comment</b>	<b>Response to Review Comment</b>	<b>Section/Page of Text or Table Change</b>
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<b>Letter 1 City Austin Watershed Protection Department (COA)</b>			
COA # 6a, p.5	The comment that "the springs would never cease flowing" under Section 4.3.4.2 of the dEIS regarding the impacts of the Habitat Conservation Plan on the Covered Species is incorrect and seems to only consider flow at PartheniaSpring. All springs except Parthenia are likely to have more serious impacts than what is currently described under Alternative 2; Eliza Spring flows at a combined spring discharge of 14 CFS but may not continue to flow at 6.5 CFS. This is a substantial threat to the species since Eliza Spring is the spring that typically has the largest salamander population.	Revisions to the dEIS were made to include the information provided by these comments.	Section 4.2.3.2, page 4-7;  Section 4.3.4.2, page 4-17  New Reference added to Chapter 8, page 8-4
COA # 6b, p.6	The decrease in springflow will cause Old Mill Spring and Upper Barton Spring to stop flowing more often. The length of these low and no flow periods has long term consequences to these populations. The number of salamanders at these springs has yet to return to the numbers seen prior to the droughts of 2009 and 2011.	Revisions to the dEIS were made to include the information provided by these comments.	Section 4.2.3.2, page 4-7;  Section 4.3.4.2, page 4-17  New Reference added to Chapter 8, page 8-4
<b>Letter 2 Save Our Springs Alliance (SOS)</b>			
SOS 17 p.8	dHCP p. 129, The dHCP states that these cumulative impacts are addressed in the dEIS. The dEIS does discuss cumulative impacts, but it only catalogs them, without discussing how they may impact the species' survival and recovery, or identifying any mitigation measures to reduce such impacts. See dEIS at 5-17.	Effects of cumulative impacts involving groundwater pumping, climate change, decreased water infiltration to the aquifer, saline water encroachment into the aquifer, and increased competition for space and resources are summarized in the 10 <sup>th</sup> line of the 2 <sup>nd</sup> paragraph on page 5-17 of the current dEIS by the following statement: "Collectively, all these factors may negatively affect the habitat of the two salamanders, and may exacerbate drought conditions to the point where they cannot survive." The next sentence beginning with "In addition, threats to surface habitat.....may increase a population's overall risk of extirpation from cumulative impacts of other stressors occurring in the surface watershed of a spring".... further summarizes cumulative impacts. Mitigation measures are listed with cumulative benefits stated in the 2 <sup>nd</sup> paragraph on page 5-16. These statements address the missing information/discussion implied by the comment. No revisions are needed.	No revisions needed

<sup>1</sup> See individual letters; review comment numbers in this table correspond with comment numbers highlighted in blue in left margin of each of the letters.