

BDCP EIR/EIS Review Document Comment Form

Document: 2nd Administrative Draft—Chapter No. 7 Groundwater – Part II

Comment Source: North Delta Water Agency

Submittal Date: July 31, 2013

No.	Page	Line #	Comment	ICF Response
1	7-1 thru 7-52 inclusive		<p>CHAPTER 7 GROUNDWATER - OMISSIONS</p> <p><u>Loss of availability/access</u> - Chapter 7, <i>Groundwater</i>, fails to identify or discuss water supply impacts to in-Delta water users despite EIR/EIS chapters 6 (Surface Water) and 7 (Groundwater) making it clear that de-watering during construction of CM1 will result in lowering groundwater elevations by up to 10 feet and possibly depleting both ag and domestic water well supplies. In addition, many of the adverse impacts identified in Chapter 5 of the Plan (<i>Effects Analysis</i>) identifies adverse changes to natural flows and velocities, surface water elevations, and tidal flux, all of which will impact the groundwater levels, particularly in the North Delta where CM1, CM2, and CM3 will be located, yet none of this information is directly acknowledged in the EIR/EIS chapters 5, 6, and 7. According to the Chapter 5 <i>Effects Analysis</i>, CM2's diversion of 6,000 af into the Yolo Bypass results in lowering the Sacramento River by more than 3 feet which could cause additional lowering of groundwater table since the Delta is a large floodplain with shallow groundwater that is hydraulically connected to the surface water, and changes in river stages affect groundwater levels and vice versa, page 7-5, lines 14-16. Adding CM1 which would divert another 3,000-9,000 cfs into the new North Delta intakes will reduce the surface water elevations in the Sacramento River below the new intakes even more as well as sloughs and channels downriver such as Steamboat, Sutter, and Georgiana. Plan Chap 5, page 5.3-10. Despite the hydraulic connection of surface and groundwater in the Delta mentioned above, Chapter 7 of the EIR/EIS fails to report the findings regarding changed hydraulics, flows, and water elevations from the new water diversions from the Sacramento River proposed in CM1 and CM2 that are explained in the Plan <i>Effects Analysis</i> and instead only acknowledges the groundwater impacts from dewatering, discharges, and seepage from forebay. The tidal action's influence on this hydraulic</p>	

			<p>connection is also pointed out on page 7-5, lines 17-18: “This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby.” The EIR/EIS is supposed to analyze the environmental impacts of the Plan, which should include all of the findings regarding hydrologic and hydraulic water changes identified in the Plan’s <i>Effects Analysis</i>, such as altered flow patterns (including unnatural reverse and unidirectional flows instead of twice daily tidal action) and velocities, tidal muting from implementation of habitat measures, changes to surface water elevations in rivers and channels, and water quality.</p> <p>This is particularly concerning since the homes and businesses in the Delta communities of Clarksburg, Courtland, Freeport, Hood, Isleton, Rio Vista, Ryde, and Walnut Grove receive their water supply from individual water wells (groundwater), Page 7-1, lines 25-28, (municipal and irrigation well are typically deeper in the aquifer, 200-400 feet below ground surface, than domestic wells that are about 100-250 feet below ground surface), page 7-8, lines 33-35, and maintaining groundwater levels below crop rooting zones is critical for successful agriculture, Page 7-5, lines 20-21, and groundwater is used throughout the Delta through pumping and plant uptake in the root zone, page 7-11, lines 26-27, with an average annual groundwater pumping in upland peripheral Delta areas estimated to range from 100,000 and 150,000 acre-feet of water for both domestic and agricultural uses, page 7-11, lines 28-29.</p>	
2	7-39	15-21	<p>7.3.3. EFFECTS AND MITIGATION APPROACHES – Omissions And Deficiencies</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion that impacts are significant and unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action. A lead agency must identify all significant effects on the environment caused by a proposed project that cannot be avoided. However, the EIR/EIS must first perform a robust analysis to</u></p>	

			<p><u>support the conclusion that impacts are significant and unavoidable. The EIR/EIS cannot defer the determination of the scope and nature of significant impacts until future studies and reports are prepared.</u></p> <p>The EIR/EIS admits the analysis does not include details regarding the number, location, depth, or annual production of existing water wells in the vicinity of the CM1 project facilities “at this time.” Therefore the model predictions in changes in groundwater levels or flow directions cannot be correlated to particular wells or lands to be affected. Until the BDCP collects the data on these individual wells, CM1 will fail to meet a project-level, permit-ready, level of analysis of CM1 Conveyance Construction.</p> <p><u>The EIR/EIS should be supported by accurate baseline condition descriptions, substantial evidence or scientific research, rather than relying on future studies and reports that have yet to even identify the actual severity of the impact, let alone an analysis that compares the project to the existing conditions. The studies and reports mentioned don’t even provide any details regarding what data will be collected and analyzed. Such future studies do not constitute substantial evidence and result in the EIR/EIS not being able to provide full disclosure on the significance of the impacts from this project.</u> Without this information the public and cooperating agencies do not have adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action or to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts.</p>	
3	7-46	3-10	<p>7.3.3.2 ALT 1A – DUAL CONVEYANCE WITH TUNNEL/PIPELINE</p> <p>Alt 4 refers reader to Alt 1A for complete description of groundwater impacts and associated mitigations, therefore we provide the following observation regarding the opening introductory paragraph of Alt 1A.</p> <p>The construction of CM1 facilities is described as having “temporary” effects on lands and communities in the vicinity, which makes the impacts sound more benign than they really are. While some of the activities described in this paragraph are not permanent, some of them are in fact permanent such as some of the power poles,</p>	

			<p>muck and spoils disposal areas, and access roads. In addition, having several square miles torn up from excavation and open-trenching, roads re-routed, particulate matter and dust from excavation, concrete plants and borrow pits blanketing the air, constant and intense vibrations and ear-piercing noise from up to 36 steel piles being driven into the ground every day, and thousands of trucks blocking roads and creating dust and noise impacts just to name the more obvious adverse local conditions occurring daily for up to TEN YEARS is not considered "temporary" effects by the local residents and businesses.</p> <p>In order to be more transparent with the public and local government agencies and residents about the VERY long-term timeframe that local residents and businesses must suffer through these destructive and disruptive impacts, the EIR/EIS should replace the term temporary with more accurate timeline of "up to ten years." When EIR/EIS is being general in terms of construction then should mention the 9-10 year timeline and provide estimates on timelines for each activity's specific impacts.</p>	
4	7-82	13-24	<p>IMPACT GW-1: Deplete groundwater supplies or reduce production capacity of preexisting wells during construction</p> <p><u>A proper project-level environmental analysis of a project of this size needs to provide an accurate description of the project and the existing baseline conditions used to determine the significance of environmental impacts in order to allow a lead agency, trustee agency, cooperating agency, or an impacted party in the Plan Area to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts.</u> The project description and level of environmental analysis lacks sufficient details regarding the existing baseline conditions, locations, depths, annual water supply production or pumping costs of residential and business water wells. These are typically permitted by the County so the EIR/EIS should be able to collect this information in order to provide sufficient details to determine the level of impact and the type, duration, and locations of mitigation measures. DWR, Dept. of Food & Agriculture, SWRCB, or County Agriculture Commissioners may also have reports or data that can be used in the analysis of this impact.</p>	

		<p>The EIR/EIS analysis should use existing data and baselines to compare against the anticipated lowering of surface and groundwater during dewatering in order to determine which domestic and ag water supply wells will be impacted, to what extent, and for how long to determine whether Impact GW-1 in fact properly captures and characterizes the full extent of water delivery disruption that could be caused by construction of CM1 facilities.</p> <p><u>The assumptions and conclusions in the EIR/EIS must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion.</u> Environmental analysis failed to provide any current data, modeling, reports, or studies or BDCP specific data and information collected and then analyzed to reach the conclusions regarding groundwater impacts during construction of CM1. Therefore, the assumptions and conclusions in GW-1 are conjecture and speculation that warrant additional info upon which to evaluate the environmental impact on groundwater resources and existing beneficial uses.</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion whether impacts will occur or not and if they are significant and unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u> Where is the current studies or data and modeling collected by BDCP that supports the assumptions and conclusions made in this impact statement? What was actually analyzed to determine these assumptions are in fact the correct ones to use?</p> <p>Appendix 7A Groundwater Model Determination describes how the model was built to analyze groundwater impacts, but it doesn't explain what the findings from the model runs are or what activities the model was simulating and analyzing. Did it analyze just the groundwater impacts</p>	
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		<p>associated with construction of CM1, or does it include other CM1 activities and from CM2-22 as well? Without providing such evidence – the following assumptions and conclusions regarding groundwater impacts generally, and Impact GW-1 specifically, are nothing more than unsubstantiated opinion and conjecture which do not meet a project-level analysis of environmental impacts and raise several questions:</p> <p><u>Dewatering wells</u> Page 7-46, Line 19, <i>“the dewatering well would be generally 75 to 300 feet deep, placed every 50 to 75 feet apart along the construction parameter as needed and each would pump 30-100 gpm.”</i> How many total dewatering wells will be installed? Couldn’t find a map or appendix analysis that shows locations and total number of wells to be installed, so used the legend on Figures M3-1 sheet 1 and 2 to calculate there are at least 300 dewatering wells (26 per 2,000 feet if 75-feet apart) located just around the perimeter of the three intakes, so doesn’t include the hundreds more that could also be installed around the perimeter of the forebay, open-trenching, borrow pits, or any other construction area that needs to be dried up. If you use pumping 50 gallons per minute as an average, then just the 300 dewatering wells around the intakes would pump 15,000 gpm, for a total of pumping 21.6 million gallons per day (24-hours), every day for years. Is this calculation accurate in how many gallons of water the project intends to extract and discharge every day? Whatever the correct amount of daily discharge is should be disclosed and analyzed in terms of impacts on the environmental resources. How much of the 21.6 million gallons will be discharged into local drainages and how much directly into the river? What are the specific river and local drainage locations for these discharges? What is the capacity of the local drainage ditches/canals the project plans to use? Will land uses and property in the areas of discharge be affected by seepage or surface flooding? For how long will they be flooded and not able to grow crops? Will the drainage interfere or damage crops? If so, where and how many acres and lost crop values are expected? How much water will be discharged/drained in a month? How much in a year? The EIR/EIS needs to be more specific with how many dewatering wells will be installed so can see all open trenching areas, forebays and shaft locations to be dewatered, identify their</p>	
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		<p>approximate locations on a map so that can see exactly which construction areas will have the perimeter dewatered, how many gallons will be extracted daily/monthly/annually, how long the dewatering in each location is expected to occur, the locations where the water will be discharged, how much will be discharged daily at these locations, and identify if BDCP will need to improve/expand the capacity of existing drainage facilities at these locations and on island's system in order to accommodate the dewatering amounts and to pay for the additional pumping costs to the local reclamation districts and farmers for use of their drainage pumps for the entire dewatering period.</p> <p>Page 7-46, Lines 22-23, "no dewatering is required along the tunnel alignment," however the beginning of this sentence says that "Dewatering for the tunnel shaft constitutes the deeper dewatering (300 feet deep)" and Appendix 3C, page 3C-19 states that "Extensive dewatering (via dewatering wells at tunnel shaft sites) and groundwater control along the alignment may be required" and lines 25-26 again mentions wells around the "perimeter of tunnel shafts" and other CM1 facilities. The EIR/EIS map shows 15 venting and retrieval shafts along the tunnel alignment, so this conflict needs to be resolved and the EIR/EIS should identify the number of and locations of all of the dewatering wells that will be around the perimeter of every facility. The EIR/EIS should at the very least identify the total length in feet of the perimeter areas that will have dewatering wells installed so cooperating agencies and the public can figure out how many wells there will be based on the 50-75-foot spacing in between each, but also show the perimeters on Chapter 7 maps so is clear which facilities will be surrounded by how many wells.</p> <p>Page 7-46, Lines 26-28, "Dewatering would occur 24 hours per day and 7 days per week and would be initiated 1 to 4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from higher groundwater levels" This fails to specify how long the time period is from pre-excavation to completion will be. How many continuous days, months, and years will this constant dewatering occur? Is it continuous dewatering for six days, six months, six years, or longer? It is important to know how long this</p>	
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		<p>where forecasted groundwater levels are 5 feet below the static groundwater level is defined as the “radius of influence” herein. The radius of influence is forecasted to extend approximately 2,600 feet from the Byron Tract Forebay excavation and from the intake excavations (Figure 7-7).” What is the data, studies, modeling or other evidence used to develop how the “radius of influence” is defined or how wide of an area it includes? Is the 2,600 feet radius based on actual engineering studies conducted on the land in the area where these radius of influence will occur or is it an arbitrary number based on experience on lands outside of the Delta which may not have a high, inter-connected and multiple layered groundwater aquifer which is similar to a sponge underneath? Justification and evidence needs to be provided for this assumption/definition. The definition of radius is a straight line from the center to the periphery of a circle. For purposes of this EIR/EIS where does the center start? Is the center of the radius the location of each dewatering well? If so, a map should be provided that shows each dewatering well around the entire perimeters of facilities that shows the boundary of the 2,600 foot radius. Will this radius only apply to Byron Tract Forebay and intakes as stated or will the radius also apply to any of the other facilities such as the Intermediate Forebay in North Delta, borrow pits, concrete batch plants, shafts, tunnel alignment, pipelines, widened levees, pumping plants etc as well? Again, this ambiguity is why the number, location, and radius of influence needs to be not only explained and justified by scientific/engineering studies in the narrative in this impact, but also shown on maps for this chapter.</p> <p>Page 7-47, Lines 1-3, “Groundwater would return to pre-pumping levels over the course of several months. Simulation results suggest that 2 months after pumping ceases, water levels would recover to within 5 feet of pre-pumping water levels.” This conclusion needs to be supported by inclusion of a Table showing the model simulation results or by referencing where in Appendix 7A modeling or the <i>Effects Analysis</i> of the Plan this evidence is shown and explained.</p> <p>Page 7-47, Lines 3-5, “The sustainable yield of some wells might temporarily be affected by the lowering of water levels such that they are not able to support existing land uses.” Again, this conclusion which is a significant adverse impact</p>	
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		<p>needs to be supported by the evidence used to make this determination. Vague terms such as “some” and “might” and “temporarily” are insufficient to allow a cooperating agency or the public to evaluate the nature and extent of the impacts of this activity. Which wells will be affected? How many wells? How many are residential, municipal, or agriculture? How will they be affected? What kind of existing land uses will not be able to be supported as a result? How many acres total will not be able to support existing land uses and where? Will the taps and toilets in the houses not work? Will there be costs to home and landowners to drill their well deeper which would also include higher monthly electricity pumping? If so, none of these impacts are identified or analyzed, but are glossed over without any mention.</p> <p><i>Page 7-47, Lines 1-13, “Groundwater levels within 2,600 feet of the areas to be dewatered are anticipated to experience groundwater level reductions of up to 20 feet for the duration of the dewatering activities and up to 2 months after dewatering activities are completed.”</i> As mentioned in the previous comments, this conclusion lacks sufficient detail to allow the public or cooperating agency to evaluate whether the baseline existing conditions or if the nature, extent and magnitude of the impact has been properly characterized, which means we cannot verify that the mitigation is appropriate either. This vague language fails to meet any level of project-level analysis necessary to comply with environmental disclosure laws. Evidence and context needs to be provided to answer many questions. What are ALL of the specific areas to be dewatered? Where are these areas located? Where is the center of the 2,600 feet placed? What is the level of impacts to areas outside of the 2,600 foot radius? Will any of the impacts in those areas be mitigated too? Will any areas experience a permanent state of lowered groundwater? If so, how much lower than existing baseline conditions? What is the actual duration of the dewatering activities? The total continuous length of time this activity will occur for different CM1 activities and locations is not identified. All of these details regarding this activity need to be provided in the EIR/EIS in order for us to evaluate and provide you feedback on appropriate mitigation as a cooperating agency.</p> <p><i>Page 7-47, lines 17-18, “Mitigation Measure GW-1</i></p>	
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			<p>people, property, species, or the new conveyance facilities? What, if any, engineering analysis did BDCP conduct on the soils in the area dewatering will occur to determine risk of subsidence and sink holes and did it also analyze the subsidence effects associated with such a long period of continuous dewatering? Did the EIR/EIS analyze whether subsidence from sustained constant lowering of the groundwater would create problems for building multi-acre, 30-foot tall and extremely heavy building pads on those soils? What were the findings? Because the City of Stockton experienced significant ground shifting of up to 13 ½ feet of movement on their brand new water supply facilities, Delta Water Supply Project, which caused the shutdown of the facility as strength of metal pipes and bolts were stretched to their limit and on the verge of breaking. How does the likelihood of subsidence, land shifting, and sink holes vary in all areas where dewatering will occur over a prolonged, multi-year sustained daily draining?</p> <p>Provide information on how much annual erosion and seepage damage caused by dewatering activities expected to impact non-BDCP structures and current and future crops, cost of replacing and repairing disrupted drainage systems so that it is functioning again if overwhelmed by amount of water discharged from dewatering, increased drainage pumping costs to be paid to RDs, and cost of not having sufficient water to meet current land uses. If land will need to be fallowed because of lack of sufficient water, then this needs to be disclosed, including the number of acres and types of crops to be impacted so can be mitigated in this chapter or the agriculture chapter.</p>	
5	7-47 7-48	27-44 1-8	<p>MITIGATION MEASURE GW-1: Maintain water supplies in areas affected by construction dewatering</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project that cannot be avoided. However, the EIR/EIS must first perform a robust analysis to support the conclusion that impacts are significant and unavoidable. The EIR/EIS cannot defer the determination of the scope and nature of significant impacts until future monitoring is done or studies and reports are prepared. Impact GW-1 improperly deflects the responsibility for analyzing those impacts to some future date. This is an impermissible deferral of pre-project</u></p>	

		<p><u>environmental analysis which prevents us as a cooperating agency from determining the scope, severity, or duration of the impacts from this project activity.</u> The assumptions and conclusions are made on pure speculation, conjecture and pre-decisional ambiguous radius of influence limits that may not in fact represent the true nature, extent, severity, and duration of the impacts likely to occur as a result of this project activity. Erosion damage resulting from increased flow velocities created by dewatering discharges must be repaired or alleviated under Article 6 of the 1981 NDWA Water Availability and Quality Agreement with DWR, so where and what these fixes will be need to be should be included as a required mitigation.</p> <p><u>In order to approve a project, the lead agencies must identify feasible mitigation measure or alternatives that would avoid or substantially lessen any significant adverse environmental effects of the project. The mitigation measures must be specific and mandatory, such that they are fully enforceable.</u> How and from where will offsite water be transported to supply domestic water supply needs if a temporary connection to a nearby unaffected well cannot be made? How often will potable water be delivered to homes and in what quantities? Will the amount delivered to homes be based on existing usage or will there be some arbitrary limit be placed on each home based on a daily per capita usage determined by BDCP proponents? Will BDCP pay for the cost of drilling deeper domestic wells and their increased monthly electricity pumping costs? What kind of criteria is required for a “substantial evidence” standard to be met that indicates wells are adversely affected and who decides if the evidence standard is met? What is landowners option if BDCP disagrees that sufficient evidence to allow them to be provided mitigation? Allowing BDCP Proponents to decide what criteria is required for a “substantial evidence” standard to be met that indicates wells are adversely affected or not is a serious conflict of interest that obfuscates the liability of BDCP to remediate, repair, or avoid the damage to local domestic water supply caused by their project. Unless the impacts and mitigation are specific and measurable, and written into the HCP/NCCP as permit conditions to be approved by the permitting agencies, then there is too much risk that BDCP Proponents will arbitrarily and capriciously reject and deny legitimate adverse impacts that are their obligation to mitigate.</p>	
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			<p>How many agricultural acres would experience water supply losses from dewatering? How many acres will be fallowed and for how long if sheet piles or deepening of wells is not “feasible?” What kind of crops will be affected? What will be the long term impacts on the future productivity of these soils for agriculture crops if go without planting for long period of time? An analysis of these issues need to be included with a corresponding Mitigation Measure.</p>	
6	7-48	12-26	<p>IMPACT GW-2: Deplete groundwater supplies, interfere with groundwater recharge, alter local groundwater levels, or reduce the production capacity of preexisting nearby wells during operation of water conveyance (CM1)</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion whether impacts will occur or not and if they are significant and unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u> Where is the current studies or data and modeling used by BDCP that supports the assumptions and conclusions made in this impact statement? What was actually analyzed to determine these assumptions are in fact the correct ones to use? Why is the information and details regarding the changes in Delta hydraulics that were modeled and explained in the Plan’s <i>Effects Analysis</i> not included in the EIR/EIS analysis of environmental impacts on groundwater? Where did the elevation increase of 10 feet or more number come from? What data or studies is it based on? If from recent modeling or studies, then that information and results needs to be cited and explained. What is the definition of “in the vicinity of?” How many acres near the forebays will experience increased water elevations of 10 feet or more? Is this a year-round state or do the elevations change month-to-month based on Alt 4 water ops?</p> <p>Significant Impacts Not Identified – The Impact Analysis didn’t even bother to discuss all of the potential impacts identified in the title of GW-2 and is silent as to what evidence exists to support a</p>	

		<p>conclusion that no other impacts other than an increase in forebay "vicinity." The purpose of an EIR/EIS is to provide an environmental analysis of the impacts caused by implementing a project, in the case of the BDCP, the Covered Actions and CMs. Unfortunately, the preparers of the EIR/EIS failed to transfer the acknowledgement of the significant and widespread changes in Delta hydraulics and hydrodynamics resulting from implementation of CM1 that are reported in the Plan Chapter 5 <i>Effects Analysis</i>. The relevance of all of the changes in surface flow patterns (including unnatural flows: reverse and unidirectional instead of tidal), altered water surface elevations, and water quality to the interference of groundwater supplies is pointed out on page 7-5, lines 14-17, "<i>Because the Delta is a large floodplain and the shallow groundwater is hydraulically connected to the surface water, changes in river stages affect groundwater levels and vice versa.</i>" Despite this hydraulic connection of surface and groundwater in the Delta, Chapter 7 of the EIR/EIS fails to report the findings regarding changed hydraulics, flows, and water elevations from the new water diversions from the Sacramento River proposed in CM1 and CM2 that are explained in the Plan Effects Analysis and instead only acknowledges the groundwater impacts from dewatering, discharges, and seepage from forebay. The tidal action's influence on this hydraulic connection is also pointed out on page 7-5, lines 17-18: "<i>This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby.</i>"</p> <p>According to the <i>Effects Analysis</i>, CM2's diversion of 6,000 af into the Yolo Bypass results in lowering the Sacramento River by more than 3 feet which could cause additional lowering of groundwater table since the Delta groundwater is hydraulically connected to the surface water and changes in river stages affect groundwater levels and vice versa, page 7-5, lines 14-16. Adding CM1 which would divert another 3,000-9,000 cfs into the new North Delta intakes will reduce the surface water elevations in the Sacramento River below the new intakes as well as sloughs and channels downriver such as Steamboat, Sutter, and Georgiana. Plan Chap 5, page 5.3-10. The EIR/EIS is supposed to analyze the environmental impacts of the Plan, which should include all of the findings regarding hydrologic and hydraulic water changes identified</p>	
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		<p>in the Plan's <i>Effects Analysis</i>, such as altered flow patterns (including unnatural reverse and unidirectional flows instead of twice daily tidal action) and velocities, tidal muting from implementation of habitat measures, changes to surface water elevations in rivers and channels, and water quality.</p> <p>This is particularly concerning since the homes and businesses in the Delta communities of Clarksburg, Courtland, Freeport, Hood, Isleton, Rio Vista, Ryde, and Walnut Grove receive their water supply from individual water wells (groundwater), Page 7-1, lines 25-28, (municipal and irrigation well are typically deeper in the aquifer, 200-400 feet below ground surface, than domestic wells that are about 100-250 feet below ground surface), page 7-8, lines 33-35, and maintaining groundwater levels below crop rooting zones is critical for successful agriculture, Page 7-5, lines 20-21, and groundwater is used throughout the Delta through pumping and plant uptake in the root zone, page 7-11, lines 26-27, with an average annual groundwater pumping in upland peripheral Delta areas estimated to range from 100,000 and 150,000 acre-feet of water for both domestic and agricultural uses, page 7-11, lines 28-29.</p> <p><u>The assumptions and conclusions in the EIR/EIS Impacts Analysis must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion do not qualify either.</u> Environmental analysis failed to provide any current studies or BDCP specific data and information collected and then analyzed to reach the conclusions that a groundwater level rise of 10 feet or more in the vicinity of the two new forebays during operation of new conveyance facilities would not affect the yields of nearby wells. Without any evidence to back up the assumption and conclusion that groundwater level increases from the forebays won't impact yields of nearby wells and therefore there's no adverse effect under GW-2 is only conjecture and speculation.</p> <p>The no adverse impact conclusion is also incorrect because the EIR/EIS failed to even acknowledge water operation effects (all four Alt 4 scenarios) on Delta hydraulics which includes a direct connection</p>	
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			<p>between surface and groundwater, page 7-5, lines 14-17, “Because the Delta is a large floodplain and the shallow groundwater is hydraulically connected to the surface water, changes in river stages affect groundwater levels and vice versa.” Despite this hydraulic connection of surface and groundwater in the Delta, Chapter 7 of the EIR/EIS fails to report the findings regarding changed hydraulics, flows, and reduced water elevations from the new water diversions from the Sacramento River proposed in CM1 and CM2 that are explained in the Plan’s <i>Effects Analysis</i> and instead only acknowledges the higher groundwater impacts near forebays. The tidal action’s influence on this hydraulic connection is also pointed out on page 7-5, lines 17-18: “This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby.”</p> <p>As mentioned above, according to the Plan’s <i>Effects Analysis</i>, the water operations proposed under all four Alt. 4 scenarios will in fact have impacts on groundwater supplies. According to the <i>Effects Analysis</i>, CM2’s diversion of 6,000 af into the Yolo Bypass results in lowering the Sacramento River by more than 3 feet which could cause additional lowering of groundwater table since the Delta groundwater is hydraulically connected to the surface water and changes in river stages affect groundwater levels and vice versa, page 7-5, lines 14-16. Adding CM1 which would divert another 3,000-9,000 cfs into the new North Delta intakes will reduce the surface water elevations in the Sacramento River below the intakes as well as sloughs and channels downriver such as Steamboat, Sutter, and Georgiana. Plan Chap 5, page 5.3-10. This lowered river and channel elevations most certainly could result in a sustained and possibly permanent lowering or depletion of water wells in a very wide area of the North Delta, well beyond the actually facility location and must be acknowledged, analyzed, and mitigated.</p>	
7	7-48	35-36	<p>MITIGATION MEASURE GW-2: Needs to be added.</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project, particularly those that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion of whether</u></p>	

			<p><u>impacts exist or not, as well as their level of significance and whether they are unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u></p> <p>Incorrect CEQA Conclusion – For the reasons stated above, the CEQA Conclusion is incorrect and should be expanded to include conclusions from an analysis of the impacts on groundwater in all areas where the Plan Chap 5 Effects Analysis indicates surface water elevations will be lowered and tidal exchanges muted under all four scenarios of Alt 4 water ops and changed to: Significant Adverse.</p> <p>Requires Mitigation – Changing the CEQA Conclusion to Significant Adverse Impact will also require the EIR/EIS to identify appropriate mitigation measures to address the impacts of lowered river and channel elevations and tidal muting caused by Alt 4 water ops as analyzed in the Plan Effects Analysis.</p>	
8	7-48 7-49	37-43 1-7	<p>IMPACT GW-3: Degrade water quality during construction and operation of conveyance facilities (CM1)</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion whether impacts will occur or not and if they are significant and unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u> Where is the current studies or data and modeling used by BDCP that supports the assumption and conclusion that only dewatering would cause temporary changes to groundwater levels near intakes and forebays, that the levels would return to within 5 feet of the static condition 2 months after dewatering ceases, or that no significant regional changes in groundwater flow directions are forecasted? Apparently the consultants who prepared this Impact Analysis failed to read the BDCP Plan on which the EIR/EIS is supposed to base its environmental analysis, specifically the Plan Chapter 5 <i>Effects Analysis</i>’ reporting of extensive, significant and permanent changes in Delta hydraulics and surface water</p>	

		<p>elevations, flow patterns, and velocities.</p> <p><u>Ditto Impact GW-2 Comments on Need to Include Effects Analysis Impacts on Groundwater Quality</u> - Refer to comments above for Impact GW-2 for the citations to the reasons why the Plan's <i>Effects Analysis</i> modeling of Alt 4 water ops and the reported changes to Delta hydraulics including flow patterns and velocities, water elevations that according to Page 7-5 will have significant and permanent impacts on groundwater in widespread areas of in North Delta, particular along the Sacramento River, and Sutter, Steamboat, and Georgiana Sloughs and must therefore be acknowledged, analyzed, and level of impacts recognized in Impact GW-3.</p> <p>Why is the information and details regarding the changes in Delta hydraulics that were modeled and explained in the Plan's <i>Effects Analysis</i> not included in the EIR/EIS analysis of environmental impacts on groundwater quality Impact GW-3?</p> <p><u>Significant Impacts Not Identified</u> – The purpose of an EIR/EIS is to provide an environmental analysis of the impacts caused by implementing a project, in the case of the BDCP, the Covered Actions and CMs. Unfortunately, the preparers of the EIR/EIS failed to transfer the acknowledgement of the significant and widespread changes in Delta hydraulics and hydrodynamics resulting from implementation of CM1 water operations and CM2 for Alt. 4 (all four scenarios) that are reported in the Plan Chapter 5 <i>Effects Analysis</i>. The relevance of all of the changes in surface flow patterns (including unnatural flows: reverse and unidirectional instead of tidal), altered water surface elevations, and water quality to the interference of groundwater supplies is pointed out on page 7-5, lines 14-17, "<i>Because the Delta is a large floodplain and the shallow groundwater is hydraulically connected to the surface water, changes in river stages affect groundwater levels and vice versa.</i>" Despite this hydraulic connection of surface and groundwater in the Delta, Chapter 7 of the EIR/EIS fails to report the findings regarding changed hydraulics, flows, and water elevations from the new water diversions from the Sacramento River proposed in CM1 and CM2 that are explained in the Plan Effects Analysis and instead only acknowledges the groundwater impacts from dewatering, discharges, and seepage from forebay. The tidal action's influence on this</p>	
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		<p>hydraulic connection is also pointed out on page 7-5, lines 17-18: “This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby.”</p> <p>According to the Effects Analysis, CM2’s diversion of 6,000 af into the Yolo Bypass results in lowering the Sacramento River by more than 3 feet which could cause additional lowering of groundwater table since the Delta groundwater is hydraulically connected to the surface water and changes in river stages affect groundwater levels and vice versa, page 7-5, lines 14-16. Addin CM1 which would divert another 3,000-9,000 cfs into the new North Delta intakes will reduce the surface water elevations in the Sacramento River below the new intakes as well as sloughs and channels downriver such as Steamboat, Sutter, and Georgiana. Plan Chap 5, page 5.3-10.</p> <p>How will the changed Delta hydraulics and water quality identified in the Plan Effects Analysis impact water quality in wells?</p> <p><u>CEQA Conclusion Conflicts with EIR/EIS and Plan Effects Analysis</u> – In addition to the reasons stated above regarding significant <i>Effects Analysis</i> water ops changes that could significantly affect groundwater quality, the increase in groundwater elevation of up to 10 feet “in the vicinity of” the forebays could most definitely contaminate the water quality of wells since Chapter 8 <i>Water Quality</i> identifies significant and unavoidable water quality impacts (WQ-5, 6, 11, 14, 18, 22) in the Delta for seven different constituents (salinity, bromide, chloride, mercury, organic carbon, and pesticides). Why is there no cross-walking of impacts identified in EIR/EIS Chapter 8 or Plan Chapter 5?</p> <p>This is particularly concerning since the homes and businesses in the Delta communities of Clarksburg, Courtland, Freeport, Hood, Isleton, Rio Vista, Ryde, and Walnut Grove receive their water supply from individual water wells (groundwater), Page 7-1, lines 25-28.</p> <p><u>A proper environmental analysis of a project of this size and long-term (10 year) construction timeline needs to provide an accurate, stable, and finite description of the project and the existing baseline conditions used to determine the significance of</u></p>	
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			<p><u>environmental impacts in order to allow a lead agency, trustee agency, cooperating agency, or an impacted party in the Plan Area to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts.</u></p> <p>What was actually analyzed to determine these assumptions are in fact the correct ones to use? Line 39, what is the definition of “small changes?” Without Impact GW-3 providing baseline conditions or projected water ops changes to flow patterns, how can NDWA or the public confirm whether these changes are small, medium, or significant and adverse? What is the definition of “temporary?” Lower by how much? What locations? How many acres?</p> <p><u>The assumptions and conclusions in the EIR/EIS Impacts Analysis must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion do not qualify either.</u> Environmental analysis failed to provide any current studies or BDCP specific data and information collected and then analyzed to reach the conclusions that a groundwater level rise of 10 feet or more in the vicinity of the two new forebays during operation of new conveyance facilities would not affect the yields of nearby wells. Without any evidence to back up the assumption and conclusion that groundwater level increases from the forebays won’t impact yields of nearby wells and therefore there’s no adverse effect under GW-2 is only conjecture and speculation.</p> <p>The no adverse impact conclusion is also incorrect because the EIR/EIS failed to even acknowledge water operation effects (all four Alt 4 scenarios) on Delta hydraulics which includes a direct connection between surface and groundwater. This lowered river and channel elevations most certainly could result in a sustained and possibly permanent depletion of water wells in a very wide area of the North Delta, well beyond the actually facility location and must be acknowledged, analyzed, and mitigated</p>	
9	7-49	7-17	<p>MITIGATION MEASURE GW-3: Needs to be added.</p> <p><u>A lead agency must identify all significant effects</u></p>	

			<p><u>on the environment caused by a proposed project, particularly those that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion of whether impacts exist or not, as well as their level of significance and whether they are unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u></p> <p>Incorrect CEQA Conclusion – For the reasons stated above, the CEQA Conclusion is incorrect and should be expanded to include conclusions from an analysis of the impacts on groundwater quality based on the findings of how Delta hydraulics will modifier under Alt. 4 water ops according to the Plan Chap 5 <i>Effects Analysis</i>. After this review and analysis is completed, the CEQA Conclusion may need to be changed to: Significant Adverse.</p> <p>Requires Mitigation – Changing the CEQA Conclusion to Significant Adverse Impact will also require the EIR/EIS to identify appropriate mitigation measures, Mitigation Measure GW-3, to address the water quality and hydraulic impacts caused by Alt 4 water ops as analyzed and reported in the Plan Effects Analysis.</p>	
10	7-49	18-35	<p>IMPACT GW-4: Conveyance construction groundwater lowering interference with agricultural drainage in the Delta</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion whether impacts will occur or not and if they are significant and unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u> Once again, as with GW-1, 2, and 3, the preparers of Impact GW-4 apparently didn't include analysis of other chapters in EIR/EIS or Plan that clearly indicate construction activities are in fact expected to interfere with agricultural drainage. The EIR/EIS should cross-walk between the chapters and acknowledge how impacts identified in other chapters are directly related to each other.</p>	

			<p>The less than significant impact and possibly beneficial conclusion may be incorrect because the EIR/EIS failed to even acknowledge water operation effects (all four Alt 4 scenarios) on Delta hydraulics which includes a direct connection between surface and groundwater.</p> <p>Relevant Excerpts – The following should be acknowledged, discussed, and analyzed in GW-4 Impact Analysis:</p> <ul style="list-style-type: none"> • Agriculture Resources page 14-120, lines 36-38, “Construction and operation of water conveyance facilities would indirectly affect agriculture by causing seepage or changes in the elevation of groundwater within the study area as discussed in Chapter 7, Groundwater Impacts GW-1, GW-4, and GW-5.” • Groundwater page 7-5, lines 14-17, “Because the Delta is a large floodplain and the shallow groundwater is hydraulically connected to the surface water, changes in river stages affect groundwater levels and vice versa.” • Groundwater page 7-5, lines 17-18: “This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby.” <p><u>The assumptions and conclusions in the EIR/EIS Impacts Analysis must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion do not qualify either.</u> Environmental analysis failed to provide any baseline conditions information, current studies or BDCP specific data and information used to reach the conclusions that impact would less than significant or possibly beneficial. Without any evidence to back up the assumptions, conclusions, CEQA level of significance and failure to acknowledge and analyze information from other chapters results in GW-4 being based on only conjecture and speculation. Where are the studies, maps, or modeling that shows only a portion of the groundwater would temporarily flow toward the dewatering sites or changes in groundwater flow</p>	
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			directions is only minor near the intakes?	
11	7-49	35	<p>MITIGATION MEASURE GW-4: Needs to be added.</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project, particularly those that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion of whether impacts exist or not, as well as their level of significance and whether they are unavoidable in order to provide the public and cooperating agencies with adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action.</u></p> <p>Incorrect CEQA Conclusion – For the reasons stated above, the CEQA Conclusion is likely incorrect and should be expanded to include conclusions from an analysis of the impacts on groundwater quality based on the findings of how Delta hydraulics will modifier under Alt. 4 water ops according to the Plan Chap 5 <i>Effects Analysis</i>. This should include how many ag acres will be impacted, where, how often and long, and the crops impacted. After this review and analysis is completed, the CEQA Conclusion may need to be changed to: Significant Adverse.</p> <p>Requires Mitigation – Changing the CEQA Conclusion to Significant Adverse Impact will also require the EIR/EIS to identify appropriate mitigation measures, Mitigation Measure GW-4, to hydraulic impacts caused by Alt 4 water ops as analyzed and reported in the Plan <i>Effects Analysis</i> on seepage and ag drainage.</p>	
12	7-49 7-50	36-42 22	<p>IMPACT GW-5: Interfere with agricultural drainage in the Delta</p> <p>Incorrect CEQA Conclusion The conclusion that water operations under Alt. 1A and Alt 4 are not expected to result in changes in groundwater flow patterns and therefore results in less than significant impact and no mitigation requirement appears to be incorrect according to the water operation and CM2 effects (all four Alt 4 scenarios) on Delta hydraulics which includes a direct connection between surface and groundwater clearly identified in the Plan Chapter 5 <i>Effects Analysis</i> and the EIR/EIS.</p> <ul style="list-style-type: none"> • <i>Because the Delta is a large floodplain and the shallow groundwater is hydraulically</i> 	

			<p>connected to the surface water, changes in river stages affect groundwater levels and vice versa. This hydraulic connection is also evident when the tide is high and surface water flows from the ocean into the Delta, thereby increasing groundwater levels nearby. Page 7-5, lines14-18.</p> <ul style="list-style-type: none"> • BDCP will fundamentally change the hydrodynamics of the Delta. Chap 5, page 5.3-2. • The Sacramento River diversions into the proposed north Delta intakes along the Sacramento River between Freeport and Hood are the primary cause of BDCP changes in Delta flows. Chap 5, page 5.3-7. • Overall, there would be minimal upstream changes but some substantial shifts in how water moves through the Delta. Chap 5, page 5C.0-1. • In the North Delta, flow patterns will be altered by the increased diversions to the Yolo Bypass (CM2) and operations of the new north Delta intake facilities (CM1). Chap 5, page, 5.3-2. • A decrease of 6,000 cfs in the Sacramento River could result in as much as a 3-foot reduction in river stage. Chap 5, page 5C.5.4-6. • The median diversion into Sutter and Steamboat Sloughs are lower under the evaluated starting ops because of the Fremont Weir notch increases the diversions to the Yolo Bypass and because North Delta intakes reduce the Sacramento River flow at these two sloughs. In addition, tidal restoration in the Cache Slough Complex was simulated to shift the tidal elevations and reduce the Sutter/Steamboat diversion fractions. Chap 5, page 5.3-10. • The general effect of each new North Delta intake is the reduction of the downstream flow by about 3,000 cfs for a total of 9,000 cfs reduced outflow in Sacramento River, Chap 5, page 5.3-6 (when operated at capacity, which is anticipated in modeling to be at least 10% of years for months of Jan-June), Chap 5, page 5.3-7. • In the North Delta, flow patterns will be altered by the increased diversions to the 	
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		<p><i>Yolo Bypass (CM2) and operations of the new North Delta intake facilities (CM1). Chap 5, page 5.3-6.</i></p> <ul style="list-style-type: none"> • <i>Proposed tidal restoration will add substantial increment to the existing Delta surface area at high tide (+f feet) and low tide (-2 feet). The Suisun tidal restoration also causes tidal muting (reduced tidal amplitude and reduced tidal flows) throughout the Delta. Chap 5, page 5.3-37.</i> <p>The same comments made above on GW-4 also apply to GW-5 and the aforementioned needs to be analyzed in terms of ag drainage interference and adverse impacts.</p> <p><u>EIR/EIS environmental conclusions simply stating that future projects/actions/designs will comply with applicable law does not constitute avoidance of all impacts and does not suffice as replacement of mitigation. In order to approve a project, the lead agencies must identify feasible mitigation measures or alternatives that would avoid or substantially lessen any significant adverse environmental effects of the project. The mitigation measures must be specific and mandatory, such that they are fully enforceable.</u> Relying on design requirements of Division of Safety of Dams or other agency permit requirements avoids any kind of actual analysis of impacts and does not guarantee avoidance or reduction of significant adverse impacts. The EIR/EIS obviously anticipates some level of potential seepage from the operation of the forebays according to the language on <i>lines 1-7, page 7-50</i>, which mentions seepage monitoring and potential repairs/remediation after seepage occurs. A proper environmental analysis needs to be conducted to describe in detail the difference of expected seepage occurrences between a lined and unlined forebay, the soil conditions in the forebay locations including the shallow groundwater levels and interconnection with surface water levels, and provide a comparison of reasons why the proposed forebays should be lined or not in these locations and how each will perform when compared for seepage avoidance. <u>The EIR/EIS should be supported by accurate baseline condition descriptions, substantial evidence or scientific research, rather than relying on future studies and reports that have yet to even identify the actual severity of the impact, let alone an</u></p>	
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			<p><u>analysis that compares the project to the existing conditions.</u></p>	
13	7-50	23-24	<p>MITIGATION MEASURE GW-5: Agricultural lands seepage minimization (use MM GW-6)</p> <p><u>The EIR/EIS should be supported by accurate baseline condition descriptions, substantial evidence or scientific research, rather than relying on future studies and reports that have yet to even identify the actual severity of the impact, let alone an analysis that compares the project to the existing conditions.</u> The purpose of the EIR/EIS is to allow affected parties and the public to evaluate the nature and extent of the project on environmental resources. This cannot be accomplished if the site-specific evaluation of baseline conditions is deferred to a future date after the EIR/EIS has been permitted, thus preventing inclusion of required mitigation that is specific and enforceable as part of the permit conditions so they can be enforced or changed if necessary.</p> <p><u>The formulation of mitigation measures cannot be deferred until a later time based on completion of future studies. A lead agency must identify all significant effects on the environment caused by a proposed project that cannot be avoided. However, the EIR/EIS must first perform a robust analysis to support the conclusion that impacts are significant and unavoidable. The EIR/EIS cannot defer the determination of the scope and nature of significant impacts until future studies and reports are prepared. This is an impermissible deferral of environmental analysis which prevents us as a cooperating agency from determining the scope, severity, or duration of the impacts from this project activity.</u> Delaying the formulation of mitigation measures per <i>lines 26-27</i>, “potentially feasible additional mitigation measures will be developed in consultation with affected landowners,” is inappropriate as the seepage damage will have already occurred instead of specific measures to avoid the impact in the first place being evaluated and provided in the EIR/EIS permit conditions.</p>	
14	7-50 7-51	25-41 1-16	<p>IMPACT GW-6: Deplete or interfere with groundwater supplies (recharge, elevations, well production, seepage) as a result of CM 2-22</p> <p><u>A proper environmental analysis of a project of this size and long-term (10 year) construction timeline</u></p>	

		<p><u>needs to provide an accurate, stable, and finite description of the project and the existing baseline conditions used to determine the significance of environmental impacts in order to allow a lead agency, trustee agency, cooperating agency, or an impacted party in the Plan Area to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts. The assumptions and conclusions in the EIR/EIS Impacts Analysis must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion do not qualify either.</u> The language referenced below is too vague and ambiguous to allow us to evaluate the nature and extent or adequacy of the mitigation.</p> <ul style="list-style-type: none"> • <i>“Increased frequency of inundation of areas associated with the proposed tidal habitat, channel margin habitat, and seasonally inundated floodplain restoration actions would result in increased groundwater recharge.” Page 7-50, lines 28-30.</i> • <i>“Such increased recharge could result in groundwater level rises in some area.” Page 7-50, lines 30-31.</i> • <i>“Depending on the local geology, flooding of one area could also increase seepage to adjacent islands.” Page 7-50, lines 31-32.</i> • <i>“would be expected to result in a substantially increased rate of recharge and related groundwater-level increases.” Page 7-50, lines 33-34.</i> <p>What is the definition of “substantially increased rate of recharge” and what studies or other evidence of baseline or project conditions indicates this may occur? How much groundwater recharge is expected and where? How many feet is the groundwater level expected to rise under each conservation measure 2-22? Does the level of groundwater level rising vary depending on the type of habitat (ie: inundated floodplain v. tidal habitat) proposed in each conservation measure and by the location as well?</p> <p>The purpose of the EIR/EIS is to allow affected parties and the public to evaluate the nature and</p>	
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		<p>extent of the project on environmental resources. This cannot be accomplished if the site-specific evaluation of baseline conditions is deferred to a future date after the EIR/EIS has been permitted, thus preventing inclusion of required mitigation that is specific and enforceable as part of the permit conditions. The EIR/EIS should describe the geology of each area where habitat is proposed to be created under CM 2-22 instead of saying "Depending on the local geology," <i>line 31</i>. The EIR/EIS should provide the information on baseline conditions and project elements and the analysis comparing how the conditions will be changed by the project and by how much and whether adverse impacts or not instead of stating, "effects could be beneficial or deleterious depending on existing groundwater levels and land uses." Such non-conclusions regarding actual impacts and their locations, duration, and severity provides no help what-so-ever to agencies or landowners regarding the actual impacts of the proposed project. This is especially true for a project that proposes to convert 100,000 acres or more to habitat and due to the historical evidence of seepage damage occurring on Ryer Island when Prospect Island was flooded and by the farmers who are suing for damages caused by implementation of San Joaquin Restoration Program are in fact likely to occur if CM2-22 are implemented.</p> <p>EIR/EIS failed to provide any baseline conditions information, current studies or BDCP specific data and information collected in locations of potential projects and then analyzed to reach the conclusions t that effects could be beneficial or deleterious. Without any evidence to back up the assumptions, conclusions, CEQA level of significance and failure to acknowledge and analyze information from other chapters in EIR/EIS and Plan results in GW-6 being based on only conjecture and speculation. Where are the studies, maps, or modeling that show how much of a groundwater recharge areas where CM 2-22 are anticipated to be implemented this Impact Statement concludes will be occurring as a result of increased inundation?</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project, particularly those that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion of whether</u></p>	
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15	7-51	17-32	<p>MITIGATION MEASURE GW-6: Agricultural lands seepage minimization</p> <p><u>The EIR/EIS should be supported by accurate baseline condition descriptions, substantial evidence or scientific research, rather than relying on future studies and reports that have yet to even identify the actual severity of the impact, let alone an analysis that compares the project to the existing conditions. Lines 18-32,</u> defer a lot of data collection and determinations to some unknown future date and unidentified entities which raises many questions regarding how impacts will be measured and determined, and therefore eligibility for mitigation measures to remedy harm caused by the Project. Who determines whether the seepage is caused by implementation of one of the habitat CMs? What criteria must whoever gets to decide use in determining whether seepage caused by implementation of one of CMs2-22? What independent third-party will confirm whether the</p>	

		<p>baseline conditions are accurate or not? Who gets to decide what sites “could result in seepage”? What criteria must the entity use in deciding these sites? Who decides where the monitoring devices will be placed and how long they will monitor? Who conducts the field checks of the monitoring, how often, and for how long? Who do they report the results to and how often? Who decides what the potential “associated impacts on agricultural field conditions” are and what criteria must they use in making this decision? Who gets to decide what constitutes what “potentially feasible additional mitigation measures” will be? Do the permitting agencies of the BDCP HCP/NCCP decide what is all of the above? If so, then this should be explained, as well all of the criteria to be used by future decision-makers. What happens if landowner disagrees with the adequacy of the mitigation measure the BDCP must consult with them on?</p> <p><u>The EIR/EIS assumes, without evidentiary support in the record, that all the mitigation measures will be fully implemented where the project activities may have a direct or indirect effect and that the measures will in fact work to avoid or substantially reduce the significance of the adverse impacts, which may in fact not occur. The EIR/EIS additionally fails to account for and analyze impacts resulting from Project activities if the mitigation measures are not implemented or not working in terms of reducing the level of adverse impacts.</u> What happens if implementation of mitigation measures is not reducing the adverse impacts as anticipated? Under what criteria will the permitting agencies even determine if the mitigation measures are working or whether they are reducing adverse impacts enough?</p> <p>Without this information the public and cooperating agencies do not have adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action or to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts.</p> <p><u>In order to approve a project, the lead agencies must identify feasible mitigation measure or alternatives that would avoid or substantially lessen any significant adverse environmental effects of the project. The mitigation measures</u></p>	
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16	7-51 7-52	33-42 1-4	<p>IMPACT GW-7: Degrade groundwater quality as a result of implementing CM2-22</p> <p><u>The assumptions and conclusions in the EIR/EIS Impacts Analysis must be supported by substantial evidence – actual facts. They can be reasonable assumptions or expert opinions – but they must still be predicated and backed up by facts. Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion do not qualify either.</u> What analysis did the EIR/EIS do that resulted in the assumption that neither Alt. 1A or Alt. 4 will alter regional patterns of groundwater flow or quality, <i>lines 34-35</i>? Did the EIR/EIS include assumptions from other chapters to reach this conclusion such as:</p> <ul style="list-style-type: none"> • <i>There may be changes in salinity in some</i> 	

		<p><i>Delta locations caused by tidal flow missing effect from restoration actions and sea level rise. Chap 5, page 5.3-3.</i></p> <ul style="list-style-type: none"> • <i>Increased tidal mixing associated with the addition of tidal marsh restoration areas under the BDCP may allow more salt into the western Delta. EIR/EIS Chap 6, page 6-40. Chap 5, page 5C.0-2.</i> • <i>Restoration of 65,000 acres of tidal marsh (CM4) could result in changes in turbidity and tidal excursion in specific Delta locations and subregions. Chap 5, page 5C.0-2.</i> • <i>Proposed tidal restoration will add substantial increment to the existing Delta surface area at high tide (+4 feet) and low tide (-2 feet). Chap 5, page 5.3-37.</i> • <i>Tidal flows in the lower Sac River (West Delta ROA) were reduced by the downstream restoration in Suisun Marsh and were increased by the upstream restoration in Cache-Slough ROA. The net effect on tidal flows was an increase of about 3% in the lower Sac River flows. Tidal flows in the lower SJR (West Delta ROA) were reduced by about 10%. Simulated tidal elevations will be muted and tidal flows will be reduced in the Sac River. Chap 5, page 5.3-37.</i> • <i>A decrease of 6,000 cfs in the Sacramento River could result in as much as a 3-foot reduction in river stage, although understanding of how notch flows would affect river stage is incomplete. Chap 5, page 5C.5.4-6.</i> <p>Clearly the BDCP <i>Effects Analysis</i> modeling has shown that habitat CMs will in fact alter regional patterns of surface water flow and quality, and page 7-5 of this chapter clearly identifies the interconnection and action/reaction of changes in surface water affecting groundwater and vice versa. Therefore, Impact GW-7 needs to expand the analysis to include descriptions of how these changes in the <i>Effects Analysis</i> will impact groundwater quality.</p> <p><u>A lead agency must identify all significant effects on the environment caused by a proposed project, particularly those that cannot be avoided. However, the EIR/EIS must first perform a rigorous analysis that discloses the nature and extent of the impacts to support the conclusion of whether</u></p>	
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			<p>accomplished if the site-specific evaluation of baseline conditions is deferred to a future date after the EIR/EIS has been permitted, thus preventing inclusion of required mitigation that is specific and enforceable as part of the permit conditions. The CEQA Conclusion’s statement that, “At this point, a definitive conclusion regarding the potential for groundwater quality degradation beneath restoration areas cannot be reached” is particularly concerning in light of the significant adverse impacts groundwater quality degradation will have on land uses, particularly agricultural production, if the EIR/EIS properly evaluates impacts in terms of the importance of groundwater to the Delta’s economy and public health:</p> <ul style="list-style-type: none"> • <i>The homes and businesses in the Delta communities of Clarksburg, Courtland, Freeport, Hood, Isleton, Rio Vista, Ryde, and Walnut Grove receive their water supply from individual water wells (groundwater), Page 7-1, lines 25-28</i> • <i>Maintaining groundwater levels below crop rooting zones is critical for successful agriculture, Page 7-5, lines 20-21</i> • <i>Groundwater is used throughout the Delta through pumping and plant uptake in the root zone, page 7-11, lines 26-27</i> • <i>An average annual groundwater pumping in upland peripheral Delta areas estimated to range from 100,000 and 150,000 acre-feet of water for both domestic and agricultural uses, page 7-11, lines 28-29.</i> 	
17	7-52	6-16	<p>MITIGATION MEASURE GW-7: Provide an alternate source of water</p> <p><u>The EIR/EIS should be supported by accurate baseline condition descriptions, substantial evidence or scientific research, rather than relying on future studies and reports that have yet to even identify the actual severity of the impact, let alone an analysis that compares the project to the existing conditions. Lines 6-16</u>, defer a lot of data collection and determinations to some unknown future date and unidentified entities which raises many questions regarding how impacts will be measured and determined, and therefore eligibility for mitigation measures to remedy harm caused by the Project. What is the definition of “unacceptable degradation of groundwater quality”? Who gets to decide what will be accepted as “unacceptable degradation” and therefore eligible for mitigation? When, how and</p>	

			<p>who will determine what the “previously established beneficial uses” are? “Established” by who/what entity? “Established” when? Who decides what constitutes “quality comparable to pre-project conditions”? The MM fails to mention the amounts of water to be provided or how often and for how long the water will be provided. Without this information the public and cooperating agencies do not have adequate information to fully assess the direct, reasonably foreseeable indirect, and cumulative impacts of a proposed action or to evaluate the severity of the impacts or the feasibility of the project alternatives and mitigation measures to avoid or lessen such impacts.</p> <p><u>In order to approve a project, the lead agencies must identify feasible mitigation measure or alternatives that would avoid or substantially lessen any significant adverse environmental effects of the project. The mitigation measures must be specific and mandatory, such that they are fully enforceable. To the extent that a lead agency rejects potential mitigation, the lead agency must also provide information in the record to justify rejecting mitigation measures as infeasible based on economic, social, or housing reasons. The formulation of mitigation measures cannot be deferred until a later time based on completion of future studies or agreements being signed, although a lead agency is allowed to provide specific performance standards that specify the extent to which impacts will be mitigated.</u> If left to the BDCP Proponents to decide whether degradation is “unacceptable” or whether the degradation is caused by the activities in the implementation of BDCP CMs is a serious conflict of interest that obfuscates the liability of BDCP to remediate, repair, or avoid the damage. Unless the impacts and mitigation are specific and measurable, and written into the HCP/NCCP as permit conditions to be approved by the permitting agencies, then there is too much risk that BDCP Proponents will arbitrarily and capriciously reject and deny legitimate adverse impacts that are their obligation to mitigate.</p>	
18	7-52	17-23	<p>IMPACT GW-8: Groundwater changes in export service areas</p> <p>There is absolutely no description given regarding whether implementation of BDCP will deplete, interfere, alter, or reduce any groundwater</p>	

			production or not. Will the average annual deliveries to these service areas result in improving or worsening those groundwater basins?	
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