WC Agenda Item #4

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STAFF REPORT

DATE: August 27, 2018

TO: Butte County Water Commission

FROM: Kelly Peterson, Water Resources Scientist
Department of Water and Resource Conservation

RE: Recommendations of the Water Commission Ad-hoc Subcommittee regarding the Basin Management Objective (BMO) Program

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The Butte County BMO program has entered its fourteenth year. The BMO program has become an important cornerstone of our water resource management efforts to date. It was a required element of a Groundwater Management Strategy (AB3030 / SB1938) and integrated regional water management plans until recently with the passage of the Sustainable Groundwater Management Act (SGMA) of 2014 and the associated Groundwater Sustainability Plans (GSPs) which are now intended to fulfill those roles. In order to assure that the intent of the BMO program continues to be met in the interim while GSPs are being developed, without creating duplicative work now that the Department is implementing SGMA county-wide, a review of the program is necessary. On June 6, 2018, the Water Commission appointed Water Commissioners D.C. Jones, Tod Kimmelshue, David Skinner and Ernie Washington to an ad-hoc Subcommittee charged with reviewing and evaluating the BMO program. The Subcommittee has met twice since formation, once on June 29, 2018 and again on August 17, 2018.

The review of the BMO program has identified many successes of the program over the years as well as areas that warrant improvement during this transition to sustainable groundwater management under SGMA. The establishment of BMO criteria and comprehensive monitoring and reporting, and outreach to stakeholders are among the strengths of the BMO program. However, the subcommittee felt that a clear need to transition this program into a more efficient, relevant and streamlined program while in place and to propose an expiration date of Jan. 30, 2022 for Chapter 33A in light of new SGMA requirements. On this date, the BMO program with the currently proposed revisions would expire and the fundamental components of the monitoring described in Chapter 33A would transition into a monitoring program more relevant to SGMA as described in the GSPs, required under SGMA for all subbasins in Butte County. Development of three GSPs relevant to the subbasin in Butte County are currently underway and have a deadline for submittal to DWR by Jan. 30, 2022. The revised BMO program will be used foundationally in the development of a new monitoring program more adept at meeting the legal requirements of SGMA and will phase out when the GSPs are submitted to the Department of Water Resources (DWR) by January 30, 2022.

As the BMO program moves forward temporarily before becoming enveloped into the new monitoring program as will be described in the GSPs, it should be based on what has worked so far -- scientifically credible BMOs, a strong monitoring program, clear reporting of data, sound evaluation of data and education and outreach to stakeholders. However, the subcommittee felt that the BMO program has been hampered by unrealistic expectations of stakeholder responsibilities and excessive irrelevant reporting requirements. To achieve these goals, a number of changes to the ordinance will be necessary as recommended by the committee. Addressing these recommendations will assure that the BMO program serves a strong relevant purpose while transitioning into the next phase of sustainable groundwater management within Butte County.

The Origins of the BMO Program

In January 2002, the Water Commission made a recommendation to the Board of Supervisors to investigate the concept of utilizing BMOs as a potential program for managing the groundwater basin. The BMO concept was based on a DWR, Northern District proposal and built from a similar program enacted in Glenn County. The Board accepted the recommendation and directed the Department to proceed with the development of BMOs for the basin area of the county. The Department drafted and publically circulated a draft ordinance for consideration by the stakeholders and eventually by the Board. After significant public comment and revisions, the Board approved the ordinance on February 10, 2004 and the BMO ordinance was codified as Chapter 33A of the Butte County Code. The BMO program became a component of the Butte County Groundwater Management Plan (2005).

The original intent of BMOs was not to mitigate or provide third party impact protection as required through a Chapter 33 application. The ordinance included specific findings of the Board to articulate its intent:

- Protection of the groundwater resource for beneficial use within the County is of major concern to the residents of the County for the protection of their health, welfare and safety.
- The beneficial use and maintenance of groundwater and protection of recharge zones is of critical importance to the economy and environment of the County.
- BMOs are intended to ensure the continued sustainability of groundwater quantity and quality within the County.
- It intends to protect groundwater quality and prevent land subsidence.
- It does not hereby intend to regulate, outside of Chapter 33, the use of groundwater; unless established BMOs are exceeded.
- BMOs are essential for information gathering and management purposes that the County maintains a monitoring program addressing groundwater elevations, groundwater quality standards and subsidence criteria.
- Through the enactment of BMOs, the County does not intend to limit other means of managing groundwater within the County as authorized elsewhere in statute or ordinance.
- The County intends to work cooperatively with local entities and the general public to further develop and implement joint groundwater management plans.

Upon enactment of the ordinance, the department began taking steps to implement the program such as producing guidelines for developing BMOs for each of the subinventory units (SIU). The SIUs are based on the Inventory and Subinventory units defined in the Butte County Water Resources Inventory and Analysis report (2005). The first BMOs were adopted in June of 2006. Since then, the Department in cooperation with the Water

Advisory Committee, Technical Advisory Committee and stakeholders have collectively refined and modified some aspects of the BMO program.

In 2008, the Department launched the BMO Information Center (BMOIC) which is a publically accessible database of key BMO wells and other data within the Counties of Butte, Colusa, Glenn and Tehama Counties. The BMOIC allows stakeholders to access groundwater data and prepare reports.

In 2009, the TAC prepared a report and recommendations to streamline the BMO program. The TAC recommended updating and streamlining data collection, utilizing a standardized methodology for setting BMOs, improved communication between the WAC and the TAC and utilizing BMO data as part of the Drought Task Force evaluation. Limited resources from the County are available for managing the BMO program; therefore, program efficiency is essential.

In 2011, the Water Commission made recommendations to the Board of Supervisors to further streamline and clarify roles within the BMO program by consolidating SIUs, removing formal approval of BMOs by the WAC, incorporating the BMO and Alert Stage criteria into the Ordinance, removing the WAC/stakeholders from overseeing the monitoring program, clarifying the non-voting roles of SIU representatives and that at-large WAC members, amending the frequency of WAC meetings and modifying the process to reflect that staff prepares the BMOs in consultation with the SIU representative as well as other items.

A Review of the BMO Program

Water Advisory Committee (WAC) and Public Participation - Public participation is at the heart of the BMO program and a source of its greatest strength and weakness. The goal of the Ordinance in regards to stakeholders, especially those appointed to the WAC, is for full public participation as a liaison with the Department and the respective stakeholders within their respective SIUs with minimal support from the department. This model for public participation can only function if public volunteers fully participate. However, the level of participation by stakeholders and the structure of the WAC have not met this goal.

The WAC includes SIU representatives as well as representatives from watershed groups and other at-large members for a total of 28 representatives. The WAC was intended to be the primary public venue for BMO issues, however, the WAC has not adequately functioned as the outreach mechanism it was envisioned to be. Since 2006, most WAC meetings failed to have a quorum. And those that did, had a quorum by the slimmest of margins. Finding candidates to fill WAC positions has been difficult or impossible and some positions have been vacant for close to two years. A majority of the members typically miss most meetings. In fairness, there are a small number of WAC members that have consistently participated in the creation of BMOs, outreach to stakeholders and have attended most WAC meetings. The WAC has played an important role as a forum for stakeholders to receive data and share anecdotal information however the information is not reported regularly and can at times be non-relevant to the evaluation of monitoring results.

A significant amount of resources and effort have taken place to make the ordinance function as intended. However, the program has reverted to a more traditional structure of having the staff administer the program with minimal input from stakeholders. The repeated attempts to make this process function have been unproductive for both the Department and stakeholders.

The envisioned new role of the WAC/SIU representatives includes their transition into one of the Stakeholder Advisory Committees or Technical Working Groups that are being developed as part of the governance structures in the subbasins in which they reside. These committees / groups will function to develop the monitoring components as described in the GSP which will be aimed at establishing the monitoring objectives, sustainable criteria, thresholds and project and actions which will provide the tools to sustainably manage groundwater throughout the subbasin in Butte County.

Sub-inventory Units - The BMO program established Inventory and Sub-inventory units based on the units defined in the Water Inventory and Analysis report (2005). The SIUs would no longer be valid structures given the dissolution of the WAC and also in light of the new structures provided for under SGMA regarding subbasins and Management Areas. For example, GSPs are now required for each subbasin under SGMA by January 30, 2022. Management Areas are planning areas within subbasins that have common land use practices for which a GSP may identify different minimum thresholds, measurable objectives, monitoring, and projects and actions based on unique local conditions or other circumstances. GSPs may be organized such that each Management Area functions as a chapter of the GSP. Removal of terminology regarding SIU's throughout the ordinance will not only reduce the reporting requirements for each SIU while this Ordinance is in place, but it will also strengthen the program to support ongoing efforts to meet the legal requirements of SGMA.

BMOs – BMOs are intended to reflect measurements that demonstrate acceptable local groundwater conditions. When measured groundwater conditions do not meet established BMOs, the program adopted a set of BMO Alert Stages that reflect unacceptable groundwater conditions. The adoption of the standardization methodology by Butte County has resulted in two acceptable methods. The concept of setting BMOs and Alert Stages has proven to be a valuable construct. For clarity and transparency, the BMO criteria should be part of the ordinance while it is in place during transition to more robust and SGMA-relevant sustainable criteria which will be described in the GSPs currently being developed. GSPs will include components describing measurable objectives, sustainable criteria, minimum thresholds, monitoring and projects and actions for each of the undesirable results identified in SGMA. Once GSPs are implemented they will describe criteria similar to BMOs and Alert Stages, however they will be more robust, comprehensive and enforceable.

Monitoring - The BMO program utilizes a comprehensive monitoring network that includes domestic, irrigation and municipal supply wells that began under Chapter 33. The network also includes dedicated monitoring wells, of which many have continuous recorders. The department, in consultation with the TAC and stakeholders have continued to evaluate the existing BMO monitoring network to consider adding new wells as resources allow. Under these recommendations, the monitoring of groundwater conditions will continue status quo until the ordinance expires at which point monitoring will continue under the provisions of Chapter 33 and through applicable GSPs.

BMO Report - The BMO annual report has increased in volume and complexity while becoming less useful to stakeholders over the years. Typically the development of the Annual Groundwater Status Report which includes 16 individual BMO reports ranging from two to 23 pages in length, is completed by the Department with input from some SIU representatives, if available. This report is presented to the Board each February pursuant to Chapter 33. Unfortunately, a considerable amount of time and effort is expended by staff to develop this report including the individual SIU reports. This document can be streamlined while the Ordinance is in place by focusing on the specific BMOs and BMO monitoring data per subbasin as related to DWR's Bulletin 118 and SGMA instead of the individual SIUs. After the expiration of the ordinance, the GSP will fulfill the goals and objectives of an annual

report on groundwater conditions as required by Chapter 33. Such an approach will allow for a more efficient and relevant display of data.

Technical Advisory Committee (TAC) - The TAC, established by Chapter 33, plays an important role in the BMO program. The role of the TAC should be to evaluate BMO monitoring data and information provided by the Department and provide recommendations to the Department and Water Commission as appropriate.

Outreach - One of more important successes of the BMO program is the factual, scientific information provided to stakeholders. The BMO program established a foundation for dialogue between the Department, SIU representatives and stakeholders. A number of SIU representatives have not actively participated in the BMO program. This includes not providing feedback to the Department on the preparation of their BMO, not conducting any outreach to local stakeholders or providing input to the Department regarding the groundwater conditions in their respective SIUs. Beginning in 2009, the TAC has requested a single page survey to be completed bi-annually by SIU representatives on conditions in their SIUs. This reporting mechanism has been underutilized in most years since 2009 (i.e. 1 of 23 returned in 2018) which means that the TAC does not receive a comprehensive picture on conditions that they would desire to evaluate BMO data.

Outreach will continue to be provided while the Ordinance is effective through a variety of methods already occurring including numerous public meetings where data is presented and discussed. These venues include but are not limited to TAC meetings, Water Commission meetings and Board of Supervisors meetings. Monitoring data, associated evaluations and reports are also provided on the Department's website and addressed in monthly newsletter articles when available. Once the governance structures are in place for the subbasins within Butte County, many other opportunities for public participation, outreach and input as required by SGMA will also be available at venues including but not limited to GSA Board meetings, Stakeholder Advisory Committee Meetings, and Technical Working Group Meetings.

Response to BMOs - The response to BMO noncompliance currently includes increased outreach to stakeholders and potential investigations that could include additional data collection and monitoring. As was learned during the drought, providing stakeholders with factual information and analysis on groundwater conditions is a powerful tool in groundwater management.

Summary of Recommendations from the Subcommittee:

- Incorporate an expiration date for the ordinance of January 30, 2022 to align with the final deadline for submittal of GSPs to DWR under SGMA for subbasins in Butte County.
- Continue monitoring status quo until expiration of the Ordinance (Chapter 33-A) on January 30, 2022.
- Clarify the definition of "Aquifer"
- Clarify the definition of "Commission"
- Dissolve the WAC by removal of references to it's structure, membership, operations, internal roles, and external interactions with TAC and the Department and rescinds WAC bylaws.
- Clarify that the TAC no longer consults with the WAC on local conditions affecting monitoring results

- Removes references to WAC members serving as subinventory unit representatives as the structure for public participation in the program
- Removes references to subinventory units as land under which monitoring results are grouped for reporting purposes and which serve as a method to determine WAC membership
- Clarifies units for water quality measurements

Summary

The BMO program has been a critical component of the County's water management effort. Over the past thirteen years the BMO program has made enormous progress in developing, analyzing, and disseminating factual information on local groundwater conditions. These actions have been essential to making sound, informed, and locally driven water resource management decisions. Without such data, analysis and outreach and water management decisions would not have contributed to the current level of understanding of groundwater conditions that we currently have which has provided for a mostly-seamless transition to the next phase of sustainable groundwater management under SGMA. The future success of the BMO program can be enhanced through the above recommendations that will help to improve public participation, program clarity, and efficiency until the ordinance expires and transitions into the foundation for the next phase of sustainable groundwater management under SGMA.

Recommendation

The Water Commission Subcommittee recommends that the Water Commission:

1. Support the recommendations of the Subcommittee.
2. Recommend to the Board of Supervisors that they adopt amendments to Chapter 33A and Water Advisory Committee By-laws consistent with the recommendations and upon completion and consideration of a 30 day public comment period on the draft amendments.

Chapter 33A - BASIN MANAGEMENT ~~OBJECTIVES~~OBJECTIVES [1]

This ordinance shall expire on January 30, 2022.

Footnotes:

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Editor's note— Section 1 of Ord. No. 4034, adopted Sept. 13, 2011, amended Ch. 33A, Groundwater Management, in its entirety to read as herein set out. Former Ch. 33A was comprised of §§ 33A-1—33A-14, and derived from Ord. No. 3869, adopted Feb. 10, 2004; and Ord. No. 3918, adopted Dec. 13, 2005.

33A-1 - Legislative intent.

(a) The Board finds that the protection of the groundwater resource for beneficial use within the County is of major concern to the residents of the County for the protection of their health, welfare and safety. The Board further declares that the beneficial use and maintenance of groundwater and protection of recharge zones is of critical importance to the economy and environment of the County.

(b) The Board intends to ensure the continued sustainability of groundwater quantity and quality within the County.

(c) The Board intends to protect groundwater quality and prevent land subsidence.

(d) The Board does not hereby intend to regulate, outside of Chapter 33, the use of groundwater.

(e) It is essential to the success of the Basin Management Objective program that the County maintains a monitoring program addressing groundwater elevations, groundwater quality and land subsidence.

(f) In adopting the groundwater management ordinance codified in this chapter, the Board does not intend to limit other means of managing groundwater within the County authorized elsewhere in statute or ordinance, and intends to work cooperatively with local entities to monitor, evaluate and disseminate information on groundwater conditions to foster sound local groundwater management.

Commented [KP1]: This date is the final deadline for submittal of GSPs to DWR under SGMA for subbasins in Butte County. The sunset clause will address the transition of the BMO program (specific to Ch. 33-A not Ch. 33) including the evaluation of alert stages and other constituents per sub-inventory unit, to the monitoring program that will be reported in the GSPs annually and every 5 years. Note: Chapter 33 (not being amended) still requires Butte Co. to monitor groundwater levels 4x/yr. Info. from these efforts will be reported in the annual and 5 yr. GSP reports.

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Commented [KP2]: Will amend this section at the end of the process

(g) It is the intent and purpose of the information collection effort described by this chapter to assist in avoiding negative effects on health and welfare of County residents, such as:

(1) Lowering of groundwater levels leading to increased energy consumption, a potential decrease in stream flows, the increased cost of deepening existing wells and the prospect that new wells shall need to be deeper and more costly than would otherwise be required;

(2) Damage to public roads, bridges, subterranean infrastructure, canals and other structures caused by land subsidence at substantial cost to the public;

(3) Depleting surface and subsurface flows leading to the potential loss of wildlife and critical terrestrial and wetland habitat;

(4) Degradation of groundwater quality;

(5) A degradation of property values and injury to agricultural lands in Butte County.

(h) It is the purpose and intent of this chapter to establish an effective policy concerning groundwater that will assure that the overall economy and environment of the County is protected. Through the adoption of this chapter, the Board of Supervisors seeks to protect the health, safety and welfare of County residents and the general public.

(i) The Board does not intend, in adopting this chapter, to determine whether any groundwater in storage above established Basin Management Objectives is surplus groundwater, to define surplus groundwater, or to impose fees, assessments, charges or taxes upon County residents and/or business owners.

(Ord. No. 4034, § 1, 9-13-11)

33A-2 - Definitions.

(a) "BMO Alert Stage" means a measurement not achieving a Basin Management Objective.

(b) "Aquifer" means a geologic formation that may store, transmit and yield significant quantities of groundwater~~, to wells and springs~~.

Commented [KP3]: Aquifers could also yield groundwater to rivers, creeks, groundwater dependent ecosystems etc. not just wells and springs, so perhaps removal of this list would be better.

(c) "Basin Management Objectives (BMO)" means criteria established for acceptable groundwater elevations, groundwater quality and land subsidence of the Butte County groundwater resource under the provisions of this chapter.

(d) "Board" means the Board of Supervisors of Butte County.

(e) "Commission" means the nine (9) person Butte County Water Commission appointed by the Board as defined under Chapter 33. ~~Butte County Water Commission~~.

(f) "County" means the County of Butte.

(g) "District" means any purveyor of water wholly or partly within the boundaries of the County that provides water for agricultural, domestic, municipal or industrial use.

(h) "Department" means the Butte County Department of Water and Resource Conservation.

(i) "Extensometer" means an instrument for measuring land subsidence.

(j) "Groundwater" means all water beneath the surface of the earth below the zone of saturation, but does not include water which flows in known and definite subsurface channels, as set forth in the case of Los Angeles v. Pomeroy (1899) 124 Cal. 597.

(k) "Groundwater Management Plan" means a plan prepared pursuant to the California Groundwater Management Act (commencing with Water Code Section 10750 et seq.).

(l) "Land Subsidence" means the permanent lowering of the ground surface caused by the inelastic consolidation of clay beds in the aquifer system.

(m) "Recharge" means flow to groundwater storage from precipitation, irrigation, infiltration from streams, spreading basins and other sources of water.

(n) "Technical Advisory Committee (TAC)" means the seven (7) person committee nominated by the Water Commission and appointed by the Board as defined under Chapter 33.

~~(o) "Water Advisory Committee (WAC)" means an advisory body appointed by the Board.~~

(Ord. No. 4034, § 1, 9-13-11)

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Commented [KP4]: This change aligns with the style of how the TAC is defined below

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~~33A-3 Water Advisory Committee.~~

~~(a) The Water Advisory Committee (WAC) shall be appointed by the Board. The WAC shall be an advisory committee comprised of area-specific members, with one (1) member appointed from each defined sub-inventory unit within the Sacramento Valley Groundwater Basin portion of the County, and one (1) each from the Foothill and Mountain inventory units, as defined in the 2001 Butte County Water Inventory/Analysis report. Additional at-large, nonvoting members shall be appointed, one (1) from each incorporated municipality in the County: Chico, Oroville, Paradise, Gridley and Biggs, one (1) from the agricultural community, one (1) from the environmental community and one (1) from each organized watershed group in the county. The operation of the Water Advisory Committee shall be governed by bylaws approved by the Board of Supervisors.~~

Commented [KP5]: Recommendation from last ad-hoc mtg.

~~(b) Sub-inventory Units.~~

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~~(1) Vina;~~

~~(2) M&T;~~

~~(3) Llano Seco;~~

~~(4) Durham/Dayton;~~

~~(5) Western Canal;~~

~~(6) Pentz;~~

~~(7) Esquon;~~

~~(8) Cherokee;~~

~~(9) Richvale;~~

~~(10) Thermalito;~~

~~(11) Biggs-West Gridley;~~

~~(12) Butte Sink;~~

~~(13) Butte;~~

~~(14) North Yuba;~~

~~(15) Angel Slough;~~

~~(16) Chico Urban Area.~~

~~(c) The local representatives of each sub-inventory unit shall be responsible for providing the department with input on the development of the Basin Management Objective for their sub-inventory unit, providing the department with information to assist in the evaluation of their BMOs and facilitating outreach to stakeholders in their sub-inventory unit.~~

~~(d) Sub-inventory units may be added, modified or changed as deemed necessary by the stakeholders within the sub-inventory unit. All modifications and changes shall be reviewed by the WAC and approved by the Board.~~

~~(Ord. No. 4034, § 1, 9-13-11)~~

Commented [KP6]: Language re: SIU's are tied to the WAC as there is a representative from each SIU on the WAC as well as others. Reporting monitoring results by SIU is transitioning to the reporting of monitoring results by subbasin per the ad-hoc recommendations at the last mtg.

~~33A-4 - Appointments.~~

~~(a) The Board shall consider all nominations for appointment to the Water Advisory Committee that meet the following criteria:~~

~~(1) Candidates who reside, own property or have their principle place of business within the sub-inventory unit or entity which they would represent and are willing to serve in a voluntary capacity; and~~

~~(2) Candidates nominated by the citizens of the sub-inventory unit.~~

~~(b) Members of the WAC shall serve a four-year term. Terms shall be staggered by lot for two (2) years at the onset and open to reappointment for consecutive terms.~~

~~(Ord. No. 4034, § 1, 9-13-11)~~

33A-5 - Basin Management Objectives.

(a) Basin Management Objectives shall be established for:

(1) Groundwater elevation;

(2) Groundwater quality (temperature, pH and electrical conductivity); and

(3) Land subsidence.

(b) BMOs shall be based on criteria utilizing data collected from the monitoring network.

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(c) BMO Groundwater Elevation Criteria. One (1) of the following methodologies shall be used to determine the groundwater elevation BMO for wells selected as part of the monitoring network:

(1) Historic Range Method: This method is used to establish two BMOs for each well based on spring and fall data, seventeen (17) respectively.

i. For wells that have a period of record dating back to at least 1970, the BMO will be based on the historic low groundwater elevation measurement plus twenty (20) percent of the range in measured groundwater elevations, calculated from the first year on record through 2006.

a. The BMO Alert Stage 1 will be reached for measurements below the BMO.

b. The BMO Alert Stage 2 will be reached if measurements are below the historic low.

ii. For wells that do not have a period of record dating back to 1970, the BMO will be based on the historic low groundwater elevation measurement taken prior to 2006.

a. The BMO Alert Stage 1 will be reached for measurements below the BMO.

b. The BMO Alert Stage 2 will be reached for measurements below the historic low minus the range of measurements for the period of record through 2006.

(2) Specific Depth Method: The BMO will be set at five (5) feet below the average spring groundwater elevation, where the average spring elevation is calculated from the first year on record through 2006.

i. The BMO Alert Stage 1 will be reached if measurements are below the established BMO for that well.

ii. The BMO Alert Stage 2 will be reached if BMO Alert Stage 1 continues for a second consecutive year.

iii. The BMO Alert Stage 3 will be reached if groundwater levels fall ten (10) feet or more below the average spring groundwater elevation established for the well.

(d) BMO Groundwater Quality Criteria.

(1) The BMO Alert Stage for temperature will be reached when the measurement is more than five (5) degrees Celsius outside of the historic range of measurements.

(2) The BMO Alert Stage for electrical conductivity (EC ~~uS~~) will be reached for measurements greater than nine hundred (900) micro-Siemens per centimeter (µS/cm) for drinking water or greater than seven hundred (700) (µS/cm) for agricultural water.

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Commented [KP7]: Clarification items

(3) The BMO Alert Stage for pH will be reached for measurements below six and one-half (6.5) or above eight and one-half (8.5).

(e) BMO Land Subsidence Criteria.

(1) Alert Stage 1 will be reached if annual elastic subsidence exceeds the average annual elastic subsidence measured over the period of record of the extensometer.

(2) Alert Stage 2 is reached when the annual elastic subsidence exceeds the maximum recorded elastic subsidence over the period of record for the extensometer.

(3) Alert Stage 3 is reached when inelastic subsidence is detected based on annual measurements taken on March 1.

(Ord. No. 4034, § 1, 9-13-11; Ord. No. 4074, § 1, 1-14-14)

33A-6 - Monitoring BMOs.

(a) Monitoring programs designed to detect changes to groundwater elevations, groundwater quality and land subsidence are the key to proper assignment and evaluation of BMOs.

(b) The monitoring programs shall measure select wells and extensometers to determine changes in groundwater elevation, groundwater quality and land subsidence.

(c) The County shall make available all groundwater monitoring data through the Department website in a timely manner.

(Ord. No. 4034, § 1, 9-13-11)

33A-7 - Monitoring networks.

(a) The monitoring networks used in the development and evaluation of BMOs may include as many of the following as are feasible: selected domestic and irrigation wells from water districts, private owners, municipal and industrial water suppliers and dedicated monitoring wells. Participation in monitoring activities by private landowners shall be on a voluntary basis.

(b) The selection of monitoring wells will be done in consultation with the TAC~~Technical Advisory Committee and applicable sub-inventory unit representatives~~.

(c) Additional monitoring wells may be installed and monitored as funding allows.

(Ord. No. 4034, § 1, 9-13-11)

33A-8 - Monitoring frequency.

(a) Monitoring Frequency for Groundwater Elevations. At a minimum, groundwater elevations shall be monitored four (4) times during the year: one (1) measurement prior to the irrigation season in March, two (2) measurements during peak groundwater use in July and August, and one (1) measurement following irrigation season in October.

(b) Monitoring Frequency for Groundwater Quality. The frequency of groundwater quality monitoring shall be at a minimum of once a year during peak groundwater use (July or August). The following minimum groundwater quality measurements shall be taken:

(1) Groundwater temperature;

(2) Groundwater pH; and

(3) Groundwater electrical conductivity.

(c) Monitoring Frequency for Land Subsidence. Land subsidence monitoring shall be conducted on a continuous basis through the use of extensometers. Land subsidence may also be monitored by resurveying existing benchmarks ~~in the sub-inventory unit area~~.

(Ord. No. 4034, § 1, 9-13-11)

33A-9 - Changes in monitoring.

(a) Changes in Monitoring Frequency. If evaluation of the groundwater elevation, groundwater quality or land subsidence data indicates a need for greater monitoring frequency, the department may make changes to the monitoring schedule, as resources allow.

(b) Changes in Monitoring Network. If evaluation of the groundwater elevation, groundwater quality standards or land subsidence criteria data indicates a need for a greater number of monitoring wells or survey monuments, the Department may make changes to their monitoring network, as resources allow.

(Ord. No. 4034, § 1, 9-13-11)

33A-10 - Monitoring protocol.

(a) All data shall be collected and recorded through methods generally accepted in the applicable scientific field.

(b) The Department shall establish methods for data collection, storage and dissemination. Methods for collecting groundwater elevations, groundwater quality and land subsidence shall follow established quality assurance and quality control guidelines.

(Ord. No. 4034, § 1, 9-13-11)

33A-11 - Review of technical data.

(a) Standard methods for review and analysis of the collected data shall be established by the department in consultation with the TAC~~Technical Advisory Committee~~.

(b) The TAC ~~Technical Advisory Committee~~ shall review, analyze and evaluate BMOs based on spring and fall monitoring data.

(c) If a BMO Alert Stage is reached in one or more wells ~~in one (1) or more sub-inventory units,~~ the TAC~~echnical Advisory Committee~~ will evaluate possible causes and may provide recommendations.

(d) The TAC~~echnical Advisory Committee~~ shall consider all available pertinent hydrologic data, precipitation ~~, information from sub-inventory unit representatives~~ and other relevant information when reviewing BMOs.

(e) The Department will provide the ~~Water Advisory Committee,~~ Water Commission, the Board and the public with the TAC's ~~Technical Advisory Committee's~~ review, analysis and recommendations, if applicable.

(Ord. No. 4034, § 1, 9-13-11)

33A-12 - BMO Alert Stage Response.

In the event that a BMO Alert Stage is reached, the Department ~~, in cooperation with the sub-inventory unit representative,~~ will:

(a) Provide information and outreach to and solicit information from stakeholders in the affected areas ~~SIU~~ as appropriate.

(b) Assist the TAC in their evaluation.

(Ord. No. 4034, § 1, 9-13-11)

Commented [KP8]: Could consider removing this. Since there is nothing in this section that is above and beyond what is stated in other sections except the solicitation of stakeholder input (from the WAC) which is now irrelevant.

33A-13 - Reporting.

(a) The Department shall disseminate information on BMOs, the monitoring network, data and analysis to the public and through the Department website.

(b) The Department shall present BMO monitoring data, TAC analysis and other pertinent information to the Water Commission_~~, Water Advisory Committee, sub-inventory unit representatives~~ and stakeholders.

(c) The Department shall submit a report to the Board of Supervisors on the BMO program at their first regular meeting in February.

(Ord. No. 4034, § 1, 9-13-11)