TULELAKE SUBBASIN GROUNDWATER CORE TEAM

CORE TEAM MEMBERS
Gary Wright, Tulelake Irrigation District
Kraig Beasly, Tulelake Irrigation District
Henry Ebinger, City of Tulelake
Matt Parker, Siskiyou County
Tiffany Martinez, Modoc County

Kraig Beasly
Chairperson

Tiffany Martinez
Clerk of the Core Team

Tulelake Irrigation District
2717 Havlina Road, Tulelake, CA 96134
(530) 667-2249

AGENDA FOR WEDNESDAY, AUGUST 18, 2021
1:00 PM

Alternate Meeting Locations:
204 South Court Street, Alturas, CA 96101

Pursuant to California Governor Gavin Newsom's Executive Order N-25-20 & N-29-20 issued on March 12, 2020 and March 17, 2020, relating to the convening of public meetings in response to the COVID-19 pandemic, the Tulelake Sub Basin Core Team will be enacting social distancing procedures for the Tulelake Sub Basin Core Team Meetings to members of the public and staff. Additionally, members of the Tulelake Sub Basin Core Team are allowed to attend the meeting via teleconference and to participate in the meeting to the same extent as if they were present.

To protect the public, staff, and members of the Tulelake Sub Basin Core Team, members of the public are encouraged to participate in the Core Team meetings in the following ways:

Join Zoom Meeting
https://us02web.zoom.us/j/82796918418?pwd=VytPR3NaL0JWWFg2MFdBemRINGVFdz09
Meeting ID: 827 9691 8418
Passcode: 051920
1-669-900-9128,,82796918418#,,,,*051920# One tap mobile

Public comments can also be e-mailed to clerkoftheboard@co.modoc.ca.us
by 5:00 p.m. on August 17, 2021 to be entered into the record.

AGENDA FOR WEDNESDAY, AUGUST 18, 2021

The Sustainable Groundwater Management Act (SGMA) established a new structure for managing California's groundwater resources at a local level by local agencies. SGMA requires, by June 30, 2017, the formation of locally controlled groundwater sustainability agencies (GSAs) in the State's high- and medium-priority groundwater basins and subbasins (basins). A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results.

1:00 PM Call to Order

Pledge of Allegiance

Public Comment - *This is the time set aside for citizens to address the Core Team on matters on the consent agenda and matters not otherwise on the agenda. Comments should be limited to matters within the jurisdiction of the Core Team. If your comment concerns an item shown on the agenda please address the Core Team after that item is open for public comment. By law, the Core Team cannot take action on matters that are not on the agenda. The chair reserves the right to limit the duration of each speaker to three minutes. Speaker may not cede their time.*

Agenda items with times listed will be considered at that time all other items will be considered as listed on the agenda or as deemed necessary by the Chair.

Approval or Additions/Deletions to Agenda

Correspondence

Consideration / Action

1. CONSIDERATION/ACTION: Requesting approval of the March 19, 2021 and April 21, 2021 Tulelake Subbasin Groundwater Core Team meeting minutes. (Tulelake Core Team)

2. CONSIDERATION/ACTION: Set-Aside revised Draft Chapter 7 (Sustainable Management Criteria) and Draft Chapter 8 (Projects and Management Actions) of the Groundwater Sustainability Plan (GSP).

Core Team Members Reports

1. Siskiyou County
2. City of Tulelake
3. Modoc County

ADJOURNMENT

Parties with a disability as provided by the American Disabilities Act who require special accommodations or aides in order to participate in the public meeting should make the request to the Clerk at clerkoftheboard@co.modoc.ca.us at least 48 hours prior to the meeting. POSTED AT CITY HALL, TULELAKE IRRIGATION DISTRICT, ONLINE, AND AT TULELAKE POST OFFICE ON JULY 16, 2021.

TULELAKE SUBBASIN GROUNDWATER CORE TEAM

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Kraig Beasly
Chairperson

Tiffany Martinez
Clerk of the Core Team

2717 Havlina Road
Tulelake, CA 96134
(530) 667-2249

MEETING MINUTES, WEDNESDAY, MARCH 19, 2021

Name	Title	Status	Arrived
Matt Parker	Siskiyou County Core Team Member	Remote	1:00 PM
Gary Wright	Tulelake Irrigation District Core Team Member	Absent	1:00 PM
Kraig Beasly	Tulelake Irrigation District Core Team Member	Present	1:00 PM
Henry Ebinger	City of Tulelake Core Team Member	Present	1:00 PM
Tiffany Martinez	Modoc County Core Team Member	Remote	1:00 PM
Advisory Members to the Tulelake Core Team			
David King	Agricultural Groundwater/Surface water User	Absent	1:00 PM
Mike Byrne	Environmental Conservation Water User	Absent	1:00 PM
Ken Masten	Oregon Groundwater/Surface water User	Present	1:00 PM
Matt Huffman	Residential Domestic Water User	Absent	1:00 PM

1:00 PM Call to Order

Public Present: Angela Bezzone, MBK Engineering, Kyle Knutson, MBK Engineering, Janae Scruggs, California Department of Fish and Wildlife, Chris Watt, Regional Water Board, David King.

Public Comment
None.

Approval or Additions/Deletions to Agenda

Ordered on a motion by Committee Member Martinez, seconded by Committee Member Ebinger to approve the agenda as presented.

Motion carried 4-0.
Committee Member Wright was absent.

Correspondence
Committee Member Beasly reported Chapters 1-4 have been placed on the website for public comment and to date there have been no comments. MBK reported they have not received any comments from the public.

Consideration / Action

1. CONSIDERATION/ACTION: Requesting approval of the February 17, 2021 Tulelake Subbasin Groundwater Core Team meeting minutes. (Tulelake Core Team)

   Tabled until the next meeting.

2. CONSIDERATION/ACTION: Discussion of the Public Draft Chapter 5 (Monitoring Networks) of the Groundwater Sustainability Plan (GSP). (Tulelake Core Team)

   a. Receive report from MBK Engineering Consultant

   Knutson reported on the technical team for the Tulelake Sub Basin regarding the DWR AEM surveys. Knutson reported MBK Engineering provided DWR with Chapter 2 for additional information and reported DWR would be conducting public outreach on the program in anticipation of the surveys being conducted. Knutson requested having Pat Vellines provide a report to the Core Team on AEM Surveys. Knutson reported on the coordination efforts with the surrounding basins.

   Ken Masten asked what kind of information are they trying to gather with the helicopter fly overs.

   Knutson and Bezonne reported on the information DWR will obtain through these surveys.

   Knutson of MBK Engineering provided an overview of Chapters 5 and reported they have been working with the Jacobs team for the final model runs which includes projections for future water use in the sub basin. Knutson shared the water budget detailing years 2020 -2070 which is a required projection by DWR and detailed the data gathered which has been used to create the document. Knutson reported that the historic period MBK reviewed was 2000 to 2018. Knutson stated that SGMA states you do not have to fix water issues before 2015 but will have to address them from 2015 and forward. Knutson detailed the legend and explained how they work into the graph. Knutson reported the graph provided does not incorporate climate change.

   b. Receive comments from Core Team and Advisory Members

   Committee Member Beasly asked about the private pumpers detailed in the report.

   Knutson stated the private pumpers are outside of the TID Boundary in the Sub Basin.

   c. Receive public comments

   David King member asked what M & I stood for.

   Knutson reported it stands for Municipal and Industrial and have receive the data from the City of Tulelake to create the graph.

King asked if the dark brown bar was the private pumpers in the TID area. King asked about the yellow bar, Groundwater Discharge to Drains.

Knutson reported the yellow bars are made up of applied water, precipitation that percolating into the field and going into the drains.

Beasly asked if the yellow bars would not be a negative.

Knutson stated the drains are below the fields and canals and the groundwater level is above the drain, so they are flowing into the drains and that is why the bars are so large.

King stated he felt the yellow bar was misleading and should be renamed.

Bezzone stated the model they are using was developed by USGS which focuses on canal leakage and the interaction between groundwater and surface water. Bezonne stated that on the positive side the dark purple and light purple plays a big role in the groundwater close to the surface.

King asked about shallow groundwater evapotranspiration.

Bezonne stated this is the use of groundwater by vegetation.

Knutson stated overall the basin is doing pretty well.

King asked if the graph is showing that the basin can pump 50,000 acre feet from the basin sustainably.

Knutson reported this is a big topic being discussed all over the GSA's who are developing a plan as to what is the sustainable yield. Knutson stated the hydrogeologist are reviewing the data now and reported on the complexity of the determination.

Core Team Members Reports

1. Siskiyou County – Committee Member Parker reported Siskiyou County is holding Scott and Shasta advisory committee meetings to work on projects and management actions and interconnected surface water. Butte Valley was canceled due to technical team reviewing.
2. City of Tulelake – Committee member Ebinger reported the City of Tulelake Public Works Director retired and they are looking to fill the position. Ebinger also reported on the replacement of several pipes with in the water system.
3. Modoc County – Committee Member Martinez reported on the Big Valley Advisory Committee meetings and ad hoc meetings.

ADJOURNMENT

Ordered on at motion by Committee Member Ebinger, seconded by Committee Member Martinez to adjourn.

Motion carried 4-0.
Committee Member Wright was absent.

The next regular meeting of the Tulelake Subasin Groundwater Core Team will be on April 21, 2021.

TULELAKE SUBBASIN GROUNDWATER CORE TEAM

CORE TEAM MEMBERS
Gary Wright, Tulelake Irrigation District
Kraig Beasly, Tulelake Irrigation District
Henry Ebinger, City of Tulelake
Matt Parker, Siskiyou County
Tiffany Martinez, Modoc County

Kraig Beasly
Chairperson

Tiffany Martinez
Clerk of the Core Team

2717 Havlina Road
Tulelake, CA 96134
(530) 667-2249

MEETING MINUTES, WEDNESDAY, APRIL 21, 2021

Name	Title	Status	Arrived
Matt Parker	Siskiyou County Core Team Member	Remote	1:00 PM
Gary Wright	Tulelake Irrigation District Core Team Member	Absent	1:00 PM
Kraig Beasly	Tulelake Irrigation District Core Team Member	Present	1:00 PM
Henry Ebinger	City of Tulelake Core Team Member	Present	1:00 PM
Tiffany Martinez	Modoc County Core Team Member	Remote	1:00 PM
Advisory Members to the Tulelake Core Team			
David King	Agricultural Groundwater/Surface water User	Absent	1:00 PM
Mike Byrne	Environmental Conservation Water User	Absent	1:00 PM
Ken Masten	Oregon Groundwater/Surface water User	Present	1:00 PM
Matt Huffman	Residential Domestic Water User	Absent	1:00 PM

1:00 PM Call to Order

Public Present: Angela Bezzone, MBK Engineering, Kyle Knutson, MBK Engineering, Brad Kirby, Pat Vellines, Department of Water Resources, Jacob Ketler.

Public Comment
None.

Approval or Additions/Deletions to Agenda

Committee member Martinez requested to pull item one from the agenda.

Ordered on a motion by Committee Member Martinez, seconded by Committee Member Ebinger to approve the agenda as amended.

Motion carried 4-0.
Committee Member Wright was absent.

Correspondence
Committee Member Beasly reported the wrong agenda was posted online and will be updated.

Consideration / Action

1. CONSIDERATION/ACTION: Requesting approval of the February 17, 2021 Tulelake Subbasin Groundwater Core Team meeting minutes. (Tulelake Core Team)

   Removed from the agenda.

2. CONSIDERATION/ACTION: Introduction Public Draft Chapter 5 (Monitoring Networks) and Draft Chapter 6 (Water Budgets) of the Groundwater Sustainability Plan (GSP). (Tulelake Core Team)
   a. Receive report from MBK Engineering Consultant
      Angela Bezzone and Kyle Knutson of MBK Engineering provided an overview of Chapters 5 and 6. Knutson detailed the water budget and provided details on Figure 6-3 & 4.

   b. Receive comments from Core Team and Advisory Members
      None.

   c. Receive public comments
      Pat Vellines recommended encouraging the Tulelake Core Team to do a technical services grant application and inquired about conducting additional outreach on the GSP process.

      Ken Masten asked if the static well levels are monitored what is the protocol if the water level goes below the threshold.

      Knutson reported that the management actions will be determined in a following chapter.

      Ordered on a motion by Committee Member Ebinger, seconded by Committee Member Parker to set aside on the website Chapters 5 (Monitoring Networks) and Draft Chapter 6 (Water Budgets) of the Groundwater Sustainability Plan (GSP) where public comment will continue to be received.

      Motion carried 4-0.
      Committee Member Wright was absent.

Core Team Members Reports

1. Siskiyou County – Committee Member Parker reported Siskiyou County is working to finalize Chapter 3 and 4 of other basins in medium priority status.
2. City of Tulelake – Committee member Ebinger reported the City of Tulelake is reducing the their water consumption by 20% and are replacing several lines with identified leaks.
3. Modoc County – Committee Member Martinez reported on the Big Valley Advisory Committee meetings.

ADJOURNMENT

Ordered on at motion by Committee Member Martinez, seconded by Committee Member Ebinger to adjourn.

Motion carried 4-0.
Committee Member Wright was absent.

The next regular meeting of the Tulelake Subasin Groundwater Core Team will be on May 19, 2021.

7 Sustainable Management Criteria (Reg. § 354.22-30)

This section of the Plan describes the sustainable management criteria (SMCs) for the Tulelake Subbasin. The SMCs define conditions that constitute sustainable groundwater management for the Subbasin, which include the sustainability goal, undesirable results, and minimum thresholds for each applicable sustainability indicator. The Tulelake Subbasin is currently being sustainably managed, thus measurable objectives were not identified as part of the development of this Plan. Below are definitions of key terms described in the GSP Regulations.

Sustainability Goal: GSA's objectives and desired conditions of the groundwater basin, how the basin will get to that condition, and why the measures planned will lead to success.

Sustainability Indicator: sustainability indicators are the six effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, are undesirable results. The sustainability indicators are listed below:

- Chronic Lowering of Groundwater Levels
- Depletion of Interconnected Surface Water
- Degraded Water Quality
- Land Subsidence
- Seawater Intrusion (not applicable to Tulelake Subbasin)
- Reduction in Groundwater Storage

Undesirable Results: undesirable results occur when conditions related to any of the six sustainability indicators become significant and unreasonable.

Minimum Threshold (MT): a minimum threshold is the quantitative value that represents the groundwater conditions at a representative monitoring site that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause an undesirable result(s) in the basin.

Figure 7-1 below illustrates the relationship between the sustainability indicators, SMCs, MTs and undesirable results.

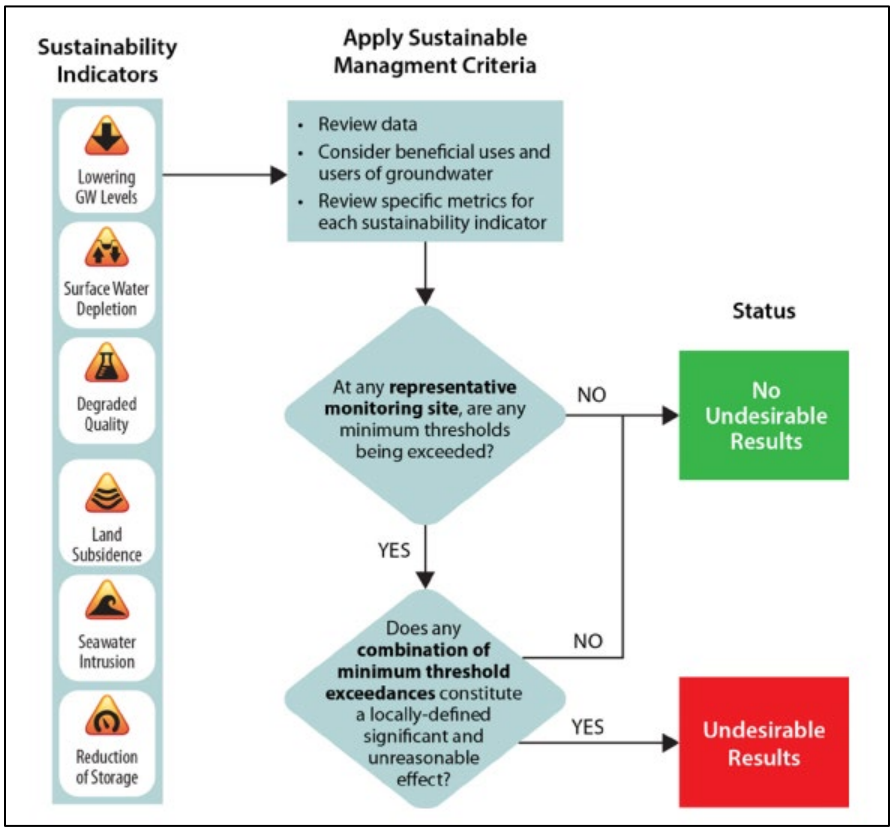

Figure 1: Relationship of Sustainability Indicators, SMCs, MTs and Undesirable Results (DWR).

7.1 Sustainability Goal

As described in this Plan, the primary use of water in the Subbasin is for agricultural purposes. In addition, Modoc County meets the requirements of a severely disadvantaged community. Similarly, Siskiyou County meets the requirements of a disadvantaged community. Therefore, the sustainability goal for the Tulelake Subbasin is to maintain a locally governed, economically viable, reliable and sustainable groundwater subbasin for current and future beneficial uses, without causing undesirable results.

The water budgets included in Section 6 of this Plan, show that the Subbasin is currently and projected to be sustainably managed. Therefore, the sustainability goal is achieved through continued local management of the Subbasin. In addition, implementation of measures to operate within the sustainable yield are not necessary. However, as described in Section 9 of this Plan, adaptive management will be utilized if necessary.

7.2 Undesirable Results

The SGMA Regulations require undesirable results definitions for each applicable sustainability indicator. In addition, GSPs are required to identify potential causes that would lead to undesirable results, criteria to define undesirable results based on MTs, and the potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

7.2.1 Chronic Lowering of Groundwater Levels

7.2.1.1 Description of the Chronic Lowering of Groundwater Levels

The undesirable result of the chronic lowering of groundwater levels is a result that would cause significant and unreasonable impacts to beneficial uses and users of groundwater over the implementation period of this GSP.

7.2.1.2 Potential Causes and Effects of the Chronic Lowering of Groundwater Levels

As shown in Section 6 of this Plan, the Tulelake Subbasin is currently being sustainably managed. The primary land use is agriculture and the GSAs do not anticipate changes in agricultural cropping patterns. Thus, even when the effects of climate change are considered, water demand is not projected to significantly increase. The primary water source in the Subbasin is surface water deliveries via Reclamation. Therefore, if surface water supply were to decrease, groundwater extractions would likely increase potentially leading to the chronic lowering of groundwater levels. Lowering of groundwater levels would result in increased power costs to extract groundwater. In extreme cases, groundwater levels may decrease to an extent where it becomes necessary to lower pump bowls and/or deepen the production well.

7.2.1.3 Criteria Used to Define Chronic Lowering of Groundwater Levels

The GSAs elected to form an Ad Hoc Committee to discuss and define undesirable results and MTs. A meeting summary is included in Appendix X. Below is the undesirable result definition for chronic lowering of groundwater levels.

> *Groundwater elevations dropping below the Minimum Threshold criteria at four representative monitoring locations over three consecutive spring measurements.*

The Ad Hoc Committee agreed to use a combination of shallowest domestic wells depths within a 3-mile radius of representative monitoring wells or the historical low groundwater level measurement at the representative monitoring well plus a 10% buffer.

7.2.2 Reduction in Groundwater Storage

7.2.2.1 Description of the Reduction in Groundwater Storage

The undesirable result of the reduction in groundwater storage is a result of groundwater extraction that would cause significant and unreasonable impacts to beneficial uses and users of groundwater over the implementation period of this GSP. Reduction in groundwater storage is related to lowering of groundwater levels. Reduction in groundwater storage would occur when outflows from the groundwater system exceed inflows. This may occur on a short-term basis (e.g., during dry hydrologic conditions), but is defined significant and unreasonable when groundwater levels are below the MT for three consecutive spring measurements.

7.2.2.2 Potential Causes and Effects of Reduction in Groundwater Storage

As shown in Section 6 of this Plan, the Tulelake Subbasin is currently being sustainably managed. The primary land use is agriculture and the GSAs do not anticipate changes in agricultural cropping patterns. Thus, even when the effects of climate change are considered, water demand is not projected to significantly increase. The primary water source in the Subbasin is surface water deliveries via Reclamation. Therefore, if surface water supply were to decrease, groundwater extractions would likely increase potentially leading to the reduction of groundwater storage. Reduction in groundwater storage

would result in increased power costs to extract groundwater. In extreme cases, groundwater levels may decrease to an extent where the cost to pump water exceeds the value of the agriculture or effects a large number of domestic wells.

7.2.2.3 Criteria Used to Define Reduction in Groundwater Storage

The GSAs elected to form an Ad Hoc Committee to discuss and define undesirable results and MTs. In regard to reduction in groundwater storage, groundwater levels were identified as a proxy metric. The use of groundwater levels as a proxy for this sustainability indicator is justified due to the correlation between groundwater levels and groundwater storage.

7.2.3 Land Subsidence

7.2.3.1 Description of Land Subsidence

The undesirable result of land subsidence is a result of groundwater extraction that would cause significant and unreasonable impacts to infrastructure, including water conveyance facilities, over the implementation period of this GSP. As described in Section 2.2.2.7, there has been no noticeable subsidence within the subbasin since at least 2001. Because of this experience with no known subsidence even during period of decreasing groundwater levels, it is assumed that there are not soils susceptible to compression within the subbasin.

7.2.3.2 Potential Causes and Effects of the Land Subsidence

As shown in Section 6 of this Plan, the Tulelake Subbasin is currently being sustainably managed. The primary land use is agriculture and the GSAs do not anticipate changes in agricultural cropping patterns. Thus, even when the effects of climate change are considered, water demand is not projected to significantly increase. The primary water source in the Subbasin is surface water deliveries via Reclamation. Therefore, if surface water supply were to decrease, groundwater extractions would likely increase potentially leading to land subsidence.

Subsidence is known to cause damage to water conveyance facilities and flood control facilities. This could potentially impact the canals and drains within the Tulelake Irrigation District and result in surface water delivery inefficiencies and subsequent increases in groundwater use. Subsidence within the vicinity of the Tulelake Sumps could impact the levees and flood control structures.

7.2.3.3 Criteria Used to Define Land Subsidence

The GSAs elected to form an Ad Hoc Committee to discuss and define undesirable results and MTs. In regard to Land Subsidence, groundwater levels were identified as a proxy metric. The use of groundwater levels as a proxy for this sustainability indicator is justified due to the correlation between groundwater levels and land subsidence. Although the Groundwater Level Monitoring Network will be used to monitor potential subsidence, the GSAs will also review DWR's active subsidence network. This network includes InSAR data for the Subbasin. However, the data need to be processed and are not made available in real time. The data will be reviewed as it becomes available to confirm the adequacy of the Groundwater Level Monitoring Network.

7.2.4 Depletion of Interconnected Surface Water

7.2.4.1 Description of Depletion of Interconnected Surface Water

Shallow groundwater and surface water systems can be hydraulically connected. The surface water bodies can either be gaining (receiving water from the groundwater system) or losing (losing water to

the groundwater system). As shown in the water budgets (see Section 6), there is interaction between the groundwater system and the land system within the Tulelake Subbasin. However, the majority of surface water in the Subbasin consists of water within the Tulelake Irrigation District canals and drains and the Tulelake Sumps as a result of deliveries from the Klamath Project.

7.2.4.2 Potential Causes and Effects of Depletion of Interconnected Surface Water

Because chronic lowering of groundwater levels is used as a proxy for depletion of interconnected surface water, the causes of this undesirable result are the same as those for groundwater levels. Lowering groundwater levels in the vicinity of the Lost River and the Tule Lake Sumps may result in increased depletions from the surface water to the groundwater system. The Lost River is an intermittent stream without minimum flow requirements. However, the water surface elevations in the Tule Lake Sumps will continue to be met as required by the Biological Opinion.

7.2.4.3 Criteria Used to Define Depletion of Interconnected Surface Water

In regard to depletion of interconnected surface water, groundwater levels were identified as a proxy metric. The use of groundwater levels as a proxy for this sustainability indicator is justified due to the correlation between shallow groundwater levels and surface water. As identified in Section 5, the only surface water within the Subbasin is a small portion of the Lost River, which terminates in the Tule Lake Sumps. This system is highly regulated as part of the US Bureau of Reclamation's Klamath Project. Therefore, a separate monitoring network for groundwater-surface water interaction has not been developed. However, DWR Monitoring Well No. 48N04E22M001M is located adjacent to the Lost River and is included in the Groundwater Level Monitoring Network. The Ad Hoc Committee identified the following definition:

> *Groundwater elevations dropping below the Minimum Threshold criteria at this representative monitoring location over three consecutive spring measurements.*

7.2.5 Degraded Water Quality

7.2.5.1 Description of the Degraded Water Quality

The undesirable result of degraded water quality is a result of SGMA-related groundwater management activities (such as groundwater extraction and groundwater recharge) and groundwater quality that causes significant and unreasonable reductions in long-term viability of domestic, agricultural, municipal, and environmental uses over the planning and implementation horizon of this GSP.

7.2.5.2 Potential Causes and Effects of Degraded Water Quality

There are no anticipated changes in water quality, and specifically, no anticipated changes in water quality due to SGMA-related actions. Potential causes of degraded water quality could be the result of significant increases in groundwater pumping, which is not projected to occur as described in Section 6. In addition, there are no known significant water quality issues or contaminant plumes which could spread through additional groundwater pumping.

If groundwater quality degraded to an undesirable result level, then the water may not be usable for beneficial uses within the Subbasin (domestic and agriculture) without treatment. This would lead to an economic burden on water users. In addition, changes in water quality could impact GDEs, damage crops and/or result in changes to the crops grown, and cause other economic effects.

7.2.5.3 Criteria Used to Define Degraded Water Quality

The GSAs elected to form an Ad Hoc Committee to discuss and define undesirable results and MTs. Below is the undesirable result definition for degraded water quality.

> *Changes in groundwater quality due to SGMA-related groundwater management activities (such as groundwater extraction and groundwater recharge) and groundwater quality that causes significant and unreasonable reductions in long-term viability of domestic, agricultural, municipal, and environmental uses over the planning and implementation horizon of this GSP as indicated by water quality data measured in at least 50% of representative monitoring wells exceeding the minimum thresholds for a groundwater quality constituent for two consecutive measurements at each location during non-drought years.*

7.2.6 Seawater Intrusion (not applicable to Tulelake Subbasin)

The Tulelake Subbasin is not located near an ocean. Therefore, seawater intrusion is not present and not likely to occur. Thus, SMCs are not required for seawater intrusion.

7.3 Minimum Thresholds

Minimum Thresholds (MT) are the quantitative values that represent the groundwater conditions at a representative monitoring site that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause an undesirable result(s) in the basin. MTs have been established for each representative monitoring site.

7.3.1 Groundwater Level Minimum Thresholds

This section establishes the MTs for the four applicable sustainability indicators related to groundwater levels: chronic lowering of groundwater levels, reduction in groundwater storage, land subsidence, and interconnected surface water. These MTs were determined based on considerations for beneficial users and uses of groundwater.

Two different sets of criteria were developed to establish groundwater level MTs for the representative monitoring wells:

1. If the monitoring well is screened within the shallow aquifer and within three miles of a domestic well or wells, then the MT is defined as the minimum domestic well depth.
2. If the monitoring well is screened in the deeper aquifer, then the MT is defined as the historical low groundwater measurement plus a 10 percent buffer. (*Note: Due to the current very dry hydrologic conditions within the Tulelake Subbasin, groundwater levels at the representative monitoring wells will be re-evaluated at the end of the 2021 irrigation season, and the MTs adjusted accordingly.)*

Table 7-1 shows the MT established for each representative groundwater level monitoring well.

Table 7-1. Groundwater Level Minimum Thresholds

State Well Number	Well Depth (ft)	Well Use	Historic Low (ft bgs)	Min. Domestic Well Depth (ft bgs)	Minimum Threshold (ft bgs)
48N05E35F001M	32	Domestic	10.3	32	32
48N04E31M001M	40	Domestic	30.1	29	30.1
48N04E19C001M	38	Domestic	14.8	38	38
47N05E04M001M	72	Industrial	10	33	33
47N05E01N001M	65	Domestic	21.9	65	65
46N05E21J001M	32	Domestic	12	32	32
46N05E01P001M	101	Domestic	12.4	24	24
41S12E19Q001W	65	Domestic	13.39	50	50
48N04E30F002M (TID Well 1)	740	Irrigation	54.4	-	59.84
48N04E13K001M (TID Well 5)	1570	Irrigation	191.41	-	210.551
48N05E26D001M (TID Well 8)	1810	Irrigation	275.48	-	303.028
46N05E22D001M (TID Well 14)	571	Irrigation	89.99	-	98.989
TL-T1 Q3B	500	Monitoring	30.2	-	33.22
TL-T3 GP	500	Monitoring	13.9	-	15.29

7.3.2 Water Quality Minimum Thresholds

This section establishes MTs for the wells in the representative water quality monitoring network. Each of these wells is operated and monitored by a public water system (PWS). MTs have been developed for two water quality constituents – nitrate and total dissolved solids (TDS) – based on federally established goals and standards. For nitrate, the MT is equal to the maximum contaminant level goal (MCLG) of 10 milligrams per liter (mg/L). For TDS, the MT is equal to the secondary drinking water standard of 500 mg/L. These MTs are applied to all representative water quality monitoring wells.

8 Projects and Management Actions to Maintain Sustainability (Reg. § 354.44)

The projects and management actions identified in this section allow for continued sustainability in the Tulelake Subbasin. In addition, they promote better understanding of the subbasin through additional collected information, which will assist to fill data gaps previously identified in this plan. As shown in prior sections of this plan, the Tulelake Subbasin is currently being sustainably managed. Therefore, no projects or management actions are required to achieve sustainability; however, the Tulelake Subbasin GSAs have identified the projects and management actions below to improve their understanding of the groundwater subbasin. Due to the standing of the subbasin, these projects and management actions will be implemented based on resource and funding availability.

8.1 Projects and Management Actions

The GSAs have identified the following projects and management actions for the Tulelake Subbasin, which are in addition to ongoing water use efficiency projects undertaken by Tulelake Irrigation District and the City of Tulelake. These projects do not rely on additional water from outside the jurisdiction of the GSAs. Estimated costs of these projects range from $ to $, which is discussed in Section 9.X of this Plan.

8.1.1 Well Inventory

Section 2.1.1.6 Inventory and Density of Wells Per Square Mile identified the inventory of wells within the Tulelake Subbasin by county and type. DWR's well completion report database was utilized to prepare the inventory. As noted in that section of the plan, it is unknown how many of these wells are actively used or how many of these wells have been abandoned and/or destroyed as this information is not always reported. The GSAs have identified a review of these reports as a project that will provide a better understanding of existing wells. This review is scheduled to be completed within the first 5 years of implementation.

8.1.2 Groundwater Level Monitoring Wells

Section 2.2.2.3 Vertical Gradients identified a lack of multi-completion wells within the Tulelake Subbasin, which if present, would improve understanding of vertical movement of groundwater. The GSAs have identified this as a data gap, which can be addressed with the installation of a multi-completion well. DWR's Technical Support Services (TSS) office assists with this type of project. Therefore, the GSAs plan to file an application with TSS for a monitoring well installation within the first year of implementation.

Section 5.3.1.6 identified a lack of dedicated monitoring wells within the Subbasin. Therefore, the installation of a multi-completion monitoring well will provide valuable data for the Subbasin.

8.1.3 Water Quality Monitoring Network

Section 5.3.2.4 identified a need for denser and more frequent monitoring. Therefore, the GSAs plan to identify an additional two more wells to the water quality monitoring network. This process is scheduled to be completed within the first year of implementation.

8.1.4 Groundwater Dependent Ecosystems

Section 2.2.2.9 Identification of Groundwater Dependent Ecosystems identified areas that remained after filtering criteria were applied to the NCCAG dataset. The GSAs have identified this as a data gap, which can be addressed with field inspections of these areas to better understand if there is vegetation

present and if so, analyze the availability of non-groundwater sources. These field inspections and follow-up reviews are scheduled to be completed within the first 5 years of implementation.

8.1.5 Groundwater Recharge Project(s)

The GSAs are interested in and will continue to investigate potential groundwater recharge projects in the Subbasin. They anticipate the data collected by DWR's airborne electromagnetic (AEM) surveys of the Subbasin will assist with this effort. The GSAs' understanding is that DWR will conduct the AEM surveys during 2021. Following the release of the data collected during the AEM surveys the GSAs will perform a review of the data within the first 3 years of implementation.

8.1.6 Domestic Well Assistance

Domestic wells within the Subbasin have experienced issues where the supply has gone dry. The GSAs are aware of current efforts and will continue to coordinate with local agencies, such as Klamath Water Users Association, Klamath Project Drought Response Agency, and local state, county and city agencies with domestic well issues.

~~8.1.5~~8.1.7 Adaptive Management Actions

[To be developed]

8.2 Public Noticing

The purpose of the projects and management actions identified above is to improve the understanding of the Tulelake Subbasin. These activities do not require public notice and outreach; however, the GSAs plan to provide updates during Core Team meetings to allow for public comment. Updates on the status of these activities will be provided in the annual reports.

8.3 Legal Authority, Permitting and Regulatory Process

The purpose of the projects and management actions identified above is to improve the understanding of the Tulelake Subbasin. As identified in section 1.3 of this Plan, the GSAs have the legal authority and resources to implement this GSP. Except for monitoring well installation, these activities do not have permitting requirements. The GSAs will coordinate with DWR and local regulatory agency(s) for the monitoring well installation.

8.4 Expected Benefits

The purpose of the projects and management actions identified above is to improve the understanding of the Tulelake Subbasin. Therefore, the benefits from these activities will be continuous throughout GSP implementation.