

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2013-0064

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER 5-00-264-001  
FOR  
MURPHYS SANITARY DISTRICT  
MURPHYS WASTEWATER TREATMENT PLANT  
CALAVERAS COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board), finds:

**Waste Discharge Requirements Order 5-00-264**

1. On 8 December 2000, the Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order 5-00-264, prescribing requirements for Murphys Wastewater Treatment Plant (WWTP) in Calaveras County. Murphys Sanitary District (the "Discharger") owns and operates the WWTP.
2. The WWTP consists of three treatment ponds, an effluent storage pond, filters, and a chlorine contact basin. All of the ponds are unlined. Secondary disinfected treated wastewater from the WWTP is discharged to Hay Station Ranch Recycled Water Reuse Areas ("Hay Station Ranch"; Ironstone Vineyards is part of Hay Station Ranch). Hay Station Ranch is owned by John and Gail Kautz, and is operated by John Kautz Farms. The use of recycled water on Hay Station Ranch is regulated under WDRs Order R5-2007-0050, adopted by the Central Valley Water Board on 4 May 2007.
3. Discharge Prohibition A.10 of WDRs Order 5-00-264 prohibits the discharge of reclaimed water to Hay Station Ranch between 30 November and 1 March of each year.
4. Discharge Specification B.2 of WDRs Order 5-00-264 allows a monthly average dry weather discharge of 350,000 gallons per day (gpd) to Hay Station Ranch.
5. The Groundwater Limitations of WDRs Order 5-00-264 (Section E) prohibit degradation of groundwater quality, except that the most probable number of total coliform organisms is not allowed to exceed 2.2 MPN/100 mL over any 7-day period.

**2007 Waste Discharge Requirements Amendment**

6. On 10 April 2006, John Kautz Farms requested that WDRs Order 5-00-264 be amended to increase the flow limit from 350,000 gpd to 450,000 gpd for Hay Station Ranch.
7. On 27 February 2007, the Discharger requested that the Board amend WDRs Order 5-00-264 to remove Prohibition A.10. On 5 March 2007, John Kautz Farms echoed the Discharger's request for the Board to allow irrigation with reclaimed water at Hay Station Ranch throughout the year.

8. On 4 May 2007, the Central Valley Water Board adopted Resolution R5-2007-0051, which removed Prohibition A.10 and amended the Discharge specification B.2. as follows:

*“The monthly average discharge to the Hay Station Ranch Recycled Water Reuse Areas shall not exceed 450,000 gpd”.*

### **Proposed Amendment**

9. On 17 October 2012, the Discharger submitted a Report of Waste Discharge (RWD), which requested that the Board amend WDRs Order 5-00-264-001 to allow the use of new spray field land application areas (LAAs) adjacent to the WWTP site, as shown on Attachment A, which is attached hereto and made part of this Order by reference. The RWD states that the farming operation at Hay Station Ranch may not need the entire volume of effluent produced by the WWTF from time-to-time, and that the WWTP needs to add new spray field LAAs to supplement disposal capacity. This Order authorizes the use of the new spray field LAAs and adds requirements for their operation.
10. The proposed spray field LAAs (APN 660-10-027) are located uphill and east of the WWTP ponds. The Discharger owns and will operate the LAAs. The LAAs consist of 11.4 acres of native grassland on a 20-acre parcel. A sprinkler system will be installed to apply secondary disinfected effluent to the LAAs. Irrigation runoff will be collected into two catchment basins by a berm system at the downslope toe of the LAAs, and then be returned to the WWTP ponds. The Discharger plans to use grazing animals for vegetation control. The Discharger proposes to complete construction of the new LAAs by October 2013.
11. The amount of effluent applied to the LAAs will depend on the irrigation needs of John Kautz Farms. Wastewater will only be applied to the LAAs to the extent that John Kautz Farms will not accept more recycled water. Based on the Discharger’s water balances, a maximum of 9.3 million gallons of disinfected effluent will be applied to the LAAs each year, and the LAAs have that capacity.

### **Antidegradation Analysis**

12. State Water Resources Control Board Resolution 68-16 (*Policy with Respect to Maintaining High Quality Waters of the State*) (hereafter the “Antidegradation Policy”) prohibits degradation of groundwater unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to the people of the state.
  - b. The degradation will not unreasonably affect present and anticipated future beneficial uses.

- c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
  - d. The dischargers employ best practicable treatment or control (BPTC) to minimize degradation.
13. WDRs Order 5-00-264-001 prohibits degradation of groundwater quality. However, degradation of groundwater by some of the typical waste constituents associated with discharges from a municipal wastewater utility, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from reliance on numerous, concentrated individual wastewater systems, and the impact on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing limited groundwater degradation.
14. The Discharger has been monitoring groundwater quality at the site since 2002 using four wells screened in the first encountered groundwater, which is approximately 5 to 10 feet below the ground surface. The monitoring wells (MW-1, MW-2, MW-3, and MW-4) are shown on Attachment A. Shallow groundwater occurs in fractured bedrock that underlays a thin soil mantle. The flow direction of shallow groundwater at the WWTP site is generally to the south-southwest and likely conforms to the local topography.
15. Recent groundwater and disinfected effluent analytical results are summarized below. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

Constituent	Units	Average Effluent Concentration <sup>1</sup>	Background Groundwater Concentration Range (MW-1 and MW-2) <sup>2</sup>	Downgradient Groundwater Concentration Range (MW-3) <sup>2</sup>	Protective Numeric Limit
TDS	mg/L	291	175 to 241	231 to 257	450 <sup>3</sup> to 1,500 <sup>4</sup>
Nitrate nitrogen	mg/L	0.3	<0.05	4.2 to 7.8	10 <sup>5</sup>
Total nitrogen	mg/L	14.9	<0.05 to 1.4	5.2 to 8.8	--
Total coliform organisms	MPN/100mL	<2	<1.8 to 240	<1.8 to 4	2.2 <sup>6</sup>

<sup>1</sup> Effluent monthly averages (median for total coliform organisms) from January 2012 through October 2012.

<sup>2</sup> Groundwater samples were collected quarterly from March 2011 through November 2012.

<sup>3</sup> Lowest water quality goal for protection of the agricultural beneficial use.

<sup>4</sup> Secondary Maximum Contaminant Level Range: Recommended, Upper, Short-Term

<sup>5</sup> Primary Maximum Contaminant Level.

<sup>6</sup> Basin Plan numeric objective.

16. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS), nutrients, and coliform organisms, as discussed:
- a. The Secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. TDS concentrations in background wells MW-1 and MW-2 have recently ranged from 175 to 241mg/L. The TDS concentrations in downgradient well MW-3 have ranged from 231 to 257 mg/L. Based on these data, it appears that the treatment and storage ponds have slightly degraded groundwater quality for TDS, but have not caused exceedance of the most stringent water quality goal for protection of the agricultural beneficial use. Based on the average effluent TDS concentration of 291 mg/L, the new spray fields may cause some additional degradation of shallow groundwater due to evapoconcentration, but are not expected to cause exceedance of applicable water quality objectives. This Order revises the groundwater limitation for TDS to allow the limited degradation that exists as well as some additional degradation from the spray fields, but prohibit exceedance of a water quality objective. Because there are no significant industrial dischargers in the area, the TDS effluent quality is expected to remain the same. Therefore, a TDS effluent limit is not required to protect groundwater quality.
  - b. For nutrients such as nitrate, the potential for degradation depends not only on the quality of the treated effluent, but also on the ability of the vadose zone to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. The nitrate nitrogen concentrations in the background wells were less than 0.05 mg/L. The nitrate nitrogen concentrations in downgradient well MW-3 (4.2 to 7.8 mg/L) show that the discharge to the treatment and storage ponds has degraded groundwater quality, but has not caused exceedance of the water quality objective (the primary MCL of 10 mg/L). Currently, the effluent has average nitrate nitrogen and total nitrogen concentrations of 0.3 mg/L and 14.9 mg/L, respectively. Based on the effluent's average total nitrogen concentration, the projected maximum total nitrogen loading rate for the LAAs is 101 pounds per acre per year, which is less than the plant demand for native oak, shrubs, and grasses. Therefore, the new spray fields are not likely to cause additional degradation with nitrate. This Order revises the groundwater limitation for nitrate to allow the limited degradation that exists, but prohibit exceedance of the water quality objective. The effluent quality is expected to remain the same for nitrogen. Therefore, a total nitrogen effluent limit is not required to protect groundwater quality.
  - c. For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the effluent storage/disposal ponds and spray fields and saturated soils within the shallow water bearing zone to provide adequate filtration. The median concentration of total coliform organisms in the background wells is less than 2.2 MPN/100 mL, but there have been

occasional exceedances of the water quality objective, which appear to be most likely due to cross-contamination during sampling. Similarly, downgradient well MW-3 has shown occasional exceedances of the water quality objective. Because the Discharger will disinfect the effluent prior to discharge to the spray fields, the discharge to the new LAAs is not likely to degrade groundwater quality for coliform organisms.

17. Shallow groundwater data from downgradient well MW-4 are not considered in the foregoing analysis because MW-4 is adjacent to an area that was used as an unlined, uncovered sludge stockpile area from 2004 to 2010. It appears that leaching and percolation from the stockpile degraded groundwater quality in MW-4 with TDS (up to 1,130 mg/L), nitrate (up to 58 mg/L as nitrogen), and total coliform organisms (greater than 2,400 MPN/100 ML). However, the TDS, nitrate, and total coliform concentrations have been decreasing in MW-4 since the stockpiles were removed in October 2012. The TDS concentration in MW-4 are now approximately 680 mg/L; the nitrate nitrogen concentration is now approximately 26 mg/L; and the total coliform concentration is now less than 1.8 MPN/100 mL. The concentrations of TDS and nitrate nitrogen are expected to decline further now that the source has been removed. However, because nitrate nitrogen concentrations still exceed the primary MCL in MW-4, it may be necessary for the Discharger to implement additional source control at the former stockpile area if the decreasing trend does not continue as expected. If future groundwater monitoring results do not continue to show a decreasing trend, this Order may be reopened to include a time schedule to implement additional control for nitrate.
18. The Board finds that the treatment and control measures employed by the Discharger are equivalent or better than those employed by similarly-situated dischargers, and that these measures may be considered "BPTC" for this discharge. This Order also establishes operational requirements, limitations, and prohibitions that will ensure that the discharge to the new spray fields will not unreasonably affect present and anticipated beneficial uses of groundwater or result in groundwater quality less than that prescribed in state and regional policies. The limited degradation authorized by this Order is consistent with the maximum benefit of the people of the state, as explained in Finding 13. Therefore, the degradation authorized by this Order is consistent with the Antidegradation Policy.

### **Title 27 Exemption**

19. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

(b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

20. Discharges to the spray field LAAs are exempt from the requirements of Title 27 pursuant to Title 27, section 20090(b) because:

- i. The Central Valley Water Board is issuing WDRs.
- ii. The discharge will be in compliance with the Basin Plan, and;
- iii. The treated effluent does not need to be managed as hazardous waste.

### **California Environment Quality Act**

21. To fulfill requirements imposed by the California Environmental Quality Act ("CEQA")(Pub. Resources Code, § 21000 et seq.), the Discharger prepared and circulated an Initial Study and Negative Declaration that contained an analysis of the potential for the operation of the new LAAs to result in significant environmental effects. The Board, acting as a responsible agency, was consulted during the development of these documents. On 15 March 2012, the Discharger filed a Notice of Determination after approving the Initial Study and Negative Declaration.
22. As stated in the Initial Study, compliance with the waste discharge requirements as amended by this Order will mitigate or avoid significant impacts to water quality.

### **Public Notice**

23. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
24. The Central Valley Water Board, in a public meeting, heard, and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that Order 5-00-264-001 is amended solely to allow the use of the new LAAs at the WWTP site and to revise the groundwater limitations. Pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with amended Order 5-00-264-001 as follows:

1. Discharge Specification B.1., of WDRs Order 5-00-264-001 shall be amended as follows:

B. Discharge Specifications:

1. The 30-day average dry weather inflow to the WWTP shall not exceed 0.20 mgd **as defined by the total flow for the months of July through September divided by 92 days.**

2. Section C, Effluent Limitations, of WDRs Order 5-00-264-001 shall be amended as follows:

The discharge of treated wastewater to Hay Station Ranch **and the spray field LAAs** in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Monthly Median</u>	<u>Monthly Maximum</u>
Total Coliform	MPN/100mL	-	2.2	23
Settleable Solids	mL/L	0.2	-	0.5
Total Dissolved Solids	mg/L	450	-	-
BOD <sup>1</sup>	mg/L	40	-	80

<sup>1</sup> 5 Day, 20° Celsius biochemical Oxygen Demand.

3. Section D, Spray Field Land Application Area Specifications shall be added to WDRs Order 5-00-264-001 as follows:

- 1) Application of waste constituents to the LAAs shall be at reasonable rates to preclude creation of a nuisance or violation of the groundwater limitation of this Order.
- 2) Application of treated wastewater shall be confined to the LAAs.
- 3) Any irrigation runoff shall be captured and recirculated to the either LAAs or treatment system.
- 4) Discharge of effluent to any LAA not having a fully functional tailwater/runoff control system is prohibited.
- 5) Irrigation of the LAAs shall not be performed during precipitation or when the ground is saturated.
- 6) Discharge of storm water runoff from the LAAs to offsite areas is allowed if the discharge is in compliance with Spray Field Land Application Area Specifications D.5 above.
- 7) The Discharger shall cease spray irrigation of wastewater when winds exceed 30 mph.
- 8) Irrigation of the LAAs with recycled water shall occur only when appropriately trained personnel are on duty.

- 9) The LAAs shall be managed to prevent breeding of mosquitoes. In particular:
  - a. There shall be no standing water 48 hours after irrigation ceases;
  - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.
- 10) Application of effluent shall comply with the following setback requirements:

<u>Setback Definition</u> <sup>1</sup>	<u>Minimum Irrigation Setback (feet)</u>
Edge of LAAs to property boundary	25
Edge of LAAs to public road	30
Edge of LAAs to irrigation well	100
Edge of LAAs to domestic water supply well	100
Edge of LAAs to residence	100
Edge of LAAs to manmade or natural surface water drainage course <sup>2</sup> or spring	50

<sup>1</sup> As defined by the wetted area produced during irrigation.

<sup>2</sup> Excluding ditches used exclusively for tailwater return and drainages that do not discharge to surface waters.

4. Section E, Groundwater Limitations, of WDRs Order 5-00-264-001 shall be renumbered as Section F and shall be replaced with the following:

Release of waste constituents from any portion of the WWTF shall not cause groundwater to:

- a. Exceed a total coliform organism level of 2.2 MPN/100mL as a 7-day median.
- b. For constituents identified in Title 22, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established therein.
- c. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

Compliance with these limitations shall be determined annually based on comparison of compliance well concentrations to the specified limitation using approved statistical methods. For nitrate nitrogen in MW-4 only, exceedance of the primary MCL will not be considered a violation of this Order as long as monitoring results exhibit a decreasing temporal trend.

5. Sections D and F shall be renumbered as Section E and G, respectively.
6. Attachment A shall be added to WDRs Order 5-00-264-001.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)

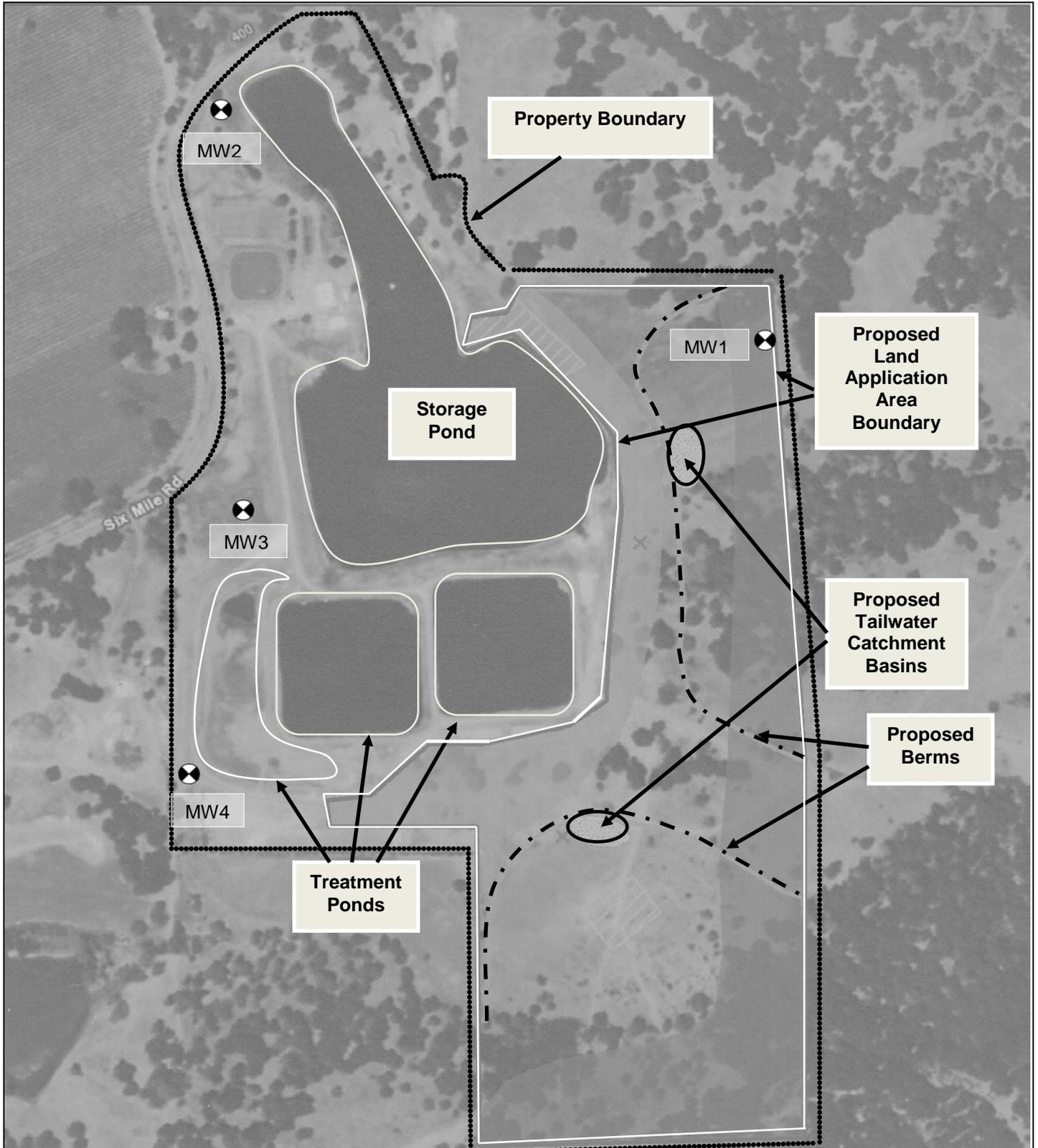
or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 31 May 2013.

Original signed by Ken Landau for

---

PAMELA C. CREEDON, Executive Officer



Drawing Reference:  
Murphys Sanitary District  
Initial Study/Mitigated  
Negative Declaration  
January 2012

**SITE PLAN**  
MURPHYS SANITARY DISTRICT  
MURPHYS WASTEWATER TREATMENT PLANT  
CALAVERAS COUNTY

Approx. Scale:  
1" = 288'