June 22, 2016
Item No. 7
Supporting Document No. 4

CALIFORNIA Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Diego Regional Water Quality Control Board

**TO:** **San Diego Water Board Groundwater Protection Branch Management**

**FROM:** Mr. Alex Cali
Water Resource Control Engineer
San Diego Water Board – Groundwater Protection Branch

**DATE:** September 28, 2015

**SUBJECT:** **INTERNAL PRELIMINARY SITE INVESTIGATION MEMORANDUM - RAMONA MUNICIPAL WATER DISTRICT SANTA MARIA WASTEWATER TREATMENT PLANT**

This internal preliminary site investigation memorandum (hereinafter Memo) is intended to provide California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) Groundwater Protection Branch management with a summary of findings resulting from the September 1, 2015 preliminary site investigation conducted by San Diego Water Board staff (Staff). The purpose of the preliminary investigation was to visually inspect current land uses and activities on properties located adjacent to the Santa Maria Wastewater Treatment Plant effluent spray fields and monitoring well locations. The Santa Maria Wastewater Treatment Plant (WWTP) is operated by the Ramona Municipal Water District (hereinafter the Discharger) and located at 260 Sawday Road, Ramona, CA. The Discharger's disposal spray field is approximately two miles to the northwest of the WWTP (Figure 1).

The preliminary site investigations began while Staff were preparing tentative Order No. R9-2015-0108 to supersede Order No. R9-2000-0177, *Master Reclamation Permit for the Ramona Municipal Water District, Santa Maria Wastewater Treatment Plant, San Diego County* (Order).[1] Staff identified elevated concentrations of nitrates and total dissolved solids (TDS) in a groundwater well located adjacent to the spray field. Discussions with the Discharger and later confirmed with Staff overseeing regional confined animal feeding operations, that historically a dairy operation occupied the area near the well location identified as having high concentrations of nitrate and TDS in groundwater.

[1] http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2000/2000_0177.pdf

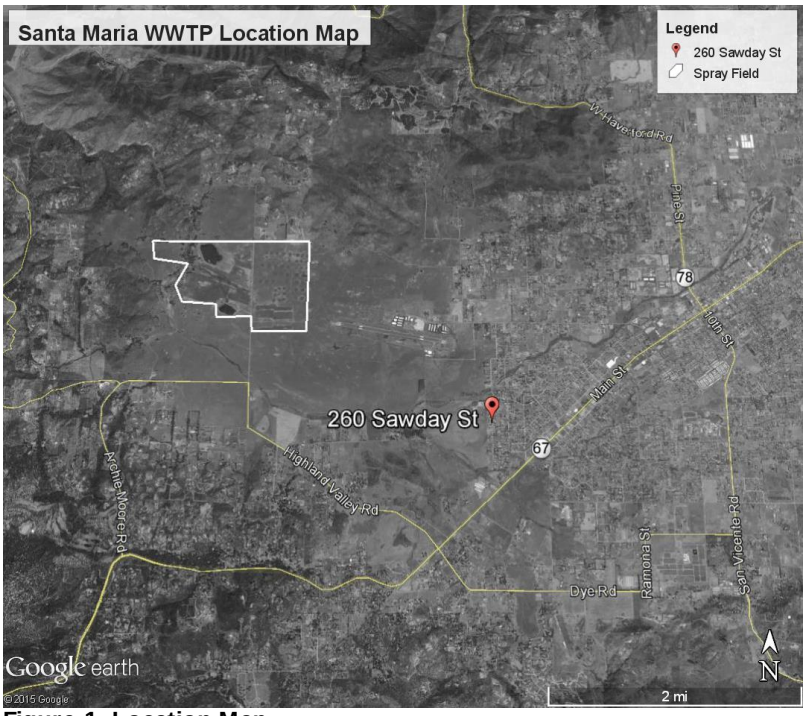


**Figure 1- Location Map**

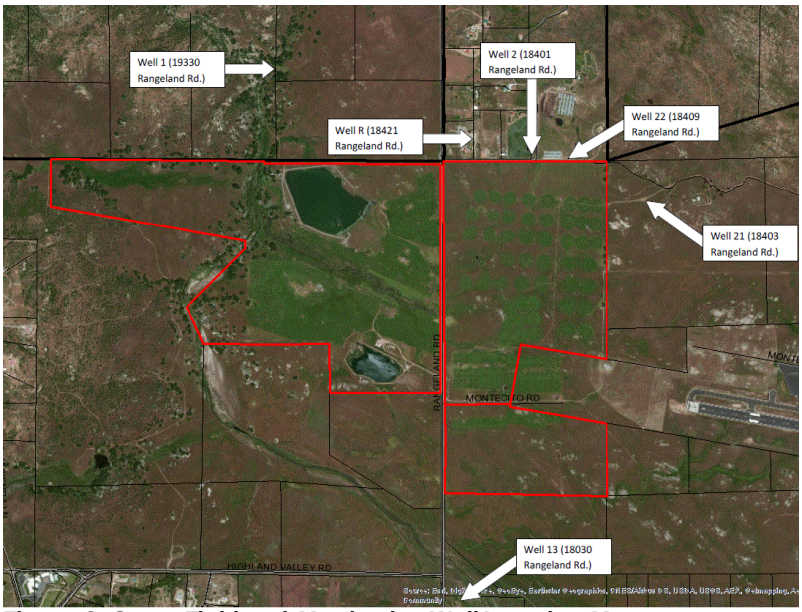


**Figure 2- Spray Field and Monitoring Well Location Map**

## Preliminary Investigation Findings

1. **<u>Elevated Groundwater Concentrations of Nitrate and TDS.</u>**
   Staff identified elevated concentrations of nitrate and TDS reported in annual groundwater monitoring data submitted by the Discharger. Specifically, elevated concentrations were observed in groundwater samples collected from Monitoring Wells Nos. 2 and 22 located to the north-east of the spray field. Groundwater

monitoring data submitted by the Discharger were compiled from the 2008-2014 annual monitoring reports. Results were plotted (concentration vs. time) for both nitrate and TDS in groundwater. Table 1 lists the historical groundwater concentrations of nitrate and Figure 3 shows a graph of trends as concentration vs. time and a trendline line for those data in well Nos. 2 and 22. The groundwater data for TDS are listed in Table 2 and graphed in Figure 4 for the same two wells. The average nitrate concentrations are 405 mg/L and 256 mg/L in groundwater samples collected from Monitoring Wells Nos. 2 and 22 for the years 2008-2014. The average TDS concentrations are 1714 mg/L and 1250 mg/L in groundwater samples collected from Monitoring Wells Nos. 2 and 22 for the years 2008-2014. The data presented in both of the concentration vs. time plots (Figures 3 and 4) are also compared to the applicable groundwater water quality objectives.

**Table 1:**
Nitrate Concentrations for the Santa Maria WWTP Monitoring Network mg/L as $NO_3$

| | Well #1 | Well #2 | Well #21 | Well#22 | Well R |
|---|---|---|---|---|---|
| 2008 | 37 | 323 | 24 | | 8 |
| 2009 | 15 | 365 | 24.2 | 209 | 3.81 |
| 2010 | 12.6 | 360 | 26.9 | 1.02 | 19.5 |
| 2011 | 3.93 | 356 | 46 | 352 | 94.6 |
| 2012 | 14.4 | 464 | 30.6 | 200 | 45.5 |
| 2013 | 21.1 | 470 | 38.9 | 449 | 5.44 |
| 2014 | 21.2 | 500 | 4.27 | 324 | 9.88 |

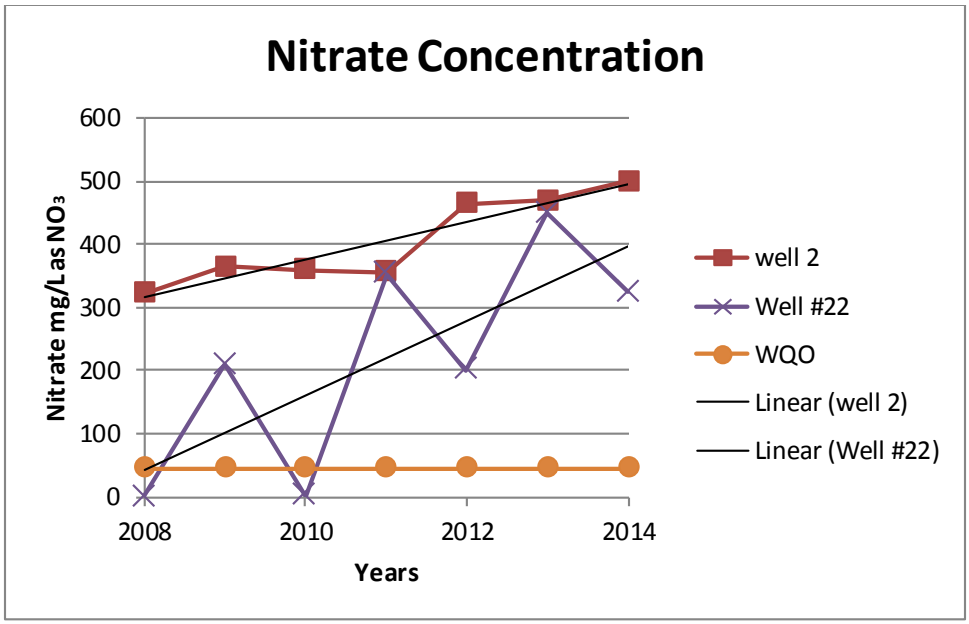


**Figure 3: Nitrate Concentration vs. time Plot**

June 22, 2016
Item No. 7
Supporting Document No. 4

**Table 2:**

TDS Concentrations for the Santa Maria WWTP Monitoring Network

| | Well #1 | Well #2 | Well #21 | Well#22 | Well R |
|---|---|---|---|---|---|
| 2008 | 938 | 1550 | 526 | | 550 |
| 2009 | 347 | 1530 | 504 | 1420 | 569 |
| 2010 | 364 | 1440 | 519 | 572 | 637 |
| 2011 | 931 | 1750 | 551 | 1600 | 632 |
| 2012 | 348 | 1680 | 495 | 940 | 628 |
| 2013 | 341 | 2070 | 502 | 1660 | 561 |
| 2014 | 378 | 1980 | 600 | 1310 | 652 |

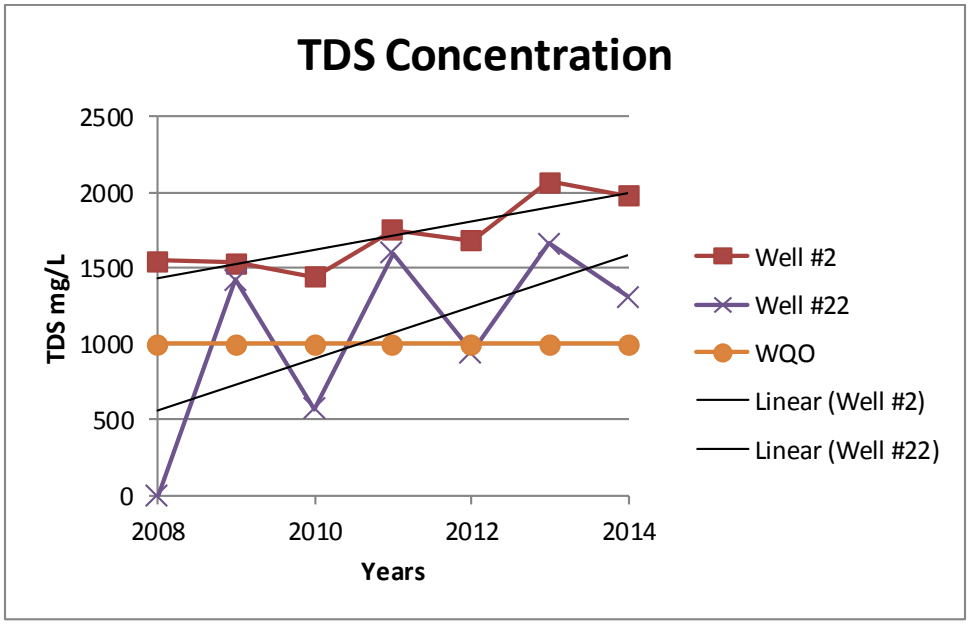


**Figure 4: TDS Concentration vs Time**

The trends in concentrations for both nitrate and TDS appear to be increasing with time in Monitoring Wells Nos. 2 and 22. The 2014 monitoring period contains the highest concentration reported for both nitrate and TDS concentrations in Monitoring Well No. 2. The highest concentrations of nitrate and TDS in Monitoring Well No. 22 were reported in the 2013 annual monitoring period.

2. **Monitoring Network.** The monitoring network does not include a well located down hydrologic gradient from the spray field. According to the Discharger the entire monitoring network consists of production wells owned by private land owners who allow the Discharger access annually for sampling.

3. **Location of Monitoring Wells Nos. 2 and 22.** Monitoring Well No. 2 is located at 18401 Rangeland Road and Monitoring Well No. 22 is located at 18409 Rangeland Road. Monitoring Well No. 2 is located several hundred feet up-hydrologic gradient from the water sample collection point. Production water is stored in a steel tank, which is connected with the sample point with several

hundred feet of pipe. Both monitoring wells exceeded groundwater water quality objectives for concentrations of nitrate and TDS.

4. **18409 Rangeland Road.** Staff attempted to contact the land owner, Mr. Steve Dowle, prior to the inspection for access to the property to assess the surface conditions related to the from former or current confined animal operations. Contact attempts with Mr. Dowle were unsuccessful. After concluding the inspection with the Discharger, the Staff attempted to *make contact with a woman who appeared to be the homeowner, however* Staff were unsuccessful with making contact with the land owner. After unsuccessful attempts to contact property owners, the Staff left the property and made observations from Rangeland Road. Figure 5 shows stained and wet soil in comparison with the surrounding soil, and a tractor connected to a disk plow. This stained and wet soil may indicate that either waste is being applied to the site or a composting operation is occurring at the site. A slight manure odor was observed from the property line, but not a strong odor, coming from the direction of the stained soil in Figure 5. In Figure 6 a close-up image of the stained soil that is show in Figure 5.


**Figure 5- Stained Soil Observed**

**Figure 6- Zoomed Image of Stained Soil**

5. **Potential Surface Water Impoundment.** Observations from Rangeland Road and on aerial photos (Figure 7) indicate the possibility of a surface impoundment located on the creek north of 18409 Rangeland Road. It appears that an man-made berm may be present altering the natural drainage course of the creek that is appears to empty into the surface impoundment located up-gradient from the berm.

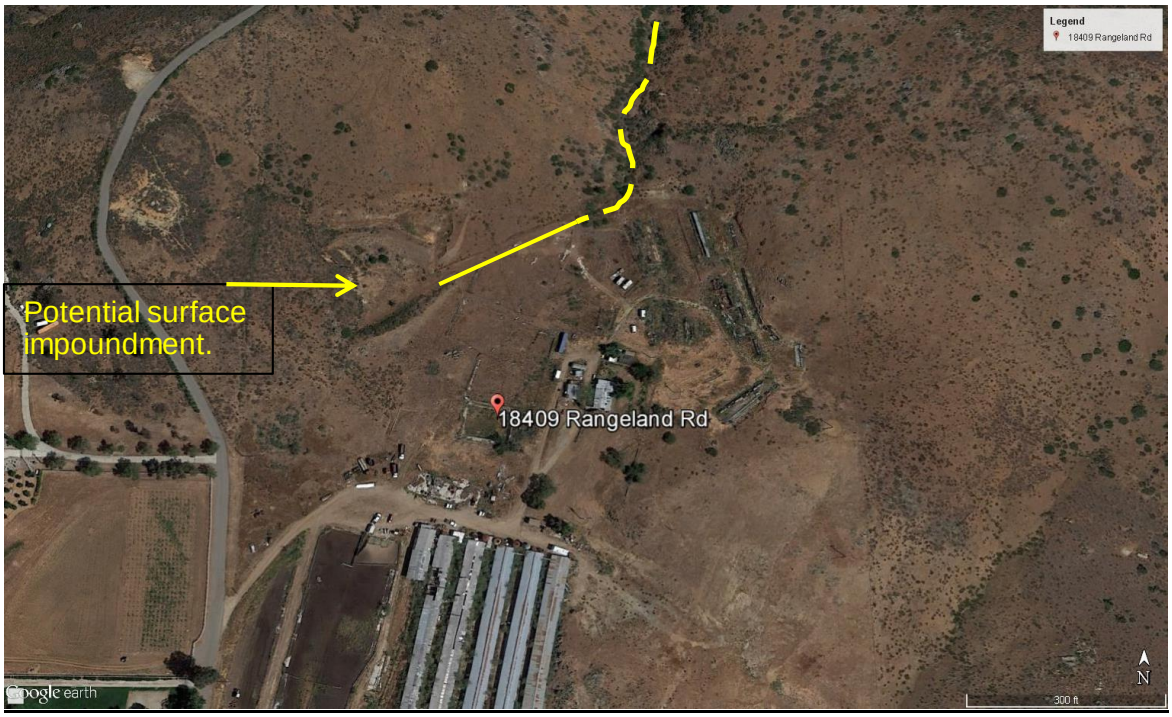


**Figure 7- Aerial Photo of 18409 Rangeland Road**

## Determination and Next Steps

1. **Groundwater Requirements for tentative Order No. R9-2015-0108.** The Discharger and Staff agreed that the groundwater samples collected from the property at 18409 Rangeland Road may not be a true representation of the groundwater quality. The Discharger reiterated that the wells utilized by the Discharger are production wells owned and operated by private land owners. The Discharger accesses the wells annually to collect a water sample to comply with the Monitoring and Reporting Program associated with Order No. R9-2000-0177. As Order No. R9-2000-0177 is in the process of being reissued, Staff will need to re-evaluate the effectiveness of the current monitoring network.

   Staff recommendation is to require the Discharger to submit a workplan to evaluate the effectiveness of the current groundwater monitoring network. The workplan should be included as a requirement of the Master Recycling Permit tentative Order No. R9-2015-0108. Staff also recommend that the Discharger be required to prepare a Salt and Nutrient Management Plan (SNMP) in compliance with the statewide Recycled Water Policy and to address possible local sources

for groundwater pollution, and to evaluate the effectiveness of the monitoring network for Santa Maria Valley HA (905.40). The preparation of a SNMP should also be included as a requirement of tentative Order No. R9-2015-0108.

2. **Water Quality Investigative Orders.** Staff further recommends developing investigative Orders, under the authority of Water Code, section 13267, for the owner(s) of properties located at addresses, 18401 and 18409 Rangeland Road. The purpose of the investigative Order would be to investigate the source(s) of pollution in groundwater, specifically to address the exceedances of groundwater water quality objectives for nitrate and TDS in the wells located on those properties.

   The Staff will consult with other San Diego Water Board staff assigned to confined animal and the Land Disposal Program to develop options for addressing other issues observed during the inspection. Specifically, the possibility of animal waste being used as a soil amendment and the possibility of an ongoing composting operation at 18409 Rangeland Road (Figures 5 and 6).

   Staff recommends developing a water quality investigative order for the owner of the property at 8409 Rangeland Road. The purpose of the water quality investigative Order would be to provide additional information about the observed stained soil and any waste is being applied as a soil amendment and for composting operations are occurring onsite.

3. **Surface Water Impoundment.** Based on observations made and discussed in Finding No. 3, the San Diego Water Boards' Clean Water Act Section 401 Water Quality Certification Program (401 Program) will be advised of conditions and observations regarding the possible surface water impoundment. Follow-up actions concerning the surface water impoundment would be referred to the Staff assigned to the 401 Program.

**Summary of Potential Enforcement Options**

The inspection Findings cited above may subject the Discharger and/or private land owners to enforcement actions by the San Diego Water Board or State Water Resources Control Board, including a potential civil liability assessment of $5,000 per day of violation (Water Code section 13268) and/or any of the following enforcement actions in Table 3.

**Table 3:**

| Potential Enforcement Options | Applicable Water Code Section |
|---|---|
| Technical or Investigative Order | Sections 13267 or 13383 |
| Cleanup and Abatement Order | Section 13304 |
| Time Schedule Order | Section 13300 and 13308 |

| | |
|---|---|
| Reg. Measure ID | 148103 |
| Place ID | 255679 |
| Party ID | 38180 |
| Order No. | R9-2000-0177 |