

Item 7 LATE REVISION

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**MEETING OF APRIL 19-20, 2017**

**BARSTOW**

**WORKSHOP – DOMESTIC WASTEWATER SEWAGE TREATMENT PLANT  
STATUS IN THE LAHONTAN REGION COMMENTS RECEIVED  
AND RESPONSES PROVIDED**

The Water Board received the following comments on Item 7 Staff Report that are summarized in the table below. The full comments and Water Board staff responses are provided as enclosures.

Replacement pages are provided for the Staff Report, Table B, reflecting changes for two facilities.

Enclosure	Commenter	Response
1	04-06-2017- Michael Reason, Geo-Logic, RE: NASA Goldstone Ponds	04-07-2017 - Christy Hunter
2	04-07-2017, Clay Murray, Mammoth Community Water District (MCWD) RE: MCWD Wastewater Plant	04-11-2016 – Jehiel Cass
3	04-11-2017, Mark Solheid, Harris Corp. RE: NASA Goldstone Ponds	04-12-2017 – Ghasem Pour Ghasemi
<b>Revised Table B pages</b>		
4	Remove and replace Revised Staff Report, Table B, Bates pages 7-41 and 7-42, changes to Mammoth CWD STP	
5	Remove and replace Revised Staff Report, Table B, Bates pages 7-45 and 7-46, changes to Echo Mars Ponds	

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**ENCLOSURE 1**



**Cass, Jehiel@Waterboards**

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**From:** Hunter, Christy@Waterboards  
**Sent:** Friday, April 07, 2017 7:13 AM  
**To:** mdreason@geo-logic.com  
**Cc:** Cass, Jehiel@Waterboards; Murphy, Ralph  
**Subject:** RE: geotracker question and more re: Goldstone Ponds

Good morning Mike,

Thanks for your comments.

Supposedly all the waste water treatment facilities have been assigned Geotracker Global IDs.

However just checking GT, it appears that that the Mars, Echo WWTF ponds do not have assigned ID in GT.

Eventually all these sites will be in Geotracker and will require input.

I think they are working out details at this time.

I have cc Jay Cass senior engineer, and lead on WWTF, and who may be able to answer to that more.

Heaps Peak If Leachate Treatment and Disposal DOES have a Geotracker site ID, and data for the 4<sup>th</sup> Qrt 2015 has been uploaded to this site, but since it is not ready for prime time I requested Ralph send in the PDF report.

However all the GW data associated with HPLFLT&D facility is being uploaded to the Landfill GT site. (I have not requested this, however I think it makes since for this site)

BTW, That global ID is WDR100035832 for the HPLT&D.

Hope this helps a bit.

Christy

**From:** Michael Reason [<mailto:mdreason@geo-logic.com>]  
**Sent:** Thursday, April 06, 2017 3:59 PM  
**To:** Hunter, Christy@Waterboards  
**Subject:** geotracker question and more re: Goldstone Ponds

Hi Christy – Two questions/comments:

- 1) I noticed the Board agenda for April 19 has an item that involves discussion of the wastewater sewage treatment plants in the Lahontan region. At the top of page 6 of the report, I found the following statement:

Water Board staff has identified the need to gather consistent and more comprehensive information concerning nitrate concentrations in groundwater associated with discharges of domestic wastewater in order to identify and respond to groundwater degradation before it impacts drinking water supplies throughout the region. In addition to conducting water quality analyses, the Water Board has developed publically available geospatial data repository, GEOTRACKER, which can support improved technical analyses and tracking of groundwater quality trends. GEOTRACKER currently serves as a repository for data from drinking water wells regulated by DDW, and other monitoring well data from the United States Geological Survey, Department of Water Resources, Mojave Water Agency, responsible parties engaged in site cleanup, and others. The State Board will be requiring all sewage treatment entities regulated by the Water Board to enter groundwater data into GEOTRACKER. State approved commercial water quality laboratories currently upload analytical data to GEOTRACKER for entities under Water Board Cleanup and Abatement (CAO) orders **Dischargers or**

their consultants will also have to upload groundwater monitoring well and elevation data to GEOTRACKER.

So we will need to start uploading the monitoring information for the ponds we monitor at Goldstone. Also, perhaps the Heaps Peak leachate treatment system. Is this correct? If so, will the RWQCB assign facility IDs for the geotracker process?

2) On page 10 of the report:

The third category that needs further examination includes facilities lacking both effluent and groundwater quality data with respect to nitrogen. This currently makes up 33 percent (%) or 13 of the facilities between 100,000 gallons per day and 10 million gallons per day. This category includes the Baker Wastewater Treatment Plant, Echo Mars Ponds, Trona and Pioneer Point Wastewater Treatment Plant, Boron Treatment Plant, Barstow Daggett Airport, and Big Pine. Two facilities in this category are the Victor Valley Water Reclamation Authority's sub-regional wastewater treatment plants in Apple Valley and Hesperia that are under construction and have not discharged any wastes. As a category, these sites need Level A inspections, which includes sampling, to determine effluent quality and, if possible, assess groundwater quality. These sites likely need revised and improved monitoring and reporting program requirements, which may include requirements for groundwater monitoring well installation, sampling, and reporting.

Just noting that the M&RP for the Echo and Mars ponds includes annual testing for nitrate (as N) and TKN. Table B also states that nitrate in groundwater is unknown.

Thanks,  
Michael D. Reason, PG, CHG  
Geo-Logic Associates, Inc.  
2777 East Guasti Road, Suite 7  
Ontario, CA 91761  
T: (909) 383-8728  
[mdreason@geo-logic.com](mailto:mdreason@geo-logic.com)  
[www.geo-logic.com](http://www.geo-logic.com)

**ENCLOSURE 2**





**Cass, Jehiel@Waterboards**

**From:** Cass, Jehiel@Waterboards  
**Sent:** Tuesday, April 11, 2017 6:10 PM  
**To:** 'cmurray@mcwd.dst.ca.us'  
**Cc:** Browne, Thomas@Waterboards; Hurr, Cephas@Waterboards; Copeland, Patrice@Waterboards; Coale, Robin@Waterboards  
**Subject:** Mammoth Community Water District comments on Sewage Staff Report

Clay – Thank you for your timely comments on the Domestic Wastewater Sewage Treatment Plant Staff Report relating to the Mammoth Community Water Districts wastewater treatment plant. We will be discussing this with the Lahontan Board on April 19, 2017. We will provide your comments to the board and include them with the record of material for this item.

We appreciate your clarification of a number of items. I am not proposing to change the report or its attachments, but will certainly take your comments into consideration when conducting a more detailed review of your facility operations. As we were preparing Table B, enclosed with the staff report, I had the impression that some statements may be inaccurate or overly simplistic.

Following is my summary of your comments with responses provided.

- Laurel ponds groundwater quality is known, although drought contributed recently to dry monitoring wells. Replacement wells are proposed.

**Response:** The information on groundwater nitrate concentration results adjacent to Laurel Pond was informative. It does appear that overall nitrate concentrations are generally low, followed by an extended recent period where the wells were dry due to the drought. It will be useful to review data from this year as the groundwater elevations may rise somewhat. It isn't clear how deceased rodents would have contributed to the elevated historical groundwater nitrate concentrations observed over the drinking water objective of 10 mg/L nitrate-nitrate in 2006 and in 2009. However, you rightfully indicate that vandalism can be a problem in keeping the well heads secure in a remote location. Your letter indicates that you intend to install some additional deeper wells in the near future. Please ensure that we receive the Work Plan for new well installations, signed by a CA registered professional geologist, showing the proposed well locations and construction design.

- Clarify that biosolids disposal is to the Benton Crossing Landfill after sludge dewatering.

**Response:** The statement, "Discharger is evaluating options to manage or remove historical onsite sludge disposal" was added because I had recalled an issue from about one year ago where Tom Browne on my staff was discussing with one of your staff the relocation of some biosolids material that I believe was in one of the flow equalization basins. That issue may have been resolved. If so, please disregard. I also may have mischaracterized the issue. If this issue remains outstanding, please contact Tom Brown on my staff at [tom.browne@waterboards.ca.gov](mailto:tom.browne@waterboards.ca.gov).

- Change "Activated sludge pond system, plus tertiary" to "Activated sludge system "

**Response:** I agree that ponds are not part of your treatment system. For Table B purposes, we added the "plus tertiary" statement to indicate that a portion of your treated flow is delivered to recycled water users. The CIWQS database is not set up well to track recycled water issues; producers, partial producers or recycled water users. However, we don't intend to revise Table B of the staff report which was informational only.

- Change design from 2.2 MGD to 5.04 MGD.

Response: Order 6-91-22 indicates it was written, at least in part, to establish new requirements for a planned plant expansion to accommodate a flow increase from 2.2 MGD to 5.04 MGD. Our CIWQS data base still indicates that the facility flow is 2.2 MGD. Sometimes, these additional data fields do not get properly updated in the CIWQS database when projects are completed. I would like you to provide certification, signed by a California registered civil engineer, that plant upgrades are completed and the rated facility flow is now 5.04 MGD. That likely was furnished over 20 years ago when upgrades were completed. We may have a copy in our archive files, but it would be more expeditious if you could provide this and then we will update the database. Note also that Order 6-91-22, Finding 7, indicates that following expansion, the 30-day design capacity would be 4.05 MGD. This is the value we would include in the database because that field is intended to represent the long-term average design flow for treatment purposes, not 24-hour design flow.

- Change recycled water classification from N to Y.

Response: I concur that the Recycled Water category on the Staff Report, Table B, for Mammoth CWD should be "Y", instead of "N". However, we don't intend to modify Table B of the staff report which was informational only.

- Clarify Laurel Pond Impact on Hot Creek Hatchery Springs

Response: Thank you for reference to the 1997 Biological Impact Report for Laurel Pond. We will review this report when we begin to focus more staff time on reviewing your facility.

Regards – Jay

**Jehiel (Jay) Cass, P.E.**

Senior Water Resources Control Engineer  
Lahontan Water Board  
15095 Amargosa Rd., Bldg. 2, Ste 210, Victorville CA 92392  
(760) 241-2434 [jehiel.cass@waterboards.ca.gov](mailto:jehiel.cass@waterboards.ca.gov)



**Water Boards**

<http://www.waterboards.ca.gov/lahontan>



Mammoth Community Water District  
P.O. Box 597 Mammoth Lakes, CA 93546  
(760) 934-2596; fax (760) 934-4080

April 7, 2017

To: **Robin Coale**  
**Office Technician**  
**Lahontan Regional Water Quality Control Board**  
[Lahontan@waterboards.ca.gov](mailto:Lahontan@waterboards.ca.gov)

RE: "STAFF REPORT ON DOMESTIC WASTEWATER SEWAGE TREATMENT PLANTS IN THE LAHONTAN REGION"

There are some details in this report about our facilities and monitoring data that is either incorrect or does not accurately depict our monitoring results. The following information has been provided to amend the discrepancies and to qualify some of the monitoring results.

The Mammoth Community Water District (MCWD) owns and operates the Mammoth Lakes Wastewater Treatment Plant. The facility operates under Waste Discharge Requirements defined in Board Order No. 6-91-22, which require treated effluent to be discharged to Laurel Pond, a previously ephemeral pond located outside of the Town of Mammoth Lakes. This body of water provides for percolation of water into the ground waters of the Long Valley Hydrologic Area of the Owens Hydrological Unit. Board Order No. 6-91-22 states, "The discharge shall not cause the nitrate concentration in ground waters beneath the disposal sites to exceed the U.S. EPA drinking water maximum contaminant level of 10.0 mg/L as nitrogen" and 4 monitoring wells (Laurel Pond Monitoring Wells 1-4, or MW1-MW4) are sampled quarterly for compliance.

MCWD challenges the classification in the April 2017 *Staff Report on Domestic Wastewater Sewage Treatment Plants in the Lahontan Region* of our facility under the category of "both known effluent and groundwater quality over the MCL." Per the WDR, the 4 monitoring wells around Laurel Pond (MW-1 through MW-4) are sampled for nitrate on a quarterly basis. Since March 2003, quarterly monitoring have resulted in 137 "no sample result" due to a dry well and 84 samples. Analysis of these samples resulted in 40 results with less than the testing limit of 0.20 mg/L for nitrate, and an average nitrate concentration of 1.54 mg/L in the 44 samples greater than the testing limit of 0.20 mg/L. However, there are 3 distinct outlier samples as seen in Figure 1 below, occurring in March of 2007, June of 2009, and June of 2011. These outliers at MW-2 have been attributed by MCWD staff sampling notes to deceased mice or squirrels contaminating the well sample due to vandalism to the well head. The outliers drastically skew the reported nitrate groundwater levels at Laurel Pond; with the outliers removed, the average nitrate concentration of samples greater than the detection limit is 0.53 mg/L.

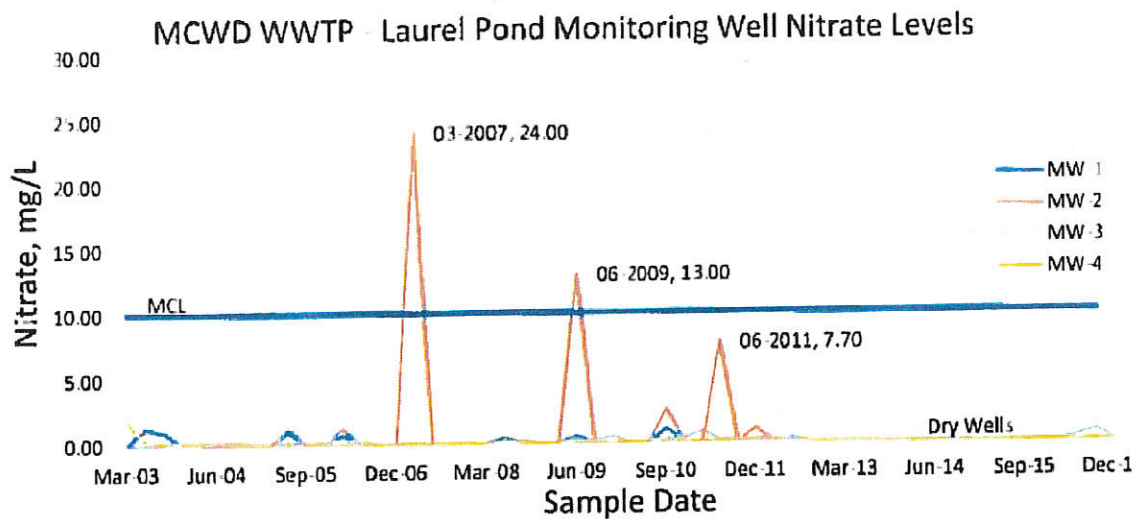


Figure 1: Laurel Pond Groundwater Nitrate Levels, 2003-2016

A known issue with the Laurel Pond monitoring wells is the difficulty in attaining samples during drought periods. The four monitoring wells are shallow at 23-25 feet below ground surface, due to hard basalt located underneath the shallow unconsolidated alluvial deposits predominately found in the Laurel Pond region (Schmidt 1996). MCWD has budgeted this fiscal year to contract with Wildermuth Environmental hydrogeological consultants to prepare specifications for the replacement of the Laurel Pond groundwater monitoring wells. The replacement wells will be designed to be more secure and penetrate the top 30 feet of basalt underlying the alluvium. Draft specifications will be submitted to permitting agencies for approval to construct the new wells and properly abandon the existing wells. Following high runoff periods, more monitoring well samples have been able to be taken. Two successful samples were taken from MW-3 in June and September of 2016 following a 3 year period of all wells being too dry to take samples. MCWD anticipates additional samples will be able to taken this year after anticipated (near) record runoff, which will aid in monitoring for compliance with the WDR.

Table B in the Staff Report on Domestic Wastewater Sewage Treatment Plants in the Lahontan Region lists under the status of the Mammoth CWD STP that "Discharger is evaluating options to manage or remove historical onsite sludge disposal." MCWD does not dispose of sludge onsite, and as noted in the Waste Discharge Requirements, "Dewatered sludge generated by the MCWD sludge filter press is hauled to the Benton Crossing Class III Sanitary Landfill for disposal by burial." (Board Order No. 6-91-22, finding 9). This status is out of date, and is one of 4 corrections to be made to the Mammoth CWD STP entry in Table B. The remaining 3 are:

1. Change "Activated sludge pond system, plus tertiary" to "Activated sludge system".
2. Change design flow from 2.200 to 5.04 MGD.
3. Change the Recycled classification from N to Y.

Table B also identifies the "Need to evaluate whether nitrogen loading from Laurel Ponds may affect Hot Creek Hatchery Springs." The 1997 *Biological Impact Report for Laurel Pond* investigated historical and then-present conditions of biological resources at Laurel Pond and evaluated the potential impacts from

reducing inflows to the pond by implementing recycled water reuse, primarily for potential impacts to the Federally-listed Owens tui chub population in Hot Creek. This study found that "Hot Creek Fish Hatchery is not hydrologically connected to the Laurel Pond system" (Tetra Tech 1997). Nitrate loadings from Laurel Pond to the groundwater, at approximately 1,250 acre-ft. a year (Wildermuth 2012) and the likely nitrate concentration of 0.53 mg/L would introduce approximately 1,800 pounds of nitrate/yr. to the ground waters of the Long Valley hydrological unit. This pales in comparison to the approximately 11,800 pounds a year contained in the AB and CD springs at Hot Creek, due to the vastly greater flows through the springs (20 CFS = 14,478 acre-feet per year) and similar nitrate concentration in the springs to the groundwater beneath Laurel Pond (0.29-0.31 mg/L) (Jellison et al 2007).

Thank you for the opportunity to provide our comments.

Sincerely,

***Clay Murray***

Operations Superintendent  
Mammoth Community Water District  
(760) 934-2596 ext. 231  
[cmurray@mowd.district.ca.us](mailto:cmurray@mowd.district.ca.us)



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**ENCLOSURE 3**





**Cass, Jehiel@Waterboards**

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**From:** PourGhasemi, Ghasem@Waterboards  
**Sent:** Thursday, April 13, 2017 8:29 AM  
**To:** Cass, Jehiel@Waterboards  
**Subject:** FW: Goldstone

For your information.  
Thanks  
Ghasem

**From:** Solheid, Mark J (9200-Affiliate) [<mailto:Mark.J.Solheid@jpl.nasa.gov>]  
**Sent:** Thursday, April 13, 2017 7:21 AM  
**To:** PourGhasemi, Ghasem@Waterboards  
**Subject:** RE: Goldstone

Hi Ghasem,

After reviewing the report you referenced below, I see your point(s). I will ensure this does not happen again.

Thank you,

Mark

**From:** PourGhasemi, Ghasem@Waterboards [<mailto:ghasem.pourghasemi@waterboards.ca.gov>]  
**Sent:** Wednesday, April 12, 2017 3:56 PM  
**To:** Solheid, Mark J (9200-Affiliate)  
**Cc:** Hurr, Cephas@Waterboards; Coale, Robin@Waterboards; Cass, Jehiel@Waterboards  
**Subject:** RE: Goldstone

Hi Mark:

After reviewing your e-mail and reports submitted on the behalf of Echo Mars dated April 11, 2017 regarding the Sewage Staff Report , we will make the following changes to the Staff Report Table B (page 7 of 23):

- 1) Effluent total nitrogen: Not applicable since there is no discharge to perc pond.
- 2) Groundwater nitrate as N: Ranges from 2.7 mg/L to 8 mg/L.
- 3) Number of monitoring wells: three monitoring wells per each site (total 6 MW)

Aside from this, I also would like to request that you include measurement units for all the data in the future reports. For example I am referring to effluent sample results. There are no unit measurements for ph, dissolved oxygen, and total dissolved solids in the 3rd quarter report dated 10-3-2016. Also please check the quality of the reports. As an example, and I quote from the 10-3-2016 report "this report is for second quarter of calendar year 2015. This report is due on or before October 15<sup>th</sup>, 2016." This is confusing and inaccurate. The reader has to go to top of the first page to understand that you are talking about the third quarter of 2016, since the tables do not have dates and a calendar year associated with them. Also, the file address below the first letter signature line also refers to the third quarter 2015.

Thanks  
Ghasem

**From:** Solheid, Mark J (9200-Affiliate) [<mailto:Mark.J.Solheid@jpl.nasa.gov>]  
**Sent:** Tuesday, April 11, 2017 2:45 PM  
**To:** Lahontan  
**Subject:**

Hi,

Please see attached comments concerning your April 19 meeting.

Thank you,

**Mark Solheid**

**Sr. EHS Analyst, Environmental Health & Safety**

**CRITICAL NETWORKS/HARRIS CORPORATION**

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93 Goldstone Road, Ft. Irwin, CA 92310 / USA



Goldstone Deep Space Communications Complex (GDSCC) staff is aware of the wastewater sewage treatment plant discussion scheduled to occur during the Water Board meeting on April 19, 2017, in Barstow, California. GDSCC staff have reviewed the Water Board's summary report titled "Staff Report on Domestic Wastewater Sewage Treatment Plants in the Lahontan Region" dated April 2017, and we have developed the following comments.

Page 10 of the report states, in part:

*The third category that needs further examination includes facilities lacking both effluent and groundwater quality data with respect to nitrogen. This currently makes up 33 percent (%) or 13 of the facilities between 100,000 gallons per day and 10 million gallons per day. This category includes the Baker Wastewater Treatment Plant, Echo Mars Ponds, Trona and Pioneer Point Wastewater Treatment Plant, Boron Treatment Plant, Barstow Daggett Airport, and Big Pine. Two facilities in this category are the Victor Valley Water Reclamation Authority's sub-regional wastewater treatment plants in Apple Valley and Hesperia that are under construction and have not discharged any wastes. As a category, these sites need Level A inspections, which includes sampling, to determine effluent quality and, if possible, assess groundwater quality. These sites likely need revised and improved monitoring and reporting program requirements, which may include requirements for groundwater monitoring well installation, sampling, and reporting.*

In addition, Table B (page 7 of 23) of the report includes the following entries for the Echo Mars Ponds:

*Number of Wells: 0*

*Nitrate pollution: Unknown*

*Groundwater Nitrate as N: Unknown*

GDSCC notes that groundwater monitoring systems were installed near each of the wastewater pond facilities (Echo and Mars stations) in 2005. Each monitoring system includes three wells (six total). Groundwater samples were collected from the wells on a quarterly basis for the first year of monitoring, and they have been monitored annually since 2006. Groundwater samples are tested for volatile organic compounds (EPA Method 8260), semi-volatile organic compounds (EPA Method 8270), oil and grease (EPA Method 1664), MBAS (EPA Method 425.1), total dissolved solids (EPA Method 160.1), chloride (EPA Method 300.0), total Kjeldahl nitrogen (EPA Method 351.2), ammonia as nitrogen (EPA Method 350.1), nitrate as nitrogen (EPA Method 300.0), and field parameters (pH, specific conductance, dissolved oxygen, temperature, and turbidity). Plant effluent is monitored monthly and tested for dissolved oxygen, total dissolved solids, and pH.

Summaries of the concentrations of nitrogen compounds in groundwater are shown in the following tables:

Echo Facility Well ID	EP-1	EP-2	EP-3
<b>Nitrate as N (mg/L)</b>			
lowest concentration	4.85	3.9	2.55
highest concentration	9	5.4	4.1
March 2017 concentration	7.7	5.4	4.1
<b>Ammonia as N (mg/L)</b>			
lowest concentration	0.03	not detected	not detected
highest concentration	0.11	0.032	0.1
March 2017 concentration	0.04	0.032	0.079
<b>TKN (mg/L)</b>			
lowest concentration	not detected	not detected	not detected
highest concentration	0.29	0.45	0.13
March 2017 concentration	not detected	not detected	not detected

Mars Facility Well ID	MP-1	MP-2	MP-3
<b>Nitrate as N</b>			
lowest concentration	not detected	3.5	0.38
highest concentration	2.6	4.58	4.4
March 2017 concentration	2.4	4.4	4.4
<b>Ammonia as N</b>			
lowest concentration	not detected	not detected	not detected
highest concentration	0.21	0.11	0.13
March 2017 concentration	0.095	0.021	0.11
<b>TKN</b>			
lowest concentration	not detected	not detected	not detected
highest concentration	0.93	0.31	0.88
March 2017 concentration	0.17	not detected	not detected

If you have any comments or questions regarding this information, please contact me at (760)255-8225 at your convenience.

Mark Solheid  
Harris

**ENCLOSURE 4**



Table B - South Lahontan Sewage Systems

Facility	City	Treatment Type Disposal Method System Summary	Order Date (Y)	Design Flow (MGD)	Recycled Wells	Nitrate Pollution	Effluent Total Nitrogen Groundwater Nitrate-Nitrogen (range) Status
Lake Arrowhead CSD WTFS	Lake Arrowhead	Secondary Recycled - Agriculture Trickling filter pond system	2009	3.000	Y	N	<ul style="list-style-type: none"> <li>Effluent Total Nitrogen: 5.0 mg/L</li> <li>Groundwater Nitrate as N: ND-9.6 mg/L</li> <li>CDO requires reducing 1/1 during high storm events to prevent spills from exceeding outfall capacity.</li> <li>Recommend meeting with District to identify vulnerabilities inhibiting achieving CDO 1/1 reduction objectives.</li> </ul>
Victorville/SCLA Central WWTP Water Dist	Victorville	Tertiary Percolation Recycled - Industrial & Landscape Membrane bioreactor system	2014	2.500	Y	Y	<ul style="list-style-type: none"> <li>Effluent Total Nitrogen: 5.72 mg/L</li> <li>Groundwater Nitrate as N: 0.2-10.0 mg/L</li> <li>WDRs include numerical TDS receiving water effluent.</li> <li>Effluent limits in order.</li> </ul>
Mammoth CWD STP	Mammoth Lakes	Secondary Tertiary Percolation Recycled - Landscape Activated sludge	1991	<u>5.040</u>	Y	Y	<ul style="list-style-type: none"> <li>Effluent Total Nitrogen: 0.05-34 mg/L</li> <li>Groundwater Nitrate as N: <u>0.05-24 mg/L</u></li> </ul>
Fort Irwin	Fort Irwin	Secondary Tertiary Percolation Recycled - Landscape Oxidation ditch pond system, with tertiary	2004	2.000	Y	Y	<ul style="list-style-type: none"> <li>Effluent Total Nitrogen: Unknown (NO3 as N: 11 mg/L)</li> <li>Groundwater Nitrate as N: 20-35 mg/L</li> <li>Historical effluent chlorination caused THMs in groundwater.</li> <li>Improved treatment with nitrogen reduction expected to allow reduce groundwater nitrate pollution.</li> </ul>

Table B - South Lahontan Sewage Systems

Facility	City	Treatment Type Disposal Method System Summary	Order Date (*)	Design Flow (MGD)	Recycled	No. Wells	Nitrate Pollution	Effluent Total Nitrogen Groundwater Nitrate-Nitrogen (range) Status
Rosamond WTF (Ponds)	Rosamond	Secondary Tertiary Percolation Aerated pond system, plus activated sludge tertiary (inactive)	2015	2,000	N	4	Y	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: 3-57 mg/L</li> <li>• Groundwater Nitrate as N: 1.3-13 mg/L</li> <li>• NOA pending DDW Engineering Report approval to become recycled water Administrator.</li> <li>• WDRs include time schedule to line leaking ponds causing pollution or propose alternative treatment/disposal plan.</li> <li>• Time schedule for additional monitoring wells included in WDRs.</li> </ul>
Helendale Silverlakes STP	Helendale	Secondary Percolation Recycled - Agriculture Trickling filter pond system	2001	1,800	Y	4	N	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: 9.9-14.5 mg/L</li> <li>• Groundwater Nitrate as N: 2.2-7.5 mg/L</li> <li>• Revised WDRs pending to expand agricultural reuse area.</li> </ul>
Bishop Sewage Treatment Plant	Bishop	Secondary Percolation Recycled - Agricultural Primary plus aerated lagoon system	1994	1,600	Y	5	Y	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: ND-18.7 mg/L</li> <li>• Treatment and disposal areas co-located with Eastern Sierra CSD.</li> <li>• City and District implementing Joint Work Plan taking actions intended to address pollution.</li> <li>• Recommend MRP include effluent Nitrogen</li> </ul>
Edwards AFB Main Base	Edwards AFB	Secondary Tertiary Percolation Recycled - Landscape Oxidation ditch system	2001	1,500	Y	5	Y	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown (TKN: 0.82 mg/L)</li> <li>• Groundwater Nitrate as N: 0.17-10 mg/L</li> <li>• Continue with THM investigations.</li> <li>• Revise MRP to require daily, not weekly, coliform sampling.</li> </ul>



**ENCLOSURE 5**



Table B - South Lahontan Sewerage Systems

Facility	City	Treatment Type Disposal Method System Summary	Order Date (Y)	Design Flow (MGD)	Recycled Wells	No. Nitrate Pollution Wells	Effluent Total Nitrogen Groundwater Nitrate-Nitrogen (range) Status
Lone Pine WWTF	Lone Pine	Secondary Percolation Aerated lagoon system	1995	0.500	N	2	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: ND-0.2 mg/L</li> <li>• Recommend additional monitoring wells.</li> <li>• Recommend MRP include effluent Nitrogen</li> </ul>
Baker WTF	Baker	None Percolation Raw sewage	1997	0.400	N	0	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: Unknown</li> <li>• Recommend requiring secondary treatment effluent limitations to address odor problems</li> <li>• Recommend MRP include effluent Nitrogen</li> <li>• Recommend groundwater monitoring wells.</li> <li>• Recommend WDR update to include additional aeration and a percolation pond constructed.</li> </ul>
Echo Mars Ponds Two systems at two separate locations	Fort Irwin	Septic Percolation Septic lined pond system	1993	0.340	N	6	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Not Applicable</li> <li>• Groundwater Nitrate as N: 2.7 mg/L - 8 mg/L</li> <li>• NASA elects to evaporate, not percolate, effluent</li> </ul>
Trona & Pioneer Point WTF	Trona	Septic Percolation Septic pond system	1994	0.247	N	0	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: <u>Not Applicable</u></li> <li>• Groundwater Nitrate as N: 2.7 mg/L-8 mg/L</li> <li>• Effluent from Trona and Pioneer Point communities treated in septic system and commingled with Searles Valley Minerals industrial waste for discharge into Searles Dry Lake open pond.</li> <li>• County had planned collection system improvements.</li> </ul>
Boron STP	Boron	Secondary Percolation Aerated lagoon system	2002	0.210	N	0	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown (TKN: 73 mg/L)</li> <li>• Groundwater Nitrate as N: Unknown</li> <li>• Facility operating well under capacity.</li> </ul>

Table B - South Lahontan Sewage Systems

Facility	City	Treatment Type Disposal Method System Summary	Order Date (Y)	Design Flow (MGD)	Recycled	No. Wells	Nitrate Pollution	Effluent Total Nitrogen Groundwater Nitrate-Nitrogen (range) Status
USMC Barstow Yermo	Yermo	Secondary Percolation Aerated lagoon system	2001	0.200	N	6	Y	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: 2.04-20 mg/L</li> <li>• Continue 13267 oversight for high nitrate and phenols in groundwater.</li> </ul>
Calico Ghost Town Recreational Facility WTF	Yermo	Septic Percolation Septic pond system	1988	0.181	N	2	U	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: 4.4 mg/L</li> <li>• Recommend additional monitoring wells.</li> </ul>
Barstow/Daggett Airport WTF	Daggett	Secondary Percolation Aerated lagoon system	1999	0.150	N	3	U	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: Unknown</li> <li>• Low flow evaporates within facility</li> <li>• Groundwater wells dry</li> </ul>
Big Pine STP	Big Pine	Secondary Percolation Aerated lagoon system	1995	0.150	N	0	U	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: Unknown</li> <li>• Groundwater Nitrate as N: Unknown</li> <li>• Recommend MRP include effluent Nitrogen</li> <li>• Recommend groundwater monitoring wells</li> <li>• Recommend improved oxidation.</li> </ul>
Inyo Kern CSD WTF	Inyo Kern	Secondary Percolation Aerated lagoon system	1993	0.150	N	3	U	<ul style="list-style-type: none"> <li>• Effluent Total Nitrogen: 9.70 mg/L</li> <li>• Groundwater Nitrate as N: Unknown</li> <li>• Inyo Kern CSD has financial difficulty and inability to keep certified operators submitting late reports and incomplete reports.</li> <li>• SMRs have been delinquent in reporting.</li> </ul>