



MALAGA COUNTY WATER DISTRICT

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BOARD OF DIRECTORS

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James D. Anderson, General Manager

19 November 2014

SENT VIA U.S. MAIL/EMAIL: aide.ortiz@waterboards.ca.gov

Ms. Aide Ortiz
Mr. Matt Scroggins
Central Valley Regional Water
Quality Control Board
1685 E Street
Fresno, CA 93706

Re: Request for Additional Comments

Dear Ms. Ortiz and Mr. Scroggins:

This letter is in response to the Water Board's October 31, 2014, email requesting that the Water Balance Memorandum dated October 24, 2014, submitted with the District's comments to the District's draft NPDES Permit (Memorandum) be "re-submitted as a technical report with the signature and seal of the engineer in charge[.]" The email further requested that the report be submitted to "fulfill requirements in Provision VI.C.6.b of the proposed NPDES Permit [,]" and that the District provide a letter indicating when/how the District will comply with the engineers recommendations.

Regarding your request that the Memorandum submitted with the comments be re-submitted as a technical report, the Memorandum is re-submitted herewith without amendment, with the signature and seal of the District's engineer, Michael Taylor as requested.

Regarding your request that the comments and Memorandum be submitted as a technical report fulfilling the requirements of Provision VI.C.6.b of the proposed NPDES Permit, the comment and Memorandum were and are submitted as comments and evidence in response to the Notice of Public Hearing concerning the renewal of the District's NPDES Permit opposing the change to the District's discharge limit at discharge point 002. Because the proposed NPDES Permit has not been adopted, the District cannot, at this time, submit a technical report in response to Provision VI.C.6.b of the proposed NPDES Permit. In addition to not yet being adopted and effective, provision VI.C.6.b of the proposed NPDES Permit, does not provide procedures or criteria for requesting and being granted increased flow. It is apparent that the provisions in the draft NPDES permit related to the Districts discharge limit at discharge point 002 are not only

unsupported by the data but are also poorly conceived and unworkable.

Regarding the implementation of the Districts engineer's recommendations for pond maintenance contained in the Memorandum, the District has a Standard Operating Procedure (SOP) for Pond Maintenance and Monitoring (enclosed). The District developed a pond capacity matrix (enclosed) that calculates the volume of water in all ponds, the capacity in use as a percent of available capacity, and the capacity available as a percent of total capacity to maintain a minimum freeboard of two feet. Weekly pond readings of pond levels in inches shall be taken and enter in to the pond capacity matrix and the resulting calculations shall be entered on the Weekly Pond Monitoring report (enclosed). The Weekly Pond Monitoring report shall be submitted with the monthly DMR to supplement pond data in the DMR.

Under the SOP the District will operate one pond at a time. When the pond in operation reaches 100% of its freeboard capacity, the pond will be isolated and percolation/evaporation (P/E) measured until it empties. If the P/E rate is greater than 1.5 inches per day, the pond is allowed to continue drying until it is put back into service. If a pond P/E rate is less than 1.5 inches per day, the pond will be dried sufficiently to rip before being put back into service. If a pond fails to achieve a P/E rate of 1.5 inches per day after ripping, the pond is taken out of service for scraping and ripping.

Total pond storage capacity in use and storage capacity available are monitored regularly. If total storage capacity in use is 50% of storage capacity available, all P/E calculations and secondary effluent flow data will be forwarded to the District Engineer to make a calculation to determine the volume of tertiary discharge that will be required to not exceed total storage capacity (freeboard limit). A decision will then be made when and at what rate to begin tertiary discharge to offset the volume of secondary effluent discharge to the ponds.

Based upon the water balance calculation made by the District Engineer, an average P/E rate of 1.5 inches per day in the ponds is sufficient to maintain a flow of 0.85 MGD secondary effluent to the ponds. Average flow for the past two years has been about 0.60 MGD.

During calendar year 2014 there has and will be no tertiary discharge. During this time the District has dried seven of its eight and scraped and/or ripped the ponds as necessary. Since July 2014, only one pond has been in service at any given time. As described in the SOP procedure above, ponds that were in service have been isolated to collect P/E data. All ponds have maintained a P/E rate of greater than 1.5 inches per day. As part of the District's SOP and commitment to performing regular pond maintenance, the District will add a line item to its budget to fund pond maintenance in conjunction with the District's mid-year budget review to be performed in January 2015.

Also enclosed is a Pond Capacity Matrix dated 17-November-2014. The Matrix shows that the District is currently using pond three for discharge and that ponds four and five are isolated and being monitored for percolation/evaporation data.. The District currently has 82.8% of its freeboard capacity available.

Based upon the fact that all ponds have a P/E rate greater than 1.5 inches per day, a P/E

rate of 1.5 inches per day is sufficient for secondary discharge of 0.85 MGD to the ponds, a pond monitoring procedure is in place to record pond capacity, a pond maintenance plan exists and will be implemented according to the P/E data and the recommendations of the District Engineer, a calculable storage capacity threshold exists to make a precise determination as to when tertiary discharge must be implemented, the storage capacity milestone allows for time to plan tertiary discharge to be coordinated with Central Canal water delivery by Fresno Irrigation District, during 2014 only one pond at a time has been required to operate, at no point since 2008 when the District undertook greater effort to maintain the ponds has the District approached its pond capacity (freeboard limit), and that for the last two years flow has averaged about 0.60 MGD, the District requests that the upcoming NPDES permit renewal allow for a secondary discharge at Discharge Point 002 remain at 0.85 MGD.

The fact that pond capacity has not been an issue for many years is not new information. DMR data provided to the CVRWQCB shows that storage capacity has not been an issue for the District for over six years. The percolation rates achieved today are not the result of a miraculous event this year. Pond maintenance has been ongoing and has simply improved and evolved into the current SOP. The new management at the District is focused on the present and future and eagerly requests that the CVRWQCB shift their focus and resources from looking for “old issues” to impede the District and join the District in the present and look to the future to work with the District to achieve full compliance with the new permit rather than digging through old files in search of “new” violations.

As set forth above and in the District's October 27, 2014, comments, the District objects to the reduction in the District's average flow into the District's ponds from Discharge Point 002 and thereby did and does believe, based on current data, that the discharge limit to the District's percolation ponds via Discharge Point 002 should remain at the current level of 0.85 MGD. Because the Water Board has requested this additional information, these additional comments and data should be made part of the Administrative Record along with the comments submitted on October 27, 2014, for the public hearing on December 4 or 5, 2014, before the State Water Resources Quality Control Board.

Lastly, I want to recognize Aide Ortiz who has been exceptional in her efforts to assist me. I have no fear of calling her to ask any question. I value her guidance and respect her knowledge. She has patiently walked me through decision making processes and her feedback is positive even when she has to make a critical comment. Aide has gained my trust. I hope to achieve that same level of confidence with other CVRWQCB staff.

Sincerely,

James D. Anderson
GM and CPO

MEMORANDUM

To: Malaga County Water District, Jim Anderson
From: Michael Taylor 
Subject: WWTP Water Balance
Date: October 24, 2014



Based on the recent monitoring of actual water level changes in Ponds 5, 6, and 7, which were isolated during portions of the months of July through October, 2014, the estimated percolation rate in the wastewater disposal ponds is 1.66 inches per day. It is noted that the previous estimated percolation rate (from 2008) was 0.60 inches per day. This updated percolation rate demonstrates a significant improvement in pond percolation rates. This improvement is a direct result of Malaga County Water District commitment during the previous six (6) years to scrape and rip the disposal ponds at the WWTP.

When the percolation rate of 1.66 inches per day is applied to a 100 Year Rainfall Water Balance, the existing ponds at the WWTP may be able to dispose of approximately 1.085 mgd (see attached water balance).

It is noted that the percolation rate of the ponds will decrease with use as dust and other particulates will settle on the pond bottom. When a factor of 75 percent is applied to the measured percolation rate, a resulting conservative value is 1.24 inches per day. When the percolation rate of 1.24 inches per day is applied to the 100 Year Rainfall Water Balance, the existing ponds at the WWTP may be able to dispose of approximately 0.821 mgd (see attached water balance).

It is recommended that this information is reviewed and forwarded to the RWQCB for consideration in establishing discharge limits for the new Waste Discharge Requirements to be adopted for the facilities. The efforts taken by the District over the past six (6) years has had significant impact in improving the on-site disposal capacity at the site, as evidenced by the recent pond percolation tests.

Also attached with this memorandum is a spreadsheet that allows the District to readily check that the necessary Available Capacity in the disposal ponds is available prior to each winter. For example, information regarding freeboard in the disposal ponds as of October 22, 2014 have been entered into the table. The ponds presently have approximately 34,825,885 gallons of capacity available. The 100 Year Rainfall Water

Balance indicates that the District must have at least 13,700,000 gallons of available capacity. The actual available capacity greatly exceeds the minimum requirement.

In addition, please refer to the attached Table 1 that includes monthly influent flowrates. Based on the current influent flowrates, and an estimated annual growth rate of 2 percent, the Malaga County Water District would not rely upon discharge to the Central Canal for approximately 23 years. It is recommended that the flowrate projection is updated each calendar year.

It is recommended that the District continue the annual rotation of scraping and ripping the existing ponds. In addition, it is recommended that the District isolate a pond every two years and monitor the actual change of water level so as to be able to update the estimated pond percolation rate.

Based on the information associated with current pond percolation rates, it is recommended that the present discharge flowrate limitation of 0.85 mgd to the disposal ponds is still viable for the Malaga County Water District.

Please contact me if you need additional information or if you have any questions.

Thank you.

Malaga County Water District
Wastewater Treatment & Disposal Facilities
Estimated Capacity Wastewater Disposal - 100 Year Rainfall Water Balance, Discharge and Storage

WWTF POND CALCULATIONS:

Month	Number of Days per Month	100 Yr. Rainfall ^{1/} (in/month)	100 Yr. Evaporation ^{3/} (in/month)	Discharge to canal	0	MGD	Effluent Produced (gal/month)	Effluent To Canal (gal/month)	Effluent to Ponds (gal/month)	Surface Rainfall ^{19/} (gal/month)	Surface Evaporation ^{20/} (gal/month)	Pond Percolation ^{21/} (gal/month)	Monthly Change in Storage (gal/month)	Monthly Required Storage Capacity (gal)
January	31	5.14	0.80				33,635,000	0	33,635,000	3,243,677	667,959	32,474,638	3,836,080	8,030,702
February	28	3.70	1.46				30,380,000	0	30,380,000	2,334,843	921,366	29,331,931	2,461,656	10,482,358
March	31	4.53	2.09				33,635,000	0	33,635,000	2,858,727	1,318,927	32,474,638	2,700,162	13,192,950
April	30	2.76	3.71				32,550,000	0	32,550,000	1,741,741	2,341,254	31,427,069	523,418	13,715,938
May	31	0.01	6.21				33,635,000	0	33,635,000	195,630	6,311	32,474,638	(2,752,245)	10,963,683
June	30	0.31	6.85				33,635,000	0	33,635,000	0	5,138,874	32,474,638	(3,976,512)	7,959,454
July	31	0.00	8.14				33,635,000	0	33,635,000	0	4,411,149	32,474,638	(3,250,787)	732,165
August	31	0.00	6.99				32,550,000	0	32,550,000	684,172	2,963,387	31,427,069	(1,136,284)	0
September	30	1.10	4.68				33,635,000	0	33,635,000	997,084	1,949,893	32,474,638	207,463	207,463
October	31	1.58	3.09				32,550,000	0	32,550,000	1,994,167	767,279	31,427,069	2,559,819	2,567,272
November	30	3.16	1.20				33,635,000	0	33,635,000	1,003,394	536,406	32,474,638	1,627,350	4,194,622
December	31	1.59	0.85				33,635,000	0	33,635,000	18,988,246	29,138,302	382,362,673	-404,129	* Start at 0 Stored
Total	365	23.88	46.47			23.2 acres	1,215.4	0.0	1,215.4	46.2	89.4	1,173.4	-404,129	September 1st

1/ Rainfall Data per the Western Regional Climate Center.
 2/ Evaporation data per WRCC X.0.75
 3/ Design Capacity Effluent Production
 4/ Total existing wet area of the existing lagoons.
 5/ Surface Evaporation = Volume of effluent and rain water evaporating from the existing WWTF treatment and storage ponds and proposed storage ponds.
 6/ Pond Percolation = Volume of effluent and rain water percolating into the ground for existing ponds 1 through 8.
 7/ Required Storage = Theoretical starting point Sept. 1st where pond storage starts at zero with monthly contributions.
 8/ Maximum Storage Needed = Peak end of month pond storage volume needed (gallons & ac-ft).
 9/ Storage Available from all ponds = Total volume of available storage.
 10/ Check Balance = Comparison of this value with total wastewater processed.

Maximum Required Storage: 13,715,938
 Total Storage Available: 60,582,302 gal
 Extra Storage: 46,866,364 gal
 Total Effluent Production: 396,025,000 gal
 Total Effluent Exported: 0 gal
 Total Surface Rainfall: 15,069,846 gal
 Total Evaporation: 29,136,302 gal
 Total Percolation: 382,362,673 gal
 Effluent Applied to Crop: 0 gal
 Check Balance: 396,429,129 gal



Updated: 10/24/14
 Print Date: 10/24/14

Malaga County Water District
Wastewater Treatment & Disposal Facilities
Estimated Capacity Wastewater Disposal - 100 Year Rainfall Water Balance, Discharge and Storage

WWTF POND CALCULATIONS:

Month	Number of Days per Month	100 Yr. Rainfall ^{1/} (in/month)	100 Yr. Evaporation ^{3/} (in/month)	Discharge to canal	0	MGD
January	31	5.14	0.90	Daily Effluent Production ^{5/} =	23.24	gpd
February	28	3.70	1.46	Pond Wet Area ^{6/} =	185.9	acres
March	31	4.53	2.09	Pond Storage =	1.24	ac-ft
April	30	2.76	3.71	Pond Percolation Rate =		in/day
May	31	0.01	6.21	Additional Pond Wet Area =	0.0	acres
June	30	0.31	6.85	Additional Pond Storage =	1.00	ac-ft
July	31	0.00	8.14	Estimated Pond Percolation Rate =	185.9	in/day
August	31	0.00	6.99	Total Storage =	60,352,392	gal
September	30	1.10	4.68			
October	31	1.58	3.09			
November	30	3.16	1.20			
December	31	1.59	0.65			
Total	365	23.88	48.17	Total Area =	23.2	acres

Month	Effluent Produced (gal/month)	Effluent To Canal (gal/month)	Effluent to Ponds (gal/month)	Surface Rainfall ^{1/} (gal/month)	Surface Evaporation ^{2/} (gal/month)	Pond Percolation ^{21/} (gal/month)	Monthly Change in Storage (gal/month)	Required Storage Capacity ^{23/} (gal)
January	25,451,000	0	25,451,000	3,243,677	567,959	24,258,163	3,868,555	8,159,554
February	22,988,000	0	22,988,000	2,334,943	921,356	21,910,699	2,490,988	10,650,542
March	25,451,000	0	25,451,000	2,858,727	1,318,927	24,288,163	2,732,837	13,983,179
April	24,630,000	0	24,630,000	1,741,741	2,341,254	23,475,642	554,845	13,938,024
May	25,451,000	0	25,451,000	6,311	3,918,918	24,258,163	(2,719,770)	11,218,254
June	24,630,000	0	24,630,000	195,630	4,322,800	23,475,642	(2,872,812)	8,245,442
July	25,451,000	0	25,451,000	0	5,136,874	24,288,163	(3,944,037)	4,301,405
August	25,451,000	0	25,451,000	694,172	4,411,149	24,288,163	(3,218,312)	1,083,093
September	24,630,000	0	24,630,000	897,084	1,949,993	23,475,642	(1,104,857)	0
October	25,451,000	0	25,451,000	1,994,167	757,279	23,475,642	2,391,246	239,928
November	24,630,000	0	24,630,000	1,003,394	539,406	24,288,163	1,659,925	2,931,174
December	25,451,000	0	25,451,000	1,509,448	291,932	23,976,338	-21,764	4,290,989
Total	299,655,000	0	299,655,000	46,2	89.4	876.5	-21,764	September 1st

Maximum Required storage: 13,938,024
 Total Storage Available^{37/}: 60,352,392 gal
 Extra Storage: 46,944,278 gal
 Total Effluent Production: 299,655,000 gal
 Total Effluent Exported: 143 ac-ft
 Total Surface Rainfall^{18/}: 0 gal
 Total Evaporation^{20/}: 15,089,846 gal
 Total Percolation^{21/}: 23,136,302 gal
 Total Applied to Crop: 285,620,308 gal
 Check Balance^{38/}: 289,686,754 gal

1/ Rainfall Data per the Western Regional Climate Center.
 2/ Evaporation data per WRCC X.0.75
 3/ Design Capacity Effluent Production
 4/ Total existing wet area of the existing lagoons.
 5/ Surface Rainfall = Volume of 100 Year rainfall on the existing WWTF treatment and storage ponds and proposed storage ponds.
 6/ Surface Evaporation = Volume of effluent and rain water evaporating from the existing WWTF treatment and disposal ponds.
 7/ Pond Percolation = Volume of effluent and rain water percolating into the ground for existing ponds 1 through 6.
 8/ Required Storage = Theoretical starting point Sept. 1st where pond storage starts at zero with monthly contributions.
 9/ Maximum Storage Needed = Peak end of month pond storage volume needed (gallons & ac-ft).
 10/ Storage Available from all ponds = Total volume of available storage.
 11/ Check Balance = Comparison of this value with total wastewater processed.



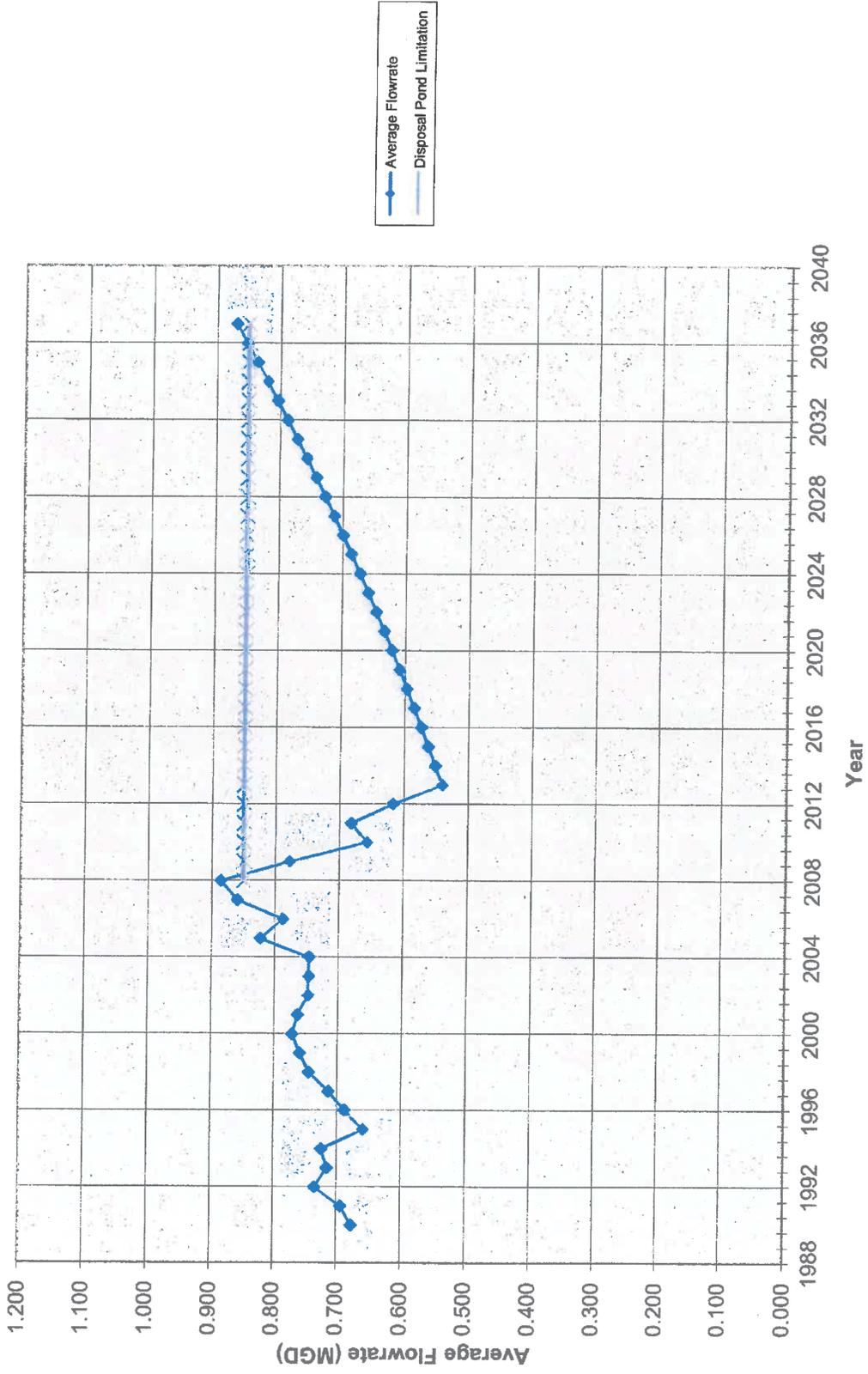
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Malaga County Water District
 Available Disposal Pond Capacity as of October 22, 2014

Pond	Freeboard (ft)	Available Depth (ft)	Acres (acres)	Available Capacity (acre-ft)	Available Capacity (gal)	Total Depth (ft)
1	2.5	0.5	1.29	0.645	210,160	8
2	8	6	0.76	4.56	1,485,779	8
3	8	6	2.59	15.54	5,063,380	8
4	8	6	2.5	15	4,887,432	8
5	3.2	1.2	3.07	3.684	1,200,353	8
6	5.5	3.5	4.29	15.015	4,892,319	8
7	8	6	4.79	28.74	9,364,320	8
8	8	6	3.95	23.7	7,722,143	8
Total			23.24	106.884	34,825,885	

Note: A minimum of 2 ft. of freeboard is required. 2 ft. freeboard equates to O AF available capacity.

Malaga County Water District Wastewater Treatment Plant Flowrates



MCWD Pond Capacity Matrix

	Pond Area	Freeboard Capacity (6')	Freeboard Capacity (6')	Volume/Inch	Report Date Comments
	Acres	MG	Acre-Ft	MG	
Pond 1	1.31	2.5610	7.86	0.035570	17-Nov-14
Pond 2	0.92	1.7986	5.52	0.024980	
Pond 3	4.33	8.4650	25.98	0.117570	
Pond 4	2.13	4.1660	12.79	0.057862	
Pond 5	2.12	4.1524	12.74	0.057672	
Pond 6	4.40	8.6019	26.40	0.119471	
Pond 7	4.30	8.4064	25.80	0.116755	
Pond 8	3.40	6.6469	20.40	0.092318	
Total All Ponds	22.92	44.7982	137.49	0.622197	
	Pond Level	Pond Volume	% Freeboard	% Freeboard	
	Inches	MG	Capacity in Use	Capacity Available	
Pond 1	0	0.000000	0.0%	100.0%	
Pond 2	0	0.000000	0.0%	100.0%	
Pond 3	42	4.937935	58.3%	41.7%	In service
Pond 4	36	2.083024	50.0%	50.0%	Isolated and percolating
Pond 5	12	0.692060	16.7%	83.3%	Isolated and percolating
Pond 6	0	0.000000	0.0%	100.0%	
Pond 7	0	0.000000	0.0%	100.0%	
Pond 8	0	0.000000	0.0%	100.0%	
Total All Ponds	0	7.713019	17.2%	82.8%	

MCWD Pond Capacity Matrix

	Pond Area	Freeboard Capacity (6')	Freeboard Capacity (6')	Volume/Inch	Report Date Comments
	Acres	MG	Acre-Ft	MG	
Pond 1	1.31	2.5610	7.86	0.035570	
Pond 2	0.92	1.7986	5.52	0.024980	
Pond 3	4.33	8.4650	25.98	0.117570	
Pond 4	2.13	4.1660	12.79	0.057862	
Pond 5	2.12	4.1524	12.74	0.057672	
Pond 6	4.40	8.6019	26.40	0.119471	
Pond 7	4.30	8.4064	25.80	0.116755	
Pond 8	3.40	6.6469	20.40	0.092318	
Total All Ponds	22.92	44.7982	137.49	0.622197	
	Pond Level	Pond Volume	% Freeboard	% Freeboard	
	Inches	MG	Capacity in Use	Capacity Available	
Pond 1	0	0.000000	0.0%	100.0%	
Pond 2	0	0.000000	0.0%	100.0%	
Pond 3	0	0.000000	0.0%	100.0%	
Pond 4	0	0.000000	0.0%	100.0%	
Pond 5	0	0.000000	0.0%	100.0%	
Pond 6	0	0.000000	0.0%	100.0%	
Pond 7	0	0.000000	0.0%	100.0%	
Pond 8	0	0.000000	0.0%	100.0%	
Total All Ponds	0	0.000000	0.0%	100.0%	



SOP for Pond Maintenance and Monitoring

1. Weekly pond level readings in inches shall be taken and entered into the Pond Capacity Matrix to determine pond volume in MG, pond capacity in use, and pond capacity available.
2. Weekly totals from the Pond Capacity Matrix shall be entered on the Weekly Pond Monitoring report. The Weekly Pond Monitoring report shall be an attachment to the monthly DMR to supplement the pond data submitted in the DMR.
3. Ponds shall be operated one at a time. When the pond in service reaches 100% freeboard capacity, it shall be taken offline and isolated to collect percolation and evaporation data. A new pond shall be selected for all secondary effluent.
4. The pond taken offline to collect percolation and evaporation data shall be isolated and have a measuring stick implanted to record daily level. When that pond completely empties the data shall be used to calculate the percolation/evaporation rate of the pond.
5. When a pond reaches a percolation/evaporation rate of less than 1.5 inches/day it shall be taken out of service, allowed to dry, and disked with the tractor and disc. If the same pond fails to achieve a percolation/evaporation rate of 1.5 inches/day or greater the next time it is isolated and monitored ~~dries~~, the pond shall be taken out of service for scraping and ripping.
6. If total pond volume is equal to or greater than 50% of total freeboard capacity, the District Engineer shall perform a calculation from all percolation/evaporation data and secondary effluent flow data to determine the volume ~~rate~~ of tertiary discharge required to not exceed total pond capacity freeboard limits.
7. Based upon the District Engineer's calculation above, a determination shall be made when and at what rate tertiary discharge shall begin. Consideration will be made to coincide tertiary discharge with Fresno Irrigation District water delivery through Central Canal.
8. The monthly DMR cover letter shall explain any requirements for tertiary discharge and the rate and timing of anticipated tertiary discharge.

8.9. The District will, as part of its budget process, provide sufficient funding to perform disposal pond monitoring and maintenance as required by this SOP.