
Victor Valley Wastewater Reclamation Authority

20111 Shay Road • Victorville • CA • 92394



2008 Annual Report



Victor Valley Wastewater Reclamation Authority
Discharge Monitoring Report 2008

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SECTION 1

ANNUAL SUMMARY

OF

OPERATIONS AND MAINTENANCE

VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
Calendar Year 2008

**ANNUAL SUMMARY OF
OPERATIONS AND MAINTENANCE**

OVERALL TREATMENT

Effluent removal efficiencies averaged 99.1% for BOD and 99.3% for ammonia nitrogen. The effluent to the Mojave River averaged 3.2 mg/l BOD and .19 mg/l ammonia nitrogen. The influent to the treatment facility averaged 364 mg/l BOD, and 27 mg/l ammonia nitrogen. The influent flow to the facility averaged 12.3 MGD, the effluent flow to the Mojave River averaged 7.73 MGD and the percolation pond effluent averaged 4.395 MGD.

**CONSTRUCTION
ACTIVITY**

SSC Construction completed the 14.5 and 18 mgd expansion projects in 2008 except for the new aeration basins and associated equipment which will tentatively be on line by March 2009. VVWRA is re-evaluating the hydraulic modeling of its interceptors in the upper and lower narrows and has initiated the process to add UV disinfection, retrofit the current Traveling Bridge filters with Aqua Diamond cloth media filtration, incorporate fixed Intergrated Film Activated Sludge process (IFAS), sludge dewatering and concrete lining of emergency storage ponds.

**PRELIMINARY
TREATMENT**

Both bar screens and both grit tanks were in service and operated satisfactorily during the year. The screenings were compacted to remove excess water. Screenings and grit were hauled off-site for landfill disposal. Preventative maintenance was performed during the year on scheduled equipment.

PRIMARY TREATMENT

All four existing primary sedimentation basins were in service during the year up until August 2008. Staff place all 4 new primaries online the week of August 4, 2008 and secured old 1 and 2. Currently staff has been operating with 6 primary clarifiers and 2 stand-by. Solids removed by the primary treatment system were pumped to the anaerobic digesters or solids storage lagoons for treatment. During the year thickened scum was removed periodically for off-site disposal. All other pumps, tanks and equipment related to the primary treatment process operated satisfactorily. Preventative maintenance was performed during the year on scheduled equipment.

**SECONDARY
TREATMENT**

Aeration basins No.'s 1-8 were in service in a conventional mode of treatment, operating with four paired basins. Each pair of basins was operated with an anoxic selector for complete nitrification, partial denitrification, and alkalinity recovery.

During the year the aeration system was supplied air from the Facility's three dual-fuel gas-fired internal combustion, six-cylinder engine blowers. The installation of a backup 500 HP electric blower was completed in 2004, and the electric blower began service as a standby for the gas-engine blowers.

Seven (7) secondary clarifiers and five (5) of the return activated sludge (RAS) pumps were in service and operated satisfactorily during the year.

Waste activated sludge was removed from the secondary treatment system and pumped to the dissolved air floatation thickeners (DAFT's) for dewatering. All pumps, tanks, and equipment related to the secondary treatment process operated satisfactorily. Preventative maintenance was performed during the year on scheduled equipment.

PERCOLATION PONDS

A total of 1608 million gallons of undisinfected secondary effluent was discharged to the percolation ponds during the year.

TERTIARY TREATMENT

A total of 2845 million gallons of secondary effluent received tertiary filtration and disinfection and was discharged to the Mojave River. The two traveling bridge gravity sand filters and the six Dyna-sand moving bed filters were used to reduce solids in the final effluent prior to chlorination. Aluminum sulfate (alum) was added to the filter influent to coagulate the solids and improve filter efficiency. All pumps, tanks and equipment related to the tertiary process operated satisfactorily. Preventative maintenance was performed during the year on scheduled equipment. The two traveling bridge filters were completely refurbished in November of 2006.

The disinfection system operated satisfactorily during the year and gaseous chlorine in one-ton containers was used to disinfect the tertiary effluent, and aqueous ammonia usage was minimized and only added as needed to the wastewater stream immediately prior to chlorination to improve disinfection. For the latter the ammonia feed system used 30% aqueous ammonia to react with chlorine and form monochloroamines, which was found to be necessary due to the degree of nitrification achieved by the secondary treatment system. The dechlorination system operated satisfactorily during the year, and liquid sodium bisulfite in a 38% solution was used to remove chlorine from the effluent prior to discharge to the Mojave River.

TOTAL EFFLUENT FLOW

When the percolation pond flow and the tertiary treatment flow are added together, approximately 4453 million gallons were discharged by the Facility in 2008.

**BIOSOLIDS
TREATMENT**

Both dissolved air floatation thickeners (DAFT's) were in service during the year and operated satisfactorily for waste activated sludge dewatering. After thickening using the DAFT's, thickened WAS was pumped anaerobic digesters or solids storage lagoons. Primary sludge was pumped to the anaerobic digesters or the solids storage lagoons. All three anaerobic digesters were in service for complete mix mesothermic digestion. Staff began start-up on new anaerobic digesters #4 and #5 October 13 and December 3, 2008 respectively. Anaerobically digested sludge was drained by gravity or pumped to the No. 1 and No. 2 liquid sludge storage lagoons. Digested sludge from the No. 1 and No. 2 sludge storage lagoons was pumped to the sludge drying beds for solar dewatering. The gravity belt thickener was also used for sludge dewatering to provide additional capacity for solids handling. Dried biosolids were mechanically removed from the drying beds and placed on the sludge storage pad. A total of approximately 4572 dry tons of Class A EQ dried biosolids were removed from the Facility for disposal using agricultural land application during 2008. At the end of the year 6153 dry tons of biosolids were in storage on the pad awaiting disposal.

All pumps, tanks, and equipment related to the sludge facility operated satisfactorily. Preventative maintenance was performed during the year on scheduled equipment.

METER CALIBRATION

VVWRA staff and/or an outside contractor calibrated the meters listed below various times during the year:

- Influent Flow
- Primary Effluent to Equalization Flow
- No. 1 through No. 8 RAS Flows
- Final Effluent Turbidity
- Aeration Basin 1-4 and 5-8 Influent Flow
- Influent Conductivity
- South Percolation Pond Flow Meters
- Effluent Turbidity
- Secondary Effluent Turbidity
- Final Effluent to the Mojave River Flow
- Equalization Basin Effluent Flow
- Influent pH
- Effluent Cl₂
- Effluent pH
- Effluent Conductivity

ALARM MONITORING

All critical process alarms were checked weekly from their source to the main control system. The Facility's SCADA computer alarm dialer system and backup internet messaging system was in service and was functional during the entire year. Most of the Facility's alarm points were routed through the SCADA system. Several alarm points were routed from the main control panel to a private alarm company, and these were checked once per week during the year. Eventually all of the Facility's alarm points will be routed through the SCADA system, and the need for a private alarm company will be eliminated except for redundant fire alarm communication.

**SEPTAGE WASTE
ACCEPTED**

During 2008 a total of 2.41 million gallons of septage and chemical toilet waste were received at the interim septage receiving facility for treatment and disposal.

**GROUNDWATER
MONITORING WELLS**

The direction of groundwater movement in the four monitoring wells located at the treatment facility was approximately as follows:

Well No.	Direction
OW-4	NE
OW-6	NE
NW-2	NE
NW-3	NE
SP-1	NE
SP-2	NE
SP-3	E
SP-4	WNW

Maps of the facility and a graphical depiction of groundwater flow are attached to this report.

**EFFLUENT TOXICITY
ANALYSIS**

Four acute toxicity samples were collected during the year from VVWRA's post-chlorination and dechlorination final effluent. Acute toxicity analyses was performed using fathead minnows, as required by the Facility's NPDES permit. The samples did not exhibit significant acute toxicity as defined by the NPDES Permit. The results were as follows:

Sample Date:	Fathead Survival:	Fathead TUa:
January 15, 2008	100%	0.00
April 10, 2008	100%	0.00
July 09, 2008	100%	0.00
October 15, 2008	100%	0.00

Chronic toxicity samples were collected on January 15, 2008 from VVWRA's post-chlorination and dechlorination final effluent and from the Mojave River, both upstream and downstream of the discharge. Tests were conducted using both Ceriodaphnia and fathead larvae. Both upstream and downstream samples exhibited chronic toxicity using fathead minnows. Resampling was performed for chronic fathead larvae the week of February 12 for upstream and downstream. On the resampling event

downstream passed where upstream failed, please refer to aquatic bioassay toxicity tab for results. The results were as follows:

January 15, 2008

Sample Location:	Organism:	Survival:	TUc:
Effluent	Ceriodaphnia	100%	1.00
Effluent	Fathead larvae	100%	1.00
Upstream	Ceriodaphnia	100%	1.00
Upstream	Fathead larvae	<100%	>1.00
Downstream	Ceriodaphnia	100%	1.00
Downstream	Fathead larvae	<100%	>1.00

February 12, 2008

Sample Location:	Organism:	Survival:	TUc:
Upstream	Fathead larvae	<100%	>1.00
Downstream	Fathead larvae	100%	1.00

RECYCLED WATER AND REUSE

A total of 114.62 million gallons of fully treated reclaimed water were pumped to SCLA for irrigation of the Westwinds Golf Course.

SPILL AND EXCURSION REPORT

There were several excursions during 2008 which have been detailed under separate cover to Lahontan Region Water Quality Control Board.

CERTIFIED WASTEWATER OPERATORS/TECHNICIANS

The following is a list of certified operators that were employed at the treatment facility during 2008:

OPERATIONS

<u>NAME</u>	<u>GRADE</u>	<u>POSITION</u>
Logan Olds	V-9443	General Manager
Gilbert Perez	V-7715	Director of Operations
Roy Dagnino	V-7820	Operator V
Jose Gomez	V-7519	Operator V
James Bryant	IV-9750	Operator IV
Dave Cuomo	III-8333	Operator III
Gabriel E. Chico	III-9209	Operator III
Tom Hinijosa	III-10173	Operator III
Tim Davis	III-8894	Operator III
Mike Tarango	III-8345	Operator III

Carl Carlson	II-5356	Operator II
Bruce Correia	I-8784	Information Systems Coordinator
Rodney Elliot	I-28054	Operator I
Eugene Davis	I-28028	Operator I

MAINTENANCE

<u>NAME</u>	<u>GRADE</u>	<u>POSITION</u>
Brent Keaster	IV	Maintenance Supervisor
Pat Nave	IV	Maintenance Technician
Randy Main	III	Maintenance Technician
Mark McGee	III	Maintenance Technician
Troy Minnick	III	Manitenance Technician
Rick Billings	II	Maintenance Technician
Nicholas Turlo	I	Maintenance Technician
Vince Vitale	MIT	Maintenance in Training
Mauricio Marin		Electrical/Instrumentation

Date **February 25, 2009**

California Regional Water Quality Control Board
Lahontan Region
15428 Civic Drive, Suite 100
Victorville, CA 92392

Facility Name: Victor Valley Wastewater Reclamation Authority

Address: 20111 Shay Road
Victorville, CA 92394

Contact Person: Logan Olds

Job Title: General Manager

Phone: (760) 246-8638

Email: lolds@vwwra.com

WDR/NPDES Order Number: R6V-2008-004, CA0102822 (Regional Treatment Facility)

WDID Number: 6B360109001

Type of Report (circle one): Monthly Quarterly Semi-Annual Annual Other

Month(s) (circle applicable month(s)*: FEB MAR APR MAY JUN
JUL AUG SEP OCT NOV DEC

*annual Reports (circle the first month of the reporting period)

Year: 2008

Violation(s)? (Please check one): NO X YES*

***If YES is marked complete a-g (Attach Additional information as necessary)**

a) Brief Description of Violation: Multiple violations addressed under separate cover to LRWQCB

b) Section(s) of WDRs/NPDES Permit Violated: Multiple

c) Reported Value(s) or Volume: Varied

d) WDRs/NPDES Limit/Condition: Varied

e) Date(s) and Duration of Violation(s): Varied

f) Explanation of Cause(s): Varied

g) Corrective Action(s)
(Specify actions taken and a schedule for actions to be taken): Please refer to previously submitted documents

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person(s) who manage the system, or those directly responsible for data gathering, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any questions or require additional information, please contact Logan Olds or Gilbert Perez at the number provided above.

Sincerely,

Signature: 

Name: Logan Olds

Title: General Manager

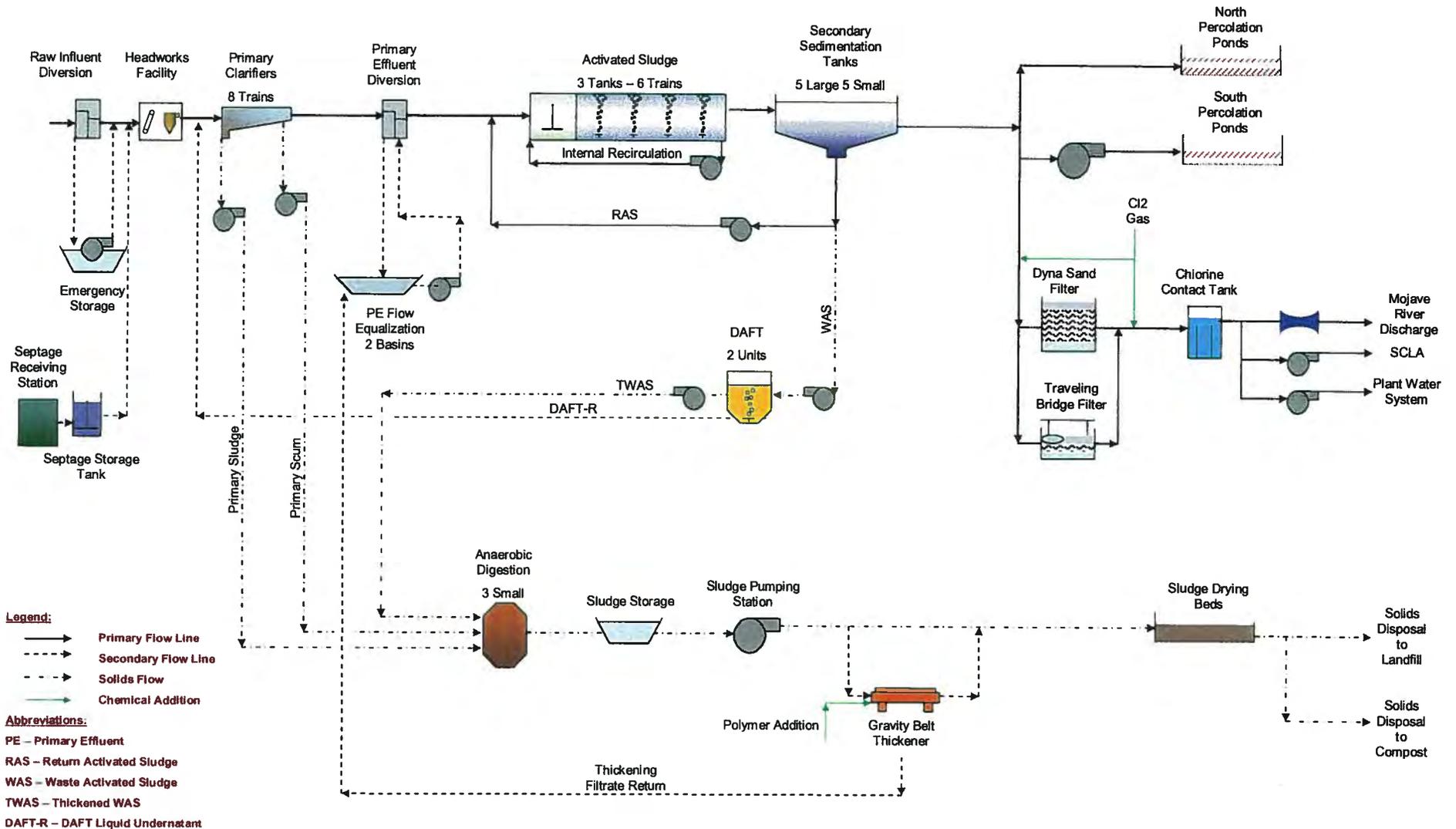


Figure 1.1 – VWVRA Existing Process Schematic (18 MGD Designed Flow - Operation From Present to Dec 2009)

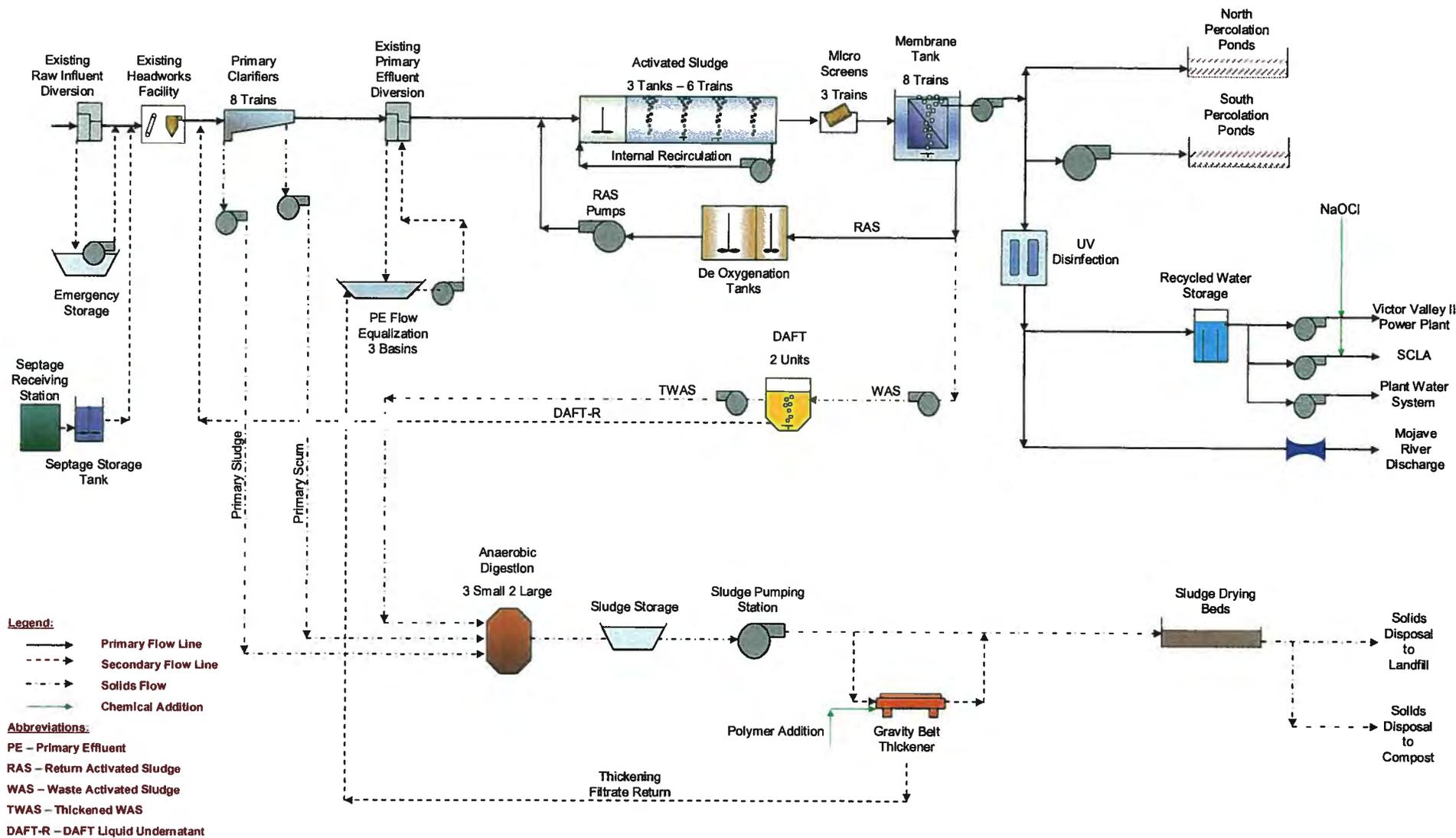


Figure 1.2 – VWRA Phase IIIA Process Schematic (18 MGD Projected Flow - Operation from Jan 2010 to April 2011)

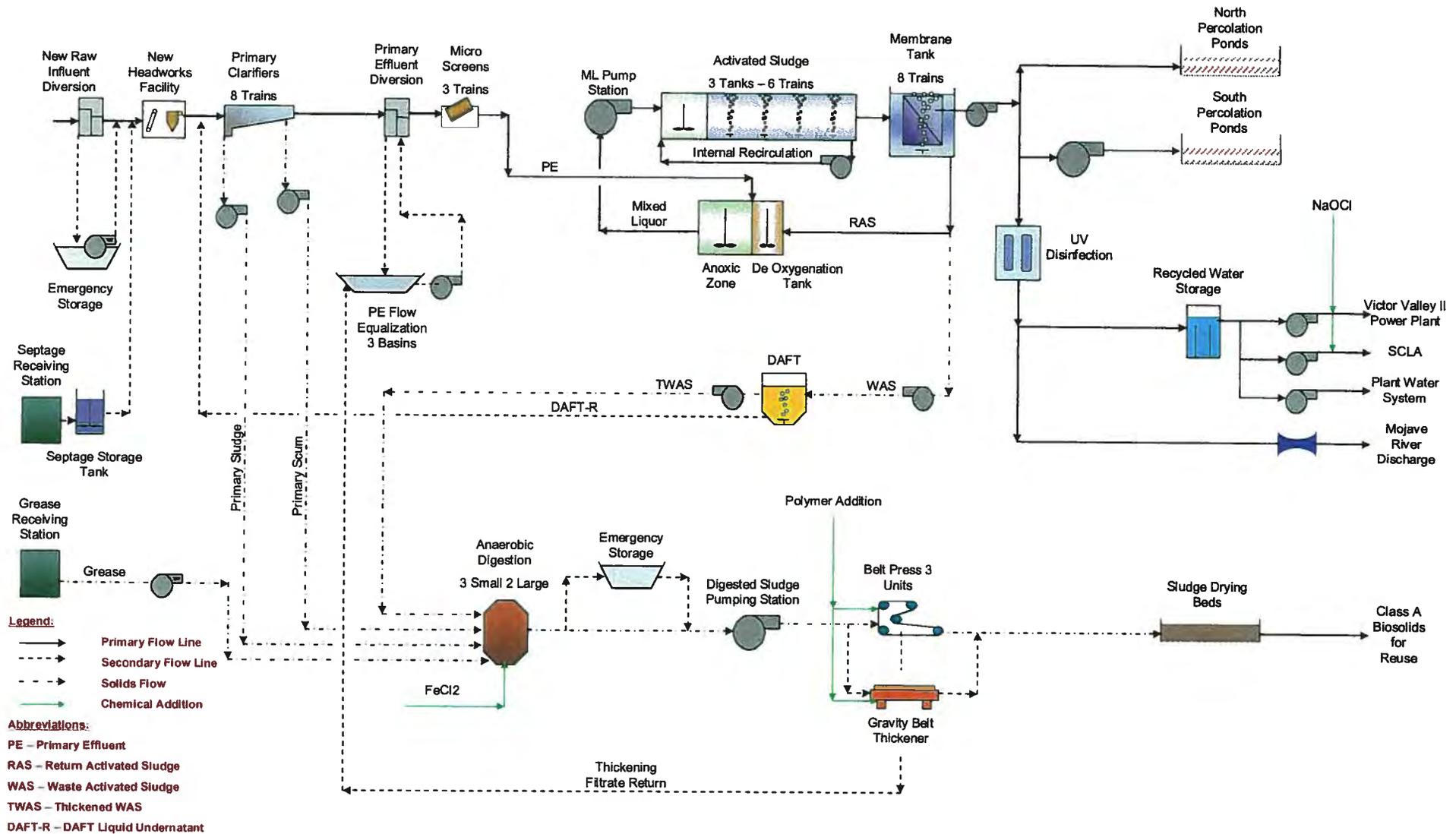


Figure 1.3 – VWVRA Phase IIIB Process Schematic (22 MGD Projected Flow - Operation from May 2011)

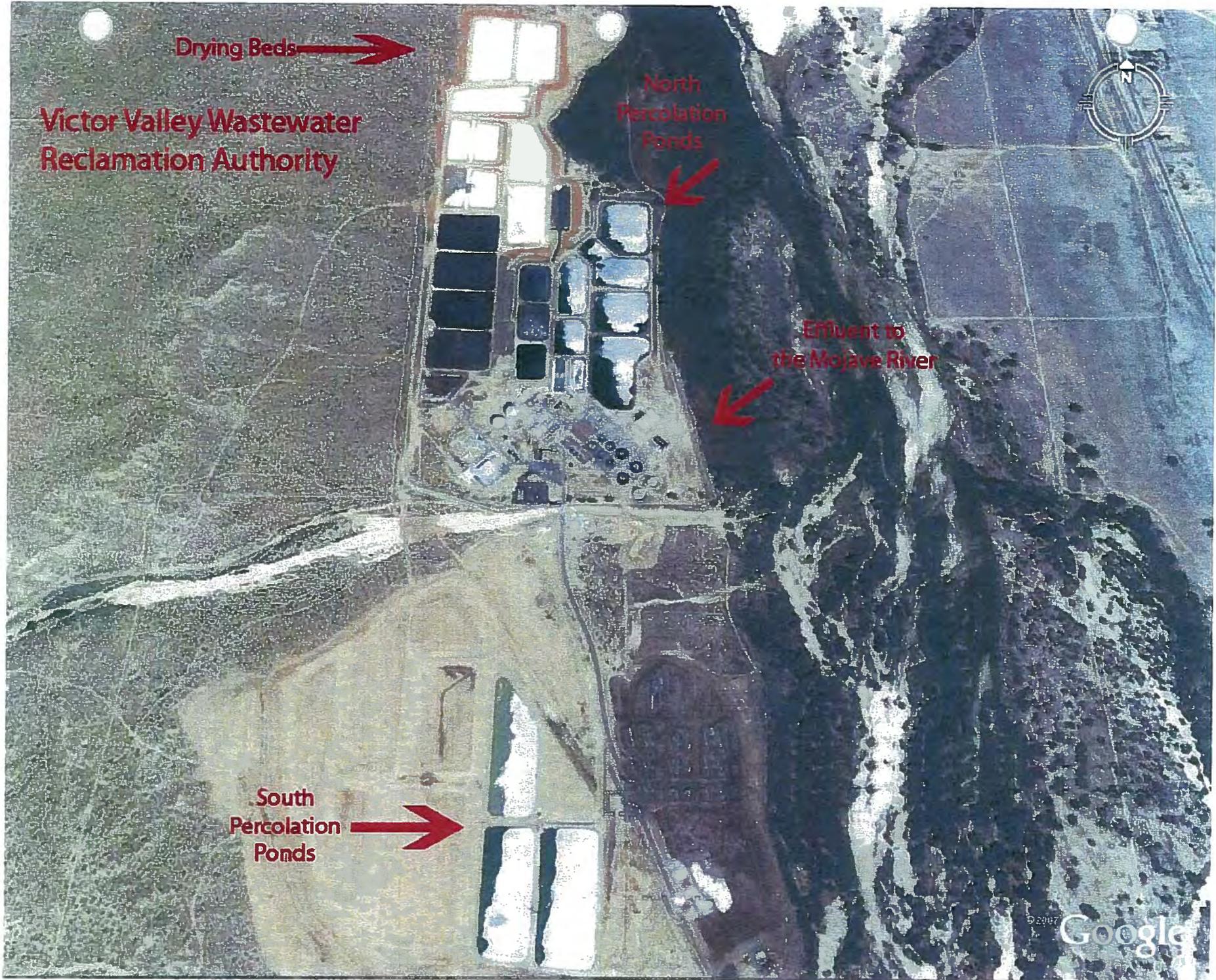
Drying Beds →

Victor Valley Wastewater
Reclamation Authority

North
Percolation
Ponds →

Effluent to
the Mojave River →

South
Percolation
Ponds →





VWVRA

Mojave River Upstream
Water Monitoring Station

VWVRA Upstream
Monitoring Station

Bryman Rd

Old Turner Rd

Seals Rd

Spencer Rd

Ranch Rd

Turner Rd

Air Expressway Blvd

National Trail Hwy





Mojave River Downstream
Monitoring Station



WWRA North
Drying Beds

WWRA Downstream
Monitoring Station