SUMMERLAND
Sanitary District

ANNUAL REPORT
2022

NPDES NO. CA0048054
ORDER NO. R3-2022-0014

SUMMERLAND
Sanitary District

January 23, 2023

SUBJECT: NPDES Permit No. CA0048054
ORDER No. R3-2022-0014
Annual Report-2022

In accordance with the requirements of the general provisions of the Summerland Sanitary District's NPDES Permit No. CA0048054, we are transmitting the District's Annual Report for 2022. The monitoring data is compiled throughout the year and is presented in both tabular and graphic forms.

As required, the following is a list of certified operators currently employed by the District:

- David W. Lewis, Operations Manager, Grade V-7378, expiration date 06/30/2023.
- Eduardo Nava, Lead Collections/ Treatment Plant Operator II, Grade II- 42423 expiration date 05/09/2023. Mr. Nava holds a Collections System Maintenance Grade 2 # 1308221151 CWEA. Expiration date 03-31-2023.
- Christopher R. Bennett, Operator II, Grade II-44983, expiration date 01/13/2025.
- Victor A. Aguilar, Operator In Training, OIT-I, expiration date 11/23/2025.

During 2022, all parameters of the effluent quality were within the limits set by the District's discharge permit. The monthly grease and oil, ammonia (nitrogen), total and fecal coliform, BOD, total suspended solids, and turbidity were analyzed by Fruit Growers Laboratory (FGL) of Santa Paula, California. FGL also completed the annual effluent, ocean, and sludge sampling analysis. Aquatic Bioassay & Consulting Laboratories, Inc (ABC Labs) in Ventura, California, performed chronic toxicity testing.

For 2022, a total of 46.88 tons of biosolids were hauled to San Joaquin Composting facility in Kern County by Liberty Composting.

On August 19, 2022, Marine Project Management, Inc. (MPM) of Ojai California completed the inspection of the district's ocean outfall pipeline. The entire outfall inspection report is attached as a separate document and is uploaded under the CIWQS reporting system.

Collection System Maintenance and Renovation Program

Objective:

To reduce sanitary overflows, increase system reliability, optimize service life of collection system components, plan for facility replacement and educate public on importance of maintaining private laterals.

Goals- Short Term:

- Continue systematic cleaning and closed-circuit televising of collection system to identify problem areas and effectiveness of cleaning efforts. Repair problem areas if found.
- As needed, locate, raise, and repair District manholes and cleanouts.
- Monthly updating of District Atlas with any changes that may be needed (new service connections, new manholes, collection system repairs etc.).
- As the collection system is televised, update property connection data for future reference. This entails getting footage from the nearest manhole to property lateral connection into the district's main sewer line. Other property information will be entered if pertinent to sewer service.

Goals- Long Term:

- Repair collection system mainlines if problems found by means of point repair or slip-lining of collection mainline.
- To have the collection system in a state of operation where only minor repairs are needed.
- To continue to bring property owners sewer service who are currently on septic systems for their sanitary needs.
- Continue to stay abreast of future reclamation needs in conjunction with local water district.
- Continue educating the public on wastewater issues with Summerland Sanitary District newsletters.

Actions completed in 2022:

- In 2022, approx. 38,274 feet of collection mainline was cleaned by District staff using a trailer-mounted hydrojetter. Approx. 1552 feet of mainline was televised by District staff with closed circuit televising equipment.
- From June 14, 2022, through June 29, 2022. Marine Project Management Inc. (MPM) performed a comprehensive assessment of the Districts' ocean outfall pipe and diffuser assembly. The MPM inspection report is included as an attachment to this report.
- In January 2022, Robotic Sewer Solutions installed three sectional liners within the district's collection system on Wallace Avenue. Two liners were installed between manholes R9054 and R9055, where two unusual holes were identified on the

pipeline. The third liner was installed between manholes R9052 and R9053, where a slight crack was identified on the pipeline.

- In April 2022, Tierra Contracting replaced a section of sewer mainline that was offset within the district's collection system on Banner Avenue between manhole R9055 and R9053. The damaged section of pipe was removed and replaced with a new section of SDR 35 pipe.
- In October 2022, Cushman Contracting replaced two of the district's original Aerzen blowers and its variable frequency drives with new units. The new units were the latest version of Aerzen blowers and were sized according to the original blowers' specifications.
- Annual and routine maintenance of three lift stations and four on-site generators.

2022 Reported Overflows:

No sanitary sewer overflows were reported for the calendar year 2022.

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

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, 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 for knowing violations." [40 CFR §122.22(d)].

Sincerely,

David W. Lewis

David W. Lewis
Operations Manager
Summerland Sanitary District

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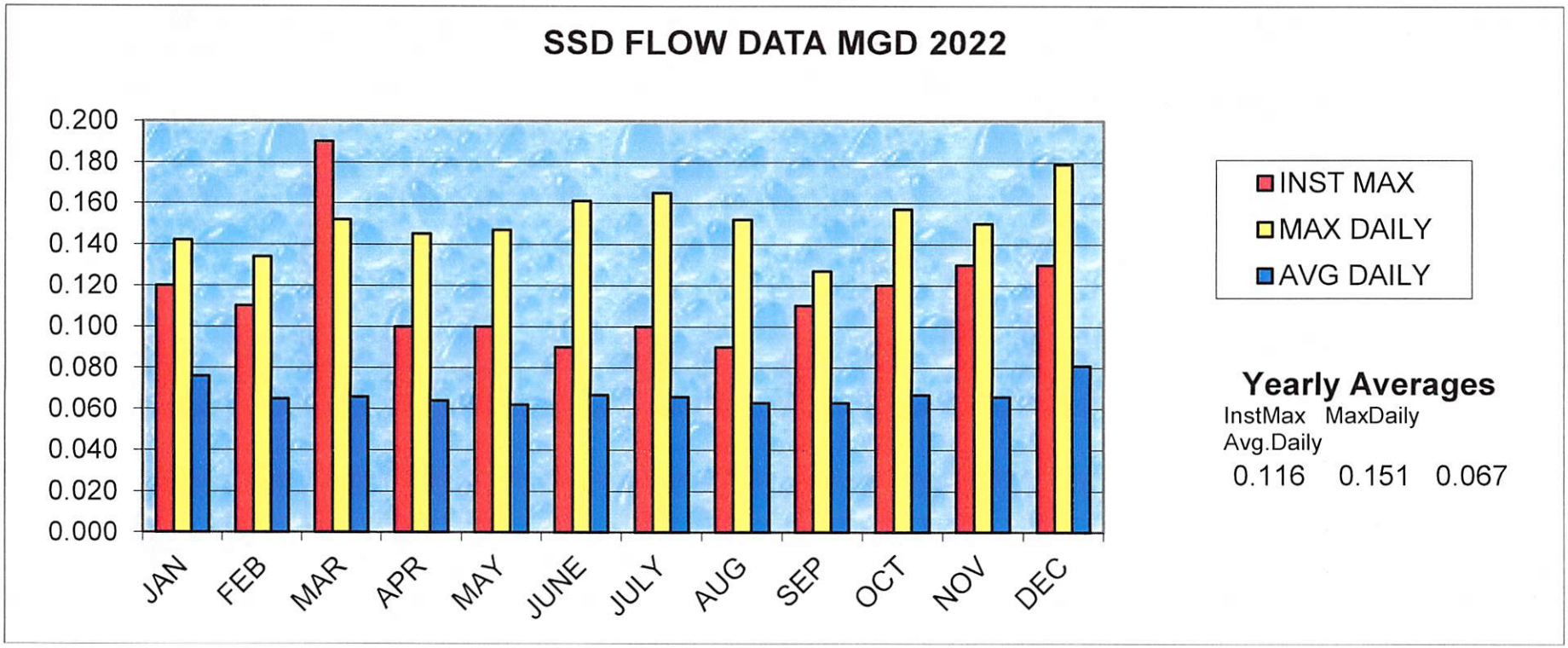
Attachment A – Outfall Report 2022

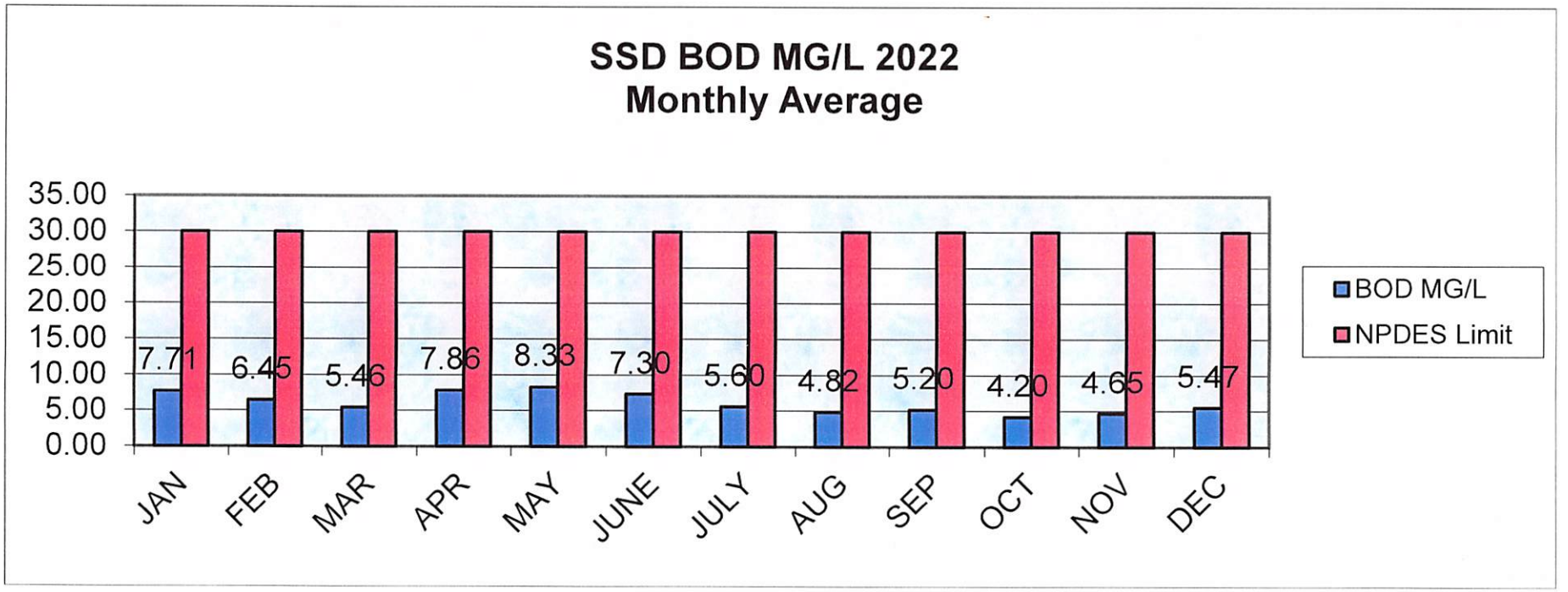
Attachment B – Boundary Map

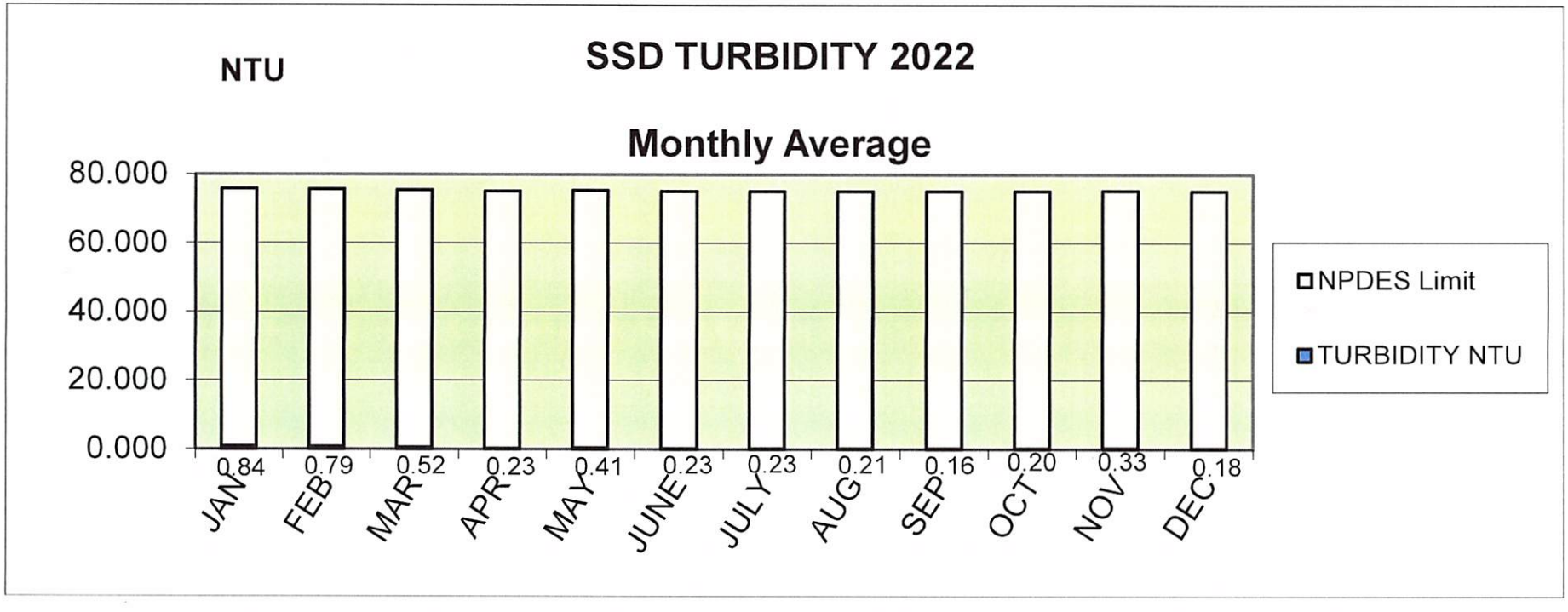
Attachment C – Flow Schematic

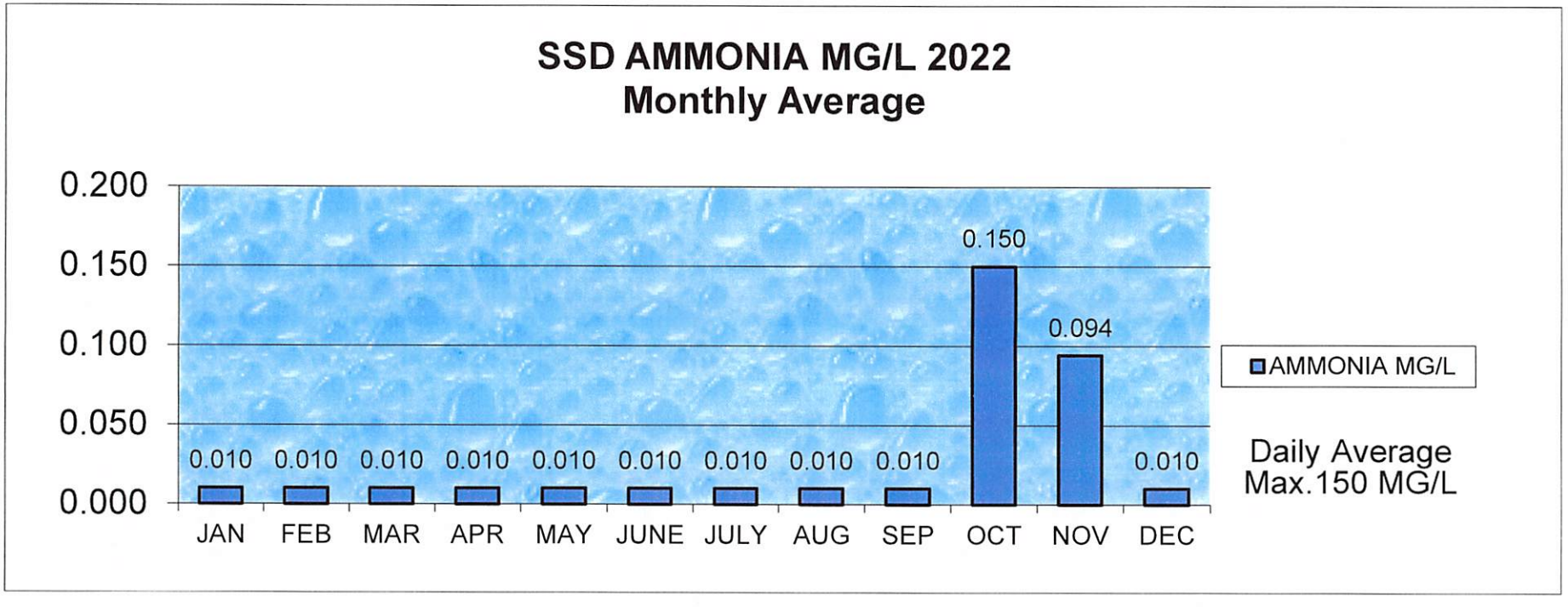
Attachment D – Organization Chart

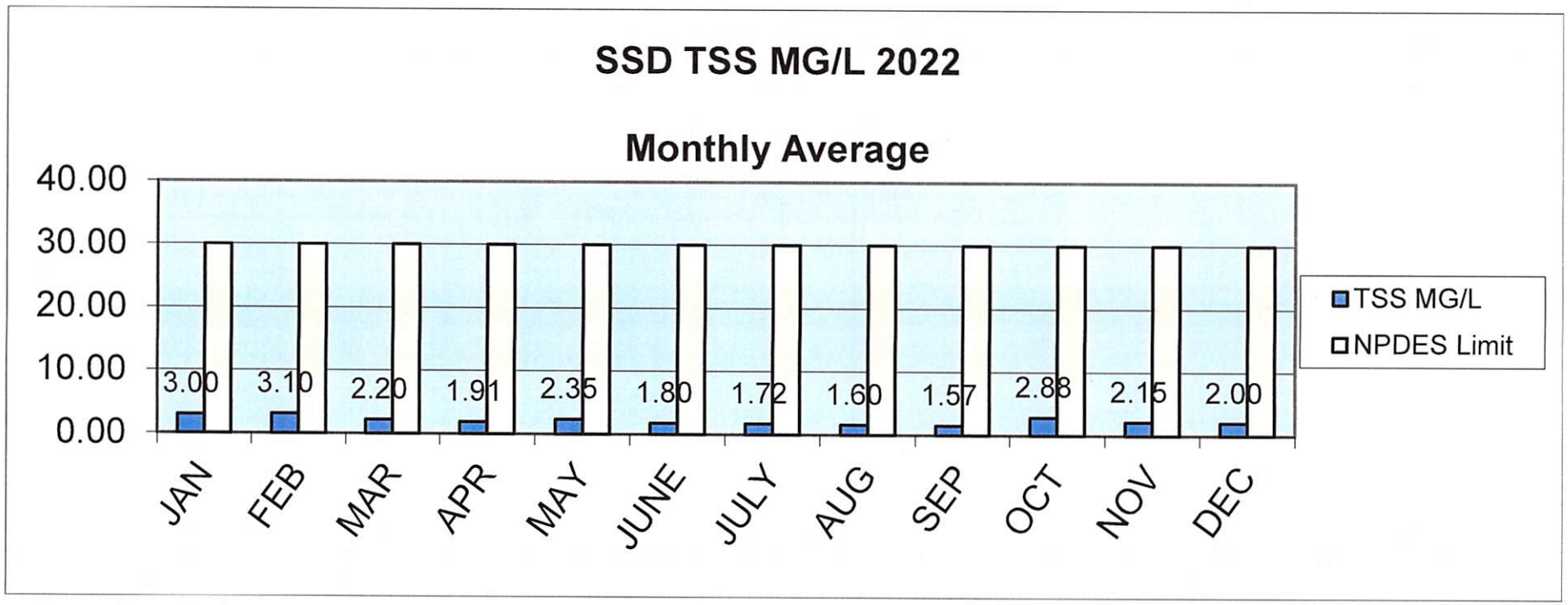
Attachment E - Biosolids Report 2022

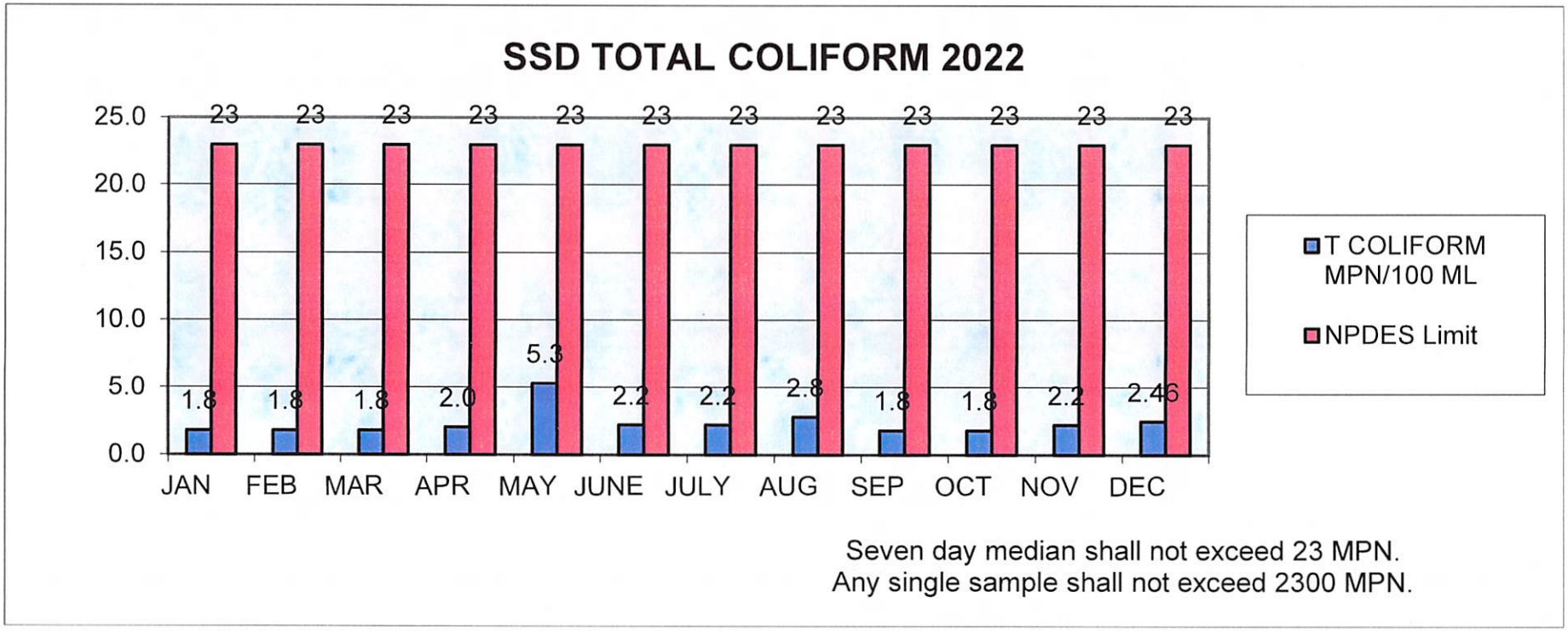

SSD FLOW DATA MGD 2022
0.200
0.180
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
INST MAX
MAX DAILY
AVG DAILY
Yearly Averages
InstMax MaxDaily
Avg.Daily
0.116 0.151 0.067

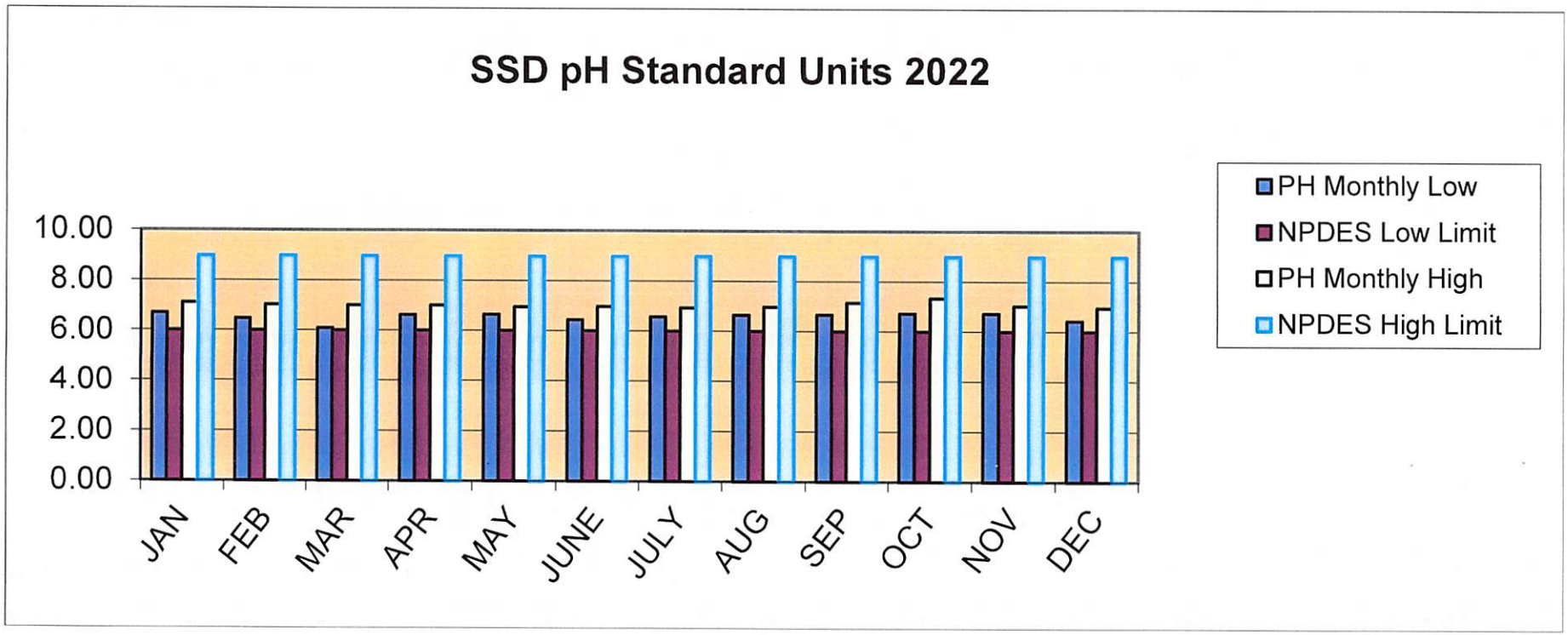

SSD BOD MG/L 2022
Monthly Average
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
7.71
6.45
5.46
7.86
8.33
7.30
5.60
4.82
5.20
4.20
4.65
5.47
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
BOD MG/L
NPDES Limit

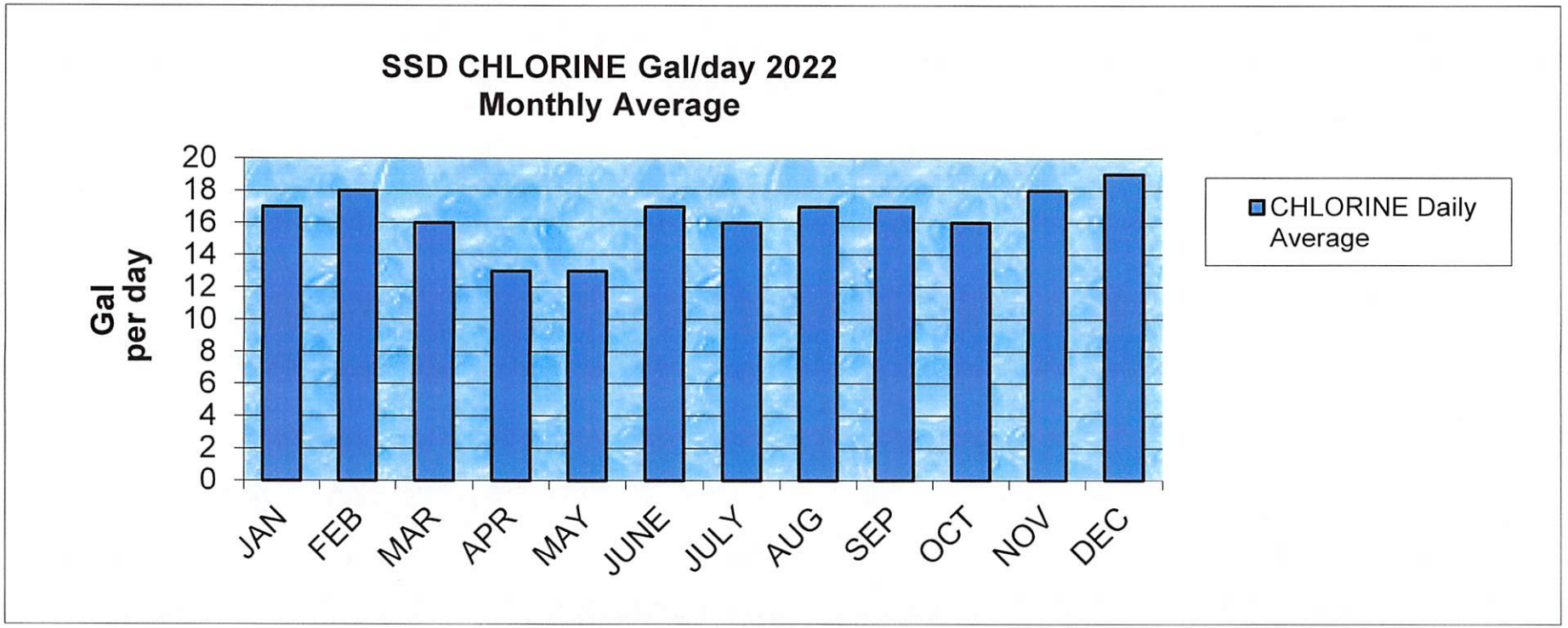

NTU
SSD TURBIDITY 2022
Monthly Average
80.000
60.000
40.000
20.000
0.000
0.84
0.79
0.52
0.23
0.41
0.23
0.23
0.21
0.16
0.20
0.33
0.18
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
NPDES Limit
TURBIDITY NTU

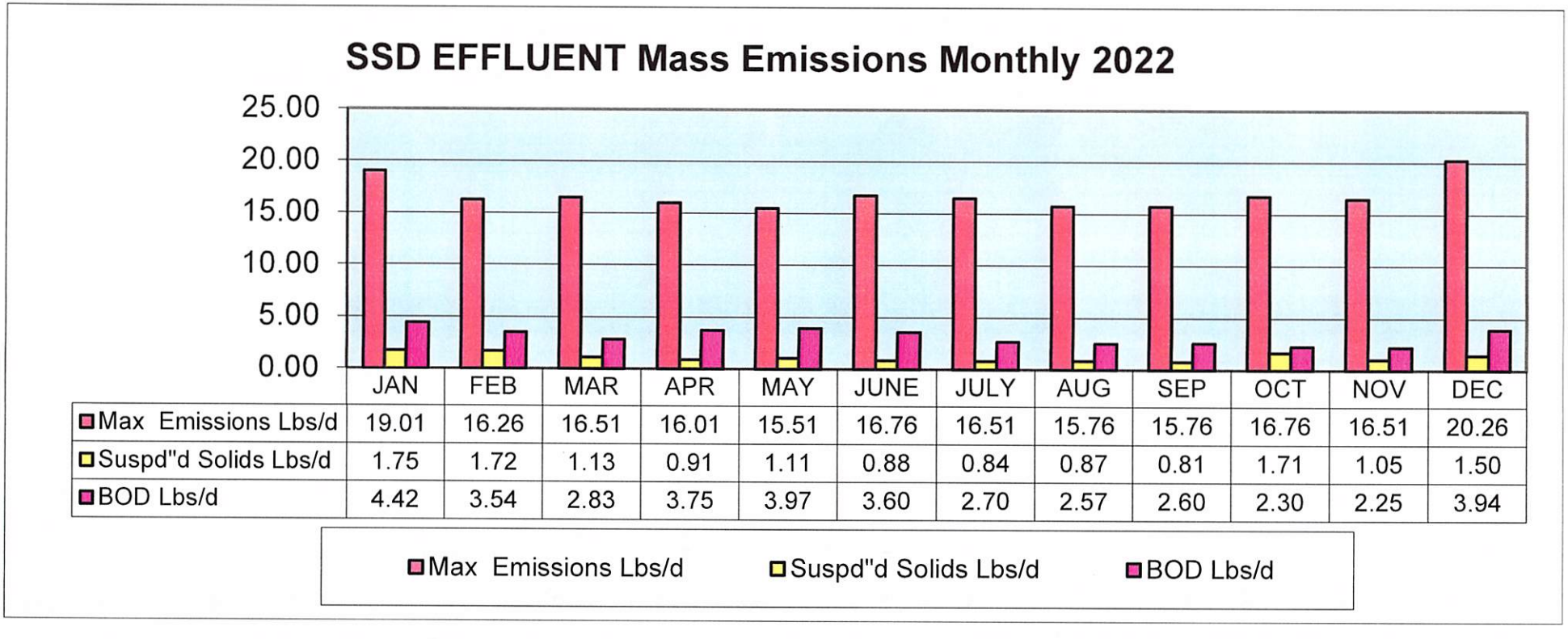

SSD AMMONIA MG/L 2022
Monthly Average
0.200
0.150
0.100
0.050
0.000
0.010
0.010
0.010
0.010
0.010
0.010
0.010
0.010
0.010
0.150
0.094
0.010
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
AMMONIA MG/L
Daily Average
Max.150 MG/L


SSD TSS MG/L 2022
Monthly Average
40.00
30.00
20.00
10.00
0.00
3.00
3.10
2.20
1.91
2.35
1.80
1.72
1.60
1.57
2.88
2.15
2.00
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
TSS MG/L
NPDES Limit


SSD TOTAL COLIFORM 2022
25.0
20.0
15.0
10.0
5.0
0.0
23
1.8
2.0
5.3
2.2
2.8
2.46
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
T COLIFORM MPN/100 ML
NPDES Limit
Seven day median shall not exceed 23 MPN.
Any single sample shall not exceed 2300 MPN.


SSD pH Standard Units 2022
10.00
8.00
6.00
4.00
2.00
0.00
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
PH Monthly Low
NPDES Low Limit
PH Monthly High
NPDES High Limit


SSD CHLORINE Gal/day 2022
Monthly Average
Gal per day
20
18
16
14
12
10
8
6
4
2
0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
CHLORINE Daily Average



	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
Max Emissions Lbs/d	19.01	16.26	16.51	16.01	15.51	16.76	16.51	15.76	15.76	16.76	16.51	20.26
Suspd"d Solids Lbs/d	1.75	1.72	1.13	0.91	1.11	0.88	0.84	0.87	0.81	1.71	1.05	1.50
BOD Lbs/d	4.42	3.54	2.83	3.75	3.97	3.60	2.70	2.57	2.60	2.30	2.25	3.94

Summerland Sanitary District
Annual 2022

MONTH	INST MAX	MAX DAILY	AVG DAILY	BOD MG/L	NPDES Limit	TURBIDITY NTU	NPDES Limit	AMMONIA MG/L	NPDES Limit	TSS MG/L	NPDES Limit
JAN	0.120	0.142	0.076	7.71	30	0.840	75	0.010	150	3.00	30
FEB	0.110	0.134	0.065	6.45	30	0.790	75	0.010	150	3.10	30
MAR	0.190	0.152	0.066	5.46	30	0.520	75	0.010	150	2.20	30
APR	0.100	0.145	0.064	7.86	30	0.230	75	0.010	150	1.91	30
MAY	0.100	0.147	0.062	8.33	30	0.413	75	0.010	150	2.35	30
JUNE	0.090	0.161	0.067	7.30	30	0.230	75	0.010	150	1.80	30
JULY	0.100	0.165	0.066	5.60	30	0.229	75	0.010	150	1.72	30
AUG	0.090	0.152	0.063	4.82	30	0.205	75	0.010	150	1.60	30
SEP	0.110	0.127	0.063	5.20	30	0.155	75	0.010	150	1.57	30
OCT	0.120	0.157	0.067	4.20	30	0.204	75	0.150	150	2.88	30
NOV	0.130	0.150	0.066	4.65	30	0.329	75	0.094	150	2.15	30
DEC	0.130	0.179	0.081	5.47	30	0.179	75	0.010	150	2.00	30
AVERAGE	**0.116**	**0.151**	**0.067**	**6.09**	30	**0.360**	75	**0.029**	150	**2.19**	30

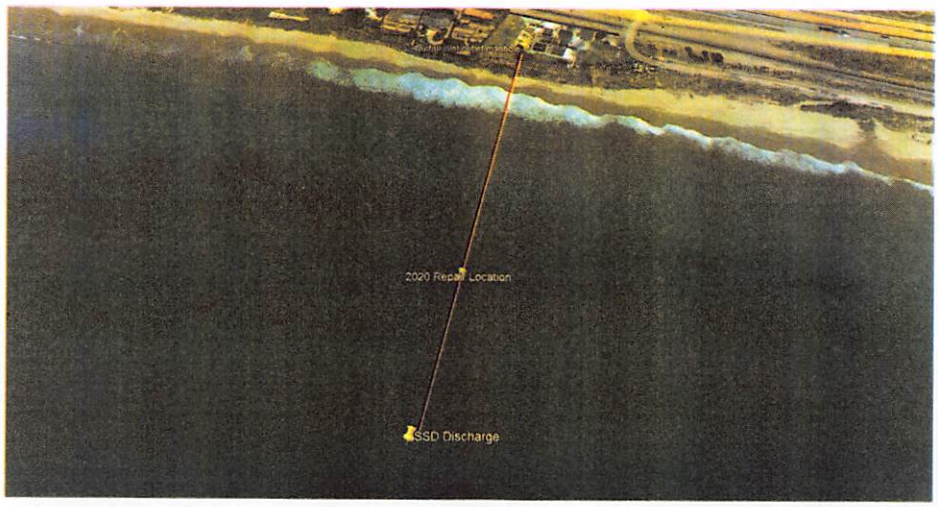
MONTH	T COLIFORM MPN/100 ML	NPDES Limit	PH Monthly Low	NPDES Low Limit	PH Monthly High	NPDES High Limit	CHLORINE Daily Av.	SLUDGE TONS	Max Emissions Lbs/d	TSS Lbs/d	BOD Lbs/d
JAN	1.8	23	6.68	6	7.10	9	17		19.01	1.75	4.42
FEB	1.8	23	6.47	6	7.02	9	18		16.26	1.72	3.54
MAR	1.8	23	6.09	6	7.01	9	16		16.51	1.13	2.83
APR	2.0	23	6.63	6	7.00	9	13		16.01	0.91	3.75
MAY	5.3	23	6.64	6	6.94	9	13	46.88	15.51	1.11	3.97
JUNE	2.2	23	6.45	6	6.98	9	17		16.76	0.88	3.60
JULY	2.2	23	6.57	6	6.93	9	16		16.51	0.84	2.70
AUG	2.8	23	6.64	6	6.97	9	17		15.76	0.87	2.57
SEP	1.8	23	6.67	6	7.14	9	17		15.76	0.81	2.60
OCT	1.8	23	6.72	6	7.32	9	16		16.76	1.71	2.30
NOV	2.2	23	6.71	6	7.02	9	18		16.51	1.05	2.25
DEC	2.46	23	6.43	6	6.95	9	19		20.26	1.50	3.94
AVERAGE	**2.3**	23	**6.56**	6	**7.03**	9	**16**	**46.88**	**16.80**	**1.19**	**3.21**

MARINE PROJECT MANAGEMENT, INC.

2022 Summerland Sanitary District (SSD)

Outfall Assessment

Post Operations Report



DOCUMENT REVISION HISTORY			
No.	**Version Name**	**Revision Purpose / Use**	**Issue Date**
A	First Draft Issue	Initial Release / Internal Review	7/6/22
B	Second Draft Issue	Captured Internal Review Comments	7/25/22
1.0	Final Report	Distribution	8/19/22

MPM MARINE PROJECT MANAGEMENT, INC.

1.0 FACILITY AND PROJECT BACKGROUND

The Summerland Sanitary District (SSD) Treatment Facility was installed in approximately 1959, and includes the ocean outfall for discharge of the treated effluent. The 12-inch inside diameter (ID) cast iron outfall pipeline is gravity-fed from the onshore facility via a manhole and standpipe assembly which contains the outfall inlet that flows to the discharge diffuser located approximately 860 feet offshore.

In response to an outfall defect that was discovered and subsequently repaired, SSD requested that Marine Project Management, Inc. (MPM) review long term repair options. MPM collected and reviewed facility data and recommended installation of a High-Density Polyethylene (HDPE) liner within the existing outfall line as the most cost-effective repair option. Before committing to a repair, MPM recommended that preliminary tasks be undertaken to ensure the viability of a liner installation. Among these tasks were conducting a hydraulic study, a shore-based internal inspection, and an offshore-based cleaning and inspection program. The results of these tasks and subsequent plan forward are contained in this report.

2.0 HYDRAULIC STUDY

To evaluate the feasibility of installing an HDPE liner inside the existing 12" outfall, MPM commissioned a hydraulic study evaluating the performance of 10", 8", and 6" DR 17 HDPE liners. Results of the study found that the 10", 8", or 6" liners would be suitable to maintain flow rates; however, a 6" liner would be marginal and would not function if impacted by marine growth or sediment. Alternatively, a hybrid liner using a 6" pipe segment from the manhole discharge to waterline and an 8" liner for the balance of the outfall would also be suitable. Hydraulic study results have been previously submitted to SSD.

3.0 INTERNAL VISUAL INSPECTION

After determining that lining was hydraulically viable, MPM recommended an internal visual inspection of the outfall. The internal inspection performed 11/02/2021 by SSD showed that the pipe interior was in good condition from the manhole for the initial 80-feet but that internal corrosion byproduct buildup starting at the tidal interface, approximately 90-ft seaward of the manhole, decreased the ID of the outfall significantly making further inspection unviable.

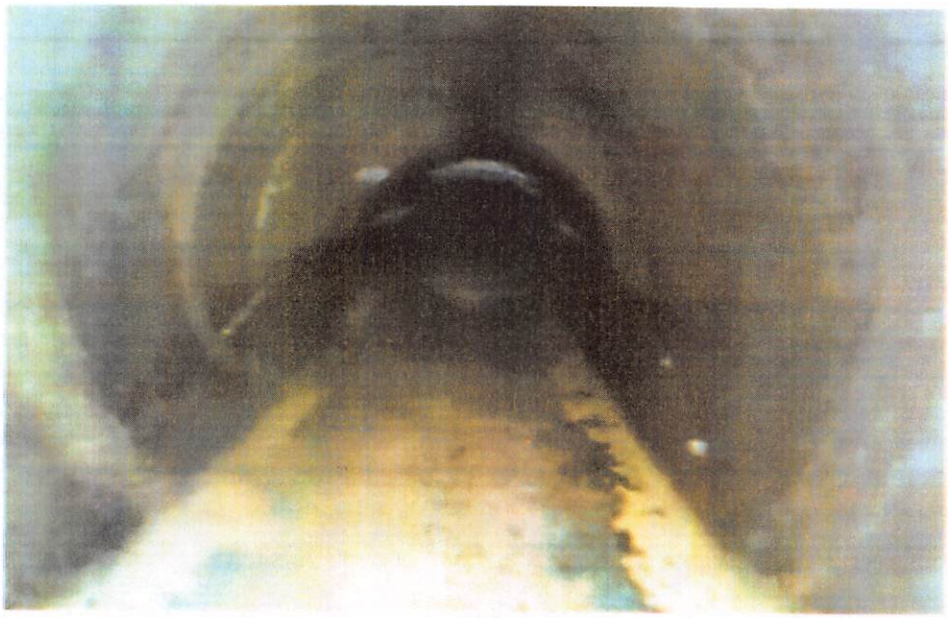


Figure 1: November 2,2021 / 08:35 High Tide Line at +5.7' MLLW

Additionally, the volume of corrosion byproduct was deemed significant enough that cleaning from the shore/manhole end posed an unacceptable risk of plugging the outfall with the byproduct.

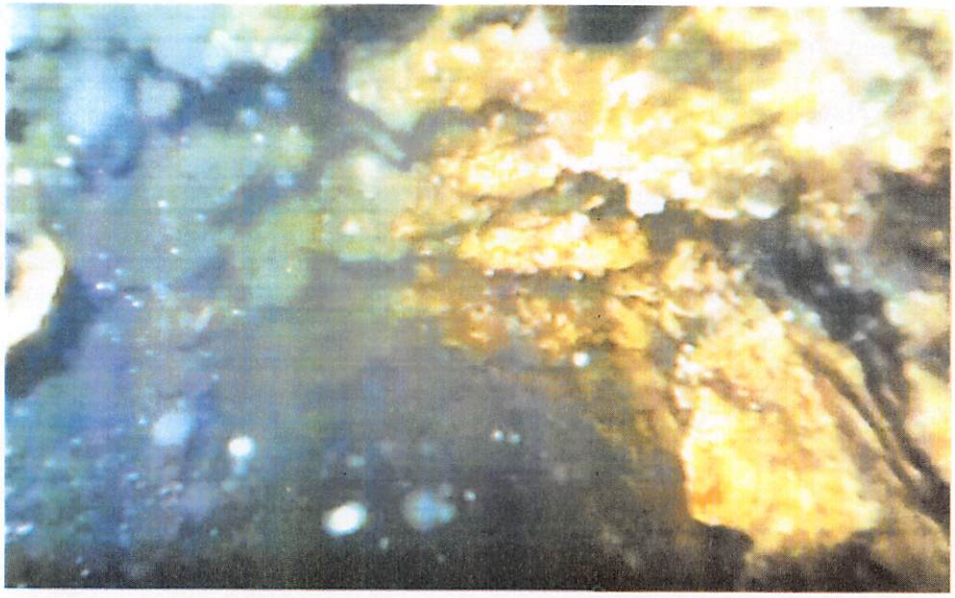


Figure 2: Severe Corrosion Byproduct Buildup at End of Survey

Based on the internal inspection findings and the risk of plugging the outfall with shore-based cleaning, it was determined that marine-based operations would be required to assess the viability of lining.

4.0 OUTFALL ASSESSMENT FIELD OPERATIONS

MPM was contracted by SSD as prime contractor to perform the outfall assessment including developing a Project Execution Plan (PEP) and associated contingency plans. The assessment was performed using both onshore and offshore spreads in accordance with the PEP with activities and findings as follows:

4.1 Onshore Activities

Onshore activities occurred both in the facility and in the parking area. An overview of onshore activities are as follows:

4.1.1 Rodder Operations – On May 24, 2022 the rodder was deployed from the standpipe onshore to near the end flange/diffuser assembly in advance of diving operations. A four-man team was onsite to run the rodder to the diffuser end requiring non-permitted confined space entry into the manhole. The rodder encountered resistance at approximately 570 feet from the manhole (presumably sand inside the outfall) and after several flushing and rodder pushing operations the rodder was moved to approximately 815 feet toward the diffuser. SSD personnel continued to flush the outfall and push the rodder as time permitted, and over several days the rodder was deployed to approximately 900 feet and secured. Based on the success of the rodder operations, the project progressed to the next phase of operations.

4.1.2 Tankage Mobilization – Tankage and associated piping were mobilized to the site June 10th 2022, and tankage was filled on June 13th. Two (2) ea. 500-barrel (21,000-gal) temporary holding tanks were located on the asphalt parking area, east of the plant entrance. An intra-tank manifold was installed between the tanks to facilitate operations and fill/drain hose routed to the final retention pond area where 2 ea. 6" pumps were staged. The plumbing allowed for filling the holding tanks from the retention pond via the pumps or to flow from the tankage to the outfall (via the retention pond) to facilitate increasing the discharge flow rates.

Figure 3: Parking area tankage

4.1.3 Reach Lift Mobilization – A reach lift, similar to a forklift with offroad capabilities and a greater mast capacity was mobilized to the site on June 10th. The reach lift was used primarily to assist with the jam skid handling and as an aid for messenger wire recovery. Additionally, the base assembly for a 10k air tugger was anchored by the reach lift throughout offshore field operations.

Figure 4: Panoramic of Lower Equipment Spread

4.2 June 14, 2022

Offshore activities commenced June 14, 2022 aboard the M/V Danny C following mobilization the day prior. Berthed in Santa Barbara Harbor, the Danny C travelled daily to/from the worksite to support diving operations. MPM contracted J.F. Brennan to perform the diving operations. Operations performed include the following:

4.2.1 Marker Buoy Removal – The outfall marker spar buoy is held in place via chain riser shackled to a clump weight located ~12' downcoast (Carpinteria side) and inshore of the pipeline end. A ¾" blue steel soft line is tied between the clump weight and the downcoast diffuser riser. The buoy was disconnected from the anchor clump weight and recovered to the Danny C for the duration of the operations.

4.2.2 Diffuser Inspection – The diffuser tee (Figure 5), was initially cleaned of marine growth with a diver-held "water blaster" regulated down to 3,000 psi to prevent damage until further inspection could be performed. The cast iron tee exhibited external corrosion however cleaning operations did not further damage the pipeline end assembly. A portion of the outfall piping was cleaned at 12 o'clock (top of pipe) and the piping was found to be in good condition except for two through-wall defects just inshore of the end flange, likely caused by wear from the pipeline end marker buoy chain before it was relocated to the clump weight.

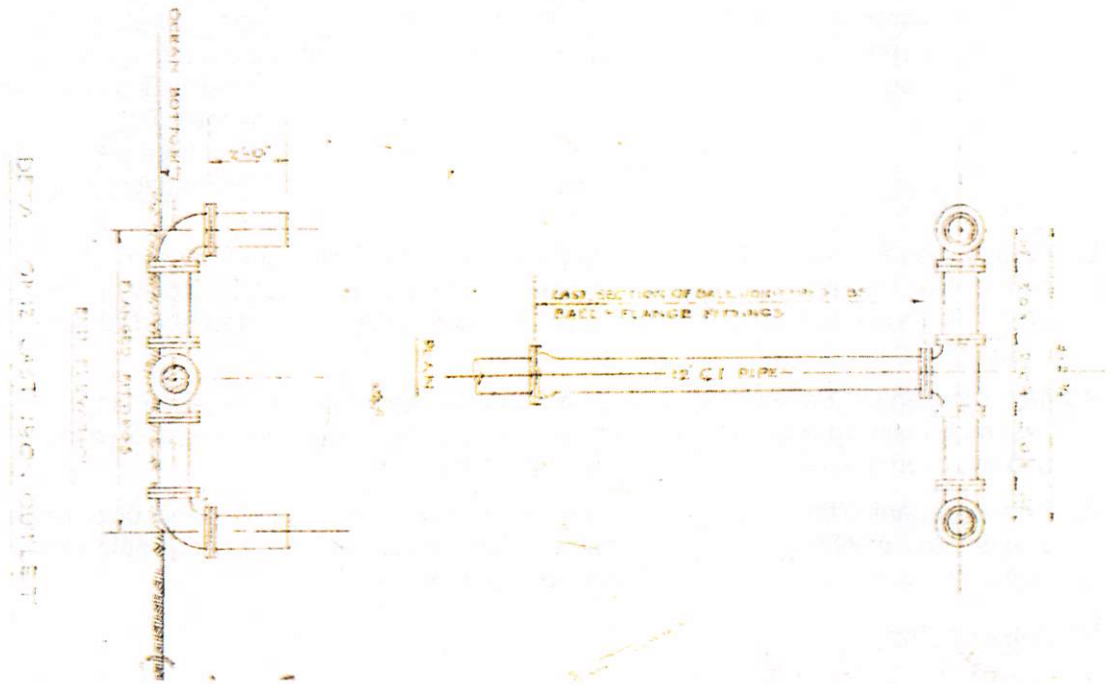


Figure 5 Diffuser Tee Sketch

PRELIMINARY DIFFUSER INSPECTION FINDINGS		
Task No.	**Task Description**	**Findings**
1	Diffuser tee to outfall pipe flange diameter (19")	~61" Circ (19" dia.)
2	Diffuser tee flange bolt quantity (12)	12
3	Nut size (1-1/2")	1-5/16
4	Inspect the diffuser pipe components' OD for corrosion. If through-wall defects are not present, evaluate with pit gauge and UT if practical and record representative maximum pit depth and minimum UT WT.	1/8-3/16" pits (no through-wall defects)
5	Inspect diffuser discharge riser ID's for pitting and overall condition. Does it appear structurally competent for reattachment of the diffuser?	1/8-3/16" pits (no through-wall defects), one riser plugged
6	Inspect balance of diffuser and adjacent joint of outfall pipe.	2 ea. through-wall defects @ pipeline end flange. Likely due to wear from previous buoy chain attachment.

Table 1 Preliminary Diffuser Inspection Findings

4.2.3 Diffuser Tee Removal – Divers unbolted the "Tee" assembly from the end of the pipeline and moved the diffuser assembly upcoast for temporary storage. Upon removing the "Tee", divers spotted the rodder end, which had been previously established into the outfall by the beach crew.

4.2.4 1/8" Messenger Established – The rodder end was removed subsea and a swivel assembly installed with a 1/8" messenger wire. The beach crew then recovered the rodder and retrieved the messenger wire end to the onshore facility.

4.2.5 Prior to departing for the evening and to prevent backfill into the outfall end, divers installed a temporary pipeline end diffuser consisting of a flange and elbow assembly which was slotted to accommodate the messenger or pull wire.

4.3 June 15, 2022

4.3.1 3/8" Messenger Wire Retrieval – Divers removed the temporary pipeline end diffuser and connected a 3/8" messenger wire to the previously-established 1/8" messenger. Once connected, the onshore team attempted to recover the 3/8" messenger but were met with significant resistance and halted operations. Both onshore and offshore teams then began to prep for fairlead installation to better accommodate wire handling operations.

4.3.2 Jam Skid Installation – The onshore team began installing the jam skid/fairlead assembly in the manhole to better fairlead the wire and prevent damage to the outfall. Issues arose with the jam skid fitment and the onshore team worked with CD Lyon, a welding/fabrication contractor to work through design modifications.

4.3.3 Subsea Fairlead Installation – The subsea fairlead was stationed directly in line and ~20' offshore of the outfall pipeline. Four (4) pin pile were jetted through the base collars and into the seafloor to keep the assembly from lifting off the seabed during anticipated fairlead use.

4.3.4 Pipeline Diffuser Recovery – Divers recovered the pipeline end diffuser that had been removed previously for further inspection. The downcoast (Carpinteria) side vertical outlet was completely blocked with marine growth.

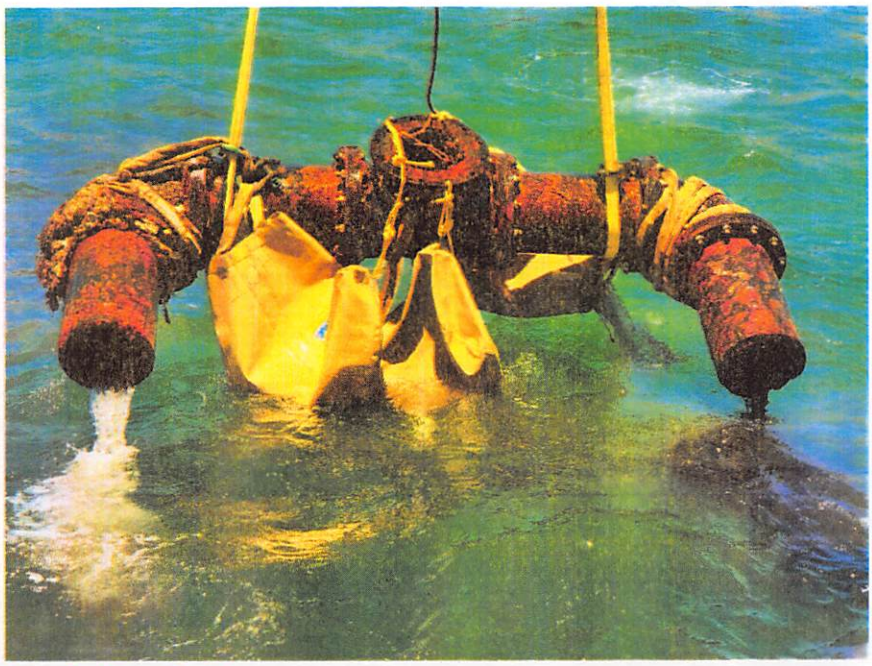


Figure 6 Diffuser Tee Recovery

4.3.5 Waterblast Cleaning Preliminary Tests – Following Tee recovery, the high pressure waterblast cleaning tool was tested inside a vertical riser (positioned horizontally) to determine cleaning effectiveness. Following the field tests, operations were secured and the temporary pipeline end diffuser reinstalled. Divers were released for the weekend to allow for jam skid modifications to be completed.

Figure 7: Cleaning Tool Performance Test

4.4 June 16, 2022

4.4.1 Jam Skid Installation – Modifications were completed to the jam skid base and the jam skid/fairlead assembly was reinstalled in the manhole at the Summerland onshore facility.

4.5 June 20, 2022

4.5.1 Operations resumed and divers removed the temporary end diffuser and recovered the messenger wire. To assist messenger retrieval, a metallic sphere was installed at the 1/8" to 3/8" messenger swivel. The onshore team was unable to recover the 3/8" wire due to significant resistance.

4.5.2 Rodder Deployment – The teams determined to attempt to establish the 3/8" wire using the rodder, without the 1/8" messenger wire. The rodder end was attached to the topside end of the 1/8" messenger and the offshore team recovered messenger to the vessel until the rodder end was established at the offshore end of the outfall.

4.5.3 3/8" Messenger Recovery – The 3/8" messenger wire was secured to the end of the rodder at the subsea end of the outfall and the onshore team recovered the rodder, successfully establishing the 3/8" messenger onshore.

4.5.4 Pipeline Cleaning (1st Pass) – Divers routed the hydroblast hose through the subsea fairlead and secured the 3/8" messenger to the waterblast cleaning head. The onshore crew pulled the cleaning head into the outfall ~10' feet. Using a power block suspended from the Danny C, the offshore crew recovered the cleaning head to the outfall end flange.

4.5.5 Pipeline Cleaning (2nd Pass) – A second cleaning pass was performed from the end flange to ~20' at a rate of ~ 3'/min.

4.5.6 Preliminary Video Inspection – Using fiberglass pushrods, a video camera was inserted in the pipeline to inspect cleaning effectiveness. Little cleaning progress was identified. Operations were secured for the evening and the temporary pipeline end diffuser installed.

4.6 June 21, 2022

4.6.1 Wall Thickness Inspection – A calibrated ultrasonic thickness meter was utilized by trained personnel to obtain metal thickness measurements from the end flange to 17-ft towards shore. Readings were difficult to obtain due to the internal surface roughness and corrosion byproduct and are presented below.

ULTRASONIC WALL THICKNESS READINGS			
Distance from End Flange	O'clock Position (Facing North)	Wall Thickness (inches)	Time See 04 UT Inspections.mp4
6-in	12	0.165	8:34:12
6-in	3	0.200	8:34:13
6-in	9	0.175	8:34:15
6-ft	12	0.145	08:33:57
9-ft	12	0.220	8:32:55
12-ft	12	0.910	8:38:05
17-ft	12	0.145	8:39:52

Table 2 Ultrasonic Wall Thickness Readings

4.6.2 Pit Depth Inspection – The majority and worst external pitting occurred in the first two (2) ft of pipe from the outfall end flange. The balance of the first joint was generally pit free. Table 3, below, identifies the most severe (worst) pitting. MPM suspects that the localized pitting in the first 2-ft is due to two conditions:

- The marker buoy chain was historically wrapped around the outfall in this location causing fretting and dissimilar metal corrosion. NOTE: There were two through-wall defects adjacent to the end flange at 2:30 and 9 o'clock (looking towards shore). These holes were repaired by MPM with Splash Zone underwater epoxy.
- The section of pipe is likely exposed to seawater for most of the year rather than buried.

PIT INSPECTION RESULTS				
Distance shoreward (from outfall end flange)	O'Clock Position (Facing North)	Pit Depth (inches)	Dimensions (Long x Transverse)	Time See 05 Pitting Inspection.mp4
6-in	12	0.250	¾ x 1"	11:42:31
6-in	2	0.187	½" x ¾"	11:43:00
8-in	12	0.313	1-¼" x 1"	11:44:57
8-in	1	0.125	½" x ½"	11:46:21
Internal Inspection				11:47:54
First 2' Overview		Heavy SGP		11:49:56
6-ft	11	0.187	¼" x 3/8"	11:50:35
6'+		Light/Mod SGP		11:51:21

Table 3 Pit Inspection (External Corrosion) Results

4.6.3 Waterblast Cleaning at Pipeline End – Divers inserted the waterblast cleaning tool in the pipeline to evaluate effectiveness. After 10 minutes of stationary cleaning, the upper portion of the outfall (9 o'clock to 3 o'clock) was relatively untouched with the most cleaning performed at 6 o'clock.

4.6.4 Hand Cleaning at Pipeline End – Divers used the hand-held water blaster gun at the end of the outfall to test effectiveness of different pressures, beginning with 3000 psi. Pressure was incrementally raised to 10,000 psi (~7,000 psi at nozzle) over 15 minutes.

4.6.5 Post Cleaning Inspection – Inspecting the hand cleaned portion of the pipeline, the lower portion of the pipeline (4-10 o'clock) was clean with the upper portion (10-4 o'clock) with moderate build-up still present.

4.6.6 Timed Tool Cleaning – In an effort to identify an effective cleaning rate, the waterblast cleaning tool was inserted 6' into the outfall, energized, and pulled an additional 5' into the pipeline. At the 11' mark, the tool was pulled one (1) foot over a period of 5 minutes and then the rate increased to two (2) feet over two (2) minutes.

4.6.7 Flush and Video – The cleaning tool was removed from the pipeline and the outfall discharge increased in an attempt to clear debris and improve visibility, while the video camera was inserted and video recorded. The video camera became stuck at 6' and could not be inserted further.

4.6.8 Borehole Video Notes

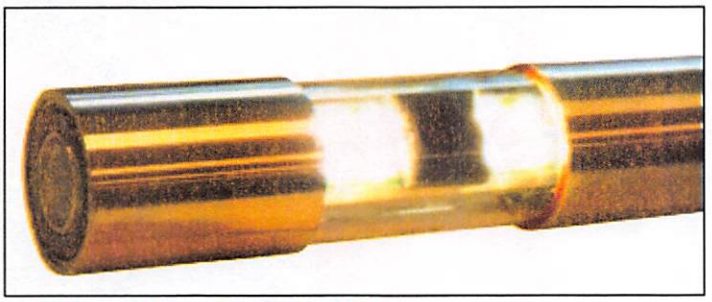


Figure 8: Borehole Camera Body Example

4.6.8.1 General Description – The borehole video camera is a cylindrical camera mounted in a centralizing frame with three centralizing "fins". The unit has a forward facing camera and a second (sidewall) camera that faces perpendicular to the camera body. The cameras rotate as a unit and can rotate 360°. When viewing the sidewall camera image, the offshore end of the pipe is at the top of the screen and the direction of travel is, counterintuitively, at the bottom of the screen.

4.6.8.2 Orientation Markings – To aid with orientation, the three-finned camera housing was indexed, with the lower right fin (4 o'clock) marked with green tape, the lower left fin (8 o'clock) marked with red tape and the upper fin (12 o'clock) marked with white tape. Since the camera was inserted via fiberglass push rod at the back end of the centralizing frame, the messenger wire is generally visible at the bottom of the outfall pipe (6 o'clock).

4.6.8.3 Downline Distance Counter – A distance counter mounted at the cable winch typically records cable paid out from the winch with the distance displayed on the topside video as penetration distance. To prevent damage to the cable and camera from the vessel moving with the swell, excess cable was deployed to the seafloor, rendering the distance counter meaningless for the entirety of the dive operations.

4.6.8.4 Video Quality – The borehole camera video provides 540 TVL, a relatively low resolution by today's standards. Video is severely affected by turbidity so flushing activities were coordinated with video inspection to maximize video clarity. The video log is included in Appendix A.

4.6.9 Additional Waterblast Cleaning – The waterblast cleaning tool was reinserted into the pipeline at 6' and energized. Cleaning in the area was performed for 30 minutes and then the cleaning tool was recovered.

4.6.10 Video Inspection Attempt #2 – The video camera was reinstalled into the pipeline and pushed forward with fiberglass rods. At 8', the camera became stuck once again. Debris from cleaning operations had collected at the bottom of the outfall and were large enough to make the pipe impassible with the video unit. See Figure 9 and 10 Typical Dislodged Material below.

Figure 9: Typical Profile of Dislodged Internal Buildup

Figure 10: Typical Dislodged Material

4.6.11 Single Riser Diffuser Installation – Once the video equipment was recovered from the pipeline, a Ductile Iron (DI) 90-degree flanged elbow with a single riser diffuser was installed as directed from the onshore team.

4.6.12 Through-wall Defect Repair – The two through-wall defects identified at the outfall end flange that were likely caused by chain wear were repaired with Splash Zone underwater epoxy.

4.6.13 Replacement "Tee" Double Riser Diffuser Installation – Onshore operations determined that the new DI end flange Tee Diffuser should be installed matching the original diffuser. Divers removed the single diffuser elbow from the outfall end and the new diffuser T was assembled using every other bolt hole throughout (50% bolts) to complete installation by day's end.

4.6.14 Reinstall Outfall End Marker Buoy – The pipeline end spar buoy was reattached to the clump weight and the screw pin anchor shackle moused to prevent inadvertent disassembly.

4.7 June 22, 2022

4.7.1 Vessel Demobilization – The Danny C was completely demobilized at Santa Barbara harbor. All dive and rental equipment were released.

4.8 June 24th, 28th, and 29th, 2022

4.8.1 Onshore Demobilization – The jam skid and associated rigging was removed from the manhole and the manhole was returned to its original configuration and turned over to SSD operations. All remaining equipment at the Summerland facility including onshore tankage, pumps, interconnects, air compressors, reach lift and associated tooling and rigging were disconnected and removed from the site.

5.0 PROJECT REVIEW

To remove the corrosion byproduct (material) from the outfall, MPM utilized an adjustable water blasting system to break up the material, and bunkered fluid onshore in project specific tankage to flush the broken material from the outfall. The water-blasting system was adjustable with a maximum capacity of 20-gpm at 10,000-psi. The project specific tanks had a total capacity of approximately 42,000-galons and could gravity feed into the plant at approximately 400 to 500-gpm.

5.1 Waterblasting Process and Results

To minimize risk of outfall pipe damage, the system was initially set at 4500-psi at the cleaning head. Pipeline damage did not occur at 4,500-psi, and due to the tenacity of the material the pressure was increased in steps to 10,000-psi, in accordance to the Project Execution Plan, while monitoring the outfall pipe for damage. Pipeline damage did not occur throughout the stepped increases, and although the material was being dislodged from the pipe interior, the material being dislodged was in large slabs and chunks.

5.2 Flushing Results

The configuration and weight of material being dislodged, in combination with the maximum gravity flow-rate did not provide adequate flushing velocity to remove / flush the dislodged material from the outfall. MPM recognized that should operations proceeded an unacceptable risk of plugging the (functioning) outfall existed. Upon recognition and review MPM met with the SSD Operations Manager and Board of Directors and recommended that operations be curtailed, SSD agreed, and the project was demobilized.

6.0 RECOMMENDATIONS

6.1 Implement Routine Outfall Flushing

Flush the outfall on routine basis via the 12" outlet from the retention tank to minimize sand and loose corrosion byproduct buildup in the outfall. Flushing will lower the risk of the outfall's flow being restricted by these materials. Note that flushing will be most effective if performed at low tide, utilizing a full retention tank.

6.1.1 Monitoring – Before flushing record tidal elevation, and during flushing record the high point elevation in the manhole, and time from start of flushing to time the excess fluid in the manhole subsides. Also monitor diffuser discharge appearance to assess outfall flow and composition. If the flushing duration increases, or discharge appears to be sand or debris consider more frequent flushing.

6.2 Restricted Flow

Should the flow become severely restricted (detrimentally affecting operations), there are several options that may be considered. Each option is either costly and or has potential risk and should not be considered unless the outfall is not performing effectively.

- Inspect and Clean – Mobilize a marine spread to inspect the outfall and diffuser and make corrective actions to repair anomalies and clear debris from the diffuser. As a contingency this should be planned to include contingency removal and topside cleaning of the diffuser. If performed during the summer months when the outfall is not buried this activity, including diffuser removal, is relatively high cost (2022 pricing

~$120k in summer months), and with proper management will have low risk of outfall damage.

- Pressure Flush Outfall – Procure internal flow through packer to pressure flush outfall via the outfall end in the manhole. Once the packer is received and fit tested, mobilize tankage and pumps similar to 2022 operation to bunker and pressure flush the outfall. Pressure should be regulated and should commence at a flow rate similar to gravity feed and over several operations days increased as comfort allows. This is medium cost (2022 pricing ~$70k), but is higher risk due to the potential of separating the outfall pipe joints.
- High Pressure Clean and Pressure Flush Outfall – Operation would use pumps similar to the 2022 operation, additional tankage (5 or more), internal flow through packer with integral stuffing box for the pull wire or jetting hose, and 35,000-psi regulated water blaster. Operation and would require either installation of the rodder and pull wire or jetting from shore toward the diffuser. Method is both high cost and high risk and based on 2022 costs could easily total more than $550k

APPENDICES

MPM MARINE PROJECT MANAGEMENT, INC.

APPENDIX A – Video Logs

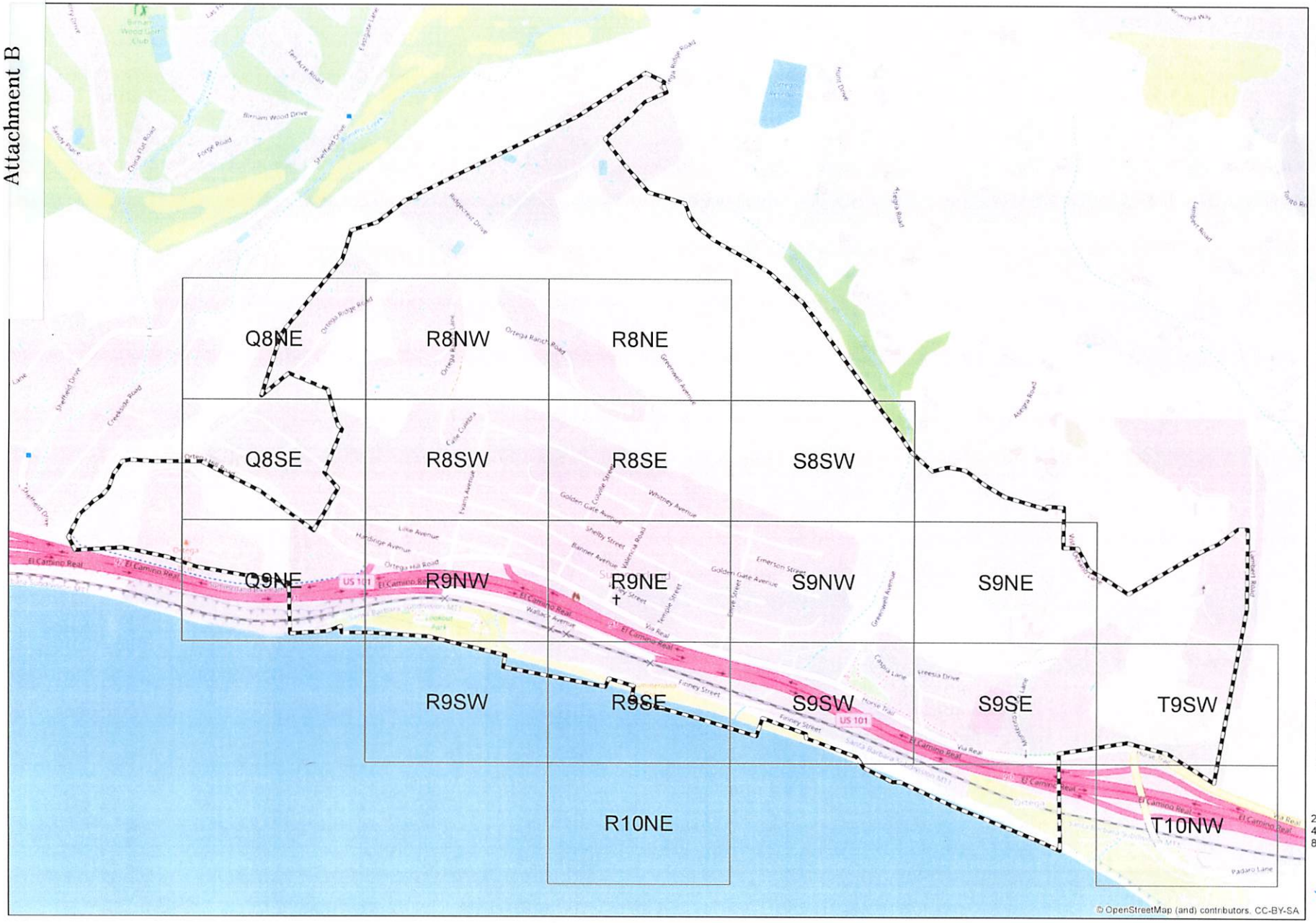
Summary of Diver Video Files:

DIVER INSPECTION VIDEO LOG		
Video File Name:	Date Recorded	Summary
01 Preliminary Diver Inspection.mp4	6/14/2022	Inspection of the outfall end prior to cleaning or removal of end diffuser.
02 1st Joint Post External Cleaning.mp4	6/14/2022	Preliminary inspection of outfall piping (including tee) following external cleaning with waterblaster.
03 End T Removed.mp4	6/14/2022	Preliminary inspection of outfall end flange.
04 UT Inspections.mp4	6/21/2022	UT wall thickness inspection (Note: readings near end flange were not recorded).
05 Pitting Inspection.mp4	6/21/2022	External pipe pit inspection through first joint of pipe.
06 Post T Installation.mp4	6/21/2022	Post tee installation video and splash zone patches

Summary of Borehole Camera Video Files:

BOREHOLE CAMERA VIDEO LOG		
File (YYYYMMDDHHMMSS)	Time	Description
20220621093736.avi	09:37	Camera 3' from end
20220621094216.avi	09:42	Pushing camera 3-6' from end
20220621095933.avi	09:59	Obstruction 6' from end
20220621141213.avi	14:12	Attempt to install video - post Jetting 3' to 6' from end
20220621145835.avi	14:58	2nd Attempt to install video – max penetration ~8'
20220621150721.avi	15:07	Attempt to recover camera from ~8' penetration

Attachment B



SUMMERLAND SANITARY DISTRICT

March, 2021

N

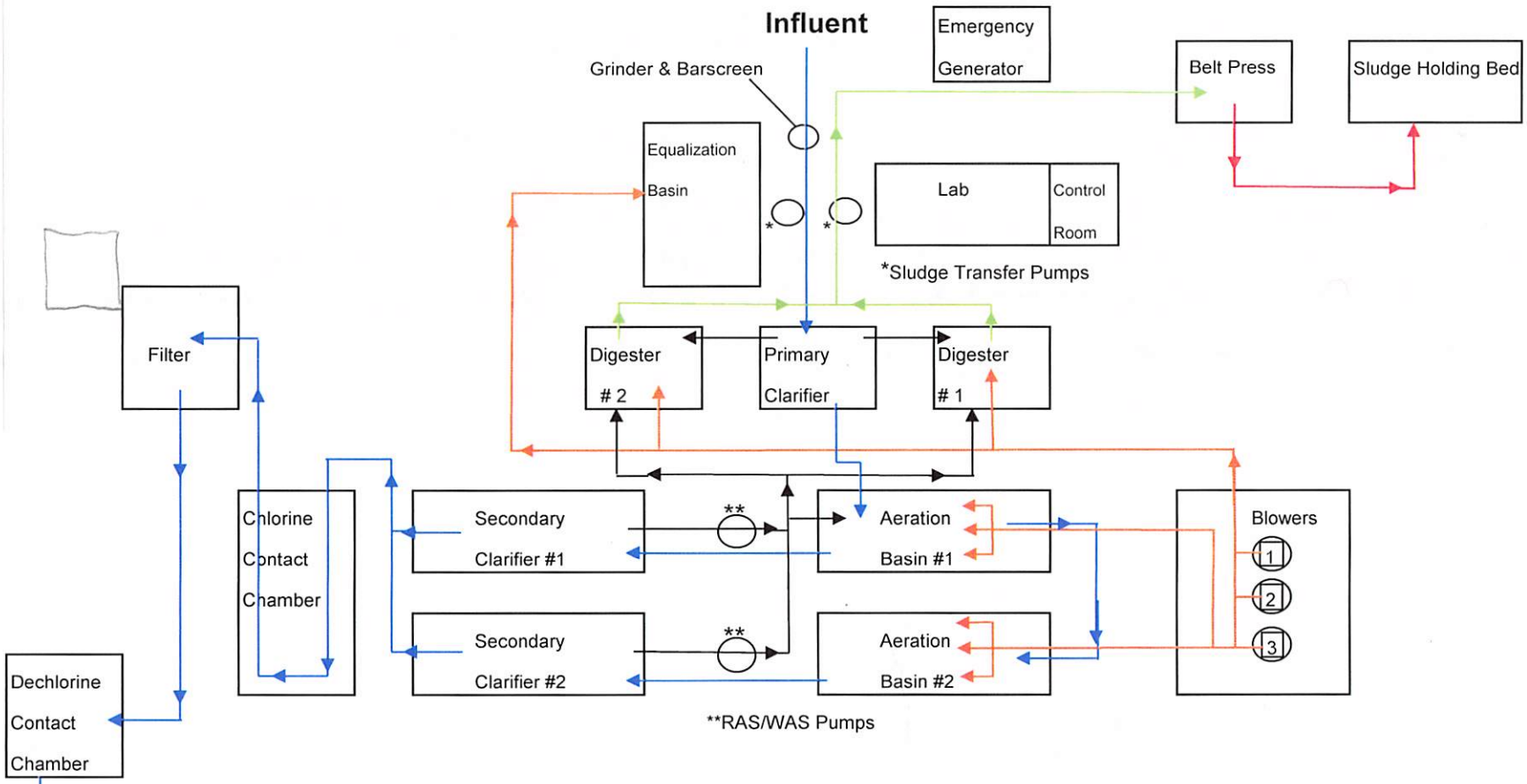
Map Grid

District Boundary

2021 Mainline System Totals:
45,888 Feet
8.7 Miles

SUMMERLAND Sanitary District

Attachment C



To Ocean Outfall

Santa Barbara Channel

34° 25' 00" North Latitude 119° 35' 48" West Longitude

SUMMERLAND SANITARY DISTRICT

Treatment Plant Flow Diagram

Design Flow .3 MGD

Average Daily Flow .08 MGD

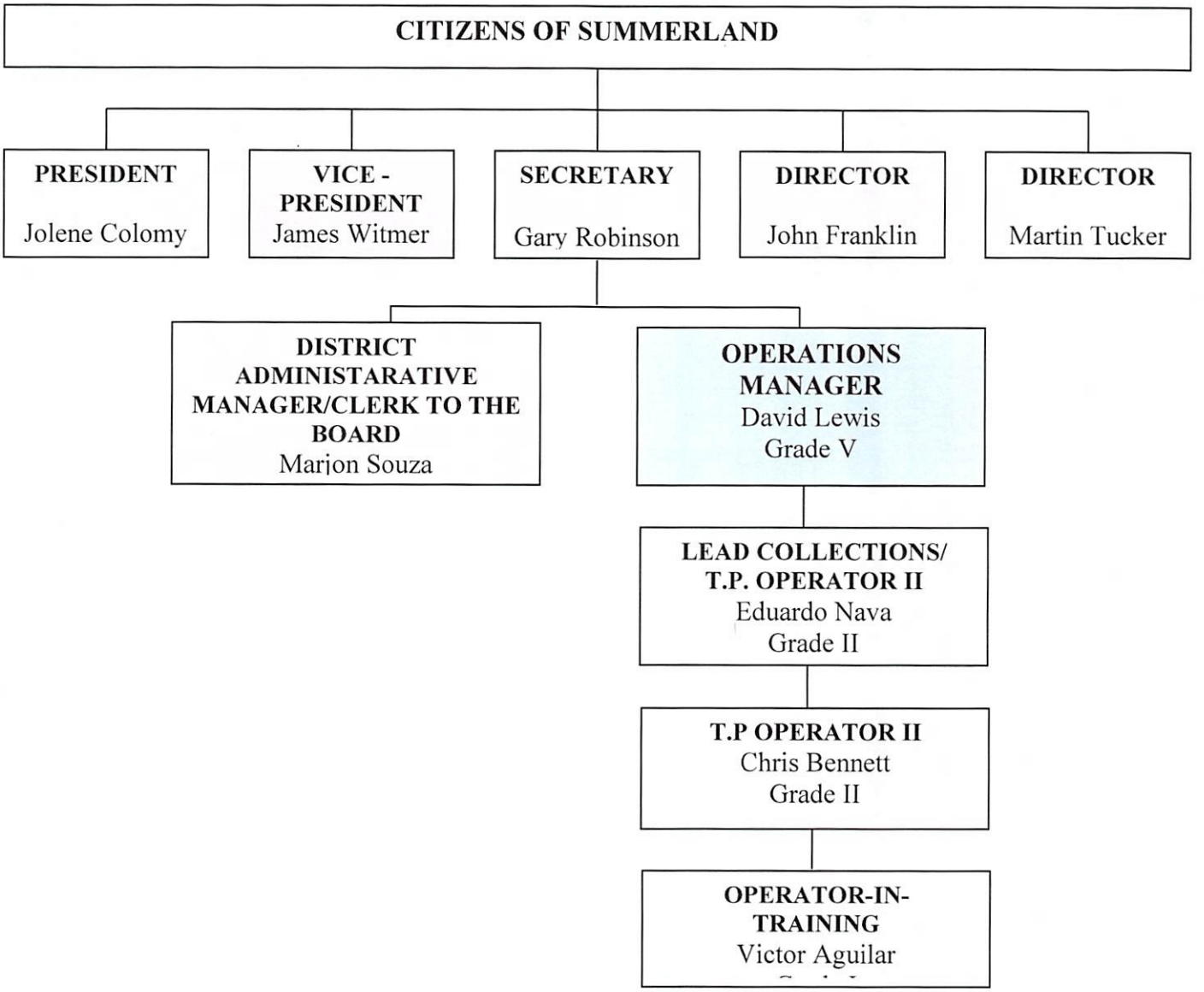
Legend:

Blue	Wastewater Flow
Orange	Air Flow
Black	RAS/WAS Flow
Green	Sludge Flow to Dewatering
Red	Biosolids Handling

\\Wdmycloud\OPERATION-FILES\SSD OPERATIONS FILES\FLOW DIAGRAM SSD\Treatment Plant Flow Diagram 2022

NPDES No. CA0048054
Order No. R3-2022-0014

SUMMERLAND SANITARY DISTRICT
ORGANIZATION CHART- December 2022



FGL ENVIRONMENTAL AGRICULTURAL
Analytical Chemists

September 13, 2022

Summerland Sanitary District
P.O. Box 0417
Summerland, CA 93067-0417

Lab No. : SP 2212762-001
Customer No.: 2002306

Sampled On : August 8, 2022 at 12:00
Sampled By : Eduardo N/ Ronnie P
Received On : August 8, 2022 at 14:45
Matrix : Biosolids

Description : Biosolids
Project : RWQCB Biosolids Monitoring

Sample Results - Inorganic(Dry Weight)

Constituent	Result	RL	MDL	Units	Dil.	DQF	Sample Preparation			Sample Analysis			
Metals, Total							Date	Time	Who	Method	Date	Time	Who
Boron	88.0	11	0.068	mg/kg	2	hP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Cadmium	0.852	2.2	0.029	mg/kg	2	JhP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Chromium	13.9	1.1	0.13	mg/kg	2	hP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Copper	915	1.1	0.0014	mg/kg	2	hP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Lead	6.93	2.2	0.23	mg/kg	2	hP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Nickel	13.2	1.1	0.0020	mg/kg	2	hP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Phosphorus	17100	27	0.37	mg/kg	5	P	08/18/2022	12:00	ac	EPA 6010 B	08/27/2022	11:13	ac
Silver	1.03	2.2	0.89	mg/kg	2	JhP	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Zinc	787	2.2	0.016	mg/kg	2	P	08/18/2022	12:00	ac	EPA 6010 B	08/19/2022	11:37	ac
Wet Chemistry													
Ammonia Nitrogen	3540	220	110	mg/kg	50	h	09/05/2022	13:25	lcr	SM 4500-NH3 G	09/07/2022	17:10	lcr
% Moisture	8.9	0.1		%	1		08/15/2022	14:40	amm	SM 2540 B	08/16/2022	14:30	amm
Nitrate Nitrogen	1200	140	0.14	mg/kg	13		08/22/2022	17:55	mca	EPA 300.0	08/24/2022	05:16	lfs
Nitrogen, Total Kjeldahl	18600	2200	1200	mg/kg	80	h	09/05/2022	13:10	lcr	EPA 351.2	09/06/2022	20:29	lcr
pH	6.24	---		units	3	T	08/12/2022	13:50	jba	SM 4500-H+B	08/12/2022	14:19	jba

DQF Flags Definition:
h The MS/MSD did not meet QC criteria.
P Post Digestion Spike (PDS) not within Acceptance Range (AR).
J Reported value is estimated; detected at a concentration below the PQL and above the laboratory MDL.
T Exceeded method/regulatory-specific holding time.

ND=Non-Detected, RL=Reporting Level

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
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Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No. 1573

Office & Laboratory
2500 Stagecoach Road
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FAX: (530)343-3807
CA ELAP Certification No. 2670

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San Luis Obispo, CA 93401
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FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

Client Name: FGL Environmental, Inc.
Contact: Cindy Aguirre
Address: 853 Corporation Street
Santa Paula, CA 93060

Report Date: 26-Aug-2022

Project Name: No Project
Project Number: SP 2212762

Work Order Number: C2H1872
Received on Ice (Y/N): Yes Temp: 2 °C

Laboratory Reference Number
C2H1872-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
Biosolids	Sludge	08/08/22 12:00	08/12/22 9:14

Analyte(s)	Result	RDL	MDL	Units	Method	Analysis Date	Analyst	Flag
Solids								
Total Solids	91	0.10	0.10	%	SM 2540G	08/15/22 14:01	TJK	
Aggregate Organic Compounds								
Oil & Grease (HEM)	ND	0.10	0.10	% dry	EPA 9071B	08/15/22 09:10	DEC	

Summerland Sanitary District 2022

Month	Wet Tons	%Solids	Dry Tons
January	46.88	15.6%	7.31
February			-
March			-
April			-
May			-
June			-
July			-
August			-
September	46.76	16.2%	7.57
October			-
November			-
December			-
Total	93.64	0.318	14.88