AGENDA

A G E N D A
REGULAR MEETING OF THE GOVERNING BOARD
OF THE GOLETA SANITARY DISTRICT
A PUBLIC AGENCY

One William Moffett Place
Goleta, California 93117

October 5, 2020

CALL TO ORDER: 6:30 p.m.

ROLL CALL OF MEMBERS

BOARD MEMBERS: Sharon Rose
Robert O. Wageneck
Jerry D. Smith
Steven T. Majoewsky
George W. Emerson

CONSIDERATION OF THE MINUTES OF THE BOARD MEETING

The Board will consider approval of the Minutes of the Regular Meeting of September 21, 2020.

PUBLIC COMMENTS - Members of the public may address the Board on items within the jurisdiction of the Board.

POSTING OF AGENDA – The agenda notice for this meeting was posted at the main gate of the Goleta Sanitary District and on the District's web site 72 hours in advance of the meeting.

BUSINESS:

1. CONSIDERATION OF RESOLUTION NO. 20-656 ESTABLISHING AN EMPLOYEE WELLNESS PROGRAM
   (Board may take action on this item.)

2. CONSIDERATION OF TECHNICALLY BASED LOCAL LIMITS STUDY
   (Board may take action on this item.)

3. 2020 ACTION PLAN STATUS REPORT

4. GENERAL MANAGER'S REPORT

5. LEGAL COUNSEL'S REPORT

6. COMMITTEE/DIRECTOR'S REPORTS AND APPROVAL/RATIFICATION OF DIRECTOR'S ACTIVITIES

7. PRESIDENT'S REPORT

8. ITEMS FOR FUTURE MEETINGS

9. CORRESPONDENCE
   (A verbal update will be provided at the meeting.)

10. APPROVAL OF BOARD COMPENSATION AND EXPENSES AND RATIFICATION OF CLAIMS PAID BY THE DISTRICT
    (The Board will be asked to ratify claims.)

ADJOURNMENT

Any public records which are distributed less than 72 hours prior to this meeting to all, or a majority of all, of the District's Board members in connection with any agenda item (other than closed sessions) will be available for public inspection at the time of such distribution at the District's office located at One William Moffett Place, Goleta, California 93117.

Persons with a disability who require any disability-related modification or accommodation, including auxiliary aids or services, in order to participate in the meeting are asked to contact the District's Finance & H.R. Manager at least (3) days prior to the meeting by telephone at (805) 967-4519 or by email at info@goletasanitary.org.

MINUTES

MINUTES
REGULAR MEETING OF THE GOVERNING BOARD
GOLETA SANITARY DISTRICT
A PUBLIC AGENCY
DISTRICT OFFICE CONFERENCE ROOM
ONE WILLIAM MOFFETT PLACE
GOLETA, CALIFORNIA 93117

September 21, 2020

CALL TO ORDER: President Rose called the meeting to order at 6:30 p.m.

BOARD MEMBERS PRESENT: Sharon Rose, Robert O. Wageneck, Jerry D. Smith, Steven T. Majoewsky, George W. Emerson

BOARD MEMBERS ABSENT: None

STAFF MEMBERS PRESENT: Steve Wagner, General Manager/District Engineer, and Richard Battles, Legal Counsel from Howell Moore & Gough LLP.

OTHERS PRESENT: None

APPROVAL OF MINUTES: Director Smith made a motion, seconded by Director Wageneck, to approve the minutes of the Special Board meeting of 09/03/20.

The motion carried by the following vote:

(20/09/2128)

AYES:	5	Rose, Wageneck, Smith, Majoewsky Emerson
NOES:		None
ABSENT:		None
ABSTAIN:		None

POSTING OF AGENDA: The agenda notice for this meeting was posted at the main gate of the Goleta Sanitary District and on the District's website 72 hours in advance of the meeting.

PUBLIC COMMENTS: None

BUSINESS:

1. REVIEW OF DISTRICT'S EMPLOYEE RECOGNITION PROGRAM
   Mr. Wagner gave the staff report on this presentation item, no Board action was taken.

2. CONSIDERATION OF EMPLOYEE WELLNESS PROGRAM
   Mr. Wagner gave the staff report. No action was taken by the Board. Staff will bring this item back for further consideration.

3. CONSIDERATION OF EMPLOYEE ASSISTANCE PROGRAM
Mr. Wagner gave the staff report.

President Rose made a motion, seconded by Director Wageneck, to authorize the General Manager to execute a service contract with Claremont EAP in an amount not to exceed $4,500 in the form of an addendum to proposal.

The motion carried by the following vote:

(20/09/2129)

AYES:	5	Rose, Wageneck, Smith, Majoewsky, Emerson
NOES:		None
ABSENT:		None
ABSTAIN:		None

4. GENERAL MANAGER'S REPORT
Mr. Wagner gave the report.

5. LEGAL COUNSEL'S REPORT
Mr. Battles reported several items discussed at the 9/18/20 CASA Attorneys Committee meeting.

6. COMMITTEE/DIRECTORS' REPORTS AND APPROVAL/RATIFICATION OF DIRECTORS' ACTIVITIES

Director Wageneck – No report

Director Smith – No report

Director Majoewsky – Reported on the GWSD meeting held on 9/15/20.

Director Emerson – Handed out a WSJ article on the COVID-19 vaccine and copies of the CSDA Advocacy Newsletter on current legislation.

8. PRESIDENT'S REPORT
President Rose – Reported on the 9/8/20 GWD Board meeting. A copy of her report will be sent out to the other Board members.

9. ITEMS FOR FUTURE MEETINGS
No Board action was taken to return with an item.

10. CORRESPONDENCE
The Board reviewed and discussed the list of correspondence to and from the District in the agenda.

11. APPROVAL OF BOARD COMPENSATION AND EXPENSES AND RATIFICATION OF CLAIMS PAID BY THE DISTRICT

Director Wageneck made a motion, seconded by Director Majoewsky, to ratify and approve the claims, for the period 09/04/20 to 09/21/20 as follows:

Running Expense Fund #4640	$ 524,759.55
Depreciation Replacement Reserve Fund #4655	$ 88,970.59

The motion carried by the following vote:

(20/09/2130)

AYES:	5	Rose, Wageneck, Smith, Majoewsky, Emerson
NOES:		None
ABSENT:		None
ABSTAIN:		None

ADJOURNMENT

There being no further business, the meeting was adjourned at 8:13 p.m.

Sharon Rose Governing Board President	Steve D. Wagner Governing Board Secretary Pro Tem
Robert O. Wageneck	Jerry D. Smith
Steven T. Majoewsky	George W. Emerson

AGENDA ITEM #1

AGENDA ITEM: 1

MEETING DATE: October 5, 2020

I. NATURE OF ITEM

Consideration of Resolution No. 20-656 Establishing an Employee Wellness Program

II. BACKGROUND INFORMATION

The District's employees are its most valuable asset and are critical to delivering the excellent service our community deserves. Improving the health and well-being of employees easily translates to increased employee morale, better retention, reduced absenteeism, and happier employees.

Wellness is defined as the quality or state of being healthy in body and mind, especially as the result of deliberate effort. An employee wellness program (EWP), when implemented with other healthcare tools and benefits, is an approach to health care that emphasizes preventing illness and promoting healthy lifestyles, as opposed to emphasizing the treatment of diseases.

While the District has already implemented various wellness related measures in the past, a cohesive and comprehensive EWP has not been formally adopted. Such a program would incorporate District-specific wellness initiatives with wellness information from the California Association of Sanitation Agencies (CASA), the California Sanitation Risk Management Authority (CSRMA), California Public Employee Retirement System (CalPERS), our insurers, and other wellness program sources. The EWP would also incorporate the District's Employee Assistance Program that was recently approved.

To help encourage engagement, a survey was provided to all staff to gauge interest in various wellness programs and activities. This information was used to develop an initial list of wellness activities as part of a phased approach to the development of the overall EWP. While preliminary in nature, an intranet-based web portal was developed to share and disseminate wellness information to staff. A more robust employee engagement portal is being evaluated and will be brought to the Board for consideration in the near future.

This item was brought to the Board for initial review on September 21, 2020. Staff was directed to bring a resolution establishing an EWP back to the Board for further consideration and possible adoption.

III. COMMENTS

The adoption of an EWP is included in the District's 2020 Strategic Plan and 2020 Action Plan. Attached to this report is a draft resolution establishing an EWP. The resolution requires Board review of the initial program elements and requires that

any future changes to the program be reported to the Board on an as needed basis. The resolution authorizes the General Manager to develop, implement and oversee the EWP and approve eligible expenditures up to $4,000 per fiscal year.

Staff recommends the Board adopt the attached resolution to establish the District's EWP subject to any revisions as desired.

IV. REFERENCE MATERIALS

Resolution No. 20-656 Establishing an Employee Wellness Program

RESOLUTION NO. 20-656

RESOLUTION OF THE GOVERNING BOARD OF THE GOLETA SANITARY DISTRICT ESTABLISHING AN EMPLOYEE WELLNESS PROGRAM

WHEREAS, one of the greatest assets and strengths of the Goleta Sanitary District (the "District") is the District's employees; and

WHEREAS, in order to ensure the safe and efficient operation and maintenance of the District's facilities and to provide the highest level of service to the District's customers at a reasonable cost, it is essential for the District to recruit, hire, and retain highly qualified, skilled, hardworking, and motivated employees; and

WHEREAS, the adoption by the District of an Employee Wellness Program (the "Wellness Program") will assist in maintaining a healthy workforce by promoting and encouraging healthy lifestyle behaviors of the District's employees.

NOW, THEREFORE, BE IT RESOLVED by the Governing Board of the Goleta Sanitary District as follows:

1. **Findings**. The Board hereby finds and determines that (a) the foregoing recitals are true and correct, and (b) for the reasons set forth in the foregoing recitals, the expenditure of reasonable amounts of the District's funds in connection with a Wellness Program will serve important public purposes.

2. **Adoption of the Employee Wellness Program**. It shall be the policy of the District to develop and implement a Wellness Program. The Wellness Program shall be designed to promote and encourage healthy lifestyle choices for District employees. Elements of the Wellness Program may include but are not limited to providing (a) internal and external information and resources related to nutrition, physical activity, and emotional wellbeing, (b) activities and incentives to promote healthier, happier employees, and (c) rewards, supplies and equipment related to wellness activities.

3. **General Manager Authority**. The General Manager is hereby authorized and directed to develop, implement and oversee the specific elements of the Wellness Program. To best achieve the purposes of the Wellness Program, the General Manager may revise and update the Wellness Program from time to time to address, among other factors, (a) elements of the Wellness Program that work well and those that do not, (b) input provided through periodic consultation with District employees, and (c) changes requested by the District's Governing Board. The initial Wellness Program and all revisions and updates thereto shall be consistent with the terms of this Resolution. Prior to implementation, the General Manager shall report to the Board regarding the specific elements of the initial Wellness Program. The General Manager

shall also report to the Board regarding any revisions or updates to the Wellness Program.

4. **Board Authority**. The Board retains the authority to revise the Wellness Program or any of the elements thereof at any time.

5. **Budget**. The Board hereby establishes a budget of up to $4,000 per fiscal year for Wellness Program expenditures that are approved by the General Manager. This budget amount may be supplemented with rebate programs and grants from CSRMA or other entities, as available. Such expenditures shall be funded from the District's personnel budget. In each subsequent fiscal year, the budget for the Wellness Program shall be included as part of the District's approved budget.

PASSED AND ADOPTED this 5th day of October 2020, by the following vote of the Governing Board of the Goleta Sanitary District:

AYES:

NOES:

ABSTENTIONS:

ABSENT:

_____
Sharon Rose,
President of the Governing Board

COUNTERSIGNED

_____
Steve D. Wagner
Secretary Pro Tem of the Governing Board

AGENDA ITEM #2

AGENDA ITEM: 2

MEETING DATE: October 5, 2020

I. NATURE OF ITEM

Consideration of Technically Based Local Limits Study

II. BACKGROUND INFORMATION

The District implements an approved Pretreatment Program (PP) pursuant to its National Pollution Discharge Elimination System (NPDES) permit and is required to provide a written technical evaluation of the need to revise local limits following permit issuance or reissuance. The purpose of a technically based local limits (TBLL) study is to determine whether current local limits are adequate to protect the District's Water Resource Recovery Facility (WRRF) following reissuance of the NPDES permit as a full secondary treatment facility.

The District's last full TBLL was approved by the Central Coast Regional Water Quality Control Board (CCRWQCB) on October 11, 2007. The District's PP administrative document was last updated/approved in 1994. Completion of the plant upgrade project coupled with the revised NPDES limits triggered the resubmittal of the updated PP along with a new TBLL to the CCRWQCB for review and approval.

On May 21, 2018 the Board authorized a contract with RvL Associates, Inc. (RvL) to conduct and prepare a TBLL to determine the maximum amount of certain pollutants that can be received from industrial users, without adversely impacting the District's Water Resource Recovery Facility (WRRF). These limits are established by first determining the total amount of pollutant that the plant can receive without causing interference, then subtracting the amount coming from residential loadings. The remainder is then allocated to all the industrial users and a limit is set for each individual user.

RvL has completed the TBLL. A copy of their draft report detailing the evaluation and associated findings is attached.

III. COMMENTS AND RECOMMENDATIONS

The executive summary of the attached report includes a table of the existing local limits along with any recommended changes. No changes were recommended for any of the existing metals. A new limit was set for Molybdenum, as a limit wasn't set in the prior local limits evaluation. For biological oxygen demand (BOD) and total dissolved solids (TDS) the limits were changed from a concentration base limit to a mass-based limit. A new chloride limit of 300 mg/L was set for select industrial users and limits for ammonia and total suspended solids (TSS) were removed.

Staff recommends the Board accept the attached TBLL report and direct staff to submit it to the CCRWQCB for review and approval as required.

IV. REFERENCE MATERIAL

Draft Technically Based Local Limits Study

GOLETA SANITARY
Water Resource Recovery District

Draft

Technically Based Local Limits Study

Prepared by:

RvL Associates & Water Systems Consulting

RvL Associates, Inc.
Industrial Water & Waste Engineers

WSC
Water Systems Consulting, Inc.

August 2020

ACKNOWLEDGEMENTS

Water Systems Consulting, Inc. would like to acknowledge the significant contributions of the following people:

Goleta Sanitary District:

John Crisman

Teresa Kistner

Goleta West Sanitary District

Brian McCarthy

RvL Associates

Richard von Langen, P.E.

Water Systems Consulting

Dan Heimel, P.E.

Antonia Estevez-Olea, P.E.

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LIST OF TERMS, ACRONYMS AND ABBREVIATIONS

AADF	annual average daily flow
AD	anaerobic digestion
AHL	allowable headworks loadings
AS	activated sludge
BOD	biological oxygen demand
B/S	biosolids
CFR	Code of Federal Regulations
CMBDINF	combined influent concentration
CONTD	contributory
dgstr	digester
EFF	effluent
EPA	Environmental Protection Agency
FOG	Fats, oils, and grease
GA	growth allowance
GPD	gallons per day
GSD	Goleta Sanitary District
GSWRRD	Goleta Sanitary Water Resource Recovery District
GWD	Goleta Water District
GWSD	Goleta West Sanitary District
HCH	hexachlorocyclohexane
HEM	hexane extractable materials
HW	hauled waste
Imax	instantaneous maximum concentration
INF	influent
IU	industrial user
MAHL	maximum allowable headworks loading
MAIL	maximum allowable industrial loading
MDL	method detection limit
MGD	million gallons per day
ND	non-detect
NISC	Non-Industrial Source Control

NPDES	National Pollutant Discharge Elimination System
POC	pollutants of concern
POTW	publicly owned treatment works
PQL	practical quantitation limit
PS	percent solids
RL	reporting limit
RPA	Reasonable Potential Analysis
RvLA	RvL Associates
RW	recycled water
RWQCB	Central Coast Regional Water Quality Control Board
SBA	Santa Barbara Airport
SIU	significant industrial user
SCRTS	South Coast Recycling and Transfer Station
TBLL	Technically Based Local Limits
TDS	total dissolved solids
TS	total solids
TSS	total suspended solids
TTLC	total threshold limit concentrations
UCSB	University of California Santa Barbara
WRRF	Water Resource Recovery Facility
WSC	Water Systems Consulting, Inc.

0 EXECUTIVE SUMMARY

The Goleta Sanitary District (GSD), contracted RvL Associates (RvLA) with their subconsultant Water Systems Consulting Inc. (WSC), collectively known as the Consultant Team, to re-evaluate the 2006 Local Limits (1). GSD owns and operates the Water Resource Recovery Facility (WRRF). Since 2006, the WRRF underwent treatment facility upgrades in 2013 and received a new National Pollutant Discharge Elimination System (NPDES) permit in 2017. The local limits in this study were updated in accordance with the 2004 Environmental Protection Agency's (EPA's) local limit development guidance document (EPA Guidance Document) (2) to protect the collection system, the treatment plant, the health and safety of staff operating these systems, and the environment.

This study determined that local limits for ammonia and total suspended solids (TSS) are not recommended, because significant industrial users (SIUs) contribute less than 0.7% of their total maximum allowable headworks loading (MAHLs). In addition, SIUs discharge below background concentrations. Mass limits are recommended for biological oxygen demand (BOD) and total dissolved solids (TDS) because SIUs contribute less than the maximum allowable industrial loadings (MAILs), but some SIUs are discharging more than 1% of the MAHLs. These SIUs are considered larger dischargers.

The MAIL can be allocated to the major dischargers as a mass limit approximately equal to their typical maximum discharge. However, the total from all SIUs should not exceed the MAIL. Per the EPA Guidance Document (2), once the MAIL is calculated, a publicly owned treatment works (POTW) can allocate the MAIL to its industrial users (IUs) as they see fit as long as a margin of safety is used, allocations from all sources have been carefully accounted for, and public notice of the allocation is properly issued and the allocation is adopted.

For chloride, as with TDS, it is recommended that SIUs discharging more than 1% of the MAHL and/or greater than the internal policy limit of 300 mg/L be further tested and investigated. The current average chloride concentration in the recycled water is 270 mg/L, close to the internal policy limit to protect recycled water users. These large dischargers should have their permits modified to conduct a study to identify the sources of chlorides, characterize these sources, and determine if there are control measures to reduce the chloride in their discharge. It is also recommended that the two large SIUs install continuous reading and recording conductivity meters to help in the identification process.

In general, GSD should monitor and track the BOD, TDS, and chloride loadings versus MAIL for all SIUs. For larger dischargers of BOD, TDS, and chloride, it is recommended that SIUs conduct studies to identify the sources of these pollutants of concern (POCs), better characterize the wastewater quality and quantity, and determine whether there are means to reduce loadings. It is further recommended that all inspections of current permittees and new commercial and industrial facilities include the identification and understanding of any water or wastewater treatment equipment to identify controllable sources of TDS and chloride.

For metals and cyanide, the calculated local limits are greater than the existing local limits. SIUs are capable of and, with few exceptions, their discharges are meeting the local limits. There is no reason to

increase the local limits for metals and cyanide and recommend that the current local limits remain in place. However, a new limit for molybdenum is being recommended because a local limit was not adopted for this POC in 2006 due to data not being available.

The GSD sewer use ordinance prohibits discharges in excess of five times the current local limit. These are instantaneous maximum concentration limits and compliance is determined by collecting and analyzing a grab sample. As discussed in the report, allowable headworks loadings (AHLs) are based on the WRRF discharge permit that contain long-term and short-term Federal and State limits. The recommended instantaneous maximum limit (Imax limits) were calculated using the ratio of the short-term to long-term limits times the local limit. These limits are further discussed in Section 7.B.

Table ES-1 presents the current and recommended daily maximum and instantaneous maximum limits.

Table ES-1. GSD Current and Proposed Local Limits

POCs	MAIL (lbs/day)	Current Limit (mg/L)	Recommended Limit (mg/L)	Recommended Imax Limit (mg/L)	Comments
Conventional					
Ammonia	70	662	No Limit	No Limit	A local limit not recommended because SIUs contribute about 0.3% of the MAHL and discharge below background concentrations.
BOD	1,704	1,880	Mass Limit	No Limit	A mass limit is recommended for SIUs discharging more than 1% of the MAHL (200 lbs/day). Investigate SIUs before allocation.
TSS	4,486	2,031	No Limit	No Limit	A local limit not recommended because SIUs contribute about 0.7% of the MAHL and discharge below background concentrations. Recommend using narrative prohibitions to protect WRRF.
Toxics					
Cyanide	7.0	1.1	1.1	4.4	
Metals					
Arsenic	0.56	0.11	0.11	0.20	
Cadmium	0.34	0.13	0.13	0.28	
Chromium	34	5.3	5.3	21	
Copper	4.6	2.4	2.4	6.9	
Lead	2.0	1.5	1.5	4.2	
Mercury	0.12	0.071	0.071	0.24	
Molybdenum	1.3	No Limit	1.5	1.5	
Nickel	5.5	2.3	2.3	2.3	
Selenium	0.85	0.31	0.31	0.31	
Silver	14	1.0	1.0	4.9	
Zinc	13	3.2	3.2	8.6	

Table ES-1. GSD Current and Proposed Local Limits

POCs	MAIL (lbs/day)	Current Limit (mg/L)	Recommended Limit (mg/L)	Recommended Imax Limit (mg/L)	Comments
Minerals					
TDS	4,843	No Limit	Mass Limit	No Limit	A mass limit is recommended for SIUs discharging more than 1% of the MAHL (680 lbs/day). Investigate SIUs before allocation.
Chloride	1,086	No Limit	300 for select SIUs	No Limit	Recommend a limit of 300 mg/L for SIUs discharging above 1% of the MAHL (150 lbs/day). Install conductivity meters and investigate for source control options.
Other					
Oil and Grease	Not Calculated	100	100	200	If only one grab sample is collected during the discharge day, it must meet the daily average limit.

1 INTRODUCTION

GSD contracted the Consultant Team to analyze existing wastewater quality data, develop and implement a sampling plan to collect additional data, create a local limits calculation tool, and update the 2006 Local Limits (1). The local limits were updated in accordance with the EPA Guidance Document (2) to protect the collection system, the treatment plant, the health and safety of staff operating these systems, and the environment.

This report contains the following information:

- **Service Area and Facility Description** – general overview of the service area and the WRRF's treatment systems.
- **Local Limits Development** – summary of GSD's current local limits and process used to revise local limits.
- **Pollutants of Concern (POCs)** – summary of how the POCs were selected.
- **Data Analysis** – description of the data and methodologies used to evaluate wastewater quality data, flow and mass balances, and calculation of POC percent removal.
- **AHL, MAHL, and MAIL Calculations** – descriptions and calculation of the allowable headworks loadings (AHL) from the applicable regulations and constraints, determination of the maximum allowable headworks loading (MAHL), and calculation of the maximum allowable industrial loading (MAIL).
- **MAIL Allocations** – description and evaluation of alternative methods for allocating the MAIL.
- **Recommendations** – conclusions and recommended allocation of the MAIL.

2 SERVICE AREA AND FACILITY DESCRIPTION

GSD owns and operates the WRRF, which serves approximately 80,000 residents (3). The WRRF provides wastewater treatment for the GSD service area, the Goleta West Sanitary District (GWSD), the University of California Santa Barbara (UCSB), and the Santa Barbara Airport (SBA), all of which have their own separate collection systems, and certain Santa Barbara County facilities. In general, GSD and GWSD serve a mixture of residential, commercial, and industrial users, while SBA is considered 100% commercial, except for the airline lavatory wastes, which is discharged into the GSD influent trunkline, and now under permit, and UCSB is considered a mixture of residential and commercial flows. The influent from these collection systems is combined at the WRRF's headworks along with returned flows from internal plant processes. The service areas are shown in **Appendix A**.

The WRRF has a dry-weather design capacity of 9.8 million gallons per day (MGD) and a permitted daily dry-weather monthly average capacity of 7.64 MGD. The 2019 average flow between January and June is 5.13 MGD. In 2013, the WRRF was upgraded to provide full secondary treatment, which consists of primary sedimentation, biofiltration, biosolids-contact, and secondary clarification. The WRRF is also designed to produce up to 3.3 MGD of tertiary treated recycled water through coagulation, flocculation, filtration, and chlorination for landscape irrigation and incidental uses. The remaining secondary effluent flow is chlorinated using sodium hypochlorite and dechlorinated using sodium bisulfite before discharging to the Pacific Ocean. The WRRF's liquids treatment schematic is shown on **Figure 1.**

Before 2013, the sludge from the digesters was diverted and stored in stabilization basins for stabilization and was then sent to drying beds to air dry. As part of the 2013 upgrades, two of the five sludge drying beds were demolished to make room for a new biosolids handling building. Currently, sludge collected at the WRRF is anaerobically digested and dewatered using screw presses to produce Class B biosolids, which are sent to Liberty Composting Inc. for further treatment and disposal. Approximately 7,000 gallons per day (GPD) of biosolids stored in the stabilization basins during the treatment upgrades (2011-2014) are pumped to the screw presses for dewatering and final disposal. In addition, a small amount of the biosolids from the stabilization basins is also pumped to solar drying beds to produce "Class A Biosolids of Exceptional Quality", which are made available to the local community for use in home lawns and gardens. The WRRF's solids treatment schematic is shown on Figure 2.

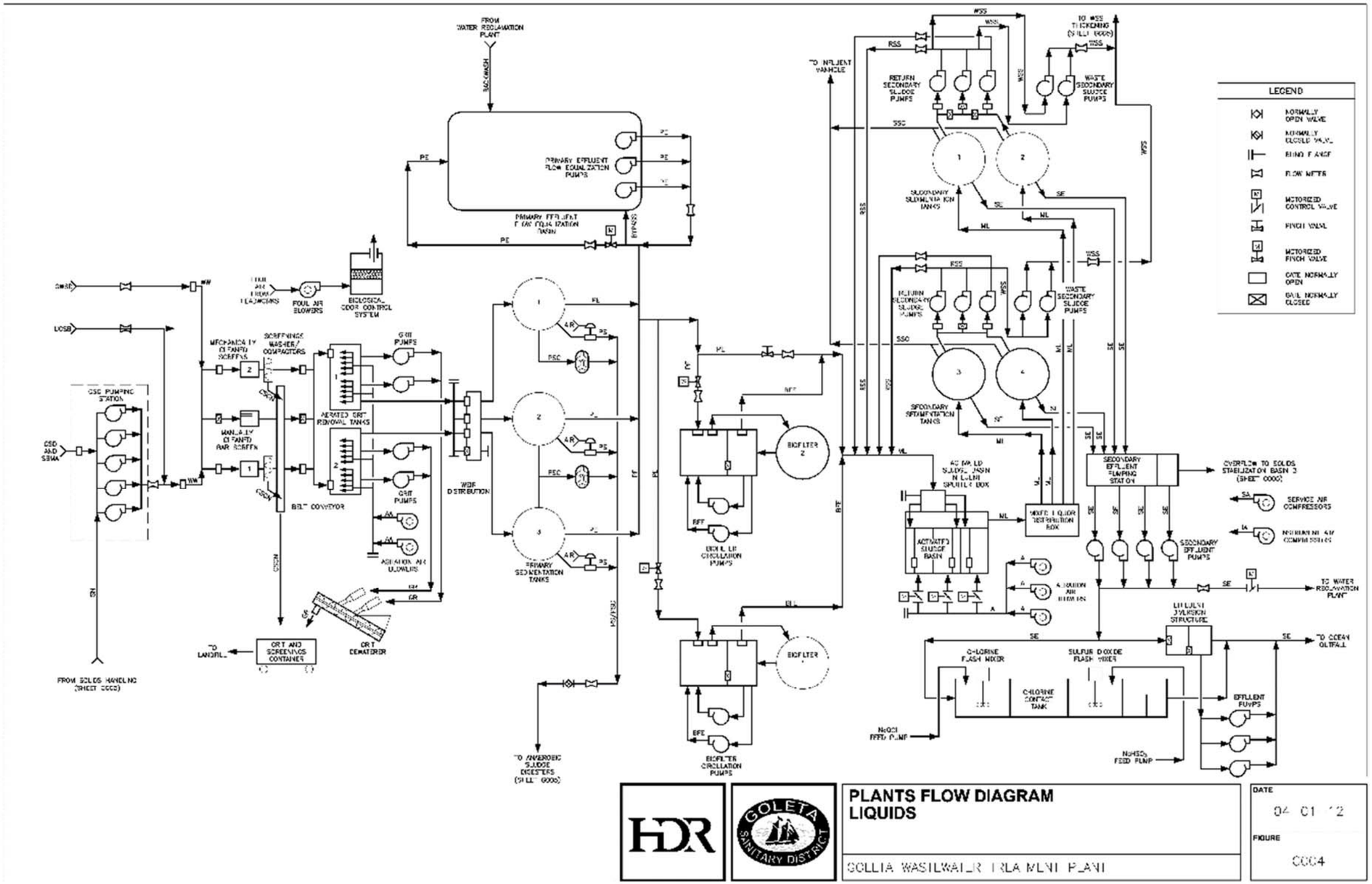

Figure 1. WRRF's Liquid Treatment Schematic

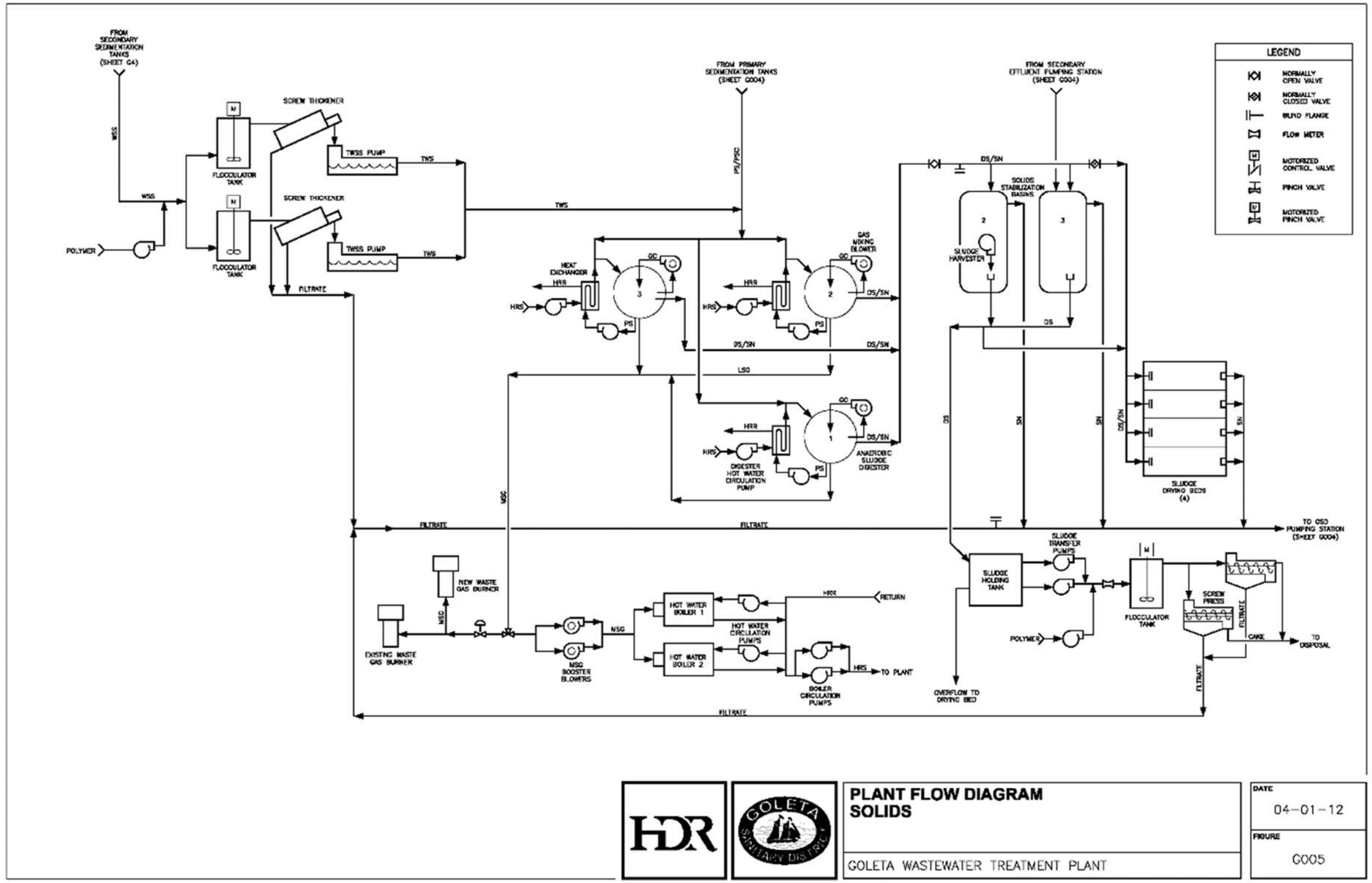

Figure 2. WRRF's Solids Treatment Schematics

3 LOCAL LIMITS DEVELOPMENT

The WRRF is regulated under an NPDES permit (Order R3-2017-0021) (4) issued by the Central Coast Regional Water Quality Control Board (RWQCB), which requires GSD to comply with the pretreatment requirements in Title 40 of the Code of Federal Regulations (40 CFR) Part 403, because the total effluent flow exceeds 5 MGD and GSD serves a number of categorical and SIUs. As part of the Pretreatment Program, GSD is required to implement technically based local limits (local limits) to control discharges from industrial users (i.e., controlled sources) to limit the entry of conventional and toxic pollutants into the collection system and WRRF.

Local limits are intended to protect the collection system, the treatment plant, the health and safety of staff operating these systems, and the environment. In general, local limits aim to prevent:

- Damage to the collection system and WRRF's treatment systems.
- Interference and/or upsets with treatment process.
- Pass through of conventional and toxic pollutants.
- Contamination of municipal biosolids and recycled water.
- Staff exposure to hazardous chemicals.

The EPA recommends local limits be re-evaluated after significant changes to ensure compliance with regulatory limits and/or operational restrictions. Circumstances that merit a re-evaluation include reissuance of the NPDES permit to ensure new effluent limits are met, significant changes in quantity and quality from the industrial sector, or treatment upgrades and/or operational changes that affect wastewater, biosolids, or recycled water quality.

GSD updated its local limits in 2006. The 2006 Local Limits Evaluation (1) concluded that local limits were not required for any POC, but as a conservative approach, it recommended that local limits for the 15 national POCs listed in the EPA Guidance Document (2) be adopted. However, a local limit for molybdenum was not established because there was no available data. It was also recommended that GSD continue monitoring for POCs. Since 2006, the WRRF underwent treatment upgrades in 2013 and received a new NPDES permit in 2017.

The procedures for developing/revising local limits are described in the EPA Guidance Document (2). Typically, local limits are developed by 1) identifying POCs that must be addressed, 2) compiling and evaluating a comprehensive wastewater quality database and collecting additional data, if needed, to support the local limits calculations 3) identifying the AHL for each regulatory and operational restriction for each POC, 4) calculating the MAHL and MAIL for each POC, and 5) MAIL allocation for SIUs. The following sections discuss the local limits development.

4 POLLUTANTS OF CONCERN (POCS)

The first step in developing/revising local limits is identifying the pollutants (i.e., POCs) that should be evaluated to determine the need for local limits to control them. POCs are constituents that are reasonably expected to be discharged to a POTW in sufficient amounts to have a reasonable potential to cause permit violations, upset the treatment plant, or potentially cause injury to personnel. The EPA Guidance Document (2) recommends that local limits include the 15 National POCs, constituents limited by discharge requirements or other environmental criteria, constituents that have caused WRRF problems in the past, and/or constituents that have important implications in protecting the collection system, WRRF, personnel, and biosolids and recycled water users.

Per the EPA Guidance Document (2), POCs were identified by reviewing the 15 National POCs, GSD's NPDES permit limits, recycled water quality limits, biosolids regulations, treatment inhibitors for activated sludge, trickling filters, and anaerobic digestion, and the WRRF's design capacity. In 2016, increased concentrations in lavatory waste chemicals caused interference, which was partially mitigated by using source control to treat and equalize the waste discharge. Overall, 17 constituents are considered POCs in this study and are summarized in Table 1.

Table 1. WRRF's Pollutants of Concern for GSD's Local Limits Study

POCs	National POCs [1]	NPDES Permit[2]	Recycled Water Quality[3]	Biosolids Regulations[4]	Treatment Inhibitions[5]	Design Capacity[6]
Conventional						
Ammonia	X				X	X
BOD	X	X	X			X
TSS	X	X	X			X
Toxics						
Cyanide	X	X			X	
Metals						
Arsenic	X	X		X	X	
Cadmium	X	X	X	X	X	
Chromium	X			X	X	
Copper	X	X		X	X	
Lead	X	X	X	X	X	
Mercury	X	X		X	X	
Molybdenum[1]	X			X		
Nickel	X	X		X	X	
Selenium	X	X		X		
Silver	X	X		X		
Zinc	X	X		X	X	
Minerals						
TDS			X			
Chloride[7]			X			

POCs	National POCs [1]	NPDES Permit[2]	Recycled Water Quality[3]	Biosolids Regulations[4]	Treatment Inhibitions[5]	Design Capacity[6]
Other						
Oil and Grease		X				

Notes:

1. The EPA's Guidance Document (2) identifies 15 national POCs that are often found in sludge and effluent, so these POCs are recommended to be included in local limits. The 2006 Local Limits Evaluation (1) recommended that GSD establish local limits for these POCs, except for molybdenum because data was not available.
2. The NPDES permit (4) has effluent limits for BOD, TSS, Oil and Grease, settleable solids, turbidity, and pH for its ocean discharge. The NPDES permit, Table F-3 Historic Effluent Limitations and Monitoring Data Protection of Marine Aquatic Life, also contains effluent limitations to protect marine aquatic life and human health.
3. GSD's Water Reclamation Requirements Order No. 91-03 has requirements to protect recycled water users (landscape irrigators).
4. The WRRF produces Biosolids Class A and B, so state and federal restrictions were applied to protect biosolid users.
5. The EPA's Guidance Document (2) Appendix G identifies treatment inhibitors for activated sludge, trickling filters, and anaerobic digestion.
6. The WRRF has design loading capacities for ammonia, BOD, and TSS.
7. To protect recycled water users, GSD and GWSD set an internal chloride limit of 300 mg/L.

5 DATA ANALYSIS

The second step in developing local limits is evaluating wastewater quality and flow data to support the local limits calculations. This process is fundamental to understanding how pollutants move from the service area to the treatment plant and ultimately to the disposal sites (i.e., biosolids, recycled water, ocean discharge).

To facilitate local limit calculations, flow and mass balances for the collection system and WRRF were completed to confirm that the data collected and used in the study is reasonable and adequately represent the operations of the collection system, wastewater treatment plant, and disposal activities. Wastewater quality data was assessed to remove outliers, identify data issues, estimate average conditions, and calculate percent removal. These analyses are described below.

5.A FLOW ANALYSIS

Establishing representative flow balances for the collection system and WRRF is essential for calculating mass loading. Pollutant loads entering wastewater treatment plants come from controlled (i.e., IUs) and uncontrolled (i.e., residential and commercial) sources. IUs are controlled via permits as required by the NPDES permit under the Pretreatment Program. These are controllable sources. All other dischargers are non-industrial users and are therefore uncontrolled and not permitted.

WRRF receives influent from the GSD (GSD-INF), GWSD (GWSD-INF), SBA (SBA-INF), and UCSB (UCSB-INF) service areas. In general, GSD and GWSD serve a mixture of residential, commercial, and industrial users, while SBA is considered 100% commercial except for the airline lavatory waste, which is discharged to GSD-INF, and now under permit, and UCSB is considered a mixture of (63%) residential and (37%)

commercial flows. Another input to the WRRF is the biosolids that are dredged from the stabilization basins (B/S -INF). This biosolids are pumped to the screw presses where they are mixed with biosolids from the anaerobic digester for final disposal. Secondary effluent (i.e., make-down water) is used for this process, and the filtrate which contains additional POC loadings, is returned to the headworks. The influent from these collection systems is combined at the WRRF's headworks with returned flows from internal plant processes.

After treatment, wastewater exits the WRRF by one of the following mechanisms: discharge to the ocean (WRRF-EFF), delivery to recycled water users' sites (WRRF-RW), or transport to Liberty Composting for further treatment and disposal (WRRF-B/S). Class A biosolids are not considered part of this study because this product is mainly produced from the biosolids previously stored onsite in the stabilization basins during the treatment upgrades (2011-2014). In addition, the production of Class A is minimal. Currently, all the sludge generated at WRRF is directly sent to the anaerobic digestors and screw presses to produce Class B biosolids. A general flow schematic of the inputs and outputs to the WRRF are shown on **Figure 3**.

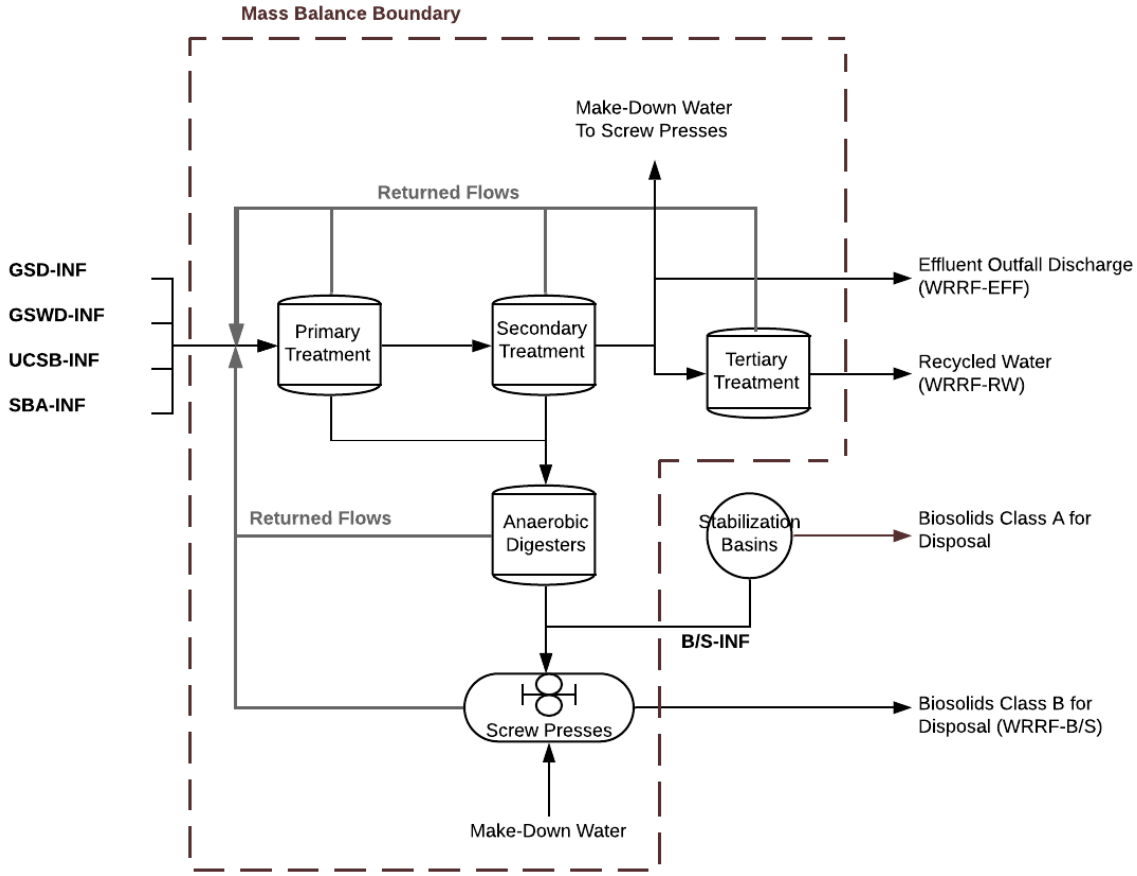

Figure 3. Flow Schematic for the WRRF's Inputs and Outputs

A flow analysis was completed to estimate the average inflows and outflows to and from the WRRF. Flow data from January 1, 2019, through July 2, 2019, were evaluated to estimate the average flows for the four influent lines, the WRRF-EFF, the WRRF-RW (produced), and the primary effluent (WRRF-P EFF)

locations. The flows from the stabilization basins (B/S-INF) and WRRF-B/S were calculated using reported information such as percent solids and biosolids produced per year since these flows are not metered. Outliers were excluded from the calculation and were identified as any data point outside three standard deviations from the average. Several data points met this condition and were observed after heavy storm events. The data and results from the Flow Analysis are presented in **Appendix B.**

The current average and projected flows for these locations are presented in Table 2.

Table 2. Average and Projected Flows (MGD) from Inputs and Outputs to WRRF

Area	Monitoring Location	Average Flows (MGD)	5-Year Flow Projection (MGD) [1]
Collection System	GSD-INF	2.73	2.84
	GWSD-INF	2.21	2.30
	SBA-INF	0.02	0.02
	UCSB-INF	0.17	0.18
	B/S-INF [2]	0.01	0.01
	Inflows Total	**5.13**	**5.34**
WRRF	WRRF-EFF	4.79	4.99
	WRRF-RW [3]	0.34	0.35
	WRRF-B/S [4]	0.01	0.01
	Outflows Total	***5.13***	***5.34***

Notes:
1. Based on the 2016 Santa Barbara economic forecast, the population growth is expected to increase at a rate of 0.8% per year for the Santa Barbara County from 2016 to 2021. This growth rate was applied to the four influent lines.
2. Based on written communications, on average about 7,000 GPD of biosolids is dredged from the stabilization basins to be dewatered with the existing biosolids. This practice is expected to stay the same, so no growth is expected.
3. Recycled water use is seasonally variable. Occasionally it is used for internal plant uses, but not measured. For this study, the volume of recycled water was adjusted for the flow balance.
4. Based on annual biosolids production reports. The volume of biosolids hauled was calculated to be about 4,500 GPD.

Based on Goleta Water District (GWD) water usage data and input from GSD staff, the estimated commercial, residential, and industrial flows comprise about 21.7%, 74.5%, and 3.8% of the total wastewater flows, respectively.

Table 3 presents the estimated flow by composition and sector.

Table 3. Estimated Daily Wastewater Flow (MGD) Based on Flow Composition by Sector Type

Sector	Percent Composition	Average Flows (MGD)
Industrial [1]	3.8%	0.20
Commercial [2]	21.7%	1.11
Residential [2]	74.5%	3.82
Total	**100%**	**5.13**

Notes:

1. Percent composition is based on total estimated SIU flows. Refer to **Table 4** for SIU flow information.
2. GWD water use data from residential, commercial, and institutional (i.e., UCSB) connections were used to estimate the percent composition for the residential and commercial sectors.

For this study, only SIUs were considered in the local limits calculations. SIUs were determined to be all Class IV industrial users, except for zero-waste dischargers, as well as other industrial users discharging more than 25,000 GPD or suspected of discharging significant POC loadings to the collection system. Using these criteria, 14 SIUs were identified, 5 are in GWSD's service area. The list of industrial users reviewed is included in **Appendix C**.

Industrial discharge flows are not metered by GSD or GWSD. As a conservative approach, SIU discharge flows were estimated using the GWD water usage data from 2014 through 2019, when available, and it was assumed that these volumes were discharged to the collection system. In general, the total GWD volume used per year was divided by the days in operation. For some SIUs, additional modifications to the approach were conducted to better characterize their process flow discharges to the collection. For example, when the SIU employs more than 100 employees, the process flow was estimated based on their permitted flow or input from the GSD or GWSD staff. Flows were projected based on the growth rate expected for each SIU. The current and the 5-year projected flows are presented in **Table 4**. Overall, SIUs currently discharge approximately 196,200 GPD to the WRRF or about 3.8% of the total wastewater flows. In the next five years, SIUs are expected to discharge about 236,400 GPD. The projected flows were used for the MAIL allocations and for development of local limits.

Table 4. Estimated Daily Wastewater Dischargers from SIUs (MGD)

Service Area	SIU	Average Current Flow (GPD)	Projected Growth Per Year(%)	5-Year Flow Projection (GPD)
GSD-IUs	County of Santa Barbara SCRTS	11,000 [1]	0.0%	11,000
	Electromatic, Inc.	575[2]	0.0%	575
	Goleta Valley Cottage Hospital	25,000	0.8%	26,000
	Innovative Micro Technology	18,000	5.0%	23,000
	Microdyn-Nadir US Inc.	41,000	5.0%	52,000
	Intriplex Technologies	4,800[3]	5.0%	6,100
	Neal Feay Company	3,000	5.0%	3,800
	Rayne of Santa Barbara, Inc.	19,000	5.0%[4]	24,200
GWSD-IUs	Corning Technology	18,000[5]	0.0%	18,000
	FLIR	10,000	5.0%	12,800
	LMSB Focalplane	330[6]	0.0%	421
	Raytheon B-1, 2, 3 and CWTP	16,500[7]	5.0%	21,100
	Raytheon B-8	17,000	5.0%	21,700
	Transphorm	12,000	5.0%	15,320
	Total	**196,200**		**236,400**

Notes:

1. This SIU collects storm water from the South Coast Recycling and Transfer Station and is permitted to discharge up to 1.42% of the WRRF's total capacity, which is equivalent to 0.11 MGD. This SIU discharges after storm events, so the contribution from this SIU is infrequent. Therefore, the discharge flow rate assumptions for this SIU were reduced to 10% of the permitted flow rate.
2. For this SIU, the permitted process flow was used because the SIU stores its waste in a tank and discharges twice per week. No growth is expected because it is limited by the tank capacity.
3. For this SIU, the permitted process flow was used because this water meter provides water to a class III industrial user.
4. Although this SIU has implemented water conservation strategies, a 5% increase per year was considered to account for loading increases.
5. This SIU is a new user. As a conservative approach, used maximum process flow.
6. SIU plans to recycle 100% of their 330 gpd of process wastewater, so no growth is expected.
7. This SIU employs about 700 staff, so the permitted flow was used.

5.B WASTEWATER DATA ANALYSIS

For this study, wastewater quality data was collected from the Pretreatment Program, the NPDES Permit, the biosolids annual reports, and the 2019 Sampling Plan (included in **Appendix D**), which was implemented from May 3, 2019, to May 9, 2019, to augment the existing database. Non-Industrial Sources Control (NISC) data was also included to supplement data for the uncontrolled sources. The effluent (WRRF-EFF) and recycled water (WRRF-RW) are monitored for metals, conventional, and other priority pollutants as part of the NPDES permit.

Overall, wastewater quality data from 1/1/2014 through 10/31/2019 was evaluated to estimate the average concentrations for the TBLL locations. Data points reported as non-detects (NDs) were replaced by one-half of the method detection limit (MDL). When the MDL was not available, one-half of the practical quantitation limit (PQL) or one-half of the reporting limit (RL) was used, whichever was available. Outliers were excluded from the calculation and were identified as any data point outside three standard deviations from the average. **Appendix E** provides a summary of the number of samples, the number of non-detects (NDs), and the percent of ND, and a summary of the minimum, average, and maximum concentrations for all TBLL locations.

5.C MASS BALANCES

Collection system and WRRF mass balances are performed to confirm that the collected data are reasonable and adequate to perform the local limits calculations, specifically for conservative POCs. Conservative POCs are those not impacted by the biological processes in the treatment plant (e.g., metals). The collection system equation is used to determine whether the mass of each POC from residential, commercial, and industrial users' sources is equal to that measured at the plant influent. The mass balances for this study are presented in **Appendix F**.

The mass balance for the collection system can be estimated using the following equations:

$$WRRF - INF = Residential + Commercial + Industrial$$
$$WRRF - INF = GSD - INF + GWSD - INF + SBA - INF + UCSB - INF$$

$$WRRF - INF = \sum 8.34 * Q_{Collection} * C_{Collection} = \sum 8.34 * Q_{INF} * C_{INF}$$

Where:

$$\mathrm{Q} = \text{Average flow from the collection system location or influent line, MGD}$$

$$\mathrm{C} = \text{Average concentrations from the collection system sources or influent trunkline, mg/L}$$

The two mass balances were compared using the absolute difference (absolute value of the collection system mass minus the influent mass divided by the average of the two masses, expressed as a percentage). The lower the absolute difference between the sum of the collection system sources and the sum from the influent trunklines, the more likely the two values are representative. Ideally, the percent difference should be 25% or less to consider the mass balance reasonable.

Overall, the collection system mass balances were within 25% relative difference, except for BOD, cyanide, cadmium, copper, and mercury. The mass balance for BOD was above the 25% relative difference at 39%. The difference is mainly attributed to the commercial sector because the sampling results were atypically higher than expected. Based on conversations with GSD staff, high BOD concentrations from the commercial sector have been observed in other local studies because new non-regulated businesses, such as breweries and coffee shops are discharging more BOD.

For cyanide, about 90% of the dataset results were reported as NDs. The different MDLs used are the primary cause of the large relative difference. For cadmium, copper, and mercury, all of the samples collected from the commercial, residential, and influent monitoring locations were detected. However, some SIUs reported NDs for cadmium and mercury. Although the relative difference between the collection system and the WRRF influent was above 25%, the loads estimated for the collection system are more comparable to the monitoring results taken at the combined influent. Therefore, these loads were used to calculate the MAIL. The second mass balance is across the treatment plant and is described by the following equation:

$$\boldsymbol{WRRF - INF + B/S - INF} = WRRF - EFF\ (outfall)\ +\ WRRF - RW\ +\ WRRF - B/S\ (offsite)$$

$$= WRRF - INF + 8.34 * Q_{B/S} * C_{B/S} * PS = \sum 8.34 * Q_{WRRF} * C_{WRRF}$$

Where:

$Q_{B/S}$ = Flow from the B/S − INF, MGD

$C_{B/S}$ = Average concentrations from B/S − INF, mg/kg

PS = Percent solids of biosolids from B/S-INF, as decimal

Q_{WRRF} = Average flow from the WRRF location, MGD

C_{WRRF} = Average concentrations from the WRRF, mg/L

The WRRF mass balance should compare to the influent mass plus the mass from the B/S-INF to the combined mass of the effluent, recycled water, and biosolids. Cyanide, chromium, and silver samples were not collected for B/S-INF. Overall, the WRRF mass balances for most of the POCs were within 25% relative difference, except for lead. For lead, all of the results were detected. However, the B/S-INF result was higher, so the relative difference was greatly impacted by this result. The mass balances for ammonia, BOD, and TSS were not calculated because POTWs are designed to remove these pollutants. Overall, the WRRF mass balance was used to guide the percent removal estimations along with literature review, discussed below.

5.D TREATMENT PLANT PERCENT REMOVAL

The percent removal is the fraction of the pollutant that is removed by each treatment process. The percent removal for each POC across the treatment plant is needed to estimate the AHLs as discussed in

the next section. For this study, the EPA Guidance (2) mean removal method was used as shown by the following equation:

$$R_{WRRF} = \frac{C_{CMBDINF} - C_{Treatment\ Level}}{C_{CMBDINF}} * 100$$

Where:

R_{WRRF}= WRRF's removal efficiency from headworks to treatment level, as decimal

$C_{CMBDINF}$= WRRF's combined influent concentration, mg/L

$C_{Treatment\ Level}$= Treatment level concentration (i.e., primary, secondary, or tertiary), mg/L

Due to the WRRF's unique biosolids operation, the concentration for the combined influent was adjusted to account for mass loadings added by the B/S-INF that are returned to the headworks. The biosolids are diluted with make-down water prior to dewatering by the screw press. For purposes of this study, it was assumed that the metals in the B/S-INF are insoluble and that there is one sample result for the metal POCs in the B/S-INF (dry weight basis). The screw press filtrate contains total solids (TS) based on an assumed standard percentage capture by the screw press. It was also assumed that the concentration of metals in the filtrate solids is the same concentration of metals in the biosolids hauled off site. The amount of wash water used to clean the screw press was estimated based on standard industry practice. Using the assumption stated above, measured tonnages of biosolids sent off site, the mass of TS was calculated in the filtrate going back to the plant influent and the mass of TS attributed to the B/S-INF (34%). The following equation summarizes the calculation used to determine the concentration of metals entering the plant going to primary treatment. For each POC the equation is:

$$C_{CMBDINF} = \frac{\sum C_{TRLNINF} * Q_{TRLNINF} + \%TS * C_{Filtrate} * Q_{Filtrate}}{\sum Q_{CMBDINF}}$$

Where:

$C_{CMBDINF}$= Average concentration from the influent lines plus B/S-INF , mg/L

$Q_{TRLNINF}$ = Average flow from the influent lines plus B/S-INF, MGD

$C_{TRLNINF}$= Average concentration from each influent line, mg/L

$Q_{TRLNINF}$ = Average flow from each influent line , MGD

$\%TS$= The percent total solids in filtrate from B/S-INF, as decimal

$C_{Filtrate}$ = Concentration of POC in B/S-INF, mg/L

$Q_{Filtrate}$= Filtrate flow from screw presses, MGD

Table 5 presents the percent removal after each treatment level.

Table 5. POC Plant Percent Removal

POCs	Reference Range Percent Removal Data from EPA and Other California POTWs[1]			GSD's Percent Removal[2]		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary[3]
Conventional						
Ammonia				14%	63%	
BOD				41%	98%	98%
TSS				69%	98%	100%
Toxics						
Cyanide	27%	59% - 69%		30%	30%[2]	
Metals						
Arsenic	18%	34% - 45%		13%	39%	
Cadmium	15% - 75%	28% - 77%	50% - 88%	45%[2]	65%[2]	65%[2]
Chromium	27% - 69%	55% - 82%		48%[2]	71%[2]	
Copper	22% - 63%	61% - 86%		44%	85%[2]	
Lead	57% - 77%	55% - 85%	52% - 91%	61%	83%	83%[2]
Mercury	10% - 79%	50% - 89%		44%[2]	78%[2]	
Molybdenum	13%	24% - 28%		13%[2]	27%	
Nickel	14% - 32%	29% - 46%		35%	42%	
Selenium	19% - 19%	50% - 51%		12%	58%[2]	
Silver	20% - 56%	66% - 91%		35%[2]	81%[2]	
Zinc	27% - 73%	67% - 80%		54%	74%	
Minerals						
TDS			0-20%			2%
Chloride			0-14%			9%
Other						
Oil and Grease						

Notes:

1. A review of the percent removal from the 40 POTWs presented in Appendix R of the EPA Guidance Document (2) and other California wastewater treatment plants (WWTP) with similar treatment systems was conducted to assess ranges.
2. The WRRF's percent removals were adjusted under the following conditions: when the estimated percent removal was negative, the percent removal decreased as treatment level increased, or estimations differed drastically from the expected values. Best professional judgment informed by literature values and site-specific information was used to adjust values.
3. The percent removal was only estimated for POCs restricted by recycled water quality.

6 AHL, MAHL, AND MAIL CALCULATIONS

6.A AHL

For each POC, it is necessary to evaluate all the relevant operational or environmental restrictions (i.e., limits) and calculate the corresponding AHL. The AHL estimates the pollutant loading that can be received at the WRRF headworks for each restriction. The AHLs are used to identify MAHL, which is the most stringent or smallest AHL that may be received at the WRRF headworks without causing a permit violation or upsetting the treatment plant.

For this study, the operational or environmental restrictions were obtained from the WRRF's NPDES permit (4), recycled water quality requirements, biosolids concentration limits, treatment process inhibition levels, and the WRRF's design capacity. These restrictions are described below and presented in **Appendix G.** The methodologies used to calculate the AHLs are in accordance with the EPA Guidance Document (2) and described below. The AHLs results are presented in **Appendix G**.

6.a.i NPDES Permit

The WRRF has effluent limits for conventional and non-conventional pollutants such as BOD, TSS, Oil and Grease, settleable solids, turbidity, and pH, and effluent limits for toxic pollutants such as selenium, cyanide, total chlorine residual, phenolic compounds (non-chlorinated and chlorinated), endosulfan, endrin, HCH, and radioactivity to protect marine life. The Reasonable Potential Analysis (RPA) did not require limits for these toxic pollutants because results were inconclusive. As a conservative approach, the effluent limits in Table F-3 of the NPDES permit (4), were used for this study, except for phenolic compounds (non-chlorinated and chlorinated), endosulfan, endrin, HCH, and radioactivity because the historic maximum reported values from September 2010 to June of 2015 were non-detect or not tested. Total chlorine residual was also not considered because this constituent is added for treatment and removed before discharge.

NPDES effluent limits are set to protect the receiving waters and their beneficial uses/users. To assess the NPDES permit limits, Equation 5.5 of the EPA Guidance Document (2) was used as shown below:

$$\mathrm{AHL_{NPDES}} = \frac{8.34 * \mathrm{C_{NPDES}} * \mathrm{Q_{WRRF}}}{(1 - \mathrm{R_{WRRF}})}$$

Where:

$\mathrm{AHL_{NPDES}}$ = NPDES permit based AHL, lb/day

$\mathrm{C_{NPDES}}$ = NPDES permit based limit, mg/L

$\mathrm{Q_{WRRF}}$ = WRRF future average flow, MGD

$\mathrm{R_{WRRF}}$= WRRF's removal efficiency from headworks to ocean discharge, as decimal

6.a.ii Recycled Water Quality Requirements

The WRRF produces tertiary treated recycled water for landscape irrigation and incidental uses. The use and application of recycled water is regulated under Order No. 91-03 (5), which sets limits for BOD, TSS, cadmium, lead, and TDS. To protect landscape irrigation users, GSD set an internal chloride limit of 300 mg/L because concentration above this limit can cause injuries to turfgrasses (6).

Recycled water quality limits are set to protect recycled water users. To assess the recycled water permit limits, Equation 5.5 of the EPA Guidance Document (2) was modified as shown below:

$$\mathrm{AHL_{RW}} = \frac{8.34 * \mathrm{C_{RW}} * \mathrm{Q_{WRRF}}}{(1 - \mathrm{R_{WRRF}})}$$

Where:

$\mathrm{AHL_{RW}}$ = Recycled water permit based AHL, lb/day

$\mathrm{C_{RW}}$ = Recycled water permit based limit, mg/L

$\mathrm{Q_{WRRF}}$ = WRRF future average flow, MGD

$\mathrm{R_{WRRF}}$= WRRF' s removal efficiency from headworks to tertiary treatment, as decimal

6.a.iii Biosolid Restrictions

The WRRF primarily produces Class B biosolids, which are hauled to Liberty Composting Inc., which employs both windrow composting and aerated static pile composting to produce Class A biosolids (7). According to 40 CFR 503.13, bulk sewage biosolids that are sold or given away and applied to land must comply with 40 CFR 503.13 Table 1 (maximum ceiling concentrations) and Table 3 (monthly average concentrations). Tables 1 and 3 include nine and eight metals, respectively. Although biosolids from conventional POTWs are not considered hazardous, the biosolids quality was compared to the California test for hazardous waste using the total threshold limit concentrations (TTLC) in California Title 22 Section 66261.24 (a)(2)(A) Table II. This table includes all 11 metals included in the national POCs.

Biosolids restrictions are set to protect biosolids users. To assess the 40 CFR 503.13 restrictions, Equation 5.9 of the EPA Guidance Document (2) was modified as shown below:

$$\mathrm{AHL(biosolids)} = \frac{8.34 * \mathrm{C}_{biosolids} * \mathrm{Q_{biosolids}} * PS * G_{biosolids}}{(\mathrm{R_{WRRF}})}$$

Where:

$\mathrm{AHL}_{biosolids}$ = Biosolids based AHL, lb/day

$\mathrm{C_{biosolids}}$ = Biosolids standard, mg/kg dry biosolids

$\mathrm{Q_{biosolids}}$ = gallons of biosolids hauled offsite, MGD

$PS =$ Percent solids of biosolids to disposal, as decimal

$G_{biosolids} =$ Specific gravity of biosolids, kg/L

$R_{WRRF} =$ WRRF's removal efficiency from headworks to ocean discharge, as decimal

To assess the California Title 22 Section 66261.24, Equation 5.9 of the EPA Guidance Document (2) was modified as shown below:

$$AHL(biosolids) = \frac{8.34 * C_{biosolids} * Q_{biosolids}}{(R_{WRRF})}$$

Where:

$AHL_{biosolids} =$ Biosolids based AHL, lb/day

$C_{biosolids} =$ Biosolids standard, mg/kg wet biosolids

$Q_{biosolids} =$ gallons of biosolids hauled offsite, MGD

$R_{WRRF} =$ WRRF' s removal efficiency from headworks to ocean discharge, as decimal

6.a.iv Treatment Inhibition

Appendix G of the EPA Guidance Document (2) provides inhibition values for biological process inhibition, trickling filter, nitrification, and anaerobic digestion. Based on the WRRF's treatment process, inhibition values for activated sludge, trickling filter, and anaerobic digestion were analyzed. In general, when a range of values was reported, WSC used mid-range values.

The AHL for activated sludge is estimated by the using a modification of Equation 5.10 of the EPA Guidance Document (2) :

$$AHL(AS) = \frac{8.34 * C_{AS} * Q_{WRRF}}{(1 - R_{WRRF})}$$

Where:

$AHL_{AS} =$ Activated sludge inhibition based AHL, lb/day

$C_{AS} =$ Activated sludge inhibition value, mg/L

$Q_{WRRF} =$ WRRF future average flow, MGD

$R_{WRRF} =$ WRRF' s removal efficiency through primary treatment, as decimal

Equation 5.10 is also used to calculate inhibition-based AHLs for trickling filters.

The AHL for anaerobic digestion depends on whether the pollutant is conservative (metals) or non-conservative (e.g., cyanide or organics). For conservative pollutants, the AHL is calculated as follows:

$$\mathrm{AHL(AD)} = \frac{8.34 * \mathrm{C_{AD}} * \mathrm{Q_{dgstr}}}{(\mathrm{R_{WRRF}})}$$

Where:

$\mathrm{AHL_{AD}}$ = Anaerobic digestion inhibition based AHL, lb/day

$\mathrm{C_{AD}}$ = Anaerobic digestion inhibition value, mg/L

Q_{dgstr} = Sludge flow to anaerobic digestor, MGD

$\mathrm{R_{WRRF}}$ = WRRF's removal efficiency through primary treatment, as decimal

For non-conservative pollutants, the AHL is calculated as follows:

$$\mathrm{AHL(AD)} = \frac{\mathrm{L_{inf}} * \mathrm{C_{AD}}}{(\mathrm{C}_{biosolids})}$$

Where:

$\mathrm{AHL_{AD}}$ = Anaerobic digestion inhibition based AHL, lb/day

$\mathrm{C_{AD}}$ = Anaerobic digestion inhibition value, mg/L

$C_{biosolids}$ = Exisiting pollutant level in biosolids, mg/L

L_{Inf} = WRRF influent loading, lb/day

6.a.v WRRF's Design Capacity

For ammonia, BOD, and TSS it is important to consider the design capacity to ensure the WRRF is not operated above its capacity. To prevent overloading, the AHL is based on the following equation:

$$\mathrm{AHL_{Design}} = 8.34 * \mathrm{C_{Design}} * \mathrm{Q_{WRRF}}$$

Where:

$\mathrm{AHL_{Design}}$ = Design based AHL, lb/day

$\mathrm{C_{Design}}$ = Design limit, mg/L

$\mathrm{Q_{WRRF}}$ = WRRF future average flow, MGD

The WRRF has a design annual average daily flow (AADF) of 9.8 MGD. The design annual concentrations and pollutant loads for these parameters at the AADF are presented in **Table 6**.

Table 6. WRRF's Design Capacity at 9.8 MGD Annual Average Daily Flow

POCs	Annual Average Concentration (mg/L)	Loading (lbs/day)
Ammonia	30	2,450
BOD	251	20,500
TSS	267	21,800

6.B MAHL

The MAHL is the most stringent or smallest AHL that can be received at the WRRF headworks without causing a permit violation, upsetting the treatment plant, or potentially causing injury to personnel. The MAHLs results are presented in **Appendix G.**

There are no MAHLs based on process inhibitions or the TTLC criteria. The AHL for biosolids concentrations dictates the MAHL for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc. The six-month median NPDES permit Performance Goals dictated the MAHL for cyanide, chromium, and silver, and the recycled water quality requirements dictate the MAHL for TDS and chloride. The design capacity criteria dictated the MAHL for ammonia, BOD, and TSS. Overall, the current loads from ammonia, BOD, TDS, and chloride are currently exceeding 80% of their MAHLs.

6.C MAIL

MAHLs estimate the maximum loading that can be received at the WRRF's headworks from all sources for a particular POC. MAILs represent the amount of pollutant loadings the WRRF can receive from controlled sources (i.e., industrial users). To estimate the MAIL for each POC, Equation 6.2 of the EPA Guidance Document (2) was used as shown below:

$$\text{MAIL} = \text{MAHL}(1 - \text{SF}) - (L_{Unc} + HW + GA)$$

$$= \text{MAHL}\,(1 - \text{SF}) - ((8.34 * Q * C)_{commercial} + (8.34 * Q * C)_{Residential} + GA)$$

Where:

$\text{MAIL} =$ MAIL based on MAHL, lb/day

$\text{SF} =$ Safety factor, generally 10% (0.1)

$\text{L}_{\text{Unc}} =$ Loadings from uncontrolled sources, lbs/day

$\text{HW} =$ Loading from hauled waste, assumed to be 0 for WRRF

$\text{GA} =$ Growth allowance

Loadings from uncontrolled sources include residential and commercial. The uncontrolled loadings were estimated in the collection mass balance. There is no hauled waste entering WRRF. The growth allowance

(GA) is the mass load reserved for new discharges. This growth allowance is separate from the safety factor. The growth allowance is most commonly justified for ammonia, BOD, and TSS. Based on the 2016 Santa Barbara economic forecast, the population is expected to increase at a rate of 0.8% per year for Santa Barbara County from 2016 to 2021, which is about 4% growth in the next five years. This rate was applied to the existing uncontrolled loadings to estimate GA.

The safety factor is to account for data quantity, quality, and variability, history of compliance with the parameter, number and size of SIUs, and the likelihood for slug loads for the POC. For this study, a safety factor of 10% was applied for all POCs except chloride. The chloride safety factor was set at 5% so that there was MAIL available for the SIUs. While normally a higher safety factor would be used, the chloride limit is a recent internal policy, and there is only one data point available for all but one SIU. The calculated MAIL results are presented in **Appendix G.**

7 MAIL ALLOCATIONS

A POTW can use several basic approaches to allocate the MAIL to its controlled dischargers, which are discussed in the following subsection. Typically, once the MAIL is calculated, a POTW can use any of these methods as long as the MAIL is not exceeded and its results are enforceable and adequately protective. The MAIL allocations results are presented in **Appendix I**.

7.A ALLOCATION METHODS

The MAIL allocation distributes the available mass of each POC to the permitted industrial users. The EPA Guidance Document (2) specifies the following types of local limit allocation approaches, which are discussed in the following subsection:

- Uniform limits for all controlled dischargers (i.e., uniform local limits).
- Local limits based on IU flow contribution (i.e., IU contributory local limits).
- Local limits in proportion to the dischargers' POC loadings (i.e., mass proportion limits).

The local limits are based on the single MAIL. For this study, the uniform and industrial contributory local limits were calculated for comparison to the current local limit for cyanide and metals. For the conventional POCs, TDS, and chloride, allocations supported by SIUs loadings evaluations were conducted when concentration limits applicable to all SIUs would be overly restrictive. The MAIL allocation results are presented in **Appendix G**.

7.a.i Uniform Local Limits

The uniform local limit applies to all IUs. The MAIL can be converted to a uniform concentration using Equation 6.8 of the EPA Guidance Document (2):

$$C_{Uniform} = \frac{MAIL}{8.34 * Q_{SIU}}$$

Where:

$C_{Uniform}$ = Uniform concentration limit, mg/L

MAIL = MAIL of POC, lbs/day

Q_{SIU} = Total flow rate from IUs, MGD

7.a.ii IU Contributary Local Limit

The contributary local limit applies only for IUs that discharge above the background concentrations. All other SIUs are assumed to be non-contributors. The MAIL can be converted to the contributary concentration using Equation 6.4 of the EPA Guidance Document (2):

$$C_{CONTD} = \frac{MAIL - L_{BACK}}{8.34 * Q_{CONTD}}$$

Where:

C_{CONTD} = Contributory concentration limit, mg/L

MAIL = MAIL of POC, lbs/day

L_{BACK} = Total mass loadings from the noncontributory IUs based on their average flow and average concentration (8.34*Q*C), lbs/day

Q_{CONTD} = Total flow rate from contributory IUs, MGD

7.a.iii Mass Proportion Limits

The mass proportion method allocates the MAIL to each controlled discharger in proportion to their loading. This approach allows for dischargers with higher strength effluent to receive achievable limits. The methodology for calculating mass or concentration limits in proportion to mass are discussed in the EPA Guidance Document (2) Chapter 6.4.2. A derivation of this approach was used in this study for BOD and TDS.

7.B INSTANTANEOUS MAXIMUM LIMIT

GSD expressed an interest in being able to apply Imax limits using an effluent grab sample to prevent shock loading to the POTW and fully characterize the industrial discharge. The GSD sewer use ordinance prohibits discharges in excess of five times the current local limit. The EPA Guidance Document (2) recommends that Imax limits be developed for POCs that cannot be composited due to variation in concentration over a 24-hour period. To protect the WRRF from batch discharges, Imax limits are recommended. Imax limits were calculated as described below:

- For the local limits based on the NPDES permit, the recommended local limit was multiplied by the ratio of the maximum daily over the six-month median effluent limits or Performance Goals.

- For local limits based on 40 CRF Part 503 regulations, the recommended local limit was multiplied by the ratio of the ceiling concentration over the monthly average pollutant concentrations. For molybdenum, the ratio was assumed to be one.
- For FOG, the local limit was multiplied by the ratio of the instantaneous maximum over the average weekly, which are effluent limits prescribed in the NPDES permit.
- No Imax calculated for BOD, TDS, and chloride.

7.C MAIL ALLOCATIONS

7.c.i Conventional POCs

The MAHLs for ammonia, BOD, and TSS are dictated by the WRRF's design capacity criteria. The EPA Guidance Document (2) recommends additional evaluations for these POCs before deciding to set a MAIL or a local limit. In general, the EPA included BOD and TSS in the 15 national POCs list because many municipalities have ongoing problems with excessive loadings of these POCs from industrial and commercial sources and recommended ammonia for municipalities that accept non-domestic sources of ammonia. To determine whether local limits for these POCs are needed, the total SIUs loadings were evaluated to determine whether the WRRF is receiving considerable loadings from controlled users. SIUs discharging more than 1% of the MAHL for each of these POCs were considered larger dischargers.

A local limit for ammonia is not recommended because SIUs contribute about 0.3% of the MAHL or about 8 lbs/day. All the SIUs are discharging below the average ammonia background concentration of 50 mg/L. Similarly, a local limit for TSS is not recommended because SIUs contribute about 0.7% of the MAHL, or about 150 lbs/day, and most SIUs are discharging below the average TSS background concentration of 350 mg/L. To control TSS, GSD can use existing narrative prohibitions from Ordinance No. 77 for solid or viscous waste, excessive discharges that cause interference, shredded garbage, or industrial residual to protect against quantities and/or the size of the solids that would potentially plug the sewers and/or cause pass through or interference at the treatment plant.

In total, SIUs contribute about 500 lbs BOD/day, far below the MAIL of 1,700 lbs/day. However, a mass limit is recommended for BOD, for those SIUs that contribute more than 1% of the MAHL (about 200 lbs/day). At present there is one SIU, Microdyn-Nadir, a global membrane manufacturer discharging an average of 360 lbs/day. As a general practice, it is recommended that GSD monitor and track BOD loadings from all SIUs discharging over 1% of the MAHL and annually confirm that the total load is less than the MAIL. It is recommended that GSD require Micro-Nadir to conduct a study to identify the sources of BOD, better characterize the wastewater quality and quantity, and determine if there are economic means to reduce loadings. The MAIL can be allocated to the major dischargers as a mass limit approximately equal to their typical maximum discharge.

7.c.ii Toxic

For cyanide, the MAHL is dictated by the NPDES permit six-month median Performance Goal. The calculated uniform local limit is higher than GSD's current local limit. Thus, the current local limit is protective, so no change is recommended. Overall, most of the data collected were reported as ND.

7.c.iii Metals

Overall, metal loadings to the WRRF are less than 50% of the MAHL, while SIUs loadings contribute less than 2.5% of the total MAHL.

The MAHLs for arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc are dictated by biosolid regulations, and the MAHLs for chromium and silver are dictated by the NPDES permit six-month median Performance Goals. The calculated uniform local limits and/or contributory local limits are higher than the current local limits so no changes to the existing local limits are recommended.

A new local limit is recommended for molybdenum. Electromatic is the only SIU that may exceed the recommended local limit. However, it only discharges 575 gallons twice a week. Efforts to attenuate TDS high concentrations may also address this POC.

7.c.iv Minerals

The MAHL for TDS is dictated by the recycled water permit, and the MAHL for chloride is dictated by a recent internal policy limit of 300 mg/L. As part of this study, TDS and chloride were evaluated to determine whether local limits for these POCs are needed to protect recycled water users. Currently, TDS and chloride loadings to the WRRF are at 84% and 90% of the MAHLs, respectively. However, SIUs only contribute about 4.2% and 5.7% of the TDS and chloride MAHLs.

In total, SIUs are discharging about 2,890 lbs of TDS/day or about 60% of the MAIL. Two SIUs, Rayne and Micro-Nadir, Inc., discharge near or above 1% of the MAHL (i.e., 680 lbs/day). Electromatic and Rayne discharge above the recommended Imax. For dischargers discharging more of the 1% of the MAHL and/or above the Imax, it is recommended that these SIUs conduct a study to identify the sources of TDS, better characterize the wastewater quality and quantity, and determine if there are means to reduce loadings. The MAIL can be allocated to the major dischargers as a mass limit approximately equal to their typical maximum discharge. Annually, the actual loading from all SIUs should be compared to the MAIL to confirm that the MAIL is not being exceeded.

The current average chloride concentration in the recycled water is 270 mg/L, close to the 300 mg/L recycled water discharge limit. As such, chloride is a new POC for GSD. Only one sample and result have been reported for all but one of the SIUs. When a 10% safety factor was applied, the calculated MAIL was less than the mass loading from all of the SIUs. Due to the limited dataset and that the current average concentration is less than the limit, it would be unreasonable to establish a MAIL that is not enough for all SIUs without fully characterizing the sources of chloride. A 5% safety factor was used and the calculated MAIL was greater than the discharge from all the SIUs.

As with TDS, it is recommended that SIUs discharging more than 1% of the MAHL and/or greater than the policy limit of 300 mg/L be further tested and investigated. Based on the available data, SIUs discharging above the policy limit are Corning Technology, Goleta Valley Cottage Hospital, and Rayne, which discharge about 170 lbs/day, 126 lbs/day, and 340 lbs/day, respectively. The dischargers exceeding 1% of the MAHL (i.e., 150 lbs/day) are Corning Technology and Rayne. All three SIUs should have their permits modified to conduct a study to identify the sources of chlorides, characterize these sources, and determine if there are control measures to reduce the chloride in their discharge. It is also recommended that the two large SIUs install continuous reading and recording conductivity meters to help in the identification process.

In general, it is recommended that GSD monitor and track the TDS and chloride loadings versus MAIL for all SIUs. It is further recommended that all inspections of current permittees and new commercial and industrial facilities include the identification and understanding of any water or wastewater treatment equipment to identify controllable sources of TDS and chloride.

8 RECOMMENDATIONS

8.A RECOMMENDED LOCAL LIMITS

The recommended local limits are a combination of uniform, contributory, and creative allocations. GSD reserves the right to re-allocate local limits as long as the MAILs are not exceeded. The current and proposed GSD local limits are shown in **Table 7**.

Table 7. GSD Current and Recommended Local Limits

POCs	MAIL (lbs/day)	Current Limit (mg/L)	Recommended Limit (mg/L)	Recommended Imax Limit (mg/L)	Comments
Conventional					
Ammonia	70	662	No Limit	No Limit	A local limit not recommended because SIUs contribute about 0.3% of the MAHL and discharge below background concentrations.
BOD	1,704	1,880	Mass Limit	No Limit	A mass limit is recommended for SIUs discharging more than 1% of the MAHL (200 lbs/day). Investigate SIUs before allocation.
TSS	4,486	2,031	No Limit	No Limit	A local limit not recommended because SIUs contribute about 0.7% of the MAHL and discharge below background concentrations. Recommend using narrative prohibitions to protect WRRF.
Toxics					
Cyanide	7.0	1.1	1.1	4.4	
Metals					
Arsenic	0.56	0.11	0.11	0.20	
Cadmium	0.34	0.13	0.13	0.28	
Chromium	34	5.3	5.3	21	
Copper	4.6	2.4	2.4	6.9	
Lead	2.0	1.5	1.5	4.2	
Mercury	0.12	0.071	0.071	0.24	
Molybdenum	1.3	No Limit	1.5	1.5	
Nickel	5.5	2.3	2.3	2.3	
Selenium	0.85	0.31	0.31	0.31	
Silver	14	1.0	1.0	4.9	
Zinc	13	3.2	3.2	8.6	

Table 8. GSD Current and Recommended Local Limits

POCs	MAIL (lbs/day)	Current Limit (mg/L)	Recommended Limit (mg/L)	Recommended Imax Limit (mg/L)	Comments
Minerals					
TDS	4,843	No Limit	Mass Limit	No Limit	A mass limit is recommended for SIUs discharging more than 1% of the MAHL (680 lbs/day). Investigate SIUs before allocation.
Chloride	1,086	No Limit	300 for select SIUs	No Limit	Recommend a limit of 300 mg/L for SIUs discharging above 1% of the MAHL (150 lbs/day). Install conductivity meters and investigate for source control options.
Other					
Oil and Grease	Not Calculated	100	100	200	If only one grab sample is collected during the discharge day, it must meet the daily average limit.

9 REFERENCES

1. **Larry Walker Associates.** *Local Limits Evaluation Technical Memorandum.* 2006.

2. **U.S.EPA.** *Local Limits Development Guidance.* 2001.

3. **GSWRRD.** *Budget Fiscal Year 2019 - 2020.* 2019.

4. **Central Coast Regional Water Quality Control Board.** *Order No. R3-207-0021.* 2017.

5. —. *Order No. 91-03 Water Reclamation Requirements for Goleta Sanitary District.* 1991.

6. **PennState Extension.** Irrigation Water Quality Guidelines for Trufgrass Sites. *https://extension.psu.edu/irrigation-water-quality-guidelines-for-turfgrass-sites.* [Online] 2016.

7. **Goleta Sanitary Water Resource Recovery District.** *Biosolids Annual Report.* 2018.

AGENDA ITEM #3

AGENDA ITEM: 3

MEETING DATE: October 5, 2020

I. NATURE OF ITEM

2020 Action Plan Status Report

II. BACKGROUND INFORMATION

For the last several years staff has prepared an annual Action Plan detailing various goals and objectives to be obtained over the following fiscal year. The 2020 Action Plan that was adopted by the Board in July 2020 included 25 goals and 82 associated actions.

A status report on the 2020 Action Plan is presented herein for Board consideration.

III. COMMENTS AND RECOMMENDATIONS

To date, 38 of the 82 actions identified in the 2020 Action Plan have been initiated or completed. Of the remaining actions, 31 are on schedule, 4 have been delayed for completion later this fiscal year, and 8 will be included in next year's action plan.

IV. REFERENCE MATERIALS

2020 Action Plan Status Report

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #1 Implement Long-Range CIP Master Plan Projects					
1	Complete 2020 Pipeline Rehab Project	Q3 2020	In Progress	Q3 2020	Project on schedule for completion in July 2020.
2	Complete CCTV Inspections for Prioritization	Q2 2021	In Progress	Q2 2021	Draft plans and specifications complete. Project to be put out to bid on 10/20/20
3	Update CS CIP Based on Updated CCTV Inspections	Q2 2021		Q2 2021	
4	Complete PS&E of Lift Station Rehabilitation Project	Q3 2020	In Progress	Q3 2020	Preliminary Design Report being finalized. Project should be ready to bid by fall 2020.
5	Initiate Construction of Lift Station Rehabilitation Project	Q4 2020		Q4 2020	
Goal #2 Implement BESP Phase 1 Improvements					
6	Complete Preliminary Design of BESP Phase 1 Improvements	Q3 2020	Complete	Q3 2020	Preliminary Design Report complete.
7	Initiate Final Design and Environmental Review of BESP Phase 1 Improvements	Q4 2020	In Progress	Q4 2020	Contract for final design and environmental review to be brought to Board for approval in November 2020.
8	Integrate BESP Improvements into LRMP	Q2 2021		Q2 2021	
Goal #3 Implement Lystemize Refeed Pilot Project					
9	Complete process skid modifications	Q3 2020	Complete	Q3 2020	Modifications completed end of July 2020
10	Implement refeed test procedures and collect relevant data	Q3 2020	In Progress	Q3 2020	Testing initiated August 3, 2020
11	Consider results of Refeed Pilot project and update LRMP as needed	Q2 2021	In Progress	Q2 2021	Phase 2 of project initiated. Results being reviewed.

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #4 Complete Planned Office Space Improvements					
12	Obtain and install temporary office trailer for CS staff	Q3 2020	Complete	Q3 2020	Trailer installed in July 2020
13	Complete office space improvements in staff kitchen area	Q3 2020	In Progress	Q3 2020	Conference room wall modifications to be completed by end of July 2020
14	Consider modifications to other building areas to provide additional office space	Q1 2021		Q1 2021	
Goal #5 Investigate solids processing capacity improvements					
15	Select consultant to analyze current and future solids process capacity limits	Q4 2020		Q4 2020	
16	Evaluate and compare future solids processing capacity improvements	Q1 2021		Q1 2021	
17	Board consideration of recommended solids process capacity improvements	Q2 2021		Q2 2021	
18	Update LRMP to include recommended improvements	Q2 2021		Q2 2021	
Goal #6 Investigate Reclamation Facility Filter Improvements					
19	Select consultant to analyze current filter performance issues	Q4 2020	Complete	Q4 2020	Hazen and Sawyer selected
20	Evaluate and compare cost effective ways to improve filter performance	Q1 2021	In Progress	Q1 2021	Kick off meeting held. Onsite filter evaluation scheduled for November 2020.
21	Board consideration of recommended filter improvements	Q2 2021		Q2 2021	
22	Installation of recommended filter improvements	Q4 2021		Q4 2021	

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #7 Adopt and Implement Capacity Exceedance Policy					
23	Complete outreach to affected users and schedule public hearing on proposed policy	Q3 2020	In Progress	Q3 2020	All affected users contacted. Meetings in progress.
24	Board consideration of Capacity Exceedance Policy	Q3 2020		Q1 2020	Policy to be brought to Board for consideration in January 2021
25	Implement policy as directed by Board	Q4 2020		Q2 2021	
Goal #8 Conduct rate study based on results from CASA's Flow & Loadings Stud					
26	Continue participation in CASA F&L study	Q1 2021	In Progress	Q1 2021	Participation in study ongoing.
27	Prepare RFQ/P for selection of rate study consultant	Q1 2021		Q2 2021	
28	Board consideration of rate study consultant	Q2 2021		Q2 2021	
29	Conduct rate study based on results of CASA F&L study	Q3 2021		Q3 2021	Action to be included in 2021 Action Plan
30	Board consideration of rate study	Q4 2021		Q4 2021	Action to be included in 2021 Action Plan
31	Board adoption new rate structure	Q1 2022		Q4 2021	Action to be included in 2021 Action Plan
Goal #9 consider alternative project delivery and finance options for future capital projects					
32	Research alternative project delivery and finance options for future capital projects	Q1 2021		Q1 2021	
33	Board consideration of alternative project delivery and finance options for future capital projects	Q1 2021		Q1 2021	

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #10 Retain Platinum Level District of Distinction Recognition from CSDA					
34	Review DOD requirements and application process	Q3 2020	Complete	Q3 2020	No action required at this time.
35	Complete DOD training and tasks as required	Q2 2021		Q2 2021	
36	Complete and submit DOD application to CSDA prior to deadline for consideration	Q3 2021		Q3 2021	
Goal #11 Improve collaboration with partner agencies					
37	Schedule meetings with UCSB on existing and future energy sustainability efforts	Q4 2020	In Progress	Q4 2020	Meetings on renewable enery credits ongoing.
38	Schedule meetings with GWD and COG on expanded rec water/reuse	Q1 2021		Q1 2021	
39	Schedule meetings with SBMA on pretreatment proposal	Q3 2020	In Progress	Q3 2020	Preliminary design of SBMA pretreatment proposal completed.
40	Meet with contract entities to consider approval of Multi-Jurisdictional Agreements (MJA)	Q3 2020	In Progress	Q3 2020	GWSD MJA agreement approved by Board. Draft SBMA MJA in review.
Goal #12 Implement District Based Elections Pursuant to the CVRA					
41	Select demographer consultant to assist with development of voting district areas	Q3 2020	Complete	Q3 2020	Board authorization of contract with Lapkoff and Gobelet Demographic Research, Inc. on July 6, 2020
42	Obtain 2020 Census demographic data	Q1 2021		Q3 2021	Action to be included in 2021 Action Plan
43	Conduct public hearings to gather public input on voting district areas	Q2 2021		Q4 2021	Action to be included in 2021 Action Plan
44	Prepare draft voting district maps	Q3 2021		Q1 2022	Action to be included in 2021 Action Plan
45	Conduct public hearings on proposed voting district areas	Q4 2021		Q2 2022	Action to be included in 2021 Action Plan
46	Adopt voting district areas and send information to County in time for 2022 election	Q4 2021		Q2 2022	Action to be included in 2021 Action Plan

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #13 Implement Effective Utility Management Practices					
47	Complete EUM gap analysis using EUM primer	Q4 2020	In progress	Q4 2020	
48	Board consideration of gap analysis	Q1 2021		Q1 2021	
49	Prioritize and initiate implementation of identified EUM practices	Q2 2021		Q2 2021	
Goal #14 Conduct tri-annual Board self-assessment					
50	Board consideration of assessment process and use of consultant for facilitator	Q4 2020		Q4 2020	
51	Conduct Board self-assessment	Q1 2021		Q1 2021	
52	Board consideration of self-assessment results & recommendations	Q1 2021		Q1 2021	
Goal #15 Complete green house gas inventory and assessment of District operations					
53	Complete green house gas inventory and assessment of District Operations	Q3 2020	Complete	Q3 2020	GHG assessment report completed July 24, 2020
54	Board presentation on green house gas inventory and assessment	Q3 2020	Complete	Q3 2020	Board presentation on August 3, 2020
55	Use green house gas production model to estimate past and future GHG emissions	Ongoing	In Progress	Ongoing	GHG model being used to determine reductions associated with recent energy efficiency improvements
Goal #16 Maintain certification as Santa Barbara County Green Business					
56	Review green business certification criteria to ensure compliance	Q4 2020	Complete	Q4 2020	Staff reviewed new criteria for future submittal requirements.
57	Submit application if required to renew/maintain certification	Q2 2021		Q2 2021	
58	Continue to support and participate in SBC Green Business program	Ongoing	In Progress	Ongoing	Staff continues to participate on SBGBP committee meetings.

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #17 Initiate Development of District Wide Resiliency Plan					
59	Review other agency resiliency plans to develop outline of comprehensive RP	Q3 2020	Complete	Q3 2020	
60	Incorporate existing resiliency documents into draft RP as appropriate	Q4 2020	In Progress	Q4 2020	
Goal #18 Develop Climate Adaptation and Business Continuity Plans					
61	Select consultant to assist with preparation of Climate Adaptation Plan	Q4 2020	In Progress	Q4 2020	RFQ for preparation of Climate Action Plan being prepared.
62	Prepare Draft Climate Adaptation Plan	Q1 2021		Q1 2021	
63	Prepare Draft Business Continuity Plan	Q4 2020		Q4 2020	
64	Board Consideration of Draft Climate Adaptation and Business Continuity Plans	Q2 2021		Q2 2021	
Goal #19 Implement annual outreach program activities					
65	Review annual outreach program with Board Outreach Committee	Q3 2020	Complete	Q3 2020	Outreach committee meeting on proposed plan held on July 9, 2020.
66	Board consideration of annual outreach program	Q3 2020	Complete	Q3 2020	Board presentation on July 20,2020.
Goal #20 Develop online elementary school water science curriculum					
67	Research ways to provide online learning opportunities for elementary students	Q3 2020	Complete	Q3 2020	Several online learning opportunities evaluated by staff for future implementation
68	Transition existing in person water science education curriculum to online version	Q3 2020	Complete	Q3 2020	
Goal #21 Use video capture technology to provide virtual tours of WRRF					
69	Research and select video capture program	Q3 2020	Complete	Q3 2020	Openshot video program selected
70	Develop virtual WRRF video tour and put on website	Q4 2020	In Progress	Q4 2020	

GOLETA SANITARY DISTRICT
2020 ACTION PLAN STATUS REPORT
October 5, 2020

		Original Timeline	Current Status	Estimated Completion	Remarks
Goal #22 Implement Competency Based Training Programs					
71	Complete and implement CBT programs for CS and Operations staff	Q1 2021		Q1 2021	
72	Initiate development of CBT program for Maintenance and Laboratory staff	Q2 2021		Q2 2021	
Goal #23 Develop and implement employee wellness and employee assistance programs					
73	Research existing Employee Assistance and Wellness Programs	Q3 2020	Complete	Q3 2020	
74	Board consideration of Employee Assistance and Wellness Program	Q4 2020	Complete	Q4 2020	Board consideration of both program in September 2020.
75	Implement Employee Assistance and Wellness Programs	Q1 2021	In Progress	Q1 2021	
76	Compile housing assistance program information for staff	Q3 2020	Complete	Q3 2020	Housing information included in onboarding binder and posted on employee portal.
Goal #24 Recruit and hire Project Manager					
77	Develop position description and survey comparable positions	Q3 2020		Q4 2020	
78	Board consideration of new position	Q4 2020		Q4 2020	
79	Recruit and hire Project Manager	Q4 2020		Q1 2021	
Goal #25 Conduct 5 yr. salary and benefits survey of comparable organizations					
80	Board consideration of hiring consultant to assist with salary survey	Q1 2021		Q1 2021	
81	Conduct salary survey of comparable organizations	Q1 2021		Q1 2021	
82	Board consideration of survey results	Q2 2021		Q2 2021	

GENERAL MANAGER'S REPORT

GOLETA SANITARY DISTRICT
GENERAL MANAGER'S REPORT

The following summary report describes the District's activities from September 22, 2020 through October 5, 2020. It provides updated information on significant activities under three major categories: Collection System, Treatment/Reclamation and Disposal Facilities, and General and Administration Items.

1. COLLECTION SYSTEM REPORT

LINES CLEANING
Staff is conducting routine lines cleaning in the area of Walnut Drive and Rhoads Avenue.

CCTV INSPECTION
Staff has been conducting routine Closed-Circuit Television (CCTV) inspections in the easement area of S. Patterson Avenue and Atascadero Creek.

2020 CCTVI PROJECT
Staff continues to work with MNS Engineers to finalize the scope and specifications for the 2020 CCTVI project. The project will be brought for the Board's consideration at the October 19, 2020 meeting.

REPAIR AND MAINTENANCE
Approximately 15 manholes have been replaced to date as part of the County's annual pavement project. Consolidated Door was onsite to replace and modify the vehicle garage roll up door to allow oil changes, chassis lubrication and other maintenance to be done on the Vactor in the maintenance bay. Collection System staff are also working on the Administration offices remodel project.

GREASE AND OIL INSPECTIONS
Staff continues with the grease and oil inspections program.

COMPETENCY BASED TRAINING (CBT)
Staff continues work on the CBT project with DKF Solutions staff.

CITY OF GOLETA OLD TOWN SIDEWALK PROJECT
Staff is working with City of Goleta staff and contract inspectors to finalize District related project work.

2. TREATMENT, RECLAMATION AND DISPOSAL FACILITIES REPORT
Plant flows are holding at 4.3 million gallons a day (MGD). Reclamation demand has decreased down to 1.2 MGD with the cooler temperatures and shorter days.

The Lystek digestor refeed pilot project to quantify increased solids destruction and gas production has moved into the second phase with an approximate 30% refeed. The treatment and digester processes are working well and are healthy at this phase.

Centrifuge operations continue as planned. Operations staff is starting to notice the reduction in sludge volume in lagoon number three and systematic dredging across the lagoon to remove the remaining solids has begun.

Maintenance staff continue to work on improving the fuel lines from the diesel storage tank to the emergency generators, correcting deficiencies that were found during the most recent heat wave from prolonged usage.

The Reclamation Filter Surveillance Project began with a kick-off meeting and staff has responded to a Request for Information. This purpose of this project is to determine whether the filter system is operating as designed, and will inform staff as to what improvements or design modifications can be made if needed.

The design review phase for the Plant Lift Station Rehabilitation Project is 50% complete. GSD staff are reviewing plans and specifications. This project will likely go to bid for construction near the end of 2020.

3. GENERAL AND ADMINISTRATIVE ITEMS

Financial Report

The District account balances as of October 5, 2020 shown below are approximations to the nearest dollar and indicate the overall funds available to the District at this time.

Operating Checking Accounts:	$	919,644
Investment Accounts:	$	25,174,480
Total District Funds:	$	26,094,123

The following transactions are reported herein for the period 09/22/20 – 10/05/20.

Regular, Overtime, Cash-outs and Net Payroll:	$	120,372
Claims:	$	276,826
Total Expenditures:	$	397,198
Total Deposits:	$	389,232

Transfers of funds:

Community West Bank (CWB) to LAIF:	$	- 0 -
CWB Operational to CWB Money Market:	$	- 0 -
CWB Money Market to CWB Operational:	$	- 0 -

The District's investments comply with the District's Investment Policy adopted per Resolution No. 16-606. The District has adequate funds to meet the next six months of normal operating expenses.

Local Agency Investment Fund (LAIF)

LAIF Monthly Statement – September, 2020.
LAIF Quarterly Report – Previously submitted.
PMIA/LAIF Performance – Previously submitted.
PMIA Effective Yield – Previously submitted.

Community West Bank (CWB)
CWB Money Market Account – September, 2020.

Deferred Compensation Accounts
CalPERS 457 Deferred Compensation Plan – Previously submitted.
Lincoln 457 Deferred Compensation Plan – September, 2020.

COVID-19 Response Plan Update
A verbal update will be provided at the meeting.

Personnel Update
A verbal update will be provided at the meeting.

CRSMA Award Application
Staff has submitted an application to CRSMA for the annual "Workers Compensation Excellence Award". This is the first year we have met all the eligibility criteria which is substantial. We should know if we are selected by the end of December.

California State Treasurer
Fiona Ma, CPA

Local Agency Investment Fund
P.O. Box 942809
Sacramento, CA 94209-0001
(916) 653-3001

October 01, 2020

LAIF Home
PMIA Average Monthly Yields

GOLETA SANITARY DISTRICT

GENERAL MANAGER
ONE WILLIAM MOFFETT PLACE
GOLETA, CA 93117

Tran Type Definitions

Account Number: 70-42-002

September 2020 Statement

Account Summary

Total Deposit:	0.00	Beginning Balance:	17,942,848.20
Total Withdrawal:	0.00	Ending Balance:	17,942,848.20

Community West Bank

445 Pine Avenue
Goleta, CA 93117

RETURN SERVICE REQUESTED

GOLETA SANITARY DISTRICT
MONEY MARKET
1 WILLIAM MOFFETT PL
GOLETA CA 93117-3901

Statement Ending 09/30/2020

GOLETA SANITARY DISTRICT
Customer Number: XXXXXXXX5554

All Community West Bank branch offices are open to serve you Monday through Friday, 9:00 am to 5:00 pm.

Notice of Change to our Transaction Processing and Posting

Community West Bank changed the way end-of business-day transactions are processed and posted to your account, generally following this order: 1) Deposits and Credits; 2) Cash Withdrawals, In-Person Transactions; 3) Debit Card Transactions; 4) Scheduled Transfers, Online Transfers; 5) ACH Debits; 6) Checks, posting in ascending dollar amount order; 7) Bank Fees; 8) Service Charges.

If you have questions about how transactions are processed and posted to your account, please contact the Community West Bank office most convenient to you, or call (888) 831-5295, Monday – Friday, 8am to 5pm.

Summary of Accounts

Account Type	Account Number	Ending Balance
PUBLIC AGENCY-MMDA	XXXXXXXX5554	$7,231,631.34

PUBLIC AGENCY-MMDA - XXXXXXXX5554

Account Summary

Date	Description	Amount		
09/01/2020	**Beginning Balance**	**$7,926,321.99**	Average Ledger Balance	$7,599,655.32
	1 Credit(s) This Period	$5,309.35		
	1 Debit(s) This Period	$700,000.00		
09/30/2020	**Ending Balance**	**$7,231,631.34**		

Account Activity

Post Date	Description	Debits	Credits	Balance
09/01/2020	**Beginning Balance**			**$7,926,321.99**
09/17/2020	XFER DEBIT 9/17/20 9:48 118371251 CHECKING 6505538	$700,000.00		$7,226,321.99
09/30/2020	INTEREST AT .8500 %		$5,309.35	$7,231,631.34
09/30/2020	**Ending Balance**			**$7,231,631.34**

Daily Balances

Date	Amount	Date	Amount
09/17/2020	$7,226,321.99	09/30/2020	$7,231,631.34

EQUAL HOUSING LENDER Member FDIC

Lincoln Financial Group℠

Multi-Fund®

Performance Update

MultiFund

Quoted performance data represents past performance. Past performance does not guarantee nor predict future performance. Current performance may be lower or higher than the performance data quoted. Please keep in mind that double-digit returns are highly unusual and cannot be sustained.

Variable products are sold by prospectus. Consider the investment objectives, risks, charges, and expenses of the variable product and its underlying investment options carefully before investing. The prospectus contains this and other information about the variable product and its underlying investment options. Please review the prospectus available online for additional information. Read it carefully before investing.

Investment return and principal value of an investment will fluctuate so that an investor's unit values, when redeemed, may be worth more or less than their original cost.

Monthly hypothetical performance adjusted for contract fees *

						Average Annual Total Return (%) as of 9/30/2020						
Investment Option		Inception Date	Change from Previous Day	YTD as of 09/30/2020	YTD as of 09/30/2020	1 Mo	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr	Since Incep.
Risk Managed												
DWS Equity 500 Index VIP Portfolio - Class A[11]	RM	10/01/1997	0.86	4.59	4.59	-3.88	8.62	13.71	10.88	12.71	12.29	6.28
DWS Small Cap Index VIP Portfolio - Class A[8, 11]	RM	08/25/1997	0.15	-9.75	-9.75	-3.51	4.57	-1.12	0.43	6.61	8.51	5.67
Fidelity® VIP Freedom 2055 Portfolio℠ - Service Class[7, 9]	RM	04/11/2019	0.53	2.54	2.54	-2.49	7.33	11.22	N/A	N/A	N/A	9.16
Fidelity® VIP Freedom 2060 Portfolio℠ - Service Class[7, 9]	RM	04/11/2019	0.53	2.57	2.57	-2.49	7.31	11.27	N/A	N/A	N/A	9.20
Neuberger Berman AMT Mid Cap Growth Portfolio (I Class)[8]	RM	11/03/1997	0.52	16.03	16.03	-0.82	9.40	23.70	14.70	12.66	12.29	8.84
Maximum Capital Appreciation												
AB VPS Global Thematic Growth Portfolio - Class B[1, 2]	MCA	01/11/1996	0.65	21.22	21.22	0.94	14.33	31.94	13.77	14.37	8.53	5.56
Delaware VIP® Smid Cap Core Series - Standard Class[4, 8]	MCA	07/12/1991	0.25	-13.01	-13.01	-4.02	1.84	-6.51	0.67	5.29	9.61	8.34
DWS Alternative Asset Allocation VIP Portfolio - Class A[1, 2, 3, 9, 10]	MCA	02/02/2009	0.08	-4.50	-4.50	-1.97	3.48	-1.95	-0.22	1.35	1.02	3.53
LVIP Baron Growth Opportunities Fund - Service Class[8]	MCA	10/01/1998	0.74	10.22	10.22	-1.26	12.26	18.61	14.11	13.66	13.52	10.91
LVIP SSGA Emerging Markets 100 Fund - Standard Class[1, 19]	MCA	06/18/2008	0.97	-18.12	-18.12	-1.94	2.10	-10.97	-7.51	0.77	-2.10	0.44
LVIP SSGA Small-Cap Index Fund - Standard Class[8, 11]	MCA	04/18/1986	0.18	-9.88	-9.88	-3.48	4.52	-1.26	0.25	6.42	8.28	6.39
LVIP T. Rowe Price Structured Mid-Cap Growth Fund - Standard Class[8]	MCA	02/03/1994	0.56	9.07	9.07	-1.53	7.18	18.09	14.57	14.41	13.32	6.87

Performance Update

MultiFund

Monthly hypothetical performance adjusted for contract fees *

Investment Option		Inception Date	Change from Previous Day	YTD as of 09/30/2020	YTD as of 09/30/2020	Average Annual Total Return (%) as of 9/30/2020 1 Mo	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr	Since Incep.
Long Term Growth												
American Funds Global Growth Fund - Class 2[1]	LTG	04/30/1997	0.36	13.26	13.26	-2.78	9.34	27.30	12.57	13.58	11.13	9.12
American Funds Growth Fund - Class 2	LTG	02/08/1984	0.67	26.69	26.69	-4.35	13.72	43.18	19.69	19.15	14.98	11.97
American Funds International Fund - Class 2[1]	LTG	05/01/1990	0.46	-7.07	-7.07	-2.79	5.34	1.46	0.57	5.95	4.05	6.42
Delaware VIP Small Cap Value[4, 8]	LTG	12/27/1993	0.35	-26.74	-26.74	-5.99	-0.45	-20.53	-7.22	2.16	5.78	7.73
Fidelity® VIP Contrafund® Portfolio - Service Class	LTG	01/03/1995	0.75	19.99	19.99	-4.55	10.38	31.74	14.72	14.69	12.72	10.48
Fidelity® VIP Growth Portfolio - Service Class	LTG	10/09/1986	0.79	26.62	26.62	-4.01	11.72	40.68	20.36	19.11	16.09	9.90
LVIP BlackRock Global Real Estate Fund - Standard Class[1, 2, 7]	LTG	04/30/2007	0.34	-14.39	-14.39	-3.37	2.09	-12.48	0.19	1.77	3.47	-0.17
LVIP Delaware Mid Cap Value Fund - Standard Class[4, 8]	LTG	12/28/1981	0.60	-19.41	-19.41	-2.32	4.92	-13.93	-2.20	4.75	7.64	9.59
LVIP Delaware Social Awareness Fund - Standard Class[4]	LTG	05/02/1988	0.76	4.87	4.87	-3.66	8.71	14.95	11.14	11.44	11.87	9.65
LVIP Dimensional U.S. Core Equity 1 Fund - Standard Class	LTG	12/28/1981	0.72	-1.01	-1.01	-3.71	7.74	7.67	7.69	10.67	11.17	9.37
LVIP Mondrian International Value Fund - Standard Class[1]	LTG	05/01/1991	-0.49	-19.77	-19.77	-4.14	0.65	-12.07	-5.50	0.60	1.83	4.62
LVIP SSGA International Index Fund - Standard Class[1, 11, 20]	LTG	04/30/2008	-0.60	-7.58	-7.58	-2.35	4.27	-0.61	-0.53	3.92	3.27	0.34
LVIP SSGA S&P 500 Index Fund - Standard Class[11, 21]	LTG	05/01/2000	0.82	4.51	4.51	-3.90	8.60	13.63	10.86	12.74	12.32	4.91
LVIP Vanguard Domestic Equity ETF Fund - Service Class[9, 22]	LTG	04/29/2011	0.71	4.17	4.17	-3.38	8.64	12.56	10.07	11.77	N/A	9.81
LVIP Vanguard International Equity ETF Fund - Service Class[1, 9, 22]	LTG	04/29/2011	0.14	-5.70	-5.70	-1.64	6.50	2.85	0.02	5.10	N/A	1.86
MFS® VIT Utilities Series - Initial Class[2]	LTG	01/03/1995	0.52	-7.68	-7.68	-1.45	2.74	-6.37	4.60	6.97	7.57	9.70
Growth and Income												
American Funds Growth-Income Fund - Class 2	GI	02/08/1984	0.59	0.85	0.85	-3.47	5.27	9.58	8.88	11.76	11.40	9.85
BlackRock Global Allocation V.I. Fund - Class I[1, 3]	GI	02/28/1992	0.38	7.37	7.37	-1.64	7.40	13.58	5.58	6.55	5.22	6.19

Printed On 10/01/2020 at 15:18 EST

Performance Update

MultiFund

Monthly hypothetical performance adjusted for contract fees *

Investment Option		Inception Date	Change from Previous Day	YTD as of 09/30/2020	YTD as of 09/30/2020	Average Annual Total Return (%) as of 9/30/2020 1 Mo	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr	Since Incep.
Delaware VIP REIT[2, 4, 7]	GI	05/04/1998	0.18	-18.95	-18.95	-3.16	1.12	-19.37	-1.80	1.04	5.85	6.67
Delaware VIP Value[4]	GI	07/28/1988	0.80	-13.28	-13.28	-2.26	2.59	-8.42	1.48	6.36	9.73	7.34
Fidelity® VIP Freedom 2020 Portfolio℠ - Service Class[9, 12]	GI	04/26/2005	0.29	4.25	4.25	-1.57	4.73	9.37	5.88	7.54	6.74	5.58
Fidelity® VIP Freedom 2025 Portfolio℠ - Service Class[9, 12]	GI	04/26/2005	0.32	4.09	4.09	-1.74	5.20	9.87	6.17	8.02	7.46	6.05
Fidelity® VIP Freedom 2030 Portfolio℠ - Service Class[9, 12]	GI	04/26/2005	0.39	3.77	3.77	-1.88	5.86	10.55	6.53	8.92	8.02	6.22
Fidelity® VIP Freedom 2035 Portfolio℠ - Service Class[9, 12]	GI	04/08/2009	0.45	2.91	2.91	-2.30	6.74	10.99	6.71	9.47	8.58	11.08
Fidelity® VIP Freedom 2040 Portfolio℠ - Service Class[9, 12]	GI	04/08/2009	0.53	2.57	2.57	-2.48	7.28	11.31	6.68	9.47	8.65	11.21
Fidelity® VIP Freedom 2045 Portfolio℠ - Service Class[9, 12]	GI	04/08/2009	0.52	2.59	2.59	-2.51	7.29	11.30	6.67	9.47	8.72	11.30
Fidelity® VIP Freedom 2050 Portfolio℠ - Service Class[9, 12]	GI	04/08/2009	0.49	2.58	2.58	-2.55	7.26	11.28	6.65	9.46	8.78	11.42
LVIP BlackRock Advantage Allocation Fund - Standard Class[3, 4, 13]	GI	07/28/1988	0.23	4.92	4.92	-1.74	4.67	8.79	5.50	6.37	5.73	5.68
LVIP Delaware Wealth Builder Fund - Standard Class[3, 4, 13]	GI	08/03/1987	0.24	-3.04	-3.04	-1.27	2.54	-0.42	2.10	4.70	5.39	5.79
LVIP JPMorgan Retirement Income Fund - Standard Class[3, 4, 13]	GI	04/27/1983	0.12	1.73	1.73	-1.18	3.54	4.53	3.51	4.54	4.51	6.50
Income												
Delaware VIP Diversified Income[4, 5]	I	05/16/2003	0.00	7.35	7.35	-0.35	2.01	7.38	4.46	3.69	3.03	4.54
Delaware VIP High Yield[4, 5, 6]	I	07/28/1988	0.41	0.59	0.59	-0.90	4.75	2.98	3.24	4.90	4.70	5.57
LVIP BlackRock Inflation Protected Bond Fund - Standard Class[5]	I	04/30/2010	-0.10	3.03	3.03	-0.38	1.59	3.21	2.62	1.88	1.35	1.61
LVIP Delaware Bond Fund - Standard Class[4, 5]	I	12/28/1981	-0.12	7.31	7.31	-0.20	1.22	7.16	4.57	3.49	2.97	6.73
LVIP Delaware Diversified Floating Rate Fund[4, 16]	I	04/30/2010	0.04	-0.43	-0.43	-0.16	0.46	0.12	0.69	0.72	0.31	0.29
LVIP Global Income Fund - Standard Class[1, 5, 13, 15]	I	05/04/2009	-0.06	4.13	4.13	-0.07	1.55	3.61	3.48	2.79	1.40	2.84
LVIP SSGA Bond Index Fund - Standard Class[5, 11]	I	04/30/2008	-0.18	5.98	5.98	-0.14	0.20	5.64	3.89	2.81	2.25	2.83

Performance Update

MultiFund

Monthly hypothetical performance adjusted for contract fees *

Investment Option		Inception Date	Change from Previous Day	YTD as of 09/30/2020	YTD as of 09/30/2020	Average Annual Total Return (%) as of 9/30/2020 1 Mo	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr	Since Incep.
PIMCO VIT Total Return Portfolio - Administrative Class[5]	I	12/31/1997	-0.17	6.67	6.67	-0.02	1.00	6.18	3.99	3.55	2.69	4.44
Preservation of Capital												
LVIP Government Money Market Fund - Standard Class[13, 18]	PC	01/07/1982	0.00	-0.48	-0.48	-0.08	-0.25	-0.39	0.19	-0.23	-0.60	2.79
Risk Managed - Asset Allocation												
LVIP Global Conservative Allocation Managed Risk Fund - Standard Class[1, 3, 9, 13, 17]	RM	05/03/2005	0.10	-0.49	-0.49	-1.74	2.82	2.80	3.09	4.10	4.46	4.57
LVIP Global Growth Allocation Managed Risk Fund - Standard Class[1, 3, 9, 13, 17]	RM	05/03/2005	0.18	-3.26	-3.26	-2.61	3.14	2.32	2.17	4.21	4.28	3.98
LVIP Global Moderate Allocation Managed Risk Fund - Standard Class[1, 3, 9, 13, 17]	RM	05/03/2005	0.16	-2.04	-2.04	-2.28	2.95	2.86	2.53	4.15	4.30	4.31
LVIP SSGA Global Tactical Allocation Managed Volatility Fund - Standard Class[1, 3, 9, 13, 14, 15]	RM	05/03/2005	0.17	-4.88	-4.88	-1.77	3.81	-0.12	0.79	3.36	3.42	2.97
Risk Managed - US Large Cap												
LVIP BlackRock Dividend Value Managed Volatility Fund - Standard Class[13, 14]	RM	02/03/1994	0.55	-14.57	-14.57	-2.80	1.81	-8.61	-1.25	3.98	4.87	5.74
LVIP Blended Large Cap Growth Managed Volatility Fund - Standard Class[13, 14, 15]	RM	02/03/1994	0.66	11.31	11.31	-4.12	9.36	20.94	9.82	10.14	8.76	6.64
Asset Allocation												
LVIP T. Rowe Price 2010 Fund (Standard Class)[9, 12, 13]	AsA	05/01/2007	0.18	3.17	3.17	-1.70	3.69	6.66	4.54	4.91	4.47	3.56
LVIP T. Rowe Price 2020 Fund (Standard Class)[9, 12, 13]	AsA	05/01/2007	0.23	2.51	2.51	-1.99	4.45	7.19	4.99	5.49	4.80	3.48
LVIP T. Rowe Price 2030 Fund (Standard Class)[9, 12, 13]	AsA	05/01/2007	0.34	1.89	1.89	-2.48	5.52	7.91	5.03	5.62	4.98	3.43
LVIP T. Rowe Price 2040 Fund (Standard Class)[9, 12, 13]	AsA	05/01/2007	0.41	1.28	1.28	-2.86	6.29	8.26	5.18	5.84	5.21	3.10
LVIP T. Rowe Price 2050 Fund (Standard Class)[9, 12, 13]	AsA	04/29/2011	0.45	0.92	0.92	-3.00	6.56	8.28	5.58	6.51	N/A	4.02
LVIP T. Rowe Price 2060 Fund - Standard Class[9, 12, 13]	AsA	04/30/2020	0.48	N/A	N/A	-3.24	6.80	N/A	N/A	N/A	N/A	15.13

Performance Update

MultiFund

Monthly hypothetical performance adjusted for contract fees *

Investment Option		Inception Date	Change from Previous Day	YTD as of 09/30/2020	YTD as of 09/30/2020	Average Annual Total Return (%) as of 9/30/2020 1 Mo	3 Mo	1 Yr	3 Yr	5 Yr	10 Yr	Since Incep.
Risk Managed - US Mid Cap												
LVIP Blended Mid Cap Managed Volatility Fund - Standard Class[8, 13, 14, 15]	RM	05/01/2001	0.58	8.09	8.09	-0.77	6.40	15.89	12.17	10.75	7.39	4.16
LVIP JPMorgan Select Mid Cap Value Managed Volatility Fund - Standard Class[8, 13, 14, 15]	RM	05/01/2001	0.62	-15.13	-15.13	-2.47	2.38	-10.04	-3.62	1.06	4.86	4.64
Risk Managed - Global/International												
LVIP Franklin Templeton Global Equity Managed Volatility Fund - Standard Class[1, 13, 14]	RM	08/01/1985	0.47	-2.64	-2.64	-2.81	6.12	3.84	0.63	3.62	4.35	6.65
LVIP SSGA International Managed Volatility Fund - Standard Class[1, 9, 13, 14]	RM	12/31/2013	-0.60	-15.17	-15.17	-2.38	3.76	-8.80	-3.53	0.51	N/A	-1.55

* These returns are measured from the inception date of the fund and predate its availability as an investment option in the variable annuity (separate account). This hypothetical representation depicts how the investment option would have performed had the fund been available in the variable annuity during the time period. It includes deductions for the M&E charge, the contract administrative fee and a pro rata deduction for the annual contract charge. If selected above, the cost for a feature or death benefit will be reflected. No surrender charge is reflected.

Performance Update

[1] International
Investing internationally involves risks not associated with investing solely in the United States, such as currency fluctuation, political or regulatory risk, currency exchange rate changes, differences in accounting and the limited availability of information.

[2] Sector Funds
Funds that target exposure to one region or industry may carry greater risk and higher volatility than more broadly diversified funds.

[3] Asset Allocation Portfolios
Asset allocation does not ensure a profit, nor protect against loss in a declining market.

[4] Macquarie Investment Management
Investments in Delaware VIP Series, Delaware Funds, LVIP Delaware Funds or Lincoln Life accounts managed by Macquarie Investment Management Advisers, a series of Macquarie Investments Management Business Trust, are not and will not be deposits with or liabilities of Macquarie Bank Limited ABN 46 008 583 542 and its holding companies, including their subsidiaries or related companies, and are subject to investment risk, including possible delays in repayment and loss of income and capital invested. No Macquarie Group company guarantees or will guarantee the performance of the fund, the repayment of capital from the fund, or any particular rate of return.

[5] Bonds
The return of principal in bond funds is not guaranteed. Bond funds have the same interest rate, inflation, credit, duration, prepayment and market risks that are associated with the underlying bonds owned by the fund or account.

[6] High-yield or mortgage-backed funds
High-yield funds may invest in high-yield or lower rated fixed income securities (junk bonds) or mortgage-backed securities with exposure to subprime mortgages, which may experience higher volatility and increased risk of nonpayment or default.

[7] REIT
A real estate investment trust (REIT) involves risks such as refinancing, economic conditions in the real estate industry, declines in property values, dependency on real estate management, changes in property taxes, changes in interest rates and other risks associated with a portfolio that concentrates its investments in one sector or geographic region.

[8] Small & Mid Cap
Funds that invest in small and/or midsize company stocks may be more volatile and involve greater risk, particularly in the short term, than those investing in larger, more established companies.

[9] Fund of funds
Each fund is operated as a fund of funds that invests primarily in one or more other funds, rather than in individual securities. A fund of this nature may be more expensive than other investment options because it has additional levels of expenses. From time to time, the Fund's advisor may modify the asset allocation to the underlying funds and may add new funds. A Fund's actual allocation may vary from the target strategic allocation at any point in time. Additionally, the Fund's advisor may directly manage assets of the underlying funds for a variety of purposes.

[10] Alternative Funds
Certain funds (sometimes called "alternative funds") expect to invest in (or may invest in some) positions that emphasize alternative investment strategies and/or nontraditional asset classes and, as a result, are subject to the risk factors of those asset classes and/or investment strategies. Some of those risks may include general economic risk, geopolitical risk, commodity-price volatility, counterparty and settlement risk, currency risk, derivatives risk, emerging markets risk, foreign securities risk, high-yield bond exposure, index investing risk, exchange-traded notes risk, industry concentration risk, leveraging risk, real estate investment risk, master limited partnership risk, master limited partnership tax risk, energy infrastructure companies risk, sector risk, short sale risk, direct investment risk, hard assets sector risk, active trading and "overlay" risks, event-driven investing risk, global macro strategies risk, temporary defensive positions and large cash positions. If you are considering investing in alternative investment funds, you should ensure that you understand the complex investment strategies sometimes employed and be prepared to tolerate the risks of such asset classes. For a complete list of risks, as well as a discussion of risk and investment strategies, please refer to the fund's prospectus. The fund may invest in derivatives, including futures, options, forwards and swaps. Investments in derivatives may cause the fund's losses to be greater than if it invested only in conventional securities and can cause the fund to be more volatile. Derivatives involve risks different from, or possibly greater than, the risks associated with other investments. The fund's use of derivatives may cause the fund's investment returns to be impacted by the performance of securities the fund does not own and may result in the fund's total investment exposure exceeding the value of its portfolio.

[11] Index
An index is unmanaged, and one cannot invest directly in an index. Indices do not reflect the deduction of any fees.

[12] Target-date funds
The target date is the approximate date when investors plan to retire or start withdrawing their money. Some target-date funds make no changes in asset allocation after the target date is reached; other target-date funds continue to make asset allocation changes following the target date. (See the prospectus for the funds allocation strategy.) The principal value is not guaranteed at any time, including at the target date. An asset allocation strategy does not guarantee performance or protect against investment losses. A "fund of funds" may be more expensive than other types of investment options because it has additional levels of expenses.

[13] Manager of managers funds
Subject to approval of the fund's board, Lincoln Investment Advisors Corporation (LIAC) has the right to engage or terminate a subadvisor at any time, without a shareholder vote, based on an exemptive order from the Securities and Exchange Commission. LIAC is responsible for overseeing all subadvisors for funds relying on this exemptive order.

[14] Managed Volatility Strategy
The fund's managed volatility strategy is not a guarantee, and the fund's shareholders may experience losses. The fund employs hedging strategies designed to reduce overall portfolio volatility. The use of these hedging strategies may limit the upside participation of the fund in rising equity markets relative to unhedged funds, and the effectiveness of such strategies may be impacted during periods of rapid or extreme market events.

[15] Multimanager
For those funds that employ a multimanager structure, the funds advisor is responsible for overseeing the subadvisors. While the investment styles employed by the funds subadvisors are intended to be complementary, they may not, in fact, be complementary. A multimanager approach may result in more exposure to certain types of securities risks and in higher portfolio turnover.

Performance Update

[16] Floating rate funds
Floating rate funds should not be considered alternatives to CDs or money market funds and should not be considered as cash alternatives.

[17] Risk Management Strategy
The fund's risk management strategy is not a guarantee, and the funds shareholders may experience losses. The fund employs hedging strategies designed to provide downside protection during sharp downward movements in equity markets. The use of these hedging strategies may limit the upside participation of the fund in rising equity markets relative to other unhedged funds, and the effectiveness of such strategies may be impacted during periods of rapid or extreme market events.

[18] Money Market Funds
You can lose money by investing in the fund. Although the fund seeks to preserve the value of your investment at $1.00 per share (or, for the LVIP Government Money Market Fund, at $10.00 per share), it cannot guarantee it will do so. An investment in the fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. The funds sponsor has no legal obligation to provide financial support to the fund, and you should not expect that the sponsor will provide financial support to the fund at any time.

[19] Emerging Markets
Investing in emerging markets can be riskier than investing in well-established foreign markets. International investing involves special risks not found in domestic investing, including increased political, social and economic instability, all of which are magnified in emerging markets.

[20] MSCI
The fund described herein is indexed to an MSCI® index. It is not sponsored, endorsed, or promoted by MSCI®, and MSCI®; bears no liability with respect to any such fund or to an index on which a fund is based. The prospectus and statement of additional information contain a more detailed description of the limited relationship MSCI®; has with Lincoln Investment Advisors Corporation and any related funds.

[21] S&P
The Index to which this fund is managed is a product of S&P Dow Jones Indices LLC (SPDJI) and has been licensed for use by one or more of the portfolio's service providers (licensee). Standard & Poor's®; and S&P® are registered trademarks of Standard & Poor's Financial Services LLC (S&P); Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC (Dow Jones); and these trademarks have been licensed for use by SPDJI and sublicensed for certain purposes by the licensee. S&P®, S&P GSCI® and the Index are trademarks of S&P and have been licensed for use by SPDJI and its affiliates and sublicensed for certain purposes by the licensee. The Index is not owned, endorsed, or approved by or associated with any additional third party. The licensee's products are not sponsored, endorsed, sold or promoted by SPDJI, Dow Jones, S&P, their respective affiliates, or their third party licensors, and none of these parties or their respective affiliates or third party licensors make any representation regarding the advisability of investing in such products, nor do they have liability for any errors, omissions, or interruptions of the Index®.

[22] Exchange-traded funds
Exchange-traded funds (ETFs) in this lineup are available through collective trusts or mutual funds. Investors cannot invest directly in an ETF.

Important Disclosures

Variable products are issued by The Lincoln National Life Insurance Company, Fort Wayne, IN, distributed by Lincoln Financial Distributors, Inc., and offered by broker/dealers with an effective selling agreement. The Lincoln National Life Insurance Company is not authorized nor does it solicit business in the state of New York. **Contractual obligations are backed by the claims-paying ability of The Lincoln National Life Insurance Company.**

Limitations and exclusions may apply.

Lincoln Financial Group is the marketing name for Lincoln National Corporation and its affiliates. Affiliates are separately responsible for their own financial and contractual obligations.

Asset Categories

- RM = Risk Managed
- MCA = Maximum Capital Appreciation
- LTG = Long Term Growth
- GI = Growth and Income
- I = Income
- PC = Preservation of Capital
- RM = Risk Managed - Asset Allocation
- RM = Risk Managed - US Large Cap
- AsA = Asset Allocation
- RM = Risk Managed - US Mid Cap
- RM = Risk Managed - Global/International

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