Managing Small Domestic Wastewater Systems

Texas Commission on Environmental Quality

Small Business and Local Government Assistance

2016

Agenda

- Welcome
- Basics of Asset Management and Developing a Budget
- Break (15 minutes)
- Sustainable Systems
- Break (15 minutes)
- Compliance
- Adjourn

Overview

- Overview of SBLGA—How We Help
- Basics of Asset Management
- How to Develop a Realistic Budget
- Sustainable Systems
- Compliance
- Resources

Small Business and Local Government Assistance

Who are we?

What do we do?

SBLGA Customers

- Business & Industry
- Local Governments
- Associations
- Other Agencies

Help For Smaller Entities

SBLGA Programs Offer

- Technical Assistance
  with understanding the rules and meeting requirements
- One-on-One Help
- Compliance Tools
- Free & Confidential

SBLGA Public Programs

- Hotline 800-447-2827
- Regional Staff
- EnviroMentor
- *Advocate* GovDelivery
- Technical Outreach and Training
- www.TexasEnviroHelp.org

Managing Small Domestic Wastewater Systems

It's a publication.

There are tools.

It's easy to use for small systems.

Managing Small Domestic Wastewater Systems

- What happens without maintenance?
- Save as you go
- Know what you have
- Customers should pay for services
- Be prepared for the repairs and prevent breakdowns

Managing Small Domestic Wastewater Systems

A five-part management guide:

A. Asset Management
B. Sustainable Systems
C. Operation and Maintenance
D. Compliance
E. Resources

Managing Small Domestic Wastewater Systems

- Plain language guidance
- Easy-to-use worksheets
- Simple, no-computer-needed toolkit

Asset Management and Budget

What is asset management?

How do I manage my assets?

Creating a realistic budget?

Asset Management Explains…

- What is asset management?
- Why do it?
- What are the steps?
- How do I move my organization forward?

What is an asset?

- Operators, equipment, tools, pumps, blowers, clarifiers, disinfection, digesters, and pipes that make up your system.

What is Asset Management?

- Getting the most value from and maintaining and operating your assets cost-effectively
- Pay now to maintain assets…or pay MORE later!

OK…Here's the deal…

- Increasing demand
- Dwindling funds
- Aging infrastructure
- No past planning

Ok…Here's the deal…

- Resistance to rate increases
- Loss of knowledge when personnel retire
- Demand to do more with existing resources
- What can I do???

Soldering a joint of cast iron sewer Pipe at migrant camp under Construction at Sinton, Texas. Photo by Russell Lee October 1939.

Transition from scraping by to managing your assets

- ✓ Extend asset life
- ✓ Optimize maintenance
- ✓ Develop accurate long-term funding strategies
- ✓ Sustain long term performance at your desired level of service!

Tale of Two Cities

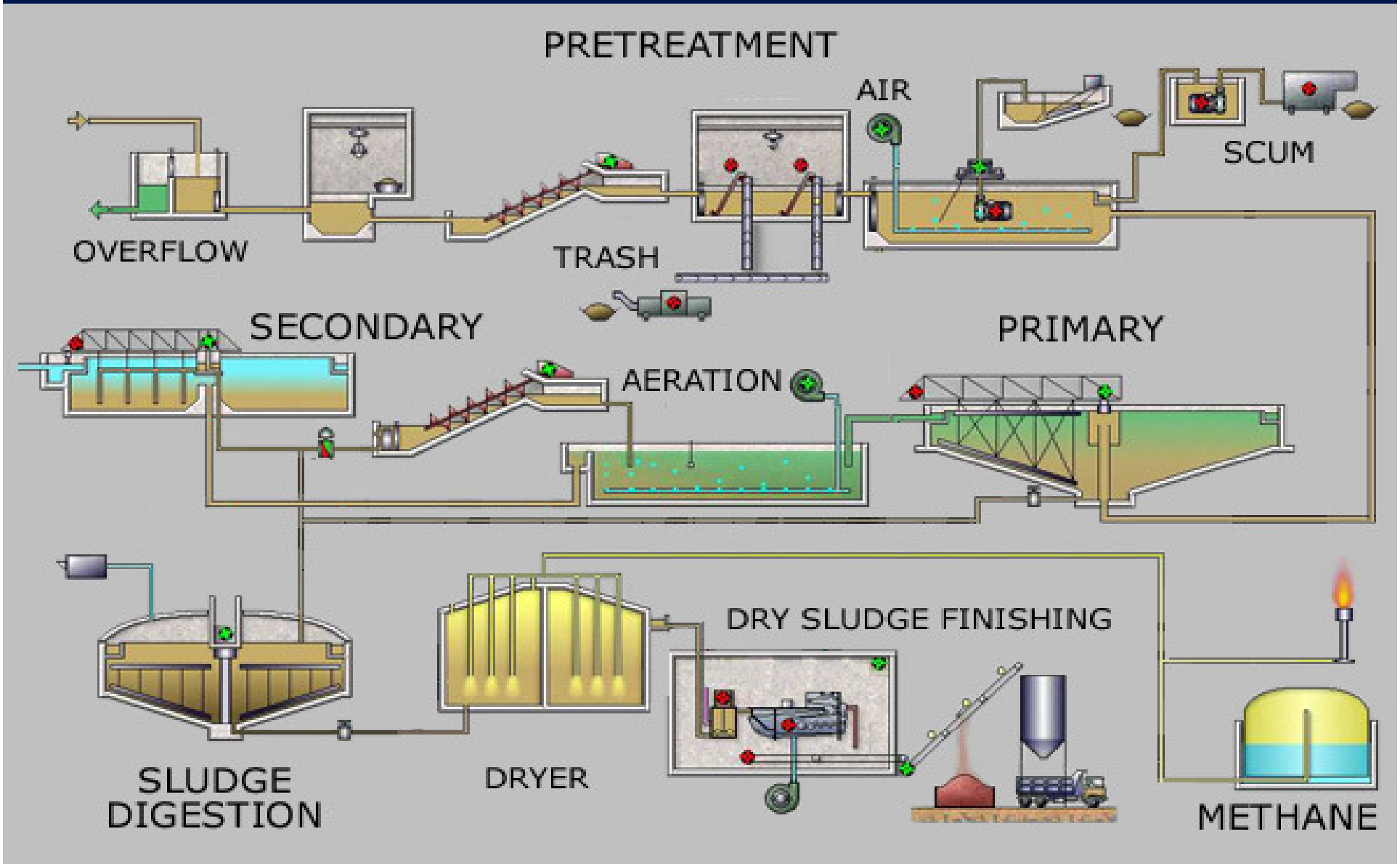
- City of Anthill
- Inventories their assets
- Realizes they need to construct a new lift station in about 5 years
- They start saving now
- In 4 years, they have the funds ready
- Anthill keeps on truckin', the operator gets a high five from the mayor

- City of Beehive
- Never thinks about the condition of their lift station
- When it breaks down, they have to rush to make emergency repairs
- The repair costs:
  - $$$
  - Loss of service
  - MEDIA ATTENTION
  - No high fives happening here

Asset Management Steps

1. Take an inventory and prioritize your assets
2. Develop a plan
3. Calculate your budget
4. Put your plan in action TOGETHER

Example WWTP



1. Inventory and Prioritization of Assets

MANAGING SMALL DOMESTIC WASTEWATER SYSTEMS: ASSET MANAGEMENT

Worksheet 1. System Inventory and Prioritization

This worksheet is designed to help you inventory and prioritize your utility's assets.
Make copies if you need additional pages.

Date _____ ❑ **Initial Inventory** ❑ **Update**

1. Asset and Year Installed	**2. Redundancy**	**3. Expected Useful Life** (years)	**4. Age** (years)	**5. Remaining Useful Life** (years)	**6. Expected Replacement Year**	**7. Cost to Replace** ($)	**8. Priority** (1 to 5, high–low)
Example: *Totalizing flow meter (0.90 PSI), 2003*	*None*	*15*	*12*	*3*	*2018*	*$5000*	*2*

Inventory and Redundancy

- Make a record of all assets the utility owns, and the year installed
- Use several sources of information to obtain a complete list of assets
- Describe any redundancy

Inventory Sources of Information

- Staff: current and previous (if available)
- As-built design drawings
- Manufacturers' manuals
- Monitoring or other map of system
- Operations and Maintenance manual

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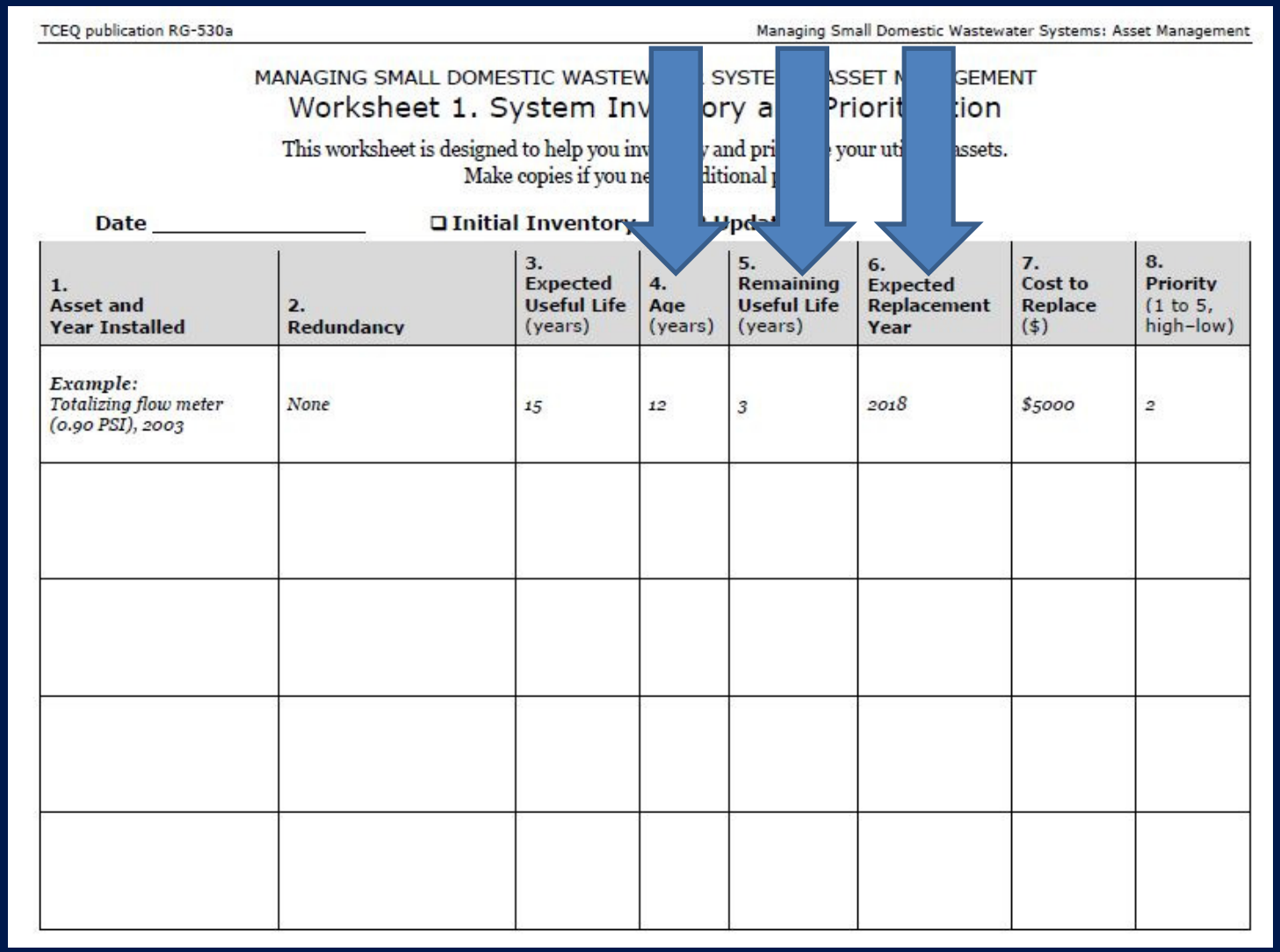
Inventory: Expected Useful Life

Table 1. Estimated Useful Life Span for Standard Equipment

Asset	**Expected Useful Life** (years)
Buildings	~30
Chlorination equipment	5–7
Computers	~5
Collection pipes	40–50
Conveyors	10–15
Electrical systems	10–12
Fencing	10–20
Generators	15–20
Lab and monitoring equipment	7–10

1. Inventory and Prioritization of Assets



TCEQ publication RG-530a — Managing Small Domestic Wastewater Systems: Asset Management

MANAGING SMALL DOMESTIC WASTEW… SYSTE… ASSET M… GEMENT

Worksheet 1. System Inv…ory a… Priorit…tion

This worksheet is designed to help you inv… and pri… your uti… ssets.
Make copies if you ne… ditional p…

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Example: Totalizing flow meter (0.90 PSI), 2003	*None*	*15*	*12*	*3*	*2018*	*$5000*	*2*

Inventory: Age, Remaining Life, Replacement Year

- Record the age (Column 4)
- Calculate the remaining useful life
  - Subtract the age from the expected life
    - (Column 3)-(Column 4)
- Calculate the expected replacement year
  - Add the remaining useful life to the current year.

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Inventory: Cost to Replace Assets

- Base your estimate on the cost of buying and installing a new piece of equipment:
  - Contact vendors, get bids
  - Use your system's experience
  - Tap into a neighboring system's knowledge
  - http://www.usabluebook.com/

Inventory: Cost to Replace Assets

- Factor in inflation!
  - Texas Comptroller's website
  - U.S. Bureau of Labor Statistics
  - Use a 5% inflation rate per year for worst case

1. Inventory and Prioritization of Assets

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Inventory: Prioritize Your Assets

- Use Table 2 “Prioritization Rating”
- Determines how critical each of your assets is to your operations
- Helps determine whether you should replace or repair

Table 2: Prioritization Rating

Table 2. Prioritization Rating

Description	Priority
Effective life exceeded and/or excessive maintenance cost incurred. A high risk of breakdown or imminent failure with serious impact on performance. No additional life expectancy; immediate replacement or rehabilitation needed. Asset is highly critical to infrastructure of system and in providing adequate treatment and maintaining compliance.	**1**
Very near end of physical life. Substantial ongoing maintenance with short, recurrent maintenance levels required to keep the asset operational. Unplanned corrective maintenance is common. Renewal (refurbishment or replacement) is expected within the next year or two.	**2**
Asset functions but requires a sustained high level of maintenance to remain operational. Shows substantial wear and performance is likely to deteriorate significantly. Renewal (refurbishment or replacement) is expected within the next two to three years.	**3**
Asset is sound and well-maintained but may be showing some signs of wear. Delivers full efficiency with little or no performance deterioration. Virtually all maintenance is planned and preventive. At worst, only minor repair might be needed at this time.	**4**
Asset is like new, fully operable, and well-maintained, and performs consistently at or above current standards. Little wear shown and no further action required.	**5**

Inventory: Prioritize your Assets

This will help you:

- Make informed budgeting decisions
  - Plan across city departments
- Make sure funds are available when you need them

Asset Management Steps

1. Take an inventory of and prioritize your assets
2. Develop a plan
3. Calculate your budget
4. Put your plan into action TOGETHER

2. Develop a Comprehensive Plan

- Plan repairs/replacements over the next five years
- Estimate cost, **including labor**
- Build redundancy into your plant to decrease how critical an asset is (lessen impact of its failure)

Worksheet 2: Comprehensive Planning

MANAGING SMALL DOMESTIC WASTEWATER SYSTEMS: ASSET MANAGEMENT

Worksheet 2. Comprehensive Planning

This worksheet is designed to help you generate a comprehensive plan for maintaining your utility's assets. Make copies if you need additional pages.

Date _____ ❑ **Initial Plan** ❑ **Update**

1. Asset (list from highest to lowest priority)	**2. Activity**	**3. Years until Action Is Needed**	**4. Cost ($)**	**5. Reserve Required per Year ($)** (No. 4 / No. 3)
Example: *1. Collection pipe between 1st and 2nd Streets* *2. Collection pipe between 3rd and 4th Streets*	*Replace*	*2*	*$60,000*	*$30,000*
	Replace	*3*	*$60, 000*	*$20,000*

Comprehensive Planning

1. List prioritized assets.
2. List refurbish and replacement activities.
3. Estimate years until action is needed.
4. Calculate reserve required per year.
5. Calculate reserve required in current year.
6. Repeat steps for next four years.

Asset Management Steps

1. Take an inventory of and prioritize your assets
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Develop a Budget

- Now that you have a plan, it's time to create a budget to fund it!

Budgeting

The "Budgeting Worksheet" will help you determine:

- Annual revenue
- Annual expenditures
- Net income
- Additional funding needed

Worksheet 3: Annual Budget

MANAGING SMALL DOMESTIC WASTEWATER SYSTEMS:
ASSET MANAGEMENT

Worksheet 3. Annual Budget

This worksheet is designed to help you identify your utility's revenues and expenses and calculate your budget. Make copies if you need additional pages.

Date _____ **Fiscal Year of Budget** _____

❑ **Initial Budget** ❑ **Update**

Revenues (Operating Income)		**Description**
Sewer Charges		Revenue from the sewer utility—include all customers (actual or projected receipts)
Usage Fees and Service Charges		Include late payments, forfeited deposits, surcharges, impact fees, etc.
Reserve Interest Earned		Interest accrued from reserve accounts or other investments
Other Income:		Itemize other income not elsewhere classified
1. Total Annual Revenue	**$**	
Expenses (Operating Costs)		
Regular Maintenance and Repair		Cost of performing regular or routine maintenance and repair on equipment
Utilities, Rent, and Other Overhead		Other overhead may include billing, building maintenance, cleaning, etc.
Salaries and Benefits		Include administrative and operations staff
Operating Supplies		Operating supplies not classified elsewhere
Equipment Leases		Include all equipment leases
Chemicals		Chemicals expensed in prior years, but not used, should be included for initial budgets

Worksheet 3: Annual Budget

Monitoring and Testing		Include laboratory fees for projected monthly and annual sampling requirements
Insurance and Bonds		Costs of insuring buildings, equipment, etc.
Professional Services		Accounting, legal, engineering & other professional (not related to capital projects)
Training and Licenses		Cost of operator training courses and license renewal fee
Security		Cost of maintaining security related items (i.e., fencing, alarms, etc.)
Debt Repayment		Include interest paid on debt
Transfer to Reserved Funds		For capital expenditures
Other:		Itemize other expenses not classified elsewhere
2. Total Expenses	$	
3. Net Income (Revenue – Expenses)	$	

Additional Reserves Needed	
4. Net Income (from 3. Net Income)	$
5. Total Required Reserves (from Comprehensive Planning Worksheet 2)	$
6. Additional Reserves Needed (Net Income – Total Required Reserves)	$

Find out how much money you have to work with

- Fees Collected
- Water Rates
- Secured Funding
- Interest

- O&M
- Utilities
- Fees
- Training
- Engineering

Calculate Your Revenues

- Sewer Charges= Average of $21.50/connection/month x 12 months x 1,000 connections= $258,000
- Service Charges (late payments, forfeited deposits, surcharges, impact fees, tap fees, etc.)= $16,200

Other Income:

- Interest and Other= $1500
- Total Revenue: $275,700

Calculate Your Expenses

- Regular maintenance and repair $22,000
- Utilities, Rent, Overhead $45,000
- Salaries and Benefits $140,000
- Operating Supplies $10,200
- Equipment Lease/Purchases $5,000
- Chemicals $7,200
- Monitoring and Testing $5,500

Calculate Your Expenses

- Insurance and Bonds $2,500
- Professional Services $3,600
- Training Costs and Licenses $1,500
- Security $800
- Debt Payments $0
- Transfer to Reserved Funds $0
- Other $6,200

Projected Revenue and Expenses

End of Year Reserves= Current Year Net Income + Reserve Account

Reserves Savings Shortfall= End of Year Reserves – Projected Savings needed for Capital Expenses

Projected Capital Expenses

- View all of your expenses and the reserve capital needed for each of the projects based on the number of years until the project is needed.

Reserves Needed

I need more money to carry out this plan!!!

Create additional reserve accounts

Put money in a protected capital improvement reserve account AND create an emergency account to fund unexpected repairs and replacements

Reserves Needed

Form Partnerships

- Work with other systems to spread out costs
- Make a regional plan

Consider increasing rates

- Charge a fee for infrastructure improvements

Reserves Needed

Apply for loans and grants

- Banks, government agencies
- RG-220: Funding Sources for Utilities
- Funding for regionalization
- TWICC

Asset Management Steps

1. Take an inventory of and prioritize your assets
2. Develop a plan
3. Calculate your budget
4. Put your plan into action TOGETHER!

4. Put Your Asset Management Plan Into Action

Work with your management team to:

- Complete your identified repairs and maintenance
- Make sure that you have the technical and financial means necessary to offer reliable service

Management Team Meeting

Provide the team:

- Map of the system
- List of current assets *(Inventory and Prioritization Worksheet)*

Management Team Meeting

Provide the team:

- List of priority repairs *(System Inventory and Prioritization)*
- Replacements *(Comprehensive Planning)*
- Current budget as well as the projected needs *(Budget)*

Maintain Momentum!

- Prioritize
- Communicate
- Monitor

Maintain Momentum!
Prioritize!

- Don’t get overwhelmed. Focus on one or two of your priority needs.
- Discuss how to address those needs.
- Research and discuss funding options.
- Develop a plan to obtain funding.

Maintain Momentum!
Communicate!

- Keep your management team updated.
- Prepare quarterly progress reports.
- Maintain their support.

Maintain Momentum!
Monitor

Keep up with the changes to your system's:

- Equipment
- Finances
- Personnel

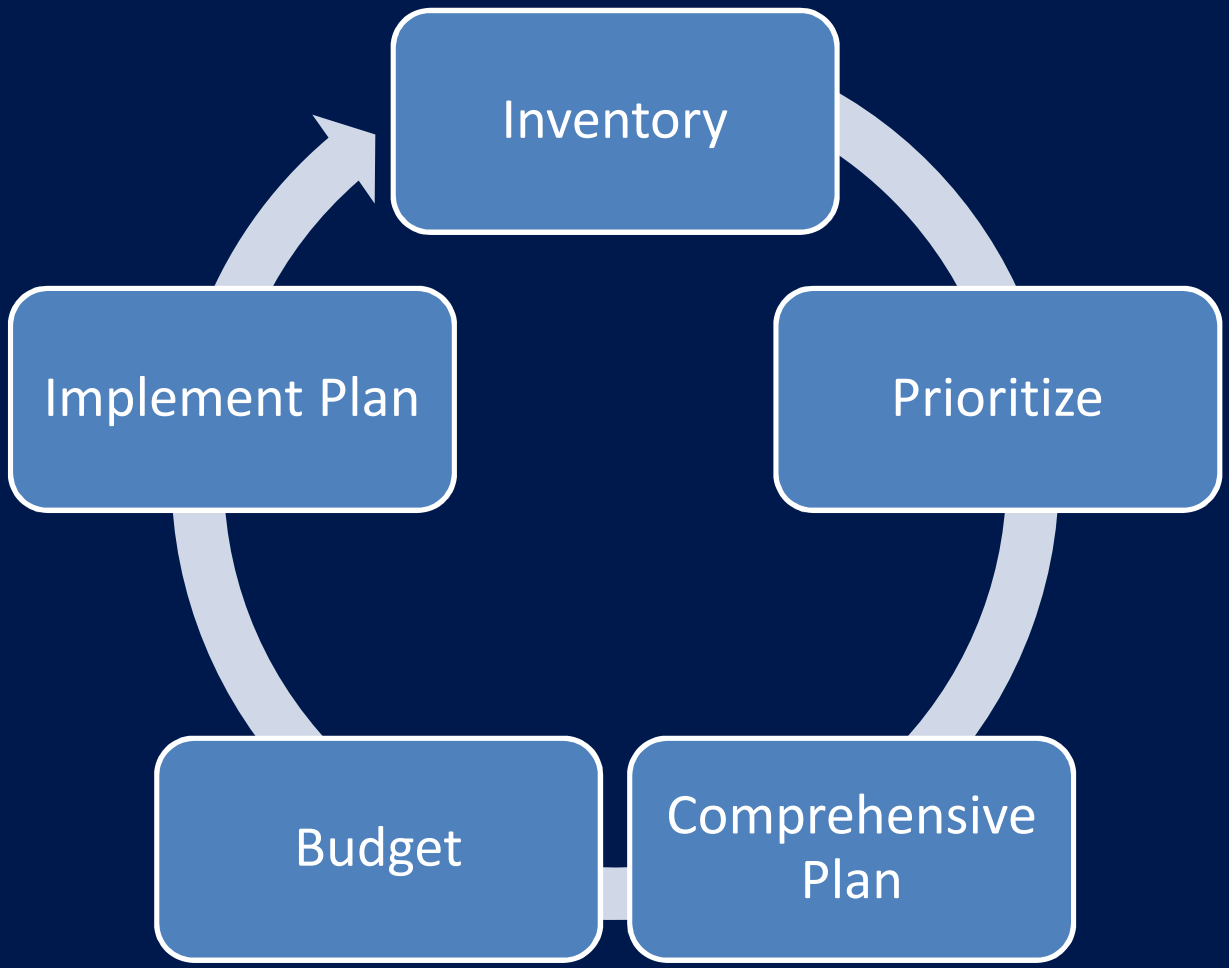
Asset management is a continuous process!!!

Recap: Asset Management Goals

Know what needs to be repaired or replaced

- When?
- What it will cost?

Asset Management



BREAK

Sustainable Systems

Energy

Operations

Community Relations

Sustainable Systems

Overview

- Energy Assessments
- Public Participation and Outreach
- Influent

Energy Assessments

Audits

Making Improvements

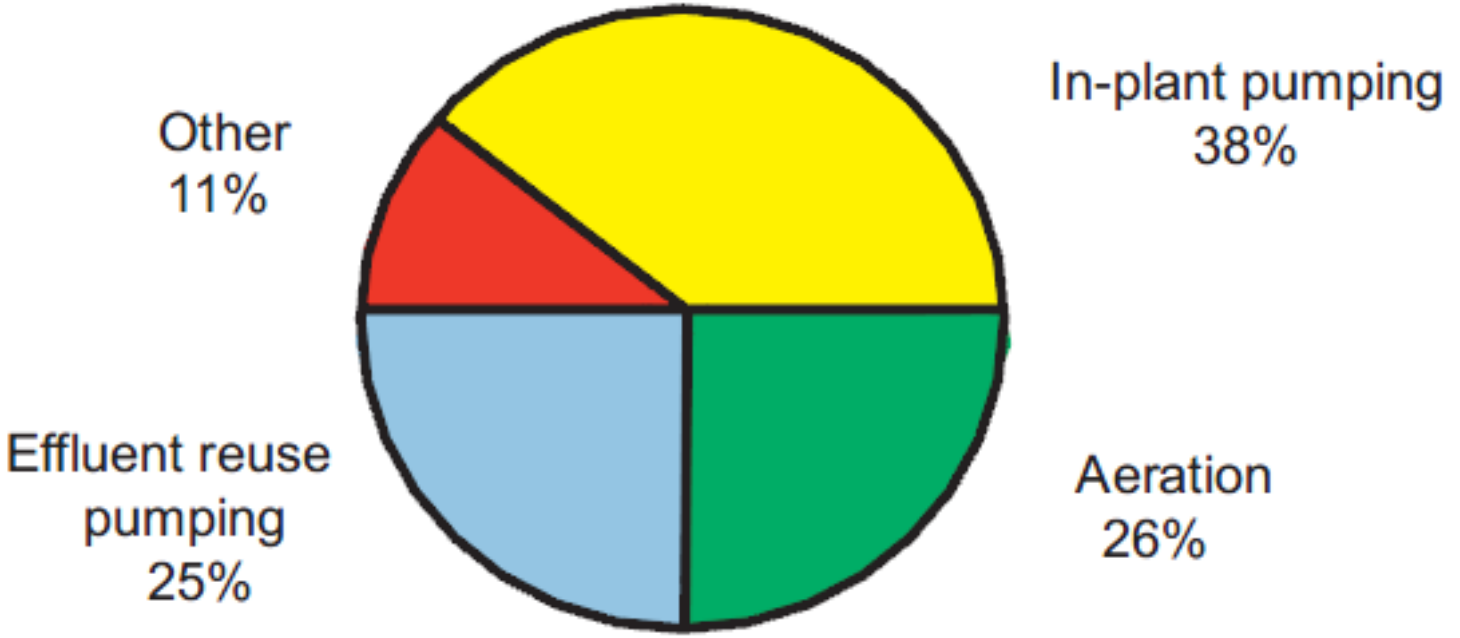
Securing Funding

Energy Use

- Costs money
- 25-40% of operating budget is energy cost
- Pumping and treatment are the largest users

Energy Use

National Association of Clean Water Agencies (NACWA)
Survey of Energy Use
47 Respondents used 2.1 billion kWh of electricity



How do you assess energy use?

- Evaluate your bills for energy consumption and equipment for efficiencies
- Energy assessments
  - Detailed, usually contracted out
- Energy audits
  - Simplified
  - Worksheet is available

Energy Assessments

- Form a team
- Develop baseline energy use
- Evaluate the system and collect current data
- Identify opportunities for energy savings
- Prioritize implementation
- State Energy Conservation Office preliminary energy assessments
  www.seco.cpa.state.tx.us/sch-gov/pea.php

Energy Assessments

- May be required for some funding
- Check to see if the assessment cost may be added to grant applications
- EPA and NY State have developed energy assessment spreadsheets
- https://owpubauthor.epa.gov/infrastructure/sustain/energy_use.cfm
- http://www.nyserda.ny.gov/Communities-and-Governments/Communities/Municipal-Water-and-Wastewater/MWWT-Tools-and-Materials

EPA Energy Use Assessment Tool

Version 2.0 for Excel 2010

Begin Assessment

te: You may need to decrease your computer's security level to allow the macros within this spreadsheet to function properly. Consult the Macro Instructions for Microso
cel 2007 and 2010 that are posted on EPA's Determining Energy Usage website or email EnergyUseTool@epa.gov if you are experiencing macro related problems.

RPOSE: This spreadsheet-based energy use assessment tool has been designed to allow small and medium sized water and wastewater utilities to self-assess their baseline energy nsumption and costs and to identify areas for improved energy efficiency and operational savings. While the tool is not equivalent to a full-scale, comprehensive energy audit, it provides the t step in establishing a baseline of energy consumption and use by collecting energy utility data and conducting a utility bill analysis. The tool includes five (5) elements to take you through steps to create this baseline: Instructions, General Information, Building Data, Drinking Water (Water Treatment Plant - WTP) / Wastewater (WastewaterTreatment Plant - WWTP) Energy age Data, and the Summary Report.

E: The energy use assessment tool contains several separate worksheets that take you through the process to establish your energy baseline. These worksheets can be accessed using the ferent colored tabs located at the bottom of the screen. Descriptions of each tab are provided within the worksheet.

IE FOLLOWING KEY APPLIES THROUGHOUT:

Yellow boxes indicate that data can be entered by the user.

Light blue boxes indicate that values are calculated using the input data. (They are read only.)

Text in Blue Blue text consists of instructions for that section of the tool.

White boxes with an arrow are dropdown lists. Click the arrow and select an option from the pre-populated list.

QUIRED INFORMATION: We recommend that you compile the following required information before using the energy use assessment tool. This will allow you to use the tool with ease d to its full capability.

All Plant Utility Data (use and cost information) by month (minimum of 12 months) for up to 5 years of analysis, including all Electric, Natural Gas, Fuel Oil No. 2, Water, and/or Other Utilities

List of Lighting Fixtures (by type and size) and HVAC equipment nameplate data (horsepower, efficiency rating, full load amp rating) and average motor operating amperage (for each building and room)

Drinking Water Treatment Plant Information, including monthly treatment/discharge volumes, pump and motor nameplate data (horsepower, efficiency rating, full load amp rating) and average motor operating amperage

Wastewater Treatment Plant Information, including monthly treatment/discharge volumes, pump and motor nameplate data (horsepower, efficiency rating, full load amp rating) and averag motor operating amperage

ER INSTRUCTIONS:

. Save a new workbook under a different name. (In the Menu, click "File", then select "Save As"). If you experience difficulties opening the Excel libraries or any other macro related issues

Instructions | General Information | Building 1 Data | WTP Energy Usage | Summary Report

NYSERDA

BENCHMARKING TOOL
FOR WASTEWATER TREATMENT FACILITIES

This benchmarking tool is intended for use at Wastewater Treatment Facilities.
It can be used as an ongoing internal benchmarking tool.

There are 4 different pages to collect information about the Plant: Plant Info, Electric, Fuel, and Plant Data.

Start at the PLANT INFO page (see tabs or click here).
Enter information in the yellow cells only.

Continue at the ELECTRIC page (see tabs or click here).
Enter information in the yellow cells only.
You will need: electric bills, both from the delivery and supply companies, if they are different.

Continue at the FUEL page (see tabs or click here).
Enter information in the yellow cells only.
You will need: natural gas, propane, or fuel oil bills.

Continue at the PLANT DATA page (see tabs or click here).
Enter information in the yellow cells only.
You will need: DMRs

Assess your WWTP performance with internal benchmarks shown in the INT BENCHMARKS page.
(see tabs or click here)
Compare your plant to similar size plants in New York State in the EXT BENCHMARKS page.
(see tabs or click here)

Monitor your performance with the CHARTS:

Usage per Flow ***Usage per BOD*** ***Usage per TSS*** ***Usage per Biosolids***
Demand per Flow ***Usage per BOD*** ***Demand per TSS*** ***Demand per Biosolids***
Air per BOD
Fuel Use

Texas Rural Water Association

- NEW!!
- Energy Efficiency Assessment Program
- Free Help from TRWA
- Visit their website to request help:
  www.trwa.org/?page=EEA
- Contact :
  Larry W. Bell
  Technical Assistance Director
  TRWA
  512-472-8591

Energy Audits

- Less complicated
- Less thorough
- Can help identify “low hanging fruit”
- Checklist is included in the Management Guide

Energy Audit Checklist

- Influent/effluent pumping
- Pre- and post-aeration
- Intermediate pumping
- Activated sludge process
- Fixed film bio-reactors
- Disinfection
- Sludge pumping
- Sludge stabilization
- Sludge thickening and dewatering

MANAGING SMALL DOMESTIC WASTEWATER SYSTEMS
ENERGY AUDIT CHECKLIST

Many wastewater facilities could save 20 to 40 percent of energy use by making energy-efficient upgrades. An annual energy survey should be conducted to determine where you can conserve energy or improve efficiency. This survey reviews energy-consuming processes, such as aeration and pumping. Use the results of the survey and your asset management plan to determine what equipment upgrades will most benefit your system.

Answer only the questions that apply to your system. For each section, include additional comments or notes about past or planned upgrades.

Table 1

Influent/Effluent Pumping	Yes	No
a. Do you have influent and/or effluent pumps?		
b. For influent pumps: do you have variable speed control?		
c. For influent pumps: are premium-efficiency motors currently installed?		
d. For effluent pumps: do you have variable speed control?		
e. For effluent pumps: are premium-efficiency motors currently installed?		

Notes:

Energy-Efficient Upgrades

Aeration basins

- 40-60% of your energy use
- O & M Adjustments are free to implement and can save money.
  - Optimize DO/O_2 sensors in your aeration basin
  - Adjust controls to optimize blower staging
  - Maximize mechanical mixer efficiency

Energy-Efficient Upgrades

Aeration basins

- Include new equipment in your Asset Management Plan!
  - Install automated O_2 controls
  - Provide for variable mixing
  - Change from coarse to fine bubble diffusion
    - Increases O_2 availability, increases efficiency
  - High-efficiency turbo blowers that are VFD-equipped
- May require a permit amendment

Energy-Efficient Upgrades

Pumping

- Upgrading pumps to more energy efficient models
- Incorporate pump replacement in your asset management plan

Pump Efficiency

- Info on pumping variable-frequency drives enable pumps to accommodate fluctuating demand, running pumps at lower speeds and drawing less energy while still meeting pumping needs http://www.energy.ca.gov/process/pubs/vfds.pdf
- Also see below
- Motors efficiency - http://www.energy.ca.gov/process/pubs/motors.pdf

City of Denison
Utility Conservation Project

- Improvements to aeration basin & aerobic digester including new fine bubble diffusion grids
- Replacement of 750 hp of blowers and 400 hp of pumps
- Replacement of 3 old switchgear/MCC's with Square D switchgear
- HVAC replacements
- Lighting retrofit
- Energy Management System

City of Denison
Utility Conservation Project

- Project cost approximately $7,943,747
- Annual project savings $217,727
- For more case studies: http://www.naesco.org/project-case-studies

Is it Worth It?

- Energy upgrades cost money.
- Energy use costs money.
- Energy upgrades can reduce costs by 5, 10, 25% or MORE.
- Could your system spend the money saved on something else?

Water Conservation

Cooperative planning with your wastewater system

Water Conservation Planning

- How can a water conservation plan help?
  - Reduce water use (water conservation devices and practices)
  - Reduce water and wastewater infrastructure costs
  - Conserve resources for future generations

Water Conservation (WWTP)

- Facilities can reuse treated wastewater to:
  - water city parks and golf courses
  - irrigate agricultural land
  - recycle some of the treated wastewater for reuse onsite for maintenance activities
- Water conservation outreach material
  - WaterSense Program
  - http://www.epa.gov/watersense/

Water Conservation Outreach Material

Take Care of Texas

Saving Water Saves Money.

Try these simple tips to help you conserve water and save money on your bill, too.

Water Wisely.

Lawn and garden watering make up as much as 40% of total household water use. Water your yard thoroughly, but only as needed–usually no more than 1 inch, once a week.* Consider using drip irrigation for plants and gardens, and water early in the morning to minimize evaporation.

Check Faucets and Toilets for Leaks.

A leaky faucet can waste up to 3,000 gallons of water per year. Toilet leaks: up to 73,000 gallons a year.

Install Water-Efficient Plumbing Fixtures and Faucet Aerators.

Water-efficient plumbing fixtures can reduce water consumption by 25% to 60%. Installing aerators will cut in half the amount of water used by each faucet.

Wash Full Loads of Laundry.

Washing only full loads of laundry can save up to 3,400 gallons of water each year. Need a new clothes washer? Invest in an Energy Star–qualified model, which typically uses 50% less water and 37% less energy per load.

Try a Native Landscape and Use Collected Rainwater.

Plants that are native to Texas typically require lesser amounts of water, pesticides, fertilizers, and maintenance. Collecting rainwater for landscape use is not only great for the plants, but can save you water and money.

How Do You Take Care of Texas?

Visit <TakeCareOfTexas.org> for more water-conservation tips and other ways to do your part. Go online and pledge to Take Care of Texas!

Always comply with your water system's water-use restrictions.

TakeCareOfTexas.org

How is our customer service? www.tceq.texas.gov/customersurvey

Printed on recycled paper using vegetable-based ink.

GI-400 (Revised 6/13)

TCEQ

Public Participation and Outreach

Fats, Roots, Oil, and Grease

Wipes

Pharmaceuticals

Fats, Roots, Oils, and Grease

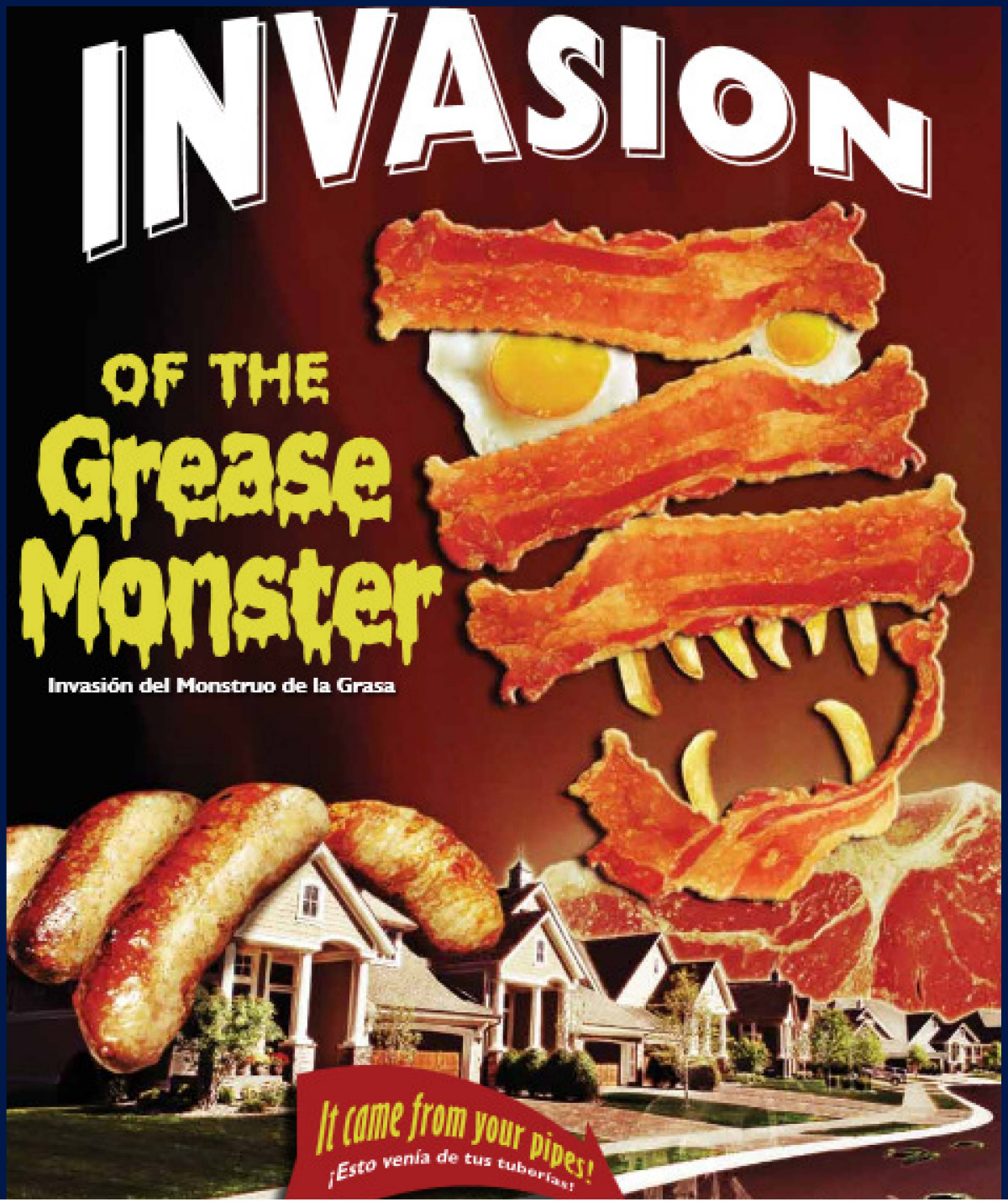
- Common cause of SSOs
  - Affect local surface water quality
- Causes deterioration of concrete assets
  - Lift stations
  - Manholes

Fats, Roots, Oils, and Grease Ripped from the Headlines!

Fats, Roots, Oils, and Grease

- City of Dallas CeasetheGrease.org
  - Earl the Plumber
  - Oil drop off locations
- Galveston Bay Foundation's CeasetheGrease.net
  - Free materials you can personalize
  - Go to their website and become a partner!
- Local watersheds may have initiatives


Earl
We're turning grease into electricity?
That's right, Dallas Water Utilities is turning YOUR grease and cooking oil into electricity at the Southside Wastewater Treatment Plant!
Cease the Grease


INVASION
OF THE
Grease
Monster
Invasión del Monstruo de la Grasa
It came from your pipes!
¡Esto venía de tus tuberías!

TCEQ Free Publications!

Let's Tackle the Grease in This Kitchen!

Why should I help?

- Prevent grease buildups from blocking sewer lines.
- Stop sewer overflows into streets and storm drains.
- Save money spent on costly cleanups of sewage spills.
- Reduce the number of times you have to clean your grease trap (food service).
- Protect the quality of our water.

DO!

- Put oil and grease in covered collection containers.
- Scrape food scraps from dishes into trash cans and garbage bags and dispose of properly. Avoid using your garbage disposal.
- Remove oil and grease from dishes, pans, fryers, and griddles. Cool first before you skim, scrape, or wipe off excess grease.
- Prewash dishes and pans with cold water before putting them in the dishwasher.
- Cover kitchen sink with catch basket and empty into garbage can as needed.
- Cover floor drain with fine screen and empty into garbage can as needed.

DON'T!

- Don't pour oil and grease down the drain.
- Don't put food scraps down the drain.
- Don't run water over dishes, pans, fryers, and griddles to wash oil and grease down the drain.
- Don't rinse off oil and grease with hot water.

More Ways to Tackle Grease

- Use environmentally safe cleaning products instead of harsh detergents or cleaners that can damage sewer lines.
- If you generate large amounts of used cooking oil, reuse or recycle it. To find a recycler, check the phone book under "recyclers" or "rendering companies."
- If you generate small amounts of used cooking oil, reuse it as often as possible and then pour it into a container you can throw away. Never pour it down the drain.
- Start a compost pile at your home with scraps that are not meat. The TCEQ publication *Mulching and Composting: A "Take Care of Texas" Guide* (GI-36) provides basic information to get you started.

For more information, contact the
Texas Commission on Environmental Quality (TCEQ)
Small Business & Local Government Assistance Section
1-800-447-2827 • TexasEmirateHelp.org

TCEQ

Take Care of Texas.
TakeCareOfTexas.org

taquemos a la Grasa en Esta Cocina!

engo que ayudar?

- Evitar acumulaciones de grasa que obstruyan las líneas de drenaje.
- Detener los desbordamientos de drenaje hacia la calle y desagües pluviales.
- Ahorrar dinero gastado en limpiezas costosas de derrames de aguas residuales.
- Reducir el número de veces que se tienen que limpiar las trampas de grasa (servicio de alimentos).
- Proteger la calidad de nuestra agua.

¡HAGA ESTO!

- Ponga el aceite y la grasa en contenedores cerrados para colección.
- Quite las sobras de comida en botes o bolsas de basura y disponga de ellos adecuadamente. Evite usar su trituradora de basura.
- Quítele el aceite y la grasa a los trastes, ollas, freidoras y parrillas. Primero enfríe antes de tallar o limpiar el exceso de grasa.
- Enjuague los trastes y ollas con agua fría antes de ponerlos en la lavadora para trastes.
- Cubra el fregadero de la cocina con una canasta para capturar comida y vacíelo en el bote para basura, como sea necesario.
- Cubra el resumidero en el piso

¡NO HAGA ESTO!

- No vacíe aceite y grasa por el desagüe.
- No tire sobras de comida por el desagüe.
- No enjuague los trastes, ollas, freidoras y parrillas con agua para tirar el aceite y la grasa por el desagüe.
- No enjuague el aceite y grasa con agua caliente.

Otras Maneras de Atacar la Grasa

- Use productos de limpieza ambientalmente seguros en lugar de detergentes o limpiadores ásperos que pueden dañar las líneas de drenaje.
- Si genera en la cocina grandes cantidades de aceite usado, reúselo o recíclelo. Para encontrar a un reciclador, revise el directorio telefónico bajo "recicladores."
- Si usted genera cantidades pequeñas de aceite usado para cocinar, reuse tan seguido como sea posible y luego vacíelo en un contenedor que pueda tirar. *Nunca* vacíelo por el desagüe.
- Empiece una pila de composta en su hogar con sobras que no sean carne. La publicación de la TCEQ *Mulching*

Wipes

- Booming industry
- Making national news – Chris Hayes, MSNBC
  - How flushable is that wipe?
- Causing huge problems
- Flushable ≠ breakdown-able

Wipes

- How to intervene
  - SJRA's Patty Potty campaign

NO WIPES IN THE PIPES

HOME | ABOUT PATTY POTTY | NO WIPES IN THE PIPES | DO NOT FLUSH LIST | PATTY POTTY PATROL PARTICIPANTS

NO WIPES IN THE PIPES

People are flushing all kinds of things down the toilet!

TRASH 'EM DON'T FLUSH 'EM!

THERE IS NOTHING WRONG WITH THESE PRODUCTS... THE PROBLEM IS HOW PEOPLE DISPOSE OF THEM.

Flush only the 3 P's! – PEE, POO, and (toilet) PAPER

PATTY POTTY'S DO NOT FLUSH LIST

- DIAPERS
- PAPER TOWELS
- FACIAL TISSUE
- COTTON SWABS
- BABY WIPES
- ADULT WIPES
- HAIR
- GUM WRAPPERS
- CANDY
- FACIAL PADS
- DENTAL FLOSS
- CIGARETTES
- COTTON BALLS
- SCOOPS OF KITTY LITTER
- WOMEN'S HYGIENE PRODUCTS
- ALL PURPOSE CLEANING WIPES
- ADHESIVE BANDAGES
- MAKEUP REMOVER WIPES

Patty Potty
No Wipes in the Pipes!

- Visit PattyPotty.com
- Free materials to download and print
- Patty Potty is an SJRA employee
  - She's not a paid celebrity!
- Become a Potty Patrol Participant
- Open to state-wide participation

Drug Take-Back Programs

- Form partnerships
  - Local pharmacy
  - DPS offices
- The American Medicine Chest Challenge

  www.americanmedicinechest.com

  Search Drop-off Locations
- Educate on safe disposal

Ways to do Outreach

- Use free materials
- Target schools
- Partner with other community groups
  - Churches
  - Apartment complexes
  - Management companies
  - Plumbing companies

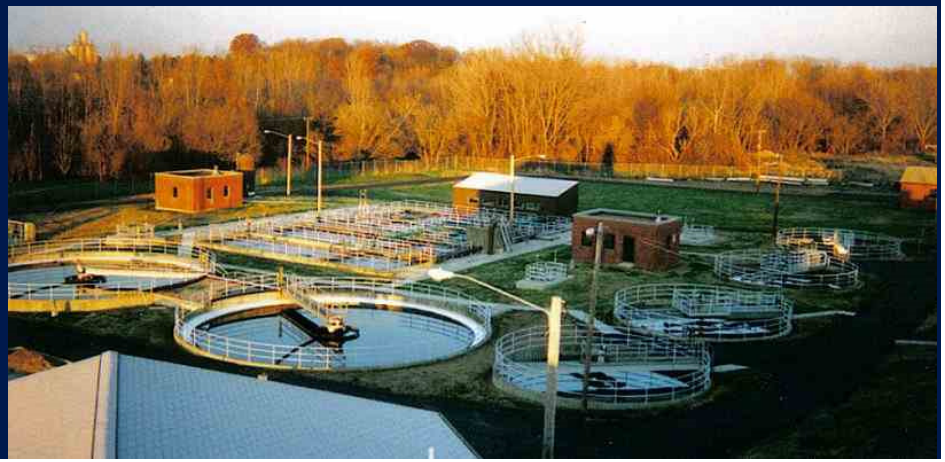
Know Your Influent

Bacteria Limits

Nutrients

Know your Influent

- Knowing your influent can help you treat it
- How high is the organic loading?
- Does the strength fluctuate?
- Do you have dense multi-family developments?



Know your Influent

Know your Influent

- Monitor influent for BOD, TSS, metals, oil and grease and others
- Create a pretreatment program to help you control what comes in
- Identify inflow and infiltration sources
- Can you control the influent coming from your collection and wastewater systems?

Bacteria Limits

- Relatively new in most permits
- Requires optimized disinfection, knowing your influent, and knowing your sources of problems
- Requires some troubleshooting know-how
  - TCEQ's Troubleshooting Bacteria Levels at WWTPs
  - Maintain optimal solids
  - Keep your weirs clean
  - Meet chlorine contact time

Nutrients

- Nutrient limits may be coming to permits soon
- Remove ammonia and phosphorous
- Will require updates to systems
- For information on Nutrient Criteria Development visit: www.tceq.texas.gov/waterquality/standards/WQ_standards_nutrient_criteria.html

Summary

- Building sustainability into your wastewater system can help your system save money and help stay compliant for years into the future
- Energy use, water conservation, public outreach, knowing your influent, and understanding your bacteria limits can all play a role in the sustainability of your system.

BREAK

Regulatory Compliance

When to notify TCEQ

What records to keep

Reporting deadlines

Regulatory Compliance

Overview

- Permit Changes
- Monitoring, reporting, and recordkeeping
- Due dates and monitoring tips
- When to notify the TCEQ
- Investigations and the enforcement process
- “Category A” violations
- Enforcement scenario

Where do I start??

- Obtain a copy of the permit
- Become “the expert”
- Develop and maintain a filing system
- Train your staff
- Seek help

Permit Changes

- Your permit is for YOUR plant
- Before making changes at your plant, contact a permit writer at the TCEQ
- Minor amendments
- Major amendments – buffer zone issues for a new treatment unit
  - Require mailed public notice

Permit Renewals

- Renewal permits are required to be submitted to TCEQ 180 days prior to the expiration date
- Start well in advance
- Consider waiting to make major changes until your permit requires renewal

Records to Maintain
O&M

- Operational or process control records
- Operator daily logs
- Maintenance records for equipment

Records to Maintain Lab and Sampling

- Sampling records
- Laboratory reports
- Calibration records for lab instruments
- Records of in-house lab analyses

Records to Maintain
Self-Monitoring Records

- DMRs and MERs
- Copies of noncompliance notifications
- Sludge disposal records
- Irrigation application records and soil analysis results
- Flow meter calibration records
- Loading calculation records
- Operator certification records

Table 1: Record Keeping

Monitoring, Reporting, and Record Keeping

Table 1: Monitoring and reporting

Reports, Manuals, Registrations	Parameter	Monitoring Frequency	Reporting Frequency
DMRs*	With copies of supporting data by month	As specified in the permit	Monthly
Monthly effluent reports (MERs)	If applicable, with copies of supporting data by month—form provided by the TCEQ	Monthly	Monthly
Noncompliance notifications†	Bypasses, unauthorized discharges, sanitary sewer overflows, and any effluent violation that deviates from the permitted effluent limitation by 40 percent	As necessary	Orally within 24 hours to the regional office, written within five working days
Soil analysis results	If applicable	Annually on MER form	Annually

How long should records be retained?

- Three years
  - All records required by the permit
- Five years
  - Monitoring information related to sludge use and disposal
- Longer than five years
  - The TCEQ may request that you keep records longer

What reports may I need to submit?

- DMRs
  - NetDMR web-based tool
  - New EPA NPDES e-Reporting Rule:
    - Submit DMRs via NetDMR- 12/21/2016*
    - SSOs and other NPDES reports- 12/21/2020
- MERs
- Water quality noncompliance notifications
  - Form TCEQ-00501
- Irrigation application records and soil analysis results

Reporting Deadlines

- Complete effluent sampling by the end of every month
- Submit DMRs for the previous month by the 20th
- Quarterly Biomonitoring DMRs
  - January 20, April 20, July 20, October 20
- Annual Sludge Report
  - September 1

Table 2: Wastewater Permit Due Dates

Table 2: Wastewater-permit due dates

Month	Action
January	• Complete sampling by January 31. • Submit December DMR by January 20. • Submit biomonitoring DMR by January 20, if applicable.
February	• Complete sampling by February 28. • Submit January DMR by February 20.
March	• Complete sampling by March 31. • Submit February DMR by March 20.
April	• Complete sampling by April 30. • Submit March DMR by April 20. • Submit biomonitoring DMR by April 20, if applicable.
May	• Complete sampling by May 31. • Submit April DMR by May 20.
June	• Complete sampling by June 30. • Submit May DMR by June 20.

Table 3: Stormwater Permit Due Dates

Table 3: Stormwater-permit due dates

You must have stormwater coverage if your design flow is 1 million gallons per day or more. For specific requirements, see the *TPDES Multi-Sector General Permit, TXR050000* at <www.tceq.state.tx.us/goto/ind-sw>.

Quarter	Action
First quarter—January, February, March	• Complete quarterly visual monitoring before March 31. • Check rain gauge weekly or daily during storms. • File your annual hazardous-metals numeric effluent results in your SWP3 for previous year by March 31. • Submit benchmark results for the previous year by March 31. • Conduct periodic or annual inspection as required in your SWP3 by March 31.

When to Notify TCEQ

- 75% of permitted daily or annual flow occurs for 3 consecutive months – plan for expansion
- 90% of the permitted daily or annual average flow occurs for three consecutive months – obtain authorization
- 180 days prior to expiration, submit permit renewal application

When to Notify TCEQ

- Noncompliance issues that endanger human health or the environment
  - discharge from an unauthorized location
  - sanitary sewer overflows
  - an unanticipated bypass at your plant that exceeds any effluent limitation in the permit
  - a violation of a daily maximum permit limit for a toxic or organic parameter
- Report orally or by fax to the regional office AND send in written notification
- Can use TCEQ Form 00501 to notify

When to Notify TCEQ

- Deviate 40% of more from any permitted limit, report to the Regional Office and Enforcement Division within 5 days
- Signatory authorities change, and you aren't using NetDMR
- New industrial users are identified (if you have a pretreatment program)
- Violations of other requirements in your permit

I am scheduled for an investigation. What should I do?

- Allocate time
- Ask questions
- Be prepared
- Be helpful

Three Types of Investigations

- **On-site field investigations**
  - comprehensive compliance investigations (CCIs)
  - focused investigations
  - reconnaissance investigations
- Investigations based on **citizen complaints**
- Investigations through **record reviews**

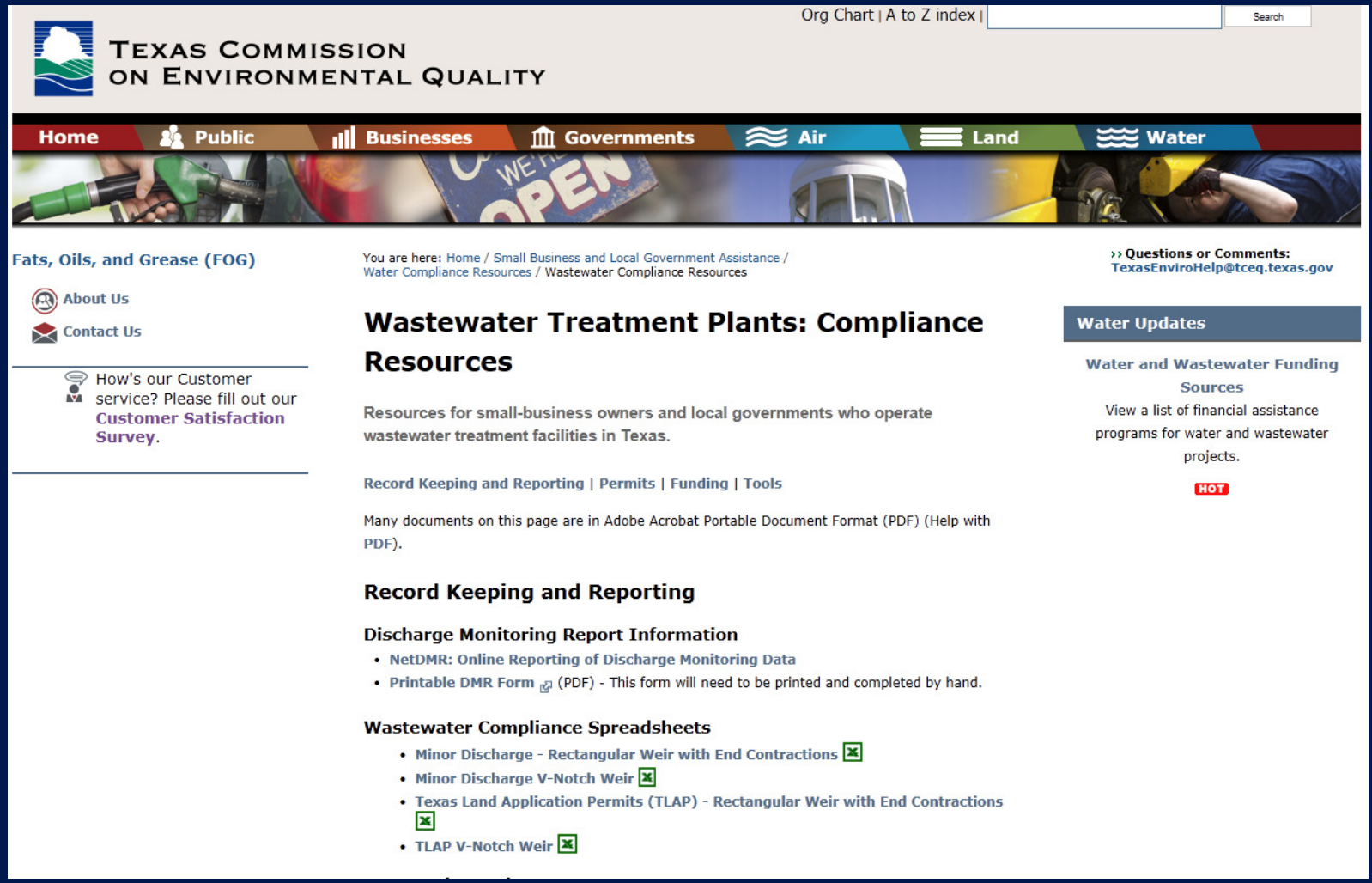
Wastewater Violations

- Different types of violations: A, B, C
- NOV versus NOE
- Respond to NOV or NOE within a set compliance period
- Examples of wastewater violations: www.tceq.texas.gov/goto/eic

Enforcement Scenario

- Coldwater Creek WWTP
- Results of CCI:
  - Violations were resolved within a week
  - No formal NOV was issued
- Results of Records Review:
  - Violated monthly average limits in permit
  - Received an NOE

I Need More Compliance Help



Org Chart | A to Z index | Search

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Home | Public | Businesses | Governments | Air | Land | Water

Fats, Oils, and Grease (FOG)

About Us

Contact Us

How's our Customer service? Please fill out our Customer Satisfaction Survey.

You are here: Home / Small Business and Local Government Assistance / Water Compliance Resources / Wastewater Compliance Resources

›› Questions or Comments: TexasEnviroHelp@tceq.texas.gov

Wastewater Treatment Plants: Compliance Resources

Resources for small-business owners and local governments who operate wastewater treatment facilities in Texas.

Record Keeping and Reporting | Permits | Funding | Tools

Many documents on this page are in Adobe Acrobat Portable Document Format (PDF) (Help with PDF).

Record Keeping and Reporting

Discharge Monitoring Report Information

- NetDMR: Online Reporting of Discharge Monitoring Data
- Printable DMR Form (PDF) - This form will need to be printed and completed by hand.

Wastewater Compliance Spreadsheets

- Minor Discharge - Rectangular Weir with End Contractions
- Minor Discharge V-Notch Weir
- Texas Land Application Permits (TLAP) - Rectangular Weir with End Contractions
- TLAP V-Notch Weir

Water Updates

Water and Wastewater Funding Sources

View a list of financial assistance programs for water and wastewater projects.

HOT

RESOURCES

Funding Resources

Technical Resources

Funding Resources

- Privately-owned utilities
  - Normally not eligible for grants
  - Can be sponsored by local government in some cases
- Temporary vs. permanent solutions
- Some require Asset Management

Funding Resources

- Texas Water Development Board (TWDB)
  - Loans and Grants for water related infrastructure construction and improvement
- Contact Information:
  - Financial_Assistance@twdb.texas.gov
  - 512.463.7853
  - http://www.twdb.texas.gov/

Texas Water Development Board

Funding Resources

Texas Water Infrastructure Coordination Committee (TWICC)

- Complete a Project Profile form
- Visit http://www.twicc.org/

TWICC
Texas Water Infrastructure Coordination Committee

Technical Resources

TCEQ EnviroMentor Program

- Available to small businesses and small local governments
- Volunteer professionals

EnviroMentor
A HELPING HAND

Technical Resources

TCEQ Financial, Managerial, and Technical Assistance Program (FMT)

Contact:

SBLGA 1-800-447-2827

Technical Resources

Environmental Finance Center Network

- Training for small systems
- efcnetwork.org

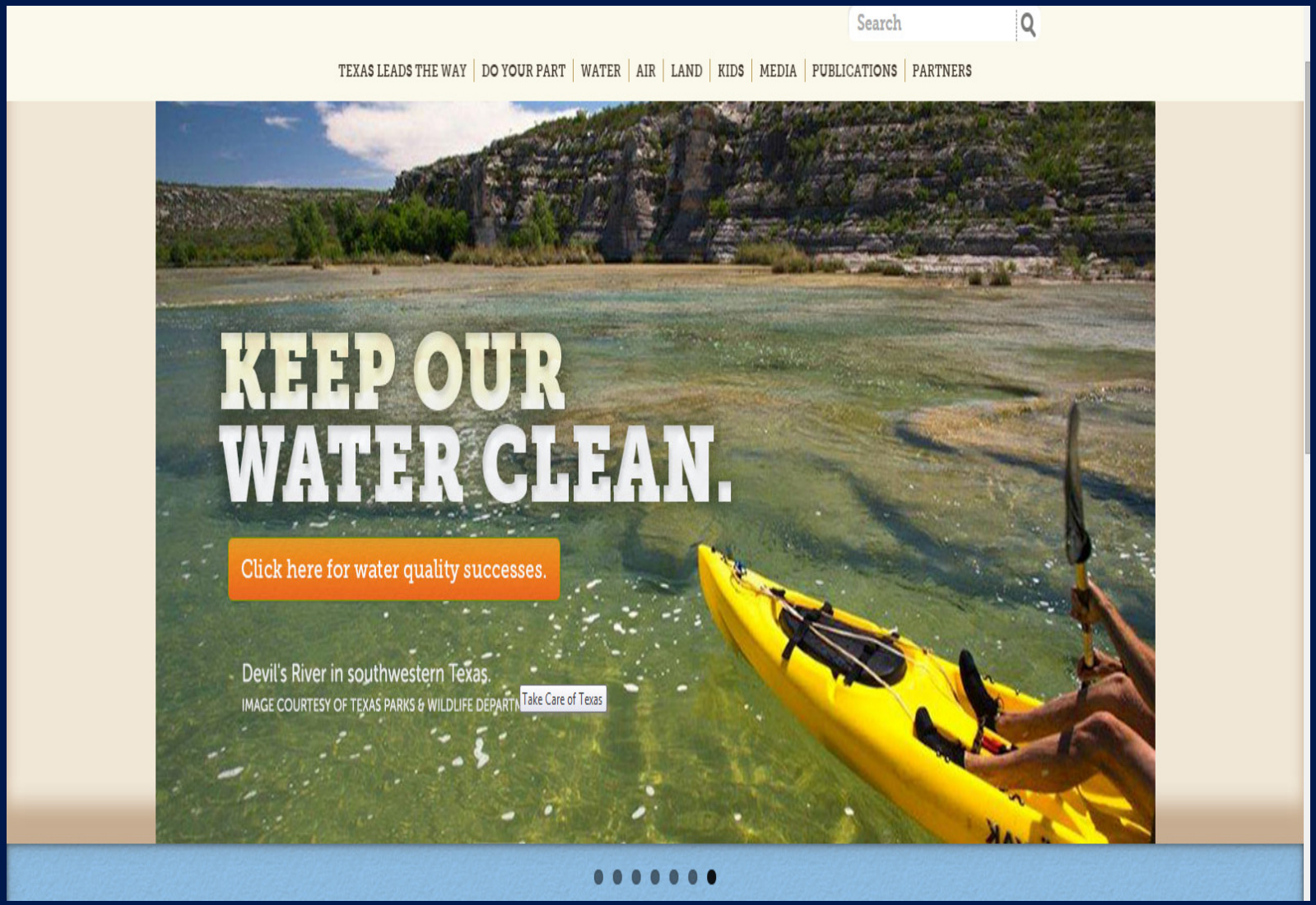
Communities Unlimited, Inc.

- Non profit organization providing technical help to small rural communities with water and wastewater infrastructure and funding
- Their mission is to move rural and under-resourced communities in areas of persistent poverty to sustainable prosperity
- www.communitiesu.org
- Corporate Office: 479-443-2700

Take Care of Texas

Take Care of Texas

Take Care of Texas



Helpful Contacts

- SBLGA
  - 800-447-2827
- Wastewater Permitting Section
  - 512-239-4671
- Your TCEQ Regional Office
  - www.tceq.state.tx.us/about/directory/region

Questions?

Contact a Small Business and Local Government Compliance Assistance Specialist

1-800-447-2827

www.TexasEnviroHelp.org