Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze will bring down the temperatures.
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Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve by early afternoon and continue throughout the evening.

Raw sludge pumping schedule	12 min/hr	
Sludge pumping rate	68 GPM	
Raw sludge %TS	5.2%	
Raw sludge %VS	72.5%	
Digester sludge %VS	56%	
Gas production	$\frac{12 ft^3}{lb\ VS\ destroyed\ -\ day}$	
Percent CO_2	34%	
Other gases	1%	
Pure methane net heat value	932 $\frac{BTU}{ft^3}$	

Two aeration tanks – 0.5 MG each	Two final clarifiers – 0.25 MG each
Final effluent = $20\frac{mg}{l}$	WAS = 7500 ppm
MLSS =$3600\frac{mg}{L}$	MLSS volatile solids content = 80%

Country List			
Country Name or Area Name	ISO ALPHA 2 Code	ISO ALPHA 3 Code	ISO numeric Code
Afghanistan	AF	AFG	004
Aland Islands	AX	ALA	248
Albania	AL	ALB	008
Algeria	DZ	DZA	012
American Samoa	AS	ASM	016
Andorra	AD	AND	020
Angola	AO	AGO	024

Country List		
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Aland Islands	AX	ALA
Albania	AL	ALB
Algeria	DZ	DZA
American Samoa	AS	ASM
Andorra	AD	AND
Angola	AO	AGO

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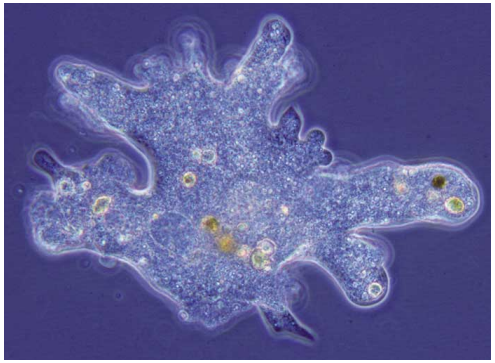
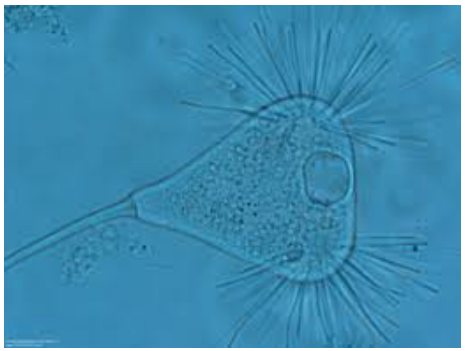


Amoeba

StalkedCilliate

Flagellate



Suctorian

A Head	A Second Head	A Third Head
Some text	Some really longer text	Text text text

This is the first cell	second
3rd	and the last cell

Wastewater Chemicals		
PROCESS	ACTION	CHEMICAL USED
Collections	Odor Control	Caustic Soda (pH control) Magnesium Hydroxide (pH control) Hydrogen Peroxide (Oxidant) Sodium Nitrate (Bio. Degradation) Iron Salts (Precipitant)
Primary	CEPT	Ferric Chloride (Coagulant) Anionic Polymer (Flocculant)
Secondary	Filament Control	Bleach Polymer
Nutrient Removal	Phosphorous Removal	Iron Salts (Precipitant)
Anaerobic Digestion	pH control	
Tertiary Treatment	Disinfection Dechlorination	Chlorine/Bleach Sodium Bisulfite Sulfur Dioxide
Dewatering	Flocculation	Cationic Polymer
Plant Odor Control	Foul Air Scrubbing	Hydrogen Peroxide (Oxidant) Bleach (Oxidant) Caustic Soda (pH Control) Muriatic Acid (pH Control & Scrubber Descaling)
Anaerobic Digestion	Hydrogen Sulfide Control	Iron Salts (Precipitant)

Item		
Animal	Description	Price ($)
Gnat	per gram	13.65
	each	0.01
Gnu	stuffed	92.50
Emu	stuffed	33.33
Armadillo	frozen	8.99

my.Lboro	Advantages	Disadvantages
	• Accessibility • Up to date information • Fulfil students needs and wants . . .	• Accessibility • Up to date information • Fulfil students needs and wants . . .

Table 1: my.Lboro Analysis

Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze will bring down the temperatures.
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Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve by early afternoon and continue throughout the evening.

You may also specify the skip after a line explicitly using glue after the line terminator

Mineral Color

Ruby red
Sapphire blue

Mineral Color

Ruby red

Sapphire blue

Mineral	Color
Ruby	red
Sapphire	blue

An alternative way to adjust the rule spacing is to add

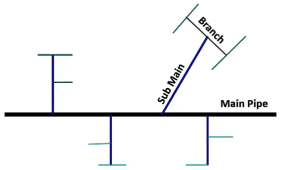
	Item	
Animal	Description	Price ($)
Gnat	per gram	13.65
	each	0.01
Gnu	stuffed	92.50
Emu	stuffed	33.33
Armadillo	frozen	8.99

	A	
Foo	1 2 3 4	
Bar	1 2 3 4	

Time	Flow, MGD	Time
06:00 AM	5.8	12:00 pm
07:00 AM	6.4	01:00 pm
08:00 AM	6.8	02:00 pm
09:00 AM	7.2	03:00 pm
10:00 AM	6.8	04:00 pm
11:00 AM	7.2	05:00 pm

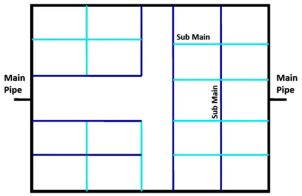
Types of Distribution Systems

Dead-end or Tree Distribution System



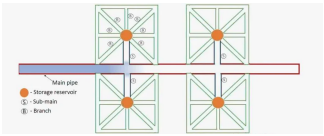
In this type of water distribution system, one main pipeline runs through the center of the building, and the sub-mains branch lines off from both sides. The sub-main lines are divided into several branch lines for service connection to a particular house.

Ring Distribution System



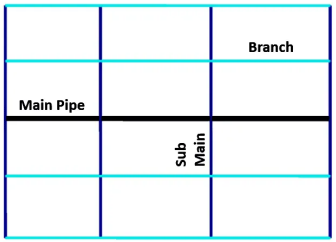
Here, the main pipeline encloses the system. The branch pipes are connected cross-wise to the mains and also to each other.

Radial Distribution System



In this types of water distribution system, the whole buildings are divided into several distribution areas. Each building has a centrally located elevated reservoir from where distribution pipes run radially towards the periphery of the distribution areas.

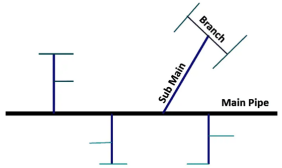
Grid Iron Distribution System



Main supply lines run through the center, and sub mains branch off in perpendicular directions. The branch interconnects the sub-mains. All types of pipes are interconnected - no dead ends. Water can reach any given point from many directions, which allows more flexible operation, particularly when repairs are required.

SYSTEM

Dead-end or Tree Distribution System



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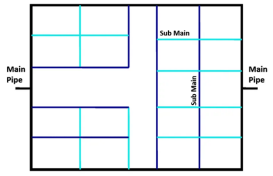
Ring Distribution System



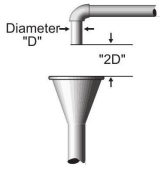
Here, the main pipeline encloses the system. The branch pipes are connected cross-wise to the mains and also to each other.

Lead and Copper Tap and WQP Tap Monitoring					
Size Category	System Size	Number of Pb/Cu Tap Sample Sites[3]		Number of WQP Tap Sample Sites[4]	
		Standard	Reduced	Standard	Reduced
Large	> 100K	100	50	25	10
	50,001 - 100K	60	30	10	7
Medium	10,001 - 50K	60	30	10	7
	3,301 - 10K	40	20	3	3
Small	501 - 3,300	20	10	2	2
	101 - 500	10	5	1	1
	≤ 100	5	5	1	1
[3] *With written State approval, PWSs can collect < 5 samples if all taps used for human consumption are sampled.*					
[4] *Two WQP tap samples are collected at each sampling site.*					

Table 13: Lead and Copper Tap and WQP Tap Monitoring

Pipe Material	Advantages
Steel: These are fabricated by rolling the mild steel plates to proper diameter and can be joined by riveting or welding. Steel pipe is coupled by a variety of methods; threaded couplings, welded couplings, Dresser™type couplings, Victaulic™couplings, flanges and rubber ring push-on joints.	• Numbers of joints are less because these are available in long lengths. • The pipes are cheap at the first cost. • The pipes are durable and strong enough to resist high. • The pipes are flexible to some extent laid on curves. and they can therefore 5. Transportation is easy because of lightweight.
• Polyvinyl chloride (PVC) • Cross linked PVC (CPVC)	• Cost of these pipes is moderate. • Pipes are cheap and durable. • The pipes are flexible, light in weight and they can easy to mold any shape. • Does not corrode, tuberculate or support bacteria growth like metal pipe.
Ductile iron (DI): Typically, the pipe is manufactured using centrifugal casting in metal or resin-lined molds. Protective	• Comparatively DI pipes possess greater ductility and impact resistance than CI pipes. • Lighter than CI pipes so that easy to handle and transport. • The pipes are easy to join and simple

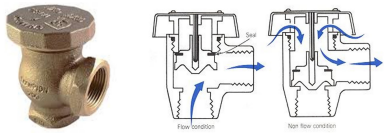
Air Gap



- A physical separation between the free-flowing discharge
- Should not be used in an area with dangerous atmospher
- An "approved air gap" shall be at least twice the diamet less than 1 inch (2.54 cm).

Common Applications - Lethal hazards (raw sewa

Atmospheric Vacuum Breaker Assembly (AVB)



- Also known as the non-pressure type vacuum breaker, it body causes the air inlet valve to close the air inlet port(
- When the flow of water stops the air inlet valve falls and ing air to enter and satisfy the vacuum.
- A shutoff valve immediately upstream may be an integra
- An atmospheric vacuum breaker is designed to protect ag siphonage condition only.

Common Applications - Irrigation systems

Spill Resistant Vacuum Breaker

- Its assembly consists of an independently operating inter charge side of the check valve.
- The assembly is to be equipped with a properly located

CLASS	MATERIAL INVOLVED	
CLASS A	This class of fire involves ordinary combustibles or fibrous material, such as wood, paper, cloth, paper, and some plastics.	
CLASS B	Class B fire is flammable or combustible liquids such as gasoline, diesel, kerosene, paint, paint thinners, and propane.	
CLASS C	A Class C fire is energized electrical equipment, such as motors, motor controls, switches panel boxes, and power tools.	

METAL ION (CATION)	NON-METAL ION (ANION)
Calcium - Ca^{+2}	Carbonate - ${CO_3}^{-1}$
Magnesium - Mg^{+2}	Bicarbonate - ${HCO_3}^{-1}$
Manganese - Mn^{+2}	Hydroxide - OH^{-1}
Iron - $Fe^{+2/+3}$	Sulfate - ${SO_4}^{-2}$
Aluminum - Al^{+3}	Chloride - Cl^{-1}
Sodium - Na^{+1}	
Copper - $Cu^{+2/+3}$	

Table 6: Salts constituents

CHEMICAL NAME	FORMULA
Aluminum sulfate	$Al_2(SO_4)_3$
Calcium oxide	CaO
Calcium hydroxide	$Ca(OH)_2$
Calcium carbonate	$CaCO_3$
Calcium hydroxide	$Ca(OH)_2$
Magnesium carbonate	$Mg(CO_3)_2$
Magnesium bicarbonate	$Mg(HCO_3)_2$
Sodium hydroxide	$NaOH$
Sodium carbonate	Na_2CO_3
Ferrous sulfate	$FeSO_4$
Ferric chloride	$FeCl_3$

Parameter	Container	
Coliform, Total or Fecal, Chlorinated Water	Sterile Container w/ thiosulfate	Coo free
Giardia and Cryp- tosporidium	10 L plastic con- tainer	Coo free
Alkalinity, Turbidity, Solids , Fluoride	Plastic or Glass	Coo
Metals, General	Plastic or Glass, Rinsed w/ 1:1 HNO3	Nit
Hardness, Total	Plastic or Glass	Nit
pH	Plastic or Glass	Nor
Nitrogen and phospho- rous compounds	Plastic or Glass	Sul

Fresh water	2.50%	Surface water
		Ground water
		Glaciers and ice caps
Other saline water	0.90%	
Oceans	96.50%	

Table 9: Distribution of Earth's Water

(From: Igor Shiklomanov's chapter "Worlds fresh water resources" in Peter H. Gleick (editor), 1993, Water in Crisis: A guide to the world's Fresh water resources)

Name	Power	Number
one	10^0	1
ten	10^1	10
hundred	10^2	100
thousand	10^3	1,000
million	10^6	1,000,000
billion	10^9	1,000,000,000
tenth	10^{-1}	0.1
hundredth	10^{-2}	0.01
thousandth	10^{-3}	0.001
millionth	10^{-6}	0.000 001
billionth	10^{-9}	0.000 000 001

1000 has one significant digit: only the 1 is interesting (only it tells us anything specific); we don't know anything for sure about the hundreds, tens, or units places; the zeroes may just be placeholders; they may have rounded something off to get this value.

1000.0 has five significant digits: the ".0" tells us something interesting about the presumed accuracy of the measurement being made; namely, that the measurement is accurate to the tenths place, but that there happen to be zero tenths.

0.00035 has two significant digits: only the 3 and 5 tell us something; the other zeroes are placeholders, only providing information about relative size.

0.000350 has three significant digits: the last zero tells us that the measurement was made accurate to that last digit, which just happened to have a value of zero.

1006 has four significant digits: the 1 and 6 are interesting, and we have to count the zeroes, because they're between the two interesting numbers.

560 has two significant digits: the last zero is just a placeholder.

560. : notice that "point" after the zero! This has three significant digits, because the decimal point tells us that the measurement was made to the nearest unit, so the zero is not just a placeholder.

560.0 has four significant digits: the zero in the tenths place means that the measurement was made accurate to the tenths place, and that there just happen to be zero tenths; the 5 and 6 give useful information, and the other zero is between significant digits, and must therefore also be counted.

TCR/ Nitrate/Nitrite		
Sanitary Survey		
Total Coliform Bacteria1		
Nitrate (NO_3)		
Nitrite (NO_2)		
Reporting		
Turbidity		
Fluoride – if added		
Entry Point Chlorine – if chlorine is added		
Distribution System Chlorine3		
Consumer Confidence Report		
Disinfection/Disinfectant Byproducts		
	Pop <500	

For Regulated Disinfectants		
Disinfectant	**MRDL (mg/L)**	**MRDLG (mg/L)**
Chlorine	4.0 as Cl2	4 as Cl2
Chloramines	4.0 as Cl2	4 as Cl2
Chlorine dioxide	0.8 as ClO2	0.8 as ClO2

Table 11: Disinfectant MRDLs

For Disinfection By-products		
Regulated Contaminants	**MCL (mg/L)**	**MCLG (mg/L)**
TTHM	0.08	Three individual MCLGs were established: Bromodichloromethane at Zero Dibromochloromethane at 0.06 Bromoform at Zero
HAA5		Two individual MCLGs were established: Dichloroacetic acid at Zero Trichloroacetic acid at 0.3
Bromate - For plants that use ozone	0.01	Zero
Chlorite - For plants that use chlorine dioxide	1	0.8

Table 12: Disinfectant By-products MCLs

Record	Minimum Record Retention Period
Microbiological analyses	5 years
Turbidity analyses	5 years
Chemical analyses	10 years
Sanitary survey documents	10 years
Variances and exemptions granted	5 years
Tier 1, Tier 2 and Tier 3 Notices	3 years
Level 1 and Level 2 assessments	5 years

Table 14: Summary of regulatory record-keeping requirements

		Inorganics
	With waiver	**≤ MCL and no waiver**
Surface water	Once every 10 years	Annual
Ground water	Once every 10 years	Triennial

		Volatile
	Waiver with vulnerability analysis	**<Detect and no waiver**
Surface water	Once every 10 years	Annual