

## WHAT'S NEW, WHAT'S NOT: TRENDS IN THE WATER AND WASTEWATER PROFESSION

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**DIRECTOR OF PROJECT DELIVERY**  
**MIDDLESEX WATER COMPANY**

**NEW JERSEY WATER ASSOCIATION ANNUAL MANAGEMENT AND TECHNICAL CONFERENCE**  
**ATLANTIC CITY, NEW JERSEY OCTOBER 20-21, 2021**

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## WATER/WW CAREER SPANNING NEARLY 50 YEARS

**WHAT'S NOT NEW:**

- **HIGH SCHOOL (1972)** COOP (1973) COLLEGE (1977) UNIV OF TEXAS (1978)
- **FULL TIME AT MALCOLM PIRNIE (PARAMUS/WHITE PLAINS/BUFFALO) 1978**
  - WATER TREATMENT GROUP: SCOTTSDALE/HOLLYWOOD FL/ERIE CO/BIRMINGHAM WW/.....JERSEY CITY
- **CITY OF JERSEY CITY: DIRECTOR AQUEDUCTS AND DISTRIBUTION 1984-1985 T4/W4**  
 CITY ENGINEER 1985-1989
- **SPRING VALLEY WATER COMPANY 1A/D NYSDEC LICENSES 1989-1996**
- **UNITED WATER NEW JERSEY (NOW SUEZ) DIRECTOR... 1996-1999**
- **NORTH JERSEY DISTRICT WATER SUPPLY COMMISSION 210 MGD PLANT (WANAQUE) 2000-2013**
- **WANAQUE WATER DEPARTMENT T1/W2 2008-2020**
- **MONROE TOWNSHIP UTILITY DEPARTMENT T4/W4 2013-2018**
- **MIDDLESEX WATER COMPANY: CJO WTP T4 2018-2021**

**WHAT'S NEW: RETIREMENT 12/03/21**

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## WHY BOTTLED WATER?

**• NOT NEW:**  
 WATER/WASTEWATER ARE THE MOST SILENT UTILITY  
 SIGNIFICANT QUALITY COMPONENT TO OUR UTILITY  
 LOWEST COST UTILITY BILL..... CELL PHONES: \$100'S/MONTH  
 CABLE TV.....\$100'S/MONTH  
 ELECTRIC (SUMMER), GAS (WINTER), \$100'S PER MONTH  
 WATER: \$100 (SUMMER) PER MONTH..... WW IN WITH TAX BILLS?

**NEW(ER):**

- **MISSION STATEMENT: PROVIDE THE "PUREST WATER" AT A "REASONABLE" COST.**
- **PUBLIC HAS BEEN TELLING US SOMETHING.....**
  - WILLING TO PAY \$1+ FOR BOTTLED WATER
  - ARE WE LISTENING???
  - COST OF WATER IS NOT AS IMPORTANT AS WATER QUALITY
  - **WHY ARE WE AFRAID TO RAISE RATES?**
    - WE CONTINUE TO BE THE MOST ENERGY INTENSIVE UTILITY
    - WE CONTINUE TO BE THE MOST CAPITAL INTENSIVE UTILITY
  - **WE HAVE A STORY TO TELL! SO GO TELL IT!**

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## PARTS PER WHAT?

**• WHAT'S NEW:**  
**PARTS PER TRILLION**

**• WHAT'S NOT NEW:**  
**PARTS PER BILLION.....UG/L**  
 • 1 SPOON FULL IN AN OLYMPIC SIZE SWIMMING POOL

**PARTS PER MILLION.... MG/L**

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## REGULATIONS

**• WHAT'S NEW/NEW(ER)**

- **LEAD...AGAIN!**
- **UCMR 3..... PFAS...PFOA PFOS.... NOW REGULATED IN NEW JERSEY...AT 13/14 PPT**  
 6 COMPOUNDS ... NOW FINDING 40+ COMPOUNDS  
 CHROMIUM 6 1,4 DIOXANE
- **UCMR 4..... ALGAL TOXINS 2018-2020 CYCLE**
- **UCMR 5..... PFNA'S ... 2023-2025**
- **5 YEAR CYCLE**

**WHAT'S NOT NEW:**  
 GROUND WATER: CHLORINATION & POSSIBLY A PH ADJUSTMENT  
 VOC'S 1980'S CENTRALIZED TREATMENT: STRIPPING TOWERS/GAC CONTACTORS/PURCHASED WATER  
 CONVENTIONAL TREATMENT: COAGULATION/FLOCCULATION & DUAL MEDIA FILTRATION  
 THMS 1970'S MOVED CHLORINATION / USED CHLORAMINES

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## LEAD REGULATIONS

**• WHAT'S NOT NEW:**

- **CORROSION CONTROL: EARLY 1900'S**
  - LANGLEIER INDEX: SLIGHT POSITIVE SIDE OF CALCIUM CARBONATE SATURATION
  - PH ADJUSTMENTS TYPICALLY WITH LIME
- **LEAD/COPPER 1990'S**
  - CORROSION STUDIES
    - PH ADJUSTMENTS
    - CORROSION INHIBITORS NON ZINC!!!
  - REDUCED SAMPLING.....3 YEAR CYCLE

**• WHAT'S NEW:**

- **LEAD LINE REPLACEMENTS OF CUSTOMER'S SIDE OF SERVICE LINES**
- **FULL SAMPLING EVERY 6 MONTHS**

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### FLINT, MICHIGAN

2016 RESPONSE TO FLINT MICHIGAN'S ONGOING INCIDENT

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### COLIFORM TESTING

- NOT NEW:
  - LATE 1800'S: MOVING TO UPLAND WATER SUPPLIES
  - MPN TEST: 48 HOURS.....(MULTIPLE TUBE FERMENTATION)
- NOT SO NEW:
  - COULERT 24 HOURS TEST
- NEW(ER):
  - COULERT 18 HOUR TEST

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### LEAK DETECTION

- WHAT'S NOT NEW:
  - DIG AND HOPE
  - DRIVING BARS
  - AQUAPHONES
  - WILBUR.....
  - 25% UNACCOUNTED FOR WATER (UFW)
- WHAT'S NEW/NEW(ER):
  - COMPUTERIZED CORRELATORS
  - CONTRACTED SERVICES
  - MUELLER'S: ECHOLOGICS/ HYDROGUARD HYDRANTS
  - WQAA.....VALVES/HYDRANTS/ASSET PLANS.....
  - 15% OR LESS UFW

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### CHEMICALS

- NEW(ER)
  - POLYMERS.....SETTLING/FILTER/SPECIAL
  - NEW(ER): POLYALUMINIUM CHLORIDE...SPECIFIC LOCATION OF ALUMINUM
  - PEROZONE (OZONE WITH HYDROGEN PEROXIDE)...SUPER CHARGED (1,4 DIOXANE)
  - ION EXCHANGE RESINS...RADIUM/SPECIFIC PFNA'S.....
  - GAC ... SPECIALTY BY MATERIAL
- NOT NEW:
  - ALUM....PLAIN VANILLA
  - FERRIC CHLORIDE.....
  - POLYMERS: SETTLING OR FILTER AIDS...CATFLOC T

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### DISINFECTION

**NEW:**

- UV TREATMENT FOR WATER
- TYPICALLY A WASTEWATER TREATMENT OPTION

**NEW(ER):**

SODIUM HYPOCHLORITE 1.5%

ON SITE GENERATION (SALT BRINE) 0.8% ... MWC IN 2010

OZONE TREATMENT

- HAWORTH PLANT TESTING 1980'S OPERATIONS IN EARLY 1990'S
- MIDDLESEX WATER: CJO PLANT 2021

**NOT NEW:**

CHLORINE.....TON CONTAINERS/ 150 # CYLINDERS

CHLORAMINES..... 1980'S: THMS

NO CHLORINE.....

**CITY OF JERSEY CITY FIRST USE OF CHLORINE (CHLORIDE OF LIME) IN THE UNITED STATES IN 1908...**

GREAT BOOK: THE CHLORINE REVOLUTION BY MICHAEL J MCGUIRE

ACTUALLY APPLIED TO JCS BOONTON RESERVOIR SUPPLY (WITHOUT APPROVAL) AND FOR LEGAL REASONS

TYPHOID DEATHS 80/100,000 (LITTLE FALLS SUPPLY TO 20/100,000 BOONTON SUPPLY TO 0\*/100,000 WITH CHLORINE

GEORGE WARREN FULLER DESIGNED THE FEED SYSTEM FOR DOCTOR JOHN L LEAL

**BY 1915 ..... CHLORINE WAS BEING USED BY MOST WATER SYSTEMS IN THE UNITED STATES**

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### FILTERED WATER TURBIDITY

- **NEW(ER):**
  - 0.3 NTU INDIVIDUAL FILTERS 95%
  - 0.1 NTU PARTNERSHIP
- **NOT NEW:**
  - 1 NTU MOSTLY!
  - UPLAND RESERVOIR SYSTEMS:

JERSEY CITY:	1976	DIRECT FILTRATION WATER TREATMENT PLANT
NJWVSC:	1978	CONVENTIONAL WATER TREATMENT PLANT
	1990'S	ADDED: UP FLOW CLARIFIERS WITH TUBE SETTLERS

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### SECURITY

**NEW(ER):**

- VULNERABILITY ASSESSMENTS
- AMERICAN WATER INFRASTRUCTURE ACT (AWIA) PLANS
- CCTV'S (SECURITY)
- CYBER SECURITY "EXPERTS"...NJ'S CCIC
- DHS/OHSP...TRAINING/ASSESSMENTS/THE ROIC
- WATER/WW SECTOR SECURITY WORKING GROUP: BMP'S
- SIMPLISAFE / RING DOORBELLS
- BODY CAMS

**DEFINITELY NOT NEW:**

- 50 YEAR OLD LOCKS
- NEIGHBOR'S WITH KEYS

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### TRANSPORTATION

- **WHAT'S NEW?**
  - FINDING A NEW OR USED CAR
  - FINDING AN ECONOMICALLY PRICED CAR
  - ALL ELECTRIC VEHICLES BY 2035... TESLA: SOLD 241,300 CARS IN Q3 2021
  - SHORT/LONG TRIPS: BATTERY LIFE/RECHARGING TIMES
- **WHAT'S NOT NEW?**
  - IN 2001 PRIUS...WAS INTRODUCED IN USA... ONLY 15,000 SOLD
  - IN 1971...1960 DE SOTO TRADE IN \$68
  - IN 1972: \$400 TRADE IN = 1 YEAR OLD 1973 TORINO FOR \$835
  - IN 1975: \$180 FOR A 1968 RAMBLER AMERICAN
  - 1 OLD CAR FAMILY.... RUSTY FLOOR BOARDS/WHEEL WELLS

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### SPARE/REPLACEMENT PARTS

- **WHAT'S NEW:**
  - LIMITED UTILITY INVENTORIES (JUST IN TIME ORDERING)
  - LONG LEAD TIMES
  - UNAVAILABILITY OF PARTS...EVER?
  - CONSOLIDATED INDUSTRIES
  - INCREASED COSTS
  - TRANSPORTATION ISSUES
  - AMERICAN IRON AND STEEL (AIS)... REVOLVING FUND REGULATIONS
- **WHAT'S NOT NEW:**
  - SIGNIFICANT UTILITY INVENTORIES
  - UTILITY TO UTILITY SHARING
  - MULTIPLE INDUSTRIES

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### BITS AND PIECES

<p><b>WHAT'S NEW(ER):</b></p> <ul style="list-style-type: none"> <li>• PANDEMIC'S COVID 19</li> <li>• WORK FROM HOME (PERMANENT?...)</li> <li>• ZOOM/U TUBE.....</li> <li>• APPLE WATCH/EMAIL/GMAILS/THE WEB</li> <li>• CELL PHONES/SATELLITE PHONES</li> <li>• SCANNING DOCUMENTS/FAXES (HOME)</li> <li>• APPS</li> <li>• ALEXA.....WHAT IS...?</li> <li>• 24/7 NEWS ON PHONE</li> <li>• LINE OF SIGHT RADIO FREQUENCIES</li> <li>• CELL/CABLE SCADA COMMUNICATIONS</li> </ul>	<p><b>WHAT'S NOT:</b></p> <ul style="list-style-type: none"> <li>COMMON COLD</li> <li>OFFICE/DESK WORK ONLY 1 TO 3 DAYS</li> <li>FACE TO FACE MEETINGS...MY 18 MINUTE DRIVE!</li> <li>A PHONE CALL MAYBE AN ANSWERING MACHINE</li> <li>HOME PHONES/PAGERS</li> <li>CARBON PAPER COPY</li> <li>WHAT?</li> <li>RESEARCH (YOURSELF) AT THE LIBRARY</li> <li>WAIT FOR THE PAPER/NEWS RADIO 88</li> <li>PRIVATELY OWNED FREQUENCIES</li> <li>T1 LINES.....</li> </ul>
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### HERE'S SOMETHING THAT'S REALLY NOT NEW IN COMMUNICATIONS:

- ROTARY PHONE
  - 1 PER HOUSEHOLD
  - PARTY LINES
- LAND LINES
- NEXTEL RADIO
- FLIP PHONE
- CB RADIOS
- LOW BAND RADIOS IN WORK TRUCKS
- TELEGRAPH.....MORRIS CODE

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### TELEVISION

<p><b>WHAT'S NEW:</b></p> <ul style="list-style-type: none"> <li>INTERNET SERVICE</li> <li>1000'S OF CHANNELS</li> <li>24/7 TV</li> <li>REGIONAL SPORTS</li> <li>HIGH DEFINITION</li> <li>85" CURVED TV'S</li> </ul>	<p><b>WHAT'S NOT NEW:</b></p> <ul style="list-style-type: none"> <li>RABBIT EARS CHANNEL:</li> <li>2/4/5/7/9/11/13</li> <li>OFF BY 11 PM (NATIONAL ANTHEM)</li> <li>LIMITED LOCAL SPORTS TEAMS</li> <li>BLACK AND WHITE SETS</li> <li>12" FLAT SCREENS</li> </ul>
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### PHOTOGRAPHY

- NEW(ER)
  - DIGITAL ... 20+ MEGA PIXELS = SLR CAMERA
  - CELL PHONE CAMERAS... TYPICALLY 12 MP
  - SELFIE STICKS
  - GO PRO VIDEOS
- NOT NEW:
  - BLACK AND WHITE FILM
  - SLIDES.....
  - PROCESSING WAIT TIMES
  - FLASH BULBS
  - POLAROID SWINGER
  - KODAK..... WHOLE COMPANY

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### SPEAKING ABOUT KODAK.....

IT'S IMPORTANT to have **GOALS**

IT'S IMPORTANT to have a **PLAN**

IT'S IMPORTANT to have/keep a **MOTIVATED STAFF**

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### BETHLEHEM STEEL CIRCA 1920

A STRUGGLING CHARLES SCHWAB, PRESIDENT OF BETHLEHEM STEEL ....

. HIRED A HIGHLY PAID CONSULTANT (IVY LEE) TO RECOMMEND BUSINESS IMPROVEMENTS

IVY LEE INTERVIEWED KEY STAFF FOR 5 MINUTES....

AND HAD ONLY ONE (1) RECOMMENDATION:

**FOCUS ON THE MOST IMPORTANT THING(S) YOU CAN ACCOMPLISH FIRST!**

**FORGET MULTI-TASKING!**

**RE-WRITE YOUR GOALS (6 ITEMS MAXIMUM) DAILY**

**CHARLES SCHWAB ... PAID LEE \$25,000.....**

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### STAFFING

- WHAT'S NEW
  - EMPLOYEES ... JOB HOPPING
  - HIRING INCENTIVES
  - COMPETITION: CONTRACTORS/OTHER UTILITIES
  - OPEN VACANCIES
  - LACK OF SKILLED STAFF
  - APPRENTICESHIPS...NEW JERSEY WATER ASSOCIATION'S LEAD
  - RICK HOWLETT/PRED SICKELS/MATT MAFFEI.....
- WHAT'S NOT NEW:
  - LIFE LONG EMPLOYMENT
  - PENSION PLANS
  - 20 YEARS TO ADVANCEMENT (INTERNAL APPRENTICESHIPS)
  - LONG TERM EXPERIENCE
  - WORK IN TOWN (CLOSE TO HOME)
  - APPRENTICESHIPS.... YEARS TO MASTER

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### NOW HIRING!



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### PERFORMANCE

WHAT'S NEW:

- MUST PAY ATTENTION TO STAFF NEEDS: AT WORK AND ELSEWHERE
- CHANGE: WHOA..... BE PREPARED TO FULLY EXPLAIN IMPACTS
- "SPEECHES" DON'T WORK. DEMONSTRATIONS NEEDED NOW
- MOTIVATIONAL "REWARDS": APPRECIATION/APPLAUSE/ACCESS
- FLEXIBILITY..... (FOR THEM).
- BEING FRIENDLY VS FRIENDS

WHAT'S NOT NEW....WAY BACK WHEN:

- **YOUR FIRED!**

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## MOTIVATING YOUR STAFF

### THE 3 A'S

- **APPLAUSE**
- **APPRECIATION**
- **ACCESS**

AND KNOWING WHICH ONE WORKS BEST!

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## BUILDING PEOPLE UP

- **DO NOT LET UNWHOLESOME TALK  
COME OUT OF YOUR MOUTH,  
BUT ONLY WHOLESOME TALK TO BUILD OTHERS UP.....**

EPHESIANS 4:29

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## T H I N K

BEFORE YOU SPEAK...

- T.....IS IT THE TRUTH?
- H.....IS IT HELPFUL?
- I.....WILL IT INSPIRE?
- N.....IS IT NECESSARY?
- K.....IS IT KIND?

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## 1 PETER 3:8

- **BE LIKE MINDED** (IN HARMONY)
- **BE SYMPATHETIC** TO THE NEEDS OF OTHERS
- **LOVE ONE BE ANOTHER** (RESPECT EVERYONE)
- **BE COMPASSIONATE** (SENSITIVE AND CARING)
- **AND BE HUMBLE** (WILLING TO ENCOURAGE)

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## BOTTOM LINE: KEEP MOVING FORWARD

- LEAD BY EXAMPLE
- DON'T PROCRASTINATE
- TINY STEPS FORWARD ARE POSITIVE
- LET YOUR LIGHT SHINE
- BE A PILGRIM NOT A TOURIST
- **DON'T LET THE CRITICS WIN!**

ELEANOR ROOSEVELT:  
NOTHING HAS EVER BEEN ACHIEVED BY THE PERSON WHO SAYS, "IT CAN'T BE DONE."

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## POSITIVE SPIN

**CHANGE IS EITHER A FORCE TO BE FEARED OR AN OPPORTUNITY TO BE SEIZED  
SOMEBODY HAS TO DO SOMETHING, AND IT'S INCREDIBLY PATHETIC THAT IT HAS TO BE US**  
JERRY GARCIA

**RIDE THE HORSE IN THE DIRECTION IT IS GOING....**

**BUT.....WHEN YOUR HORSE IS DEAD, GET OFF IT!**

**LEADERS SIMPLY FIND A WHOLE BUNCH OF PEOPLE GOING IN THE SAME DIRECTION,  
AND JUMPS IN FRONT OF THEM** WILLIE NELSON

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GREEK PHILOSOPHER: EPICURIUS

**THE GREATER THE DIFFICULTY, THE GREATER THE SATISFACTION IS GAINED IN SURMOUNTING IT.....**

**RECOGNIZE YOUR STAFF** UPON COMPLETION OF A DIFFICULT TASK:

THROUGHOUT THE PANDEMIC.....WE CONTINUED TO WORK 24/7.....TY

INITIATING A NEW PROCESS... CHANGE IS STRESSFUL

SHOW / DEMONSTRATE / REPEAT... REPEAT

WALK THE TALK...

CARRY THE WOUNDED... "SHOOT" THE STRAGGLERS

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WILLIAM SHAKESPEARE'S  
FROM: "ALLS WELL THAT ENDS WELL"

LOVE ALL, TRUST\* FEW,  
DO WRONG TO NONE.

A MOTHER'S ADVISE TO HER SON FACING THE WORLD.

\* TRUST IS TO BE EARNED!

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MATTHEW MC CONAUGHEY'S DAD'S SIMPLE ADVICE

**DON'T HALF A\_\_ IT!**

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THE LAST NOTE

JOHAN SEBASTIAN BACH

SLEPT LATE

COULDN'T GET UP...

SO, HIS KIDS WOULD PLAY ONE OF HIS CONCERTO'S EXCEPT.....

THE LAST NOTE.....

WHAT WAKES YOU UP EVERYDAY?

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ABRAHAM LINCOLN:

THE BEST THING ABOUT THE FUTURE ....

IT ONLY COMES

**ONE DAY AT A TIME**

**SO...IF YOU MESS UP...OWN IT, ADMIT IT, AND LEARN FROM IT**

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