On-Site Training Case Studies – Two Programs That Work

Presented by

Christine Bergren, Program Specialist, Region 13, Texas Commission on Environmental Quality

Billy Black, P.E., Environmental Engineer, Region 6, U.S. Environmental Protection Agency

Russ Martin, P.E., Environmental Engineer, Operation & Maintenance Municipal Wastewater Treatment Specialist, Region 5, U.S. Environmental Protection Agency

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Disclaimer

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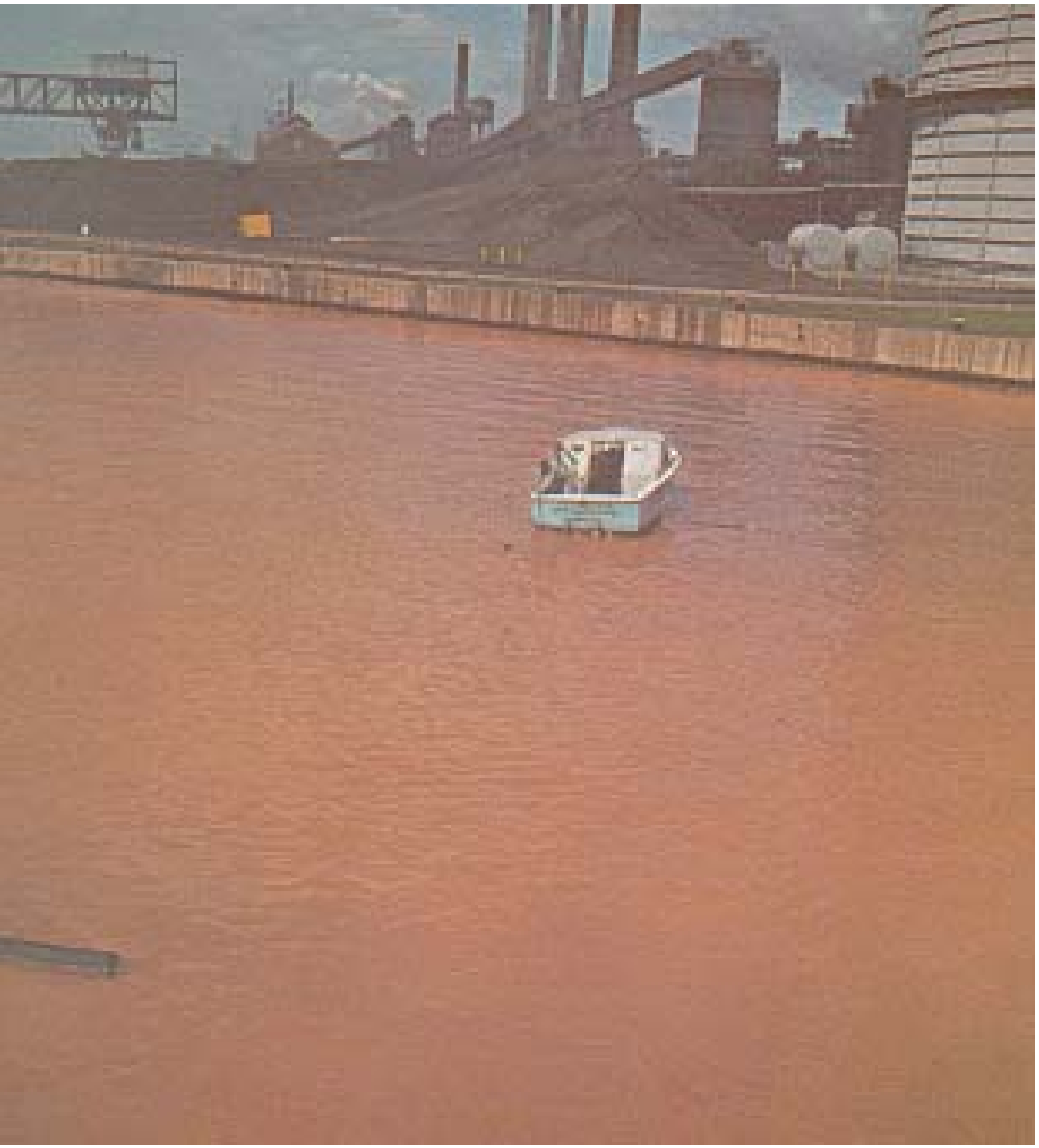
Russ Martin, P.E.
EPA Region 5- Chicago

Billy Black, P.E.
EPA Region 6- Dallas

Christine Bergren, Program Specialist
Texas Commission on Environmental Quality

Oil covered Cuyahoga River

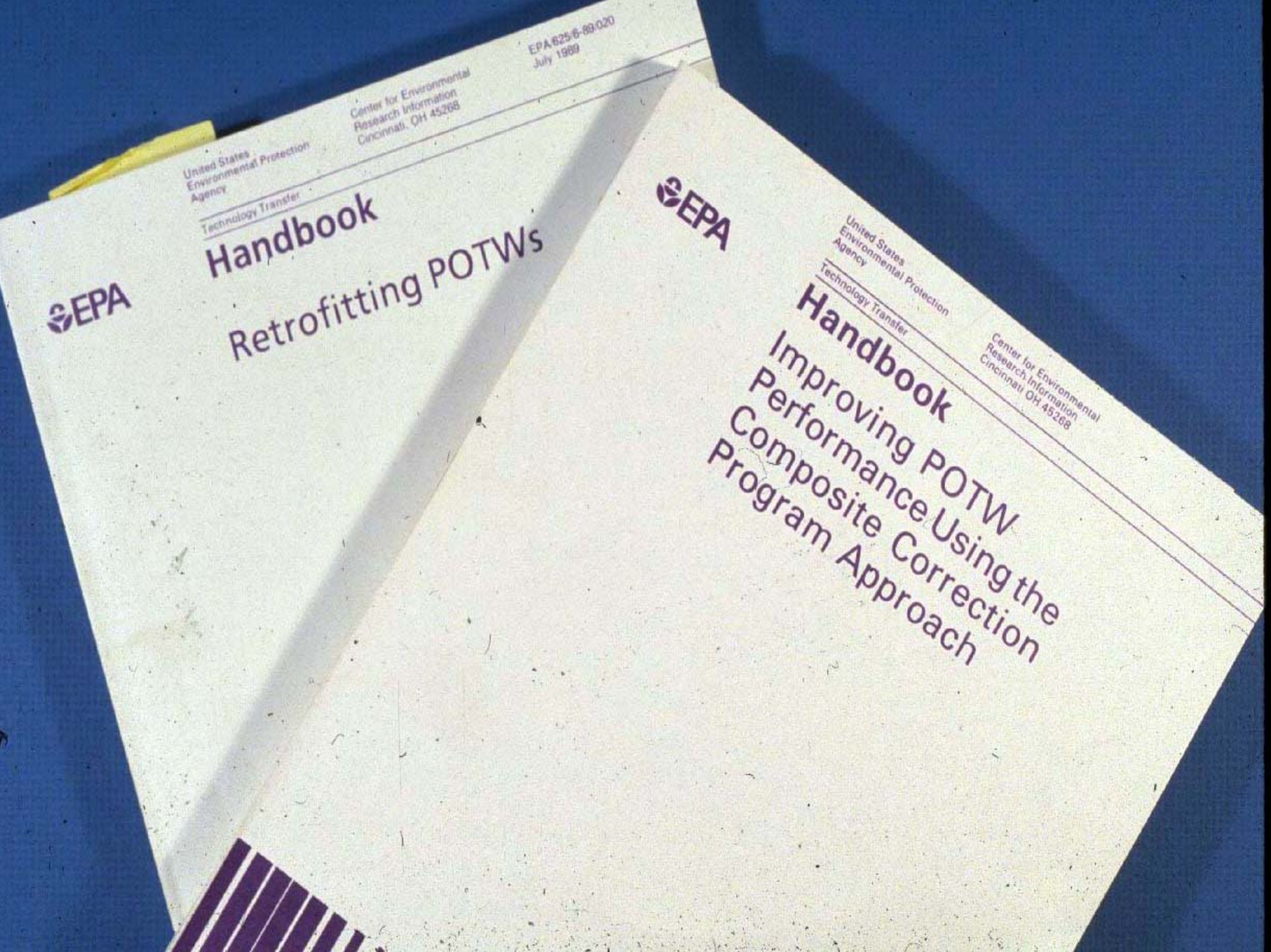
Reporter William Jones dips a hand in the Cuyahoga River



The waters of Lake Michigan

On-Site Assistance

EPA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Handbook
Retrofitting POTWs
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United States
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Center for Environmental
Research Information
Cincinnati OH 45268
Handbook
Improving POTW
Performance Using the
Composite Correction
Program Approach

What Is It?

- Direct on-site problem identification, Technical assistance and training targeted for small communities (< 5 MGD) with performance problems

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Who Does It?

- State and/or regional technical qualified staff

This is not an enforcement inspection!

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How Is It Done?

- Initial diagnostic evaluation
- Identify factors which limit performance
- Follow-up calls and on-site assistance

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Initial Diagnostic Evaluation

- Potential for performance examined
- Reviews over 65 areas which can impact performance
  - Administration
  - Maintenance
  - Design
  - Operation

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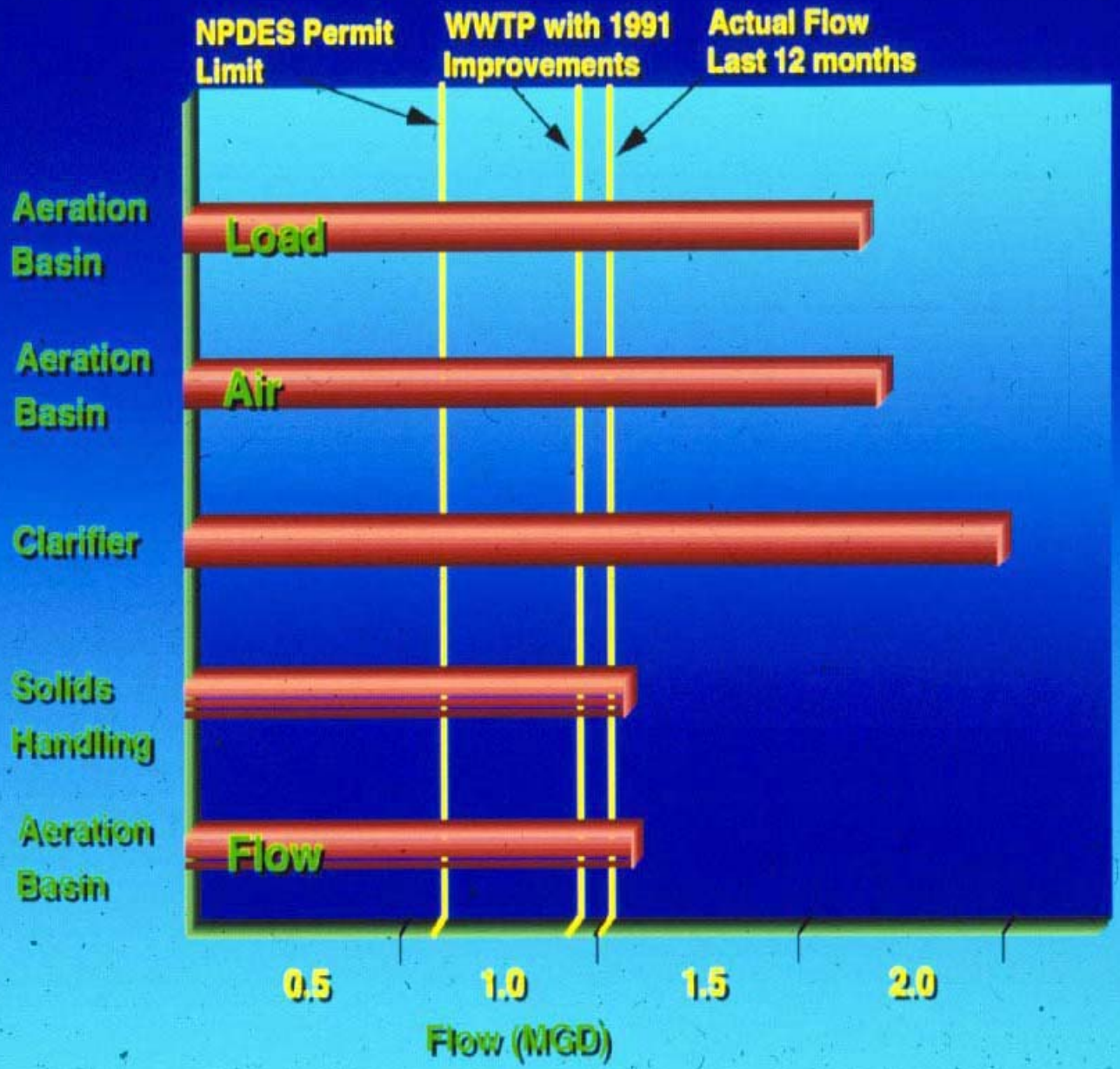
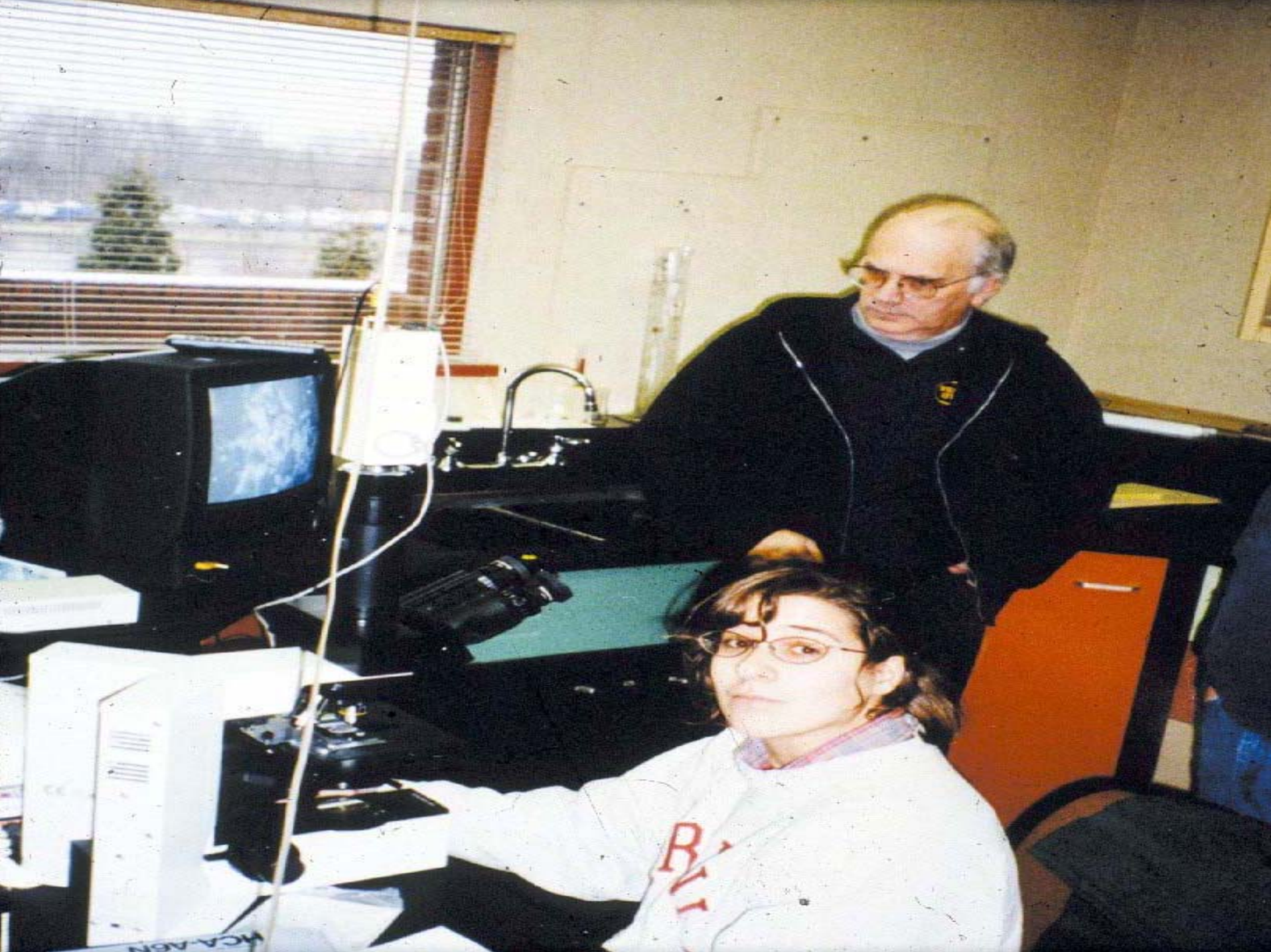
MUNISING WWTP CAPABILITIES





Performance Limiting Factors

- Identified
- Prioritized
- Recommendations made

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SUG
BOX


NO SMOKING
NO FOOD

Follow-Up

- Calls and visits
- From several months to 1-2 years
- Training and consultation

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What Are Results?

- Return to compliance or improved performance without resort to litigation
- Communities investment maximized
  - may avoid need for costly expansion
  - may reduce the extent of necessary construction

EPA

EPA Region 6 104 (g)
Coordinator : Billy Black, P.E.
Success Stories

Abbeville

Pop. 11,000

Local Business:

Oyster Restaurants,
Rice Farming, and
Cane Syrup Canning

Situation: Non-compliant

City was told it required

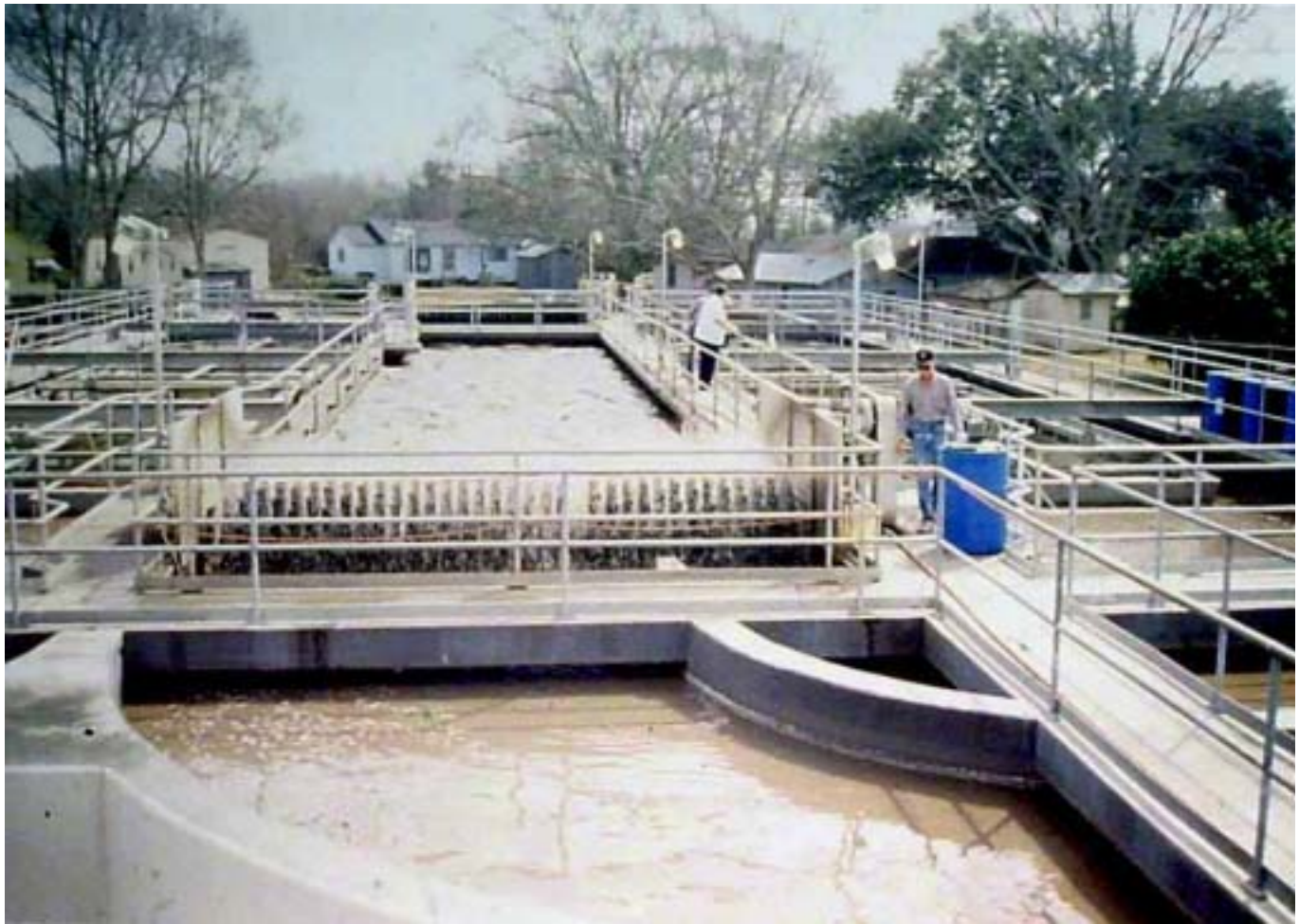
$1,500,000

of new STP construction

to meet NPDES Permit Limits

Oxidation ditch;

with a brush rotor on one side & boat clarifier on the other side



104g Trainer found:

Oxidation Ditch's "Boat Clarifier" would no longer return activated sludge.

Clarifier bottom was filled with sludge but more aeration was expected in aeration tank than was occurring

Rice hull sludge was found 6 ft. deep in bottom of aeration ditch

Large Vacuum Trucks were brought in to remove the sludge

An attempt was made to move the sludge with a fire hose

Additional high pressure water hoses were still not enough for this job

Hand shoveling of sludge into a dumpster was tried but soon abandoned for a Bobcat

A crane was needed to lift the dumpsters full of sludge

A dumpster of sludge is emptied into a dump truck

As sludge is removed the bottom of the “Boat Clarifier” appears

Finally the clarifier draw tubes are completely free

The clarifier bottom is inspected

Here the Boat Clarifier is washed out and ready to run again

Aeration tank bottom is now clean and ready to refill

Boat Clarifier is clean, R.A.S. now flows out of bottom

Effluent is clear and meets discharge limits

Abbeville’s Mayor Broussard is delighted, Supt. Lynn Pichoff is back in business, and the City saved $1,500,000

Village of Fenton

Population: 540

Situation: 6 year old STP never achieved compliance

Chief Operator asks for Training

Operator thinks skimming aeration tank with net is normal

Fine bubble diffusers fail in aeration and mixing

Aeration attained by drilling 1/2 inch holes on bottoms of diffuser

Better aeration starts the growth of activated sludge

Innovative clarifier under catwalk not working

In clarifier, tube settlers clog daily, preventing sludge return

Backwash computer/controller for tube settler is ***NOT*** operator friendly

Manufacturer approved removal of tube settlers

Aeration tank turns brown and BOD & TSS are in Permit limits

4 tube chlorinator is inadequate and fecal coliforms are TNTC

Change disinfection to liquid chlorine & a chemical pump

The Village of Fenton is now back in Compliance and saved the cost of a New Sewer Plant

Town of Oberlin needs a $1,200,000 Sewer Plant to meet new 10/15 BOD/TSS Permit Limits, but what can they do until then.

Situation: A 3 cell oxidation pond treats wastewater well but experiences high TSS because of algae. 104g Trainer suggests covering cells #2 & #3 to remove algae

Operator & 104g trainer find wild water Hyacinths in local ditch

Operator arrives back in town with small amount of plants

Operator seeds pond cell #2 and #3 with free water hyacinths

In 90 days the polishing cell#2 and #3 are covered by water hyacinths which destroys algae

After water hyacinths grow, BOD & TSS drop to < 10 mg/L

Town of Oberlin discharge is now in compliance and town spends $1,200,000 on other projects


WELCOME TO
FREDERICKTOWN
Home of the FFA Jacket

FORMULA'S
TANK'S #1 & #2

C.R.T.= $\frac{\text{MLSS X .8599}}{\text{RASSS X 8.34 X INS. X .000384}}$

F/M = $\frac{\text{FLOW X BOD5 X 8.34}}{\text{MLVSS X .8599}}$

S.D.I. = $\frac{\frac{\text{MLSS}}{\frac{\text{MLS./30 MIN.}}{100}}}{}$

INCHES = $\frac{\text{MLSS X .8599}}{\text{RASSS X 8.34 X .000384 X C.R.T.}}$

IDEALS: C.R.T.= 6 F/M = 3 S.D.I. = 1

RATIOS: MLSS / MLVSS = 1/.8
MLSS / RASSS = 1/3

SLUDGE BLANKET = <2

TANK #3

C.R.T.= $\frac{\text{MLSS X 1.04}}{\text{RASSS X 8.34 X INS. X .000424}}$

F/M = $\frac{\text{FLOW X BOD5 X 8.34}}{\text{MLVSS X 1.04}}$

S.D.I. = $\frac{\frac{\text{MLSS}}{\frac{\text{MLS./30 MIN.}}{100}}}{}$

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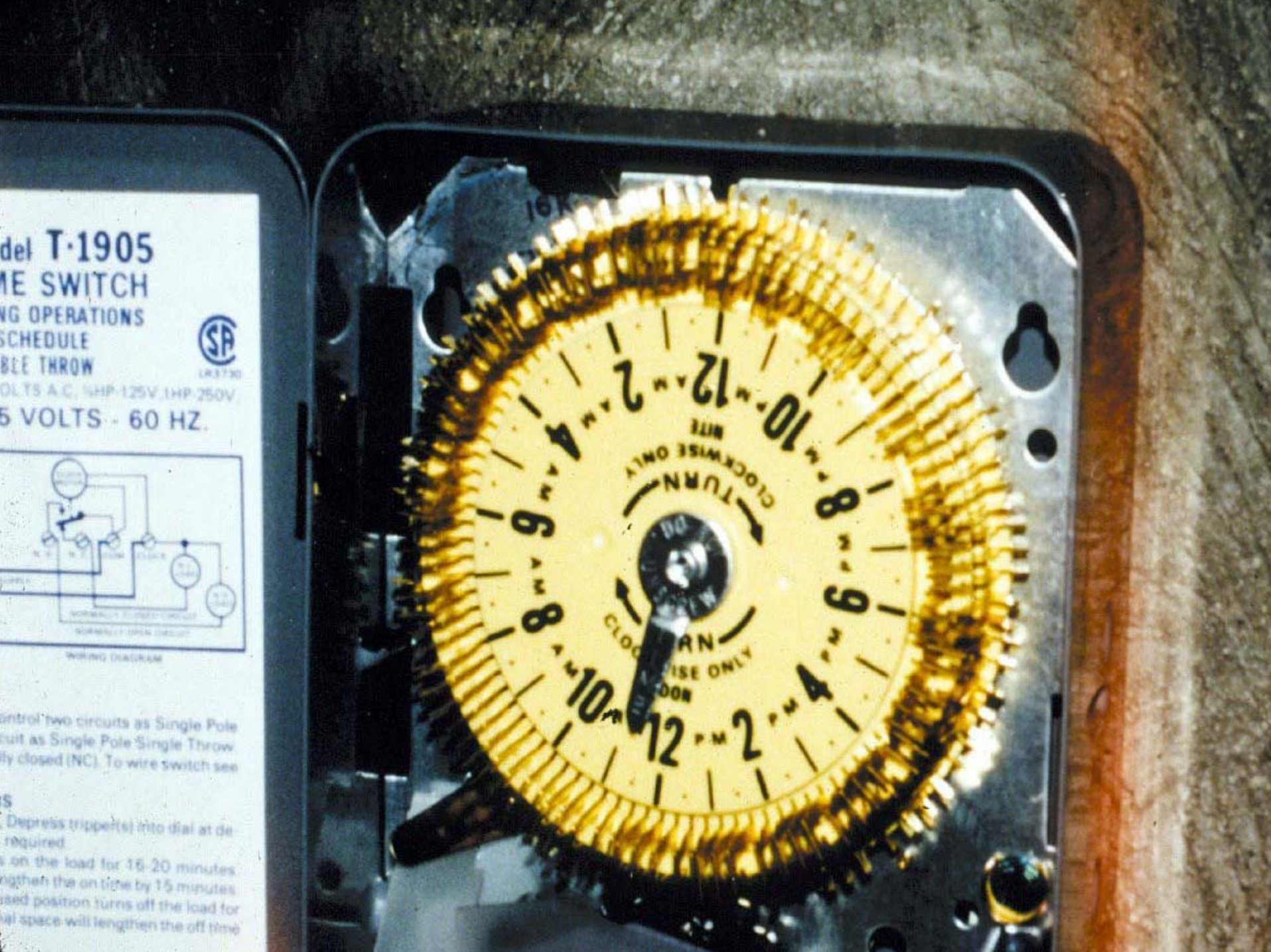
del T·1905
ME SWITCH
NG OPERATIONS
SCHEDULE
BLE THROW
6 VOLTS - 60 HZ.
TURN
CLOCKWISE ONLY
12 PM
2 PM
4 PM
10 AM
8 AM