



NEORSD Operator Training for Compliance

OTCO-B13070-OM

Terry Meister - 0.75 contact hours



**History of
Northeast Ohio
Regional Sewer District
(NEORS D)
WWTPs**

NORTHEAST OHIO REGIONAL SEWER DISTRICT



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NORTHEAST OHIO REGIONAL SEWER DISTRICT





**Transition from
original operator structure
to “WPO” structure**



Original Operator Structure

- **Developed over 25 years**
- **Operator B, C & D**
- **Unit operator positions**
- **40 different job titles**
- **21 operators per shift (Southerly)**
- **10 operators per shift (Westerly)**
- **5 operators per shift (Easterly)**



Original Operator Structure

- **Operator B - Utility, PF/AC, Oxy, Solids**
- **Operator C – FSA, SSA, Zimpro, Blowers, Solids, Chemical**
- **Operator D – Headworks, Primary, GTs, Zimpro, Solids, PF/AC, Chemical, Grease Reactor**



New “Plant-Wide Operator” Structure

- **Wastewater Plant Operator (WPO)**
- **Purpose: anti-privatization, reduce staffing, increase flexibility of operators**
- **“Small Plant Operator” model**
- **WPOs trained in all units**



WPO Initial Cross-Training from 1997 to 2012

- **Year One – B, C & D jobs cross-trained**
- **Year Two – B > WPO, C > B, D > C**
- **Year Three – C (was D) > B**



New “Plant-Wide Operator” Structure

- **Wastewater Plant Operator (WPO)**
- **Reduced staffing by attrition**
- **10 operators per shift (Southerly)**
- **4 operators per shift (Westerly)**
- **4 operators per shift (Easterly)**



WPO Initial Cross-Training from 1997 to 2012

- **Unit Training written by plant personnel (UPMs, Shift Managers)**
- **This training used for next 12 years**
- **Transition from “6 & 2” eight hour shifts to 12 hour shifts in early 2000s**



New “Plant-Wide Operator” Structure

- **Questions from hindsight of 20 years:**
- **What did we gain in the process?**
- **What did we lose in the process?**



Formation of OED/OLP Plant Training Group

**Organization and Employee Development (OED)
Organizational Learning and Performance (OLP)**



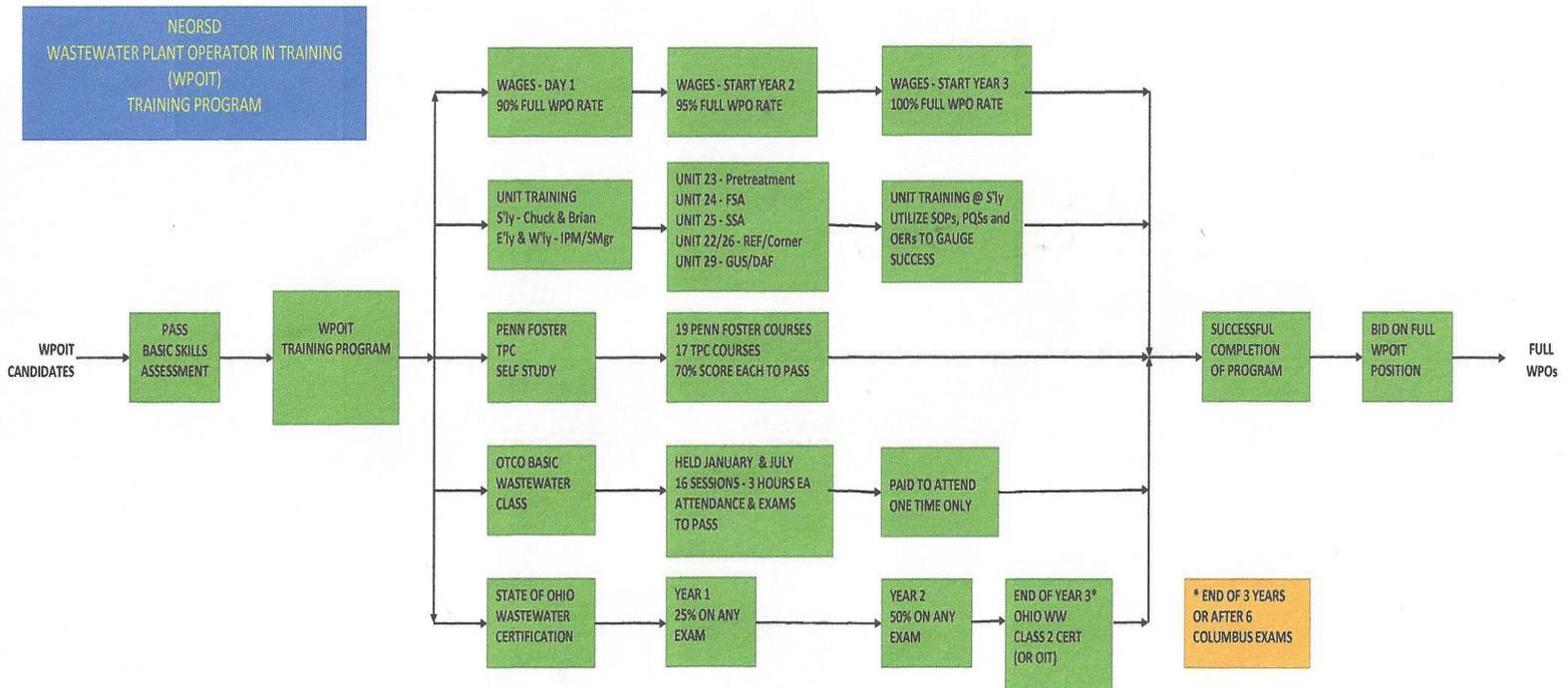
Formation of OED/OLP Plant Training Group

- **Why? How?**
- **Retired Shift Managers as trainers**
- **Management structure**
- **Increasing number of operators trained**
- **Succession Planning?**



**WPOIT Training Program
Format
from 2012 to Present**

NORTHEAST OHIO REGIONAL SEWER DISTRICT





**WPOIT
Requirements
for Completion**



WPOIT Requirements

- **Three Year Training Program**
- **OTCO Basic Wastewater Course**
- **Penn Foster & TPC Self Study Courses**
- **Unit Training alternate w/shift operation**
- **Class II Wastewater Certification**
- **Step Increases in Pay Rate**
- **Promoted to Full WPOIT –**
 - **Bid on Full WPOIT position**



OTCO Basic Wastewater Course

- **Classroom course**
- **16 weeks @ 3 hours per class**
- **Evenings from 4:00 PM to 7:00 PM**
- **Twice a year:**
 - **January to April**
 - **July to October**
- **Southerly twice a year**
 - **Easterly & Westerly alternating**



Self Study Courses

- **Penn Foster – 19 courses**
 - **Fractions, Metric, Algebra, Measurement,**
 - **Chemistry, Bacteriology, Physics, Print Reading**
- **TPC – 21 to 17 courses**
 - **Electricity, Process Control, Pressure, Flow**
 - **Control Elements, Pumps, Piping, Hydraulics**
 - **Pneumatics, Energy Conservation**



Unit Process Training

- **Unit 22 – Solids Handling - Centrifuges**
- **Unit 23 – Headworks/Grit Removal/PSTs**
- **Unit 24 – First Stage Aeration**
- **Unit 25 – Second Stage Aeration/Effluent Filters/
Disinfection**
- **Unit 26 – Solids Handling - GTs/GBTs/SSTs**
- **Unit 27 – Hub**
- **Unit 29 – Grease Unloading Station/DAF**



SOP, PQS, and OER

Standard Operating Procedures (SOP)
Professional Quality Standards (PQS)
Operations Effectiveness Reviews (OER)



Standard Operating Procedures (SOP)

SECTION 1: FIRST STAGE AERATION	
GENERAL DESCRIPTION	AERATION TANK DRAINING
SECTION 2: SAFETY PROTPICALS	
Discuss all safety and hazardous conditions with the supervisory staff prior to beginning the procedure. FAS is under renovation beware this construction zone. be aware of construction machinery and traffic	Inspect to verify the plant staff has properly removed their locks from the locked out tagged out equipment. Remove Blue operations lock and return them to the lock out station and update the lockout status board.

1. Close the return sludge valve.
2. Close all influent settled sewage gates.
3. Close both effluent gates in Pass 4.
4. Open all four (4) drain valves.
5. Verify the drain pump discharge valves are open.
6. Start the drain pumps.
7. Notify the blower operator that the tank is draining to properly reduce the air flow to the tank.
8. Contact the Instrumentation Department to set the DO probes to a reserve service state.
9. Flush and drain the tank of solids with NPW upon completion of the initial drain



Professional Quality Standards (PQS)

Primary settling tank 1-10 operation

1. Safety protocols when working in and around PSTs
2. Primary settling operation theory
3. PST filling procedures
4. Impacts of filling a PST on plant operations
5. Sludge pump theory and operations
6. Effects of additional sludge pump on plant operations downstream
7. PST out of service plant operational impacts and effects
8. PST drainage system and valving options
9. PST sludge pump operations and options and limitations
10. Influent gate filling procedure
11. Collector system operation starting and stopping procedures
12. Sludge pump starting and stopping procedures



Operations Effectiveness Reviews (OER)

Trainee Name (Last, First, MI)	AREA 23		Evaluators/Date
Task	Yes	No	N/A - Comments
Section 5 Step by Step directions to de-grit			
Under direct supervision with Easterly Pumping Off.			
To route to Degrit			
1. On Degrit main floor Close inlet line valve between 1 and 2 cyclone clusters. Proceed to third floor and have open 2-3 cyclones ready to process the Easterly sludge flow.			
1. At tunnel #1 just West of tunnel 3 Open the bottom valve on the primary sludge line.			
1. At tunnel 1 & 5 junction Open the valve in heading EAST and Close the SOUTH bound valve.			
1. At the EASTERLY VAULT OPEN The SOUTH Valve to TUNNEL #1.			
1. At the EASTERLY VAULT CLOSE the EAST Valve going to the JUNCTION CHAMBERS			
1. You have now rerouted the EASTERLY Sludge flow to the Degrit building and classifier cluster #1, add or subtract cyclones to maintain optimal cyclone psi.			
1. Have supervision contact EASTERLY so they can resume pumping.			
Was the operator trainee familiar with the procedures?			
Were proper procedures followed?			
Were the procedures clear, and followed precisely?			
Were all safety precautions observed?			
Was lock-out/tag-out done properly?			
Was task completed to required metrics?			

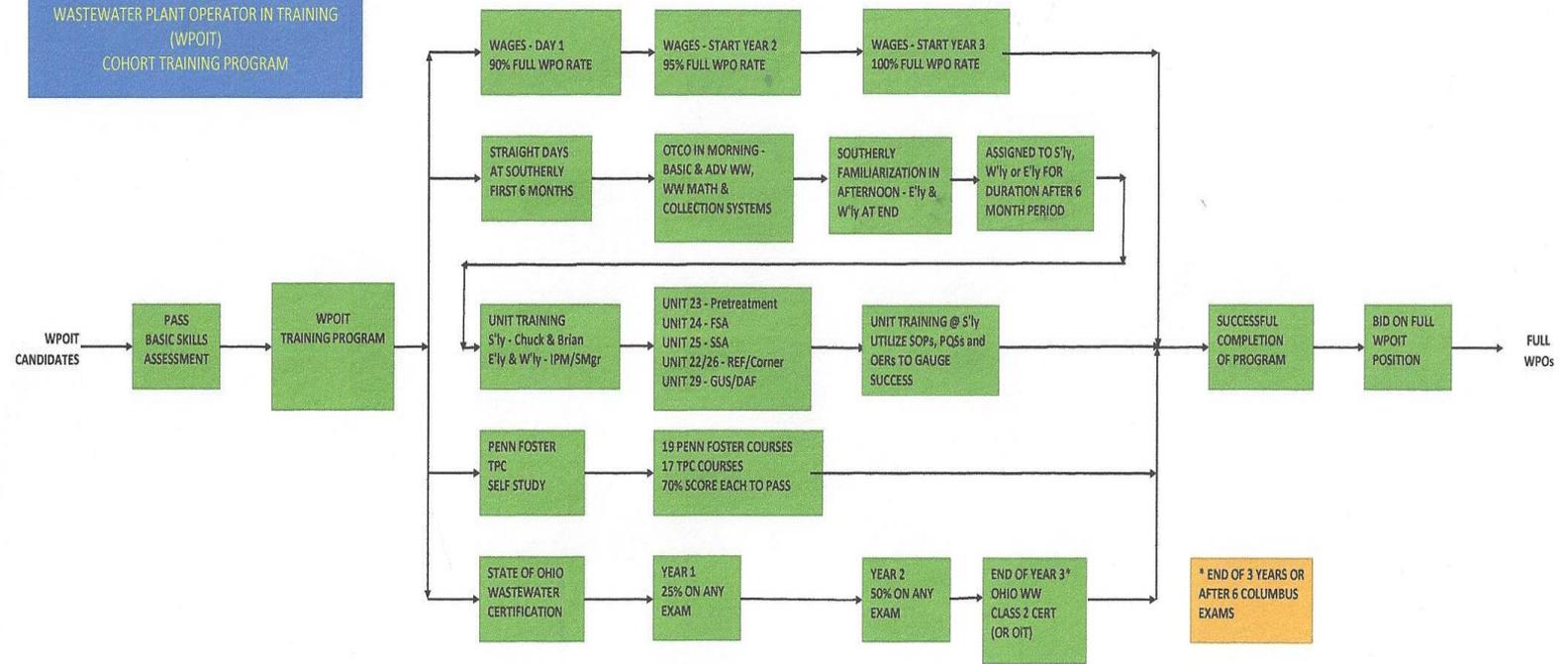


**New WPOIT Cohort
Training Program structure
(starting July 2018)**

NORTHEAST OHIO REGIONAL SEWER DISTRICT



**NEORS
WASTEWATER PLANT OPERATOR IN TRAINING
(WPOIT)
COHORT TRAINING PROGRAM**





WPOIT Cohort Differences

- **Initial 6 month period on days**
- **OTCO Basic & Advanced Wastewater
OTCO WW Math & Collection Systems**
- **Familiarization with Southerly WWTP**
 - **Westerly & Easterly at end**
- **Tutoring & Homework in afternoon**
- **Work on Penn Foster & TPC in afternoon**



WPOIT Cohort Differences

- **After 6 month period**
- **Assigned to one of 3 plants for remaining 2.5 years of training**
- **Unit Training at assigned plant alternating w/shift operation**
- **Complete PF/TPC & WW Certification**



WPOIT Cohort Original Concept

- **Two full years at Southerly including Unit Training**
- **OTCO Basic, Adv WW, Math, Collections**
- **Classroom courses to replace PF & TPC**
- **Six months rotation to Westerly w/Unit Training**
- **Six Months rotation to Easterly w/Unit Training**
- **Trained at all 3 plants**



WPOIT Training Program

- **Benefits:**
 - **Transfer of knowledge**
 - **Experienced trainers**
 - **Large number of new operators**
- **Benefits of Cohort Program?**



Maintenance Training Program

- **Started in 1997 along with WPO Training Program**
- **PUMPs (Mechanics), Electricians, Inst Techs, SUMPs (Collection Systems)**
- **4 year program - MCCC & LCCC until 2012**
- **Internal since then**
 - **3 full time trainers (2 Mech & 1 Elec)**
 - **On-site & CCC classes**
 - **Focus on OJT & MERs**
- **First 4 year group finishing – Second just started**



Questions???