

DACUM Research Chart for Class IV Water Supply Operator

DACUM Panel

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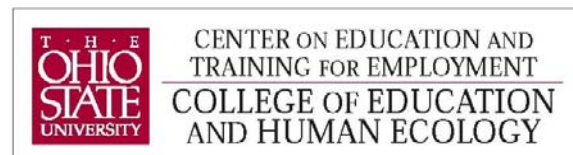
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Duties		← Tasks →				
A	Plan Operational Workload	A-1 Check log books/work orders/SCADA System (e.g., plant & distribution system)		A-2 Respond to messages (e.g., email, phone, written)	A-3 Review weather conditions	A-4 Review historical operations data
		B-1 Prioritize jobs based on critical equipment	B-2 Consult with maintenance supervisors	B-3 Verify compliance with maintenance safety procedures (e.g., lock out/tag out)		B-4 Check progress on maintenance jobs
B	Supervise Maintenance Program	B-11 Check spare parts inventory	B-12 Maintain backflow equipment			
		C-1 Process plant payroll	C-2 Schedule personnel time off & overtime	C-3 Provide staff training	C-4 Uphold company policy (e.g., union contract, PPM, interdepartmental)	
C	Manage Plant Staff	C-11 Consult with staff	C-12 Empower employees to make decisions	C-13 Conduct staff evaluations		
		D-1 Collect lab samples (see <i>Lab Tests & Samples</i> list)	D-2 Document lab samples	D-3 Conduct lab tests (see <i>Lab Tests & Samples</i> list)	D-4 Schedule compliance testing	D-5 Maintain lab inventory
D	Perform Lab Work	D-13 Check calibrations (QA/QC) (see <i>Calibrations</i> List)				
		E-1 Review daily operations sheets	E-2 Review SCADA system (e.g., plant data, processes)	E-3 Review log books/operators journals	E-4 Conduct plant rounds	E-5 Review chemical inventories
E	Monitor Plant Operations	E-13 Monitor filter operations				
		F-1 Complete MORs	F-2 Complete QORs	F-3 Complete NPDES	F-4 Update Emergency Contingency Manual	F-5 Prepare CCRs
F	Prepare Reports & Documentation	F-13 Update RMPs	F-14 Update vulnerability assessment	F-15 Prepare IDSE	F-16 Prepare special reports (e.g., Mayor, City Council, Board)	F-17 Determine regional reports based on plant or system
		G-1 Solicit bids (e.g., equipment & supplies)	G-2 Prepare budget wish list	G-3 Forecast utility/chemical/personnel	G-4 Attend budget meetings	G-5 Process POs & invoices
G	Manage Financial Matters					

A-5 Prioritize facility workload	A-6 Check available resources (e.g., parts, personnel)	A-7 Schedule maintenance work	A-8 Schedule operator tasks	A-9 Schedule administrative tasks		
B-5 Review maintenance program (e.g., computer/paper notebook)		B-6 Check for delinquent work orders	B-7 Review maintenance contracts	B-8 Verify equipment list is current	B-9 Close completed work orders	B-10 Maintain current O & M/s
C-5 Maintain minimum staffing	C-6 Confirm information exchange between operators & shifts		C-7 Interview potential employees	C-8 Recommend new hires	C-9 Recommend terminations/suspensions	C-10 Inform staff of changes (e.g., operational, policy)
D-6 Verify documentation of lab tests (e.g., logbook, LIMs)	D-7 Review lab test results	D-8 Maintain lab certifications	D-9 Prepare water samples for shipment	D-10 Maintain analytical equipment	D-11 Maintain historical lab records	D-12 Monitor lab cleanliness
E-6 Review jar testing results	E-7 Review chemical feed rates	E-8 Review distribution system status	E-9 Monitor plant security system	E-10 Check raw water intakes & wells	E-11 Check quality of chemical deliveries	E-12 Check power consumption
F-6 Prepare annual report	F-7 Complete ODNR – Water Withdrawal Report	F-8 Prepare work order reports	F-9 Secure liming license	F-10 Respond to violation letters	F-11 Prepare vehicle mileage reports	F-12 Prepare special reports (US, State, EPA)
F-18 Maintain employee documentation	F-19 Prepare budget reports					
G-6 Track encumbrances & expenditures	G-7 Manage financial contracts	G-8 Prepare spending justifications	G-9 Prepare purchasing legislation for approval	G-10 Authorize financial expenditures	G-11 Manage petty cash	G-12 Process receipts for bulk sales

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Duties		← Tasks				
H	Plan Capital Investments	H-1 Research technology/treatment options	H-2 Prioritize capital improvement wish list	H-3 Forecast demand based on historical data	H-4 Justify capital improvement requests	H-5 Prepare RFPs & RFQs
	Manage Capital Improvements	I-1 Acquire capital improvement funding	I-2 Solicit project bids	I-3 Award capital improvement contracts	I-4 Review equipment submittals	I-5 Attend progress meetings
J	Maintain Water Distribution Assets	J-1 Manage valve exercise program	J-2 Maintain altitude valves & PRVs	J-3 Manage meter exchange program	J-4 Maintain pump station	J-5 Maintain back-up power generation equipment
K	Maintain Distribution System Water Quality	K-1 Verify tank turnover	K-2 Coordinate equipment outages	K-3 Manage hydrant flushing program	K-4 Maintain rechlorination system	K-5 Conduct chemical & bacteriological water quality tests (see <i>Lab Tests & Samples</i> list)
		L-1 Conduct team building exercises (e.g., cookouts)	L-2 Participate in continuing education	L-3 Participate in in-house training	L-4 Participate in succession planning process	
L	Pursue Staff Development	L-12 Provide employee awards/recognition	L-13 Participate in conferences	L-14 Provide licensing incentive		
		M-1 Conduct plant tours	M-2 Conduct plant open house	M-3 Respond to customer complaints & inquiries	M-4 Give presentations to different groups	M-5 Participate in community service (e.g., food basket, blood drives, cancer walks)
M	Maintain Public Relations					

*Although panelists are licensed Class 4 Water Supply Operators, all members of the panel do not perform every task on this chart.

H-6 Prepare legislation to hire consultant	H-7 Hire consulting engineer	H-8 Attend design meetings	H-9 Pilot project/ demonstration study(ies)	H-10 Solicit EPA approval (e.g., plans demo studies, tracer studies)	H-11 Review capital improvement plan & specifications	
I-6 Plan for shut downs (e.g., equipment, process)	I-7 Process change orders	I-8 Participate in factory acceptance tests	I-9 Train operations & maintenance staff on new equipment	I-10 Conduct operational availability demonstration(s)		I-11 Monitor equipment during warranty period
J-6 Maintain outlying station security	I-7 Conduct site inspections	I-8 Verify grounds maintenance	I-9 Maintain elevated & ground water storage			
K-6 Respond to trouble calls						
L-6 Network with other professionals	L-7 Participate in professional organizations (e.g., AWWA, ORWA)	L-8 Attend workshops/ seminars	L-9 Volunteer for work groups	L-10 Read professional publications & journals	L-11 Provide incentives for continuing education (e.g., tuition reimbursement)	
M-6 Promote water education & conservation (e.g., school science projects)	M-7 Write articles for publication	M-8 Maintain working relationships with other community departments	M-9 Maintain working relationships with master meter accounts	M-10 Promote environmental stewardship		

Lab Tests & Samples

Cl2 – Free and Total
 Turbidity
 Fluoride
 DBPs
 pH
 DO
 TOC
 Alkalinity
 Hardness
 Stability
 VOC
 SOC
 RADS
 Copper
 Lead
 Arsenic
 Phosphate
 Nitrates

Asbestos
 SVI
 Algae
 Total coliform
 UV254
 E-coli
 Cryptosporidium
 Giardia
 DOC
 TON
 Metals
 KMnO4
 Temperature
 Taste
 Ca
 Mg
 Iron
 Manganese

Calibrations

Cl2 meter: DPD and Amprometric
 Turbidity meter: Primary, secondary
 Flow meters
 pH meter
 Density meter
 Fluoride meter
 Alkalinity (standards)
 Hardness (standards)
 Phosphate
 Refrigerator
 Analytical balance
 Flow meters

General Knowledge and Skills

Communication skills: listening, speaking, writing (surveys, EPA reports)
Team building skills
Ability to motivate
Safety procedures
Computer skills (Internet, word processing, data base, spreadsheet)
Ability to navigate a bureaucracy
Local civil service rules
Chemistry and laboratory procedures
Water treatment field
Class 4 operator's certificate
State and federal EPA rules and regulations
OSHA/safe work practice

Mentoring skills
Decision-making skills
Research skills
Electrical/electronic skills
Mechanical skills
Time management skills
Data processing skills
Critical thinking skills
Interpersonal skills
Delegation skills
Troubleshooting skills
Prioritization skills
Leadership skills
Basic first aid
Union contracts

Worker Behaviors

Supportive
Advocacy
Team player
Honest
Diplomatic
Ethical
Persuasive
Detail-oriented
Organized
Perseverant
Flexible
Accurate
Determined
Helpful
Courteous
Project professional image
Unbiased
Self-motivated
Reliable
Positive attitude
Sense of humor
Attentive
Proactive
Adaptable

Tools, Equipment, Supplies and Materials

General office supplies
Computer
Laptop
Fax, scanner, copier, printer
LCD projector
Time clocks
File cabinets, book case
Desk
Climbing gear
Safety equipment – PPE
Waders, rain gear
Camera
Blueprints
Cell phones
Walkie-talkies (radios)
Truck

Future Trends and Concerns

Privatization
Regionalization
Disinfection
Treatment techniques
Aging infrastructure
Aging workforce
Regulations
Cost of commodities
Growth – population, demand
Compliance issues
Licensing requirements
Rate increases
Unfunded mandates causing hardships (CCR)
Upcoming workforce: minimum work for maximum benefits

Acronyms

AWWA	American Water Works Association	OSHA	Occupational Health and Safety Administration
Ca	Calcium	OTCO	Operator Training Committee of Ohio
CEUs	Continuing Education Units	PPE	Personal Protective Equipment
Cl ₂	Chlorine	PO	Purchase Orders
CCR	Consumer Confidence Report	PPM	Policy & Procedures Manual
DBP	Disinfectant By-Product	PRVs	Pressure Reducing Valves
DPD	Salt of N.N-Diethyl-p-phenylenediamene	QA/QC	Quality Assurance/Quality Control
DO	Dissolved Oxygen	QORs	Quarterly Operation Reports
DOC	Dissolved Organic Carbon	RADS	Radiological
IDSE	Initial Distribution System Evaluation	RFP	Request for Proposals
IT	Information Technology	RFQ	Request for Qualifications
KMnO ₄	Potassium Permanganate	RMP	Risk Management Plan
LIMS	Laboratory Information Management System	SCADA	Supervisory Control & Data Acquisition
Mg	Magnesium	SOC	Synthetic Organic Carbon
MORs	Monthly Operating Reports	SOP	Standard Operating Procedure
NPDES	National Pollution Discharge Elimination Sys.	SVI	Sludge Volume Index
O&M	Operation & Maintenance	SWEET	Source Water Environmental Education Team
ODNR	Ohio Department of Natural Resources	TOC	Total Organic Carbon
OEPA	Ohio Environmental Protection Agency	TON	Threshold Odor Number
ORWA	Ohio Rural Water Association	UV254	Ultra Violet
		VOC	Volatile Organic Carbon