

DACUM Research Chart for Class 1 Wastewater Collection System Operator

DACUM Panel

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1900 Kenny Road
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August 14-15, 2008

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Duties		← Tasks				
A	Inspect Collection System	A-1 Monitor SCADA status	A-2 Conduct visual inspection of collection system	A-3 Inspect trouble spots	A-4 Inspect lift stations	A-5 Inspect air releases
		A-13 Perform pressure tests on sanitary sewers	A-14 Perform deflection tests (e.g., mandrel, laser)			
B	Maintain Force Main System	B-1 Respond to alarm conditions	B-2 Perform preventive maintenance on lift station pumps	B-3 Perform preventive maintenance on level sensing devices	B-4 Perform preventive maintenance on alarm systems	
		B-11 "Pig" the force main	B-12 Perform preventive maintenance on security screening around lift stations		B-13 Landscape lift station property	
C	Maintain Gravity Sewer System	C-1 Jet-Vac sanitary sewers	C-2 Flush sanitary sewers	C-3 Snake sanitary sewers	C-4 Rod sanitary sewers	C-5 Bucket sanitary sewers
D	Repair Collection System	D-1 Repair/replace lift station pumps & motors	D-2 Repair/replace check valves	D-3 Repair basic electrical problems on lift station	D-4 Repair force main leaks	D-5 Perform masonry repairs on wet-well
		D-13 Adjust manhole grade rings	D-14 Unblock overflow regulators			
E	Provide Customer Service	E-1 Process customer complaints	E-2 Investigate sewer complaints	E-3 Investigate sewer odor problems	E-4 Investigate sewer back-ups	E-5 Determine cause of sewer problem
F	Investigate Inflow & Infiltration	F-1 Conduct visual inspection of manhole condition & flow		F-2 Perform flow monitoring	F-3 Gather data for collection system flow studies	F-4 Conduct smoke test of sewers
G	Correct Inflow & Infiltration	G-1 Remove illegal connections	G-2 Replace manhole chimney seals	G-3 Install dishes in sanitary manholes	G-4 Re-grout manhole brickwork	G-5 Re-grout sewer main joints
H	Perform Equipment Maintenance	H-1 Inspect safety equipment	H-2 Perform vehicle safety checks	H-3 Perform vehicle preventive maintenance inspections		H-4 Perform preventive maintenance on power tools (e.g., compressor, jack hammers)
I	Maintain Collection System Records	I-1 Record collection system problem areas	I-2 Record sanitary manhole locations	I-3 Record locations of laterals & cleanouts	I-4 Survey system elevations	I-5 Process work orders

A-6 Inspect overflow regulators	A-7 Inspect CSO outfalls	A-8 Monitor level of equalization basins	A-9 Inspect odor control systems	A-10 Inspect sewer tap-ins	A-11 Perform confined space entry procedures	A-12 Perform traffic control
B-5 Perform preventative maintenance on air releases	B-6 Exercise force main valves	B-7 Degrease wet-well	B-8 Clean wet-well	B-9 Perform draw down test	B-10 Perform preventative maintenance on chemical feed pumps	
C-6 Degrease sanitary sewers	C-7 Perform calcium removal	C-8 Perform mechanical root cutting	C-9 Perform chemical root control	C-10 Perform odor control	C-11 Locate sanitary manholes	C-12 Locate sanitary lateral clean-outs
D-6 Repair/replace air releases	D-7 Repair gravity sewer leaks	D-8 Perform trenching operations	D-9 Perform shoring operations	D-10 Perform pump around operation	D-11 Replace lateral connection	D-12 Replace manhole castings
E-6 Mark OUPS responses	E-7 Demonstrate collection system equipment to public					
F-5 Conduct dye test of sewers	F-6 Perform video inspections of sewers	F-7 Inspect flapper gates				
G-6 Reline sanitary sewer	G-7 Relocate catch basin connections			Acronyms CSO Combined sewer overflow MH Manhole OUPS Ohio Utility Protection Service PLC's Programmable Logic Controllers SCADA Supervisory Control and Data Acquisition SSO Sanitary sewer overflow VFD Variable Frequency Drive W.W.C.S. Waste Water Collection System		
H-5 Perform preventive maintenance on portable pumps	H-6 Perform preventive maintenance on portable generators					
I-6 Process equipment maintenance records	I-7 Update sewer maps	I-8 Create construction reports	I-9 Record water & sewer meters			

Duties		← Tasks →				
J	Participate in Collection System Upgrades	J-1 Recommend resizing of sanitary mains	J-2 Recommend resizing of lift station pumps	J-3 Recommend electrical improvements	J-4 Participate in construction project meetings	J-5 Coordinate construction activities with contractors
K	Participate in Professional Development	K-1 Obtain W.W.C.S. operator certification	K-2 Participate in on-the-job training	K-3 Participate in training seminars	K-4 Participate in professional organizations	K-5 Participate in safety drills
		K-6 Participate in equipment expos				

General Knowledge and Skills

Communication skills
 Mechanical aptitude
 Ability to multi-task
 Listening skills
 Physical strength
 Pump operating knowledge
 Time management skills
 Read for comprehension
 Blueprint reading skills
 Ability to follow directions
 Heavy equipment operating skills
 Sanitary sewer system process knowledge
 Ability to obtain a commercial driver's license
 Basic electrical skills
 Reasoning skills
 Practical math skills
 Basic computer skills
 Interpersonal skills
 Troubleshooting skills
 Ability to read maps
 Shoring
 Trenching
 Ability to use measuring devices

Worker Behaviors

Detailed oriented
 Conscientious
 Observant
 Common sense
 Customer service oriented
 Go getter
 Strong stomach
 Team player
 Deductive reasoning
 Problem solver
 Resourceful
 Mechanically inclined
 Fearless
 Cautious
 Tactful
 Humble
 Motivated
 Creative
 Sense of humor

Tools, Equipment, Supplies and Materials

Manhole hook
 Dye
 Back hoe
 Shoring
 Hand tools
 Jet-Truck
 TV van
 Pick
 Shovel
 Sledge hammer
 Small power tools
 Crane truck
 Air compressor
 Gas monitors
 Portable generator
 Pipe
 Personal protection equipment
 Grout
 Testing equipment (e.g., electrical, pressure)
 Connectors
 Hardware (e.g. fasteners, clamps)
 Dump truck
 Marking paint
 Marking flags
 Hoist
 Skid Steer
 Safety equipment
 Track hoe
 Sewer chemicals
 Office supplies
 Manuals
 Cell phones
 Manhole lids
 Manhole dishes
 "Pigs"
 Sewer plugs
 Sandbags
 Oil
 Divining rods
 Chain saw
 Welding equipment
 Chop-saw
 Concrete

Future Trends and Concerns

Storm water regulations
 Problem finding qualified personnel to fill positions vacated by retiring baby-boomers
 Technologically savvy younger generation needs less computer training
 Lower population growth equals fewer rate payers
 Water saving devices (e.g. low-flow toilets) causes less water to process but it is more contaminated
 Doing more with less
 Increased capital costs
 Training issues on new technologies
 Urban sprawl, more concrete and pavement equals more run-off
 Storm water control efforts
 Change in public perception about "saving the planet" means they are willing to pay more for environmentally friendly sewer services
 New piping materials change process and training
 Trenchless technologies
 Aging infrastructure
 Privatization