

DACUM Research Chart for Class II Collection System Operator

DACUM Panel

Mike Foster
Tech Support Manager
City of Columbus
Columbus, OH

David R. Ickes
Maintenance Specialist
City of Reynoldsburg
Reynoldsburg, OH

Matt Pennington
Collection System Supervisor
Southwest Licking Water & Sewer
Hebron, OH

Michael Root
Project Manager/Certified
Operator
EMH&T
Columbus, OH

Norman Sigel
Sanitary Collection/Storm Water
Supervisor
City of Washington Court House
Washington Court House, OH

DACUM Facilitators

Dave Bornino
Carl Sofranko
Jon VanDommelen
Robert E. Norton, Team Leader

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Duties		Tasks				
A	Perform Support Equipment Maintenance	A-1 Inspect PPE for worthiness	A-2 Conduct pre-trip vehicle inspection	A-3 Conduct tool & equipment inspections	A-4 Maintain spare parts inventory	A-5 Replace worn/broken parts
		B-1 Maintain odor control system	B-2 Implement PM program	B-3 Inspect manholes	B-4 Raise manhole to grade	B-5 Clean sewers (e.g., storm, sanitary)
B	Perform Collection System Maintenance	B-13 Schedule cleaning for problem areas	B-14 Maintain sluice gates	B-15 Maintain flap gates	B-16 Clean force mains with pig	B-17 Inspect storm water BMP's
		C-1 Perform manhole repairs (sub-duty)	C-1a Seal manholes (e.g., boots, barrels, chimneys)	C-1b Coat manholes with sealer	C-1c Reconstruct manholes	C-2 Perform pipe repairs (sub-duty)
C	Perform Collection System Repairs	C-3d Clean pump station screens	C-3e Repair force mains	C-3f Maintain air relief valves	C-3g Maintain SCADA system	C-4 Perform ditch cleaning
		D-1 Conduct flow monitoring (sub-duty)	D-1a Install stalling poles	D-1b Conduct flow isolation	D-1c Install chalk & block	D-1d Maintain rain gauge
D	Conduct Sewer System Analysis	D-4 Conduct smoke test	D-5 Conduct dye test	D-6 Conduct CCTV inspection	D-7 Review CCTV video/logs	D-8 Conduct sample analysis
		E-1 Prepare SOP	E-2 Develop reporting forms	E-3 Complete work orders	E-4 Complete complaint records	E-5 Complete daily logs
E	Prepare Reports And Documentation	E-13 Complete police officer permit	E-14 Complete street occupancy permit	E-15 Complete fire hydrant permits	E-16 Complete daily work reports	E-17 Complete pretreatment reports
		E-25 Complete mileage reports	E-26 Complete SSES reports	E-27 Complete tap records	E-28 Complete inspection report for new installation	
		E-35 Prepare quarterly CSO reports	E-36 Gather performance data	E-37 Analyze performance data	E-38 Complete dam EPA	E-39 Complete dam inspection report
		F-1 Assign daily tasks to employees	F-2 Assign materials & equipment to employees (e.g., keys, tools, vehicles, PPE)		F-3 Supervise collection system personnel	F-4 Verify employee timesheets
F	Manage Personnel					

A-6 Maintain equipment maintenance logs	A-7 Report equipment malfunctions	A-8 Download software updates	A-9 Maintain fluid levels	A-10 Maintain monitoring instruments	A-11 Maintain backup generator	
B-6 Clean pump station wet well	B-7 Conduct CCTV inspection of sewers	B-8 Remove intruding roots from sewer	B-9 Implement FOG program	B-10 Update PM program	B-11 Inspect catch basins	B-12 Clean catch basins
B-18 Maintain storm water BMP						
C-2a Install point repairs (e.g., linear, grouting, replace pipe)	C-2b Repair broken laterals	C-2c Remove protruding taps	C-3 Maintain pump stations (sub-duty)	C-3a Repair/replace grinders	C-3b Repair/replace pumps	C-3c Repair/replace valves (e.g., check, gate)
C-5 Repair/replace/install headwalls	C-6 Repair/replace/install flap gates	C-7 Repair/replace/install sluice gates	C-8 Repair catch basins			
D-1e Collect flow data	D-1f Scrub flow data	D-2 Evaluate pump station performance (sub-duty)	D-2a Perform pump pressure test	D-2b Analyze SCADA data	D-2c Analyze pump station operating records	D-3 Perform GPS manhole locations
D-9 Conduct atmospheric testing	D-10 Maintain collection system maps	D-11 Conduct residential/commercial sanitary inspections		D-12 Perform mandrel, vacuum, air test		
E-6 Complete sanitary system cleaning reports	E-7 Complete PM cleaning forms	E-8 Complete manhole rehabilitation forms	E-9 Complete CCTV log	E-10 Complete pump station O&M report	E-11 Complete call-out log	E-12 Complete confined space permit
E-18 Complete I/I reports	E-19 Complete pump station start-up reports	E-20 Complete FOG program reports	E-21 Complete state pump station reports	E-22 Complete generator reports	E-23 Complete public notification reports	E-24 Complete NPDES reports
E-29 Complete inspection report for repairs	E-30 Prepare spill notification report (e.g., EPA, phone, 5-day, Health/Water Dept.)	E-31 Prepare monthly SSO reports	E-32 Prepare SSO/WIB reports	E-33 Prepare annual floodwall implementation reports	E-34 Complete floodwall inspection forms	
F-5 Approve employee leave requests	F-6 Conduct employee performance reviews	F-7 Initiate employee disciplinary actions	F-8 Mediate employee dispute resolution	F-9 Identify employee training requirements	F-10 Identify employee safety requirements	F-11 Conduct personnel interviews

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Duties		← Tasks				
G	Manage Collection System Projects	G-1 Manage capital improvement projects	G-2 Manage renovation projects	G-3 Manage abandoned sewer projects	G-4 Manage I/I removal projects	G-5 Manage relocation projects
		G-13 Perform final walk through	G-14 Develop punch list	G-15 Initiate project acceptance	G-16 Manage construction of sewer extension projects	
H	Provide Customer Service	H-1 Investigate customer complaints	H-2 Perform customer complaint follow up	H-3 Perform utility locates	H-4 Perform repair inspection	H-5 Perform new service installation inspection
I	Provide for Employee & Self Development	I-1 Conduct self evaluation	I-2 Attend safety training	I-3 Attend construction training	I-4 Attend required workplace training	I-5 Attend workshops/seminars
J	Manage Financial Matters	J-1 Track expenditures	J-2 Prepare budgets	J-3 Prepare contracts	J-4 Track contracts	J-5 Prepare proposals
K	Implement Floodwall Operation Plan	K-1 Monitor river elevation	K-2 Notify emergency agencies (e.g., police, EPA)	K-3 Notify government agencies	K-4 Coordinate emergency agency response	K-5 Call emergency workforce & volunteers

Note: Although panelists are certified Class II Collection System Operators, all members of the panel do not perform every task on this chart.

Acronyms

AC		LTCP	Long Term Control Plan
OE	Army Corps of Engineers	NPDES	National Pollution Discharge Elimination System
BMP	Best Management Plan	O&M	Operation & Maintenance
CCTV	Closed Circuit Television	OUPS	Ohio Utility Protection Service
CDL	Commercial Driver's License	PM	Preventative Maintenance
CMOM	Capacity Management Operation and Maintenance	PPE	Personal Protection Equipment
CSO	Combined Sewer Overflow	R/R	Repair/Replace
EAP	Emergency Action Plan	SCADA	Supervisory Control and Data Acquisition
EMA	Emergency Management Agency	SOP	Standard Operating Procedures
EPA	Environmental Protection Agency	SSES	Sanitary Sewer Evaluation Study
EPM	Essential Preventative Maintenance	SSO	Sanitary Sewer Overflow
FOG	Fats, Oils, and Grease	WIB/SIB	Water in Basement/Sewage in Basement
GPS	Global Positioning System		
I/I	Inflow and Infiltration		

G-6 Review draft plans & specifications	G-7 Attend preconstruction meetings	G-8 Review fees, budget, associated reports	G-9 Meet with consultants	G-10 Attend team meetings	G-11 Advise supervisor of project progress	G-12 Interpret plans & specifications
H-6 Provide installation specifications	H-7 Provide installation fee schedule	H-8 Provide change of ownership inspection	H-9 Notify customer of upcoming work	H-10 Provide complaint history	H-11 Promote dry basement program	H-12 Provide basement clean up
I-6 Track contact hours	I-7 Provide on-the-job training	I-8 Obtain on-the-job training	I-9 Attend tool & equipment training	I-10 Review technical literature (e.g., trade journals, magazines, web)	I-11 Mentor employees	I-12 Network with peers
J-6 Review proposals	J-7 Track material usage	J-8 Prepare emergency fund request	J-9 Prepare state pump station bill			
K-6 Coordinate emergency operation plan						

General Knowledge and Skills

Read detailed plans and blueprints
Computer skills
Communication skills
Basic mechanics
Basic skills
Electrical skills
Time management skills
Project management skills
Plumbing skills
Record retention
Environmental regulations
Problem solving skills
Math skills
Equipment operation
Writing skills
Excavation skills
Basic chemistry
Problem solving skills

Tools, Equipment, Supplies and Materials

Hand tools	Megger
PC, laptops, software	Force main pig
Cameras	Chemical coatings
Phones	Dye
Heavy equipment	Smoke generators/blowers
Lasers, transits	Pumps
GPS	Generator
Data collectors	Lab equipment
Flow monitoring equipment	Sewer cleaning equipment
Calculators	Flashlight
Personal protection equipment	Mirror
Radios	Pipe locator (witching stick)
FAX machines	Pressure gauges
Telemetering equipment	Small clean up equipment
Electrical test equipment	Odorizer
SCADA	Chalk and block
Gas detectors	Stalling poles
	Chain cutter

Worker Behaviors

Ability to work in adverse weather/conditions
Team player
Thick skinned
Patient
Considerate
Able to multi-task
Adaptable
Flexible
Punctual
Able to be confidential
Good decision maker
Confident
Competent
Self starter
Ability to complete task
Service oriented
Sense of humor

Future Trends and Concerns

CMOM compliance
NPDES program expansion
Minimum staffing concerns
Higher utility costs
Power reliability
Aging infrastructure
Technology overrun
Aging staff (knowledge drain)
Unavailability of parts/equipment
Lack of certified operators
Difficulty finding trained people