

Ordinance No. 16- 02

**AN ORDINANCE APPROVING THE PROPOSED
MODIFIED COMPREHENSIVE PERFORMANCE EVALUATION**


BE IT ORDAINED BY THE SOUTH SANGAMON WATER COMMISSION, AS FOLLOWS:

SECTION 1: The Proposed Modified Comprehensive Performance Evaluation for the South Sangamon Water Commission, a copy of which is attached hereto, is hereby approved.


SECTION 2: The Chairman of the Commission is authorized and directed to approve said agreement on behalf of the Commission, and the proper officers of the Commission are authorized and directed to carry out the agreement by its terms.

SECTION 3: This Ordinance is effective immediately.

PASSED this 15th day of March, 2016.


CHAIRMAN

ATTEST:


Clerk

AYES: Hall, Sanders, Burke

NAYES: none

PASSED: March 15, 2016

APPROVED: March 15, 2016

ABSENT: none

Proposed Modified Comprehensive Performance Evaluation
South Sangamon Water Commission
Submitted by Andy Curry, P.E., on behalf of SSWC MCPE Team
14 March 2016

Preface

South Sangamon Water Commission (SSWC) has not received any water quality Violation Notices from IEPA, and all water quality parameters have been in compliance with regulatory requirements. Nevertheless, IEPA has directed SSWC to perform a Comprehensive Performance Evaluation, due to citizen complaints about water quality (especially scale formation in household plumbing and hot water heaters).

SSWC has two recent Violation Notices from IEPA briefly described as follows:

July 28, 2015, Violation Notice No. W-2015-00031. "Failure to have a properly certified Class A operator."

Corrective action has reportedly been taken to eliminate the violation.

November 25, 2015, Violation Notice No. W-2015-00054. "Failure to provide adequate finished water storage to maintain pressure on the transmission main between South Sangamon Water Commission Water Treatment Plant and the ground storage tank in Chatham."

SSWC is currently on IEPA-imposed "restricted status" because there is no pressure storage between the water treatment plant and Chatham's ground storage tank, under Violation Notice No. W-2015-00054.

SSWC has submitted a construction permit application to IEPA to provide a small hydro pneumatic storage tank sized for ten minutes at peak hourly flow based only on customer demand from SSWC and a proposed new water system to be owned by EJ Water Cooperative located in the vicinity of the SSWC water treatment plant. Completion of this modification will reportedly eliminate the violation.

IEPA reported that there have been three "boil orders" in the last year due to SCADA (Supervisory Controls and Data Acquisition) control problems at the SWCC treatment plant that resulted in loss of pressure.

The raw water source is wells, and the treatment processes employed are considered to be conventional for iron and manganese removal and softening, with treatment units consisting of:

*Aeration
Reaction Basin
Filtration
Ion Exchange Softening*

Membrane filters are employed ahead of the ion exchange water softeners, as opposed to granular media filters historically used in this application. The particle removal efficiency of the membrane filters is considered to be better than, or at least equal to, granular media filtration.

Chemical treatment includes pre and post chlorination using liquid sodium hypochlorite, bisulfite dechlorination ahead of the membrane filters (to protect integrity of membrane material), addition of hydrofluosilicic acid as a source of Fluoride ion, and phosphate corrosion inhibitor. The cation exchange water softeners are conventional-type, and are regenerated with salt.

An onsite pilot study is being performed to evaluate effectiveness of sodium permanganate addition in the treatment process to improve oxidation efficiency for removal of manganese from the water prior to the ion exchange softening units.

SSWC has direct control over the wells, water treatment plant, and treated water transmission mains. The Villages of Chatham and New Berlin are the primary customers of SSWC, and those communities operate and maintain and have total control over their own water storage and distribution systems.

Since the treatment plant process and configuration is less complicated than a surface water treatment plant, and since IEPA has not issued any violation notices to SSWC, a "full-blown" comprehensive performance evaluation as outlined in Section 611.101 and 611.160, Title 35:Environmental Protection, Subtitle F:Public Water Supplies, Chapter I: Pollution Control Board, Part 611, Primary Drinking Water Standards ... referenced herein as "Primary Drinking Water Standards", is not considered to be necessary. Accordingly, a MCPE (Modified Comprehensive Performance Evaluation) will be undertaken.

Scope

The 4-member team will perform a MCPE (Modified Comprehensive Performance Evaluation) consisting of a thorough review and analysis of the water treatment plant's performance-based capabilities and associated administrative, operation, and maintenance practices.

The MCPE is to be conducted to identify factors that may be adversely impacting the treatment plant's capability to achieve treated water quality objections, and is intended to emphasize approaches that can be implemented without significant capital improvements. The MCPE will consist of at least the following components:

- Review of water quality data commencing in May 2012 (when the plant was placed into operation) through February 2016;
- assessment of plant performance;
- evaluation of major unit processes;
- evaluation of transmission main immediately downstream from treatment plant;
- identification and prioritization of performance limiting factors;
- and preparation of the MCPE report.

Where considered applicable, the general methodology to be employed in performing the MCPE is outlined in Chapter 4 of the Handbook, Optimizing Water Treatment Plant Performance Using the

Composite Correction Program, 1998 Edition, USEPA, Revised August 1998 (EPA/625/6-91/027) (referenced herein as “Handbook”)

The scope does not include the “comprehensive technical assistance” (CTA) portion of the “composite correction program” (CCP) outlined in the “Handbook”. If IEPA determines that CTA is required as described in Section 611.160 of the “Primary Drinking Water Standards”, then it will be necessary for SSWC to undertake the CTA and/or CCP.

Team

The MCPE team members will include the following persons:

John Bartolomucci- Springfield Regional Office, Illinois Environmental Protection Agency Division of Public Water Supplies. Mr. Bartolomucci assists a large number of diverse public water supply systems serving communities in the central part of Illinois.

Shane Hill – Utilities Superintendent, Chatham.

Andy Curry – President, Curry & Associates Engineers, Inc. has 15 years’ experience in design of water treatment facilities and furnishing technical assistance in operation of surface water and ground water treatment plants. He is a registered Professional Engineer in Illinois.

Capt. Michael D. Curry – Project Engineer, Curry & Associates Engineers, Inc., has over 43 years’ experience in design of water treatment facilities and furnishing technical assistance in operation of surface water and ground water treatment plants. Mr. Curry has authored various water plant operator educational publications and assisted in establishing the statewide network of community college water operator courses. He has received various awards in the waterworks field, and is a registered Professional Engineer in Illinois and Missouri and has a Class *A* Water Works Operators license in Illinois.

Budget

The services of Team Member John Bartolomucci will be rendered through the State of Illinois Environmental Protection Agency, at no additional cost to SSWC. The services of Team Member Shane Hill will be rendered through the Village of Chatham, at no additional cost to SSWC.

Team Members Andy and Capt. Michael Curry will be authorized by the SSWC to incur cost in performing the MCPE. Their services will be invoiced through Curry & Associates Engineers, Inc., and the SSWC is to make payment within 30 days after receipt of the invoice for hourly services. The anticipated budget for the MCPE is outlined below, and the maximum permissible cost for each team member is included along with the hourly billing rates, excluding expenses.

For Team Members Andy and Michael Curry, expenses for travel, lodging, and meals (while traveling to and from and onsite at SSWC facilities) will be over-and-above the maximum permissible cost for each team member shown in the following summary. Auto travel expense will be reimbursed at the rate of \$0.48/mile for travel to and from SSWC. The SSWC will make

arrangements for, and cover the cost of, suitable lodging if it is necessary for them to stay overnight. J. Bartolomucci and S. Hill will not be reimbursed for travel and lodging.

Team Members Andy Curry and Capt. Michael Curry, shall be reimbursed for meals while traveling and onsite at SSWC on a per diem basis using the following schedule: \$10 breakfast, \$12 lunch, \$25 dinner. While onsite at SSWC, the Team recommends that SSWC arrange for lunches to be delivered to the water treatment plant, and SSWC would separately cover the cost of lunches while onsite. Curry & Associates Engineers, Inc. will be responsible for submitting an itemized invoice for services of A. Curry and M. Curry and expenses to SSWC, simultaneously with the invoices for hourly services. J. Bartolomucci and S. Hill will not be reimbursed for meals.

Printing of the Draft and Final CPE Reports will be invoiced to SSWC based on the actual number of pages copied, at \$0.15/each black and white copy, at \$0.30/each color copy. If photographs are included, they will be invoiced to SSWC based on the actual number copied at \$0.75/copy.

<u>Task</u>	<u>Estimated Hours</u>		
	<u>J. Bartolomucci & S. Hill (each)</u>	<u>A. Curry</u>	<u>M. Curry</u>
Initial site visit and coordination.	-	7.5	0
Initial data review.	16	16	16
Initial RTW Model (date)	-	-	3
Second RTW Model (date)	-	-	3
Attend kickoff meeting.	4 (1)	9.5	9.5
Data/information request to IEPA and SSWC.	1	0.5	2
Draft proposal.	1	0.5	6
Draft work plan.	2	2	12
<u>Onsite Day 1</u>			
Travel to site.	-	2	2
Onsite tour/review: wells, plant, transmission main	6.5	6.5	6.5
Onsite SSWC staff interviews (private).	1.5	1.5	1.5

<u>Task</u>	<u>Estimated Hours</u>		
	<u>J. Bartolomucci & S. Hill (each)</u>	<u>A. Curry</u>	<u>M. Curry</u>

Onsite Day 2

Onsite interviews with Chatham and New Berlin Water Departments.	5	5	5
Onsite citizen interviews (private).	3	3	3

Onsite Day 3

Onsite Team meeting. (Field evaluation, performance assessment, identify performance-limiting factors.)	3.5	3.5	3.5
Onsite site review exit meeting. (To be attended by SSWC Official, SSWC Operating Staff, MCPE Team Members.)	1.5	1.5	1.5
Travel from site.	-	2	2

Prepare draft MCPE report for review and comment by Team Members.	4	4	24
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Finalize & submit MCPE report to IEPA and SSWC.	1	1	4
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Total Estimated Hours	50	66	104.5
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- (1) Shane Hill did not attend kickoff meeting since he had not yet been designated as member of the MCPE team.

A. Curry & M. Curry, grand total hourly cost (excluding auto travel, meals, lodging, copies, photographs): not to exceed \$25,855.

SSWC Resources & Personnel

The following items are to be available at the site by the SSWC:

- Safety Data Sheets for all chemicals/water treatment process additives.
- Evidence of NSF certification for all chemicals/water treatment process additives.
- Raw water transmission main maps with valves, hydrants, meters, etc. identified.
- Engineering drawings showing the location and configuration of the water supply wells and raw water transmission main from the wells to the treatment plant.
- Treated water transmission main drawings, maps with valves, hydrants, meters, etc. identified.
- Individual record card for each valve and hydrant indicating location, manufacturer, size, service/maintenance record.
- Engineering drawings and specifications which include design information on the individual unit processes and plant equipment.
- A plant flow schematic.
- Daily plant performance summaries showing the flows, chemical feed dosages, and water quality parameters for the most recent 12 month period.
- An organizational chart.
- A list of utility staff members stating years of service, title, Operator certification classification, and duties.

Included with the site review, the Team will record static pressure gage readings at the water treatment plant high service pump discharge and at a downstream location on the transmission main 5 miles more or less from the plant. It is our understanding that the treatment plant high service pump(s) are operated continuously to maintain pressure on the transmission main between the plant and Chatham's ground storage reservoir. Using drawings of the transmission main, we propose to determine the size and length of transmission main between the plant and downstream observation hydrant, and using available information we propose to determine the elevations at the plant and at the downstream observation hydrant. We intend to determine the constant flow rate during the dynamic test using the treated water meter. Based on this information, we will estimate the approximate Hazen-Williams c factor for the transmission main. Scale formation problems have been reported in the household plumbing of private residences in Chatham, and the described test is intended to serve as a preliminary evaluation of potential scale formation in the transmission mains.

In addition to the information listed, a meeting/work room with desk, chairs, and phone is required during the conduct of the onsite MCPE activities. A meeting room large enough for the evaluation team and utility personnel should be available for the onsite meetings. The CPE Team respectfully requests that these accommodations be furnished by SSWC. (The existing water treatment plant conference room is suggested, subject to SSWC concurrence.)

During the MCPE, existing sample taps should be checked to verify that they are functional. During the MCPE, Operating Personnel will be asked to perform routine laboratory tests (chlorine

residual pH, fluoride ion, orthophosphate, iron, manganese) in presence of the Team.

The MCPE Team respectfully calls to the SSWC's attention (and the attention of all MCPE Team members) the following information from pages 51-52 of the "Handbook", for the mutual benefit of all participants:

"The CPE evaluation is often stressful, especially initially, for plant personnel. Consequently, during the conduct of the tour, as well as throughout the on-site activities, the evaluation team should be sensitive to this situation. Many of the questions asked by the evaluation team on the plant tour are asked again during formal data collection activities. The plant staff should be informed that this repetitiveness will occur. Questions that challenge current operational practices or that put plant personnel on the defensive must be avoided. It is imperative that the CPE evaluators create an open, non-threatening environment so that all of the plant staff feels free to share their perspective as various questions are asked. The evaluator should try to maintain an information-gathering posture at all times..."

Attention is called to page 57 of the "Handbook" regarding interviews. Private interviews will be conducted as part of the MCPE Team procedures, and "... the persons being interviewed should be informed that the responses are presented in the findings as an overall perception, and individual responses are not utilized in the exit meeting or final report." Additional guidance is contained in this section of the "Handbook".

MCPE Schedule

April 25, 2016 is the target date for the MCPE to be in the offices of Illinois EPA and SSWC.

The MCPE Team has submitted a request to Illinois EPA for various documents pertaining to water quality and other pertinent subjects applicable to SSWC, Chatham, and New Berlin water systems. The proposed schedule is based on the assumption that the requested information will be furnished to the Team not later than 22 March 2016.

And, the MCPE Team has submitted a request to SSWC for various documents applicable to the MCPE. The proposed schedule is based on the assumption that the requested information will be furnished to the Team not later than 22 March 2016. And, the proposed schedule is based on the assumption that SSWC will have available the information requested for the site visit commencing on 28 March 2016.

The summary list of tasks is presented as follows, with target dates.

Kickoff meeting ... completed, held on 9 March 2016.

Onsite plant review and interview visit ... anticipate 3 days onsite ... 28-30 March 2016.

Team members submit input for MCPE report to A. Curry for coordination ... not later than 5 April 2016.

Draft MCPE report distributed to Team Members for review ... not later than 14 April 2016.

All Team members submit review comments on draft MCPE report to A. Curry for coordination ... not later than 18 April 2016.

Final MCPE report submitted to IEPA and SSWC ... not later than 25 April 2016.

- end -

ORDINANCE CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF SANGAMON)

I, the undersigned, do hereby certify that I am the duly qualified and acting Clerk of the South Sangamon Water Commission.

I do further certify that the ordinance attached hereto is a full, true, and exact copy of Ordinance No. 16-02 adopted by the Commission on the 15th day of March, 2016, said Ordinance being entitled:

**AN ORDINANCE APPROVING THE PROPOSED
MODIFIED COMPREHENSIVE PERFORMANCE EVALUATION**

I do further certify that prior to making of this certificate, the said Ordinance was spread at length upon the permanent records of said Commission, where it now appears and remains.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said Commission this 15th day of March, 2016.


Clerk