

Appendix A: SCADA Survey Questions

SCADA General Information

1. Are you currently using any form of SCADA or Distributed Control System (DCS) to monitor or control your distribution system?
2. Approximately how many years has your facility been utilizing some form of SCADA or remote monitoring and control technology?
3. Which of the following operating system platforms are used to run your SCADA software? (More than one answer may be selected.)
4. Which of the following companies manufacture the SCADA software program are you currently using? (More than one answer may be selected.)
5. Do you use more than one SCADA system to control/monitor different aspects of your operations? For instance, one system for security and another for treatment or distribution operations.
6. Do you use hydraulic modeling software (e.g., EPANet, WaterCad, or KYPipe) to support water distribution system operations?
7. Which of the following hydraulic modeling software programs do you use in your distribution system? (More than one answer may be selected.)
8. How recently has your SCADA system received upgrades?

Security Monitoring

9. Do you have security monitoring capabilities for your distribution system?
10. Are you using SCADA to monitor security system features within your distribution system?
11. Does your utility use a contamination warning/event detection system such as Whitewater Security's Blue Box or Hach Guardian Blue within the distribution system?

Ambient Air / Water Quality Monitoring

12. Please indicate the approximate percentage of water quality and hydraulic measurements that are performed by SCADA sensors.
13. Has your utility used programs such as InfoWater SLM (Sensor Location Manager) or EPA's TEVA-SPOT to assist with selection of optimal locations for sensor placement in your distribution system?

Equipment Management

14. Does your SCADA system provide equipment status monitoring such as run-time, oil pressure, or temperature?

15. Is data collected from equipment sensors used for maintenance prediction or repair/replacement forecasting?

Data Management

16. What mode/modes of SCADA telemetry (data transmission) are used to transmit information from distribution system SCADA components to your SCADA system?

17. Which communication protocols (e.g., IEC 60870, Profinet, Hart) are being used to communicate within your SCADA system? (More than one response is allowed, if unknown you may skip question)

18. Data collected manually or through the use of SCADA sensors can be used for a myriad of managerial purposes. The following list contains several common managerial uses of data with respect to the water industry and in general. Please indicate which are done with the assistance of manually collected data, SCADA data, or a combination of both.

19. Do you have data storage and analysis system (Historian/ODMS) that stores data collected from sensors, water meters, or the like?

20. On average, how long is data collected by SCADA able to be stored before it is "dumped" or erased?

21. Do you have remote access (other than your primary control interface) to your SCADA data?

Process Control

22. Is your SCADA system used to remotely control physical processes (e.g., Pumps, valves, etc.) in the distribution system?

23. Are process control features of your SCADA system able to be accessed from locations other than the primary SCADA control interface?

Alarm Handling

24. Please select any of the following areas that currently have alarm notification capabilities within your SCADA system. (Additional areas may be entered manually)

25. How does SCADA system notify operators/responders of an alarm? (Please check all that apply.)

26. Approximately what percentage of alarms generated are false or nuisance alarms?

27. Do you group alarms into categories based on priority?

Cost

28. What is the estimated replacement value of your entire SCADA system?

29. What are your approximate annual SCADA expenditures related to system upkeep/maintenance? (Please provide your best estimate of annual maintenance costs.)
30. What percentage of time would you estimate your SCADA system to be completely operational and not experiencing a "downtime" event due to hardware or software failures?
31. What is your utility's approximate annual budget? (If unknown leave blank)
32. Does the use of SCADA provide a noticeable cost savings (e.g., reduction in staff time to necessary to maintain operations, reduction in material/ energy consumption, etc) in annual operating expenses?

Opinion

33. Data collected by SCADA sensors is equally reliable as manually collected data.
34. Continuous real-time monitoring of equipment status (vibration pattern analysis, temperature, oil pressure, etc.) should be a critical part of your maintenance program.
35. Do you believe cloud or internet based SCADA software/networks pose a serious security risk with respect to distribution operations?
36. Rank areas in which the use of historical data would provide the greatest benefit to your operations.
37. Do you believe there is any risk in allowing access to operational SCADA data over the internet?
38. Having too many alarm conditions could lead to an important alarm being missed.
39. Please rank the following SCADA functions in order of their importance to your operations with one being the most important.
40. Having a SCADA expert on staff is vital to maintaining a functional and safe SCADA system.
41. What are the biggest deterrents when deciding to implement new features to an existing SCADA system? (Choose any that apply.)