



Operations Manuals

June 2019



Presentation Outline

WHY Update or Create Your Facility O&M Manual

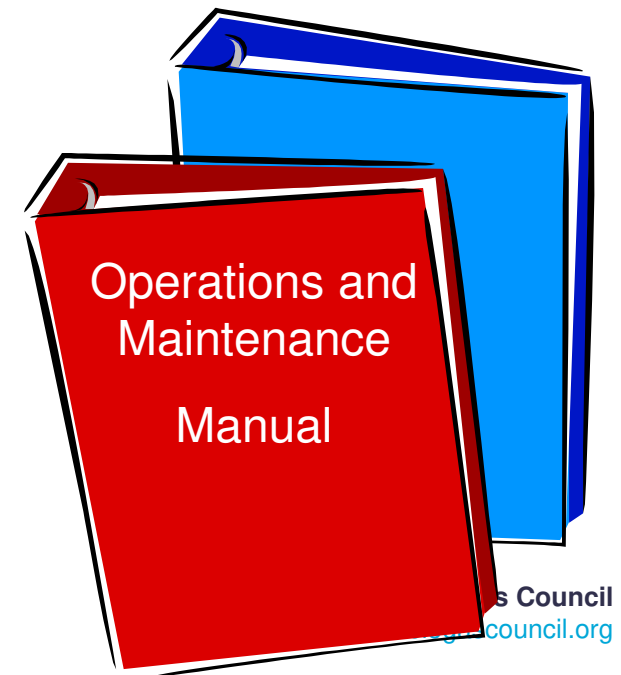
WHEN to Update or Create Your Facility O&M Manual

HOW to Effectively Update or Create Your Facility
O&M Manual

WHY Update or Create Your Facility O&M Manual



All facilities are required to HAVE and
MAINTAIN an O&M manual



WHY Update or Create Your Facility O&M Manual Cont.



O&M manuals are useful documents when they have been developed and maintained (living document) properly;

- Knowledge refresher

- Teaching aid

- Emergency tool

- Can be the life blood of a facility, fast easy access for staff

WHY Update or Create Your Facility O&M Manual Cont.



New Facility – Manual is required by law

Plant Upgrades have changed the design

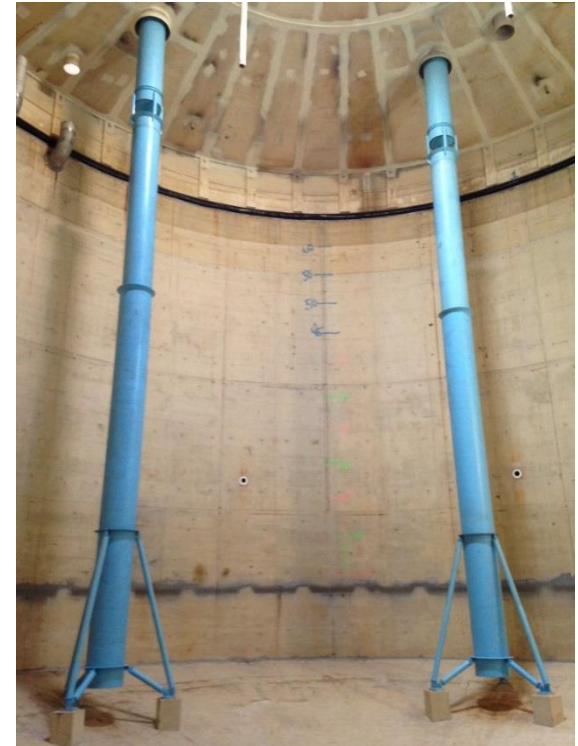
- New tankage

- New operating scheme

Process Upgrades

- Draft tube mixers from educator tube

- Floating covers from fixed covers



WHY Update or Create Your Facility O&M Manual Cont.



Operations that have changed

Level of operations staff has increased due to increased workload

Maintenance that has changed

Level of maintenance staff and activities has increased due to increased workload

WHY Update or Create Your Facility O&M Manual Cont.



Change from paper document to electronic format

- Ease of future updates
- Central repository for information
- Faster access to information
- Conserves space
- Captures institutional knowledge



**WHEN to Update or
Create Your Facility
O&M Manual**



WHEN to Update or Create Your Facility O&M Manual



New facility

New facility is required to have an operations manual
Best practice is to develop the manual during construction
Field notes and drawings can be critical to a good manual



WHEN to Update or Create Your Facility O&M Manual Cont.



Plant upgrades

Old process equipment has been replaced with new in kind equipment

Change from one process to another



WHEN to Update or Create Your Facility O&M Manual Cont.



Changes in operations

- Increase/decrease in staff or staff organization

- Changes to facility permit

- Changes to facility operating protocol

- Changes to the facilities maintenance protocol

WHEN to Update or Create Your Facility O&M Manual Cont.



O&M reviewed and requires updates

Outdated

Format

Paper

Electronic

Missing content

Wrong information

WHEN to Update or Create Your Facility O&M Manual Cont.



Good rules of thumb;

Review plant manual every three years for proper content

Review plant drawings for changes

Insert new equipment manuals in associated spot as the equipment is installed

HOW to Update or Create Your Facility O&M Manual



HOW to Update or Create Your Facility O&M Manual



New Manual

Format decision?

Paper – Provide in Word format

Electronic

Manual Update

Continue with present format?

Update format?



HOW to Update or Create Your Facility O&M Manual



Work as a team for ease of document creation

Delegate one person as the lead

The rest of the team can assist in the creation or updating of the manual

All should agree on format and content of manual

Use templates for consistency



- New manual or manual update should follow **the** EPA guidance document (Considerations for Preparation of Operation and Maintenance Manuals)

HOW to Update or Create Your Facility O&M Manual Cont.



At a minimum the manual shall contain;

- Operator and staff responsibilities;

- Staff guidance for emergency situations;

- Identification of permit requirements and the obligation to meet these requirements;

- Operating procedures including a detailed description of each major treatment unit/process with relationship to related units, safe operating procedure for normal operation, including common operating problems, safe operating procedures for operating during emergency conditions, and any fail-safe features;

- A program of regularly scheduled inspection and maintenance; and

- An emergency plan

HOW to Update or Create Your Facility O&M Manual Cont.



Table of contents

Follows a clear format

Detailed enough for facility

Complete and accurate

Figure Table

Appendices

HOW to Update or Create Your Facility O&M Manual Cont.



Typically follow the 6-point format for each section,

Overview

Process Control

Equipment Controls

Operation

Maintenance

Safety

HOW to Update or Create Your Facility O&M Manual Cont.



Overview

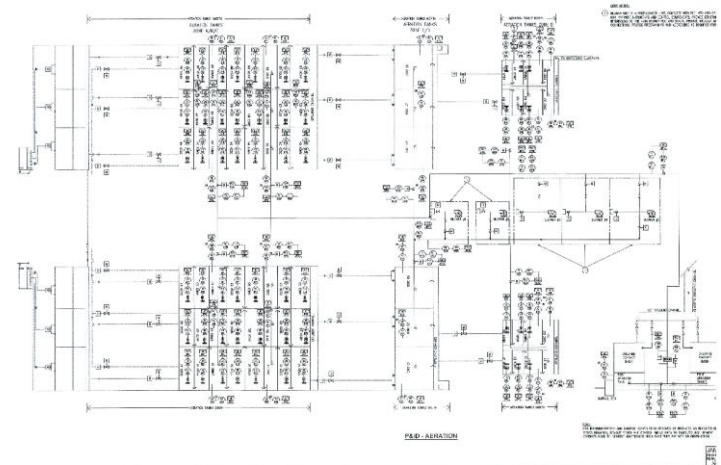
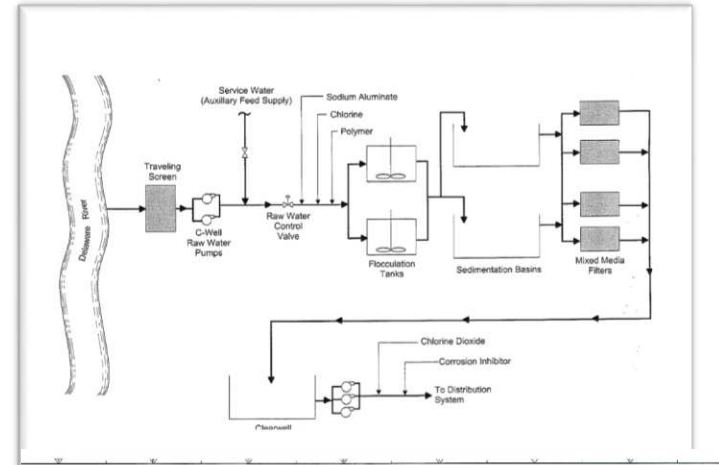
Overall objectives of the process and the functional relationship to adjacent unit

Process Control

Detailed description of the intended operation and process control design data

Equipment controls

Instrumentation loop descriptions
Addition of loop drawings is a plus



HOW to Update or Create Your Facility O&M Manual Cont.



Operation

- Normal Operations
- Alternate Operations (Flexibility of treatment unit)
- Shutdown Considerations
- Restart Considerations

Maintenance

- Equipment Data
- Equipment Maintenance References
- Process Maintenance
- Troubleshooting
- CMMS templates

Safety

- Discusses the importance of a safety program and presents common and probable safety hazards
- Bulleted references to Safety chapter



HOW to Update or Create Your Facility O&M Manual Cont.



Figures

- Label all figures properly by chapter
- Label all figures properly by order
- Can be drawings, tables, sketches, process work flows, etc.

Appendices

- Process updates to present manual
- Permits
- Lab requirements for permit and process control
- Construction drawings
- Vendor manuals?

Vendor manuals as part of plant manual

- Require electronic from vendor
- Can become part of overall paper manual
 - This may become very large!
- Can be incorporated into electronic manuals with links
 - Aids in the use of the manual



HOW to Update or Create Your Facility O&M Manual Cont.



Final review of completed/updated manual

- All staff should review final manual
- Any final comments must be addressed
- Select where the manual will be kept
- Select a time frame for next review



HOW to Update or Create Your Facility O&M Manual Cont.



Remember – What Makes a Great O&M Manual

Are Easy to Use and Maintain

Have Thorough Information

Designed Around User Needs

Built Through Standard Procedures

