Giving Staff the Information
They Need to Do Quality Work

Designing Around Regulatory Requirements

Zone 7 Water Agency
Zone 7 Service Area
Zone 7 Water Agency Functions

- Flood protection for Eastern Alameda County (425 square miles)
- Treated water wholesaler (45,000 AFA) for:
  - City of Livermore
  - California Water Service Company (portion of Livermore)
  - City of Pleasanton
  - Dublin San Ramon Services District (including Dougherty Valley under special agreement)
- Untreated water supplier (5,000 AFA) for:
  - 74 agricultural & irrigation customers
  - Primarily vineyards
  - Local wine industry estimated at $200 million/year
- Groundwater Basin Manager
Five Major Treatment Facilities

- Del Valle Conventional - 44 MGD (DAF and Super Pulsators; both solar and mechanical sludge dewatering)
- Patterson Pass Conventional - 13 MGD (Solids Upflow Clarifier; both solar and mechanical sludge dewatering)
- Patterson Pass UF - 8 MGD (Solids Upflow Clarifier; membrane filtration; shared solids handling with conventional plant)
- Well Fields - Total 40 MGD
  - Mocho Groundwater Demineralization - 6 MGD (Reverse Osmosis and chloramination)
  - Chain of Lakes - 8 MGD (common chloramination facility)
  - Others (wellhead chloramination)
Ultra Filtration Plant
Del Valle WTP
Mocho Demineralization Facility
Operations Plan = Training Manual

- Original Ops Plan submitted to CDPH – fulfilled requirement but not used in-house
- Idea develops for new Ops Plan, made up of procedures used to operate facilities
- Question: Which procedures required?
  - Guidance Manual for Ops Plan
  - Hired consultant and utilized in house WQ staff to help develop Ops Plan and procedures (Huge Job)
Consultants Contribution

- Hired WQ Engineering Consultant
- Cost – $24,000 over 1.5 to 2 yrs
- Consultants Contribution to Project
  - Conceptual layout
  - Wrote the Operations Plan for the first Facility
  - Assisted in identifying required SOP’s
  - Developed procedures (Working Sessions)
PLANT OPERATIONS PLAN GUIDELINES

Section 64661 of the California Surface Water Filtration and Disinfection Treatment Regulations requires that all water suppliers using surface water treatment plants submit to the Department an operations plan. This section states the following:

“(a) Within 180 days from the effective date of this chapter or with a permit application for a new treatment plant, suppliers shall submit for Department review and approval an operations plan for each treatment plant that treats an approved surface water. The Department shall review the operations plan to determine if it includes those items required in Section 64661(b). The operations plan shall be designed to produce the optimal water quality from the treatment process. The supplier shall operate its treatment plant in accordance with the approved plan.”

“(b) The operations plan shall consist of a description of the utility’s treatment plant performance monitoring program; unit process equipment maintenance program; operating personnel, including numbers of staff, certification levels and responsibilities; how and when each unit process is operated; laboratory procedures; procedures used to determine chemical dose rates; records; response to plant and watershed emergencies; and reliability features.”

The operations plan should include the following elements as a minimum:

1. The names, grades, operator certification numbers, telephone numbers (home and work), and duties and responsibilities of all plant operations personnel. Information should also be given regarding the frequency and duration that the plant is checked and occupied.

2. Description of the unit treatment processes and loading rates; chemical feed equipment and chemical supplies; continuous monitoring devices; plant alarms and automatic plant shutdown capabilities, their operational set points, and the procedures and schedules for testing them; and other standby equipment, special operational procedures, and fail-safe features that are provided to prevent treatment process failures.
Operations SOP Development

• Established SOP Development
  – Received Conceptual Buy-In from DPH
  • CDPH approval letter February 10, 2005
  – Established SOP 2-week review process
  – Safety, WQ Engineering or WQ Lab, Storm Water Manager & Facility Supervisor
Sample Of DPH-Required Procedures

- Action Plan For A Chlorination Interruption
- CT Compliance Calculation
- Filter Operation and Control
- Online Analyzer Monitoring and Alarms
Ammonia Feed System

Facility: Del Valle Water Treatment Plant

Scope and Application:

Safety:

Interference:

Apparatus and Materials:
Reagents or Chemical:
Alarms:
Quality Control:

Procedure for the Inspection and monitoring of the Ammonia Feed system:

Procedure For Ammoniator Control:

Reference:

Records:
Safety: When working anywhere in the DWTP, always be aware of your surroundings and the task at hand. Your activity, along with others (contractors) could impact the work environment and potentially expose you and others to the following: dangerous chemicals, automatic starting of machinery, high noise levels, electrical shock, confined space hazards, fall hazards, drowning and engulfment hazards, etc. Approach every job with safety as the “primary concern”. Always follow instructions provided by the equipment manufacturer, Zone 7 policy or procedure, and don the appropriate personal protective equipment (PPE) as indicated by the chemical Material Safety Data Sheet (MSDS) information found online at http://www.3eonline.com/ or located at the specific facility. Enter the username ZWA and password ZWA99 for access to the database.

The attached Regulatory Safety Checklist (RSC) identifies various safety program elements, and should not be considered all inclusive. Contact your supervisor for more detailed information and always refer to the current employee safety handbook for additional information.
<table>
<thead>
<tr>
<th>SAFETY ELEMENT</th>
<th>Yes</th>
<th>Not Required</th>
<th>Links/Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury and Illness Prevention Program (IIPP), including documentation forms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CCR, Title 8, Section 3203)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Communication Program. (CCR, Title 8, Section 5194)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site specific safety plan, detailing procedures for your site specific activities. (CCR, Title 8, Section 3203 &amp; 1509)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site specific permits required, such as trenching and shoring, (CCR, Title 8, Section 1503); confined space entry, (CCR, Title 8, Section 5157); asbestos abatement notification, (CCR, Title 8, Section 1529)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required certifications and/or training records of employees as stipulated in this document. (CCR, Title 8, Section 3203)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical approval to wear respiratory protection. (CCR, Title 8, Section 1531, 5144)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical approval to work with, but not limited to asbestos, cadmium and lead. (CCR, Title 8, Section 1529, 1532 &amp; 1532.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearing Conservation Program (CCR Title 8, Sections 5095-5100)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloodborne Pathogens Program (CCR Title 8, Section 5193)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory Protection Program (CCR Title 8, Section 3409 and 5144)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat Stress Program (CCR Title 8, Section 3395)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Documentation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sample Of Procedures Not Required

- Retailer Notification
- Unplanned Emergency Discharges
- Planned Discharges
- Fire Pump Alarm Verification
How Big is the Operations Plan?

- Current Operations Plan only 16 pages
  - References required procedures
  - Not all procedures sent to DPH (only Required Procedures)
  - SOP Revisions sent to DPH annually
Operations Plan Becomes a Training Manual

- Maintain Electronic SOP Library
- Several hard copies available
- Training includes mentoring by senior staff
- Supervisors complete training with procedure review and sign-off
## Del Valle Conventional Water Treatment Plant

### Training Plan Index

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Operator initial</th>
<th>Supervisor initial</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC-00-00</td>
<td>Startup and Shutdown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-01</td>
<td>DV Plant Dewatering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-02</td>
<td>DV Plant Shutdown (Scheduled Long-Term)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-03</td>
<td>DV Plant Shutdown (Short-Term)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-04</td>
<td>DV Plant Start-Up After Short-Term Shutdown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-05</td>
<td>DV Plant Start-Up After Long-Term Shutdown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC-00-06</td>
<td>DV Plant 8 hour Maintenance Shutdown and Restart</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons Learned

• Process provided higher quality procedures
• Time intensive process especially for the supervisors (Who already have a Job)
• Now completing 5th facility (consultant no longer Required)
• Improved Training Of Operations Staff
Contact Information

• Rich Gould
  – Water Systems Superintendant
  – rgould@zone7water.com

• Rick Andersen
  – Water Facility Supervisor
  – randersen@zone7water.com