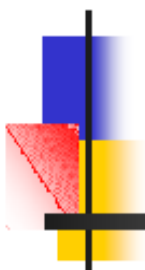


OPPORTUNITIES FOR COLLABORATION:

FINAL REPORT on WEST COAST WATER UTILITY WORKSHOP on WORKFORCE DEVELOPMENT



May 30, 2008

Santa Clara Valley Water District

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A. BACKGROUND

The West Coast Water Utility Workshop on Workforce Development was provided to jump-start the workforce component of an AwwaRF project entitled Bay Area Water Utilities Operations Collaborative: Model for Inter-Regional Utility Cooperation. In this project, AwwaRF is partnering with Contra Costa Water District, East Bay Municipal Utilities District, and San Francisco Public Utilities Commission to investigate potential models for water utilities to collaborate in addressing strategic issues of common concern. The West Coast Water Utility Workshop on Workforce Development was co-sponsored by Santa Clara Valley Water District, the San Francisco Public Utilities Commission, and the Cal/Nevada American Water Works Association. The purpose of the workshop was to help define and focus on mission-critical classifications at risk in terms of both quantity and work preparedness, and to investigate opportunities for collaboration in the areas (e.g., recruitment/retention, staff training, and knowledge retention) required to build a workforce that is prepared to support reliable operations.

B. PRE-CONFERENCE RESEARCH

Prior to the workshop, eleven water and wastewater utilities participated in a significant data collection and analysis effort. These utilities were:

- Metro Vancouver
- Seattle Public Utilities
- Portland Water
- East Bay Municipal Utility District
- San Francisco Public Utilities Commission
- Santa Clara Valley Water District
- Contra Costa Water District
- Union Sanitary District
- San Jose Water
- Los Angeles Department of Water and Power
- Metropolitan Water District

The purpose of the data collection was to help focus workforce development efforts and find opportunities for collaboration by investigating the following key questions:

- What job classifications are critical to our ability to reliably perform our most basic functions?
- Which of these mission-critical classifications are most at risk in terms of projected turnover, finding qualified candidates, and staff preparedness to perform the work?
- What basic water utility functions are in most jeopardy?
- What organizational processes needed to be strengthened and/or changed to address the challenge?

Key findings of the analysis are below:

- Based on analysis of the responsibilities assigned to the mission-critical positions at most risk, the operational functions most at risk were, in descending order, the following:
 1. Safety, Security, and Emergency Response
 2. Water Delivery Reliability
 3. Water Quality
 4. Environmental Stewardship

- All utilities listed retirement as high risk for some but not all mission-critical positions. Seven identified inadequate documentation on facilities, processes, procedures, technologies, and equipment as posing a high risk to reliable operations. Three utilities identified inadequate documentation as a medium risk; only one identified it as low.

- In terms of risks to their ability to recruit qualified applicants for employees who were retiring, ten utilities listed lack of an adequate labor pool as their highest risk for some positions. Four of the utilities surveyed identified their organization's recruitment/selection process as a high risk to their ability to qualified applicants.

- Although retirement and recruitment issues were clearly in the forefront of respondents' minds, the workforce development challenge that was cited most often as a risk to having staff who were prepared to do their work was knowledge retention. For the 159 mission-critical classifications analyzed, knowledge retention was a challenge for 135; recruitment/selection was a challenge for 102; staff training was a challenge in 94; and classifications (scope, requirements, pay, and career ladder) were a challenge for 87.

- Hot Button Areas – where 50% or more of the incumbents would be eligible for retirement within five years and the utility anticipated a high or medium level or risk in filling them – were the following:
 1. Waste and Wastewater Treatment Operations
 2. Electricians/Electronics Technicians/Instrument Technicians
 3. Engineers
 4. Mechanics/Machinists/Other Maintenance Positions
 5. Transmission System Operations, Construction, and Maintenance (includes operation of SCADA systems)
 6. Environmental
 7. Operation of Hydro-electric Plants

- A Location Vulnerability Analysis identified many mission-critical positions where over 20% of the incumbents lived outside the service area. In some cases, this indicated vulnerability in terms of emergency

preparedness. It also was an indicator of possible risk of staff turnover, because of the possibility that staff might reduce commutes by seeking work closer to home.

Attachment I to this report reflects (1) the findings of the pre-conference research and (2) the forms used to gather the data on which the analysis was based.

C. WORKSHOP

The workshop on May 30th was attended by staff representing the following West Coast water and wastewater utilities:

- Alameda County Water District
- City of San Jose (municipal)
- Contra Costa Water District
- East Bay Municipal Utility District
- Los Angeles Department of Water and Power
- Metro Vancouver
- Metropolitan Water District of Southern California
- Portland Water Bureau
- San Diego Water Department
- San Jose Water Company (private)
- Santa Clara Valley Water District
- San Francisco Public Utilities Commission
- Union Sanitary District
- City of Napa
- Seattle Public Utilities

The workshop was also attended by representatives of one power utility (Pacific Gas and Electric); the Workforce Development Board of Contra Costa County; the Department of Labor; San Mateo Community College District; the American Water Works Association Research Foundation (AwwaRF); and Cal/Nevada American Water Works Association.

The following are attached:

Attachment II	Workshop Agenda
Attachment III	Workshop Discussion Questions
Attachment IV	Workshop Discussion Notes

D. WORKSHOP FOLLOW-UP

Follow-up on the ideas and suggestions generated at the workshop will occur at the workshop will occur at a variety of levels, from the local to the national. Presentations at the workshop provided ideas on potential workforce development activities in areas such as (1) expansion of the labor pool, (2) recruitment/retention, (3) staff training, and (4) knowledge retention. The knowledge-sharing begun on utility-level programs will continue (e.g., a planned presentation by EBMUD on its mentoring program for SFPUC and other Bay Area utilities).

The need to increase the labor pool for positions such as water treatment operators and skilled trades workers offers the potential for collaboration at a local and/or regional level among water utilities, middle schools and high schools, community colleges, unions, and workforce development boards. Collaboration with the power industry in relation to skilled trades has also been identified as an option.

The ideas and data generated by this workshop will be used as a building block for the workforce development component of the AwwaRF Bay Area Forum project. The pre-conference research will also be used to help answer the questions that will be addressed by AwwaRF's Water Sector Workforce Sustainability Initiative. This initiative will be addressing workforce development strategy at the national level, as well as investigating best management practices.

Although the pre-conference research conducted for the West Coast Water Utility Workshop was useful, it has also been recognized that additional research is needed in two areas:

- Refinement of the classifications defined by the research as Hot Button Classifications to help utilities become more clear on both priorities and opportunities for collaboration
- Documentation of the workforce development activities, programs, and investments of West Coast utilities in the areas of recruitment/retention, staff training, and knowledge retention so that (1) individual utilities can evaluate their own workforce development program portfolios and investment strategies and (2) look for areas where shared efforts would be cost-effective, or assistance from outside the industry may be required.

The West Coast Water Utility Workshop on Workforce Development was perceived by participants as the beginning of many new collaborative efforts; some can now be visualized and others will emerge as both priorities and opportunities become more clear. Workshop participants shared an understanding that the workforce challenge exceeds the organizational capacities of any one utility, and that collaboration not only within the industry but beyond it will be imperative.

ATTACHMENT I

PRE-CONFERENCE RESEARCH WEST COAST WATER UTILITY WORKSHOP on WORKFORCE DEVELOPMENT

Prior to the West Coast Water Utility Workshop, eleven water and wastewater utilities participated in a data collection and analysis effort to answer the following questions:

- What job classifications are critical to our ability to reliably perform our most basic functions?
- Which of these mission-critical classifications are most at risk in terms of projected turnover, finding qualified candidates, and staff preparedness to perform the work?
- What basic water utility functions are in most jeopardy?
- What organizational processes needed to be strengthened and/or changed to address the challenge?

The water and wastewater utilities which contributed to this research were the following:

- Metro Vancouver
- Seattle Public Utilities
- Portland Water
- East Bay Municipal Utility District
- San Francisco Public Utilities Commission
- Santa Clara Valley Water District
- Contra Costa Water District
- Union Sanitary District
- San Jose Water
- Los Angeles Department of Water and Power
- Metropolitan Water District

The first, most basic step of the research was for each utility to identify classifications which met the following criteria:

- Essential to performing basic mission-critical operational responsibilities (e.g., water delivery, water quality, and environmental stewardship) reliably; AND
- At risk in terms of either the certainty of having enough qualified staff or the certainty of their being adequately prepared to perform their work.

The classifications identified are listed below by utility:

I. Metro Vancouver

System Operations Superintendent
System Operations Assistant Superintendent
System Operations Area Supervisors
Senior Engineer (System Operations)

Quality Control Superintendents
Superintendent, Water Treatment
Water Treatment Supervisors
Water Treatment Operators
Systems Control Superintendent
Systems Control Operator
Engineers (Water Treatment)
Watershed Engineering Technologist
Watershed Protection Officer
Watershed Operations Superintendent
Watershed Operations Foreman
Supervisor, Urban
Drainage
Foreman, Lower Seymour
Watershed Forester
Tradesperson – Welder
Tradesperson – Instrumentation Mechanic
Tradesperson – Millwright
Wastewater Superintendents
Wastewater Operations Supervisors
Senior Wastewater Treatment Plant Operators
Control System Programmers and Maintainers

II. Seattle

Water Operations Director
Managers (Distribution, Transmission, Maintenance)
Crew Chiefs
Manager, Warehouse/Material Control
Apprenticeship Program Manager
Construction Maintenance Equipment Operators
Pump Station Electrical Technician
Journey Level Water Pipe Operators
Hydrant/Valve Mechanics
Heavy Truck Drivers

III. Portland

Principal Engineer – Design
Any Principal Engineer
Development Services Supervisor (Engineer)
Supervising Engineer
Emergency Management Program Manager
Principal Engineer (Wet Program)
Contract Development and Review Administrator
Senior Engineer – Asset Management
Hydropower (understudy)
Mapping and GIS Supervisor
Public Works Inspection Supervisor
Senior Engineer – Water Modeling
Water Quality Manager
Water Operations and Support Manager
Watershed Manager
Water Treatment Manager

Water Treatment Operators
IT Supervisor (Technical Operations Supervisor)
Principal Engineer (Treatment Operator)
Group Director
Resource Planning
Water Resources Program Manager
Environmental Hydrologist
IS Analyst IV
Senior Maintenance Supervisor

IV. East Bay Municipal Utility District

Assistant Supervisor/Aqueduct and Assistant Supervisor Water Treatment/Distribution
Associate Electrical Engineer
Director of Operations and Maintenance
Electrical Technician/Worker
General Pipe Supervisor
Heavy Equipment Operator
Hydrographer
Hydroelectric Power Plant Operator II
Instrument Worker
Maintenance Machinist/Worker
Maintenance Specialist
Supervisor of Pardee/Supervisor of Water Treatment/Water Treatment Supervisor/Water
Distribution Supervisor
Treatment Plant Specialist
Water Distribution Crew Foreman
Water Distribution Operator
Water Treatment Operator
Wastewater Plant Operator
Welders

V. San Francisco Public Utilities Commission

Power Generation Supervisor
Senior Power Generation Technician
Power Generation Technician II
Power Generation Technician I
Principal Engineer
Senior Engineer
Engineer
Associate Engineer
Junior Engineer
Electronic Maintenance Technician Assistant Supervisor
Electronic Maintenance Technician
Electrician
Utility Plumber Supervisor II
Utility Plumber Supervisor I
Utility Plumber
Senior Water Treatment Operator
Water Treatment Operator
Maintenance Machinist
Automotive Mechanic
Assistant Process Engineer

Laborative Services Manager
Supervising Chemist
Chemist III
Water Quality Technician I/II
Apprentice
Water Quality Technician III
Supervising Biologist
Biologist III
Biologist I/II
Watershed Keeper Supervisor
Watershed Keeper
Watershed Forester
Land Manager
Utility Specialist
Water Operations Analyst

VI. Contra Costa Water District

Water Treatment Plant Operator
Senior Engineer
Principal Engineer
Distribution Operator
Watershed and Lands Manager
Senior Water Resources Specialist
Operations and Maintenance Supervisor
Associate Water Resources Specialist
Water Quality Superintendent

VII. Union Sanitary District

Wastewater Plant Operator III
Instrument Technician/Electrician
Plan Checker
Construction Inspector
Senior Chemist
Purchasing Agent
Engineering Technician/GIS
Project Engineer

VIII. Santa Clara Valley Water District

Control Systems Technician
Industrial Electrician
Plant Maintenance Mechanic
Systems Control Operator
Water Plant Operator
Control Systems Engineer
Electrical Engineer
Mechanical Engineer
Chemists
Corrosion Control Technicians
Civil Engineer
Field Operations Administrators

IX. San Jose Water

Water Treatment Plant Operators
Distribution Operators
Civil Engineers
Information System Professionals
Accountants/CPA
Water Quality Professionals
Distribution System Professionals
Distribution System Crew Leaders
Control Systems Technicians
Electricians
Environmental Compliance Professionals

X. Los Angeles Department of Water and Power

Water Utility Superintendent
Water Utility Worker

XI. Metropolitan Water District

Maintenance Mechanic I (Mechanical)
Maintenance Mechanic II (Electrical)
Maintenance Mechanic III (Other Disciplines)
Operator III
Plant Operator
System Operator
Electronic Technician I
Electronic Technician II
Hydro Technician I
Hydro Technician II
Pump Plant Specialist
Aqueduct Pump Mechanic
Engineer (Environmental)

For each classification, each utility identified the operational responsibilities assigned. Many classifications had responsibilities relating to a number of areas (e.g., plumbers could have impacts on water delivery reliability, water quality, environmental stewardship, and safety, security, and emergency response). For each classification, the utility also identified whether any of the following posed a threat to either quantity or worker preparedness:

- Classification issues (scope, requirements, pay, career ladder)
- Recruitment/Selection
- Staff Training
- Knowledge Retention

The following table reflects their responses:

	OPERATIONAL FUNCTIONS AT RISK											WORKFORCE DEVELOPMENT CHALLENGES ASSOCIATED WITH MISSION-CRITICAL CLASSIFICATIONS				
	Hydropower	Water Supply	Water Delivery Reliability	Water Quality	Environmental Stewardship	Customer Service	Safety, Security, & Emergency Response	Wastewater Collection	Wastewater Treatment	Maintenance	Engineering	Classification (scope, requirements, pay, career ladder)	Recruitment/Selection	Staff Training	Knowledge Retention	Relationships
Vancouver		7	5	12	18	13	14	7	4	3		7	8	7	16	
Seattle		11	11	8	4	4	3					5	11	10	6	
Portland	1	6	6	6	3	2	3	1			5	11	13	2	16	3
East Bay Municipal Utility District	5	8	14	7		2	14	5	5			6	12	14	15	
San Francisco Public Utilities Commission	10	14	22	30	22	19	25					25	25	22	35	
Contra Costa Water District		9	9	9	9	6	8					4		7	9	
Union Sanitary District					8	3	5	8	8			2	8	2	8	
Santa Clara Valley Water District		9	11	9	6	4	12					10	11	12	12	
San Jose Water		4	8	3	4	4	6					9		5	6	
Los Angeles Water and Power			2	2		1	2					1	1	2	1	
Metropolitan Water District	6	1	13	9	13	13	13					7	13	11	11	
TOTAL	22	69	101	95	87	71	105	21	17	3	5	87	102	94	135	3

Based on an analysis of the responsibilities assigned to the mission-critical positions at risk, the operational functions most at risk, were, in descending order, the following:

1. Safety, Security, and Emergency Response
2. Water Delivery Reliability
3. Water Quality
4. Environmental Stewardship

OPERATIONAL FUNCTIONS AT HIGHEST RISK

	Times Noted
Safety, Security, and Emergency Response	105
Water Delivery Reliability	101
Water Quality	95
Environmental Stewardship	87

Although recruitment/selection processes were a key concern, the workforce development challenge that was cited most frequently as posing a risk to having staff who were prepared to do their jobs was knowledge retention.

**KEY WORKFORCE DEVELOPMENT CHALLENGES
ASSOCIATED WITH MISSION-CRITICAL CLASSIFICATIONS**

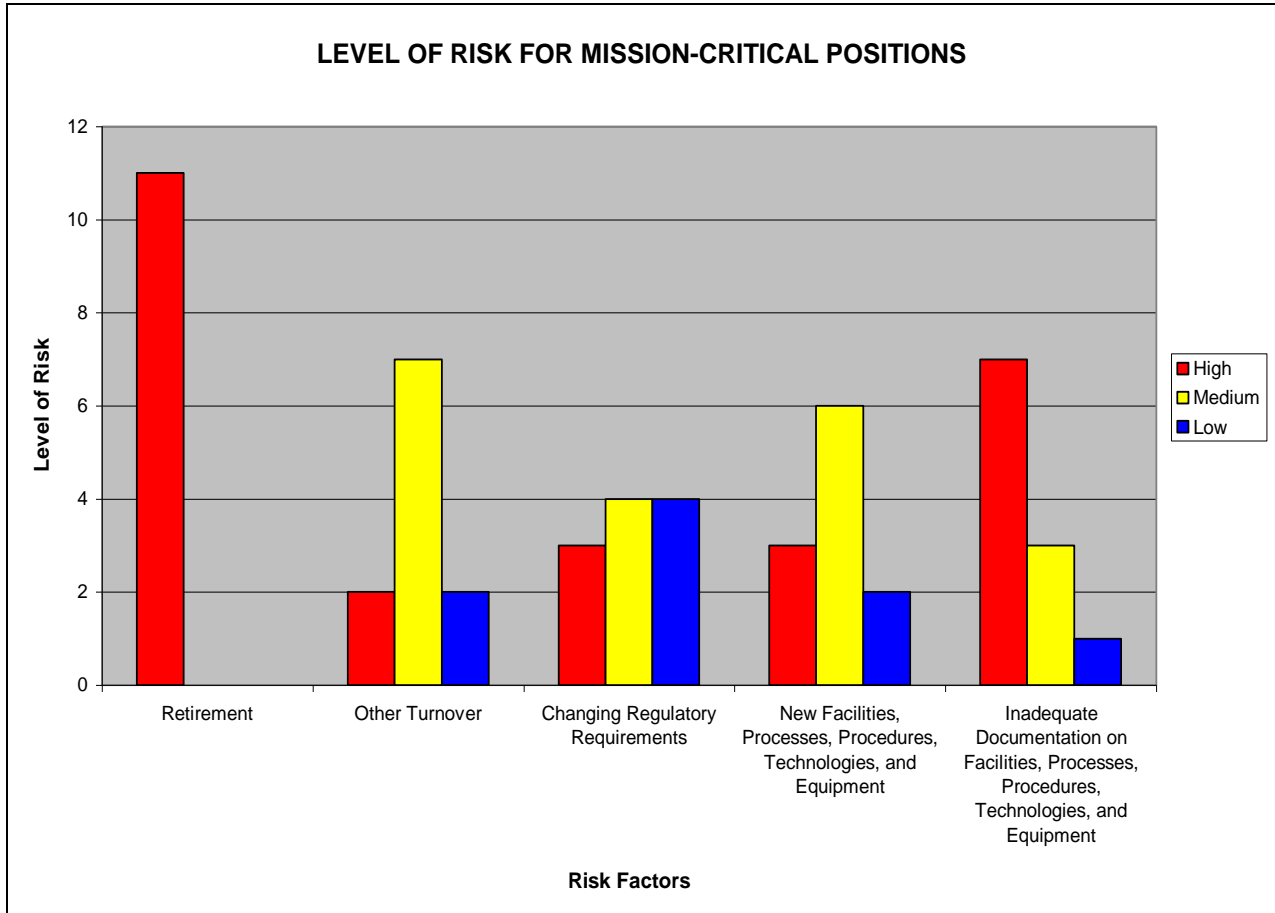
	Times Noted
Knowledge Retention	135
Recruitment/Selection	102
Staff Training	94
Classifications (scope, requirements, pay, career ladder)	87

All utilities listed retirement as a high risk for some positions. However, inadequate documentation on facilities, processes, procedures, technologies, and facilities was also described as a significant problem by many.

LEVEL OF RISK FOR MISSION-CRITICAL POSITIONS

	Number of Times Identified as High Risk
Retirement	11
Inadequate Documentation on Facilities, Processes, Procedures, Technologies, and Facilities	7
Changing Regulatory Requirements	3
New Facilities, Processes, Procedures, Technologies, and Facilities	3
Other Turnover	2

Their rankings of various risk factors are shown in the graph below:

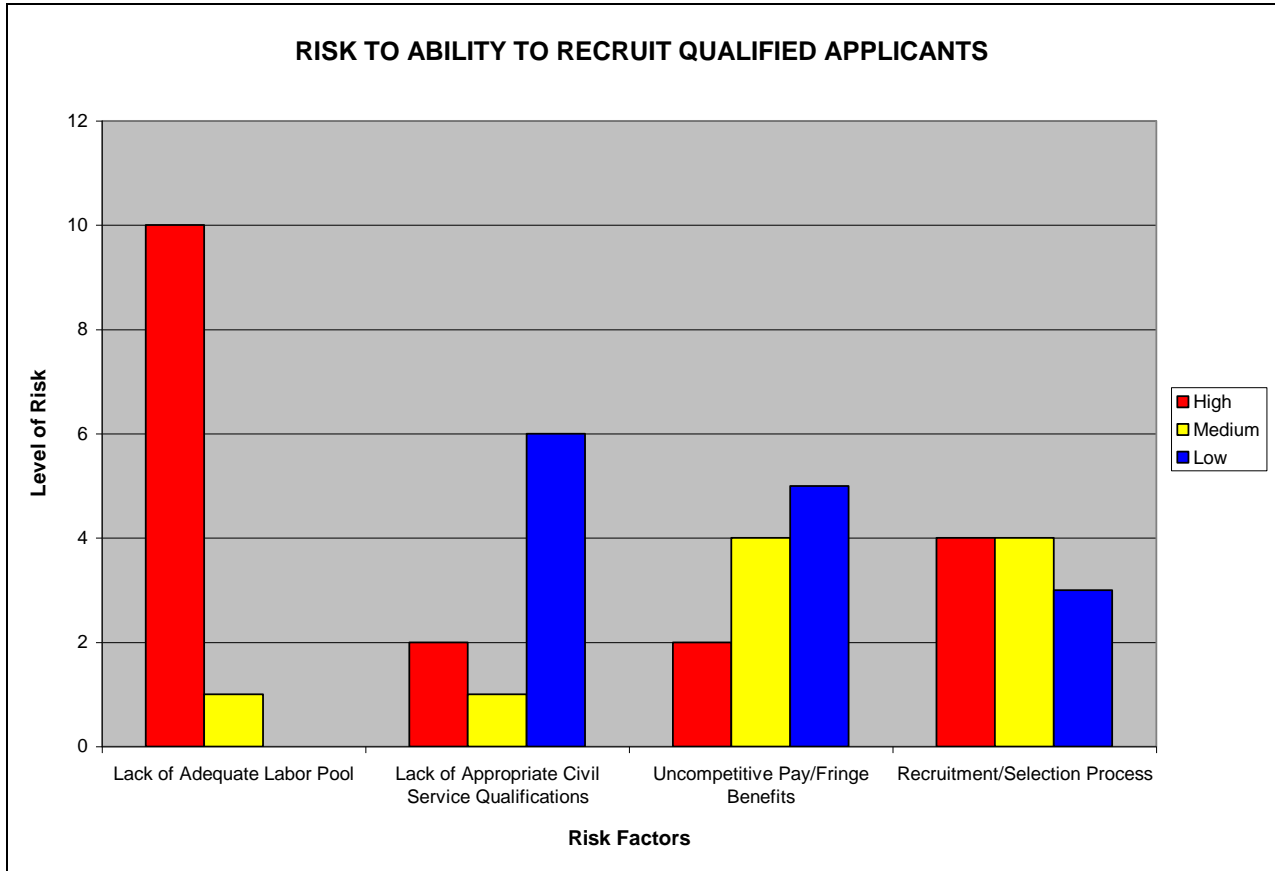


Lack of an adequate labor pool was cited as a dominant concern in terms of ability to recruit qualified applicants. However, organizational recruitment and selection processes were also cited as a risk by some utilities.

RISK TO ABILITY TO RECRUIT QUALIFIED APPLICANTS

	Number of Times Ranked High Risk
Lack of Adequate Labor Pool	10
Recruitment/Selection Process	4
Lack of Appropriate Civil Service Classifications	2
Uncompetitive Pay/Fringe Benefits	2

The ratings assigned to these factors are shown below:



Utilities were also asked to analyze the incumbents in terms of incumbents' age (% over age 55), eligibility for retirement, and the expected degree of difficulty in finding replacements. Based on this data, Hot Button Classifications (with a high % of incumbents eligible for retirement within 5 years and an expected high or medium level of difficulty in finding replacements) were identified.

These are listed by utility below:

HOT BUTTON CLASSIFICATIONS
 High % of Incumbents Eligible for Retirement Within 5 Years
 High or Medium Level of Difficulty in Finding Replacements

UTILITY	POSITION	% OVER AGE 55	% ELIGIBLE FOR RETIREMENT WITHIN 5 YEARS
Vancouver	System Control Superintendent	N/K	100
	Water Treatment Supervisor	N/K	50
Portland	Principal Engineer - Design	0	100
	Any Principal Engineer	67	67
	Development Services Supervisor	0	100
	Emergency Management Program Manager	100	100
	Mapping & GIS Supervisor	0	100
	Group Director	0	100
	Resource Planning	100	100
	Water Resource Program Manager	100	100
	Environmental - Hydrologist	100	100
	Information Systems Analyst IV (Customer Service)	100	100
Seattle	Water Operations Director	0	100
	Managers (Distribution, Transmission, Maintenance)	40	80
	Crew Chiefs	45	90
	Apprenticeship Program Manager	0	50
	Pump Station Electrical Technicians (Mechanical)	25	50
	Heavy Truck Drivers	0	50
East Bay Municipal Utility District	Assistant Superintendent Aqueduct	33	100
	Assistant Superintendent Treatment/Distribution	0	100
	Director of Operations and Maintenance	100	100
	Electrical Technician/Worker	34	66
	General Pipe Supervisor	0	50
	Hydroelectric Power Plant Operator II	80	80
	Hydrographer/Supervisor Hydro	20	60
	Instrument Supervisor/Technician/Worker	42	68
	Maintenance Machinist/Worker	42	68
	Maintenance Specialist	38	50
	Supervisor of Pardee	100	100
	Superintendent of Water Treatment	67	100
	Water Treatment Plant Specialist	100	100
	Water Treatment Operator/Senior/Technician	34	60
	Water Distribution Crew Foreman	21	54
	Water Distribution Operator	42	75
	Water Distribution Supervisor	25	75
	Water Treatment Supervisor	60	80
	Welders	14	71
	San Francisco Public Utilities Commission	Supervising Biologist	40
Supervising Chemist		75	88
Forester		33	100
Principal Engineer		0	50
Senior Stationary Engineer, Water Treatment Plant		57	50
Electronic Maintenance Technician Supervisor		50	100
Electrician		33	67
Senior Power Generation Technician		60	100
Power Generation Supervisor		100	100
Contra Costa Water District		Operations and Maintenance Supervisor	22
	Union Sanitary District	Principal Engineer	25
Senior Watershed Resources Specialist		100	100
Wastewater Plant Operator II		44	56
Environmental Programs Coordinator		100	100
Instrument Technician/Electrician		25	50
Mechanic II		14	57
Construction Inspector		50	100
Senior Chemist		0	100
Purchasing Agent		100	100
Engineering Technician/GIS		0	100
Santa Clara Valley Water District	Control Systems Technician (journey level/supervisor)	57	71
	Industrial Electrician (journey level/supervisor)	40	60
	Plant Maintenance Mechanic (journey level/supervisor)	25	75
	Systems Control Operator (journey level/supervisor)	29	57
	Water Plant Operator (journey level/supervisor)	15	62
	Electrical Engineer (associate level and above)	100	100
	Mechanical Engineer (associate level and above)	100	100
	Corrosion Control Technicians	100	100
San Jose Water	Water Treatment Plant Operators	18	82
	Control Systems Technicians	0	50
	Electricians	50	100
Los Angeles Department of Water & Power	Water Utility Superintendent	20	53
	Metropolitan Water District	Maintenance Mechanic I	25
Maintenance Mechanic II		31	58
Water Operator III		6	50
Plant Operator		6	50
System Operator		20	50
Electronic Technician II		33	63
Hydro Technician I		50	50
Hydro Technician II		33	67
Pump Plant Specialist		25	50
Aqueduct Pump Mechanic		18	64

Based on this analysis, important high-risk areas were the following:

- I. Water and Wastewater Treatment Operations
- II. Electricians/Electronics Technicians/Instrument Technicians
- III. Engineers
- IV. Mechanics/Machinists/Other Maintenance Positions
- V. Transmission System Operation, Construction, and Maintenance
(includes operation of SCADA systems)
- VI. Environmental (e.g., watershed protection, biologists protecting marine life)
- VII. Operation of Hydro-electric Plants

However, additional research would be useful to refine this analysis. Because utilities vary so much both in their nomenclature and their division of labor, more clarification of the type of tasks assigned to various classifications would be helpful in refining position-specific strategies as well as opportunities for collaboration.

The residence of incumbents of mission-critical classifications was also analyzed, both because of its relevance for emergency response and because of the risk that turnover could result from the desire of staff for shorter commutes. The result of this analysis is below:

LOCATION RISK ANALYSIS
Mission-Critical Classifications with 20% or More of Incumbents
Living Outside Service Area

UTILITY	CLASSIFICATION	% LIVING OUTSIDE SERVICE AREA
Seattle	Water Operations Director	100
	Managers (Distribution, Transmission, Maintenance)	80
	Crew Chiefs	85
	Manager Warehouse/Material Control	100
	Apprenticeship Program Manager	50
	Construction Maintenance Equipment Operators	90
	SCADA Technicians	85
	Pump Station Electrical Technicians (Mechanical)	93
	Journey Level Water Pipe Workers	80
	Hydrant/Valve Mechanics	50
	Heavy Truck Drivers	90
East Bay Municipal Utility District	Assistant Superintendent Aqueduct	40
	Assistant Superintendent Water Treatment/Distribution	40
	Associate Electrical Engineers	30
	Electrical Technician/Worker	42
	General Pipe Supervisor	62
	Heavy Equipment Operator	62
	Hydrographer	20
	Instrument Worker	58
	Maintenance Machinist/Worker	43
	Water Distribution Crew Foreman	46
	Water Distribution Operator	75
	Water Treatment Operator	40
	Welders	43
Contra Costa Water District	Associate Water Resources Specialist	33
	Distribution Operator	60
	Operations and Maintenance Supervisor	22
	Principal Engineer	75
	Senior Engineer	50
	Water Treatment Plant Operator	64
Union Sanitary District	Wastewater Plant Operator III	90
	Instrument Technician/Electrician	80
	Mechanic II	37
	Construction Inspector	50
	Senior Chemist	100
	Purchasing Agent	100
	Project Engineer	50
Santa Clara Valley Water District	Control Systems Technician (journey level/supervisor)	43
	Industrial Electrician (journey level/supervisor)	40
	Systems Control Operator (journey level/supervisor)	43
	Water Plant Operator (journey level/supervisor)	42
	Control Systems Engineer (associate level and above)	50
	Mechanical Engineer (associate level and above)	100
	Corrosion Control Technicians	100
	Civil Engineer (associate level and above)	20
San Jose Water	Water Treatment Plant Operators	27
	Distribution System Operators	29
	Accountants/CPA	20
	Water Quality Professionals	75
	Distribution System Crew Leader	32
	Control System Technicians	75
Los Angeles Department of Water & Power	Electricians	50
	Water Utility Superintendent	60
	Water Utility Worker	50

The input form used to gather the data for this study is attached. This data collection form was based on a Needs Assessment process used by the Water Enterprise of the San Francisco Public Utilities Commission (also attached). Because the SFPUC Water Enterprise data collection form allows for open-ended responses and suggestions for improvement, this form is now being used in some other organizations to gather more in-depth information on utility workforce development needs.



WEST COAST WATER UTILITY WORKSHOP
ON
WORKFORCE DEVELOPMENT

PRE-WORKSHOP RESEARCH PACKAGE

DEFINITION OF TERMS

1. Mission-Critical Classifications at Risk in Quantity or Work Preparedness

A position where (1) reliable performance is necessary in order for the utility to meet its basic responsibilities and (2) your utility has experienced or anticipates problems with quantity (ability to recruit staff with adequate qualifications) and/or work preparedness.

2. Mission-Critical Functions

Hydropower – Any function relating to production of hydropower (e.g., powerhouse operators).

Water Supply – Function which affects the total amount of water available to the utility on an annual basis (e.g., water supply planning).

Water Delivery Reliability – Reliability in delivering the water supply to customers (e.g., plumbers).

Water Quality – Ability to meet regulatory standards (e.g., plumbers, water treatment operators, chemists).

Environmental Stewardship – Potential operational impact on the environment (e.g., plumbers, water treatment operators, watershed keepers, biologists).

Customer Service – Service to wholesale retail customers and public (e.g., watershed keepers).

Safety, Security, and Emergency Preparedness (e.g., watershed keepers).

Wastewater Collection (e.g., distribution system maintenance).

Wastewater Treatment (e.g., wastewater treatment plant operators).

3. Workforce Development Challenges

Classification – Minimum qualifications, compensation packages, or career ladder issues that impede staff recruitment and retention.

Recruitment/Selection – Problems with either the labor pool or the recruitment/selection process that impede the ability to fill vacant positions.

Staff Training – Training deficiencies that prevent staff from learning what they need to know to perform work reliably.

Knowledge Retention – Problems with documentation, information storage, or information retrieval that prevent staff from having access to the information they need to plan, schedule, and perform work reliably.

Attachment A

1. Please identify up to 20 key mission-critical classifications where you have experienced or anticipate problems with quantity (ability to recruit staff with adequate qualifications) and/or staff work preparedness.

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

2. Please provide your estimate of the level of risk associated with the factors below, in terms of your utility's ability to ensure that employees in mission-critical positions have the skill and information needed to perform their work reliably.

- | | | | |
|---|--------------------------------------|--|-------------------------------------|
| <i>a. Retirement</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>b. Other Turnover</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>c. Changing Regulatory Requirements</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>d. New Facilities, Processes, Procedures, Technologies, and Equipment</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>e. Inadequate Documentation on Facilities Processes, Procedures, Technologies, and Equipment</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |

3. Please provide your assessment of the following risks to your organization's ability to recruit qualified applicants for mission-critical positions.

- | | | | |
|--|--------------------------------------|--|-------------------------------------|
| <i>a. Lack of an adequate labor pool with appropriate qualifications</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>b. Lack of appropriate Civil Service Classification for skills needed</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>c. Uncompetitive pay/fringe benefits</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |
| <i>d. Recruitment/Selection process</i> | <input type="checkbox"/> <i>High</i> | <input type="checkbox"/> <i>Medium</i> | <input type="checkbox"/> <i>Low</i> |



WORKFORCE DEVELOPMENT
NEEDS ASSESSMENT
INTERVIEW FORMAT

WATER ENTERPRISE
SAN FRANCISCO
PUBLIC UTILITIES COMMISSION

Date:

Name(s):

Title(s):

Organization:

1. Please attach organizational chart.

2. What are the primary business goals supported by your work group?

- | | | | |
|--------------------------|---------------------------|--------------------------|---------------------------------|
| <input type="checkbox"/> | Water Supply Reliability | <input type="checkbox"/> | Management Effectiveness |
| <input type="checkbox"/> | Hydropower Reliability | <input type="checkbox"/> | Financial Development |
| <input type="checkbox"/> | Asset Management | <input type="checkbox"/> | Workforce Development |
| <input type="checkbox"/> | Water Quality | <input type="checkbox"/> | Customer Service |
| <input type="checkbox"/> | Environmental Stewardship | <input type="checkbox"/> | Security and Emergency Response |

More information on roles and responsibilities:

3. Please identify key mission-critical classification(s) where you have experienced or anticipate significant problems with recruitment, training, career growth opportunities, or knowledge retention.

4. Please provide your estimate of the level of risk associated with the factors below, in terms of your organization's ability to ensure that employees in these mission-critical positions have the skill and information needed to perform their work reliably?

a. Retirement High Medium Low

Comments:

b. Other Turnover High Medium Low

Comments:

c. Changing Regulatory Requirements High Medium Low

Comments:

d. New Facilities, Processes, Procedures, Technologies, and Equipment High Medium Low

Comments:

e. Inadequate Documentation on Facilities, Processes, Procedures, Technologies, and Equipment High Medium Low

Comments:

5. Please discuss the processes used to define the competencies needed for key positions.

6. Please provide your assessment of the following risks to the SFPUC's ability to recruit qualified applicants for mission-critical positions.

a. Lack of an adequate labor pool with appropriate qualifications High Medium Low

Comments:

b. Lack of appropriate Civil Service classifications for skills needed High Medium Low

Comments:

c. Uncompetitive pay/fringe benefits High Medium Low

Comments:

d. Recruitment/Selection process High Medium Low

Comments:

7. *Recruitment* – Please describe the success and/or difficulties of the work unit relative to recruitment for key classifications, as well as any ideas you may have for increasing the labor pool of employees with the required skill, knowledge, and competencies.

8. Please describe the processes used to identify the training needed to enable staff to have the competencies, knowledge, and skills needed to perform their work.

9. *Training* – Please describe efforts, successes, and deficiencies in staff training relative to mission-critical classifications (including any tools that are being used to plan, record, and track staff training for mission-critical positions, and any successes or problems in this area).

10. Please estimate the amount or percentage of time currently devoted to staff training, and any suggestions you may have for training staff more efficiently.

11. Please describe the status of the organization in relation to documentation of standard operating procedures. If efforts are being made in this area, please quantify the investment being made in this area (professional services and/or staff time).

12. Please name 10 or more complex, high risk procedures which are either undocumented or inadequately documented.

Do we know who currently has the needed information? Do we have any thoughts about how to document this knowledge?

13. Please discuss your thoughts on potential approaches to knowledge transfer, such as cross-training, mentoring, or shadowing.

14. Please give any suggestions you may have for increased use of technology to support staff training, knowledge transfer, and knowledge retention.

ATTACHMENT II

WORKSHOP AGENDA



OPPORTUNITIES FOR COLLABORATION
West Coast Water Utility Workshop on Workforce Development
 May 30, 2008

Hosts: Ray Yep, SCVWD
 Gustavo De La Torre, SCVWD
Facilitator: Cheryl Davis, SFPUC

- 8:00 - 8:30 Registration and Refreshments
- 8:30 - 8:45 Welcome to Santa Clara Valley Water Olga Martin Steele, CEO
- 8:45 - 9:00 Why Are We Here? Cheryl Davis
- 9:00 - 10:35 Program Highlights/Recommendations for Collaboration
 - Greater Vancouver Regional District Sharon Peters
 - Seattle Public Utilities Joanne Peterson
 - Portland Water Bureau Susan Bailey
 - EBMUD Jim Smith
 - Contra Costa Workforce Development Board Bob Lanter
- 10:35 – 10:50 Break
- 10:50 – 11:50 Program Highlights/Recommendations for Collaboration
 - Union Sanitary District Donna Weiss, Jim McPherson
 - San Francisco Public Utilities Commission Cheryl Davis, Paul Gambon
- 11:50 - 12:20 Pick up lunch, brief break, and continue working lunch
- 12:20 - 1:50 Program Highlights/Recommendations for Collaboration
 - Pacific Gas and Electric Van Ton-Quinlivan
 - Los Angeles DWP Pamela Porter, Steve Malinoski
 - Metropolitan Water District Jim Green
- 1:50 - 2:00 Water Industry Professional Associations
 - AWWA Research Foundation Roy Martinez
 - Cal-Nevada Section of AWWA Phil Brun
- 2:00 – 2:15 Break
- 2:15 - 3:15 Breakout Discussions
- 3:15 - 3:45 Presentation of Discussion Group Recommendations
- 3:45 - 4:30 Identification of Priorities for Future Collaborative Action

ATTACHMENT III

WORKSHOP DISCUSSION QUESTIONS

OPPORTUNITIES FOR COLLABORATION WORKFORCE DEVELOPMENT DISCUSSION GROUPS

1. Discussion Group I -- INCREASING THE LABOR POOL

What types of collaboration might help us:

- Support the educational system in providing basic math and literacy skills needed to provide young people with a framework for more advanced technical skills? Provide continued curriculum support into the community college system?
- Provide opportunities for potential applicants (high school, college, displaced, veterans, etc.) to intern at water agencies and gain appreciation of careers in the water industry.
- Increase the technical training available to young people and displaced workers through apprenticeships?

2. Discussion Group II -- RECRUITMENT/SELECTION

What types of collaboration might help us:

- Modify job definitions and recruitment tools to be a better match to the workforce available?
- Outreach more effectively to young people and displaced workers through the educational system, unions, the media, and the internet?
- Insure that compensation packages are sufficient to attract and retain staff with the skills and credentials needed?
- Analyze and upgrade the recruitment and selection processes of water and wastewater utilities?

3. Discussion Group III -- STAFF TRAINING

What types of collaboration might help us:

- Improve our analysis of the technical and other competencies needed in order for work to be provided reliably, so that limited training resources can be focused on competencies required?
- Insure that staff receives the technical training needed to meet certification requirements?
- Improve efficiency in delivery of staff training through increased use of technology (e.g., e-learning and remote conferencing)
- Improve our capacity to test the capabilities of staff relative to skills required?

- Ensure that staff is properly and promptly trained on changing regulations, facilities, equipment, processes, procedures, and technology?

4. Discussion Group IV -- KNOWLEDGE RETENTION

What types of collaboration might help us:

- Identify and prioritize the information needed by staff in mission-critical classifications, as a basis for prioritizing (1) documentation needs and (2) ease of staff access to information?
- Make improved use of technology in improving staff access to information (e.g., videos of procedures, operations manuals, permits, maps, GIS)?
- Upgrade our cross-training and mentoring capacities?
- Make effective use of the knowledge of staff who has retired or whose retirement is imminent?

5. Discussion Group V -- COLLABORATION OPPORTUNITIES AT THE LOCAL, REGIONAL, AND NATIONAL LEVEL

- In which areas (e.g., increasing labor pool, recruitment/selection, staff training, and knowledge retention) and at what level (local, regional, or national) do we think water and wastewater utilities can move forward most effectively to help each other? (Suggestions should be as specific as possible about the area of effort (e.g., staff training), the level of effort (e.g., national), and the entities that would be required for successful collaboration in that area at that level.
- At what level (i.e. Northern CA, Bay Area, South Bay, etc.) does collaboration on these topics work best? How might it work?
- Which external entities (i.e. electric and gas utilities, community colleges, professional organizations) will we need to collaborate with in relation to each challenge, in order to achieve our goals?
- What are the greatest barriers to the collaborations needed? What can we do to reduce them?

ATTACHMENT IV

WORKSHOP DISCUSSION NOTES

West Coast Water Utility Workforce Development Workshop

Opportunities for Collaboration

Workforce Development Discussion Groups

■ Increasing the Labor Pool/Recruitment/Selection/Staff Retention

- Change recruitment tools
- Testing for entry level positions need especially for technical positions
- Changing job definitions can be good retention tools
 - Apprenticeships
- Create trainee positions
- Flexibly staffed positions
- Deep class specs (I-III)
- Broad banding job specs;
 - More diversified workforce
 - Can cause “duty questions”
- Career Days
- Saturday tours
 - Youth exercises
 - Use technology (Jobster, Internet, Videos)
- Use youth to attract the youth – Branding
- Provide career paths
- Tap community college students
- Conduct salary surveys
- Emphasize “total” benefits package including *flexible hours – work life balance*
- Child Care Center
- Job sharing
- Retiree hires
- Military/Veteran Hires
- Reduce/eliminate employment disincentives (PERS)

West Coast Water Utility Workforce Development Workshop

Opportunities for Collaboration

Staff Training

- Current Issues
 - Treatment Operators
 - Control Systems Integration
 - Technical & Leadership Development
 - ◆ Collaboration between agencies (AWWA)
 - ◆ Define components
 - ◆ Develop Training Modules
 - Include Unions as part of the process
 - Regional Training Cohorts
 - ◆ Shared Instructors/Facilities
 - Training
 - ◆ Job Requirements
 - ◆ Continuing Education
 - Proper Training for Trainers Throughout Region
 - Use of Retirees as Trainers
 - Regional Shared Cost Towards Training
 - Be Aware That Competencies Cannot be Generalized Across Regions – But use as a starting point
 - Share Model in the Development of Competencies
 - Regional Training Forum
 - ◆ Share Lessons Learned

Knowledge Retention

- Bring Back Retirees, e.g. Trades
- Apprentice Programs
- Technical Writers to Assist in Developing OSM Manuals
- Asset Management Plan
- GIS Interface Important – Combine With GPS
- Challenge Rules, i.e. Civil Service
- Create a Clearing House for SOP's
- Create a Team Room to Share Data With Other Organizations

West Coast Water Utility Workforce Development Workshop

Opportunities for Collaboration

Collaboration

- Partner With Unions Early
 - Concerns raised about cooperation of unions; suggestion made that they be included in the collaboration from the start – need to find shared/common interests (supply of members; opportunities for training; supply of high-paying jobs)
 - Van (PG&E) indicated she had heard from a contact with AFL-CIO that UWA had formed training trust where they contribute joint funding to contribute to programs (perhaps Unions working with Unions would be a model we could look at?)
- Look at previous Examples of Successful Training/Internship/Apprenticeship Programs
 - Van also suggested investigating the Center for Energy Workforce Development (nation-wide association of energy utilities – apparently more active in the east)
- Cross Sector Collaboration
 - (Relatively) long discussion on feasibility of collaboration for operator training
 - General agreement that planning/strategizing was good on a regional or national level, but implementation was largely local
- California Corporate College
 - Suggestion of a partnership between AWWA Section and California Corporate College
- Look at industries with compatible and transferrable skills
- Benchmark Other Industries – Look at technological solutions for training eg: Pilot training now includes a gaming type component.
- Provide more outreach and Programs to attract women to the trades
- Incentive to Obtain Certification
 - Some utilities interested in approaching states about certification requirements and/or concerns with the educational preparation of employment candidates (why don't they know basic English and math when they graduate?)
- Collaborate With Other Entities, i.e. WIB's
- Focus on Physical Endurance/Fitness related to our work eg: shoveling and digging
- Junior Achievement Activities
 - Suggestion to include water/environment exercises in Junior Achievement or other activities that would bring information to kids in the same age range we have discussed trying to raise the awareness of our careers in the schools
- 6 Months of Pre-Employment Training
- Career & Technical Programs in High Schools
- Collaboration With Professional Organizations, i.e. AWWA, Community Colleges
- Suggestion for an on-line clearinghouse – heard AWWA was planning to do this
- Greatest barriers were identified as 'direct competition' where it exists.