

SAN DIEGO REGION WATER / WASTEWATER INTERNSHIP PROGRAM



Helix Water District



San Diego Region Water / Wastewater Internship Program

Introduction

The water and wastewater industry is experiencing increased demand for qualified staff that are trained and certified to perform skilled tasks related to the operation and maintenance of their facilities. This is particularly true in the San Diego region as continued growth, coupled with today's environment of regulatory and economic change, and the increasing complexity of operations creates a significant challenge for the water industry.

San Diego County Water Authority, water agencies, community colleges, and private sector partners developed an internship program in 2006 designed to communicate the opportunities associated with a career in the water /wastewater industry and provide practical on-the-job experience to potential future water/wastewater employees.

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Program Overview

Program

Goal

The goal of the internship program is to familiarize and train potential entry-level job candidates for positions available in the region. By reaching out to the region's high school and community college students and providing community college level courses with on-the-job learning experience, the internship program will provide a pool of entry-level job candidates for the region's member agencies and private sector.

Program

Components

The Internship Program consists of three components: Outreach, Education, and Internship. The Outreach component is intended to inform and attract students to the program. The Education component is intended to provide technical water and wastewater instruction. The Internship component is designed to provide exposure to major career areas in water and wastewater.



Completion of the internship program provides students with the prerequisites necessary to apply for the state water and wastewater certification exams.

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San Diego Region Water / Wastewater Internship Program

Program Overview, Continued

Internship Program Committee

An Internship Program Committee manages the program. The committee members serving as volunteers are as follows:

Organization	Representative
Palomar College	Mollie Smith, Director of Occupational and Non-Credit Programs
Cuyamaca College	Al Taccone, Division Dean of Instruction
Vista Irrigation District	Jim Ball, Operations Manager
Vallecitos Water District	Ed Pedrazzi, Senior Water System Operator
CH2M HILL (OMI)	Bob Pruitt
San Diego County Water Authority	Lorrie Teates, Instructor of Record, Palomar College
San Diego County Water Authority	Christine Johnson, Human Resources Analyst
San Diego County Water Authority	Susan Leone, Director of Human Resources

Host agencies

Host agencies are those public or private sector entities that are willing to provide career experience on-the-job training in their area of expertise. San Diego County Water Authority member agencies, water agencies, wastewater departments, and private water industry operators volunteered to participate in the internship program, screen applicants, appoint a mentor to work with the interns, and evaluate the interns' performance at the end of each eight-week career module rotation. Host agencies pay for the interns' performance at a rate of \$10/hour.

Program review and calendar

The Internship Program Committee conducts an annual program review each summer to evaluate program effectiveness and recommend changes. The program calendar is developed annually and is shown in Attachment A.

Internship application

Internship applications are available through the San Diego Region Water/Wastewater Internship Program website (www.H2OInterns.com). The website is developed and maintained by CH2M HILL's OMI Division. Applications may be mailed or emailed to the San Diego County Water Authority, Department of Human Resources, Attn: Internship Program Administrator, 4677 Overland Avenue, San Diego, CA 92123. Email: H2OInterns@sdewa.org.

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Outreach

Outreach methods

Outreach to potential interns is through the region's high schools, community colleges, military bases, and tribal governments. Outreach methods vary as opportunities arise and include speakers programs, job fairs, water agency open house programs, publications, and postings in printed and electronic media.

Speakers program

Host agencies participate in career days and job fairs at regional high schools and community colleges. Successful graduates also participate in outreach, providing testimonials about the program and job opportunities made available to them through the program.

Publications

The Internship Program Committee publishes and distributes program information and student handouts for high school guidance counselors, community college counselors, military reentry counselors, and tribal governments.

Internet/web postings CH2M HILL develops and maintains web pages that provide information and application forms about the internship program at [www. H2Ointerns.com](http://www.H2Ointerns.com).

Media package An outreach package is available that presents the program in various media such as PowerPoint presentation, handout cards, and flyers.

Education

Education opportunities

Candidates for the internship program must enroll in either Cuyamaca Community College's Water & Wastewater Technology Program or Palomar Community College's Water Technology Education (WTE) or Wastewater Technology Education (WWT) vocational programs. Candidates must maintain a passing grade of "C".

Candidates must be enrolled in the San Diego Regional Internship WWT/WTE 225 at Palomar Community College and complete homework assignments.

Recommended courses to be taken concurrent with the internship are listed below, however the Intern Selection Committee may consider other courses within the water/wastewater technology curriculum for admission into the Internship Program. The entire course offerings are available on the community colleges' websites.

Palomar Community College

Water Technology Education

WTE 100 – Waterworks Distribution I

WTE 105 – Water Treatment Plant Operation I

WTE 205 – Waterworks Distribution II

WTE 210 – Water Treatment Plan Operator II

Wastewater Technology Education

WWT 100 – Treatment Plant Operations

WWT 150 – Collection Systems Operator

WWT 155 – Treatment Process Control

Cuyamaca Community College

The approved course list to be announced at a later date.

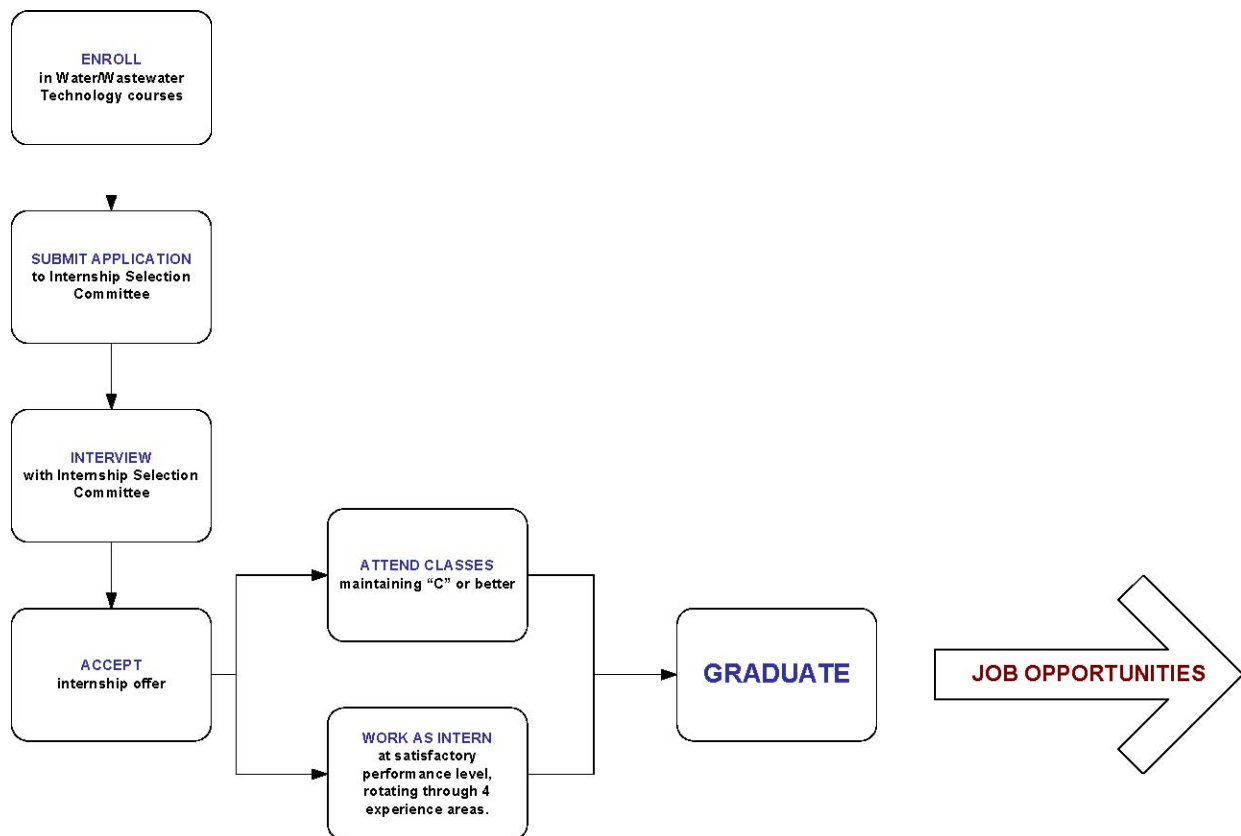
Internship

Basics

Approximately twenty community college students are selected each year to rotate over the course of 33-weeks through four different career modules and complete homework assignments based on their learning: System Operations, System Maintenance Water Treatment, and Wastewater Treatment. Interns are paid \$10/hour and work 20-hours per week, beginning with the fall semester. Interns enroll in the cooperative education course, Regional Water / Wastewater Internship (225) at Palomar Community College. Interns are concurrently enrolled in water and/or wastewater technology courses at Palomar Community College or Cuyamaca Community College.

Internship process

There are seven steps in the internship process as shown in the diagram below. The steps are: enroll, submit application, interview, accept internship, maintain "C" or better in water/wastewater technology courses and satisfactory performance with each host agency (completing all four career experience modules), and graduate.



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Internship, Continued

Acceptance into internship program Students are accepted into the internship program based on qualifications. Students must meet the following requirements:

- Enroll in a qualifying water/wastewater technology course at either Cuyamaca Community College or Palomar Community College.
- Submit a written application located on the internship website, www.H2OInterns.com.
- Possess a valid California Driver's License.
- Interview with the Internship Program Committee.
- Pass a physical and drug test prior to beginning the internship.
- Commit to 20-hour workweek at hourly rate of \$10.00 for 33-weeks.

Internship evaluations Interns are evaluated at the completion of each career module to determine continued participation in the program. Interns must maintain a grade of "C" or better in course work, meet the objectives and evaluation criteria, and be recommended by the host agency to continue in the program at end of each eight-week career module.

Schedule The annual internship schedule begins with one-week internship program orientation and general safety training provided by the San Diego County Water Authority. The eight-week career modules: System Operations, System Maintenance, Water Treatment, and Wastewater Treatment span 32weeks as shown in the 2008 - 2009 Internship Program schedule below.

	Rotations (typical)
1	Orientation
2 – 9	System Operations
10 – 17	System Maintenance
18 – 25	Water Treatment
26 – 33	Wastewater Treatment
Half-day	Job Search Skills, Graduation, and Meet & Greet

Each intern has a personalized internship schedule that varies due to career module availability and host agency needs.

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Internship, Continued

Internship objectives The internship objectives for each career module are shown in Attachment B – Internship Career Module Objectives. The objectives are general as each host agency operates uniquely. Host agencies may revise the objectives to fit the unique operation of their facilities and training programs.

Graduation Upon successful completion of the internship program, interns attend a graduation event hosted by the San Diego County Water Authority.

The half-day session consists of the following topics:

- Internship program debrief
- State certification examination
- Resume building
- Job application how-to's
- Graduation Ceremony
- Meet and Greet event with potential employers in the water and wastewater industry.

Graduate Tracking One measure of the success of the internship program is the satisfaction of the interns. Interns' progress in obtaining jobs in the water and wastewater industry will be tracked. Interns will be requested to speak at outreach events, explaining their experience and satisfaction with the program.

Roles and Responsibilities

Water Authority and the Internship Program Committee

The Water Authority and the Internship Program Committee provide overall program management including:

- Program development.
- Communication and coordination between community colleges and host agencies.
- Scheduling and placement of interns.
- Initial program orientation and general safety training during first week of internship.
- Development of training and experience objectives to be carried out by host agencies.
- Graduation and announcement of graduate availability for employment.
- Annual evaluation of the internship program.
- Disciplinary actions and intern removal from program if necessary.

Water and wastewater agencies

Agencies provide the internship opportunities and have the following responsibilities:

- Agree to participate in program, signing a written agreement that details responsibilities.
- Provide workers compensation insurance for interns.
- Interview and select interns as members of the Intern Selection Committee.
- Provide qualified mentors for interns over an eight-week period.
- Provide orientation and site-specific safety training.
- Provide training and experience in line with Internship Career Module Objectives. See Attachment B.
- Pay student intern at rate of \$10/hour.
- Evaluate interns and forward evaluations to Internship Program Committee at end of eight-week period.
- Recommend intern for next rotation or program graduation.

Community Colleges Community colleges provide student guidance and are responsible for:

- Water and wastewater technology curriculum.
- Coordination with San Diego County Water Authority and host agencies on implementation of program.
- Insurance for interns.

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Program Calendar (*Dates Subject to Change*)

APPLICATION AND SELECTION

Action	Responsible Parties	Dates (2009)
Application Submittal Deadline	Student	5/28
Review Applications and Select for Interview	Committee	6/8
Notify and Schedule Interviews	Committee	6/9
Interview Applicants (25-30)	Student/Committee	6/22 – 6/24
Registration begins for Water/Wastewater Technology Classes	Student	7/13 (Palomar*) 7/13 (Cuyamaca)
Security background check (Live Scan) and DMV records check Results take 3 - 10 days	Student	6/29 – 7/6
Select and Notify Applicants	Committee	7/31
Health Screening	Student	7/31 – 8/6

INTERNSHIP

Action	Responsible Parties	Dates
Orientation	Interns/SDCWA	8/10 – 8/13
Classes Begin	Interns/Colleges	8/24
First 8-week Career Experience	Interns/Member Agencies	8/24 – 10/16
Second 8-week Career Experience	Interns/Member Agencies	10/26 – 12/18
Winter Break		
Third 8-week Career Experience	Interns/Member Agencies	1/18 – 3/12, 2010
Spring Break		
Fourth 8-week Career Experience	Interns/Member Agencies	3/22 – 5/14
Career Seminar and Graduation	Interns/Member Agencies/SDCWA	5/20

* Palomar Community College registration is preferential based on number of units a student has already completed.

PROGRAM REVIEW AND OUTREACH

Action	Responsible Parties	Dates (2010)
Mid-point Meeting	Mentors/Host Agencies	January
Committee Review	Committee	January
Update Supporting Docs (Ap, Website, Program, Handouts)	Administrator	February
Begin Accepting Applications	Administrator	mid-February
Outreach	Agencies and Committee	March - May
Program Evaluation	Committee	June

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Internship Career Module Objectives (Examples)

SYSTEM MAINTENANCE	
1	Introduction/Orientation
	General safety and security
	Review system schematics
	Orientation to sites and tour sites
2	Construction Maintenance
	Special Projects
	AMR installs and programming
	Leak repairs, including crimping and freeze kit usage
	Easement maintenance
3	Backflow Program
	RP and DC Device testing and repairs
	Title 17 requirements/guidelines
4	Meter Reading and Maintenance
	Meter routes
	Field code inputs
	AMR sites
	Meter installs/exchanges
	Meter maintenance
5	Customer Service
	Closing reads and meter re-reads
	Meter lock-offs/turn-ons
	Flow complaints – high and low pressure
	Troubleshooting
	Filling out service orders
6	Valve Maintenance
	Procedures: flushing, tagging, painting, exercising
	Repairs or installs: fire hydrants, air vacuums, blow-offs
	BMPs and de-chlorination procedures
	Performing shutdowns
7	Pumps and Motors
	Repair and rebuild, pumps
	Repair and rebuild, motors
	Testing pump efficiency
	Testing emergency generator

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SYSTEM OPERATIONS	
1	Introduction/Orientation
	General safety and security
	Process schematic review
	Site specific orientation and tour
2	Operations
	Operator field duties and daily rounds
	Facility inspections; pump packing/ screens
	Cla-valve / Altitude valve check and repairs
	Interaction with system operators
	Work operator shift hours
3	SCADA System
	Overview of SCADA system
	Radio telemetry operation
	Alarm monitoring and recognition
	Data collection and analysis
4	Source Water
	Evaluation of source water quality
	Lake testing and evaluation
	Inlet/Outlet tower, importance of buoy line
5	Laboratory
	Operator daily lab testing
	Distribution system biological/chemical sampling/testing
	Reading and reporting test results
6	Security
	Fence inspection
	Locks and chain inspection
	Perimeter inspection
7	System Monitoring
	Reservoir levels
	Pumping demands
	Water Demands

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WATER TREATMENT	
1	Introduction/Orientation
	General safety and security including chemical safety overview and training
	Process schematic review
	Site specific orientation and tour
2	Plant Operations
	Operator duties and daily rounds
	Interaction with distribution system operators
	Work operator shift hours
3	SCADA System
	Overview of SCADA system
	Radio telemetry operation
	Alarm monitoring and recognition
	Data collection and analysis
4	Source Water
	Evaluation of source water quality
	Lake testing and evaluation
	Inlet/Outlet tower, importance of buoy line
5	Laboratory
	Perform jar testing
	Operator daily lab testing
	Distribution system biological/chemical sampling/testing
	Reading and reporting test results
6	Chemicals
	Daily chemical storage and delivery
	Bulk chemical storage and delivery
	Operation of chemical feed systems
	Chlorine ton storage and change out
	Operation and maintenance of chlorine scrubber system
	Chemical dosing and feed calculations
	Chemical usage and supply calculations
7	Maintenance
	Traveling bridge operation and maintenance
	Flocculator operation and maintenance
	Wash down and clean sedimentation basin
	Pump and motor maintenance
	Work order processing
8	Process Analyzers
	Maintenance and cleaning of
	Calibration and process control
9	Ozone
	Operation and maintenance overview
	Analyzer testing and calibration
	Diffuser testing
10	Filtration
	Observe manual and automatic backwash
	Identify key events in backwash sequence
	Operation of filter-to-waste system
	Wash down and clean filter
	Filter analysis procedures

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WASTEWATER TREATMENT	
1	Introduction/Orientation
	General safety and security-
	Chemical safety overview and training (MSDS)
	Process schematic review
	Site specific orientation and tour
2	Plant Operations (liquid)
	Headworks Operator duties and daily rounds
	Primary Operator duties and daily rounds
	Secondary Operator duties and daily rounds
3	Plant Operations (solids)
	Screenings and Grit
	Thickener Operator duties and daily rounds
	Digester Operator duties and daily rounds
	Belt Press Operator duties and daily rounds
4	Process Control
	Primary Sludge Blankets
	Maintenance and calibration of DO probes
	Sludge Volume Index
	Data Collection, Analyses, Process Control adjustments
	SCADA System, setpoints and alarms
5	Laboratory
	Perform TSS and VSS analyses
	Read Coliform test results
	Perform microscopic examination of Mixed Liquor
	Reading and reporting test results
6	Chemicals
	Chemical delivery procedures
	Spill Response
	Bulk storage and operation of chemical feed systems
	Chemical dosing and feed calculations
7	Odor Control
	Odor Control processes and daily rounds
	Gas Detectors and atmospheric monitoring
8	Maintenance
	Work Order Management
	Preventative Maintenance Activities
	Wash down and clean sedimentation basin
	Pump and motor maintenance
	Critical Compliance Parts Inventory
9	Water Reclamation
	Tertiary Operator duties and daily rounds
10	Collection Systems
	System Overview and components
	Line Cleaning Operations
	Traffic Control Plans and Geographical Information Systems
	Spill Response
	USAA Markouts
	Pump Station Equipment and Maintenance