

Nevada Certified Drinking Water Operator's Forum Minutes

Summary minutes of the meeting of June 24, 2009

The meeting began at 10:05 a.m. in the Nevada Department of Conservation 2nd floor Conference Room, 901 S. Stewart Street, Carson City, Nevada.

Videoconference to: NDEP Las Vegas Office, and Great Basin College
Red Rock Conference Room 1500 College Parkway
2030 E. Flamingo Rd., Suite 230 Lundberg Hall, Room 114
Las Vegas, NV Elko, NV

Phone conference to: 1-888-363-4734, access code 1515199

1. Call to Order (Chairman Cameron McKay) and introductions

Members Present: Cameron McKay (Chairman); Harvey Johnson; Bob Foerster; John Hulett; Lynn Forsberg (Elko video-conference); Marcellus Jones (Las Vegas video-conference)

Members absent: Chet Auckley

Representing the Nevada Division of Environmental Protection (NDEP), Bureau of Safe Drinking Water (BSDW): Jennifer Carr, Bureau Chief; and Nan Paulson, Administrative Assistant

Telephone attendance: Gina Enriquez (AWWA); Ron Zegers (SNWA)

Guests: Steve Brockway (retired 5/8/09 from NDEP BSDW); Kathy Brockway; Crystel Montecinos (Tigren, Inc.); Dawne Baker (AWWA), Zoya Kirsanov (AWWA); Ron Penrose (TMWA); Jim Kerr (Elko County); and Tom Georgi (LVVWD)

2. Approval of Minutes – March 11, 2009 Meeting

Motion: Bob Foerster moved to approve the minutes as presented, the motion was seconded by Harvey Johnson, and the vote was unanimous in favor.

3. Recognition of Service- Steve Brockway

Steve Brockway retired May 8, 2009 from BSDW. Chairman McKay thanked Steve for his work with the Water Operators and wished him a happy retirement. He also acknowledged Steve's history to the audience. Some of Steve's stated accomplishments included:

Steve began with the Health Division as a contract employee in 1988, and in 1990 he became a full-time employee of the State.

In 1992, he started work with the Certification Program and has had a distinguished career in helping Nevada's operators with their individual pursuits for distribution and treatment certification.

His experience in operating water systems prior to coming to Nevada served him well and he had a great ability to build relationships with rural Nevada operators. Operators out there know Steve's name.

Steve has been a valued participant with the former Operator Certification Advisory Board that is now the Nevada Certified Drinking Water Operator's Forum.

Steve will be missed, both professionally for his institutional memory, his contributions to the Forum and the State, and more importantly, he will be missed personally by all who had the opportunity and good fortune to work with him over the years.

4. Report on Exam Analysis, March 2009 – (AWWA & NDEP)

The test analysis was presented as provided for the new ABC exam format. Chairman McKay stated that the analysis for each test is very valuable. Jennifer Carr said the information is useful for the training coalition. Bob Foerster suggested the overall points in each category should be compared as more testing is done to see if the numbers change from test to test.

The general consensus of the Forum members is that they like the format of this information and it will be beneficial to post on-line. The analysis will be re-scanned and put on the web after the items with significant percentages of "Not Mastered" values are highlighted. The operators will see which areas need to be studied more before taking the exams.

5. Individual Diagnostic Report for Operators

An individual report will be included in the cost of each test, per Dawne Baker. These will be mailed to the operators with their test result letters. Gina Enriquez added that it takes 2-3 weeks for the results to be received from ABC.

6. Exam Exit Poll Summary – March 2009 Exam (Bob Foerster)

From the March exam, 142 questionnaires were received. Not everyone responded. The results showed: Exam Preparation Time: 1st time test takers had a median study time of 12 hours, the average was 19 hours over 3.7 weeks. 2nd time test takers had a median study time of 12 hours, the average was 17 hours over 4 weeks.

The Forum members were concerned over the low number of hours operators spent studying. Post test information shows that operators need to take testing more seriously, and this needs to be communicated to them. Bob Foerster will write an article to post in Waterlines and BSDW will post information onto the Forum Webpage.

In the last section of the questionnaire, operators were asked if they protested some of the questions, there was a strong Yes answer. Cameron McKay said it would be good to know which questions were difficult to understand, such as Math. He added that many of the operators have Bachelor's and Master's degrees so they should have better study habits. Some operators may be taking the exams just to see what is on it without studying the first time around.

Some discussion was made regarding allowances from employers for study time on the job. Bob Foerster said he would like to know how operators studied. Did they study alone, with a partner, or a combination of both? Chairman McKay said he would like to see employers allow for test study time on the job.

7. Exam Process Improvement – Meeting Report (Ron Penrose and Jennifer Carr)

Ms. Carr advised the Forum that the software transition is finally complete and BSDW staff is working on getting the backlog of work up to date. She added that the March certificates were signed and were in the process to be mailed.

Ron announced that the March testing had minimal glitches and that there are now proctors in Fallon and West Wendover. The Fallon proctor is a City employee and the W. Wendover proctor is the Fire Chief so Fallon testing should be available for a while.

Improvements in the testing process showed that it had limited flexibility for the operators and the staff who manage the tests. Ron Penrose decided to go back to the previous way of testing, which included having extra tests available in case of human or database error.

One of the issues Mr. Penrose would like to see a change in is testing dates. Operators have a very limited time to apply for another test after learning their scores.

Jennifer Carr confirmed that with results coming out 30 days after the tests, operators have only 2 weeks to apply to retest or test for an upgrade. She added that the December test was eliminated because the renewal processing consumes a lot of time. At Ron's request, the Division will look at moving June's test into July, and September's test date into October to help operators with the application process.

Another concern is that many applications are incomplete. Jennifer Carr brought up the issue of the Division needing to be more stringent on time lines and application quality. Some operators do not read or comply with the requirements by not listing their experience when it is required.

Jennifer is considering updating BSDW's application forms to provide space for additional detail so that the operators can more clearly document what they do, and why they believe they qualify for an exam. This will reduce phone calls and questions from BSDW.

Jennifer discussed "raising the bar" for applicants – being firm with application deadlines and working to improve the quality of application forms for everyone's benefit. Many of the applications have been hard to process and some proctor notification letters have come back to Ron as undeliverable because an operator's address has changed!

One idea is to have supervisor's endorse the applications and verify they are accurate and correct before they are sent in.

8. Operator contact information confidentiality (Jennifer)

In the past few months, a water system was recruiting for operators; they requested a particular data set. Jennifer said she vetted them to ensure the third party was legit before releasing the information. The data BSDW has is public record, but she received three telephone calls with questions or complaints from operators as to why they were getting recruiting calls; a couple people appreciated the opportunity.

Jennifer asked what the general expectation for confidentiality of operator information is? And, is there anything that the Forum would like BSDW to consider in the future?

Harvey Johnson said the Wastewater applications have a box to check regarding sharing of the information and possible preference on mailing.

Bob Foerster said he believed there is a Final EPA Red Flag Rule that addresses consumer protection related to water systems. Chairman McKay stated that he would not want his telephone numbers given out. Lynn Forsberg concurred that although they might work for a public entity, and expect certain information to be public, he would not want his email given out.

9. Operator Qualifications (Jennifer)

Since Steve retired, Jennifer has been processing applications. Without the benefit of Steve's program history, she has had to refer regularly to the regulations and she has some questions; especially since the Forum was the entity that worked to develop the regulations in the past; their feedback on a few items would be appreciated:

1) The regulations allow for "not more than one half of the required experience" to be satisfied by college education in science or engineering. Regulations also allow for "not more than one half of the experience in operating" to come from experience gained from wastewater treatment or a related field. There is not an "and" or an "or" related to these two, so technically, it appears that someone could get a treatment certificate from education and wastewater treatment experience alone. What are the thoughts of the Forum on this?

The Forum responded that the intent was to have one-half of the experience come from one or the other alternate allowance, not both.

2) "Operator Experience" is defined as "the daily performance of activities that consist of the control or oversight of any process or operation at a water treatment facility or in a water distribution system that may affect the quality or quantity of water." Jennifer said she has reviewed a few exam applications from operators that do not appear to clearly have "operator experience."

Jennifer has been working with the LVVWD to resolve the experience issue so that they can help their D's to become T's at the entry level.

One example is that there is an existing D-2 that has applied for a D-3. His current position is as a construction engineer – so he does have field experience in construction inspection and related construction coordination work (in this case, KSA's also include "operation of water systems"). Jennifer asked for feedback from the Forum on thoughts or feelings they may have related to the intent behind the definition of "Operator Experience" and the amount of "hands-on" water system work it equates to, especially as operators increase in grade?

Chairman McKay said the operators should have hands-on experience. Bob Foerster added that there should be some flexibility such as interim experience combined with education and other experience. Harvey Johnson supported the idea of more flexibility in Distribution related to construction experience, but not with treatment. Treatment experience was described as being very "hands-on". Ron Zegers interjected that everyone needs to be cognizant of what "hands-on" means. Sometimes Engineers or a water system's laboratory personnel will set operational directives even though the field operator does the work. There needs to be clarity in what each person does.

3) Operational experience must come from a facility at the grade or no more than one grade below the certification being sought by an applicant (i.e. if they want a D-3 they have to have experience operating a D-3 or a D-2 facility). Jennifer said she is not clear that BSDW has rigorously enforced these evaluation criteria because when she has brought it up to some applicants, she gets a wide variety of reasons why they (or someone they know) is qualified. Over the next couple of years, staff will be working to ensure all our facilities are properly graded and that data will be in our database. Jennifer will be improving the application review process related to these criteria.

4) Secondary education is something that has been discussed here and at the Training Coalition – Jennifer is working on clarifying what (specifically) qualifies and which educational programs have IACET approval. This also will help to satisfy the needs of operators when they are looking for courses to take. This will continue as a “special project” for Steve’s replacement.

Zoya Kirsanov noted that as of January 2007, any classes outside of Water College are no longer IACET approved under the AWWA umbrella. Dawne Baker further stated that they must now be teaching for the Water College to be covered by the AWWA IACET process.

10. Member’s Open Comments:

John Hulett mentioned the NRWA has helped his water system by having on site training. He encouraged others to use them for training.

Jennifer noted that there were regulation amendment workshops that afternoon in the same location in Carson City. The regulations adopt LT2, Stage 2 and do various other cleanups for primacy and other reasons.

John asked about the Ground Water Rule. Jennifer said BSDW was going to do more outreach soon, by mail. She added that there had not yet been adoption of a regulation for it but there would be regulations drafted within a year.

11. Public Comments

There were none.

12. Schedule 2009 Meetings –

September 16, 2009 before Tri-State, which is September 22-24 in Primm, NV, and December 10, 2009

13. Adjourn Suggested by: Cameron McKay; 2nd by: John Hulett; Time: 11:35 a.m.

State of Nevada Water Operators
 AWWA March 13, 2009 Exam Tallies
 ABC test

Number of Operators Who Passed and High Score per Grade
 Number of Operators Who Failed and Low Score per Grade

Grades	Pass	High Score	Fail	Low Score
48 testers D-1	29	91	19	45
27 testers D-2	14	83	13	60
20 testers D-3	10	76	10	60
3 testers D-4	0	67	3	53
34 testers T-1	26	92	8	48
26 testers T-2	18	88	8	55
6 testers T-3	5	80	1	69
4 testers T-4	2	75	2	59

Following this page will be MASTERY SUMMARY REPORTS from ABC. There is a page for each grade. These list the test takers strengths and weaknesses.

The last two pages are a copy of the AWWA's report of the Most Missed Topics By Grade from the September 2008 test. These are provided for comparison purposes.

MASTERY SUMMARY REPORT
for California-Nevada Distribution Grade I Exam

Test Name: DCN0811S Test version: 0
Scoring Date: 4/2/2009 # of Students: 48

Objective	# M			# NM			% M			% PM			PTS			Possible Points			AVG
	# M	% M	# M	# NM	% M	# NM	% PM	% PM	% PM	PTS	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	
Perform Administrative Duties	33	11	4	68.75	22.92	8.33	4.00	4.00	4.00	4.00	4.00	0.00	0.00	4.00	0.00	2.85	4.00	0.00	2.85
Perform Administrative Duties-Math	46	0	2	95.83	0.00	4.17	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.96	1.00	0.00	0.96
Drinking Water Regulations	31	14	3	64.58	29.17	6.25	10.00	10.00	9.00	9.00	9.00	2.00	2.00	9.00	2.00	6.73	9.00	2.00	6.73
Evaluate Equipment-Math	36	0	12	75.00	0.00	25.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.75	1.00	0.00	0.75
Install Equipment-Math	24	13	11	50.00	27.08	22.92	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	0.00	1.27	2.00	0.00	1.27
Install Equipment	27	21	0	56.25	43.75	0.00	9.00	9.00	9.00	9.00	9.00	4.00	4.00	9.00	4.00	6.71	9.00	4.00	6.71
Maintain Equipment-Math	19	18	11	39.58	37.50	22.92	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	0.00	1.17	2.00	0.00	1.17
Maintain Equipment	24	20	4	50.00	41.67	8.33	11.00	11.00	11.00	11.00	11.00	3.00	3.00	11.00	3.00	7.23	11.00	3.00	7.23
Disinfection	22	18	8	45.83	37.50	16.67	4.00	4.00	4.00	4.00	4.00	1.00	1.00	4.00	1.00	2.42	4.00	1.00	2.42
Disinfection-Math	22	0	26	45.83	0.00	54.17	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.46	1.00	0.00	0.46
Operate Equipment-Math	30	12	6	62.50	25.00	12.50	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	0.00	1.50	2.00	0.00	1.50
Operate Equipment	31	17	0	64.58	35.42	0.00	13.00	13.00	13.00	13.00	13.00	6.00	6.00	13.00	6.00	10.02	13.00	6.00	10.02
Perform Security & Safety Procedures	37	11	0	77.08	22.92	0.00	8.00	8.00	8.00	8.00	8.00	4.00	4.00	8.00	4.00	6.40	8.00	4.00	6.40
Perform Security Procedures	4	21	23	8.33	43.75	47.92	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.60	2.00	0.00	0.60
System Design	30	18	0	62.50	37.50	0.00	9.00	9.00	9.00	9.00	9.00	4.00	4.00	9.00	4.00	7.00	9.00	4.00	7.00
System Design-Math	47	0	1	97.92	0.00	2.08	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.98	1.00	0.00	0.98
System Inspection	22	21	5	45.83	43.75	10.42	5.00	5.00	5.00	5.00	5.00	1.00	1.00	5.00	1.00	3.25	5.00	1.00	3.25
Water Quality	32	16	0	66.67	33.33	0.00	15.00	15.00	15.00	15.00	15.00	6.00	6.00	15.00	6.00	11.15	15.00	6.00	11.15

MASTERY SUMMARY REPORT
for California-Nevada Distribution Grade II Exam

Test Name: DCN0821S Test version: 0
Scoring Date: 4/2/2009 # of Students: 27

# M	Number Mastering	% M	% Mastering	PTS			Possible Points			
				HIGH	LOW	AVG	HIGH	LOW	AVG	
# PM	Number Partial Mastering	% PM	% Partial Mastering	PTS			Highest Points			
# NM	Number Not Mastering	% NM	% Not Mastering	PTS			Lowest Points			
				AVG	LOW	HIGH	Average Points			
Objective	# M	# PM	# NM	% M	% PM	% NM	PTS	HIGH	LOW	AVG
Perform Administrative Duties	9	6	12	33.33	22.22	44.44	4.00	3.00	1.00	1.89
Perform Administrative Duties-Math	20	0	7	74.07	0.00	25.93	1.00	1.00	0.00	0.74
Drinking Water Regulations	14	13	0	51.85	48.15	0.00	10.00	10.00	4.00	6.41
Evaluate Equipment-Math	19	0	8	70.37	0.00	29.63	1.00	1.00	0.00	0.70
Evaluate Operation of Equipment	3	10	14	11.11	37.04	51.85	3.00	3.00	0.00	1.52
Install Equipment	20	7	0	74.07	25.93	0.00	9.00	9.00	5.00	7.15
Maintain Equipment-Math	13	0	14	48.15	0.00	51.85	1.00	1.00	0.00	0.48
Maintain Equipment	22	5	0	81.48	18.52	0.00	7.00	7.00	3.00	5.15
Disinfection	15	11	1	55.56	40.74	3.70	5.00	5.00	1.00	3.63
Operate Equipment-Math	18	6	3	66.67	22.22	11.11	2.00	2.00	0.00	1.56
Operate Equipment	14	13	0	51.85	48.15	0.00	14.00	13.00	6.00	9.52
Perform Security & Safety Procedures	16	10	1	59.26	37.04	3.70	6.00	6.00	2.00	4.52
Perform Security Procedures	19	7	1	70.37	25.93	3.70	4.00	4.00	1.00	2.81
System Design	15	12	0	55.56	44.44	0.00	6.00	6.00	3.00	4.59
System Design-Math	21	6	0	77.78	22.22	0.00	7.00	7.00	3.00	5.52
System Inspection	21	5	1	77.78	18.52	3.70	4.00	4.00	1.00	3.15
System Inspection-Math	17	0	10	62.96	0.00	37.04	1.00	1.00	0.00	0.63
Water Quality	17	10	0	62.96	37.04	0.00	15.00	14.00	7.00	10.74

MASTERY SUMMARY REPORT
for California-Nevada Distribution Grade III Exam

Test Name: DCN0831S
Scoring Date: 4/2/2009

Test version: 0
of Students: 20

# M	# PM	# NM	% M	% PM	% NM	# M	# PM	# NM	% M	% PM	% NM	Possible Points				
												PTS	HIGH	LOW		
Number Mastering													PTS	HIGH	LOW	AVG
Number Partial Mastering													HIGH	LOW	AVG	
Number Not Mastering													PTS	HIGH	LOW	AVG
Perform Administrative Duties	17	3	0	85.00	15.00	0.00	5.00	5.00	3.00	4.30						
Perform Administrative Duties-Math	8	11	1	40.00	55.00	5.00	5.00	5.00	0.00	3.15						
Drinking Water Regulations	9	9	2	45.00	45.00	10.00	10.00	7.00	3.00	5.75						
Evaluate Equipment-Math	10	0	10	50.00	0.00	50.00	1.00	1.00	0.00	0.50						
Install Equipment-Math	16	0	4	80.00	0.00	20.00	1.00	1.00	0.00	0.80						
Install Equipment	12	8	0	60.00	40.00	0.00	8.00	7.00	4.00	5.65						
Maintain Equipment-Math	14	0	6	70.00	0.00	30.00	1.00	1.00	0.00	0.70						
Maintain Equipment	9	11	0	45.00	55.00	0.00	5.00	5.00	2.00	3.50						
Disinfection	6	8	6	30.00	40.00	30.00	3.00	3.00	0.00	1.80						
Disinfection-Math	7	10	3	35.00	50.00	15.00	2.00	2.00	0.00	1.20						
Operate Equipment-Math	4	16	0	20.00	80.00	0.00	2.00	2.00	1.00	1.20						
Operate Equipment	13	7	0	65.00	35.00	0.00	14.00	13.00	6.00	9.95						
Perform Security & Safety Procedures	8	12	0	40.00	60.00	0.00	8.00	7.00	4.00	5.50						
Perform Security Procedures	10	8	2	50.00	40.00	10.00	2.00	2.00	0.00	1.40						
System Design	18	2	0	90.00	10.00	0.00	9.00	9.00	6.00	7.65						
System Design-Math	5	5	10	25.00	25.00	50.00	4.00	4.00	0.00	1.60						
System Inspection	13	6	1	65.00	30.00	5.00	4.00	4.00	1.00	2.75						
System Inspection-Math	11	0	9	55.00	0.00	45.00	1.00	1.00	0.00	0.55						
Water Quality-Math	7	0	13	35.00	0.00	65.00	1.00	1.00	0.00	0.35						
Water Quality	11	9	0	55.00	45.00	0.00	14.00	13.00	7.00	9.90						

MASTERY SUMMARY REPORT
for California-Nevada Distribution Grade IV Exam

Test Name: DCN0841S Test version: 0
Scoring Date: 4/2/2009 # of Students: 3

# M	# PM	# NM	% M	% PM	% NM	% Mastering	% Partial Mastering	% Not Mastering	PTS			Possible Points		
									HIGH	LOW	AVG	HIGH	LOW	AVG
1	2	0	33.33	66.67	0.00	7.00	5.00	4.00	4.33					
2	0	1	66.67	0.00	33.33	1.00	1.00	0.00	0.67					
0	2	1	0.00	66.67	33.33	10.00	6.00	3.00	4.33					
1	0	2	33.33	0.00	66.67	1.00	1.00	0.00	0.33					
1	1	1	33.33	33.33	33.33	8.00	6.00	3.00	4.67					
0	1	2	0.00	33.33	66.67	3.00	2.00	0.00	1.00					
0	1	2	0.00	33.33	66.67	2.00	1.00	0.00	0.33					
1	1	1	33.33	33.33	33.33	4.00	4.00	1.00	2.33					
1	0	2	33.33	0.00	66.67	1.00	1.00	0.00	0.33					
1	2	0	33.33	66.67	0.00	3.00	3.00	2.00	2.33					
1	1	1	33.33	33.33	33.33	13.00	11.00	3.00	7.67					
2	1	0	66.67	33.33	0.00	7.00	6.00	4.00	5.33					
2	1	0	66.67	33.33	0.00	5.00	5.00	3.00	4.00					
3	0	0	100.00	0.00	0.00	8.00	6.00	6.00	6.00					
1	1	1	33.33	33.33	33.33	7.00	5.00	2.00	3.33					
2	1	0	66.67	33.33	0.00	5.00	4.00	3.00	3.67					
0	3	0	0.00	100.00	0.00	15.00	10.00	8.00	8.67					

MASTERY SUMMARY REPORT
for California-Nevada Water Treatment Grade I Exam

Test version: 0
of Students: 34

Test Name: WCN2811S
Scoring Date: 4/2/2009

# M	# PM	# NM	% M	% PM	% NM	# Mastering	% Partial Mastering	PTS			Possible Points		
								LOW	HIGH	AVG	HIGH	LOW	AVG
29	5	0	85.29	14.71	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.85	
33	1	0	97.06	2.94	0.00	11.00	11.00	11.00	11.00	5.00	5.00	9.68	
18	16	0	52.94	47.06	0.00	20.00	20.00	17.00	17.00	8.00	8.00	13.68	
28	5	1	82.35	14.71	2.94	2.00	2.00	2.00	2.00	0.00	0.00	1.79	
28	5	1	82.35	14.71	2.94	2.00	2.00	2.00	2.00	0.00	0.00	1.79	
33	1	0	97.06	2.94	0.00	5.00	5.00	5.00	5.00	2.00	2.00	4.65	
11	17	6	32.35	50.00	17.65	5.00	5.00	5.00	5.00	0.00	0.00	2.65	
24	10	0	70.59	29.41	0.00	13.00	13.00	13.00	13.00	7.00	7.00	10.03	
16	8	10	47.06	23.53	29.41	6.00	6.00	6.00	6.00	0.00	0.00	3.91	
26	8	0	76.47	23.53	0.00	13.00	13.00	13.00	13.00	8.00	8.00	10.79	
28	0	6	82.35	0.00	17.65	1.00	1.00	1.00	1.00	0.00	0.00	0.82	
24	4	6	70.59	11.76	17.65	4.00	4.00	4.00	4.00	0.00	0.00	2.97	
29	3	2	85.29	8.82	5.88	7.00	7.00	7.00	7.00	1.00	1.00	5.44	
33	1	0	97.06	2.94	0.00	7.00	7.00	7.00	7.00	4.00	4.00	6.29	
28	0	6	82.35	0.00	17.65	1.00	1.00	1.00	1.00	0.00	0.00	0.82	

MASTERY SUMMARY REPORT
for California-Nevada Water Treatment Grade II Exam

Test Name: WCN0821S
Scoring Date: 4/2/2009

Test version: 0
of Students: 26

# M	# PM	# NM	% M	% PM	% NM	# M	# PM	# NM	% M	% PM	% NM	PTS			AVG			
												Number Mastering	Number Partial Mastering	Number Not Mastering		HIGH	LOW	AVG
			Possible Points						Highest Points			Lowest Points			Average Points			
Objective	# M	# PM	# NM	% M	% PM	% NM	PTS	HIGH	LOW	AVG	PTS	HIGH	LOW	AVG	PTS	HIGH	LOW	AVG
Perform Administrative Duties	18	6	2	69.23	23.08	7.69	2.00	2.00	0.00	1.62	2.00	2.00	0.00	1.62	2.00	2.00	0.00	1.62
Perform Administrative Duties-Math	13	0	13	50.00	0.00	50.00	1.00	1.00	0.00	0.50	1.00	1.00	0.00	0.50	1.00	1.00	0.00	0.50
Collect Samples & Interpret Analysis	21	5	0	80.77	19.23	0.00	5.00	5.00	2.00	4.19	5.00	5.00	2.00	4.19	5.00	5.00	2.00	4.19
Drinking Water Regulations	11	15	0	42.31	57.69	0.00	15.00	15.00	8.00	10.69	15.00	14.00	8.00	10.69	15.00	14.00	8.00	10.69
Evaluate Operation of Equipment	16	8	2	61.54	30.77	7.69	3.00	3.00	1.00	2.54	3.00	3.00	1.00	2.54	3.00	3.00	1.00	2.54
Characteristics of Source Water-Math	23	0	3	88.46	0.00	11.54	1.00	1.00	0.00	0.88	1.00	1.00	0.00	0.88	1.00	1.00	0.00	0.88
Characteristics of Source Water	25	1	0	96.15	3.85	0.00	4.00	4.00	2.00	3.50	4.00	4.00	2.00	3.50	4.00	4.00	2.00	3.50
Process Control Laboratory Analysis	9	16	1	34.62	61.54	3.85	13.00	12.00	3.00	8.73	13.00	12.00	3.00	8.73	13.00	12.00	3.00	8.73
Laboratory Analysis-Math	21	0	5	80.77	0.00	19.23	1.00	1.00	0.00	0.81	1.00	1.00	0.00	0.81	1.00	1.00	0.00	0.81
Maintain Equipment	23	3	0	88.46	11.54	0.00	8.00	8.00	5.00	7.19	8.00	8.00	5.00	7.19	8.00	8.00	5.00	7.19
Chemical Treatment/Addition-Math	11	7	8	42.31	26.92	30.77	4.00	4.00	0.00	2.12	4.00	4.00	0.00	2.12	4.00	4.00	0.00	2.12
Chemical Treatment/Addition	15	11	0	57.69	42.31	0.00	7.00	7.00	3.00	4.81	7.00	7.00	3.00	4.81	7.00	7.00	3.00	4.81
Clarification/Sedimentation	8	17	1	30.77	65.38	3.85	2.00	2.00	0.00	1.27	2.00	2.00	0.00	1.27	2.00	2.00	0.00	1.27
Clarification/Sedimentation-Math	11	4	11	42.31	15.38	42.31	3.00	3.00	0.00	1.92	3.00	3.00	0.00	1.92	3.00	3.00	0.00	1.92
Coagulation and Flocculation	9	16	1	34.62	61.54	3.85	3.00	3.00	1.00	2.31	3.00	3.00	1.00	2.31	3.00	3.00	1.00	2.31
Coagulation and Flocculation-Math	22	0	4	84.62	0.00	15.38	1.00	1.00	0.00	0.85	1.00	1.00	0.00	0.85	1.00	1.00	0.00	0.85
Filtration	18	7	1	69.23	26.92	3.85	4.00	4.00	1.00	2.92	4.00	4.00	1.00	2.92	4.00	4.00	1.00	2.92
Filtration-Math	12	11	3	46.15	42.31	11.54	2.00	2.00	0.00	1.35	2.00	2.00	0.00	1.35	2.00	2.00	0.00	1.35
Other Treatment Processes	12	13	1	46.15	50.00	3.85	7.00	6.00	2.00	4.42	7.00	6.00	2.00	4.42	7.00	6.00	2.00	4.42
Residuals Disposal-Math	16	0	10	61.54	0.00	38.46	1.00	1.00	0.00	0.62	1.00	1.00	0.00	0.62	1.00	1.00	0.00	0.62
Residuals Disposal	13	9	4	50.00	34.62	15.38	4.00	4.00	1.00	2.54	4.00	4.00	1.00	2.54	4.00	4.00	1.00	2.54
Operate Equipment-Math	23	0	3	88.46	0.00	11.54	1.00	1.00	0.00	0.88	1.00	1.00	0.00	0.88	1.00	1.00	0.00	0.88
Operate Equipment	26	0	0	100.00	0.00	0.00	4.00	4.00	3.00	3.58	4.00	4.00	3.00	3.58	4.00	4.00	3.00	3.58
Perform Security & Safety Procedures	12	11	3	46.15	42.31	11.54	3.00	3.00	1.00	2.35	3.00	3.00	1.00	2.35	3.00	3.00	1.00	2.35
Perform Security Procedures	25	0	1	96.15	0.00	3.85	1.00	1.00	0.00	0.96	1.00	1.00	0.00	0.96	1.00	1.00	0.00	0.96

MASTERY SUMMARY REPORT
for California-Nevada Water Treatment Grade III Exam

Test Name: WCN0831S Test version: 0
Scoring Date: 4/2/2009 # of Students: 6

# M	Number Mastering	% M	% Mastering			PTS	Possible Points			AVG
			# PM	% PM	# NM		% NM	HIGH	LOW	
# PM	Number Partial Mastering	% PM	% Partial Mastering		HIGH	Highest Points				
# NM	Number Not Mastering	% NM	% Not Mastering		LOW	Lowest Points				
					AVG	Average Points				
	Objective	# M	# PM	% M	% NM	PTS	HIGH	LOW	AVG	
	Perform Administrative Duties	4	0	66.67	33.33	1.00	1.00	0.00	0.67	
	Perform Administrative Duties-Math	4	0	66.67	33.33	1.00	1.00	0.00	0.67	
	Collect Samples & Interpret Analysis	5	1	83.33	16.67	10.00	10.00	6.00	8.00	
	Drinking Water Regulations	6	0	100.00	0.00	15.00	13.00	11.00	11.50	
	Evaluate Operation of Equipment	5	1	83.33	16.67	4.00	4.00	2.00	3.17	
	Characteristics of Source Water	5	1	83.33	16.67	5.00	5.00	3.00	4.33	
	Process Control Laboratory Analysis	2	4	33.33	66.67	6.00	5.00	3.00	3.83	
	Maintain Equipment	5	1	83.33	16.67	6.00	5.00	4.00	4.83	
	Chemical Treatment/Addition-Math	2	4	33.33	66.67	3.00	3.00	2.00	2.33	
	Chemical Treatment/Addition	1	4	16.67	66.67	9.00	8.00	3.00	5.33	
	Clarification/Sedimentation	3	3	50.00	50.00	2.00	2.00	1.00	1.50	
	Clarification/Sedimentation-Math	4	2	66.67	33.33	2.00	2.00	1.00	1.67	
	Coagulation and Flocculation	4	1	66.67	16.67	3.00	3.00	1.00	2.50	
	Coagulation and Flocculation-Math	6	0	100.00	0.00	1.00	1.00	1.00	1.00	
	Filtration	5	1	83.33	16.67	7.00	7.00	4.00	5.50	
	Filtration-Math	3	3	50.00	50.00	2.00	2.00	1.00	1.50	
	Other Treatment Processes	3	3	50.00	50.00	8.00	7.00	5.00	6.00	
	Residuals Disposal-Math	4	0	66.67	33.33	1.00	1.00	0.00	0.67	
	Residuals Disposal	4	2	66.67	33.33	3.00	3.00	2.00	2.67	
	General Math	2	2	33.33	33.33	2.00	2.00	0.00	1.00	
	Operate Equipment	2	4	33.33	66.67	5.00	4.00	2.00	3.17	
	Perform Security & Safety Procedures	6	0	100.00	0.00	2.00	2.00	2.00	2.00	
	Perform Security Procedures	1	5	16.67	83.33	2.00	2.00	1.00	1.17	

MASTERY SUMMARY REPORT
for California-Nevada Water Treatment Grade IV Exam

Test Name: WCN0841S
Scoring Date: 4/2/2009

Test version: 0
of Students: 4

# M	Number Mastering	% M	% Mastering	PTS			Possible Points			
				HIGH	LOW	AVG	HIGH	LOW	AVG	
# PM	Number Partial Mastering	% PM	% Partial Mastering	PTS			Highest Points			
# NM	Number Not Mastering	% NM	% Not Mastering	PTS			Lowest Points			
				AVG			Average Points			
Objective	# M	# PM	# NM	% M	% PM	% NM	PTS	HIGH	LOW	AVG
Perform Administrative Duties	0	0	4	0.00	0.00	100.00	1.00	0.00	0.00	0.00
Perform Administrative Duties-Math	2	2	0	50.00	50.00	0.00	2.00	2.00	1.00	1.50
Collect Samples & Interpret Analysis	4	0	0	100.00	0.00	0.00	11.00	9.00	8.00	8.75
Drinking Water Regulations	1	3	0	25.00	75.00	0.00	15.00	12.00	8.00	9.75
Evaluate Operation of Equipment	0	3	1	0.00	75.00	25.00	4.00	2.00	0.00	1.50
Characteristics of Source Water	1	3	0	25.00	75.00	0.00	5.00	4.00	3.00	3.25
Process Control Laboratory Analysis	2	2	0	50.00	50.00	0.00	5.00	5.00	3.00	3.75
Maintain Equipment	3	1	0	75.00	25.00	0.00	7.00	7.00	4.00	6.00
Chemical Treatment/Addition-Math	1	0	3	25.00	0.00	75.00	3.00	3.00	1.00	1.50
Chemical Treatment/Addition	2	2	0	50.00	50.00	0.00	7.00	6.00	3.00	4.75
Clarification/Sedimentation	2	1	1	50.00	25.00	25.00	6.00	5.00	2.00	4.00
Clarification/Sedimentation-Math	4	0	0	100.00	0.00	0.00	1.00	1.00	1.00	1.00
Coagulation and Flocculation	3	1	0	75.00	25.00	0.00	5.00	5.00	2.00	3.75
Coagulation and Flocculation-Math	2	2	0	50.00	50.00	0.00	4.00	3.00	2.00	2.50
Filtration	1	2	1	25.00	50.00	25.00	6.00	6.00	1.00	3.50
Filtration-Math	4	0	0	100.00	0.00	0.00	1.00	1.00	1.00	1.00
Other Treatment Processes	1	3	0	25.00	75.00	0.00	4.00	3.00	2.00	2.25
Other Treatment Processes-Math	3	0	1	75.00	0.00	25.00	1.00	1.00	0.00	0.75
Residuals Disposal-Math	4	0	0	100.00	0.00	0.00	1.00	1.00	1.00	1.00
Residuals Disposal	2	1	1	50.00	25.00	25.00	3.00	3.00	1.00	2.25
General Math	4	0	0	100.00	0.00	0.00	1.00	1.00	1.00	1.00
Operate Equipment-Math	3	0	1	75.00	0.00	25.00	1.00	1.00	0.00	0.75
Operate Equipment	1	3	0	25.00	75.00	0.00	3.00	3.00	2.00	2.25
Perform Security & Safety Procedures	0	3	1	0.00	75.00	25.00	3.00	2.00	1.00	1.75



California-Nevada Section
American Water Works Association

**SEPTEMBER 2008 STATE OF NEVADA DISTRIBUTION OPERATOR CERTIFICATION
MOST MISSED TOPICS BY GRADE**

Grade I – Distribution

- ◆ ELECTRICITY
- ◆ WATER QUALITY
- ◆ DISINFECTION
- ◆ PIPING
- ◆ PUMPS AND MOTORS
- ◆ SAFETY
- ◆ WATER DISTRIBUTION
- ◆ MATHEMATICS
- ◆ DISTRIBUTION SYSTEM
- ◆ OPERATIONS
- ◆ SOURCES OF SUPPLY

Grade II – Distribution

- ◆ WATER QUALITY
- ◆ PUMPS AND MOTORS
- ◆ PIPING
- ◆ DISTRIBUTION SYSTEMS
- ◆ OPERATION
- ◆ SOURCES OF SUPPLY
- ◆ DISINFECTION
- ◆ ELECTRICITY
- ◆ SAFETY
- ◆ WATER DISTRIBUTION
- ◆ MATHEMATICS

Grade III – Distribution

- ◆ WATER DISTRIBUTION
- ◆ MATHEMATICS
- ◆ PUMPS AND MOTORS
- ◆ ELECTRICITY
- ◆ PIPING
- ◆ WATER QUALITY
- ◆ WATER QUALITY
- ◆ SAFETY
- ◆ DISINFECTION
- ◆ Utility Management
- ◆ SOURCES OF SUPPLY

Grade IV – Distribution

- ◆ WATER QUALITY
- ◆ Utility Management
- ◆ DISTRIBUTION SYSTEMS
- ◆ OPERATION Safety
- ◆ DISINFECTION
- ◆ WATER DISTRIBUTION
- ◆ MATHEMATICS
- ◆ ELECTRICITY
- ◆ PUMPS AND MOTORS
- ◆ SOURCES OF SUPPLY
- ◆ Piping



California-Nevada Section
American Water Works Association

**SEPTEMBER 2008 STATE OF NEVADA TREATMENT OPERATOR CERTIFICATION
MOST MISSED TOPICS BY GRADE**

Grade I – Treatment

- ◆ Disinfection
- ◆ Distribution System
Operation; Water Treatment
Plant Operation
- ◆ Water Treatment Plant
Operation
- ◆ Safety
- ◆ Water Treatment
Mathematics
- ◆ Filtration
- ◆ Treatment Types and
Processes
- ◆ Water Quality
- ◆ Pumps and Motors
- ◆ Sources of Supply

Grade II – Treatment

- ◆ Treatment Types and
Processes
- ◆ Filtration
- ◆ Disinfection
- ◆ Water Quality
- ◆ Water Treatment Plant
Operation
- ◆ Safety
- ◆ Water Treatment
Mathematics
- ◆ Source of Supply
- ◆ Distribution System
Operation; Water Treatment
Plant Operation

Grade III – Treatment

- ◆ Safety
- ◆ Water Quality
- ◆ Distribution System
Operation; Water Treatment
Plant Operation
- ◆ Disinfection
- ◆ Water Treatment Plant
Operation
- ◆ Treatment Types and
Processes
- ◆ Filtration
- ◆ Water Treatment
Mathematics
- ◆ Pumps and Motors

Grade IV – Treatment

- ◆ Treatment Types and
Processes
- ◆ Filtration
- ◆ Water Quality
- ◆ Water Treatment
Mathematics
- ◆ Disinfection
- ◆ Safety
- ◆ Distribution System
Operation; Water Treatment
Plant Operation
- ◆ Utility Management
- ◆ Water Treatment Plant
Operation