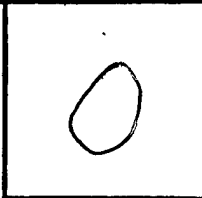
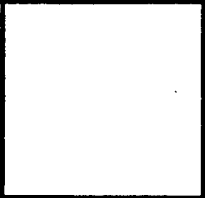


# LOAN DOCUMENT

PHOTOGRAPH THIS SHEET



INVENTORY



LEVEL

DTIC ACCESSION NUMBER

AFRL-ML-TY-TR-2002-4509

DOCUMENT IDENTIFICATION

18 JAN 1999

**DISTRIBUTION STATEMENT A**  
Approved for Public Release  
Distribution Unlimited

DISTRIBUTION STATEMENT

H  
A  
N  
D  
L  
E  
  
W  
I  
T  
H  
  
C  
A  
R  
E

ACCESSION FOR	
NTIS	ORBIT
DTIC	TRAC
UNANNOUNCED	
JUSTIFICATION	
BY	
DISTRIBUTION/	
AVAILABILITY CODES	
DISTRIBUTION	AVAILABILITY AND/OR SPECIAL
A-1	

DISTRIBUTION STAMP

--

DATE ACCESSIONED

--

DATE RETURNED

--

REGISTERED OR CERTIFIED NUMBER

20020308 088

DATE RECEIVED IN DTIC

PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-FDAC

**AFRL-ML-TY-TR-2002-4509**



**Evaluating Application of Innovative  
Technologies to the Operation of a  
Wastewater Treatment Plant**

John Eick

ARDADIS Gheraghty & Miller, Inc.  
P.O. Box 13109  
Research Triangle Park, NC 27709

Approved for Public Release; Distribution Unlimited

**AIR FORCE RESEARCH LABORATORY  
MATERIALS & MANUFACTURING DIRECTORATE  
AIR EXPEDITIONARY FORCES TECHNOLOGIES DIVISION  
139 BARNES DRIVE, STE 2  
TYNDALL AFB FL 32403-5323**

*AQ402-06-0867*

## NOTICES

USING GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA INCLUDED IN THIS DOCUMENT FOR ANY PURPOSE OTHER THAN GOVERNMENT PROCUREMENT DOES NOT IN ANY WAY OBLIGATE THE US GOVERNMENT. THE FACT THAT THE GOVERNMENT FORMULATED OR SUPPLIED THE DRAWINGS, SPECIFICATIONS, OR OTHER DATA DOES NOT LICENSE THE HOLDER OR ANY OTHER PERSON OR CORPORATION; OR CONVEY ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY RELATE TO THEM.

THIS REPORT IS RELEASABLE TO THE NATIONAL TECHNICAL INFORMATION SERVICE  
5285 PORT ROYAL RD.

SPRINGFIELD VA 22 161

TELEPHONE 703 487 4650; 703 4874639 (TDD for the hearing-impaired)

E-MAIL [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov)

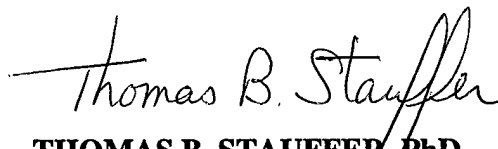
WWW <http://www.ntis.gov/index.html>

AT NTIS, IT WILL BE AVAILABLE TO THE GENERAL PUBLIC, INCLUDING FOREIGN NATIONS.

THIS TECHNICAL REPORT HAS BEEN REVIEWED AND IS APPROVED FOR PUBLICATION.



**TIMOTHY G. WILEY, Lt Col, USAF, BSC**  
Deputy Chief, AEF Tech Division



**THOMAS B. STAUFFER, PhD**  
Technical Director, AEF Tech Div



**DONALD R. HUCKLE, Jr., Lt Col, USAF**  
Chief, Air Expeditionary Forces Technologies Division

**Do not return copies of this report unless contractual obligations or notice on a specific document requires its return.**

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 12 Jan 1999	3. REPORT TYPE AND DATES COVERED Final Report, 19 Jun 1998 - 3 Feb 1999		
4. TITLE AND SUBTITLE Evaluating Application of Innovative technologies to the Operation of a Wastewater Treatment Plant			5. FUNDING NUMBERS C - F08637-95-D-6003 DO - 5304 JON - RM670019	
6. AUTHOR(S) John Eick				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) ARCADIS Gheraghty & Miller, Inc. P.O. Box 13109 Research Triangle Park, NC 27709			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Air Force Research Laboratory Air Expeditionary Forces Technologies Division (AFRL/MLQ) 139 Barnes Drive, Suite 2 Tyndall AFB, FL 32403-5323			10. SPONSORING/MONITORING AGENCY REPORT NUMBER  AFRL-ML-TY-TR-2001-4509	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited			12b. DISTRIBUTION CODE  A	
13. ABSTRACT (Maximum 200 words) An Advanced Wastewater Treatment Plant (AWTP) was installed at Camp Lejeune, NC, that incorporated tertiary treatment processes designed to protect the nutrient-sensitive nature of the receiving stream, the New River. Existing operations staff experienced with the basic biological treatment techniques of the previously existing facilities, needed additional training to support operation of the new facility and optimize capabilities of the innovative technologies being employed. This project developed the training materials and conducted the training necessary to educate the operations staff in the theory, operation, and troubleshooting of the new AWTP.				
14. SUBJECT TERMS Biological nutrient; ultraviolet disinfection; biosolids treatment; wastewater treatment			15. NUMBER OF PAGES 68	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASS	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASS	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASS	20. LIMITATION OF ABSTRACT UL	

## Table of Contents

<u>Section</u>	<u>Page</u>
1.0 Introduction.....	1
2.0 Instructors' Assessment of Training Program Effectiveness.....	4
2.1 ATAD Training Assessment.....	4
2.2 BNR and Ultraviolet Training Assessment.....	5
3.0 Participants' Assessment of Training Program Effectiveness.....	6
4.0 Conclusions and Recommendations.....	9

### Tables

1 Camp Lejeune AWTP Training Roster October 19-23, 1998.....	2
2 Camp Lejeune AWTP Training Roster October 26-30, 1998.....	4
3 Camp Lejeune AWTP Training Roster November 2-6, 1998.....	4

### Figures

1 Certificate of Completion, AWTP Training.....	3
2 Camp Lejeune AWTP Training Evaluation.....	8

### Appendix

A Student Evaluations	
-----------------------	--

## 1.0 Introduction

The U. S. Marine Corps Base, Camp Lejeune and Marine Corps Air Station, New River have historically operated several decentralized basic secondary wastewater treatment plants to treat industrial and domestic wastewater generated at these facilities. This practice ended in 1998 with the completion of a centralized 15 million gallons per day Advanced Wastewater Treatment Plant (AWTP) and the subsequent diversion of wastewater to the new facility. The AWTP included tertiary treatment processes designed to protect the nutrient-sensitive nature of the receiving stream, the New River. Innovative technologies employed at the AWTP include the A<sup>2</sup>O Process for nitrogen and phosphorus removal, the Autothermal Thermophilic Aerobic Digestion (ATAD) Process for biosolids stabilization, and an ultraviolet (UV) unit for disinfection. With these innovative technologies, the new plant has the capability to comply fully with stringent State of North Carolina effluent standards.

Existing operations staff, experienced with the basic biological treatment techniques of the previously existing facilities, needed additional training to support operation of the new facility and optimize capabilities on the innovative technologies cited above. To meet this need, ARCADIS Geraghty & Miller, supported by its subcontractor, Stearns & Wheler, developed a 30-hour training program focused on the unit operations pertinent to Camp Lejeune's AWTP. The training program was designed to provide operators with theoretical and practical knowledge including theory of operation, operational strategies, and troubleshooting techniques for the plants innovative technologies. The program was presented to 55 personnel in the Fall of 1998 following startup of the AWTP in late summer 1998. This arrangement provided opportunity for participants to bring specific issues or questions encountered during startup of the AWTP to the training program (to the benefit of all) and facilitated assessment of the training program by the instructors, attendees and other interested parties. Opportunity was also included for feedback from participants at the conclusion of each week long training session. Comments of both instructors and participants are included below and appended to this report. A one day follow up session was held Jan 19, 1999 to conclude training material reviews not completed earlier and provide a forum for discussion of specific operational issues. Comments pertaining to that session are also included below.

The 55 participants were divided into three groups of 20 to 30 personnel each. Participants included AWTP operations and management personnel and representatives from other Department of Defense and State of North Carolina organizations. Class rosters for each group are included in Tables 1, 2 and 3. Each group received instruction through classroom lectures based on the materials assembled for the training program and exercises designed to involve participants in practical applications specific

to Camp Lejeune's AWTP. Each participant was provided a notebook, included herein by reference, with all training materials including copies of completed exercises. A total of 60 hard copies of the training program were delivered to Camp Lejeune along with one copy to the Air Force. Electronic copies of the training program were also provided in compact disc format, which will allow printing of additional copies as the need arises. Each participant was awarded a certificate, similar to Figure 1, indicating satisfactory completion of 30 hours of "operation theory and practice instruction for advanced wastewater treatment, including biological nutrient removal, ultraviolet disinfection, and Class A biosolids treatment."

This project, "Evaluating Application of Innovative Technologies to the Operation of a Wastewater Treatment Plant," was accomplished under U.S. Air Force contract No.F08637-95-D6003 with Acurex Environmental Corporation (now ARCADIS Geraghty & Miller).

**Table 1**  
**Advanced Wastewater Treatment Plant Training Roster**  
**October 19-23, 1998**

<b>Name</b>	<b>Organization</b>
Everett Douglas Yopp	Wastewater
Billy B. Carlyle	Wastewater
Richard L. Charett	Wastewater
Gregory H. Wright	Wastewater
William K. Russell	Wastewater
James A. Newbold	Wastewater
Kater F. Morton	Wastewater
Glenn G. Vause	Wastewater
Steve Reavis	EMD
Pat Raper	EMD
Dave Marasco	EMD
Pat C. Durrett	NCDENR
James C. Pate	Wastewater
Victor W. L. Williams, Sr.	Wastewater
David L. Antinori	Wastewater
Earl E. Wooldridge	Wastewater
Roland Hinson, Jr.	Wastewater

# Certificate



## Camp Lejeune AWTP Operator

Having satisfactorily completed 30 hours of Operation Theory and Practice Instruction for Advanced Wastewater Treatment, including biological nutrient removal, ultraviolet disinfection, and Class A biosolids treatment, is awarded this certificate on this 23rd day of October, 1998.

Jim Zimmerman, P.E.  
Executive Vice President  
ARCADIS Geraghty & Miller

ARCADIS GERAGHTY & MILLER



Stearns & Wheeler, LLC  
AN ENVIRONMENTAL ENGINEERING & CONSTRUCTION COMPANY

Scott Sellers, P.E.  
Associate/Manager Wastewater Engineering  
Stearns & Wheeler

Mark Liner  
Environmental Engineer  
ARCADIS Geraghty & Miller

Figure 1. Certificate of Completion. AWTP Training

**Table 2**  
**Advanced Wastewater Treatment Plant Training Roster**  
**October 26-30, 1998**

<b>Name</b>	<b>Organization</b>
Stanley L. Miller	Base Utilities
George W. Louis, Jr.	EMD, EQAS Lab
Richard D. Carrick	EMD, EQAS Lab
Sonny Scozzari	WWTP Shop 84
Mike Vincent	WWTP Shop 84
Kenneth D. Kellum	WWTP Shop 84
Gary H. Davis	EMD, Env. Planning
Preston E. Wilhite	WWTP Shop 84
Melburn J. Jones	WWTP Shop 84
Larry L. Olewine, Jr.	WWTP Shop 84
Anthony Paul Snodgrass, Jr.	WWTP Shop 84
Melvin S. Farland	WWTP Shop 84
John F. Kelleher	WWTP Shop 84
Billy Jones	WWTP Shop 84
Amos O. Booth	WWTP, Local APP
Roland Hinson, Jr.	WWTP
Leitha W. Hall	WWTP

**Table 3**  
**Advanced Wastewater Treatment Plant Training Roster**  
**November 2-6, 1998**

<b>Name</b>	<b>Organization</b>
Gabriel Davila	Wastewater
Robert Bardett	Wastewater
Kyle E. Parris	Wastewater
Robert Deppen	Lab
David Ayers	Lab
Alton O. Hudgins	Wastewater
Charles Ritcher	Wastewater
Billy Massey	Wastewater

Name	Organization
Edward S. Sinclair	FMB
Wallace L. Carter	LANTDIV
Raymond K. Mawn	Wastewater
James L. Thompson	Wastewater
Stephen V. Crews	Wastewater
Randall Rhoades	Wastewater
Russ Colby	NCDENR-DWQ
Jim Bushardt	NCDENR-DWQ
James McArthur	EMD
Henry G. Comer	Wastewater
Barry J. Aldridge	Wastewater
Tom H. Kennedy	Wastewater
Carl Baker	Base Maintenance

## 2.0 Instructors Assessment of Training Program Effectiveness

The instructional plan provided for a combination of lectures and exercises requiring student participation and included opportunity for instructor lead discussions, questions and other student feedback, and reviews. Through this arrangement, instructors could indirectly assess the effectiveness of major training modules. Instructor assessment of the training program's effectiveness follow.

### 2.1 ATAD Training Assessment

The Autothermal Thermophilic Aerobic Digestion (ATAD) modules that were presented during the AWTP Training at Camp Lejeune went well. An overview of ATAD theory, experience, and operational procedures was presented to an audience of trainees that primarily consisted of plant operators, but also included laboratory personnel and NC State government environmental officials.

On a whole, the feedback on the ATAD modules was positive. The modules were informative and provided the essential information needed to operate the Kruger ATAD process. By the end of the training, the trainees were able to meet the objectives laid out at the beginning of each module. In general, the trainees were most receptive the discussion of operating theory and principles. And as far as the exercises go, These students tackled the problem sets enthusiastically. Most all of the trainees would work out the problem to the end and not stop until each exercise was 100% correct.

The review of the 503 sludge handling regulations and biosolids handling overview was the slowest part of ATAD training (probably due to the dry and non-concrete nature of the subject matter). Another area of improvement would be the presentation of material on the odor control unit; during the data collection period of module development, operation and maintenance data was not available from the vendor on the scrubber unit. As a result, instruction on odor control was lacking. Finally, through trial and error, it was determined that more front-end discussion was needed to specifically address complex issues in the exercises before the students started the exercises.

All in all, the ATAD modules were presented without great difficulty to a responsive group of trainees.

## **2.1 BNR and Ultraviolet Disinfection Training Assessment**

The BNR portion of the Camp Lejeune wastewater operator training sessions consisted of five modules: (1) Introduction, (2) Operating Principles, (3) Operational Approaches, (4) Chemical Addition, and (5) Troubleshooting. Ultraviolet disinfection was presented in one module that covered background, operation, maintenance and troubleshooting. Each module was presented in a half-day training session. All modules made use of student exercises to reinforce the principles that were presented in the lectures.

The classes were made up of staff from the Camp Lejeune Advanced Wastewater Treatment Plant with a broad range of backgrounds. Some class members were licensed operators with experience in activated sludge plant operation. They came into the class with a good understanding of the principles of activated sludge plant operations. Other class members were not experienced operators and had only a rudimentary understanding of the activated sludge process. This range of experience levels presented a challenge to provide course materials that were stimulating and beneficial to the experienced operators without being overwhelming to the less experienced attendees. Comments from students following each week of training indicated that this challenge was met.

Following the first week of training, we made minor adjustments to the course material and exercises based on feedback received from the class. Certain important concepts identified during the first week were put on posters that were hung on the room walls, allowing easy reference by the students during the second and third weeks. These proved very helpful for reinforcing some of the basic concepts.

Feedback from the students indicated that most, if not all, felt that they came away from the course with some valuable new knowledge about biological nutrient removal and ultraviolet disinfection. The less experienced students learned more about the basic principles such as the forms of nitrogen and phosphorus that are found in wastewater and throughout the BNR process. They can now explain the specific process occurring in each basin at the facility, and describe the conditions necessary to make the processes work. The more experienced students are now able to perform certain process calculations that will help them assess, troubleshoot, and better operate the BNR process. They also have a specific listing of troubleshooting approaches to use when operational problems occur.

Each class provided us with a warm reception, good classroom discussion, and a great effort to be attentive and learn all they could. They are to be commended for their efforts through a full week of intensive training. The week-long format was a good choice for this material and this group of students. The subject matter was complex enough that the important information could not have been presented in a shorter course. A longer course would have presented too much information for effective learning, though follow-up at a later date would certainly be beneficial.

Overall the course was very successful and the experience should be beneficial to the effective operation of the Camp Lejeune Advanced Wastewater Treatment Plant.

### **3.0 Participants Assessment of Training Program Effectiveness**

At the conclusion of each week of training, each participant was asked to evaluate the effectiveness of the program, including materials and instructors. The evaluation form shown here as Figure 2 was distributed to each student at the conclusion of each week long training session. Consistent with the positive attitudes displayed throughout each training session, students took time to make constructively critical as well as complementary comments. Evaluations prepared by students at the conclusion of each week long session are included in Appendix A and are summarized below. In general, comments suggest that expected pay back from increased operating effectiveness, efficiency, and regulatory compliance is consistent with Department of Defense wide environmental security objectives. Student comments are summarized below with selective excerpts.

Evaluations from the first week indicated that 14 of 15 students completing evaluations found the material to be "just right for me". One student found the material "too advanced". Comments included:

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar  
October 26 - 30, 1998

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail?

Are there any topics that should have been covered in more detail?

Were the exercises helpful?

Would you suggest any changes to improve the exercises?

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Figure 2. Camp Lejeune AWTP Training Evaluation

**Evaluating Application  
of Innovative Technologies  
to the Operation of a  
Wastewater Treatment Plant**  
Delivery Order 5304

- Possibly find out the mathematical background of participants (before start of training).
- I learned more about nitrification, denitrification, and phosphorus removal than I ever learned in any of the grade I, II, III, IV classes.
- Excellent presentation of materials, good material, very well related to WW at Camp Lejeune plant.
- It was great, need more often.
- This seminar was much needed. I feel the instructors were knowledgeable, helpful and courteous. Would like to see more of this seminar again in a year or two.
- (With regards to instructors), I think one was good. One was great. I would like them as grade III or IV teachers.

In general, this group of students seemed pleased with the opportunity to attend and expressed satisfaction with the value they perceived from the materials covered.

All 16 students completing the evaluation following the second week of training found the material "just right". Comments included:

- All instructor presentations were excellent...best I've heard in a long time.
- Excellent, thoughtfully developed, professionally presented.
- While we are doing the exercises, you are still explaining the subject (suggested improvement).
- Only wish that this school was given at a much earlier date.
- This is one of the most informative schools that I have ever attended.

**Evaluating Application  
of Innovative Technologies  
to the Operation of a  
Wastewater Treatment Plant  
Delivery Order 5304**

- (Suggestions to include trips to plant site to relate process flows to classroom material)
- (Expression of need to include more time for lab testing)

The students from this session expressed satisfaction with course content and the quality of instructors. They provided useful comments regarding improvements that can be made to future versions of this course.

Eighteen of 19 students completing the evaluation at the conclusion of the third week of training indicated the seminar was “just right for me.” One student found “most of the course was very good” but indicated “math, somewhat hard.” Other comments included:

- Excellent instruction.
- Excellent course in both presentation and content.
- This is the best wastewater training seminar I have attended.
- A seminar such as this is more meaningful with a lab day at a WWTP.
- Too much material in too short of time! Class should be extended.
- (Suggestion to add more details regarding permits, collection system and primary and preliminary systems and reduce math requirements)

Again, all students expressed satisfaction with course content and quality of instructors. Evaluations from this session incorporate positive feedback from preceding groups as reflected in comments from one of the plant managers, “My personnel had great and good things to pass on to myself about the entire course when I questioned them”.

The 50 completed evaluations collected are included in Appendix A. Comments in conversation with individual students following each session support the satisfaction expressed in Appendix A. At least one of the representatives from the North Carolina Department of Environment and Natural Resources expressed strong approval of the material and praise to Camp Lejeune officials for providing the training to the AWTP operators.

#### 4.0 Conclusions and Recommendations

The objective "to develop and present a process specific biological nutrient removal (BNR), ultraviolet disinfection, and Class A biosolids treatment training seminar providing an overview of BNR, ultraviolet disinfection, and Class A biosolids operational theory and practice with an emphasis on operational monitoring and control" was met without exception. Routine coordination with Camp Lejeune and U.S. Air Force officials ensured that interim milestones were understood and met. Minor adjustments, where/when needed, were discussed and agreement reached before impacts affected the project. The project was presented as a poster session in the military affairs section at the annual fall 1998 meeting of the American Institute of Chemical Engineers and an abstract has been submitted for the National Defense Industrial Association's 25<sup>th</sup> Environmental Symposium & Exhibition to be held in March 1998.

The training program was positively received with all participants expressing satisfaction. Many also indicated the perceived need to conduct similar training and/or refresher training in the future. Periodic assessment of AWTP operations staff skill level is recommended with remedial training as appropriate. Review of AWTP operational efficiency pre and post future training will provide data to direct focus of future training and facilitate assessment of training impact on routine operation including pay back of training investment.

**Appendix A**  
**Student Evaluations**

**Appendix A-1**  
**October 19-23, 1998**

Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail?

The UV stuff was maybe a bit overdone

Are there any topics that should have been covered in more detail?

~~no~~ I would like to have seen more on the nats; bolts of the specific lab assays

Were the exercises helpful?

yes

Would you suggest any changes to improve the exercises?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

The ATAD and BNR material was very well presented and very informative

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic

Just right for me ✓

Too advanced

Are there any topics that were covered in too much detail? *NO*

Are there any topics that should have been covered in more detail? *NO*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *NO*

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Both INSTRUCTORS was very Good*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic

Just right for me

Too advanced

EXCELLENT FOR ALL LEVELS

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail?

TERTIARY FILTERS - O+M

Were the exercises helpful? YES

Would you suggest any changes to improve the exercises? POSSIBLY FIND OUT THE MATHEMATICAL BACKGROUND OF PARTICIPANTS - INCLUDE A FIELD DAY AT SITE TO ADDRESS INDIVIDUAL CONCERNS IN EACH TRAIN

Please provide any other comments you wish to share on the wastewater training seminar.

THANKS FOR THE OPPORTUNITY TO ATTEND! -

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? BOTH WERE EXCELLENT - GREAT KNOWLEDGE OF SUBJECT MATTER.

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *No*

Were the exercises helpful? *YES*

Would you suggest any changes to improve the exercises? *No*

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*I FELT THAT BOTH INSTRUCTORS DID A VERY GOOD JOB.*

*I LEARNED MORE ABOUT NITRIFICATION, DENITRIFICATION, AND PHOSPHORUS REMOVAL THAN I EVER LEARNED IN ANY OF THE GRADE I, II, III, IV CLASSES, ALSO OBTAINED A LOT OF KNOWLEDGE ON ATAD. THANK YOU VERY MUCH*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *No*

Were the exercises helpful? *VERY MUCH*

Would you suggest any changes to improve the exercises? *No*

Please provide any other comments you wish to share on the wastewater training seminar.

*IT WAS VERY THOROUGH + HELPFUL*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*They WERE VERY KNOWLEDGEABLE AND INTELLIGENT.  
I GIVE THEM AN A+*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me ✓

Too advanced

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail? DON'T KNOW

Were the exercises helpful? YES

Would you suggest any changes to improve the exercises? GOOD EXAMPLES WERE PRESENTED - KEEP UP GOOD WORK!!

Please provide any other comments you wish to share on the wastewater training seminar.

EXCELLENT PRESENTATION OF MATERIALS, GOOD MATERIAL, VERY WELL RELATED TO WW AT CAMP LEJEUNE PLANT

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

VERY PROFESSIONAL, EXCELLENT  
FORMAT AND MANUALS WERE GREAT.

GOOD CLASS EXERCISES PRESENTED BY BOTH  
INSTRUCTORS, GOOD LECTURES, KEEP UP THE  
EXCELLENT WORK!! 19

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

NO

Were the exercises helpful?

YES

Would you suggest any changes to improve the exercises ?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

It was great, Need more often.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

None

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail?

NO

Are there any topics that should have been covered in more detail?

NO

Were the exercises helpful? YES

Would you suggest any changes to improve the exercises?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

VERY INFORMATIVE

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

THEY WERE VERY GOOD, ENJOYED THE TRAINING

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was: *OUTSTANDING*

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *NO, ALL MATERIAL COVERED WAS PERFECT.*

Are there any topics that should have been covered in more detail? *NO.*

Were the exercises helpful? *yes, perhaps more math or homework.*

Would you suggest any changes to improve the exercises? *see above.*

Please provide any other comments you wish to share on the wastewater training seminar.

*This seminar was much needed. I feel the instructors were knowledgeable, helpful and courteous. Would like to see more of this seminar again in a year or two.*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? *see above.*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail?

NO

Are there any topics that should have been covered in more detail?

NO

Were the exercises helpful? yes

Would you suggest any changes to improve the exercises?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

The Instructors I think did a real good job in their presentations.

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *no*

Are there any topics that should have been covered in more detail? *no*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *no*

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Victor W. Williams*

D. Anthony

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *No?*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *No?*

Please provide any other comments you wish to share on the wastewater training seminar.

*Probably need to come another week  
just for more knowledge + understanding  
"Great School"*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? *No*

*Job Well Done.*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic

Just right for me ✓

Too advanced

Are there any topics that were covered in too much detail? No

Are there any topics that should have been covered in more detail? No

Were the exercises helpful? Yes

Would you suggest any changes to improve the exercises? No

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

I think both were good. One great.  
One will improve even more with more time teaching.  
They ~~were~~ were very help to me.  
I would like them<sup>26</sup> as a grade IV ~~all~~ teacher

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail?  
*Yes the BNR section*

Were the exercises helpful? *Yes*

Would you suggest any changes to improve the exercises? *No*

Please provide any other comments you wish to share on the wastewater training seminar.

*A very well presented course*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 19 - 23, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic

Just right for me

Too advanced

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *No*

Were the exercises helpful? *YES*

Would you suggest any changes to improve the exercises? *No*

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? *No*

**Appendix A-2**  
**October 26-30, 1998**

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar  
October 26 - 30, 1998

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Excellent

Too advanced

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail? NO

Were the exercises helpful? VERY HELPFUL

Would you suggest any changes to improve the exercises? MORE TIME, MAYBE

Please provide any other comments you wish to share on the wastewater training seminar.

N/A

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? ALL INSTRUCTORS PRESENTATION WERE EXCELLENT, A PURPOSE, THE OBJECTIVES THE STUDENTS <sup>NEED TO</sup> LEARN, LESSON PLANS, TRAINING AIDS ETC. AND KNOWLEDGE WERE THE BEST I'VE HEARD IN A LONG TIME.

**Camp Lejeune Advanced Wastewater Treatment**  
**Operator Training Seminar**  
**October 26 - 30, 1998**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓ \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail? NO

Were the exercises helpful? Yes

Would you suggest any changes to improve the exercises? NO

Please provide any other comments you wish to share on the wastewater training seminar.  
NONE

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? NONE

**Camp Lejeune Advanced Wastewater Treatment**  
Operator Training Seminar  
October 26 - 30, 1998

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

*No*

Are there any topics that should have been covered in more detail ?

*Yes - wastewater wet chemistry*

Were the exercises helpful?

*yes*

Would you suggest any changes to improve the exercises ?

*No*

Please provide any other comments you wish to share on the wastewater training seminar.

*Excellent, thoughtfully developed, professionally presented.*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Very knowledgeable, helpful.*

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar  
October 26 - 30, 1998

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_

Just right for me YES

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

Were the exercises helpful?

YES

Would you suggest any changes to improve the exercises ?

WHILE WE ARE DOING THE EXERCISES, YOU ARE STILL EXPANDING THE SUBJECT --

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

THE INSTRUCTOR WOULD USE A POINTER TO EXPLAIN THE SUBJECT ON THE SCREEN YOU COULD SEE MORE OF THE SCREEN

**Camp Lejeune Advanced Wastewater Treatment**

**Operator Training Seminar**

**October 26 - 30, 1998**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me YES  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail?  
NO

Were the exercises helpful? YES

Would you suggest any changes to improve the exercises? NO

Please provide any other comments you wish to share on the wastewater training seminar. NONE

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? NONE!

**Camp Lejeune Advanced Wastewater Treatment**

Operator Training Seminar

October 26 - 30 1998

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me       ✓        
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?  
*NO*

Are there any topics that should have been covered in more detail ?  
*NOT SURE*

Were the exercises helpful?  
*yes*

Would you suggest any changes to improve the exercises ?  
*NO*

Please provide any other comments you wish to share on the wastewater training seminar.  
*only wish that this school was given at a much earlier date.*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?  
*presentation was very good,*

**Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar  
October 26-30, 1998**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me           ✓            
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *no*

Are there any topics that should have been covered in more detail? *None I know of.*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *no! except more class time.*

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? *no*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic \_\_\_\_\_

Just right for me \_\_\_\_\_

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? "NO!"

Are there any topics that should have been covered in more detail?

ODOR CONTROL PROCESS

Were the exercises helpful?

YES

Would you suggest any changes to improve the exercises?

ADD ONE OR TWO MORE

Please provide any other comments you wish to share on the wastewater training seminar.

THIS IS ONE OF THE MOST INFORMATIVE SCHOOLS THAT I HAVE EVER ATTENDED. (THIS INCLUDES WATER, WASTEWATER, & COLLECTION SCHOOLS) (OVER 16 YEARS OF COURSES)

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

SCOTT & MARK HAVE DONE AN

OUTSTANDING JOB IN PRESENTING THE INFORMATION, IN A WAY, THAT TAKES AWAY A LOT OF THE TECHNICAL "B.S." THAT IS GENERALLY PRESENTED IN "O & M" manuals. THEIR APPROACH IS "PRECISE, SIMPLE, & TO THE POINT."

**Camp Lejeune Advanced Wastewater Treatment**

**Operator Training Seminar**

**October 26-30, 1998**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_

Just right for me \_\_\_\_\_

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *NO*

Are there any topics that should have been covered in more detail? *NO*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *NO*

Please provide any other comments you wish to share on the wastewater training seminar.

*Job well done*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Job well done Thanks*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1993

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓ \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

*no*

Are there any topics that should have been covered in more detail ?

*no*

Were the exercises helpful?

*yes*

Would you suggest any changes to improve the exercises ?

Please provide any other comments you wish to share on the wastewater training seminar.

*Very good*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Very good*

Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1998

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me  \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

UV Treatment

Were the exercises helpful?

Yes

Would you suggest any changes to improve the exercises ?

More problem solving (trouble shooting)

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Pretty good and very knowle knowledgeable

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic

Just right for me VERY GOOD CLASS

Too advanced

Are there any topics that were covered in too much detail?

NO

Are there any topics that should have been covered in more detail?

NO

Were the exercises helpful?

VERY HELPFUL

Would you suggest any changes to improve the exercises?

SOME FIELD TRAINING OUT  
FIELD TRIPS TO PLANT - ACT-ING SITE TO SHOW PARTS  
PIPING ECT.

Please provide any other comments you wish to share on the wastewater training seminar.

VERY GOOD CLASS THANK YOU

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

INSTRUCTORS, WERE VERY WELL PREPARED FOR CLASSES  
INSTRUCTOR NEW WHAT THEY WERE TALKING ABOUT  
VERY FRIENDLY + HUMOROUS. ENJOYED CLASS, WOULD  
LIKE SOME MORE TRAINING ON PLANT AFTER  
PLANT GETS GOING, A RE FRESH COURSE

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic \_\_\_\_\_  
Just right for me  \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail?

No

Are there any topics that should have been covered in more detail?

No

Were the exercises helpful?

Yes

Would you suggest any changes to improve the exercises? No

Please provide any other comments you wish to share on the wastewater training seminar.

The MATERIAL WAS VERY HELPFUL -  
The overheads were high points.  
Field training - "hands on"

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

The INSTRUCTORS WERE VERY KNOWLEDGABLE - They presented their respective material in a very professional manner. They are a great asset to your company.

**Camp Lejeune Advanced Wastewater Treatment**

**Operator Training Seminar**

**October 26 - 30, 1998**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

*no*

Are there any topics that should have been covered in more detail ?

*no*

Were the exercises helpful?

*yes*

Would you suggest any changes to improve the exercises ?

*no*

Please provide any other comments you wish to share on the wastewater training seminar.

*X*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*X*

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26 - 30, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic \_\_\_\_\_

Just right for me OK

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail?

NO

Are there any topics that should have been covered in more detail?

SAND FILTER OPERATIONS where NOT COVERED

Were the exercises helpful? yes, The exercises where A LOT more EXPLAINABLE THEN PREVIOUS WWT COURSES

Would you suggest any changes to improve the exercises?

Yes, MORE TIME ON SAMPLING PROCEDURE AND HOW TO RUN THE LAB TEST

Please provide any other comments you wish to share on the wastewater training seminar.

The TRAINING TIME SHOULD HAVE BEEN 2 WEEKS LONG TO INCLUDE ACTUAL LAB TESTING OF MLSS, MLUSE, CO<sub>2</sub>, CO<sub>D</sub>, COLIFORM

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

BOTH INSTRUCTORS GAVE AND OUTSTANDING PRESENTATION, BOTH INSTRUCTOR KNEW THE MATERIAL FAIRLY WELL AND DID A GOOD JOB OF RESEARCHING THE COMPONENTS AND THEIR OPERATIONS.

# Camp Lejeune Advanced Wastewater Treatment

Operator Training Seminar

October 26-30, 1998

## Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

### This seminar was:

Too basic \_\_\_\_\_

Just right for me \_\_\_\_\_

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *NO*

Are there any topics that should have been covered in more detail? *FILTERS,  
MORE MECH. OF EQUIP.*

Were the exercises helpful? *YES*

Would you suggest any changes to improve the exercises? *NO*

Please provide any other comments you wish to share on the wastewater training seminar.

*VERY GOOD INSTRUCTORS*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

**Appendix A-3**  
**November 2-6, 1998**

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓ \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

No

Are there any topics that should have been covered in more detail ?

I miss some, not your fault, But what I attended were great

Were the exercises helpful?

yes

Would you suggest any changes to improve the exercises ?

Refresher in 12 months for us if possible

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Instructor covered well and came across well with information my personnel had to great & good thing to pass on to myself about the entire course. when I questioned them.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_

Just right for me   ✓  

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

NO

Were the exercises helpful?

YES

Would you suggest any changes to improve the exercises ?

SHORTEN TIME ON SOME EXERCISES

Please provide any other comments you wish to share on the wastewater training seminar.

I have heard very ~~good~~ positive comments from operators and pleased with the course material and presentation.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

I was not present for the ATAD portion, but Scott did a very good presentation of BNR and UV sessions. He was very knowledgeable for the training.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

MOST OF THE COURSE WAS VERY GOOD.

Too advanced

MATH, SOMEWHAT HARD.

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail? NO

Were the exercises helpful? yes, very much so.

Would you suggest any changes to improve the exercises? A little more time on the exercises?

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? excellent instruction.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

Just fine

Were the exercises helpful?

Yes

Would you suggest any changes to improve the exercises ?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Done very well

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ X \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? NO

Are there any topics that should have been covered in more detail? NO

Were the exercises helpful? Yes

Would you suggest any changes to improve the exercises? NO

Please provide any other comments you wish to share on the wastewater training seminar.

Recommend course be taught again after one year of plant operation.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? Excellent course in both presentation and content.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? No

Are there any topics that should have been covered in more detail? No

Were the exercises helpful? Very

Would you suggest any changes to improve the exercises? No.

Please provide any other comments you wish to share on the wastewater training seminar.

Very good course to help understand more about the new plant!

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Very good instructors ✓  
Express themselves very thoroughly and  
standby! Enjoy course very much!

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

- Too basic \_\_\_\_\_
- Just right for me  \_\_\_\_\_
- Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *Yes*

Were the exercises helpful? *Yes*

Would you suggest any changes to improve the exercises? *Yes*

Please provide any other comments you wish to share on the wastewater training seminar.

*Yes*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?



Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? No

Are there any topics that should have been covered in more detail?

Were the exercises helpful? yes

Would you suggest any changes to improve the exercises? No

Please provide any other comments you wish to share on the wastewater training seminar.

This is the Best Wastewater training seminar  
I have attended.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations? Both Instructors were very

professional & instructive in their presentations.

Both did a great job.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *NO*

Are there any topics that should have been covered in more detail?

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *NO*

Please provide any other comments you wish to share on the wastewater training seminar:

*one of the best class that I have attended*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Both instructors were very professional*

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *No*

Are there any topics that should have been covered in more detail? *No*

Were the exercises helpful? *Will allow for quick review of course material*

Would you suggest any changes to improve the exercises? *No*

Please provide any other comments you wish to share on the wastewater training seminar.

*We were lucky ie → we got to see the plant.  
A seminar such as this is more meaningful  
with a lab day at a WWTP.*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*None - presentations were good (not too long & informative)*

*Thanks for the donuts & coffee*

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail?

Math Exercises

Are there any topics that should have been covered in more detail? No

Were the exercises helpful? Yes

Would you suggest any changes to improve the exercises? ~~Yes~~

Maybe just give formulas.

Please provide any other comments you wish to share on the wastewater training seminar.

Manual is very clear and helpful.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Excellent

**Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me   X    
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

Are there any topics that should have been covered in more detail ?

Were the exercises helpful?

Would you suggest any changes to improve the exercises ?

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

**Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar**

**Seminar Evaluation Form**

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

**This seminar was:**

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_   
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

Are there any topics that should have been covered in more detail ?

Were the exercises helpful?

Would you suggest any changes to improve the exercises ?

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me \_\_\_\_\_ ✓ \_\_\_\_\_  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *no*

Are there any topics that should have been covered in more detail? *no, not one, all of them.*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *no*

Please provide any other comments you wish to share on the wastewater training seminar.

*Too much material in too short of time! Class should be extended (now that I'm out of it)*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Did an excellent job for a cram class, good use of props, went around to individuals needing help.*

*B.T.A.*

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_

Just right for me     ✓    

Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail ?

NO

Are there any topics that should have been covered in more detail ?

Everything was covered very well.

Were the exercises helpful?

YES

Would you suggest any changes to improve the exercises ?

NO

Please provide any other comments you wish to share on the wastewater training seminar.

Coffee + Donuts and everything else was fine.

Thanks very much  
C.H.O.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

"Both" Instructor done an outstanding job in covering all material in this Advance Class.

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic \_\_\_\_\_  
Just right for me ✓  
Too advanced \_\_\_\_\_

Are there any topics that were covered in too much detail? *no*

Are there any topics that should have been covered in more detail? *no*

Were the exercises helpful? *yes*

Would you suggest any changes to improve the exercises? *Keep them as they are*

Please provide any other comments you wish to share on the wastewater training seminar.  
*very good.*

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

*Both were very thorough & very knowledgeable in their presentations. Maybe some video's.*  
Very Impressed !!

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me

Too advanced

\_\_\_\_\_  
X 4 4  
\_\_\_\_\_

Are there any topics that were covered in too much detail ?

Are there any topics that should have been covered in more detail ?

Were the exercises helpful?

yes

Would you suggest any changes to improve the exercises ?

no

Please provide any other comments you wish to share on the wastewater training seminar.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?

None

*This was the best class I have attended in a long time.  
Good job. You both knew your subject well.*

Camp Lejeune Advanced Wastewater Treatment  
Operator Training Seminar

Seminar Evaluation Form

We appreciate the opportunity to present this seminar at Camp Lejeune. Please take a few minutes to complete this evaluation form. Your honest comments and suggestions will help us improve future presentations.

This seminar was:

Too basic

Just right for me very much so

Too advanced

Are there any topics that were covered in too much detail?

No

Are there any topics that should have been covered in more detail?

The plants permit, maybe some outline of Collection System, Primary, and Preliminary systems.

Were the exercises helpful? yes, although too much about requirement for math, could possibly be reduced.

Would you suggest any changes to improve the exercises?

Please provide any other comments you wish to share on the wastewater training seminar.

I was very pleased, the subject matter was very appropriate for me.

I wonder if attendance was voluntary or not? Some of the people really didn't want to be here, let them stay away, it would allow those who wanted more involvement.

Please comment on the presentation of the individual instructors. Do you have any suggestions for improving their presentations?