Jacobs

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May 03, 2024

Judy Grycko OESAC CEU Committee PO Box 577 Canby, OR 97013-0577

Subject: Module 7 Operator Course CEU Application Approval Request

Good afternoon Judy,

Thank you for your recent correspondence with our team. Following the submission of the Module 6 Operator Course we are asking for 4.0 hours of accreditation CEUs for the 11 Section *Module 7 Operator Course: Land Application of Biosolids.*

Module 7 addresses wastewater operators' land application of biosolids, including specific areas that may need particular attention. This training covers the legal requirements operators need to know specific to the regulations for land application of biosolids. It also covers federal, state and local regulations specific for applying biosolids to land. It addresses the four specific considerations of biosolids, and how those considerations determine whether product can be land applied or not. At the end of this training, projects will be able to confirm whether they are in perfect compliance with regulatory requirements or identify the necessary steps required in or to comply.

Module 7 covers the nine different heavy metal elements to sample and test ensuring they meet the necessary concentration levels required for all land applied sludge and how important our associates' actions are when collecting these samples. It also addresses the cumulative pollutant loading rates that apply when sludge does not meet the necessary concentration requirements. This training will help operators be more aware of land application components to consider, such as pathogens, and the resources available to help interpret legal requirements, troubleshoot concerns before they become problems and recognize when alternatives can be used.

As the course author, I have 23 years of wastewater experience as a compliance inspector, manager and trainer. I hold an active Grade 1 Environmental Compliance Inspector license in California, and work with a group of 15 members in the C&R group who contribute to our courses and collectively have over 300 years of wastewater and water utility experience.

Sincerely,

Elisafmith

Elisabeth A. Smith Companywide Compliance Trainer elisabeth.smith@jacobs.com

Attachments: Online Course Application Module 7 Operator Course Syllabus Elisabeth A. Smith, Curriculum Vitae

Pay Registration Fees

Below is the course you just entered. You must now pay the registration fee(s).

You will be able to add documents attached to the course after paying.

Paypal

Cancel Registration

Course Title

Module 7 Operator Course

Target Audience

WT and WW Operators

Instructor

Elisabeth Smith

Training Location

Online

Dates

To be Determined

DWP CEUs

.40

WW CEUs

.40

OnsiteInstall CEUs

OnsiteOandM CEUs

MaxCEUs

0.4

Fees Charged

75

SponsorID

0

CurrentContactName Annie Smith

Business Name Jacobs Engineering Group, Inc.

ContactAddress 2020 SW Fourth Ave., Ste. 300

ContactCity Portland

ContactState OR

ContactZip 97201

CurrentContactPhone 4807719300

CurrentContactFax

CurrentContactEmail Annie.Smith@jacobs.com

Date Course Received 5/3/2024

CheckNumber

PrelimAprvDate

MailedReceipt

Final Approval Date

1/1/1900

HomeStudy

no

Recurring

yes

URL

TakeOffWeb

Inactive

 \checkmark

Moderated

Does Course

Promote a Product?

no

BetaTested

NA

In House?

yes

Comments Please see course Syllabus

SponsorID

0

Sponsor's Business Name

Jacobs Engineering Group, Inc.

Sponsor's Address 2020 SW Fourth Ave., Ste. 300

Sponsor's City Portland

Sponsor's State

OR

Sponsor's Zipcode 97201

Sponsor's Phone 4807719300

Sponsor's Fax

Sponsor's Name Annie Smith

Sponsor's Email Annie.Smith@jacobs.com 5/3/24, 10:49 AM

thank you This is your receipt for:

Module 7 Operator Course

Course ID: 11208 Fees Charged: \$75.00 date paid: 05/03/2024

Next steps:

Your course application will be reviewed and the administrator will contact you with any concerns. Accurate course applications will be forwarded to the CEU committee for approval. Until moderator ok's your course you will see your course in the "Waiting for Moderator's OK"

https://www.oesac.org/Home/Thankyou?PayerID=D7VAHLBXQX7AS&st=Completed&tx=46W12227UD060700W&cc=USD&amt=75.00&payer_email=Annie.Smith%40jacobs.com&payer_id=D7VAHLBXQX7AS&pay... 1/1

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Module 7: Land Application of Biosolids OMFS Training Series for Jacobs (formerly CH2M) 2024 Syllabus Course Description

Operations Management Group

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved

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Executive Summary

Module 7 covers the legal requirements operators need to know specific to the regulations for land application of biosolids. This training course covers federal, state and local regulations specific to applying biosolids to land. It addresses the four specific considerations of biosolids and how those considerations determine whether product can be land applied or not.

Also covered in *Module 7* are the nine different heavy metal elements to sample and test ensuring they meet the necessary concentration levels required for all land applied sludge and how important our associates' actions are when collecting these samples. It also addresses the cumulative pollutant loading rates that apply when sludge does not meet the necessary concentration requirements. This training will help operators be more aware of land application components to consider, such as pathogens, and the resources available to help interpret legal requirements, troubleshoot concerns before they become problems and recognize when alternatives can be used.

Additionally addressed within this training module:

- Know which legal requirements in 40 CFR 503 apply to biosolids.
- Understand what actions you should take if you suspect or know that a metal pollutant level applied to a field exceeds a concentration or loading rate listed in Tables 1 4.
- Identify if only EQ (Exceptional Quality) biosolids can be sold or given away to the public without any further requirements.
- Know how many meters of waters of the state Buffer Zones should ensure that no application of Class B for pathogen biosolids occur within.
- State two ways that pathogens can be reduced in Class A biosolids.
- Name how many hours Class B for pathogen biosolids must be incorporated into the soil when a facility uses incorporation as a means of demonstrating compliance with vector attraction reduction.
- Know what information The Preparer of PC (Pollutant Concentration) biosolids needs to give The Applier.

At the end of this training, projects will be able to confirm whether they are in perfect compliance with regulatory requirements or identify the necessary steps required in or to comply.

1. Course Syllabus Description

The *Module 7 Operator Course* was developed with all levels of Operators in mind regardless of their length of service. This training is applicable to all positions. Because activities of sampling collection and biosolids spreading are essential to all Wastewater Operators, they are required to understand the legal requirements and regulations involved.

The operator course *Module 7: Land Application of Biosolids* consists of an 11 Section course for Operators to watch, engage in class enactment/ participation of real-life scenarios for growth and understanding, Quiz completion for knowledge and retention check plus Final Exam completion. Each Module will include:

- Simple Text (designed for ease of reading and comprehension)
- Content Examples
- Content Diagrams
- Module Quiz

Each Section encourages personal accountability, provides examples of the evolving requirements, communication and due diligence required in Compliance & Reporting. The course provides guidance, direction and confidence for the goal of "Perfect Compliance and Perfect Reporting of Non-Compliance" to be achieved. Course retention is critical for Clients'/ Customers' satisfaction and maintaining perfect compliance with all laws and regulations. Jacobs Companywide Compliance Trainer and Training Program Administrator will be available to help Operators understand, practice and apply what they have learned.

Each Section will require the Operator to complete an attendance sheet that includes Course Title with Approval ID, Date, Printed Name, and Signature. The Project Manager (or designee) is also required to provide their signature ensuring Operators are utilizing the course material appropriately, for the duration noted and following up with Operators' performance in the field, confirming the Operators are successfully applying what they have learned.

The course content, duration and brief description of each section is provided within the following Appendix A.

2. Module Lesson Plan

The operator course *Module 7* is a video and class presentation designed to allow participants the opportunity to read course materials and observe, interact and experience examples of the training content. The video presentation accompanied by Quiz questions and answers will encourage understanding and learned knowledge through course completion. *Module 7* will have a Final Exam at the end of the training that will be scored, recorded and tracked. A Final Exam score of 70% or higher must be achieved to pass the training course.

The learning environment will be in a quiet area (the training room for example), furnished with overhead projection of a desktop, or laptop computer, loaded with the assigned course files. The Project Manager will be responsible for providing the Employee with the video presentation, assigned course Workbook/ Quiz, Sign-In Sheet, along with other materials (calculator, scratch paper for notes and computations) and will collect the Final Exam after completion.

The Final Exam will serve to confirm the associate's retention of the training and may be utilized as part of the Employee Performance Program internally known as e3.

3. Program Tracking and Accountability

The Companywide Compliance Trainer, or e3 corporate software framework, will score and file the course Workbook/ Quiz and Final Exam. A passing score of 70% must be achieved to pass the training. Results will be made available to the Project Manager. If the Operator does not achieve the minimum score of 70%, the training will need to be retaken for a passing score.

The Companywide Compliance Trainer and Training Program Administrator will be available to those participants showing a need for specific training assistance. Operators will be given the course material objectives as part of their quarterly performance evaluation.

Appendix A. Course Module Descriptions

The following Modules are offered in the recommended progression:

Section	Description	Duration
Course Learning Objectives	Discuss Course Learning Objectives and Expectations	15 min.
Module Materials and Description	Discuss Land Application of Biosolids as a Class for understanding level	
	 Whether their Project currently Land Applies If not, pros/ cons (understanding) if they would prefer to Are they aware of Legal requirements involved, which ones. 	
Section 1 – DVD Section 1: Biosolids Regulations	 Legal Requirements you need to know Confirm your biosolids are in perfect compliance with the regulatory requirements Identify steps to take to comply with perfect compliance Learn of Two historically problematic areas to pay special attention to confirm perfect compliance Know who your Companywide Biosolids Coordinator is State regulations are as stringent as Federal regulations. They cannot be less stringent as well as local which can be County, Township, City, etc. Know when Federal 40 CFR 503's apply for Biosolids Applied to the ground as soil conditioner, to disposal site surface, and when fired in an incinerator. Know: 4 considerations of biosolids qty (#2- 8) Do these considerations determine whether you can land apply or not (Yes) 	3.00 min.
Section 2 – Pollutant Concentrations	 Pollutant Concentrations in the regulated 503's contain 9 different heavy metals. Many states list more than Table 1. Can the biosolids meet the requirements now or eventually If not, what needs to be addressed and with who (IPP) Know the levels heavy metal concentrations need to be below Do all land applied sludge need to meet these requirements If your sludge does not meet the concentration requirements (above) know the Cumulative Pollutant Loading Rates that then apply (kg/ha, Table 3) - Biosolids below concentration limits: Pollutant Concentration biosolids Biosolids above concentration limits: Cumulative Pollutant Loading Rate Bs Annual Pollutant Loading Rates Table 4: Apply to biosolids meeting pathogen and vector- Table 1, exceed Table 3 and are sold/given away in bags/ containers. 	4.30 min

Module 7: Land Application of Biosolids

Section	Description	Duration
Operator Group 1 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/ participation for growth, learning and understanding.	
Section – 3 Pathogens	 Section 3: Pathogens Consider another land application component - Pathogens Know: Pathogens are infections agents. Defined as: Anything that can cause illness or disease to its host All land applied biosolids must meet either Class A or B pathogen requirements. If neither requirements are meet, the biosolids cannot be land applied 	1.10 min.
Section – 4 Class "A" Pathogen Reduction	 The 503's require that indicator measurements for all Class A alternatives are used. In addition to the alternative you use, you are going to monitor also. That is the big difference between Class A and Class B Pathogen requirements must be met at or at the same time as most of the vector attraction reduction requirements, in order to minimize the regrowth of pathogenic bacteria. Know the 6 Class A pathogen alternatives 	
Operator Group 2 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/ participation for growth, learning and understanding.	15 min.
Section 5 – Processes to Further Reduce Pathogens (PFRP)	 1st of processes to further reduce pathogens is Composting The 2nd of processes reducing pathogens is Heat Drying The 3rd option is Heat Treatment where liquid BS are heated The 4th option is Thermophilic Aerobic Digestion An example is A-TAD Process The 5th option, not common in the US, is Beta Ray Irradiation The 6th option is Gamma Ray Irradiation The 7th option is Pasteurization 	1.00 min.
Section 6 – Class "B" Pathogen Reduction Alternatives	 1st Alternative of Class B = monitoring of indicator organisms Difference from Class A 2nd is BS treated to significantly reduce Pathogens or PSRP. 3rd is for Class B (like Class A) BS treated in a process equivalent to a PSRP 5 PSRPs: Processes to Significantly Reduce Pathogens 1st is Aerobic Digestion = Biosolids must meet specific time and temperature requirements in an aerobic environment 2nd option is Air Drying for those who still have drying beds 3rd is Anaerobic Digestion with specific time and temperature requirements the biosolids need to be exposed to 4th is Composting a Class A option not widely used in Class B The 5th option is Lime Stabilization where lime is added in a sufficient amount to raise the pH to 12 	1.45 min.
Driving the Point Home	Workbook quiz checking Operator retention, Q&A digging deeper expanding Operator knowledge, Cover course points.	15 min

Section	Description	Duration
Operator Group 3 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/ participation for growth, learning and understanding.	
Section 7 - Vector Attraction Reduction (VAR)	Another requirement for all Land Applied BS is VAR. Vectors include: Flies, mosquitos, rats and birds that can transmit pathogens to humans. Our job is to make biosolids unattractive to vectors or make them unavailable to them - The 503 rule contains: 12 Options for meeting the VAR requirements. You need to meet 1 of the 12 options to land apply. Remember all 12 options (listed in Agenda).	3.40 min.
Section 8 – Management Practices	The 40 CFR 503 has general land application requirements and requires Management Practices for all except EQ biosolids. If the EQ requirements are met, then the biosolids are not subject to land application's general requirements and management practices - unless they are still required by an individual state or local regulations	6.10 min.
	Additional items reviewed in this section include: - Pollutant concentrations and cumulative pollutant loading rate biosolids restrictions - Regulation terms: Preparer and Applier - Additional requirements for Cumulative Pollutant Loading Rate biosolids – CPLR biosolids	
Driving the Point Home	Workbook quiz checking Operator retention, Q&A digging deeper expanding Operator knowledge, Cover course points.	15 min.
Operator Group 4 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/ participation for growth, learning and understanding.	15 min.
Section 9 – Sampling Requirements	The frequency of required monitoring for pollutants, pathogen densities, VAR, is based on the amounts applied within a year. Know the dry ton amounts for: Annual Monitoring, Quarterly Monitoring, Every 60 days, and monitoring Once per month. Know requirements are based on the amounts applied Within a Year not the amount of production. Common practices are performed of testing for metals, fecals and other constituents. Due to the potential for non-compliance, we must make sure biosolids we prepare/ apply meet all requirements and have the documentation needed to prove it. We are ultimately responsible and liable. So we must take adequate precautions to protect ourselves, which means performing all required compliance testing on our biosolids and maintaining those records documenting the testing even if the testing is also duplicated by someone else.	2.25 min.

Section	Description	Duration
Section 10 – Recording Importance of good recordkeeping includes our logbook entries, memos, rounds sheets and reports all contain documentation of our daily work and plant operations. At any time they may be needed to prove our work is conscientious and thorough and that our teams are complying with all requirements. Requirements for recordkeeping depend on the type of biosolids land applied. All types are reported to the regulator annually, and all BS related records must be kept for a minimum of 5 yrs. CPLR biosolid records are kept indefinitely. Also covered: Records on file for: - EQ biosolids – Preparer of PC biosolids – Applier of PC biosolids. CPLR biosolids can include a lot of information and are kept indefinitely. Reference the Guidebook that accompanies this training for CPLR recordkeeping and all other related requirements.		3.20 min.
Operator Group 5 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/ participation for growth, learning and understanding.	15 min.
Section 11 – Biosolids Management Plan (BMP)	Another area of biosolids where we need to pay attention is developing and maintaining a Biosolids Management Plan. It is critical that information is written down so there is continuity to your biosolids operation and disposal. Know the 8 essential elements to include in every project's BMP. With BS sampling generally conducted once per year, it can often get forgotten. If you are not currently tracking biosolids related sampling, make sure you add it to your Sampling Plan or Tracking Tool. The details required for the Sampling Plan and 8 mandatory elements can be found in the Guidebook that accompanies this training. If you have questions or need help, contact your Companywide Coordinator of Biosolids. Whatever option you choose for biosolids disposal, always ensure perfect compliance and perfect reporting of non-compliance.	2.53 min.
Driving the Point Home	Workbook quiz checking Operator retention, Q&A digging deeper expanding Operator knowledge, Cover course points.	15 min.
Operator Group 6 Classroom	Give real life examples, inspire responses; Prompt Operator experiences with enactment/participation for growth, learning and understanding.	15 min.
Module 7 – Final Exam	Final exam requiring 70% or higher score to pass.	30 min.
Evaluation Report	Provide Operator Course Evaluation.	15 min.
Total	All Hours Listed are Firm Estimates	4.00 TCH

Appendix B. Course Completion Sign Off Sheet

Upon completion of each Section, the Operator will legibly print their name, approval ID and provide a valid signature and date to receive credit. The Companywide Compliance Trainer (or designee) is responsible for Attendee enrollment. The Attendee must commit to full participation and application of acquired knowledge towards individual professional growth. The Training Program Administrator will file the signature sheets with the Companywide Compliance Trainer into a secure filing network.

	Course Completion Sign-Off Sheet				
Jacobs	State:	Course	#		
Learning & Talent Management	Employee Name				
		-			
Module 7: Land Application of Biosolids	Start Date	Completion Date	Minutes to Complete	Supervisor Signature	
Course Learning Objectives and Expectations			15.00		
Discuss Module Materials and Description			15.00		
Section 1 – Biosolids Regulations			3.00		
Section 2 – Pollutant Concentrations			4.30		
Group 1 Classroom – Give real life examples, inspire responses; Prompt Operator experiences with enactment/participation for growth, understanding.			15.00		
Section 3 – Pathogens			1.10		
Section 4 – Class "A" Pathogen Reduction			2.35		
Group 2 Classroom – Give real life examples, inspire responses; Prompt Operator experiences with			15.00		
enactment/participation for growth, understanding. Section 5 – Processes to Further Reduce Pathogens (PFRP)			1.00		
Section 6 – Class "B" Pathogen Reduction			1.45		
Alternatives Driving the Point Home - Workbook quiz checking Operator retention, Q&A digging deeper expanding			15.00		
Operator knowledge, cover course points. Group 3 Classroom – Give real life examples, inspire responses; Prompt Operator experiences with			15.00		
enactment/participation for growth, understanding. Section 7 – Vector Attraction Reduction (VAR)			3.40		
Section 8 – Management Practices			6.10		
Driving the Point Home - Workbook quiz checking Operator retention, Q&A digging deeper expanding			15.00		
Operator knowledge, cover course points. Group 4 Classroom –Give real life examples, inspire responses; Prompt Operator experiences with			15.00		
enactment/participation for growth, understanding. Section 9 – Sampling Requirements			2.25		
Section 10 – Recordkeeping		1	3.20		
Group 5 Classroom – Give real life examples, Inspire responses; Prompt Operator experiences with			15.00		
enactment/participation for growth, understanding. Section 11 – Biosolids Management Plan			2.53		
Driving the Point Home - Workbook quiz checking Operator retention, Q&A digging deeper expanding			15.02		
Operator knowledge, cover course points. Group 6 Classroom – Give real life examples, Inspire responses; Prompt Operator experiences with			15.00		
enactment/participation for growth, understanding. Module 7 Final Exam - Requires 70% or higher			30.00		
score to pass course Evaluation Report – Provide Operator Course Evalutation			15.00		
Evalutation Total Hours Awarded for CEU Credit			1075		
l understand that it is encumbant upon me to comp training by employees. My signature indicates that l completed any portion of this course on my behalf.				s and audits the completion of	
		DD/MM/20YY			
Employee Signature	-	Date	-	# License/Certification#	

Appendix C. Water Certificate of Completion

Upon completion of the Module, the Training Program Administrator will complete the below Completion Certificate and provide a copy to the Operator for their records. At the site level, the Operator is responsible for submitting their Certificate to the State and paying any applicable state CEU fees. The Training Program Administrator may assist, as needed. When required, this form will be customized to include necessary state specific information.



Jacobs

Elisabeth Anne Smith Companywide Compliance Trainer

Summary/Profile

Ms. Smith is skilled in all aspects of compliance training, managing industrial pretreatment programs, and treatment facility security. She has conducted environmental auditing, prepared legal framework to support local industrial pretreatment, and supported investigative teams working under attorney privilege. Ms. Smith is a certified California Grade 1 Environmental Compliance Inspector.

Project Experience

Companywide Compliance Trainer Jacobs Colorado Springs, Colorado

Ms. Smith provides regulatory compliance training to O&M staff for Jacobs. She provides training to project management staff on company tools to facilitate understanding, tracking, and improving permit compliance. Ms. Smith works closely with the Compliance and Reporting Group to update compliance training as new regulatory changes and issues arise.

Ms. Smith has been instrumental in developing and producing a series of multimedia training on a variety of topics that are delivered to all eligible associates and then become part of required onboarding training for new hires. An external review of systems by a nationally recognized authority described the program as "far and away the leader in the environmental field."

She regularly delivers webinars on a variety of topics to project workers in the field. Previous topics include cybersecurity, active shooter, data handling, workplace security, sampling protocols, and spill reporting.

Ms. Smith has studied security issues related to O&M facilities – cybersecurity and physical security. She sits on the AWWA Emergency Preparedness & Security committee, which works to shape and influence regulations and industry guidance. She monitors security warnings and communicates them to company personnel.

EDUCATION

- Awarded Air Force ROTC college scholarship
- University of California, Riverside, California
- Harvey Mudd College, Claremont, California
- University of California, Sacramento, California, Office of Water Programs:
 - Industrial Pretreatment Inspections
 - Water Treatment Plant Operation, Volumes 1 and 2
 - Operation of Wastewater Treatment Plants Volumes 1 and 2

CERTIFICATIONS

 California Water Environmental Association (CWEA) Grade I Environmental Compliance Inspector

PROFESSIONAL AFFILIATIONS

- American Water Works Association (Emergency Preparedness & Security committee member)
- CWEA (member)

AWARDS

- Rocky Mountain Water Environment Association Industrial Pretreatment Coordinator of the Year, 2004
- CWEA Safety Award, Santa Ana River Basin Section, 2002

Industrial Pretreatment Coordinator CH2M HILL Rio Rancho, New Mexico

Ms. Smith served as the Industrial Pretreatment Inspector, developing a pretreatment program under a compliance order from the U.S. Environmental Protection Agency. She conducted an industrial waste survey, developed the monitoring and reporting program, identified and categorized significant industrial users, developed the implementation manual, developed local limits, drafted the sewer use ordinance, and drafted the enforcement response plan. During this process, Ms. Smith met regularly with the Utility Director, City Attorney, City Clerk, and other city departments to coordinate program elements. In addition, she made several presentations to the Utility Commission and the City Council regarding pretreatment program implementation. For her work in Rio Rancho, Ms. Smith received the 2004 Industrial Pretreatment Coordinator of the Year Award from the Rocky Mountain Water Environment Association.

Industrial Pretreatment Inspector

CH2M HILL Rialto, California

As Industrial Pretreatment Inspector, Ms. Smith managed the pretreatment program and served as the program inspector. She conducted inspections, performed grab and composite sampling, and documented results. She prepared monthly client reports and quarterly and annual regulatory reports. Ms. Smith also surveyed and inspected new businesses in the City to determine if they needed regulation under the pretreatment program. She interfaced with regulatory agencies, industrial users, and the City of Rialto, preparing documents for permitting and enforcement activities.

Ms. Smith also served as Project Safety Team Leader. She implemented a comprehensive training program to comply with Occupational Safety and Health Administration (OSHA) requirements as well as California OSHA requirements. She coordinated weekly staff safety training topics, monthly plant inspections by the safety team, and annual plant inspections by the company. She presented Rialto project's training system during the Project Safety Team Leader Summit 2000 as a model for other projects. Under her leadership, the Rialto project earned the 2002 Safety Program of the Year Award from the Santa Ana River Basin Section of the CWEA.

Legal Secretary

Bonne, Bridges, Mueller, O'Keefe and Nichols Riverside, California

As a legal secretary in a medical malpractice defense firm, Ms. Smith worked with an attorney responsible for 10 to 20 cases. Familiar with each local district's rules for court and filing, she managed the attorney's calendar and filed motions and documents in court on a wide variety of alleged medical malpractice cases. She established cooperative relationships with insurance carrier representatives, doctors, attorneys, courtroom clerks, and attorney service personnel.