DARCA Workshop Series
DARCA Ditch Company Handbook
2009-2010
DARCA is pleased to offer the 2009-2010 DARCA Workshop Series for its members. Colorado Water Congress members may attend the seminars at DARCA member rates. The workshops, taught by experts in the Colorado water community, cover a variety of topics and DARCA thanks the instructors for donating their time in the development, preparation and teaching of the courses.

We hope this information exchange and networking will be valuable for mutual ditch and reservoir companies, irrigation districts, incorporated laterals and private ditches. The workshops’ aim is to inform and educate board members, superintendents, ditch riders, engineers, lawyers, policy makers, and other water resource users about Colorado water enterprises.

**Our 2009-2010 courses:**

I. Real Estate Law  
II. Bylaws  
III. Best Management Practices  
IV. Water Quality and Stormwater Issues  
V. Directors and Officers Training  
   (Colorado Water Congress Pre-Convention Workshop)  
VI. Micro Hydroelectric Opportunities  
   (DARCA Pre-Convention Workshop)  
VII. 8th Annual DARCA Convention  
   Agricultural Water: Reinventing Strategies for a New World  
VIII. Augmentation

DARCA is able to develop and deliver customized on-site courses for ditch and reservoir companies, engineering and law firms, water districts and municipalities on many water-related issues. Please contact us for details.

Thank you to our generous sponsors who helped make the workshops possible:

- Applegate Group Inc.
- Aqua Engineering Inc.
- Chaffee County Cattlemen’s Association
- Colorado Water Conservation Board
- Geo-Spatial Solutions
- Hix Insurance Associates, Inc.
- Leonard Rice Engineers, Inc.
- Lower Arkansas Valley Water Conservancy District
- Lyons, Gaddis, Kahn, & Hall P.C.
- Northern Colorado Water Conservancy District
- Rubicon Systems America, Inc.
- True Point Solutions
- Upper Arkansas Water Conservancy District
- URS Corporation
- Water Users Association of District No. 6

*Thanks to DARCA intern, Nick Ludolph, for photos and graphic design work*
Ditch and reservoir companies in Colorado are not only concerned with water law issues but many spend the majority of their efforts and time dealing with their portfolios of real estate assets.

Many canal companies realize property rights can be extremely valuable. If properly managed, they can increase the company’s financial health. The scope of real estate holdings; and issues faced by canal companies may include: easements of ditches and reservoirs; carriage agreements; oil and gas royalties; reservoir holdings; and rights, responsibilities and liabilities of land owned under fee simple. Urban pressures facing ditch companies have created storm flow problems, the creation of trails along ditches and increased liability concerns.

Topics:

- How to derive maximum value from ditch and reservoir company real estate holdings
- What liabilities are associated with these holdings and how can they be avoided or mitigated?
- The importance of business planning for ditch companies, including decision-making tools, strategies and examples of bad real estate decisions
- Easements, such as St. Jude’s case, crossings, relocations and sample agreements
- Storm water discharge
- Reservoir recreational leases
- Carriage agreements;
- Negotiation tips
- Drafting agreements.

Jeff Kahn, of Lyon, Gaddis, Kahn & Hall, P.C. of Longmont, will cover these real estate concerns. Jeff has authored several articles for the DARCA Ditch Company Handbook and will bring sample real estate agreements. Participants will see real-world examples of how some of his ditch company clients have benefitted financially from Colorado’s urban growth.

DARCA’s Real Estate Law for Ditch Companies workshop is sponsored by Lyons, Gaddis, Kahn, and Hall P.C., The Colorado Water Conservation Board, and the Northern Colorado Water Conservancy District.
Bylaws

for Ditch Companies

When: Tuesday, November 10, 2009
1 p.m. to 5:30 p.m.

Where: Four Mile Community Club Building
Corner of East Main & Steinmeier
Cañon City, Colorado

Cost: $50 for DARCA/CWC members;
$100 for non-members

The Bylaws Workshop will be interactive and will focus on improving and modernizing ditch company bylaws, including the following:

- The history and development of ditch company by-laws
- The legal and practical distinctions among a company’s governing documents, including articles of incorporation, bylaws and ditch company rules
- Sample bylaws and alternative bylaw provisions
- Allowable restrictions on shareholders’ right to transfer shares and to lease rights to water, including discussion of “Caitlin” bylaw provisions, rights of first refusal and other restrictive measures
- Use of rules and bylaws to establish maintenance and repair procedures and limitations on changes to the ditch and the maintenance easement area
- Penalties and other means for enforcement of rules and bylaws
- Addressing issues related to maintenance of laterals in rules and bylaws
- Shareholder communications and communications with other affected land owners regarding ditch operations and maintenance
- Use of bylaws to address the increasingly complex issues related to well augmentation, recharge facilities, leasing of water, and leasing or selling storage for water
- The role of bylaws in addressing issues such as “ag to urban” transfers including allocation of legal and other expenses of ditch company and non-transferring shareholders arising out of proposed transactions
- Whether a ditch company’s governing documents can be structured to reduce the risk of eminent domain takings during drought years

These issues as well as issues raised by participants will be considered from the perspectives of both the individual shareholder and the ditch company.

Carol Werner is an attorney in Northeastern Colorado (cwerner@wernerlaw.com) and is the secretary/treasurer and a shareholder in The Tetsel Mutual Ditch Company, and a member of the DARCA Board of Directors.

Eve Triffo is retired California Lawyer and is currently a consultant in Southern Colorado (etriffo1@aol.com), as well as a shareholder in the Cañon City and Oil Creek Ditch Company, a member of the DARCA Board of Directors, and a member of the Executive Committee of the Sangre de Cristo RC&D Council.

DARCA’s Bylaws for Ditch Companies workshop is sponsored by The Chaffee County Cattlemen’s Association, The Lower Arkansas Valley Water Conservancy District, and The Upper Arkansas Valley Water Conservancy District.
**Best Management Practices**  
for Ditch Companies

When: Tuesday, December 1, 2009  
1 to 4:30 p.m.

Where: Boulder County Parks and Open Space Offices  
5201 St. Vrain Road  
Longmont, Colorado  
(Just North of the Longmont Airport, 3/4 miles west of Airport Road, Google maps and MapQuest give the wrong directions)

Cost: $50 for DARCA/CWC members;  
$100 for non-members

YOUR DITCH AND THE NEIGHBORHOOD

The state of Colorado has experienced great increases in its population, especially in the last few decades. Created by the federal government in 1861, the Colorado Territory began with 26,000 inhabitants; today, the population has grown to nearly 4.5 million.

Many of the existing irrigation ditches were carved into the pristine landscape during the early years of settlement. The pioneers who planned, designed, and built these ditches made possible irrigated agriculture in our state, fueling the development of prosperous communities throughout Colorado.

In economic terms, the highest and best use of the land became not that of the cultivation of crops but rather for urban development. As a result, communities were built along irrigation ditches and existing ditch companies became acquainted with their new neighbors. Ditch companies have experienced unfortunate consequences by virtue of running their water through the urban setting. The access to these ditches has been compromised, neighbors complain of seepage problems, safety concerns need to be addressed – all have increased the cost of doing business in the urban environment.

This workshop will address the issues that ditch companies face in dealing with their urban neighbors. The goal of the workshop is to start the process of developing DARCA best management practices for ditch companies on a statewide level. As an illustration, when ditch companies are involved in litigation over issues such as what is the reasonable width of their easement or what does it mean to keep a ditch in good repair, the courts may hear testimony from experts and determine these issues on an ad hoc basis. Unfortunately, there is no definitive resource, be it a manual or otherwise that details what constitutes good operating practices or what is the standard for Colorado ditches in the operation and maintenance of their facilities. Other industries have adopted good operating or best management practices but Colorado ditch companies have yet to collaboratively define and synthesize their own practices. One goal of the workshop is to help ditch companies provide a better and less costly defense for themselves if they are ever a party to a lawsuit with one of their urban neighbors.

The workshop will be of benefit to ditch administration and maintenance practitioners for all ditch and reservoir companies. The 3.5 hour interactive session will be facilitated by Rich Koopmann, Boulder County Open Space Planning Manager whose responsibility includes managing the County’s extensive agricultural water portfolio. Please attend and provide your valuable input.

*DARCA’s Best Management Practices for Ditch Companies workshop is sponsored by TruePoint Solutions, The Water Users Association of District No. 6, and Rubicon Systems America Inc.*
**Water Quality and Stormwater Issues**

for Ditch Companies

When: Friday, January 8, 2010
1 p.m. to 5 p.m.

Where: ATLAS Institute (Alliance for Technology, Learning, and Society)
Room 1B31
The University of Colorado
Boulder, Colorado
(at the corner of 18th and Colorado on Campus)

Cost: $50 for DARCA/CWC members;
$100 for non-members

Urbanization has been occurring along ditches and their riparian corridors since Colorado’s first ditches were built in latter half of the 19th century and this urban growth has placed many pressures on Colorado ditch and reservoir companies. One issue that is increasingly becoming more prominent is the impact of stormwater - both in terms of quality and quantity - into these ditches. The workshop will help participants identify and frame these issues and develop appropriate solutions to eliminate or mitigate potential damage and liability to their ditch systems.

The workshop will begin with an informative presentation about the work that is being done to protect water quality in the Boulder Creek and St. Vrain watersheds from urban runoff. Janice Lopitz, the project coordinator of the Keep it Clean Partnership, will describe the state mandated stormwater programs being implemented to address urban runoff from the residential, commercial and construction communities.

Next, Richard Belt, P.E., P.H. of Aqua Engineering will discuss the many stormwater engineering topics including the use of case studies from local ditch companies. Richard’s presentation will focus on:

- **Basic Hydrology** of pre and post-development scenarios in the context of water quantity and quality addressing tributary and distributary systems.

- **Quantity Management Issues** and how to lessen post-development impacts through appropriate basin and outlet designs.

- **Quality Management Issues** for inflows into ditches including concentrated and sheet flow techniques and primary contaminants of concern.

- **Effectively Interacting with Cities, Counties and Other Agencies.** What are typical development standards and what does a typical post-development for a ditch system really look like.

- **FEMA and Floodplain Management** The management of floodplains by FEMA and the impact on ditch companies.

The workshop will conclude by John A. Akolt, Esq. who will address water quality and stormwater issues that impact ditch and reservoir companies in Colorado. John, counsel for Farmer’s Reservoir and Irrigation Company in Brighton, has extensive experience in dealing with water quality and stormwater issues in Colorado and he will be able to discuss optimal legal strategies.

DARCA’s Water Quality for Ditch Companies workshop is sponsored by Applegate Group Inc., URS Corporation, and Aqua Engineering Inc.
Directors and Officers Training
for Ditch Companies

When: Wednesday, January 27, 2010
1 p.m. to 5:30 p.m.

Where: Hyatt Regency Denver Tech Center
7800 East Tufts Avenue
Denver, CO

Cost: $50 for DARCA/CWC members;
$100 for non-members

If you are unsure of your duties or personal liability as a ditch company director...

If you wish to become a more confident and effective leader within your ditch company...

If you are looking for tools that will help your company to diffuse tensions and resolve ongoing disputes...

THIS WORKSHOP IS FOR YOU!

Building on our highly successful Directors and Officers Workshops in Niwot, Mancos, Las Animas, and Grand Junction, DARCA’s team of experts will discuss:

♦ Corporate governance basics for ditch companies

♦ Comparison of alternatives for ditch company corporate structures

♦ Duties, liabilities and indemnification of directors and officers

♦ Articles of Incorporation, bylaws and ditch company rules and regulations

♦ Tips to help in preparing minutes of meetings

♦ Communicating with shareholders

♦ Shareholders’ rights and duties

♦ Planning and conducting board and stockholders’ meetings

♦ Formal and informal dispute resolution

This workshop will include presentations by veteran ditch company advisers, attorneys with expertise in ditch companies, and non-profit corporation organization and management experts, followed by a panel discussion moderated by DARCA Executive Director, John McKenzie. Audience participation will be encouraged, with the opportunity to ask questions and share experiences among a diverse group of experienced water users and professionals.

This training is geared toward practical guidance to provide you with tools that directors and officers can put into practice in ditch company operations and management. Participants will gain a greater understanding of corporate law as applied to mutual ditch companies as well as ditch companies that have elected to be governed by the Colorado Nonprofit Corporations Act. Extensive handouts citing Colorado statutory and case law will be provided.

DARCA’s Directors and Officers Training for Ditch Companies workshop is sponsored by The Colorado Water Conservation Board, Hix Insurance Associates, and Leonard Rice Engineers.
Micro Hydroelectric Opportunities
for Dam Owners and Operators

When: Wednesday, February 10, 2010
9:00 a.m. to 4:00 p.m.
Where: Sunlight Room - Durango Community Recreation Center
2700 Main Ave.
Durango, Colorado
Cost: $100 for DARCA/CWC members;
$200 for non-members
*If you are registered for the 2010 convention, please subtract $25 from the workshop price*

Micro Hydroelectric Opportunities is a pre-convention workshop before the 8th Annual DARCA Convention in Durango, February 10-12, 2010. The workshop will cover best management practices and strategies for successfully implementing and maintaining micro hydropower systems for dam owners and operators. Micro hydropower typically refers to hydro systems with a capacity of up to approximately 300 kilowatts (kW). Hydropower is based on simple concepts. Moving water turns a turbine, the turbine spins a generator, and electricity is produced. Water is diverted from a stream into a pipeline, where it is directed downhill and through the turbine (flow). The vertical drop (head) creates pressure at the bottom end of the pipeline. The pressurized water emerging from the end of the pipe creates the force that drives the turbine. More flow or more head produces more electricity.

This workshop will begin with a brief Micro Hydropower tutorial followed by a series of topics including:

- **Micro Hydropower Overview**, presented by Ed Toms, PE, URS
- **Permitting**, presented by Steve Rowe, MS, URS
- **Engineering**, presented by Tim Volz, PE, URS
- **Financial Opportunities and Constraints**, presented by Ronald Miller, PE, URS

This workshop will include a discussion of a micro hydropower project feasibility study that would incorporate an assessment of environmental constraints/permitting, engineering analysis/equipment selection, and an economic analysis to determine if the project is financially-attractive and viable. Economic assessment portion of this topic will estimate the capital costs for a hydro unit including installation, and operating costs to generate a cash flow analysis, the rate of return expected from the project owner's investment, and the number of years until payback of the money spent to build the project.

Finally, the funding analysis topic will evaluate ways of accessing capital to pay for the project’s installation. Sources of capital would be loans secured by the revenue generated from the project’s energy sales, federal and state guaranteed loans and grants, and tax incentives for renewable energy.

Guest speakers with expertise in the micro hydropower industry will be invited. Instructors will provide participants with case examples of dam owners and operators who have benefited from the execution of micro hydropower systems.

DARCA’s Micro Hydropower Opportunities for Dam Owners and Operators workshop is sponsored by Aqua Engineering Inc., True-Point Solutions, and URS Corporation.
8th Annual DARCA Convention
Agricultural Water: Reinventing Strategies for a New World

When: Wednesday, February 10, 2010-Friday, February 12, 2010
Where: Doubletree Hotel of Durango
501 Camino Del Rio
Durango, Colorado
Cost: $125 for DARCA/CWC members;
$250 for non-members

DARCA is returning to Durango and the Western Slope in Feb 2010! DARCA’s hosted its 1st Annual Convention back in 2003 in the town of Durango to an enthusiastic crowd of 75 participants. Founding DARCA members from both sides of the continental divide met one another for the first time. And you know what – we all got along, we shared info, and we have been working together ever since to help one another in the business of running ditch and reservoir systems.

Since then, DARCA conventions have been held in Greeley, La Junta, Montrose, Sterling, San Luis and Pueblo. The 8th Annual Convention, Feb 10-12 2009, Agricultural Water: Reinventing Strategies for a New World will provide a wealth of information on a broad array of issues relevant to Colorado’s water providers in the context of agriculture. DARCA realizes that the predominant use of ditch water is for agricultural purposes. Some of the presentations in February will include:

- The Role of Drainage on Agricultural Production and Colorado’s Agricultural Drainage Districts
- Powerful, Yet Low Cost GIS Applications for Ditch Companies
- Climate Change Impact on Agricultural Production and Water Supplies
- New Technologies for Water Monitoring
- Agricultural Efficiency Standards
- Agricultural Water Quality Issues
- Pressurized Systems
- And more…

DARCA members will be treated to a reception on Thursday night at the Durango & Silverton Narrow Gauge Railroad Museum and a tour of the adjoining machine shop.

For information regarding convention registration as well as sponsorship or exhibitor opportunities please visit www.darca.org or contact DARCA executive director, John McKenzie, via phone or email.
Augmentation for Ditch Companies

When: Tuesday, March 9, 2010
9:30 a.m. to 1:30 p.m.

Where: Leonard Rice Engineers Inc.
2000 Clay Street, Suite 300
Denver, Colorado

Cost: $50 for DARCA/CWC members;
$100 for non-members

Augmentation plans have become very commonplace in the Colorado water rights System since the 1970’s when first introduced. Until the late 1990’s and through 2002 these plans rarely garnered a great amount of attention as to their importance. In the early 2000’s these plans have become very contentious and can drastically affect a ditch company and its members as to their operations, funding, and use of experts.

This workshop will encompass all phases of augmentation including:

- **The basics of augmentation**
  The augmentation plan and what its purposes are and how this can be a common goal of the ditch company, the augmentation plan owner, and others.

- **Uses of augmentation**
  What are the common uses for doing an augmentation plan? Why are they being done, and how to work with these plans to maximize the benefits to the Ditch and shareholders?

- **Decrees and water court proceedings**
  What does a water court augmentation plan look like? What is the key information, which a ditch needs to be concerned about?

- **Recharge operations**
  How is recharge water rights, which are typically associated with augmentation plans, operated and how they can benefit shareholders who do not need the augmentation water.

- **Accounting**
  How do the accounting requirements of the augmentation plan affect the ditch company and strategies of the ditch company to account for all aspects of the operations of both the augmentation plans and normal ditch operations.

This workshop will also focus on understanding augmentation and its common applications throughout Colorado. We will talk about the ditch operations and difficulties of running recharge, accounting for water, and processing the information for use by shareholders, water commissioners, and others. This workshop will also touch briefly on the components of an augmentation plan including recharge water rights, change of use of a ditch water right, fully consumable water within an augmentation plan, and retiming of water through a ditch system or other mechanism.

This workshop will then focus on the typical questions from ditch companies about augmentation in general and other questions the audience has about augmentation information resources available, technology for augmentation plans, and where this process is heading.

The workshop will be facilitated by Heath Kuntz, a Senior Project Hydrologist/Agronomist specializing in augmentation plans, surface water investigations, water rights evaluations, and software design and implementation. Heath has also provided engineering support for numerous clients involved in water court change cases and augmentation plans in the South Platte River Basin. Heath began his career as an Agronomist in 2001 and joined Leonard Rice Engineers, Inc. in 2008. Heath has a Bachelor of Science degree in Soil and Crop Science from Colorado State University, and is a Certified Crop Advisor for Colorado.

DARCA’s Augmentation for Ditch Companies workshop is sponsored by Leonard Rice Engineers Inc., Geo-Spatial Solutions, and Applegate Group Inc.
Past DARCA Workshops

Records Management - Half day
for Ditch Companies
This workshop details the best practices for maintaining and storing ditch company documents. Most ditch companies are nearly a century old, and many have files dating back to the company's inception. In this workshop, learn the best methods for properly storing and cataloguing documents, and how to institute procedures today that will insure files are in order tomorrow. The workshop ends with an optional tour of the Water Resources Archive in Morgan Library at Colorado State University in Fort Collins.

The Power of Microsoft Excel - Spreadsheet Techniques - 1 or 2 Full days
for Ditch Companies
This is a hands-on workshop in the computer lab. The course is designed to teach smart spreadsheet strategies for typical ditch company data processing tasks. Are you awash in data but unsure how to make sense out of it? Would you like to access and use government collected data for your ditch company? This workshop will help solve these problems. After a brief review of basic Excel techniques, we will dive right into collecting data from online sources. We will show you how to use Pivot Tables—a simple but powerful Excel feature that will greatly assist in data evaluation. We'll conclude with demonstrations of advanced spreadsheet techniques. They include a bit of statistics (for the timid) and forecasting available water for the season using historical data. If you've designed your spreadsheet properly, you're more than halfway there. With a little study on your own, or help from an outside professional, you can harness the power of Excel and take your data management to a whole new level.

Flow Measurement - Full day
for Ditch Companies
This workshop is essential for ditch company personnel interested in learning about the latest technologies of measuring, recording and reporting water flows in canals and for on-farm delivery applications. The workshop begins with flow measurement fundamentals: the common units of measurement and the operational benefits of flow measurement. Historical measurement devices, including the Parshall flume, basic operation of all critical flow measurement devices and details on measurement accuracy are on the agenda. The course covers the design and installation of long-throated (Replogle) flumes and broad-crested weirs. These types of flumes have several advantages over the Parshall. They can be custom designed to the user's needs, cost less to construct and are more accurate. Participants are invited to bring their laptop computers to class. WinFlume, a powerful, easy to use software program will be provided. The program allows users to perform a rating analysis on an existing flume or a new flume can be designed. The participants will be instructed in the use of the software and will be able to solve exercises in the afternoon session of the class. Recording devices of all types will be described and Supervisory Control and Data Acquisition, better known as SCADA, will be discussed and presented for flow recording and reporting. The technologies can provide monitoring and control of canal operations from a centralized location. Data and information, such as canal flows and reservoir storage data, can be easily posted to the canal company's web site for management and shareholder access.

GIS - 1 or 2 Full days
for Ditch Companies
This course will provide participants with a basic understanding of Geographic Information Systems (GIS) for use with irrigation system management. We will use ESRI's ArcGIS. Through a hands-on tutorial, the course will provide an overview of GIS and different GIS data types, followed by an introduction to ArcGIS and its various interfaces. You will also be guided through a lesson that uses real data that will likely have immediate utility to your ditch company. Through this workshop you will learn to download data from the Internet, display the data using ArcGIS, make an informative map, edit attributes, digitize your own lines and polygons, and measure distances and areas.

Ditch Hazards Awareness and Safety - Half day
A Meeting and Participatory Workshop
For ditch companies, urban growth has produced unforeseen consequences. Questions surround liability involved with open water in a populated environment. How can we ensure safety and prevent drowning? Safety issues along the ditch are of utmost concern to everyone. Particularly vulnerable are the very young who must be supervised at all times. Ditch water runs cold, at times quite fast, and may pull a person under quickly. Experts will hold a public educational workshop focused on safety issues and drowning prevention along and in the service areas of ditches. The workshop includes a brief contextual statement, a session on the legal aspects of safety, and a participatory workshop to create proactive steps to prevent mishaps and drowning. Representatives from the local ditch companies, officials from the local municipality and county will be present to work with people to create plans. Representatives from other ditch and reservoir companies from all over Colorado are encouraged to attend so that they will be able to adopt similar educational workshops for their respective ditch companies.
Irrigation Scheduling and Flow Measurement - Half or Full day
for Ditch Companies
A review of irrigation water management concepts will be covered. That is, how much water is required for various crops during different stages of growth and at various locations. Sources and reference material on how to estimate or obtain this information will be provided. Next, the concept of irrigation scheduling will be discussed, along with a comparison of different scheduling techniques of varying degrees of complexity. An overview of different irrigation systems types will be presented, including a discussion of how system selection can impact irrigation water management. An overview of the technical and financial assistance options available from USDA-NRCS will be presented. The next section of the training is essential for ditch company personnel interested in learning about the latest technologies of measuring, recording, and reporting water flows in canals and for on-farm delivery applications. This part of the workshop begins with flow measurement fundamentals: the common units of measurement and the operational benefits of flow measurement. Historical measurement devices, including the Parshall flume, basic operation of all critical flow measurement devices and details on measurement accuracy are on the agenda. Flow meters for piped systems will be presented as well.

Financial, Decision, and Risk Analysis - Half or Full day
for Ditch Companies
Sound financial and decision analyses are critical for the success of ditch and reservoir companies. In the context of Colorado water, the problems facing ditch companies are complex and we are awash in huge amounts of data. Decision makers may view these problems and their solutions as linear and sequential when in fact the very nature of the inherent decisions may be more simultaneous, interdependent, or involve uncertainty. Decision and policy makers often throw up their hands and opt for a back of the envelope approach when these problems become too complex. However, affordable solutions can be obtained for most problems with appropriate problem solving skills and the use of desktop computers. The workshop will begin by explaining traditional methods for analyzing projects using the concepts of present value of costs and benefits. Problems arising out of using average values and the assumption of normality will be discussed. Participants will learn why it is important to think about and how to analyze events in the context of risk. They will learn how risk analysis is carried out in leading companies around the world. A tour of various analytical methods and applications including those involving uncertainty will be demonstrated.

Owners’ Guide to Dam Safety, Operation, and Maintenance - Full day
for Dam Owners and Operators
This workshop will identify the importance of dam maintenance and monitoring by briefly discussing past dam failures in Colorado and the USA. This class will discuss often neglected maintenance items that can often lead to costly repairs as well as new maintenance concerns such as the zebra mussel. Standard dam monitoring equipment items such as toe drains, monuments, and piezometers will be discussed in regards to their maintenance and the importance of proper record keeping. The course will explain the State Engineers Office role in the permitting process for new dams and modifications/repairs to existing dams, annual inspections, and overall dam safety. Learn what to expect during a typical dam safety inspection and what the consequences of a fill restriction can be as well as what can be done regarding dam security. We will also briefly touch on the requirements and content of emergency action plans and crisis management. Learn how to proceed with the enlargement/rehabilitation of an existing dam and what some of the typical barriers are to these types of projects such as threatened and endangered species, Clean Water Act regulations and wetlands/fens. Learn what will be required for submittal to the State Engineers Office to obtain a permit and what funding sources and help may be available of these types of projects.

Irrigation District Workshop - Full day
DARCA organized the first-ever meeting of all fourteen Colorado irrigation districts. Irrigation districts are confronting new challenges, especially as their service areas urbanize and give way to subdivision development. The two irrigation statutes, enacted in 1905 and 1921, are difficult to interpret and are at odds with other statutory requirements. Some feel that an overhaul of the irrigation district statutes might be long overdue. The purpose of the workshop is to explore the history and purpose of Colorado’s irrigation districts, identify problematic statutes, and possibly chart a course of action to remedy problem areas common to the 14 districts. This workshop is open to anyone interested in Colorado’s irrigation districts, including board members, managers, staff, legal counsel and engineering consultants.

DARCA has presented these workshops in the past and will present them among others again.
## DARCA Workshop Series Registration & Ditch Company Handbook Orders

<table>
<thead>
<tr>
<th><strong>Workshop</strong></th>
<th><strong>Date/Time/Place</strong></th>
<th><strong>Cost</strong></th>
<th><strong>Qty.</strong></th>
<th><strong>Subtotal</strong></th>
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| Real Estate Law  
*CLE Credit Applied for (4 Hours)* | Friday, 10/30/09  
1 p.m. to 5:30 p.m.  
Glenwood Springs | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Bylaws  
*CLE Credit Applied for (4 Hours)* | Tuesday, 11/10/09  
1 p.m. to 5:30 p.m.  
Cañon City | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Best Management Practices | Tuesday, 12/1/09  
1 p.m. to 4:30 p.m.  
Longmont | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Water Quality and Stormwater Issues  
*CLE Credit Applied for (1.5 Hours)* | Friday, 1/8/10  
1 p.m. to 5 p.m.  
Boulder | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Directors and Officers Training  
(CoCOLORado Water Congress pre-convention workshop)  
*CLE Credit Applied for (4 Hours)* | Wednesday, 1/27/10  
1 p.m. to 5:30 p.m.  
Denver | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Micro Hydroelectric Opportunities  
(DARCA pre-convention workshop) | Wednesday, 2/10/10  
9 a.m. to 4 p.m.  
Durango | DARCA/CWC Members $100  
Members registered for the convention $75 | | |
| | | Non-Members $200  
Non-members registered for the convention $175 | | |
| 8th Annual DARCA Convention  
Agricultural Water: Reinventing Strategies for a New World | Wednesday-Friday, 2/10-2/12/10  
Durango | DARCA/CWC Members $125 | | |
| | | Non-Members $250 | | |
| Augmentation | Tuesday, 3/9/10  
9:30 a.m. to 1:30 p.m.  
Denver | DARCA/CWC Members $50 | | |
| | | Non-Members $100 | | |
| Ditch Company Handbook 3rd Edition | All DARCA members receive a free handbook. These orders are for additional copies. | DARCA/CWC Members $30  
(shipping and taxes included) | | |
| | | Non-Members $60  
(shipping and taxes included) | | |

Please contact DARCA for group rates if you would like to send your board or shareholders.

### Total Due

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**Four Ways to Register:**

- **Phone:** (970) 412-1960
- **Mail:** 1630A 30th St., #431 Boulder, CO 80301
- **Fax:** (303) 516-1202
- **Online:** www.darca.org

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☐ Check enclosed (Payable to DARCA)

☐ Credit Card

- **Card Number** __________________________
- **Credit Card Total $** __________________________
- **Type of Card** □ MC □ Visa □ Discover
- **Expiration Date** __________________________
- **Card Security Code (3 digits on signature strip)** _________

**Signature** __________________________
The second edition of the DARCA Ditch Company Handbook is available now. The first edition was published in 2005 and was provided to members of DARCA to assist them in the operation of their ditch and reservoir companies. That edition contained eight articles written by a diverse team of Colorado water experts. In the new edition, we’ve included 13 new articles, plus revisions of the 2005 edition. Many thanks to the authors who donated their time to provide material for the handbook. Their generosity towards DARCA has enabled this valuable information to become available for water providers across the state. The handbook is available in PDF format as well as on the DARCA Web site for DARCA members only.

- Preface: How Water Ditches Help To Invent and Reinvent Colorado Water—Justice Greg Hobbs, Colorado Supreme Court
- Introduction and Table of Contents
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