

MINERAL RESOURCES DEVELOPMENT WATER NEEDS: WATER SUPPLY CONSIDERATIONS



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ATTORNEYS AT LAW

MINING USES LOTS OF WATER

- ✖ Milling
- ✖ Chemical Refinement
- ✖ Leaching
- ✖ Power Production



Photo: Telesto Solutions, Inc.



MINING WATER USES

- ✖ Slurry and Tailings Pipelines
- ✖ Dust Control
- ✖ Potable Uses



No matter what level of technology your mine uses, water is an indispensable part of the process!



BASIC PRINCIPLES OF WESTERN WATER LAW

- ✕ Prior Appropriation
 - + First in Time, First in Right
 - + Details Vary By State
 - + Priority Calls Can Curtail Junior Rights



Active Calls

Division 1 - South Platte

State of Colorado

HydroBase

Main Stem Calls

Start Date	End Date	Water Source	WDID	Structure Name	Appro Date	Admin No	Decreed Amt	Districts Affected	Set Comments	Release Comments
2012-05-16 08:00	Active	SOUTH PLATTE RIVER	6499999	SOUTH PLATTE RIVER	1897-06-14	17332.00000	120.0000 CFS	64		
2012-07-12 08:00	Active	SOUTH PLATTE RIVER	6400511	HARMONY DITCH 1	1897-05-03	17290.00000	50.0000 CFS	64		
2012-07-20 08:00	Active	SOUTH PLATTE RIVER	6400503	SOUTH RESERVATION DITCH	1895-03-01	17846.16496	164.0000 CFS	64		BYPASS CALL FROM 6400515 - HARMONY DITCH 2
2012-07-21 08:00	Active	NO FK REPUBLICAN RIV	6500506	HAIGLER LAND CATTLE CO D	1890-04-04	14704.00000	50.0000 CFS	65		BYPASS CALL FROM 6400504 - PETERSON DITCH
2012-08-07 06:58	Active	SOUTH PLATTE RIVER	6400528	STERLING IRR CO DITCH 1	1882-06-22	11861.00000	126.0000 CFS	1, 2, 3, 64		PIONEER DITCH WDID 6500520
2012-08-07 07:00	Active	SOUTH PLATTE RIVER	0200834	LOWER LATHAM DITCH	1877-11-14	10180.00000	97.6800 CFS	2, 4, 5, 6		BYPASS CALL FROM 6400533 - PAWNEE DITCH
2012-08-19 08:00	Active	SOUTH PLATTE RIVER	0200825	HEWES COOK DITCH	1866-05-05	5969.00000	26.8930 CFS	2		
2012-08-30 08:00	Active	SOUTH PLATTE RIVER	0200824	FARMERS INDEPENDENT D	1866-05-01	5965.00000	26.2300 CFS	2, 7, 8, 9, 23, 80		BYPASS CALL FROM 0200821 - MEADOW ISLAND 1 DITCH

Tributary Calls

Start Date	End Date	Water Source	WDID	Structure Name	Appro Date	Admin No	Decreed Amt	Districts Affected	Set Comments	Release Comments
2012-08-06 08:00	Active	BIG THOMPSON RIVER	0400502	BIG T PLATTE R DITCH	1865-11-18	5801.00000	35.0000 CFS	4		
2012-08-14 12:00	Active	SOUTH BOULDER CREEK	0600582	JONES DONNELLY DITCH	1860-06-01	3805.00000	26.0800 CFS			BYPASS CALL FROM 0600592 - SCHEARER DITCH
2012-08-16 08:00	Active	CLEAR CREEK	0700547	CLEAR CR PLATTE RIVER D	1861-11-01	4323.00000	49.5000 CFS	7		
2012-08-18 08:00	Active	ST VRAIN CREEK	0500551	PELLA DITCH	1865-05-01	5600.00000	50.5114 CFS	5		BYPASS CALL FROM 0500545 - LONGMONT SUPPLY DITCH
2012-08-28 08:00	Active	BOULDER CREEK	0600515	BOULDER WELD CTY DITCH	1863-04-01	4839.00000	2.5000 CFS			
2012-08-29 09:00	Active	BOULDER CREEK	0602100	BOULDER CR MIN FLOW C	1862-06-01	4535.00000	10.7350 CFS			BYPASS CALL FROM 0600543 - N BOULD FARMER DITCH
2012-09-01 08:00	Active	BIG THOMPSON RIVER	0400523	HILLSBOROUGH DITCH	1864-05-01	5235.00000	7.6700 CFS	4		BYPASS CALL FROM 0400519 - FARMERS IRR CANAL
2012-09-02 08:00	Active	LITTLE THOMPSON CR	0400602	SUPPLY LATERAL DITCH	1867-04-15	6314.00000	18.5900 CFS	4		
2012-09-02 08:00	Active	LITTLE THOMPSON CR	0400603	W R BLOWER DITCH 1	1869-04-01	7031.00000	27.3000 CFS	4		
2012-09-04 08:00	Active	BEAR CREEK	0900963	WARRIOR/HARRIMAN DITCH	1861-12-01	4353.00000	6.1445 CFS	9		BEAR CREEK ONLY

Report Date: 9/4/2012

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BASIC PRINCIPLES OF WESTERN WATER LAW

- ✗ Beneficial Use
- ✗ Quantity Shown on Decree or Permit Not Necessarily “True Right”
- ✗ Examples
 - + Colorado: Conditional Rights
 - + New Mexico: Permits

BASIC PRINCIPLES OF WESTERN WATER LAW

✕ Corollary to Beneficial Use Requirement – Water Rights Can Be Lost Due to Non-Use

+ Forfeiture

- ✕ Statutory
- ✕ No Intent
- ✕ Set Number of Years

+ Abandonment

- ✕ Intent to Abandon Required – But Presumed After Unreasonable Time

GROUNDWATER

- ✖ Some States - Prior Appropriation Is Default
- ✖ Other States – Different Standards
 - + Reasonable Use
 - + Rule of Capture



GROUNDWATER

× Colorado

- + Groundwater Presumed Tributary – Therefore Prior Appropriation Applies
- + Nontributary Groundwater
 - × 1% Over 100 Year Standard
 - × Allocated Based on Land Ownership
 - × Still Need a Well Permit or Decree
 - × Mine Dewatering

GROUNDWATER

✕ New Mexico

- + Connection Between Groundwater and Surface Water Is Recognized
- + State Engineer Has Jurisdiction Over Declared Groundwater Basins – Now Includes Entire State
- + Groundwater Basins Have Unique Criteria For Administration of Groundwater Rights
- + Mine Dewatering Act

HOW TO ACQUIRE A LEGAL WATER RIGHT

- ✘ Option A: Appropriate a New Water Right
 - + This option is only viable if there is “unappropriated water available”
 - + Services of a Water Resources Engineer – necessary to determine physical and legal availability of water



Photo: Telesto Solutions, Inc.

HOW TO ACQUIRE A LEGAL WATER RIGHT

- ✗ Option B: Acquire Existing Senior Water Rights
 - + New Water Right May Be Unreliable
 - + Existing Rights: Must Change Point of Diversion, Place and Purpose of Use
 - + General Standards:
 - ✗ No Injury to Existing Rights, Even if Junior in Priority
 - ✗ No Enlargement Beyond Historical Beneficial Use
- ✗ Often, a Project Will Require Both New Junior Water Rights and Acquisition of Existing Senior Rights

HOW TO ACQUIRE A LEGAL WATER RIGHT

✕ Reservoir Storage Right:

- + Can Be Used to “Firm Up” a Junior Water Right
- + Regulate Intake at Mine
- + Provides a Source to Maintain Historical Return Flows



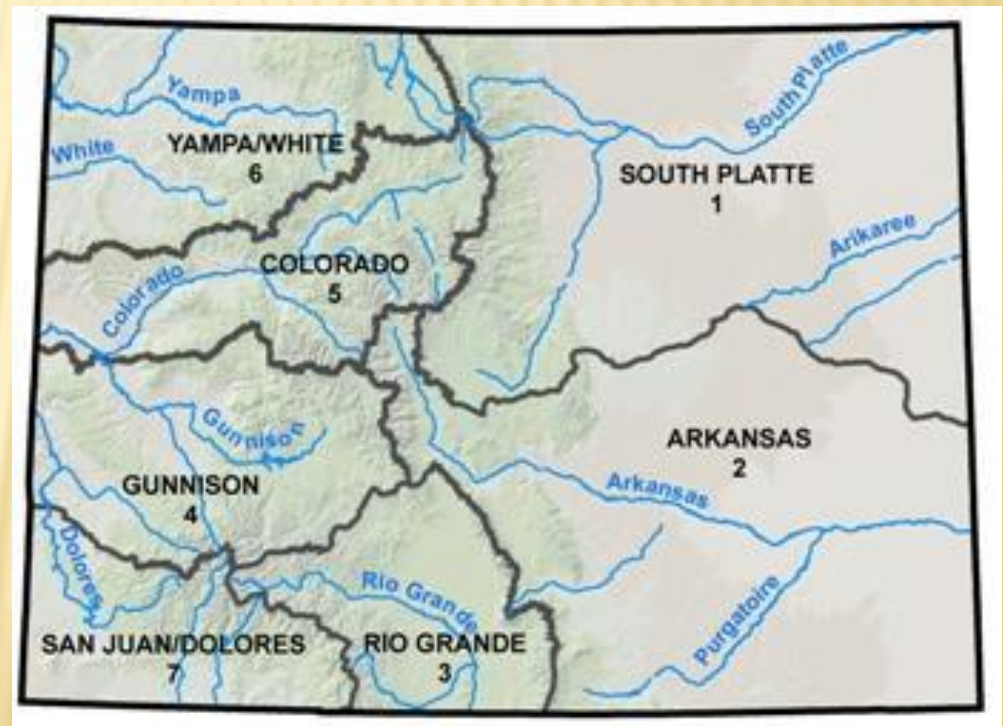
Photo: Telesto Solutions, Inc.

HOW TO ACQUIRE A LEGAL WATER RIGHT

✗ Application Process

+ Colorado: Apply to the Water Court

- ✗ Public Notice Process
- ✗ Parties Can File Statements of Opposition
- ✗ Case Initially Assigned to Water Referee
- ✗ If Not Resolved Within One Year to 18 Months, Case is “Re-referred” to Water Judge



Source: Colorado Department of Water Resources

HOW TO ACQUIRE A LEGAL WATER RIGHT

✗ Application Process

- + Permit States: Apply to Governing State Agency

- ✗ Public Notice Process Will Still Apply

- ✗ If Application Protested, Administrative Litigation Procedure Ensues

- ✗ If Application Is Not Protested, Then State Agency Will Independently Analyze Application, and May Approve Subject to Terms and Conditions

- ✗ Regardless of Location– Plan for a Long Wait From Initial Application to Final Approval!!!

PHYSICAL CONSIDERATIONS FOR MINING USES

- ✖ Mines Have Unique Challenges Compared to Other Water Users
 - + Location



PHYSICAL CONSIDERATIONS FOR MINING USES



- ✘ Mines Can Be Far From the Water Supply

PHYSICAL CONSIDERATIONS FOR MINING USES

- ✗ Sometimes Wells Near Mine Will Not Work
- ✗ Gravity Delivery May Not Be an Option



PHYSICAL CONSIDERATIONS FOR MINING USES

✗ Delivery Options

+ Long Pipelines

- ✗ Expensive
- ✗ Raise Various Permitting Issues Unrelated to Water Rights

+ Exchange



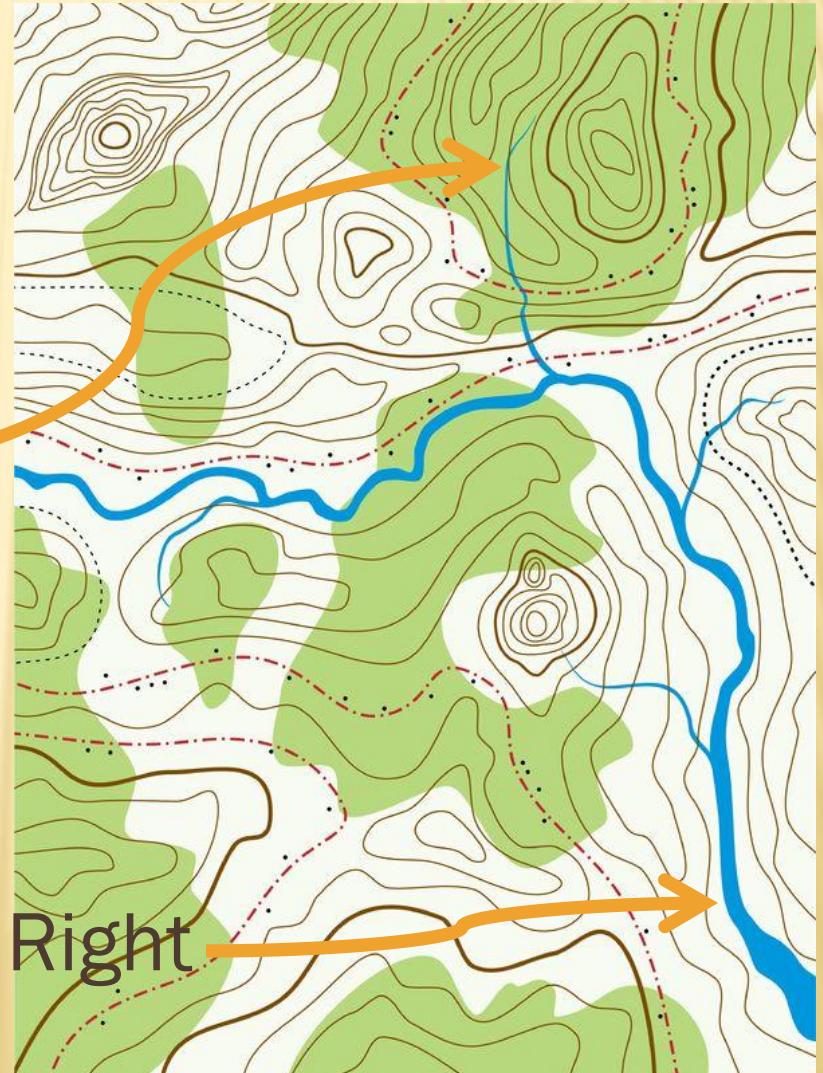
PHYSICAL CONSIDERATIONS FOR MINING USES

Exchange Concept:

Simultaneously Deliver
Substitute Supply Downstream
While Diverting Like Amount
Upstream

Location of Mine

Location of Existing Water Right



UNIQUE MINING CONSIDERATIONS

- ✖ Over Time, Water Diversion Sources Can Change



Photos: Telesto Solutions, Inc.

UNIQUE MINING CONSIDERATIONS

- ✖ Old Mine Workings Can Become a Source of Water
- ✖ Storm water – Another Potential Source



UNIQUE MINING CONSIDERATIONS

- ✖ Tailings Ponds Can Be Used to Recycle Water Back Through System
- ✖ But – Make Sure Water Rights Are Reusable



PROTECTING WATER RIGHTS FROM LOSS

- ✖ When Water Needs Temporarily Cease or Are Reduced, Consider Options For Protecting Water Rights
 - + Temporary Leasing
 - + Rotation of Use
 - + Other Options

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