

URGWOM Technical Review

October 14, 2004

Introduction

- Additional Rio Grande storage accounts in El Vado Reservoir
- Target flows (minimums) in middle valley

Additional Rio Grande storage accounts in El Vado Reservoir

- Needed because of EDWA – 2003-2005
 - Article VII of Rio Grande Compact
 - Relinquished NM credit to allow storage
- Additional RG accounts in the El Vado reservoir object
 - Accounting, Water Operations and Planning models (latest versions)
 - MRGCDDrought, SupplementalESA, IndianStorage, RioGrande
- CADSWES
 - Updated El Vado Loss Calculation Method
 - Proportion losses based on storage amount

Open Object - ElVado

File Edit View Slot Account

Object Name: ElVado

Slots Methods Accounts

Selected Method: El Vado Loss Calculation

Category	Method
energyInStorageCalcCategory	noEIS
spillCalculationCategory	regPlusUnregSpillCalc
Unregulated Spill Type	Bare Crest Only
Input Outflow Adjustment	No Outflow Adjustment
FutureValueCalcCategory	noFutureValueCalc
hydrologicInflowCalculationCategory	Hydrologic Inflow and Loss
Evaporation and Precipitation	CurrentSurfaceAreaPanAndIce
Surcharge Release Calculation	None
Flood Control Release Calculation	None
bankStorageCalcCategory	NoBankStorage
Seepage Calculation	No Seepage
targetOperationCalculationCategory	noTargetCalc
SedimentCalculationCategory	NoSedimentCalc
Diversion from Reservoir	No Diversion
Uncertainty Calculation	No Uncertainty
Storage Account Gain Loss	El Vado Loss Calculation
Storage Account Slot Inflow	Zero Slot Inflows
Reservoir Reconciliation	ElVadoReconcileRioGrandeOutflow

- Slots
- Acco
 - Espa
 - India
 - mean
 - LosA May 7, 2004
 - LosA May 8, 2004
 - LosA May 9, 2004
 - LosA May 10, 2004
 - LosL May 11, 2004
 - LosL
 - LosL
 - MRG
 - MRG
 - MRG December 31, 2003
 - MRG January 1, 2004
 - MRG January 2, 2004
 - MRG January 3, 2004
 - NMIS January 4, 2004
 - Namt
 - Namt
 - Reck

SupplementalESA ElVado -- RioGrande StorageAccount

Inflow cfs	Outflow (Supplem cfs	Gain Loss cfs	Slot Inflow cfs	Transfers In (RioG cfs	Storage acre-ft	Accrual acre-ft
		M -2.62	M 0.00		A 15449.66	A 15584.96
		M -3.37	M 0.00		A 15442.98	A 15584.96
		M -2.40	M 0.00	I 10083.33	A 35438.21	A 35584.96
		M -7.81	M 0.00		A 35422.73	A 35584.96
		M -4.40	M 0.00		A 35414.00	A 35584.96

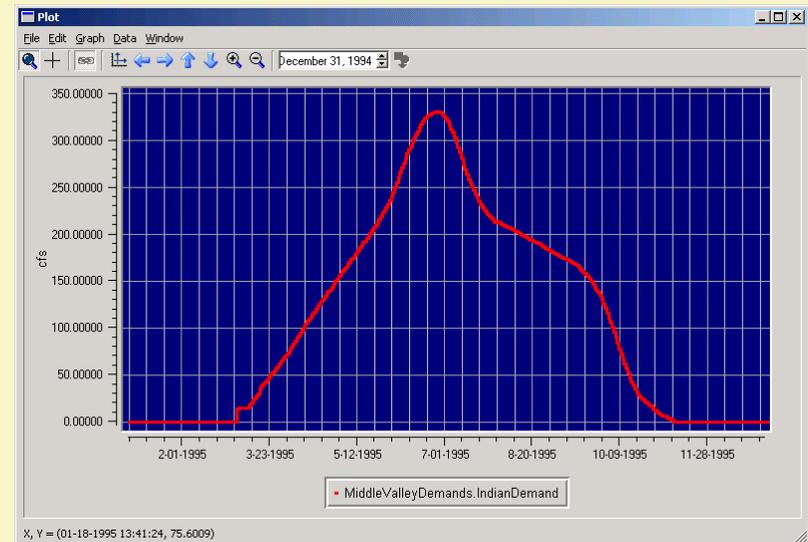
Maximum Accrual acre-ft	Flow Allocation cfs	Begin Year Allocati acre-ft	Carry Over acre-ft
			M 0.00

RedRiverHeronAlbuquerqueAbiquiu	PassThroughAccount	SanJuan
RedRiverHeronRGDtowi	PassThroughAccount	SanJuan
RioGrande	StorageAccount	RioGrande
SantaFe	StorageAccount	SanJuan
SantaFeElVadoLosAlamosElVado	PassThroughAccount	SanJuan
SantaFeHeronAlbuquerqueAbiquiu	PassThroughAccount	SanJuan
SantaFeHeronRGDtowi	PassThroughAccount	SanJuan
SantaFeHeronSantaFeAbiquiu	PassThroughAccount	SanJuan
SupplementalESA	StorageAccount	RioGrande
Taos	StorageAccount	SanJuan
TaosHeronAlbuquerqueAbiquiu	PassThroughAccount	SanJuan
TaosHeronRGDtowi	PassThroughAccount	SanJuan



Water Operations and Planning Models

- Rules to put water into and take water from RG accounts
 - IndianStorage
 - First to fill (up to required storage)
 - Released to meet Indian Demand



Water Operations and Planning Models

- Rules to put water into and take water from RG
 - MRGCDDrought and SupplementalESA
 - Used when under Article VII and relinquished NM credit available
 - Filled at same time (proportionally) up to EDWA agreed amounts
 - MRGCDDrought released to help meet MRGCD demand
 - SupplementalESA released to meet minimum target flows

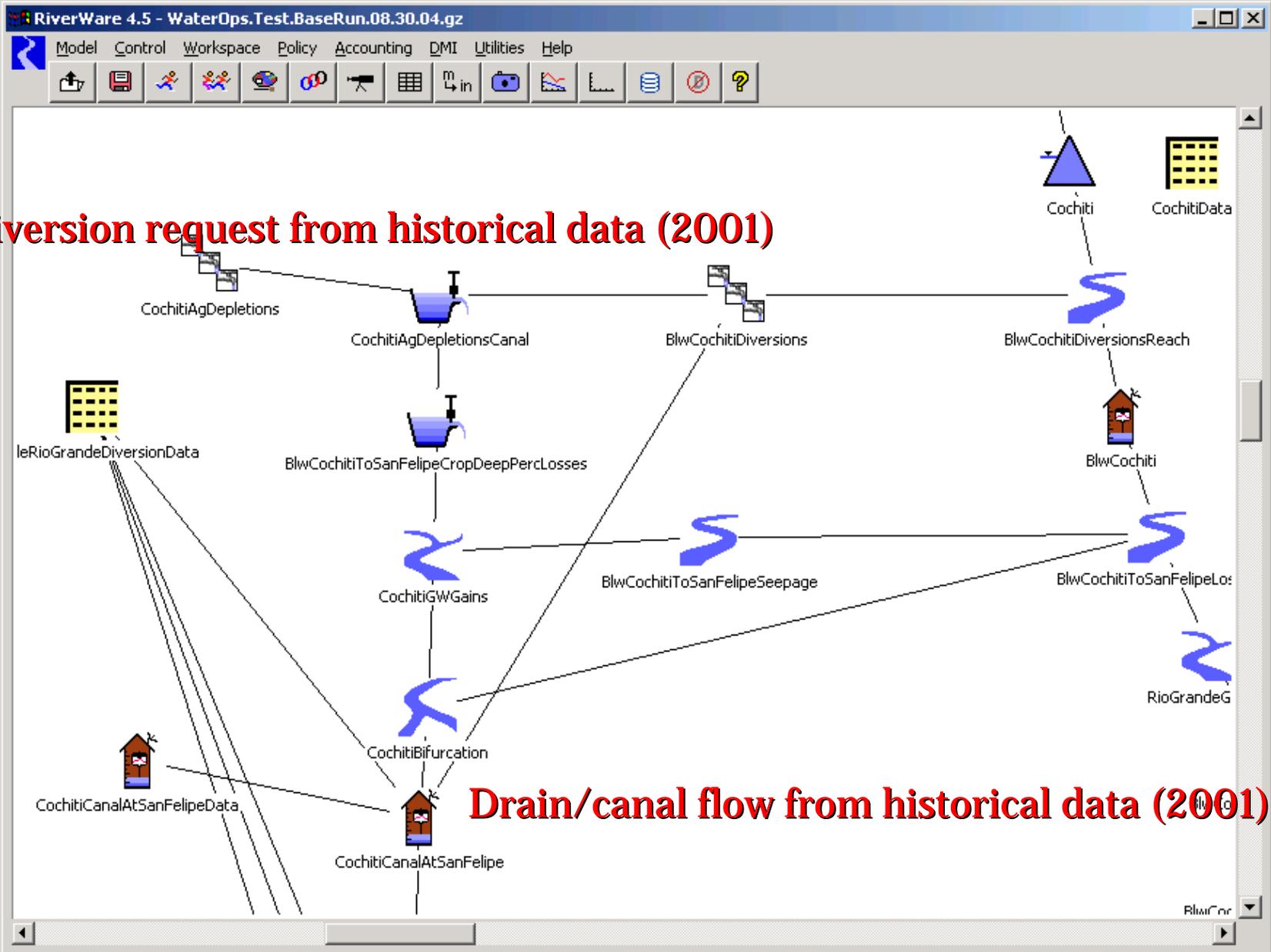
Water Operations and Planning Models

- Rules to put water into and take water from RG accounts
 - Rio Grande
 - Used to meet MRGCD demand (when not under Article VII)
 - MRGCDDrought and SupplementalESA not used

Target flows (minimums) in middle valley

- During test runs, noted over-delivery of water to meet target(s)
 - Water was meeting not only target but also the historical diversion request(s)
 - Required rules limiting (shorting) the diversion request(s) to what is available, before water is released to meet target(s)
 - Also required a method (in a streamgage object) to replace rule(s) to reduce drain/canal flows when the computed diversion is less than the historical diversion request(s)

Ruleset Editor - "waterops.ruleset.09.13.04.TestIndianStorageInflow.gz"				
File	Edit	Ruleset	View	Rplset Not Loaded
Priority	On	Name	Type	
Diversions And Demands <i>Policy Group</i>				
141	✗	AbiquiuTotalFlowToMeetTarget	Rule	
142	✓	AbiquiuTotalFlowToMeetTargetTEST	Rule	
143	✓	SetEstimatedAbiquiuToCochitiLosses	Rule	
144	✓	SetMinAbiquiuRGRelease	Rule	
145	✓	ComputedMinAbiquiuRGRelease	Rule	
146	✓	SetMinEIVadoMRGCDRelease	Rule	
147	✓	Indian Storage Requirement Release	Rule	
148	✓	SetEIVadoMRGCDDemand	Rule	
149	✗	SetRaftingRelease	Rule	
150	✗	Indian Storage Requirement Release1	Rule	
151	✓	SetAbiquiuMRGCDDemand	Rule	
152	✓	ComputeAbiquiuMRGCDDemand	Rule	
153	✓	SetCochitiMinimumFlow	Rule	
154	✓	ComputeReleaseToMeetMinimumSanMarcialFlow	Rule	
155	✓	ComputeReleaseToMeetMinimumSanAcaciaFlow	Rule	
156	✗	ComputeReleaseToMeetMinimumSanAcaciaFlow1	Rule	
157	✓	ComputeReleaseToMeetMinimumIsletaFlow	Rule	
158	✓	ComputeReleaseToMeetMinimumCentralFlow	Rule	
159	✗	ComputeReleaseToMeetMinimumCentralFlow1	Rule	
160	✓	Shorted Middle Valley Depletions	Rule	
161	✗	Shorted Middle Valley Diversions	Rule	
162	✗	Shorted Middle Valley Diversions1	Rule	
163	✓	Shorted IsletaToSanMarcial Diversions	Rule	
164	✓	Shorted CochitiToCentral Diversions	Rule	
165	✗	MiddleValleyMinBypassesWhenDivShorted	Rule	
166	✗	MiddleValleyMinBypassesWhenDivShorted1	Rule	
167	✓	InitialFlowToMeetSanMarcial	Rule	
168	✓	InitialFlowToMeetSanAcacia	Rule	
169	✓	InitialFlowToMeetIsleta	Rule	
170	✓	InitialFlowToMeetCentral	Rule	
171	✗	SetInitialFlowsForDebugging	Rule	
172	✗	Set Estimated BlwCochiti And BlwJemez Flow In Fu	Rule	
173	✗	Set Estimated Cochiti InflowTEST	Rule	
174	✓	Set Estimated Cochiti Inflow	Rule	

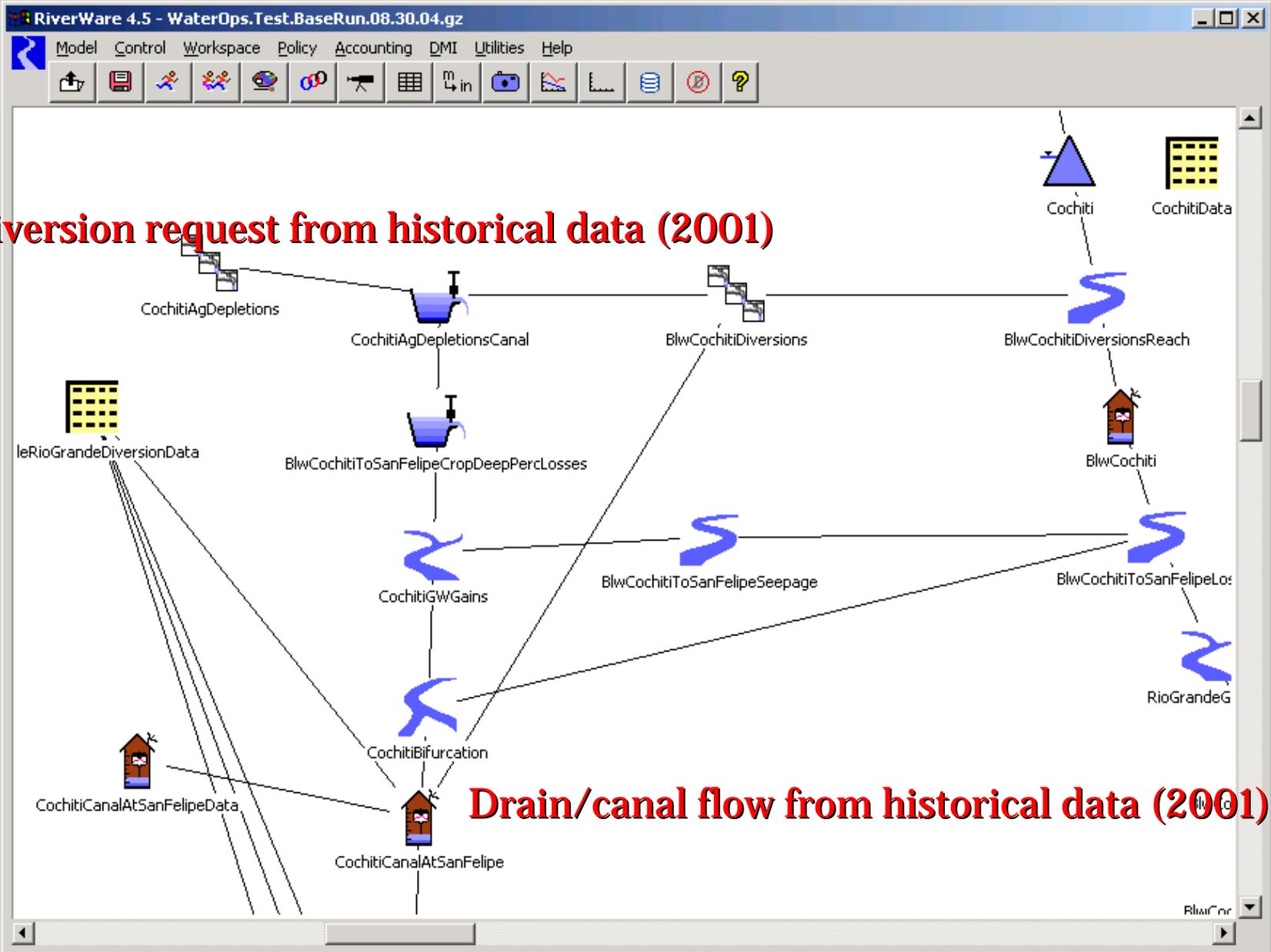


Diversion request from historical data (2001)

Drain/canal flow from historical data (2001)

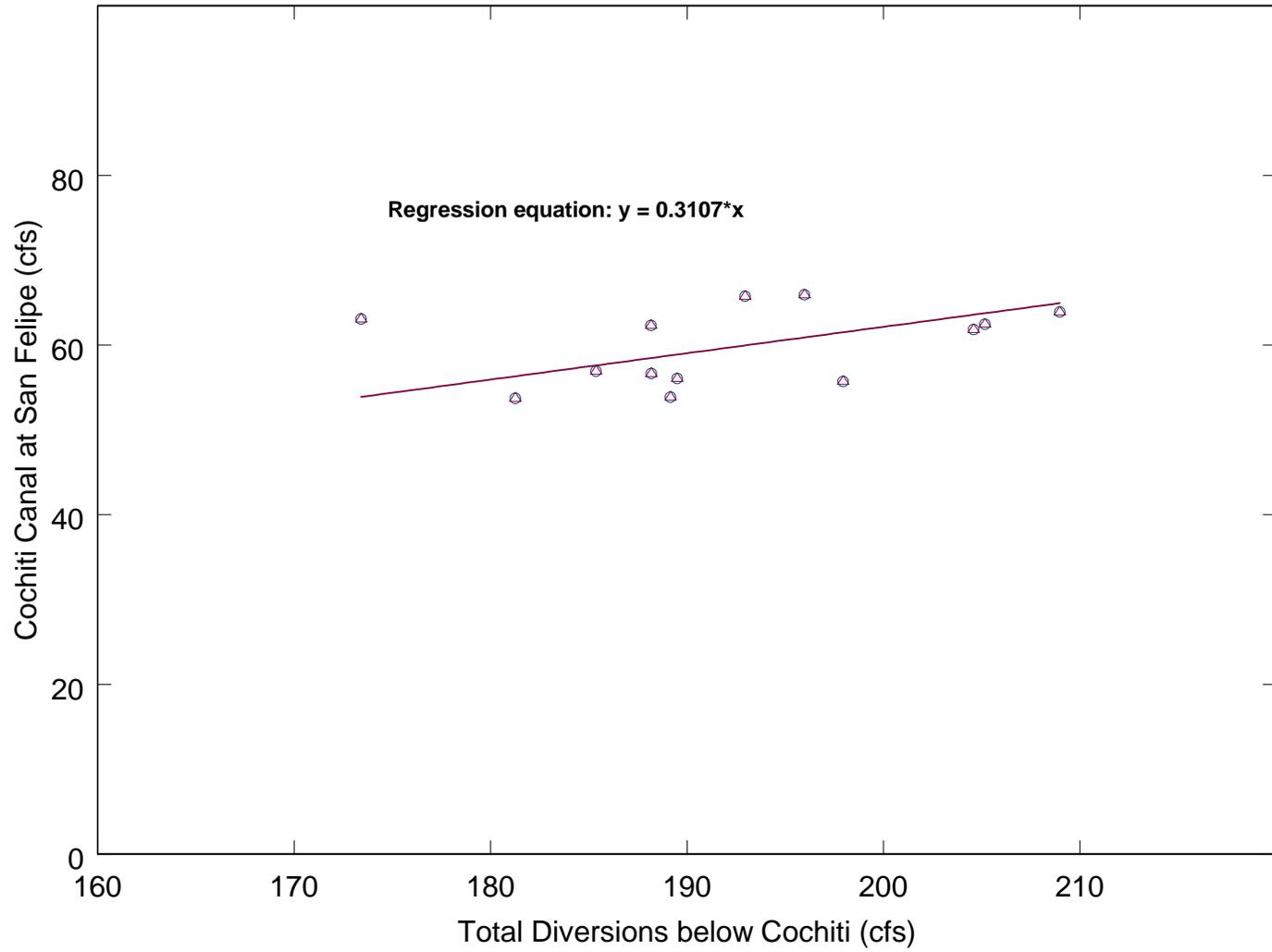
Method Logic

If Condition 1 < Condition 2
then Condition 1 * loss factor
else
Condition 2



Diversion request from historical data (2001)

Drain/canal flow from historical data (2001)



Open Object - CochitiCanalAtSanFelipe

File Edit View Slot Account

Object Name: CochitiCanalAtSanFelipe

Slots Methods Accounts

December 31, 1994

Slot Name	Value	Units		
Gage Inflow	NaN	cfs	L	X
Gage Outflow	NaN	cfs	L	X
Normal Flow	NaN	cfs	L	X
Condition One	NaN	cfs	L	X
Condition Two	NaN	cfs	L	X
Loss Factor				

Edit Slot: CochitiCanalAtSanFelipe.Loss F...

File Row Column View

Loss Factor

Units: NONE

	Fraction	Constant
0:00 January 1	0.31	0.00

Interpolate
 Lookup
 Annual Period, Irregular Interval