TETRA TECH

Progress of Work: Loss Coefficient Review & Update, Database Update, and Colorado Portion Model Improvements

URGWOM Advisory Committee Meeting

Loss Coefficients: Described

- Loss coefficients model ungaged losses for reaches outside Middle Valley (includes: seepage out, open water evaporation, other unmodeled losses)
- Local inflows model gains, dependent upon loss coefficients (includes: ungaged inflows, seepage in, model error, gage error).
- Loss coefficients are fraction rates with units of flow lost per flow in river.

Loss Coefficients: Update

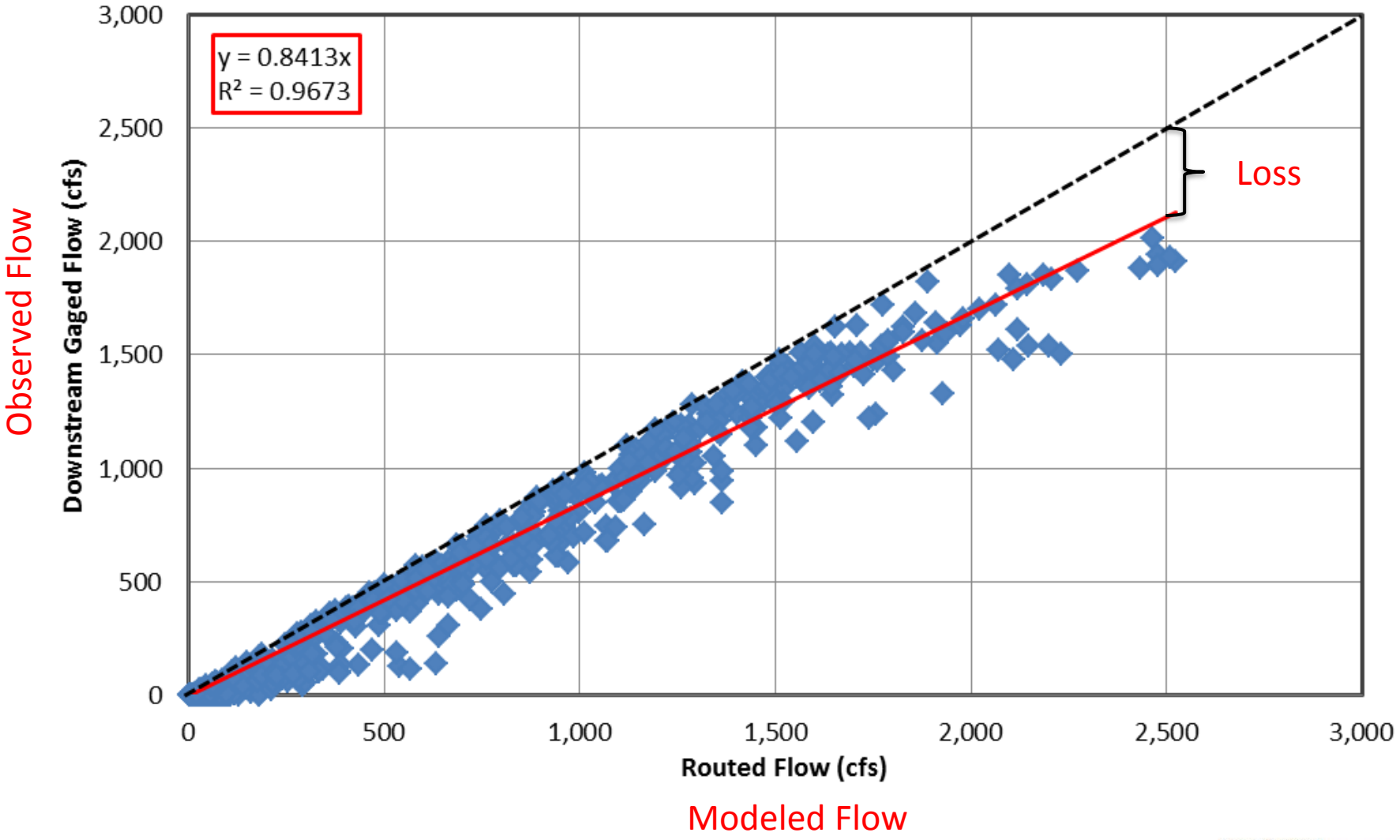
Motivation for Update:

1. Understand impacts of recent dry hydrology on losses
2. Transition to real time modeling requires new, physically based approach

Method to Calculate Updated:

1. Same as outlined in Physical Model (PHYMOD) documentation
2. New method should be developed in the future

Loss Coefficients: Computations



Loss Coefficients: Results

Recommendations

- Adopt updated loss coefficient in: (1) all reaches in Colorado, (2) all reaches along the Rio Chama, and (3) the Otowi to Cochiti reach
- Perform sensitivity analysis

- Final draft memo will be submitted soon

Technical Team Consensus

- Adopt new loss coefficients in all Colorado reaches
- Wait to adopt new loss coefficients in New Mexico reaches until new methodology is developed

Database Update: Described

- Developed and maintained using HEC-DSSVue 2.0.1
- Contains time series records needed to run URGWOM or analyze results (gage flows, reservoir data, ET rates, etc.)
- Some records are historical (e.g., gage flows, reservoir data), some synthetic (e.g., local inflows, projected ET rates)
- Currently includes data from 12/31/74 to 9/30/10 or 12/31/10

Database Update: Progress and Needs

Forwards

- All records being updated to 12/31/12 (some only to 9/30/12)
- Update is complete for all records except local inflow
- Local inflows will be calculated by end of the month

Backwards

- Limited records (reservoir weather, gage data, local inflows, projected ET) are being expanded back to 1/1/50 (or as far back as data is available)
- Expansion is complete except for local inflow
- Local inflows will be calculated by end of month

CO Portion Model: Background

- Test RiverWare model developed in 2013 by Boroughs H & H
- Used to improve forecast flows at the Lobatos gage for long-term planning studies and Annual Operating Plan (AOP) simulations
- Boroughs H & H recommended improvements; CADSWES reviewed and recommended improvements
- Ultimately CO model will be combined with URGWOM

Colorado Portion Improvements: Tasks

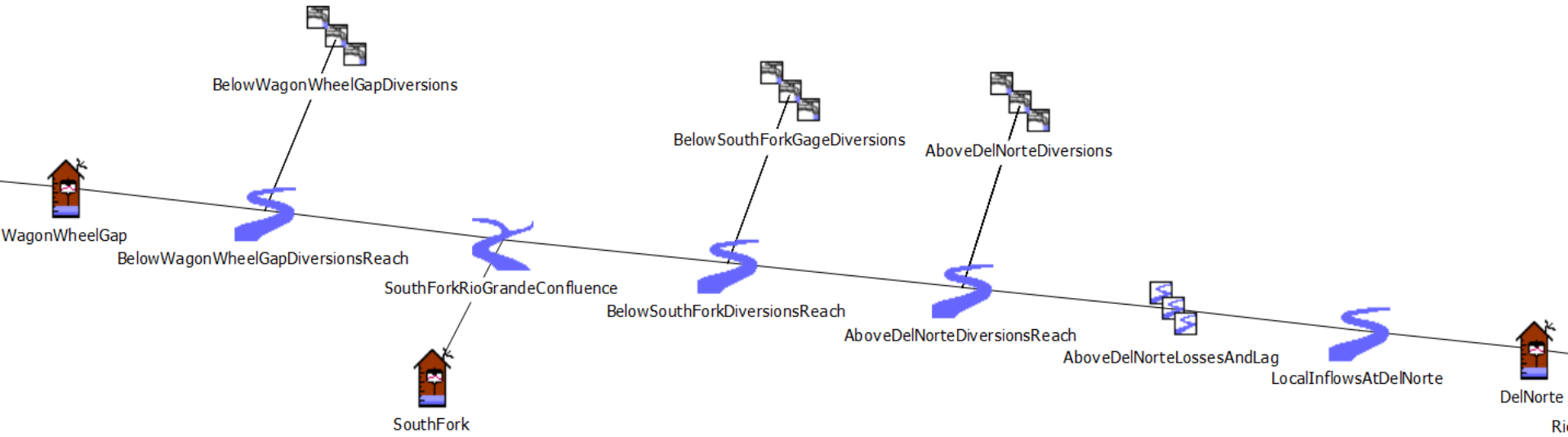
Improvement Tasks

1. Accounting Model Layout
2. Ruleset Improvement and Descriptions
3. Review Existing Compact Calculation Methods
4. Coordinate with CDWR to determine Article VII operations of Platoro
5. Consider Alternatives for Combining CO and NM models
6. Add Rio Grande and Santa Maria Reservoir

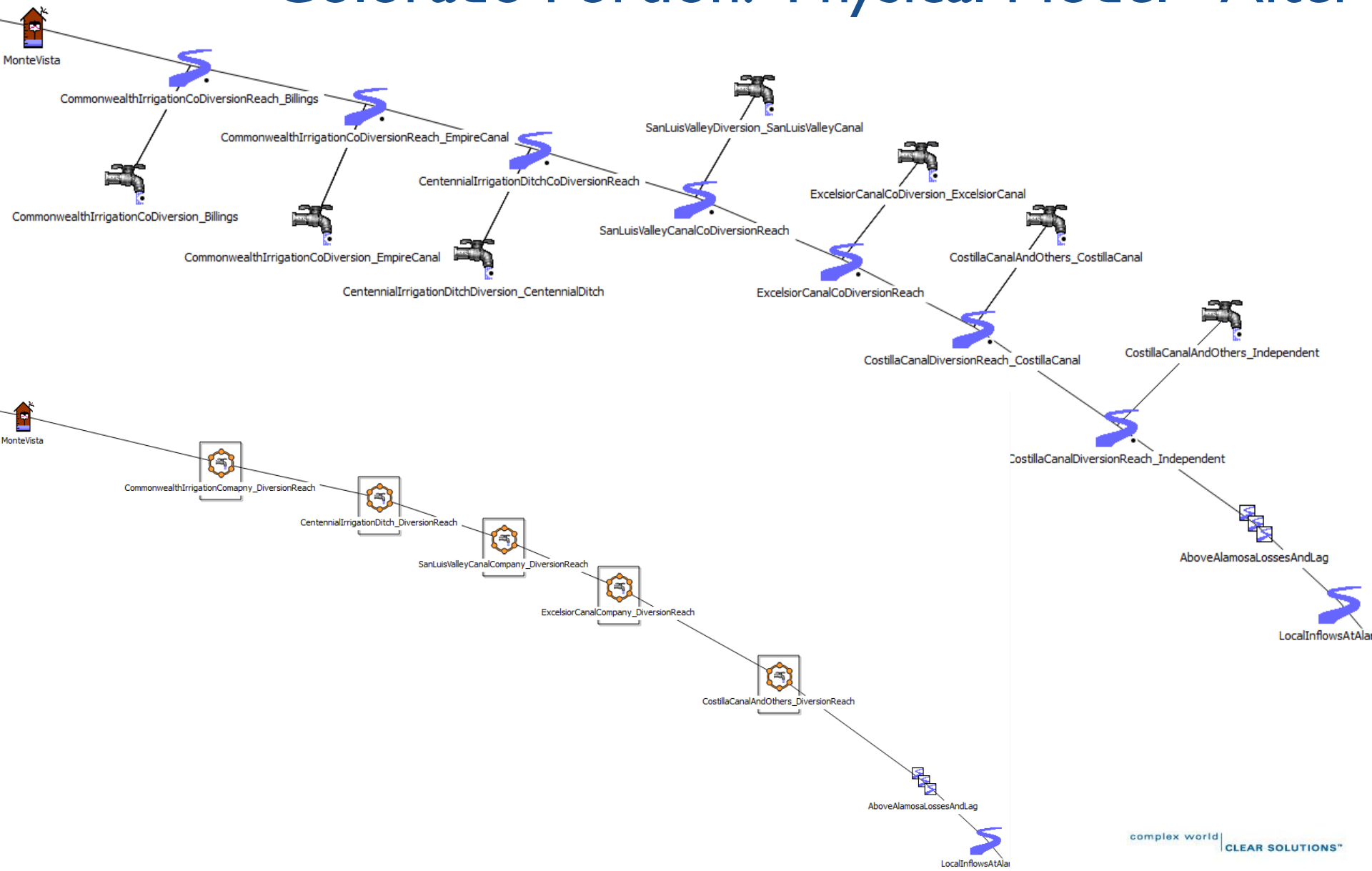
CO Portion: Accounting Model

- Test Accounting model was not correctly setting return flow supplies
- CADSWES recommended changing to individual water user objects to remove complexity of aggregated water users
- Changes completed as recommended
- To simplify view, objects added to object clusters
- Colors added to improve aesthetic, usability
- Changes increase model flexibility

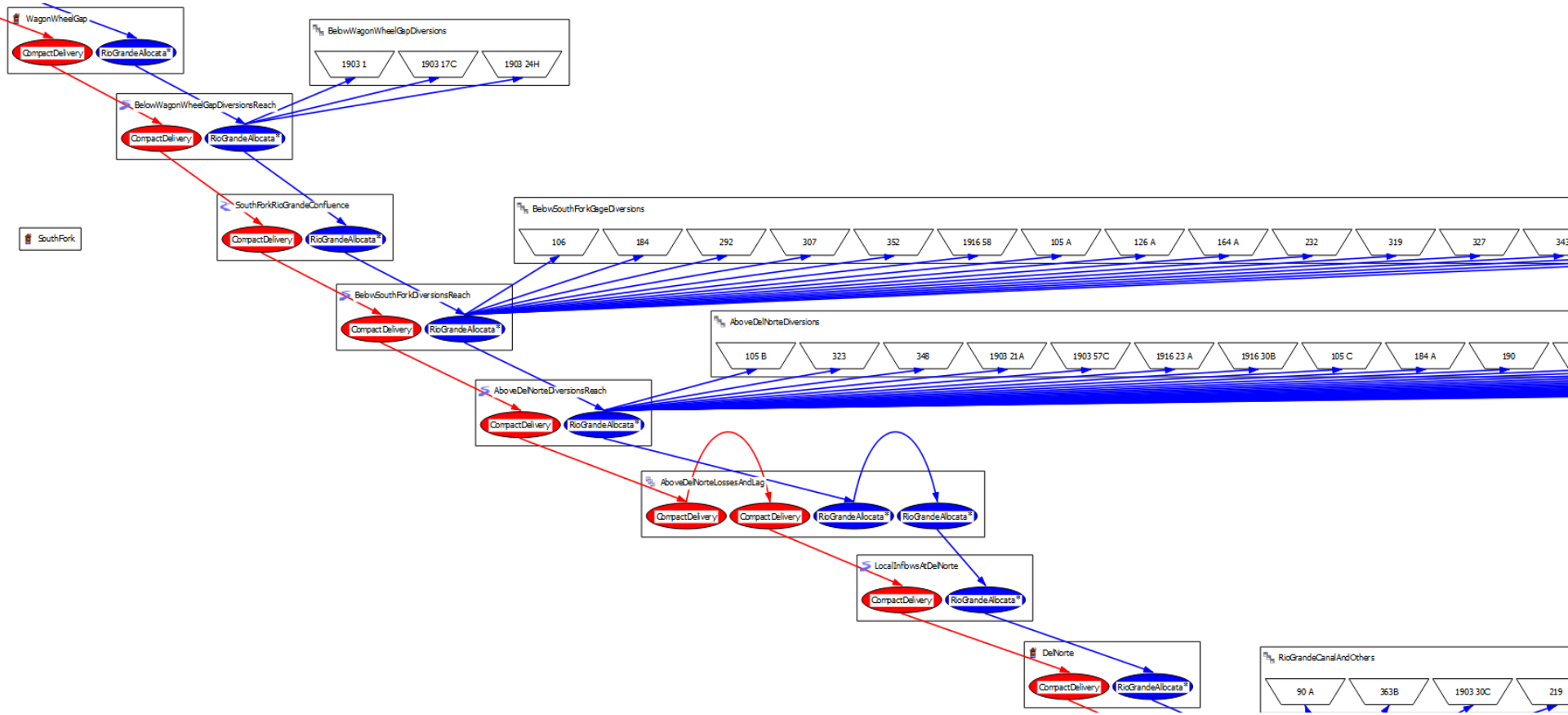
Colorado Portion: Physical Model - Before



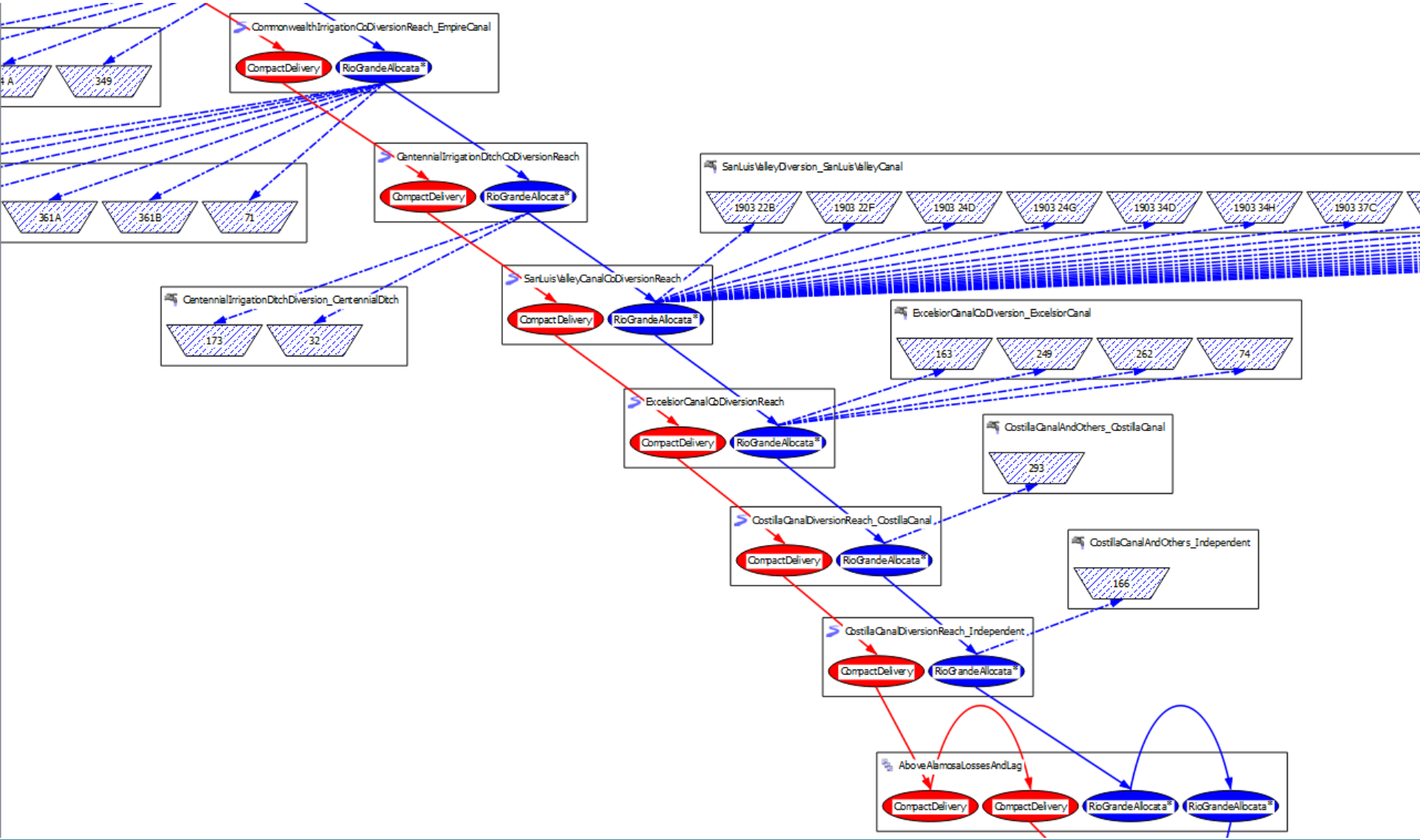
Colorado Portion: Physical Model - After



Colorado Portion: Accounting Model - Before



Colorado Portion: Accounting Model - After



CO Portion Model: Tasks Completed

Ruleset Descriptions and Changes

- Draft descriptions added for all rules
- Needed rule changes made after because of accounting model improvements

Rio Grande & Santa Maria Reservoirs

- Technical Team decided not to add because they will not contribute anything significant to model

Accounting Model Layout Improvements

CO Portion Model: Remaining Tasks

Review Existing Compact Calculation Methods

- Work has started
- Will check the accuracy of current methods against the Compact and historical flows

Coord. w/ CDWR to determine Article VII ops at Platoro

- Have initiated communication & met w/ CDWR at Platoro

Consider Alternatives for Combining CO and NM models

- Work has not started, final activity

- All work will be shared with Technical Team in a report