

RGDSS Memorandum

Final

TO: Ray Bennett
FROM: Ed Armbruster, Hydrosphere
SUBJECT: RGDSS Surface Water, Task 1.3 – Develop Preliminary List of Key Structures
DATE: April 7, 1999
CC: Randy Seaholm

Introduction

This memorandum represents the delivery requirement associated with Task 1.3, Develop Preliminary List of Key Structures. The objective of this task is as follows:

Develop a list of key surface diversions and reservoirs in the Rio Grande Basin, i.e. those that will be explicitly represented in the surface water model.

Watright DMI Results

The DMI watright was used to access the State's database, HydroBase, and develop initial listings of all surface diversion structures, reservoir structures and instream flow rights in Division 3 as a whole, and then separately for each of the eight Water Districts within Division 3. These structure and water right listings are presented in **Attachments 1, 2 and 3**, with records shown in order of descending decreed amounts. For surface diversion and reservoir structures, the decreed amounts shown are the total amount decreed to the structure under all rights (many of the structures have multiple water rights). Also shown in the listings of Attachment 1, 2 and 3 are cumulative percentages for the entire Division (or District) and the acreages irrigated under the different structures.

Key Structure Selection Criteria

For purposes of the RGDSS study, key structures were defined as those that significantly effect water rights administration in the Division or District. The listings in Attachments 1, 2 and were used to develop a first cut identification of key structures. This first cut included all structures that represented a cumulative total of 75 percent of the water rights decreed in each District. Additional criteria were then used to evaluate structures, including

- total decreed water right amount under the structure (greater than 5 cfs or greater than 10 cfs;
- water right priority, either senior or swing rights as identified by the water commissioner during the interview;
- relatively large amounts of land irrigated under the structure (250 acres and greater); and
- represented in previous modeling efforts.

In general, if a structure or right met one or more of these criteria it was considered key, and will be represented explicitly in the surface water modeling effort. Other structures will be represented in an aggregate fashion. The identification of key reservoirs was generally based on the sizes of storage decrees, and other information regarding whether the reservoirs were actively operated for water supply. Smaller reservoirs and stock ponds (e.g. less than 1,000 acre-feet) will be aggregated in the surface water model. All instream flow water rights will be represented in the model, but will be aggregated based on geographic location if appropriate.

Feedback From Water Commissioners

Structures that met one or more of the evaluation criteria were reviewed by the Water Commissioners from each of the eight Water Districts. Discussions with the Commissioners resulted in additions and/or deletions of several structures from the key structure list. The results of applying the evaluation criteria and discussions with Water Commissioners are shown in **Attachment 4** for Division 3 as a whole, and **Attachment 5** for individual Districts. A 10 cfs cutoff criteria was used to develop these lists (as opposed to 5 cfs). The Attachments indicate whether a structure is considered “key” or “aggregate”, or will be deleted from the list (not modeled) because it was abandoned, is a drain, etc. Included in Attachments 4 and 5 are notes as to why a particular structure was added to the list when it did not meet the evaluation criteria, or was removed from the list when it did meet the criteria.

Summary

As presented in Attachment 4, with a 10 cfs cutoff approximately 423 surface diversion structures will be modeled explicitly as part of RGDSS. Using the 10 cfs cutoff and the other evaluation criteria described above, the identified key structures represent approximately 89 percent of all decreed diversions in Division 3. Similarly with a 5 cfs cutoff approximately 530 structures will be modeled explicitly as part of RGDSS, representing 93 percent of all decreed diversions in Division 3. All structures not modeled explicitly will be modeled in an aggregated fashion.

Comments and Concerns

Following are comments and concerns with regard to the selection of key structures:

- The list of key structures presented by this memorandum is preliminary. Additional refinements, either additions or deletions, are expected as a result of further discussions with Water Commissioners and as modeling efforts proceed. The final key structure lists will be presented as part of the Final Phase 1 Monthly Model Report (Surface Water Modeling Task 11).
- We are aware of numerous instances when a ditch or canal may carry water rights originally decreed for other structures. These “carrier” ditches are expected to be better identified through additional discussions with the Water Commissioners, and will be reflected in the final key structure determination.
- If the 10 cfs cutoff is selected, the number of structures explicitly modeled exceeds the 350 anticipated in the contract by approximately 73 structures. If a 5 cfs cutoff is selected, the number of structures exceeds the 350 anticipated in the contract by approximately 180 structures. At this time it is not clear whether using a 10 cfs or 5cfs cutoff will significantly impact the cost estimate included in the contract.

- The reservoirs that have been identified as key represent approximately 92 percent of the decreed storage capacity in Division 3.
- Instream flow rights will be aggregated based on geographic location. It is unclear at this point which instream rights will be aggregated and which will be modeled explicitly.

Attachments

1. Surface Diversion Structures (DMI watright output–Division 3 and individual Water Districts)
2. Reservoir Structures (DMI watright output–Division 3 and individual Water Districts)
3. Instream Flow Rights (DMI watright output–Division 3 and individual Water Districts)
4. Key Surface Diversion Structures, Reservoirs and Instream Flow Rights for Division 3
5. Key Surface Diversion Structures for Water Districts

Attachment 1

**Surface Diversion Structures
(DMI watright output-Division 3 and individual Water Districts)**

Attachment 2

Reservoir Structures

(DMI watright output–Division 3 and individual Water Districts)

Attachment 3

Instream Flow Rights

(DMI watright output–Division 3 and individual Water Districts)

Attachment 4

Key Surface Diversion Structures, Reservoirs and Instream Flow Rights for Division 3

Attachment 5

Key Surface Diversion Structures for Individual Water Districts