

New Mexico Office of the State Engineer

GIS and Water Resources Administration in the Middle Rio Grande

Jalayne Spivey and Elizabeth
Cervantes

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State Engineer's Mission

- Administer New Mexico's water resources
*Oversee the measurement, appropriation
and distribution of surface and ground
water*



Basic objectives:
Management
Measurement



Middle Rio Grande Valley

The Middle Rio Grande is a 180-mile reach that supports the greater part of New Mexico's population, agricultural base, seven Indian pueblos, and endangered species.

The Middle Rio Grande is a fully appropriated, hydrologically connected system. The Middle Rio Grande Basin has not been adjudicated.



MRG Project

This presentation will illustrate how GIS has become an indispensable tool in improving, organizing, and directing administration of the state's water resource.

New Mexico Water Law

- Is based on doctrine of prior appropriation: first in time – first in right
- Surface Water Code of March 19, 1907
- Groundwater Code of 1931
 - ◆ Declared Basins

Elements of a Water Right

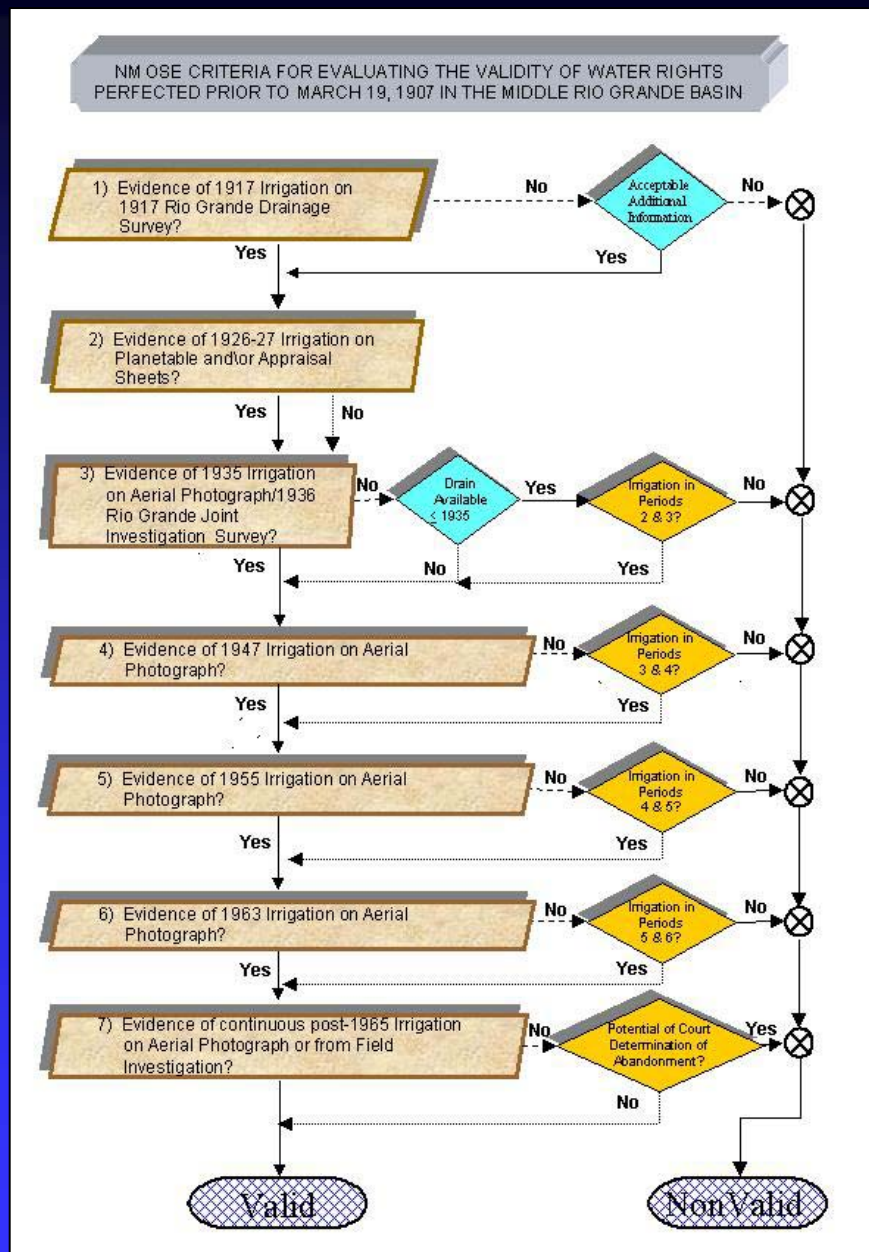
- Owner
- Priority Date
- Diversion Amount
- Point of Diversion
- Place of Use
- Purpose of Use
- Source





Discussing Water Rights, A Western Pastime

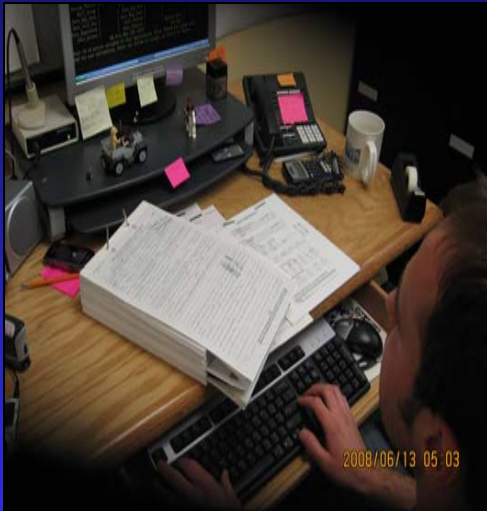
Permitting Considerations



- ◆ Valid Water Right?
 - ◆ Impair existing rights?
 - ◆ Meets state water conservation efforts?
- and
- ◆ Detrimental to the public welfare?

State Engineer's Transactional Database - W.A.T.E.R.S

(Water Administration Technical Engineering Resource System)



- Database to make the agency's extensive water rights records more readily accessible to staff and the public.

- Conversion Tasks:

- Abstract

- Image

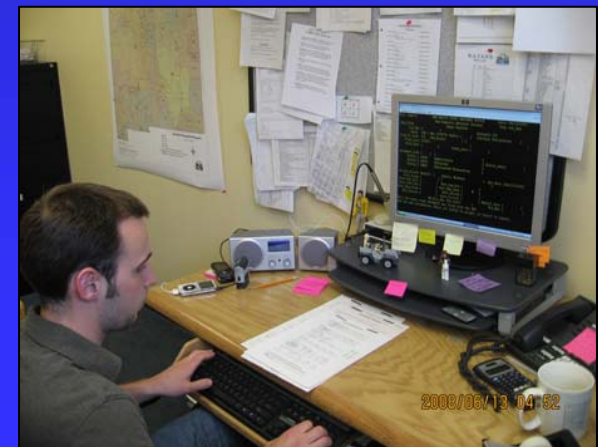
- Map

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1 NON_TITLE: Query Update Add Delete Related l:name 2:quant ...
Search the Database and retrieve non_title records.
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State Engineer's MRG Geodatabase MRG Project

The OSE Water Rights Division has transitioned from manual cartographic methods to electronic methods of evaluation of water rights by utilizing GIS. The success of this practice has created the "MRG Project", its goal being spatial and temporal access to land and water use since 1907.

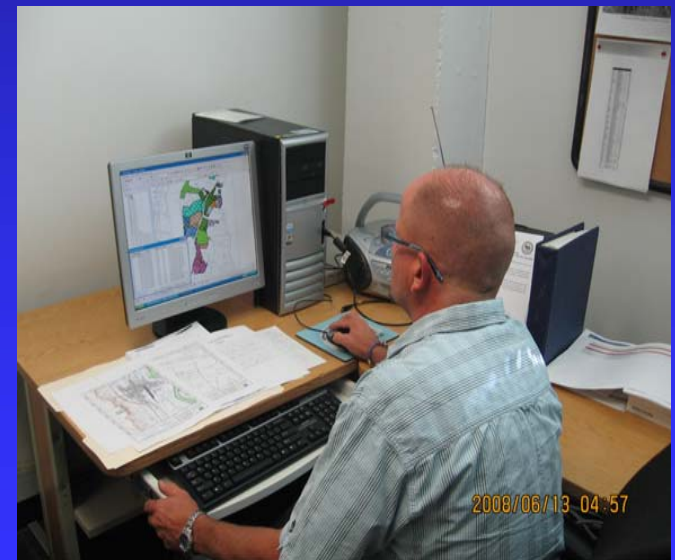
- Dynamic administration of water rights
- Tracking changes through time
- Spatial connection to WATERS
- Laying the groundwork for eventual adjudication

MRG Project Geodatabase Development Timeline

- About 5 years - creation of the geodatabase.
- About 2 years - GDB was moved into SDE environment.
- About 7 months ago - contractors were hired to populate the geodatabase.

Populating the Geodatabase

- Pull files to review the water rights history.
- Review WATERS database for information.
- Enter in key information.
- Review old maps and aerial photographs to verify file location information.
- Edit polygons.



Feature Classes of the Geodatabase

- Surface_Dcl (Pre-1907 Surface Water Rights)
- MRGCD (Conservancy District Rights)
- MRGCD2
- Transfer (Surface Water Transfer)
- Transfer2
- Transfer3
- Well (Well Location)
- Well_Loc (Well Place of Use)

Utility of the MRG Geodatabase

- Provides a visual representation of our water rights actions
- Serves as a foundation for our automated web based water right analysis tool and administrative compliance tool
- Will be used to facilitate the future adjudication of the MRG Valley

LIVE DEMONSTRATION

QUESTIONS?



www.ose.state.nm.us