

**STATE OF NEW MEXICO  
BEFORE THE WATER QUALITY CONTROL COMMISSION**

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**In the Matter of:** )  
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**PROPOSED AMENDMENT** )  
**TO 20.6.2 NMAC (Copper Rule)** )  
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**No. WQCC 12-01(R)**

**EXHIBIT SCOTT – D-30**



OSM/TR-82/2

# **Surface Mining Water Diversion Design Manual**

**September 1982**

**Prepared For:**

U.S. Department Of The Interior

Office Of Surface Mining

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United States Department Of The Interior

Office Of Surface Mining

Technical Services & Research

Table 1.1. Design Requirements by Technologies.

Considerations*	Overland Flows, Shallow Groundwater Flows, Ephemeral Streams	Perennial and Intermittent Streams
<b>Hydrology</b>		
<b>(a) Recurrence Interval-Design Event</b>		
Permanent	10-year, 24-hour	100-year, 24-hour
Temporary	2-year, 24-hour	10-year, 24-hour
<b>Hydraulics</b>		
<b>(b) Channel Capacity</b>		
	Peak runoff from design event, 0.3 ft freeboard minimum. Protection of critical areas can be more stringent.	Must equal adjacent unmodified stream channel (floodplain capacity can be used for passing design event), but not less than (a).
<b>(c) Channel Lining</b>	Suitable to control and minimize water pollution.	To control erosion, must be stable and only require infrequent maintenance.
<b>(d) Slope or Gradient</b>	Appropriate for sediment control.	Longitudinal profile of the stream to remain stable and to prevent erosion.
<b>(e) Velocities</b>	Regulated to control and minimize water pollution.	Regulated to control and minimize water pollution.
<b>Geotechnical</b>		
<b>(f) Backslopes</b>		
	Stable	Stable
<b>Ecological</b>		
<b>(g) Restoration</b>		
Permanent	None	Restore or maintain natural riparian vegetation, including aquatic habitats (riffles, pools, drops, etc.) that approximate premining characteristics.
Temporary	Remove regrade topsoil & revegetate.	Same as ephemeral stream
<b>(h) Enhancement</b>	None	"Where practicable" enhance natural riparian vegetation.
<b>(i) Shape</b>	None	Establish or restore natural meandering shape of an environmentally acceptable gradient.
<b>(j) Longitudinal Profile and Cross Section</b>	(see slopes and capacity)	Establish or restore to approximate premining stream channel characteristics (including aquatic considerations below).
<b>(k) Aquatic Habitats</b>	None	"Establish or restore...usually a pattern of pools, riffles and drops...that approximate premining characteristics."

\*Where not specifically indicated, temporary and permanent requirements would be the same.

Table 2.1. Possible Data Required for Channel Design.

Topographic Data

Drainage area  
Stream slope  
Watershed slope  
Watershed shape  
Longitude  
Latitude  
Topographic maps  
Aerial photographs  
Land characteristics

Hydrologic Data

## Precipitation:

2-year, 24-hour rainfall amount  
10-year, 24-hour rainfall amount  
100-year, 24-hour rainfall amount

Hydraulic

Average velocity  
Boundary roughness  
Flow depth  
Top width  
Hydraulic radius  
Wetted perimeter  
Backwater profile  
Bedform configuration

Geotechnical

## Soils:

Type  
Structure  
Particle size  
Permeability  
Infiltration  
Percent organic matter  
Chemical composition  
Aggregate index  
Soil maps