**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

December 19, 2013

James Hogan
Acting Chief
Surface Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building (N2056)
P.O. Box 5469
Santa Fe, NM 87502-5469

Dear ~~Mr. Hogan~~ James:

I am writing in response to Deborah Sarabia's October 18, 2013 request for technical review of the Surface Water Quality Bureau's (SWQB) use attainability analysis (UAA) for waters associated in the Pecos, Tularosa, Mimbres and Salt basins. I have completed my review and have outlined my findings below.

In developing this UAA, the SWQB relied on range of sources of information and utilized its recently developed Hydrology Protocol (NMED 2011). The SWQB's approach was to gather and review available data assessing hydrological, geomorphic, and biological indicators to determine if these waters are capable of supporting Clean Water Act (CWA) section 101(a)(2) goal uses as required by 40 CFR 131.10. The UAA assessed the following waters:

**Pecos River Basin**
Aqua Chiquita from Rio Peñasco to McEwan Canyon
Grindstone Canyon from Grindstone Reservoir to headwaters

**Tularosa Closed Basin**
San Andres Canyon

**Mimbres Closed Basin**
San Vicente Arroyo from Mimbres River to Maudes Canyon

**Salt Closed Basin**
Sacramento River below Scott Able Canyon
Scott Able Canyon

Based on its UAA, the SWQB staff determined that the waters in the Pecos, Tularosa and Mimbres Basins could not support CWA §101(a)(2) goal uses based on 40 CFR 131.10(g)(2). As part of my technical review, I considered all the supporting information from the Hydrology Protocol evaluation reported in the SWQB's UAA. The possibility of hydrologic modification from discharge, diversion and groundwater withdrawals were of particular interest. The supporting data indicated that although there are groundwater wells that are in proximity to some of these streams, and some water right declaration exist, neither are significant and do not appear

SWQB EXHIBIT 53

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

to alter in-stream hydrology. No other hydrologic features appear to enable these streams to support CWA §101(a)(2) goal uses. I consider the SWQB's recommendation that the designated uses and criteria identified in 20.6.4.97 NMAC to be appropriate for the following waters and are therefore technically approved:

**Pecos River Basin**
Aqua Chiquita from Rio Peñasco to McEwan Canyon
Grindstone Canyon from Grindstone Reservoir to headwaters

**Tularosa Closed Basin**
San Andres Canyon

**Mimbres Closed Basin**
San Vicente Arroyo from Mimbres River to Maudes Canyon

Since this is not a final action by EPA, it is not subject to the outcome of consultation with the U.S. Fish and Wildlife Service under Section 7(a)(2) of the Endangered Species Act. During New Mexico's next triennial revision, the SWQB should propose modifications based on this UAA. Once adopted and submitted by the Water Quality Control Commission, EPA will make a final determination under §303(c) of the CWA.

I appreciate your and the SWQB staff's efforts in the development of this UAA. If you have any questions concerning this letter please call me at (214) 665-6646.

Sincerely,

Russell Nelson
Regional Standards Coordinator

Enclosure

cc: Kristine Pintado
Standards, Planning and Reporting Team
Surface Water Quality Bureau

Deborah Sarabia
Assessment and TMDL Team
Surface Water Quality Bureau

SWQB EXHIBIT 53

# TECHNICAL SUPPORT DOCUMENT

**EPA Technical Review of**
**Use Attainability Analyses Supporting Amendments**
**to the**
**New Mexico's Standards For**
**Interstate and Intrastate Surface Waters**
**20.6.4 NMAC**

**U.S. EPA REGION 6**
**WATER QUALITY PROTECTION DIVISION**

**December 2013**

## Table of Contents

I. INTRODUCTION ..... 3

Background ..... 3

Chronology of Events ..... 3

Summary of the Use Attainability Analysis Findings ..... 3

II. EPA REVIEW AND TECHNICAL DETERMINATION ..... 4

Hydrologic Protocol ..... 4

Use Attainability Analysis Results ..... 6

EPA Determination ..... 8

III. REFERENCES ..... 9

# I. Introduction

## Background

The purpose of this Technical Support Document (TSD) is to provide the results of EPA's technical review of supporting use attainability analyses (UAA) that may be used as a basis for amendments to the New Mexico's Standards for Interstate and Intrastate Waters (20.6.4 NMAC). This technical review does not constitute a final action under §303(c) of the Clean Water Act (CWA), but is an interim action utilizing previously approved performance-based provisions (*See* 65 FR 24647, 24648 ((April 27, 2000)). This approach is intended to allow the state to make water quality management decisions for the water(s) addressed in the UAA prior to final action and submission to EPA by the New Mexico Water Quality Control Commission (Commission).

In New Mexico, surface waters not included in a classified Water Quality Standards segment (20.6.4.101-899 NMAC) are considered unclassified waters of the State (20.6.4.97-99 NMAC). Applicable standards for unclassified waters are dependent on the existing hydrologic condition. Unclassified waters are presumed to be able to support the marginal warm water and primary contact uses and associated criteria found in §20.6.4.98 NMAC unless the state shows that these uses cannot be supported consist with one of the factors in 40 CFR 131.10(g). Specific waters may be placed in 20.6.4.97 NMAC if a UAA confirms that the water is ephemeral and that the CWA §101(a)(2) uses are not attainable due to one of the factors listed in 40 CFR 131.10(g). Springs are separate hydrological features and are not included with any specific water listed in 20.6.4.97 NMAC.

## Chronology of Events

The Surface Water Quality Bureau (SWQB) developed a UAA and submitted the document to EPA Region 6 for technical review. That UAA considers use and associated criteria modifications for six (6) streams in New Mexico. The New Mexico Environment Department (NMED) submitted this UAA as part of a request to EPA Region 6 for technical review pursuant to §20.4.6.15 C. NMAC on June 26, 2013. Region 6 staff reviewed the supporting UAA. Based on that review, EPA provided technical approval based on this TSD to NMED on December 19, 2013.

## Summary of the Use Attainability Analysis Findings

The UAA developed by the SWQB was intended to determine the most protective attainable aquatic life and contact uses for the six (6) stream reaches in the Pecos River basin, Tularosa closed basin and the Mimbres closed basins. The SWQB developed this UAA relying on NMED's *Hydrology Protocol for the Determination of Uses Supported by Ephemeral, Intermittent, and Perennial Waters* (NMED 2011) and following the procedures described in §20.6.4.15 C. NMAC. This methodology is used to distinguish between ephemeral, intermittent,

and perennial streams and rivers. The SWQB concluded that CWA §101(a)(2) uses are not attainable for four (4) of the six (6) evaluated stream outlined in Table 1 below:

**Table 1. Evaluated Stream Reaches**

| REACH NAME | WQS for PERENNIAL REACHES | HYDROLOGICAL STATUS as determined by this UAA | SUPPORTING DOCUMENTS |
|---|---|---|---|
| **Pecos River basin** | | | |
| Aqua Chiquita from Rio Peñasco to McEwan Canyon | 20.6.4.208 | naturally ephemeral | Appendix B |
| Grindstone Canyon from Grindstone Reservoir to headwaters | 20.6.4.209 | naturally ephemeral | Appendix C |
| **Tularosa closed basin** | | | |
| San Andres Canyon | 20.6.4.801 | naturally ephemeral below South San Andres Canyon | Appendix D |
| **Mimbres closed basin** | | | |
| San Vicente Arroyo from Mimbres River to Maudes Canyon | 20.6.4.803 | naturally ephemeral | Appendix E |
| **Salt closed basin** | | | |
| Scott Able Canyon | 20.6.4.805 | Perennial and ephemeral | Appendix F |
| Sacramento River below Scott Able Canyon | 20.6.4.805 | Intermittent and ephemeral | Appendix F |

## II. EPA Review and Technical Determination

The waters addressed in the state's UAA, like other unclassified and unassessed waters are currently categorized in §20.6.4.98 NMAC and are presumed capable of supporting marginal warm water and primary contact uses. Determining the appropriate designated use and supporting criteria for unclassified waters is primarily dependent on the existing hydrologic condition (e.g., ephemeral, intermittent or perennial). Consistent with federal regulations at 40 CFR 131.10, the New Mexico standards at §20.6.4.15 NMAC provide for the development of a UAA by the SWQB or a 3rd party. The state's provision provides for a UAA based on the SWQB's *Hydrology Protocol* (2011) to determine the appropriate designated uses in waters that may not be capable of supporting CWA uses based on one of the factors in 40 CFR 131.10(g).

### Hydrologic Protocol

Following the performance-based process outlined in it the New Mexico water quality standards, NMED directed the development a UAA based on its *Hydrologic Protocol* (*Protocol* or HP) for the waters listed below. The HP itself is a methodology that can be used to distinguish among ephemeral, intermittent, and perennial streams and rivers in New Mexico. The *Protocol* relies on hydrological, geomorphic and biological indicators to identify where water is persistent. Data

collected and recorded in the field is used to evaluate and confirm homogeneity throughout the individual stream reach being evaluated to determine the applicability of the results for an entire reach. The *Protocol* is organized into Level 1 and Level 2 Evaluations. Level-2 Evaluations may be conducted when Level-1 Evaluations are inconclusive.

The supporting UAA included Level-1 Evaluations that were carried out for six (6) stream segments based on initial direct observation of the watercourse and watershed. Individual representative reaches were selected based on similar geology, sinuosity, and vegetation of the watercourse being characterized. Site assessments were carried out by contract staff and where accompanied by SWQB staff at different points to ensure consistent findings. Photographs, Geographic Positioning System way points, and field sheets were completed for each assessment reach, to document the rationale and scoring of attributes and subsequent hydrologic determinations.

The SWQB conducted HP Evaluations in 2012 and 2013 at the following locations:

- **Aqua Chiquita Creek**
  2012- above the confluence with the Rio Peñasco
  2013- 10 miles above the Rio Peñasco, at McDonald Flats Road

- **Grindstone Canyon**
  2012- above Grindstone Reservoir

- **San Andres Canyon**
  2012- 1.75 miles above Taylor Ranch Road, at the canyon outlet
  2013- 2.75 miles above Taylor Ranch Road, below Hackberry Spring

- **San Vicente Arroyo**
  2013- 5 miles below Maudes Canyon, at Ridge Road
  2013- 6.5 miles below Maudes Canyon, at Tyrone Road

- **Scott Able Canyon**
  2012- 0.75 miles above the Sacramento River, at the Scott Able trailhead
  2013- 1.75 miles above the Sacramento River, above the Scott Able Road crossing

- **Sacramento River below Scott Able Canyon**

  2012- 7 miles below Scott Able Canyon, below the community of Timberon
  2013- 1 mile below Scott Able Canyon

The UAA included a review of data from previous site investigations along with new data to define stream segments and the new sample reach locations to be evaluated in the field. Geographic information System-based mapping was utilized to analyze aerial photos, topographic maps and landscape-level attributes such as ecoregions, geology, soils and vegetation. Hydrologic data included wells and surface diversions mapped in relation to each evaluated stream reach. These evaluations considered meteorological and climate data to ensure that extreme drought conditions were not prevailing in the area or that recent significant

precipitation events would bias the outcome of the assessment, using the 12-month Standardized Precipitation Index (SPI) data. This included the use of National Hydrography Dataset shape files to depict stream channels on site location maps. It could also be used to include mapping of any Nation Pollution Discharge Elimination System discharges that are identified to evaluate any effects they may have on flow.

**Use Attainability Analysis Results**

Aqua Chiquita from the Rio Peñasco to McEwan Canyon

The Agua Chiquita from the Rio Peñasco to its headwaters is approximately 36 miles long. The Level-1 field evaluation for this reach indicates a significant break in geology, vegetation and ecoregion occurs in the vicinity of McEwan Canyon, approximately 10 miles upstream of the confluence with the Rio Peñasco. Characteristics from Rio Peñasco to McEwan Canyon were reported as homogenous with a dry or nearly dry channel and no riparian corridor.

The New Mexico Office of the State Engineer (NMOSE) documented 31 wells and 20 surface diversions within one (1) mile of the evaluated reach. The total draws from all well is 152 acre-feet per year (AF/yr). The minimum depth to water is 105 feet, indicating that groundwater pumping is not affecting surface flow. The total of all surface diversions is 763 AF/yr, but most surface water right declarations are greater than 100 years old. The NMOSE has documented this reach as ephemeral, meaning that it is not possible for these water rights to be fully utilized. Based on the very low HP scores and depth to groundwater, it is unlikely that intermittent or perennial flows have existed historically.

Grindstone Canyon from Grindstone Reservoir to headwaters

The segment of Grindstone Canyon that was evaluated is 1.1 miles above the Grindstone Reservoir with no variation in reach characteristics. Aerial photos show a dry channel and no riparian corridor.

The NMOSE has documented one (1) well and two (2) surface diversions within 1/2 mile of the evaluated reach. Total diversions in this reach are (3) three AF/yr but is not significant enough to affect surface hydrology in Grindstone Canyon. There is a dam below the evaluated reach; water for the Grindstone Reservoir is pumped from Rio Ruidoso, not Grindstone Canyon, but would not affect the upstream Grindstone Canyon reach.

San Andres Canyon below South San Andres Canyon

The Level-1 evaluation describes San Andres Canyon as ten miles long through a highly varied landscape spanning four different ecoregions. The elevation of this segment ranges from 4100 to 9000 feet. An ecoregional and topographic change occurs at South San Andres Canyon where an escarpment runs north to south. The stream characteristics were reported as homogenous for approximately a four mile stretch from South San Andres Canyon downstream to Taylor Ranch

Road. Aerial photos showed a dry channel with some additional vegetation occurring at two springs.

The NMOSE documented 12 wells and (1) one surface diversion within (1) one mile of the evaluated reach. The total well diversions are 5912 AF/yr, all of which is from wells located downstream of the canyon. Minimum depth to water is 170 feet. Given the well locations and depth to water, groundwater pumping is not affecting surface flow in the canyon. One surface water right declaration exists from 1911 for 505 AF/yr. Based on the very low HP scores reported and the arid landscape characteristics, the depth to groundwater and the presence of only the 1911 declaration make it unlikely that any flow existed historically or could be sustained now.

San Vicente Arroyo from the Mimbres River to Maudes Canyon

San Vicente Arroyo runs approximately 32 miles from the Mimbres River to Maudes Canyon. The stream characteristics were reported to be homogenous from below Maudes Canyon. Aerial photos show a dry channel throughout the reach and no riparian corridor.

The 12-month SPI was less than -1.5 based on the National Drought Mitigation Center (NDMC) index and = -1.5 using the National Climate Data Center (NCDC)/National Oceanic and Atmospheric Administration (NOAA) index, suggesting drought conditions. Although the reported NDMC and NCDC/NOAA indices indicated considerable drought conditions, the NDMC 12-month SPI was less than -1.5 for only two of the past 10 years. None the less, the very low HP scores, current and historical landscape characteristics, and the absence of surface water right declarations make it unlikely that intermittent or perennial flows could be sustained even under normal precipitation conditions in San Vicente Arroyo.

Scott Able Canyon

Scott Able Canyon is 2.8 miles long from the Sacramento River to the head of the canyon, where there is a break in topography, geology and vegetation. The stream characteristics in the canyon were reported to be homogenous below this point.

Scott Able Road crosses the channel approximately 1.5 miles from the Sacramento River. The SWQB carried out Level-1 field evaluations in 2012 and 2013 below this road crossing. Results of the evaluations for both years indicated that this section of the stream was ephemeral. The SWQB also carried out Level-1 field evaluation in 2013 above the road crossing, one (1) mile above the previous location. Results indicated that this upper section of the stream was perennial. Given that field staff documented several pools and substantial evidence of recent perennial surface flow at this site, it is probable that this segment is perennial.

Sacramento River below Scott Able Canyon

The Sacramento River is eight (8) miles long from Arkansas Canyon below Timberon to Scott Able Canyon. An ecoregion break occurs below Arkansas Canyon. Stream characteristics were reported to be homogenous from Arkansas Canyon to Scott Able Canyon.

The SWQB performed a Level-1 Evaluation in 2012 below the community of Timberon less than a mile above the Sacramento River at the Scott Able trailhead. The result indicated that this section of the stream was ephemeral. The following year, the SWQB performed a Level-1 Evaluation below Scott Able Canyon, less than two (2) miles above the Sacramento River above the Scott Able Road crossing. This location was six (6) miles upstream from the 2012 location. The second Level-1 Evaluation indicated that the upper section of this reach is intermittent.

**EPA Determination**

40 CFR 131.10(g)(2) allows the removal of an aquatic life use, that is not an existing use, where "natural, ephemeral, intermittent or low flow conditions prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met." As such, determining the appropriate designated uses for the stream reaches described in Table 1 depends on both understanding the natural hydrology and determining the affect of hydrologic modification(s) from permitted discharge, surface withdrawal or diversion and groundwater withdrawal.

As part of this technical review, EPA considered all the supporting information from the HP evaluation data and results reported in the SWQB's UAA. The supporting information did not identify the presence of any CWA §402 permitted discharges. Some, but not all of the evaluated stream reaches have surface water diversions, some within a mile of the evaluated stream reach. However, despite a water right declaration, the majority of these rights are not exercised. Those few that are exercised are such a low volume that they would not affect surface hydrology. There are a number of groundwater wells in the vicinity of the evaluated stream reaches, but all are at a depth to water that would not affect surface hydrology or have no record of pumping.

Since hydrologic alteration is not a significant consideration, the focus should be the results of the HP Evaluations for the individual assessed reaches. As the individual segment discussions above indicate, four (4) of the six (6) segments assessed are naturally ephemeral satisfying §131.10(g)(2). The Aqua Chiquita from Rio Peñasco to McEwan Canyon, Grindstone Canyon from Grindstone Reservoir to its headwaters, San Andres Canyon and San Vicente Arroyo from Mimbres River to Maudes Canyon are not capable of to attaining CWA §101(a)(2) uses. As a result, it would be appropriate for the state to apply the uses and associated criteria found in §20.6.4.97 NMAC to these waters. The SWQB's initial Level-1 assessment of Scott Able Canyon indicated that this segment is ephemeral, but subsequent assessments at a topographic break indicated that it is in fact perennial. Like the assessment of Scott Able Canyon, the initial Level-1 assessment of the Sacramento River below Scott Able Canyon indicated it is ephemeral, but subsequent Level-1 evaluations indicated that it was intermittent. As a result, the marginal warm water and primary contact uses and associated criteria found in §20.6.4.98 NMAC should apply to both Scott Able Canyon and the Sacramento River below Scott Able Canyon. The findings in the SWQB's UAA are technically approved and can be used as a basis for modifying the New Mexico water quality standards as appropriate.

It is important to note that any time a state adopts uses not specified in §101(a)(2) of the Act, federal regulations at 40 CFR 131.20 requires states to re-examine those waters to determine if any new information has become available. That requirement is particularly important in ephemeral waters that may receive a discharge because the presence of water can significantly influence the structure of the instream community, riparian area and wildlife that will be drawn to these discharges independent of the quality of that effluent.

## III. REFERENCES


Federal Water Pollution Control Act (Clean Water Act) (CWA) Title 33, Navigation and Navigable Waters, Chapter 26-Water Pollution Prevention and Control, Section 101 [As Amended Through Pub.L. 111-378, January 4, 2011] (33 U.S.C. § 1251 et seq.)
Federal Clean Water Act. 33 U.S.C. 1251 et seq.

FR 65:82, 24648 (April 27, 2000) Water Quality Standards Regulation, 40 CFR part 131: EPA Review and Approval of State and Tribal Water Quality Standards ("Alaska Rule").

New Mexico Administrative Code (NMAC). 2012. *State of New Mexico Standards for Interstate and Intrastate Surface Waters*. New Mexico Water Quality Control Commission. As amended through April 30, 2012 (20.6.4 NMAC)

Griffith, G.E., Omernik, J.M., McGraw, M.M., Jacobi, G.Z., Canavan, C.M., Schrader, T.S., Mercer, D., Hill, R., and Moran, B.C. 2006. Ecoregions of New Mexico (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey.

National Climate Data Center (NCDC), National Oceanic and Atmospheric Administration (NOAA). U.S. Standardized Precipitation Index.
http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/spi.html

National Drought Mitigation Center (NDMC). 1995. The Standardized Precipitation Index (SPI). School of Natural Resources, University of Nebraska – Lincoln.
www.drought.unl.edu/MonitoringTools/DailyGriddedSPI.aspx

New Mexico Environmental Department (NMED), 2011. Statewide Water Quality Management Plan and Continuing Planning Process Appendix C: *Hydrology Protocol for the Determination of Uses Supported By Ephemeral, Intermittent, and Perennial Waters*. May 2011. p. 55
ftp://ftp.nmenv.state.nm.us/www/swqb/WQMP-CPP/WQMP-CPP-December2011.pdf

New Mexico Office of the State Engineer (NMOSE). 2013. New Mexico Water Rights Reporting System (NMWRRS). http://www.ose.state.nm.us/waters_db_index.html

New Mexico Administrative Code (NMAC) Title 20 Environmental Protection, Chapter 6 Water Quality, April 1, 2012. http://www.nmcpr.state.nm.us/nmac/_title20/T20C006.htm

Surface Water Quality Bureau (2011). *Hydrology Protocol for the Determination of Uses Supported by Ephemeral, Intermittent, and Perennial Waters* (NMED 2011)

New Mexico Environment Department (2013). *Use Attainability Analysis for Stream Reaches Identified as Ephemeral Through Application of the Hydrology Protocol*. August 2013.