



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

October 1, 2015

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

Dear Ms. Pintado:

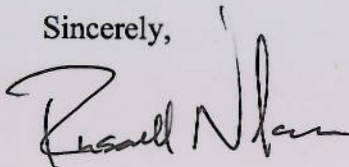
I am writing in response to James Boswell's September 14, 2015 email transmitting the proposed hydrology protocol sampling plan for Lee Ranch Coal Mine. Mr. Boswell's welcomed any recommendations, comments, or conditions that the New Mexico Environment Department (NMED) or the Environmental Protection Agency (EPA) could provide. In response to his request, I have briefly described our two primary concerns below which are also reflected in the enclosed comments from our Water Quality Standards (WQS) and Monitoring and Assessment groups.

The Surface Water Quality Bureau's (SWQB) *Hydrology Protocol* (HP) provides a methodology for distinguishing among ephemeral, intermittent and perennial streams and rivers. EPA considers the HP to generally be a useful tool in that respect. However, EPA is concerned that there has been a narrow focus on hydrology rather than what the highest attainable use that can be attained in some use attainability analyses (UAA). While hydrologic characteristics may be a significant factor in use attainment, it is important for a UAA to explain what those characteristics are and why they prevent attainment, particularly in complex sites.

In the discussion of drought conditions, the HP refers to the use of a single lengthy duration (12-month) Standardized Precipitation Index (SPI). Although drought conditions originate from a lack of precipitation, an SPI is a probability index that considers only precipitation, while others, like the Palmer Drought Severity Index (PDSI) and shorter term Palmer Z index are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff). Given the potential rate of evapotranspiration in much of the southwest, it may also be useful to consider Standardized Precipitation Evapotranspiration Indices (SPEI). Despite an unusually wet monsoon season, the 24-month SPEI (NOAA) for the current month and current month (September 2015) National Integrated Drought Information System (NIDIS), Palmer (SDI) and (Z index) give a different characterization of conditions that the 12-month SPI (NOAA) shown in Figure 3. EPA recommends that sources of information not be limited to only those used or referenced in the HP.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Nelson". The signature is fluid and cursive, with a large initial "R" and "N".

Russell Nelson
Regional Standards Coordinator

Enclosure

cc: Jodey Kougioulis
Standards, Planning and Reporting Team
Surface Water Quality Bureau

EPA Region 6 Comments
Lee Ranch Coal Mine Sampling Plan
October 1, 2015

Background

- 1) The background statement presumes that certain waters within the Lee Ranch Mine (LRM) boundaries are ephemeral. The Water Quality Standards regulations effectively establish a "rebuttable presumption" that the CWA 101(a)(2) uses are attainable and therefore must be assigned to a water body, unless a State or Tribe affirmatively demonstrates, with appropriate documentation, that such uses are not attainable. In short, it is inappropriate to make such an assumption prior to actually sampling/analysis.
- 2) As defined in the Water Quality Standards Regulation (40 CFR 131.3), a use attainability analysis (UAA) is: . . . a structured scientific assessment of the factors affecting the attainment of a use which may include physical, chemical, biological, and economic factors as described in section 131.10(g). The evaluations conducted in a UAA will determine the attainable uses for a water body.

The purpose of a UAA to determine the highest attainable use (HAU) that can be achieved. While surface hydrology will be an important factor at this site, the question is not limited to presence at the surface, but the properties, distribution, and movement of water on and below the surface. This level of understanding is critical given the past and current activities at this site. A UAA must also consider the chemical properties of water that is present as well as the biological components, although it may be limited to determine the HAU is for the waters to be assessed.

- 3) EPA encourages to use existing data to perform the physical, chemical, and biological evaluations presented in its guidance document (USEPA 1983c). While some of the information from the NMED UAA for Mulatto Canyon Arroyo may be pertinent, this UAA should not depend on it or any prior determination made by EPA.

It's important to note that the New Mexico Environment Department's (NMED) Hydrologic Protocol (HP) itself explains that it (the HP) "was designed to provide the necessary supporting documentation for an expedited UAA; however the protocol is only one tool out of many that may be used to support a standard UAA." (Note: EPA does not recognize the term "expedited" UAA – the complexity and detail of a UAA depend very much on the complexity of the site being assessed).

It is important to keep in mind that the purpose is to determine the HAU that can be attained in a given waterbody; whether that HAU is a more or less protective than what may be currently designated. Getting the HAU right requires an effective process for developing a credible and defensible UAA. UAAs are meant to assess what is attainable, it is not simply about documenting the current water quality condition and use (although documenting current conditions is often part of the analysis). Although not all of the

evaluations require significant depth, others may depending on the site. For example, if a physical characteristic like hydrology proves to be the limiting factor precluding a use, a close look at the surface and groundwater chemistry and flow will be important because this is a mine site – factors other than those specified in 131.10(g)(2) may be considerations.

Sampling Plan

- 1) Please note prior quote from NMED’s HP that states that the HP “was designed to provide the necessary supporting documentation for an expedited UAA; however the protocol is only one tool out of many that may be used to support a standard UAA.”

In developing this UAA, LRM should not limit sources of information to only those used or referenced in the HP. For example, although EPA considers it appropriate to determine if average climactic conditions in the area around waters to be assessed are present, we do not agree with a reliance on a single lengthy duration (12-month) Standardized Precipitation Index (SPI) as referred to here and in Figure 3.

Although drought conditions originate from a lack of precipitation, an SPI is a probability index that considers only precipitation, while others, like the Palmer Drought Severity Index (PDSI) and shorter term Palmer Z index are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff). Given the potential rate of evapotranspiration in much of the southwest, it may also be useful to consider Standardized Precipitation Evapotranspiration Indices (SPEI).

Despite an unusually wet monsoon season, the 24-month SPEI (NOAA) for the current month and current month (September 2015) National Integrated Drought Information System (NIDIS), Palmer (SDI) and (Z index) give a much different characterization of conditions that the 12-month SPI (NOAA) shown in Figure 3.

- 2) Sampling should occur at least 48h after a rainfall event in accordance with the HP (and perhaps longer if the event was significant)

Sampling Site Locations

- 1) It is important to emphasize the need to do a reach-based evaluation as opposed to a single site/point evaluation (unless the reach is homogeneous), as described in the paragraph at the top of page 11 in the HP. Such an approach minimizes “cherry picking” sites and allows for a more full identification of “potential transition point(s) between flow categories” and for a more accurate/representative characterization of each AU.

The 40X channel width approach, is how EPA would ID sampling reaches for national rivers/streams surveys, which is also based on EMAP protocols. Although not readily apparent here, this approach may be what is intended.

- 2) Given that the HP is intended to be used as support for a UAA, and is not the UAA itself, it is unclear why disturbed areas are not being considered here.

Historical or current mining impacts are what they are and have likely had an effect on these waters in the disturbed areas and downstream. Rather than ignore these areas, the affect mining activities have on the flow or chemistry of surface and/or groundwater should not be ignored. Doing so makes it difficult to understand the site and what they may be reasonably attainable in the downstream waters.

Although it is not part of the UAA process, it would be useful to give a brief explanation of what state and/or federal permit structure that allows disturbance of waters of the US? CWA Sec. 402 and 404? Others? Do they include remediation plans?

UAA Methods

- 1) As alluded to in previous comments, NMED's HP is intended to supplement a UAA, but is not in itself a UAA.
- 2) In reference to the use of only Level 1 analyses in NMED's UAA in Mulatto Canyon. The need to use Level 1 analysis may or may not be the case. Given the complexity of most mine sites and the significant impacts on some waters, Level 2 analyses may be necessary in some waters.

Figure 1

- 1) Recommend that all waters to be assessed be labeled in detail.

Figure 4

- 1) The scale of this figure does not provide adequate detail on the waters in the LRM, the location of dikes/diversions or ID NPDES outfalls. The impact of mining activities and stream flow (both surface and subsurface) disturbance will be of significant interest to EPA.

Figure 5

- 1) There appears to be a more significant tributary to the northeast of site U18 that flows into the western quadrant of the permit area that perhaps should also be evaluated. It flows into what appears to be a dry lake (Tinaja Lake in Google Earth).

- 2) Sites U07 and U18 could perhaps be supplemented with an additional site downstream to reflect a higher stream order as it enters the western margin of the permit area. Something similar could be done below the confluence of the tributaries on which sites U13 and U14 are located, just prior to entering the disturbed area.
- 3) It would also seem appropriate to move site U12 further downstream (nearer the disturbance area) so as to not reflect the very uppermost headwater of this tributary. The key being to best reflect flow status in/stream order of streams within the permit area.