State of New Mexico

Water Quality Control Commission

2006-2008

State of New Mexico Integrated Clean Water Act §303(d)/§305(b) Report

Appendix C: Response to Comments

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RESPONSE TO COMMENTS (part one)

2006-2008 STATE OF NEW MEXICO
INTEGRATED §303(d)/ §305(b)
LIST OF ASSESSED SURFACE WATERS

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PLEASE NOTE:

Original typed letters that were not received electronically were scanned and converted to MSWord. Letters received electronically were also converted to Word. All text was converted to Arial 11 font with standard page margins for ease of collation. Hand written letters were scanned and inserted. Contact information such as phone number, street addresses, and emails from private citizens were removed for privacy reasons. All originals letter of comment are on file at the SWQB office in Santa Fe, NM.

COMMON ACRONYMS

20.6.4 NMAC	State of New Mexico Standards for Interstate and Intrastate Surface Waters (as amended through February 16, 2006)
AU	Assessment Unit
EPA	US Environmental Protection Agency
IR	Integrated Report
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
ROD	Record of Decision (for the 303(d) list)
SWQB	Surface Water Quality Bureau
TMDL	Total Maximum Daily Load
USEPA	United State Environmental Protection Agency
WQ	Water Quality
WQCC	Water Quality Control Commission
WQS	Water Quality Standards
WRAS	Watershed Restoration Action Strategy
WWTP	Wastewater Treatment Plant

CHANGES TO THE DRAFT 2006-2008 LIST BASED ON SWQB STAFF REVIEW:

1. **Rio Nutria (Zuni Pueblo bnd to headwaters)** AU name was corrected to read **Rio Nutria (Zuni Pueblo bnd to Tampico Draw)**.
2. The User Defined Categories of 5A, 5B, and 5C must be manually assigned through the Assessment Database (ADB) while the main Integrated Report (IR) Category is determined by the database based on impairments, de-listings, and TMDL completion. There were a few User Defined Categories that were inadvertently not removed during development of the draft list, and a few IR Category 5 AUs where User Defined Categories were not assigned. Therefore, the below corrections were made:

WATERSHED NAME	AU ID	AU NAME	DRAFT IR_category	CORRECTED IR_category
Canadian Headwaters	NM-2305.A_210	Vermejo River (Canadian River to Rail Canyon)	4C/5A	4C
Carrizo Wash	NM-9000.B_096	Quemado Lake	2/5A	2
Cimarron Headwaters	NM-2701_20	Long Canyon (Perennial reaches abv Dry Cimarron)	2/5B	2
Jemez	NM-2106.A_13	East Fork Jemez (San Antonio Creek to VCNP bnd)	4A/5C	4A
Jemez	NM-2106.A_20	San Antonio Creek (East Fork Jemez to VCNP bnd)	4A/5B	4A
Pecos Headwaters	NM-2211.3_00	McAllister Lake	5	5/5C
Pecos Headwaters	NM-2211.5_00	Storrie Lake	5	5/5C
Pecos Headwaters	NM-2214.A_031	Willow Creek (Fish barrier above reclamation to headwaters)	2/5C	2
Rio Chama	NM-2114_00	Abiquiu Reservoir	5	5/5C
Rio Grande-Albuquerque	NM-2105.1_00	Rio Grande (non-pueblo Alameda Bridge to Angostura Div)	5	5/5C
Rio Grande-Santa Fe	NM-2118.A_72	Capulin Creek (Rio Grande to headwaters)	2/5C	2
Rio Grande-Santa Fe	NM-126.A_01	Pajarito Canyon (Arroyo de La Delfe to Starmers Spring)	3/5A	3
Rio Grande-Santa Fe	NM-9000.A_040	Pajarito Canyon (Rio Grande to LANL bnd)	3/5C	3
Rio Grande-Santa Fe	NM-128.A_07	Pajarito Canyon (within LANL above Starmers Gulch)	5	5/5C
Rio Grande-Santa Fe	NM-128.A_08	Pajarito Canyon (within LANL below Arroyo de La Delfe)	5	5/5C
Rio Grande-Santa Fe	NM-2118.A_74	Rito de los Frijoles (Upper Crossing to headwaters)	3/5C	3
Rio Grande-Santa Fe	NM-128.A_11	Sandia Canyon (within LANL below Sigma Canyon)	5	5/5C
Rio Grande-Santa Fe	NM-2110_00	Santa Fe River (Cochiti Pueblo bnd to Santa Fe WWTP)	5	5/4A
Rio Grande-Santa Fe	NM-9000.A_061	Santa Fe River (Santa Fe WWTP to Nichols Rsrv)	5	5/5C
Rio Grande-Santa Fe	NM-9000.A_052	Water Canyon (LANL bnd to headwaters)	5	5/5C

Rio Grande-Santa Fe	NM-9000.A_044	Water Canyon (Rio Grande to LANL bnd)	3/5C	3
Rio Grande-Santa Fe	NM-128.A_13	Water Canyon (within LANL below Area-A Cyn)	5	5/5C
Rio Hondo	NM-2208_10	Rio Bonito (Rio Ruidoso to NM 48 near Angus)	4C/5A	4C
Rio Hondo	NM-2208_30	Rio Hondo (Perennial reaches Pecos R to Rio Ruidoso)	4A/5A	4A
Rio Puerco	NM-2107.A_42	Nacimiento Creek (HWY 126 to San Gregorio Reservoir)	2/5A	2
Rio Puerco	NM-2107.A_44	Rio Puerco (northern bnd Cuba to headwaters)	2/5A	2
Rio Puerco	NM-2107.A_43	Rito Leche (Perennial reaches above HWY 126)	4C/5A	4C
Rio Puerco	NM-2107.A_41	San Pablo Canyon (Rio Puerco to headwaters)	2/5A	2
Upper Rio Grande	NM-2119_10	Red River (Rio Grande to Placer Creek)	4A/5A	4A
Upper San Juan	NM-9000.A_060	Gallegos Canyon (San Juan River to Navajo bnd)	4A/5A	4A
Zuni	NM-9000.A_033	Rio Nutria (Tampico Draw to headwaters)	3/5A	3
Zuni	NM-9000.A_029	Rio Nutria (Zuni Pueblo bnd to Tampico Draw)	2/5A	2

3. The 2006 ROD entries for the **Mora River (Canadian R to gage E of Shoemaker)** and the **Mora River (USGS gage east of Shoemaker to HWY 434)** were inadvertently switched in the draft – this has been corrected. Also, the dissolved oxygen impairment was erroneously removed from the **Mora River (USGS gage east of Shoemaker to HWY 434) –** this has been added back.
4. The name of the most downstream Rio Grande assessment unit, **Rio Grande (Texas border to Leasburg Dam)** in the draft, was split into three assessment units to better acknowledge land use activities, the border with Texas, and better match the WQ segment description in NMAC 20.6.4.101: **Rio Grande (International Mexico bnd to Anthony Bridge), Rio Grande (Anthony Bridge to Picacho Bridge), and Rio Grande (Picacho Bridge to Leasburg Dam).** The adjusted gross alpha data associated with these three AUs were also re-assessed. As a result, there are no adjusted gross alpha impairment listings for any of these AUs. The ROD was modified accordingly.
5. "Flow Alteration for Water Diversion" was removed as a Probable Source from both the **Rio Grande (Leasburg Dam to Percha Dam)** and **Rio Grande (International Mexico bnd to Leasburg Dam)** to be consistent with the Response to Comments from the 2004 Integrated List. "Municipal (Urbanized High Density Area)" was removed as a Probable Source from **Rio Grande (Leasburg Dam to Percha Dam)** because there are no highly urbanized large cities in this reach.

COMMENT SET 1 -- New Mexico Cattle Growers' Association, Albuquerque, NM

April 9, 2007

RE: New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) 2006-2008 State of New Mexico Clean Water Act (CWA) §303(d)/§305(b) INTEGRATED LIST

Dear Ms. Guevara:

Thank you for the opportunity to comment on the above captioned draft. The New Mexico Cattle Growers' Association (NMCGA) has membership in 32 of New Mexico's counties as well as 14 additional states. NMCGA requests that due to the length and technical nature of the above captioned draft there be an extension of the comment period for a minimum of 60 days with public meetings scheduled to inform the public of the Integrated List and the possible effects it can have on the waters contained within it. These meetings are further necessary due to the majority of the public most impacted by the reaches placed on the Integrated List are without means of access to the on-line version of the draft, unable to print the some 454 page Integrated List and the 299 page Record of Decision (ROD), or the technical background to decipher the meaning or impact of the documents.

NMCGA has the following comments for your review and consideration:

- Designated reaches under Category 5 list probable sources of impairment. One source listed is "rangeland (unmanaged pasture) grazing". It is sometimes listed as the only probable source which is confusing. When listed as the only probable source, does this mean it has been proven to be the only source or does the process include visual analysis, which means that only grazing lands are observed so it is the listed as the sole source? It seems highly unlikely that grazing would be the only cause for impairment. Research has demonstrated that drought conditions degrade water quality. New Mexico is currently suffering a severe drought and has been for a number of years. This fact does not appear to be taken into consideration. Drought effects erosion. Excessive runoff is also more prevalent during periods of drought. Additionally, cattle numbers have been declining since the 1920s and today best management practices and other options used by ranchers have considerably reduced cattle impact on streams. Wildlife does have a significant impact on water quality, but these impacts have never been documented in this listing. Is there a reason for the impact not being included?

  ***RESPONSE**: The Probable Sources list is intended to include any and all activities that could be contributing to the identified impairment. It is not intended to single out any particular land owner or single land management activity, and has therefore been labeled "Probable" and generally includes several items. Probable sources listed for any particular water body have not been proven to be the only source(s) of the identified impairment. It is generally based on a visual analysis combined with knowledge of known land management activities that have the potential to contribute to the identified impairment. One of the primary reasons we solicit public comment on the integrated 303(d)/305(b) list is so entities and individuals living and working in particular watersheds can provided specific information regarding Probable Sources of impairment that may have not been identified by SWQB staff.*

USEPA through guidance documents requires states to include a list of Probable Sources for each listed impairment. According to the 1998 305(b) report guidance, "…, states must always provide aggregate source category totals…" in the biennial submittal that fulfills CWA section 305(b)(1)(C) through (E) (USEPA 1997). "Sources" are defined as activities that may contribute pollutants or stressors to a water body (USEPA 1997). The 2006 Integrated Report guidance states that all states must submit to EPA a description of the nature and extent of nonpoint source pollution, as well as state-level summaries of causes and sources of impaired waters (USEPA 2005). The term "probable" to describe sources is specifically noted in Appendix A of the 2006 Intregrated Report Guidance (USEPA 2005).

In the past, data on Probable Sources has generally been gathered by SWQB Monitoring and Assessment Section staff, as well as SWQB Watershed Protection Section staff, during implementation of intensive watershed surveys and watershed restoration projects. This information is housed in the Assessment Database (ADB version 2). This database was developed by USEPA to help states manage information on surface water impairment and to generate 303(d)/305(b) reports and statistics. There is a Probable Source category in ADB v.2 entitled "Drought-related Impacts" that could be and has been added to specific assessment units as appropriate based on specific comments received. More specific information on Probable Sources of impairment is provided in individual watershed planning documents (i.e., Total Maximum Daily Loads, Watershed Restoration Action Strategies, etc.) as they are prepared to address individual impairments by assessment unit.

To improve the accuracy of Probable Source lists, SWQB plans to expand on its existing efforts to develop probable source lists by soliciting input on the source list from watershed groups around the state during development of the 2008-2010 Integrated List. SWQB also plans to increase the use of available technologies such as GIS through the analysis of up-to-date land use coverages. SWQB would appreciate and invite your organization to submit such coverages to us if they are available and as they are updated. These two initiatives will enhance the process already in place.

Based on your comments and similar comments received from other entities during the 2004 listing cycle, SWQB changed Probable Source code 108 "Rangeland (unmanaged pasture) Grazing" to "Rangeland Grazing" because more specific information on the level of management is not determined as part of the monitoring and assessment process. Wildlife can have impacts on certain water quality parameters (such as excessive pathogens from a large number of waterfowl or sedimentation from excessive riparian grazing by elk), but this is difficult to determine by visual observation because wildlife are generally more elusive than livestock. This information is determined in specific studies, such as bacterial source tracking (BST) studies, and usually follows initial TMDL development.

As stated in the Assessment Protocol (NMED/SWQB 2004), data collected during all flow conditions, including low flow conditions (i.e., flows below the 4Q3), will be used to determine designated use attainment status during the assessment process. 4Q3 values are to be utilized as minimum dilution assumptions for developing discharge permit effluent limitations. In terms of assessing designated use attainment in ambient surface waters, WQS apply at all times under all flow conditions.

Regarding drought, studies have shown that variability in hydrologic conditions is the norm in New Mexico (Grissino-Mayer 1996). New Mexico is currently within this range of variability (Dr. Craig Allen, USGS – Jemez Mountain Field Station, personal communication). If we consider the current hydrologic condition in terms of decades, the drier conditions we have experienced over the last several years could be considered typical and normal. Paleo-environmental records indicate that our region has experienced

long periods of drought that lasted decades (Grissino-Mayer 1996). The "drought" conditions we are currently experiencing could actually be the mean condition when considering this time frame. Also, the current drier conditions we are experiencing could last years to decades (Dr. Craig Allen, USGS – Jemez Mountain Field Station, personal communication). SWQB must continue to monitor, assessment, and make use impairment determinations under these conditions in order to protect and enhance water quality in New Mexico.

References:

Grissino-Mayer, H. 1996. A 2129-year reconstruction of precipitation for northwestern New Mexico, U.S.A. Pages 191-204 in J. S. Dean, D. M. Meko, and T. W. Swetnam, editors. Tree Rings, Environment and Humanity. Radiocarbon, Tucson, AZ.

NMED/SWQB. 2004. State of New Mexico Procedures for Assessing Standards Attainment for the Integrated §303(d)/§305(b) Water Quality Monitoring and Assessment Report. Santa Fe, NM.

USEPA. 1997. Guidelines for preparation of the comprehensive state water quality assessments (305(b) reports) and electronic uptakes. EPA-841-B-97-002A. Washington, D.C.

USEPA. 2005. Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act. Office of Water, Washington, D.C.

- There are designated uses listed for each reach included in the Integrated List, however in many circumstances the listed designated use was "not assessed". This consistent answer to the attainment of the listed designated use places doubt upon the level of scientific research and study done on the listed reach. If sound science was not done before placing a reach on the impaired list then why is it there? Designated uses that have not been-assessed should be removed and in circumstances where none of the designated uses have been assessed, the reach should be removed from the list. As testified by the SWQB the ROD merely serves as a reference to actions made by the SWQB and contains little or no sound scientific evidence. So explanation of the scientific research pertaining to those listed reaches, their designated uses and attainments should be included somewhere in the Integrated List.

  ***RESPONSE**: There seems to be a misunderstanding of what the Integrated §303(d)/ §305(b) List contains. As explained in detail in the preface to the Integrated List, the Integrated List is a list of all surface waters of the state (Categories 1 through 5), not just impaired waters that would make up the traditional Clean Water Act §303(d) list of impaired waters (Category 5 waters only). All assigned designed uses based on 20.6.4 NMAC are included for every assessment unit on the Integrated List, including those that are impaired and those that are not. SWQB indicates the impairment status (i.e., Fully Supporting, Not Supporting, or Not Assessed) for each of these designated uses. The label "Not Assessed" indicates that no or insufficient data and information were available to determine whether or not that particular designated use is being met. An example of this occurrence is when bacteriological data are not available to determine whether or not Primary or Secondary Contact Uses are met. This was a common problem in the past due to the short 6-hour holding time for these samples. SWQB has resolved this problem by implementing a method to perform these analyses in the field with a mobile testing unit.*

- Community understanding of the impact the Integrated List has on all water related activity is minimal. Public meetings held in each of the Hydrologic Units to discuss impacts of reach listings on the Integrated List and for the public to present historic and current observations of the reaches included in the list would help to truly identify waters that are impaired with specified attainable designated uses.

  RESPONSE*: As noted above, SWQB plans to solicit direct input on the source list from watershed groups around the state during development of the 2008-2010 Integrated List. During this time, we can also answer other questions related to the impact of the Integrated List.*

- It would also seem helpful to the process to involve landowners and the trade organizations that represent them in educational opportunities regarding the Integrated List and other NMED water related activities, such as Watershed Restoration Action Strategy (WRAS) and Total Maximum Daily Loads (TMDL). Additionally, NMED distributes 319 grant funding from the USEPA in New Mexico, and perhaps a more diverse approach can be implemented when distributing these funds. This could involve landowners by encouraging them to be proactive in promoting their current resource protection activities and incorporating greater efficiency with new management tools. In addition, landowners will have the necessary information on the listed segments in their areas, the process of listing segments, the process of de-listing segments; and the practices in their operations that have or will minimize runoff and protect water and land resources.

  RESPONSE*: Your comment has been passed on to the SWQB Watershed Protection Section. As mentioned above, SWQB recognizes the need for more education on water quality monitoring, assessment, and listing processes to land owners and managers, and has begun developing an outreach program to address this issue.*

Thank you again for the opportunity to comment on the above captioned draft. The New Mexico Cattle Growers' Association (NMWGI) appreciates the need to safeguard water quality based on assessment standards that incorporate sound, repeatable science.

Sincerely,

Caren Cowan
Executive Director
New Mexico Cattle Growers' Association
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nmcga@nmagriculture.org email
cc: Water Quality Control Commission

COMMENT SET 2 -- New Mexico Wool Growers, Inc., Albuquerque, NM

April 9, 2007

RE: New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) 2006-2008 State of New Mexico Clean Water Act (CWA) §303(d)/§305(b) INTEGRATED LIST

Dear Ms. Guevara:

Thank you for the opportunity to comment on the above captioned draft. The New Mexico Wool Growers, Inc. (NMWGI), New Mexico's oldest livestock trade organization. NMWGI requests that due to the length and technical nature of the above captioned draft there be an extension of the comment period for a minimum of 60 days with public meetings scheduled to inform the public of the Integrated List and the possible effects it can have on the waters contained within it. These meetings are further necessary due to the majority of the public most impacted by the reaches placed on the Integrated List are without means of access to the on-line version of the draft, unable to print the some 454 page Integrated List and the 299 Record of Decision (ROD), or the technical background to decipher the meaning or impact of the documents.

NMWGI has the following comments for your review and consideration:

- Designated reaches under Category 5 list probable sources of impairment. One source listed is "rangeland (unmanaged pasture) grazing". It is sometimes listed as the only probable source which is confusing. When listed as the only probable source, does this mean it has been proven to be the only source or does the process include visual analysis, which means that only grazing lands are observed so it is the listed as the sole source? It seems highly unlikely that grazing would be the only cause for impairment. Research has demonstrated that drought conditions degrade water quality. New Mexico is currently suffering a severe drought and has been for a number of years. This fact does not appear to be taken into consideration. Drought effects erosion. Excessive runoff is also more prevalent during periods of drought. Additionally, cattle numbers have been declining since the 1920s and today best management practices and other options used by ranchers have considerably reduced cattle impact on streams. Wildlife does have a significant impact on water quality, but these impacts have never been documented in this listing. Is there a reason for the impact not being included?

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Sincerely,

Mike Corn
Executive Director
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COMMENT SET 3 – Amigos Bravos, Taos, NM

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April 9, 2007

Lynette Guevara
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RE: Draft 200-2008 303(d)/305(b) Integrated List

Dear Ms. Guevara,

Amigos Bravos is a statewide river conservation organization guided by social justice principles. Our mission is to protect and restore the rivers of New Mexico, and ensure that those rivers provide a reliable source of clean water to the communities and farmers that depend on them, as well as a safe place to swim, fish, and go boating. Amigos Bravos works locally, statewide and nationally to ensure that the waters of New Mexico are protected by the best policy and regulations possible. In this capacity Amigos Bravos works to make sure that New Mexico's water quality standards are protective enough to support the diverse human and non-human uses of our state's water resources. The 303(d)/305(b) list is a critical component of our work to protect clean water and the cultures that depend upon clean water here in New Mexico. We would like to communicate the following comments and concerns regarding the draft 2006-2008 integrated list.

Format

Without some form of track changes function, it is extremely difficult to track the differences in the draft 303(d)/305(b) list (hereto referred to as "draft list") from the 2004-2006 list. The factors that Amigos Bravos track are the potential changes in uses, changes in segment delineations, and impairment delistings. We have found it difficult to review the draft list for these factors without knowing how the list has been changed from the 2004-2006 list. To facilitate understanding and participation by the public in the future, NMED should provide future draft lists with a strikethrough and underlined copies that demonstrate the difference between the current list and the draft list.

RESPONSE*: SWQB houses assessment data for over 600 assessment units electronically in our state version of EPA's Assessment Database (ADB). EPA encourages all states to use this database so they can collate assessment information for all states in order to prepare national reports and statistics. We use the MS Access version of ADB. Unfortunately for us as well, it is not possible to generate the draft Integrated List from MS Access in a Track Changes format. We do indicate at the front of every list where the majority of changes have occurred, which are typically the watersheds SWQB surveyed in the interim between listing cycles.*

Secondary/Primary Contact

The draft list demonstrates the ongoing problem with the Surface Water Quality Bureau and Water Quality Control Commission's practice of labeling most waters with the secondary contact use and then often applying primary contact criteria at the segment level. This practice makes no sense and results in confusion by the public and I would think by the Surface Water Quality Bureau itself. It is especially makes it difficult to review the draft list because there is no indication what is meant when a segment says that secondary contact is "fully supported". There is no way for the public to know if it is actually impaired for primary contact but fully supporting secondary contact or fully supporting both. While Amigos Bravos realizes that this problem is bigger than just the draft list, and ultimately needs to be addressed at the water quality standards level during the triennial review of water quality standards, some mechanism of communicating what actually is being supported should be included in the draft list.

***RESPONSE**: An assessment unit indicates Full Supporting for the associated Contact Use if those associated criteria are being met according to available data assessed against our current Assessment Protocols and 20.6.4 NMAC. For recreational contact, the assessment is performed against the segment specific criteria. If the reader wants to know the exact criteria that apply, it is necessary to refer to the associated water quality segment in 20.6.4 NMAC for the segment-specific criteria related to contact use. This NMAC reference is presented in the "WQS Reference" box for every assessment unit on the Integrated List.*

Throughout the draft list the contact and livestock watering uses are rarely actually assessed. Most of the segments list the contact uses and livestock watering use as "not assessed". This is an ongoing problem that has been carried over from the 2004-2006 list. Which is all the more troubling because it indicates that most waters have never been assessed for contact and livestock water uses. When will New Mexicans get a chance to know whether or not New Mexico's waters are safe for recreational contact such as swimming, fishing and boating? Ultimately, this is a public health and safety concern. Amigos Bravos urges NMED to start assessing New Mexico's waters to determine if contact and livestock watering uses are being met.

***RESPONSE**: The main criterion associated with Contact Use was fecal coliform in previous versions of 20.6.4 NMAC, and is now E. coli. Therefore, if there were no available bacteria data, we must indicate "Not Assessed" for this designated use. These parameters have a 6-hour holding time, so in the past, it was very difficult to collect and deliver samples for these analyses to the State Laboratory Division in Albuquerque within the holding time. SWQB's Monitoring and Assessment Section recognized this problem and purchased the necessary equipment to analyze for E. coli in the field as this equipment became available for purchase. This new field procedure was implemented during the 2006 field season.*

Segment Specific Criteria

How is segment specific criteria addressed in the draft list? What if segment specific criteria are not being met but the criteria associated with the uses are being met? Is the segment still listed as "fully supporting" all uses. If not, how does NMED determine which use is not being met when segment specific criteria are violated? Amigos Bravos would like to see the list clearly communicate whether or not the use specific criteria are being met.

***RESPONSE**: Segment-specific criteria (detailed in 20.6.4.97 through 20.6.4.899 NMAC) always supersede use-specific criteria (detailed in 20.6.4.900 NMAC). If there are segment –specific*

criteria, and available data indicate impairment based on 20.6.4 NMAC and our Assessment Protocols, the use associated with those segment-specific criteria will be noted as "Not Supporting." The associated designated use is determined by knowing what criteria are associated with various uses in 20.6.4.900 NMAC. For example, bacteria criteria are associated with Contact Uses. If there are no segment-specific criteria for a particular use, the use-specific criteria in 20.6.4.900 NMAC are used for assessment.

Perennial/Intermittent

Amigos Bravos is curious about how the department has determined which waters are perennial and which are intermittent. How is the public is able to determine which are which in the draft list? Are there cases where waters that were previously considered perennial waters in previous lists but are now considered intermittent waters? If so, how was this determination made and was a Use Attainability Analysis (UAA) done? Amigos Bravos would like an accounting of where changes in perennial to intermittent status have been made. And, because it is so difficult to review the list, especially without a track changes function, Amigos Bravos would like the department to provide an accounting of cases where changes from perennial and intermittent to ephemeral status were made.

***RESPONSE**: The applicable New Mexico water quality standard segment from 20.6.4 NMAC is presented in the "WQS Reference" box for every assessment unit on the Integrated List. The reader can then refer to the assigned WQS segment for details and to determine the exact criteria that apply to the designated and existing uses that are listed for every Assessment Unit in the Integrated List. During the last triennial review, three new water quality standard segments (20.6.4.97, 20.6.4.98, and 20.6.4.99 NMAC) were added to cover all applicable surface waters that were not covered under any other segment. UAAs were prepared where necessary and submitted to EPA Region 6 for review. In previous lists, these waters were simply noted as "unclassified" with assigned designated uses of Livestock Wildlife and Wildlife Habitat. As a result of the addition of these three new segments, SWQB went through all of these previously unclassified waters to assign the appropriate new segment to each of these waters. SWQB based its determination of the hydrologic nature of the water body, that is, whether it is perennial, intermittent or ephemeral according to the definitions provided in 20.6.4 NMAC, primarily through monitoring flow conditions during the intensive survey period. SWQB also relied on other information such as United States Geological Survey stream gage records when available.*

Downgrading of Uses

Amigos Bravos has found many instances in the draft list where uses have been downgraded or removed. This is especially true for aquatic life uses. For example in the 2004-2006 list the Dry Cimarron was listed with a coldwater fishery use (the equivalent of a coldwater aquatic life use) in the draft list the Dry Cimarron is now listed as having either a warmwater aquatic life use or a marginal coldwater aquatic life use, depending upon which segment of the river you are looking at. Was a UAA done for this use downgrading? This is seen again and again throughout the draft list. Further examples of use downgrades or removals:

Segment	2004-2006 Use	Draft 2006-2008 Use
Long Canyon (perennial reaches abv Dry Cimarron)	Coldwater	Warmwater
Oak Creek (Dry Cimarron to headwaters)*	Coldwater	Marginal Coldwater

		and Warmwater
Laguna Madre*	Coldwater	Warmwater
Maxwell Lake 13	Coldwater	Marginal Coldwater and Warmwater
La Cueva Lake	High Quality Coldwater	Coldwater
La Cueva Lake	Fish Culture	No Fish Culture
La Cueva Lake	Domestic Water Supply	No Domestic Water Supply
Lost Lake	High Quality Coldwater	Coldwater
Lost Lake	Irrigation	No Irrigation
Lost Lake	Domestic Water Supply	No Domestic Water Supply

• These cases are especially disconcerting since the Coldwater Use was fully supported in the 2004-2006 list.

Amigos Bravos did not have the resources to review every HUC for similar use downgrades, but we assume that they do exist since we found multiple cases in the two HUCs that we did review (Cimarron Headwaters and Upper Rio Grande). An UAA should be conducted for every one of these cases including any other instances of use downgrading in other HUCs.

RESPONSE: *The aquatic life use changes on the first two assessment units listed above reflect the changes in the associated water quality standards segments (20.6.4.702 and 20.6.4.701 NMAC, respectively). These changes were presented during the last triennial review and approved by the WQCC. UAAs were prepared per EPA's instruction. For previously unclassified waters, the 2006 list does not lower the designated uses that have been assigned pursuant to the water quality standards, and as such no UAAs have been completed.*

Regarding the lakes listed above, the majority of these lakes were previously listed as "unclassified" and therefore previously assigned Livestock Watering and Wildlife Habitat designated uses pursuant to the water quality standards, as well as additional existing uses for purposes of assessment based on SWQB staff opinion. In preparation of the 2006 List, several SWQB staff undertook a joint effort to correctly assign unclassified waters to the newly-available water quality standard segments 20.6.4.97, 20.6.4.98, or 20.6.4.99, as well as document the rationale behind noted existing uses. We believe it is particularly important to indicate which form of aquatic life exists in waters falling under 20.6.4.99 since the designated aquatic life use is simply described as "Aquatic Life", which is not particularly useful for assessment purposes. During preparation of the 2006-2008 draft Integrated List, staff documented their observations of existing uses based on information such as what species of fish have been collected or observed, fish stocking information, etc. This information is included in the 2006 list and is the beginning of the collation of evidence that may be used to officially designate the uses in the standards over time, which is a stated goal of SWQB.

More specifically, for Laguna Madre and Maxwell Lake #13 SWQB staff did not possess any information indicating that Coldwater Aquatic Life was truly an existing use in either of these water bodies, so the noted existing use was changed accordingly to indicate what aquatic life SWQB staff have noted as existing in these waterbodies. Regarding La Cueva Lake and Lost Lake, SWQB staff determined that these cirque lakes do not in fact fall under WQS segment

20.6.4.123 NMAC as noted on the previous list. Instead, 20.6.4.99 NMAC is the correct WQS segment. These changes to the 2006 list do not change the designated uses in the standards or associated water quality protection levels, therefore UAAs are not warranted.

Changing of Segments

Amigos Bravos has noticed that in at least one place, segment configurations have been altered. For example, in the Dry Cimarron instead of the two segments in the 2004 list, there are now three segments. As mentioned above all three segments now have lower water quality standards. Another example, which is perhaps a clearer example of segment related downgrading of uses, occurred in the Red River in the Upper Rio Grande Watershed a number of years ago. In that case, segment boundaries were changed and sections of river that previously had the protection of a high quality coldwater fishery use were lumped with a different section of the river with a coldwater fishery use thus effectively downgrading the use of that stretch of river. A UAA should have been conducted in this circumstance, as one should be conducted in all segment changes that result in even a section of a segment getting a downgrade of use. Amigos Bravos would like the department to identify all cases where segment boundaries have been altered and whether or not use changes were made.

***RESPONSE**: There may be minor Assessment Unit break changes between listing cycles. This is primarily due to SWQB staff observation during intensive water quality surveys or changes in associated water quality standard segment definitions because Assessment Units cannot span more than one WQS segment. As noted in the previous answer, there were changes to the Dry Cimarron WQS segments that resulted in changes to the designated use assignments on the list. The Assessment Unit breaks and definitions are consistent with the changes to the WQS segments. UAAs have been prepared and submitted to EPA Region 6 as they requested. The Red River comment above should be addressed in the triennial review process.*

Aquatic Life and Contact Uses

Amigos Bravos commends the Surface Water Quality Bureau for including aquatic life and contact uses in every segment on the draft list. This correctly implements the changes made to the NM Surface Water Quality Standards in May of 2005.

Upgrading of Uses

In several instances in the draft list Amigos Bravos noticed an upgrade of the designated use from the previous designated use from the same segment in the 2004-2006 list. We assume that this was done because the water quality was supporting the more protective use and the Surface Water Quality Bureau was correctly implementing Clean Water Act provisions that require designated uses to include existing uses, which include any use that water quality supports, whether on not that use is actually occurring. If the Surface Water Quality Bureau is not implementing this provision of the Clean Water Act, we urge you to do so.

***RESPONSE**: It is SWQB's goal to include all existing uses for purposes of assessment.*

Missing Segments

Amigos Bravos noticed at least one instance where a segment that appeared in the 2004- 2006 list was missing from the draft list. Aspen Lake in the Canadian Headwaters was listed as a segment in the 2004-2006 list but does not appear on the draft list. How does the department account for this and possibly other missing segments?

***RESPONSE**: Aspen Lake was removed from the Integrated List because SWQB has no jurisdiction or access to this private lake which is on private land. Clean Water Act §314 requires states to determine and report the impairment status of "significant publicly owned lakes." This waterbody does not fall under that category.*

Turbidity Listings

While Amigos Bravos is happy to see that the Surface Water Quality Bureau is going to retain historic turbidity listings while they development new assessment methods, we are concerned that in the interim some waters will fall through the cracks. The historic method for testing for turbidity should be retained and implemented until a new method is developed.

***RESPONSE**: SWQB also recognizes this problem and plans to develop a turbidity assessment protocol for generation of the 2008-2010 Integrated List.*

Rio Fernando

Amigos Bravos has been following the E. coli sampling conducted in the Upper Rio Fernando in 2006 by the Surface Water Quality Bureau. The results of the sampling in the Rio Fernando show extremely high levels of E coli at many of the sampling sites. The single sample secondary contact water quality criterion for E coli for the Río Fernando is 235 cfu/100mL. Some of the levels were above the maximum detection level used (2419.6 cfu/100mL). By our calculations, 36% of the samples, or 15 of the 41, exceeded the standard.1 It is clear to us from the study report that cattle are causing these high levels of E coli. Currently, the draft list does not list the Río Fernando as impaired for secondary with the cause of impairment being E Coli. We believe that the Rio Fernando Study merits such a listing. The numbers were so high that if the Surface Water Quality Bureau does believe that these results merit a listing for the entire segment, a headwater segment from the Valle Escondido area upstream to the headwaters should be created and then this segment should be listed as impaired.

***RESPONSE**: As noted above, SWQB bases its determination of the hydrologic nature of a stream, that is, whether it is perennial, intermittent or ephemeral according to the definitions provided in 20.6.4 NMAC, primarily through monitoring flow conditions during the intensive survey period. SWQB will also rely on other information such as United States Geological Survey stream gage records when available. During the 2006 study mentioned above, SWQB Watershed Protection Section staff documented several sampling events when there was "no surface water present" at stations established in both the Rio Fernando de Taos and Apache Creek. Based on these documented observations, an Assessment Unit break was established for the final draft Integrated List at Tienditas Creek where the character of the channel appears to become interrupted. According to flow observations, the upper reach of the Rio Fernando de Taos (Tienditas Creek to headwaters) does not meet the definition of perennial in 20.6.4.7.TT NMAC which states in part "…the water body contains water continuously throughout the year in all years…" Therefore, this portion of the Rio Fernando de Taos was characterized as "intermittent." As such, this assessment unit falls under 20.6.4.98 NMAC with a segment-specific single sample E. coil criterion of 2507 cfu/100 mL. Using this criterion and averaging duplicates samples as required in our Assessment Protocols, there were 1 of 20 exceedences in the upper reach of the Rio Fernando de Taos, and 1 of 16 exceedences in Apache Canyon, leading to conclusions of "Fully Supporting" for Secondary Contact uses. The other designated*

1 The Rio Fernando Study in table 7 shows a calculation of 33% of the samples exceeding the standard or 14 of 42. We welcome the opportunity to discuss this discrepancy with the SWQB.

uses are noted as "Not Assessed" because E. coli and flow were the only parameters collected during this 2006 study.

All data and information known to SWQB indicate that the upper reach of Rio Fernando de Taos contains water only during certain times of the year, and therefore the assessment unit was classified as "intermittent" based on the Commission's current regulations. 20.6.4 NMAC currently does not contain a definition of "interrupted" – this issue is being considered for the next triennial review.

Nonpoint Source Pollution

In order to establish a priority for restoration efforts the state should delineate whether or not the impairment of each impaired segment is due principally to point or non-point pollution sources.

***RESPONSE**: More detailed information on probable sources of impairment is provided in associated Total Maximum Daily Load (TMDL) planning documents, and Watershed Restoration Action Strategy (WRAS) documents.*

Land Management and Ownership Information

Segment specific information about land ownership and management would be extremely helpful in guiding restoration efforts. Amigos Bravos urges the Surface Water Quality Bureau to include this information in the list.

***RESPONSE**: More detailed information on land ownership and management is provided in associated Total Maximum Daily Load (TMDL) planning documents, and Watershed Restoration Action Strategy (WRAS) documents.*

Thank you for the opportunity to provide comment on the draft list. We look forward to further discussion about the concerns that we have raised in our comments. Please do not hesitate to contact me at 505-758-3874 or rconn@amigosbravos.org if further clarification or discussion on the above comments is merited or needed.

Sincerely,

Rachel Conn
Clean Water Circuit Rider and Policy Analyst
Amigos Bravos

COMMENT SET 4 – Carlsbad Soil and Water Conservation District, Carlsbad, NM

March 13, 2007

Re: 303(d) comments

Ms. Guevara,

As a participant in many programs and projects affecting the listed 303(d) impaired waters of the Lower Pecos, we offer these comments:

- We participate as project oversight in an EPA 3 19 program. It is our belief that the approach chosen for thinning within the Sacramento Mountains near Cloudcroft, NM will greatly enhance the diversity of necessary grass lands and reduction of timber back into the area, allowing for a more effective recharge into the aquifer.
- We participate as management of the Pecos River Non-Native Phreatophyte Management Program. It is our belief that removing non-native plants away from the riparian zones of the Pecos River and its tributaries will allow native plants to reestablish and follow the listed BMPs (listed under Collaborative Research and Monitoring under the table Examples of BMPs implemented in NM to address Specified Type of NPS Pollution) with the understanding that there will be a reduction of TMDLs. One of the main objectives of a Soil and Water Conservation District (SWCD) is the conservation of natural resources, and BMPs are vital for this to occur.
- The Carlsbad SWCD has been involved in several pilot programs which have investigated alternatives of utilizing oil and gas produced water as well as saline waters. It has been the district's intent to utilize these listed examples as they currently exist to allow adaptability of industries, as to reduce current surface and underground water contaminations and depletions.
- The Carlsbad SWCD has participated with the NMED SWQB in their activities to monitor, sample, and analyze the impaired reaches of the Lower Pecos River. It is our intent that we continue the collaboration efforts; to keep the citizens that reside within the district informed of the most current data that will be assimilated by your agency for the establishment of the TMDLs.

Again, I want to thank you for the opportunity for commenting on the program; re-establishing the current data for TMDLs of the Lower Pecos River, and offer the expertise and time of our staff when necessary. If you have any questions, feel free to contact the Carlsbad SWCD office.

***RESPONSE**: Thank you for your comments. SWQB appreciates the dedication of the Carlsbad Soil and Water Conservation District to protect and improve water quality in your district.*

Thank you,

Nathan Jurva – Chairman
Carlsbad SWCD

COMMENT SET 5 – Jeremy Barela, Albuquerque, NM, & Richard McLelan, Rio Rancho, NM

NOTE: The following letter was submitted by both of the above parties:

Gov. Bill Richardson

March 15 2007

Dear Governor:

I am a Concerned Citizen for the San Juan River. I am writing to inform you of serious concerns I have regarding the deterioration of the San Juan River Quality Waters, specifically regarding ever-increasing amounts of sediment and silt accumulating on the riverbed. I am a fisherman and have been very familiar with this part of the river for 6 years. Over the past 5 years, I have noticed a major reduction of insect populations seeming to coincide with the increases in the sediment accumulations. I believe the areas where these insects once flourished are now uninhabitable due to being covered with sediment. The health of the fishery is, in my opinion, profoundly negatively affected.

Therefore, I respectfully request you to take timely and effective steps to correct this situation to every extent possible. I have informed myself and understand that the natural evolution of tailwaters will present certain changes in terms of the rivers ecology, but am certain that the circumstances on the San Juan River are exceptional in that specific events have caused, or at least heavily contributed, to the situation that exists there presently. I ask the following matters be given highest priority in your efforts:

a. Find ways to minimize the heavy dumping of the major washes into the river:
- The Rex Smith Wash is at Kiddie Hole
- The Simon Wash is at Simon Canyon
- The Munoz Wash is at the end of Lunker Alley

b. Investigate the possibility of heavy erosion on the mesas above the river resulting from increases in oil and gas industry exploration activity. This erosion, should it be found to be occurring, would then be a likely culprit in causing the increases in sediment flowing down the major washes and arroyos and into the river. It would seem prudent to create a partnership with the BLM to accomplish this, investigating fully and completely, and presenting detailed and verified findings to the public along with a comprehensive plan by which to address these circumstances.

c. Achieving new patterns of releases from Navajo Dam more favorable to the maintenance of the trout fishery below it. I believe that this is infinitely accomplishable while staying in compliance with the Environmental Impact Study recently conducted regarding endangered species. In point of fact, this study and resultant impact statement makes reference to such provisions to maintain the favorable condition of the trout fishery. Considerations must be given, in my opinion, to avoiding long periods of extremely low flows and to establish a more effective release pattern during the flushes in the spring to the fullest extent possible. This will require innovative and imaginative measures which I am confident a collaboration of the concerned entities can and should accomplish.

d. Investigate moving the Texas Hole parking lot 100 yards down-river from its current location to allow the wash to flow on to the alluvial plain where it has historically, thus keeping the sand out of the river.

I would also like to thank the NM Parks and NMG&F for their efforts to improve river habitat. However, I feel that by not fixing the larger issues regarding the increases in sedimentation, all river habitat improvements will be ineffective.

Thank you for your consideration.

Richard McLean
Jeremy Barela

RESPONSE: The following response letter prepared by SWQB Watershed Protection Staff working with the San Juan Watershed Group was sent to the above parties:

BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Surface Water Quality Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-0187
Fax (505) 827-0160

RON CURRY
SECRETARY

CINDY PADILLA
DEPUTY SECRETARY

March 22, 2007

Dear Mr. Barela,

Your letter to Governor Richardson dated March 15, regarding your concerns about sediment in the San Juan River quality trout waters, was forwarded to the Surface Water Quality Bureau (SWQB) for response.

Under the Clean Water Act (and the New Mexico Water Quality Act), New Mexico has adopted water quality standards for all surface waters in New Mexico. The standards include both designated uses and water quality criteria that protect those uses. The San Juan River above Largo Canyon has among its uses "high quality coldwater aquatic life". Among the criteria to protect this use is a narrative criterion for sedimentation (in 20.6.4.13 NMAC) that reads:

> *Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.*

Determining whether fine sediment particles are "from other than natural causes" is technically challenging. While Navajo Dam has blocked sediment from upstream of the dam, it has also affected the capacity of the river downstream of the dam to transport sediment. Also, sediment loading from the watershed downstream of the dam may have been accelerated by industrial development, channelization of arroyos (such as the Rex Smith Arroyo), or other human activity in the watershed.

Pursuant to the Clean Water Act, the SWQB assesses the state's surface water quality based on available data, and produces a list of impaired waters, approximately every two years. SWQB completed assessments for sedimentation in the San Juan Basin in 2004, based on a joint study conduced by SWQB and the US Department of Agriculture's National Sedimentation Laboratory. The major conclusion of that study was that the San Juan River between the Animas River and Largo Canyon is impaired by excessive sediment because of the reduced sediment transport capacity of the San Juan River below Navajo Dam combined with the large sediment load from Largo Canyon. The study also concluded that the Animas, La Plata, and San Juan Rivers (except for the segment between the Animas River and Largo Canyon) were not generally impaired by sediment.

SWQB is in the processing of revising the list of impaired waters, within the Clean Water Act

§303(d)/§305(b) Integrated List of Assessed Surface Waters. No changes are proposed for the San Juan River upstream of Largo Canyon. The list is open for a public comment period until April 10 2007, during which SWQB is accepting formal comments. Your letter will be included as a comment on the draft list, although you may wish to submit a separate comment[2] as well.

Listing a water as impaired is a precursor to development of Total Maximum Daily Loads (TMDLs) and eligibility for funding under the Clean Water Act Section 319(h) program. 319 funds can be used to implement projects that prevent erosion in the watershed or improve the capacity of the San Juan to move sediment.

You may also wish to continue following SWQB activities, as the streams of the San Juan Basin will be revisited more systematically, with new data collected to support new assessments, in approximately 2010. A local forum for water quality issues in the San Juan Basin is the San Juan Watershed Group. This group meets regularly in Farmington, and maintains an email list for meeting announcements and significant developments affecting water quality. The coordinator is David Tomko, who can be reached at 505-832-6008. Also, you may wish to contact Abe Franklin, our watershed protection staff person assigned to the San Juan, to be added to a database of contacts to receive announcements from SWQB. Please feel free to call or write Abe at 505-827-2793, or **abraham.franklin@state.nm.us**.

Sincerely,

Marcy Leavitt, Chief
Surface Water Quality Bureau

Cc: Governor Bill Richardson (WF# 129725)

2 The draft list, its record of decision, and instructions for submitting comments are available at www.nmenv.state.nm.us/swqb/303d-305b/2006-2008/index.html.

COMMENT SET 6 – Rebecca Perry-Piper, Ponderosa, NM

* this matter has been brought to Secretary Curry's attention at same time

copy retained, none sent out

RECEIVED
MAR 13 2007
SURFACE WATER QUALITY BUREAU

March 9, 2007

Address Intentionally Omitted

Lynette Guevara/who can tell Gary King
NMED SWQB Room N2163
P.O. Box 26110
Santa Fe, New Mexico 87502

Replied to "Hot" Perry-Pyn
Mailed 3-9-07

Dear Ms Guevara,

I hope that you are well.

On September 27, 2005, you assured me in a letter that when development of the 2006-2008 Integrated List of Assessed Surface Waters (State of New Mexico Integrated Clean Water Act Sections 303(D)/305(B)) was generated in draft form for release to the public that I would receive public notice on its availability. I have enclosed the letter you wrote. I received nothing. Instead, I found this out through the enclosed March 8, 2007 Albuquerque Journal "The New Mexico Environment Department Surface Water Quality Bureau on Draft 2006-2008 State of New Mexico Integrated Clean Water Act Sections 303(D)/305(B) List of Assessed

copy retained/none sent out

March 9, 2007

Surface Waters" to give notice of 37-day public comment period.

I would also like to revisit the letter you wrote to me on October 31, 2005. I have enclosed it as well.

I also have enclosed a copy of page 25 of WQCC Approved Total Maximum Daily Load (TMDL) For The Río Puerco Watershed - Part 1.

I am requesting that

(a.) State of New Mexico Standards for Interstate and Intrastate Waters (20.6.4 NMAC)

(b.) State of New Mexico Procedures for Assessing Standards Attainment for the Integrated Sections 303(d)/305(b) Water Quality Monitoring,

(c.) Assessment Report (Assessment Protocols), and

(d) draft 2006-2008 State of New Mexico Integrated Clean Water Act (CWA) Section 303(d)/305(b) List of Assessed Surface Waters (Integrated List)

surface-mailed to:

Rebecca G. "Gert" Perry-Piper

[redacted]

Rebecca G. "Gert" Perry-Piper
Mailed 3-9-07

THE NEW MEXICO ENVIRONMENT DEPARTMENT SURFACE WATER QUALITY BUREAU ON DRAFT 2006-2008 STATE OF NEW MEXICO INTEGRATED CLEAN WATER ACT SECTIONS 303(D) / 305(B) LIST OF ASSESSED SURFACE WATERS

NOTICE OF A 37-DAY PUBLIC COMMENT PERIOD

The New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) invites the public to comment on the draft 2006-2008 State of New Mexico Integrated Clean Water Act (CWA) Section 303(d) / 305(b) List of Assessed Surface Waters (Integrated List). The Integrated List identifies whether or not a particular surface water or the state is currently meeting its designated uses as detailed in the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC), through application of the State of New Mexico Procedures for Assessing Standards Attainment for the Integrated Sections 303(d) / 305(b) Water Quality Monitoring and Assessment Report (Assessment Protocols). "Category 5" waters on the Integrated List specifically constitute the CWA Section 303(d) List of Impaired Waters. Copies of the draft list or any of the above supporting documents may be obtained via download from the SWQB website **www.nmenv.state.nm.us/swqb** or by contacting Gary King at (505)827-2928, gary.king@state.nm.us (physical address information provided below).

The 37-day public comment period on the draft Integrated List will start March 5, 2007, and end April 10, 2007, at 5:00 p.m. During this period, the public may provide written comments for consideration and inclusion in the public record. Formal comments must be submitted to the SWQB, in writing, to **Lynette Guevara, NMED SWQB, Room N2153, P.O. Box 26110, Santa Fe, New Mexico, 87502, (505) 827-2904.** Electronic submittals are preferred at **lynette.guevara@state.nm.us.**

Following the close of the public comment period, copies of the final draft Integrated List as amended and the Response to Comments will be available to the public via download from the SWQB website or upon request 10 days prior to next regularly scheduled WQCC meeting, tentatively set for May 8, 2007, where SWQB will present the final draft Integrated List. The final Integrated List will then be submitted to the U.S. Environmental Protection Agency for formal approval as Appendix B of the 2006-2008 State of New Mexico Integrated Clean Water Act Sections 303(d)/305(b) Report to Congress.

If you are an individual with a disability and you require assistance or an auxiliary aid (e.g. translator or sign-language interpreter) to participate in any aspect of this process, please contact **Judy Bentley** at least 10 days prior to meeting at the New Mexico Environment Department, P.O. Box 26110, Santa Fe, New Mexico 87502, (505) 827-9872.

Journal: March 8, 2007

Please H. "Hat" Perry Jr.
mailed 3-9-07
copy sent to Ron Curry

State of New Mexico
ENVIRONMENT DEPARTMENT
Surface Water Quality Bureau
Harold Runnels Building Room N2050
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-0187
Fax (505) 827-0160
Fed Ex (87505)

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN MOORE
DEPUTY SECRETARY

September 27, 2005

Rebecca Perry-Piper
Address Intentionally Omitted

Dear Ms. Perry-Piper –

Per your request, enclosed is a copy of the current New Mexico Water Quality Control Commission (WQCC) approved State of *New Mexico Standards of Interstate and Intrastate Waters (NMAC 20.6.4)* as amended through July 17, 2005. The U.S. Environmental Protection Agency Region 6 (Dallas, TX) is in the process of reviewing these revised standards. We expect approval within the next few months.

Also enclosed is the *2004-2006 State on New Mexico Integrated Clean Water Act §303(d)/ §305(b) Report* with associated Integrated List of Assessed Waters (Appendix B). I added some tabs to help you navigate through the layout of the document.

Development of the 2006-2008 Integrated List has not yet begun, so I do not have a snapshot to send to you at this time. The development of the list is a lengthy process that takes several months and requires US EPA preliminary review before we release a draft to the public via public notice for a minimum 30-day public review. I have asked our Outreach Coordinator to put your name in our database so you will receive a public notice when the draft is available. I will also keep your letter on file.

If you need anything else, please do not hesitate to let me know. Stakeholder input is an important part of our process.

Sincerely,

Lynette Guevara

Lynette Guevara, Program Manager
Monitoring and Assessment Section

Please fill "Perry-Piper" mailed 3-9-07 copy sent to Ron Curry

State of New Mexico
ENVIRONMENT DEPARTMENT
Surface Water Quality Bureau
Harold Runnels Building Room N2050
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
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BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN MOORE
DEPUTY SECRETARY

October 31, 2005

Rebecca Perry-Piper
Address Intentionally Omitted

Re: Letter dated October 15, 2005, regarding Vallecito Creek

Dear Ms. Perry-Piper –

Water quality standard segment 20.6.4.107 (NMAC 20.6.4) covers any and all perennial sections of Vallecito Creek under state jurisdiction, from Jemez Pueblo boundary to the headwaters. According to Sean Ferrell, US Forest Service fisheries biologist, Vallecito Creek does include perennial portion above the diversion. Additional information regarding the perennial nature of sections of Vallecito Creek has been collected directly by our staff. SWQB is completing a year long survey of Jemez River watershed, including Vallecito Creek. We established stations at Vallecito Creek at Paliza Campground and Vallecito Creek Above Ponderosa Diversion. These stations were visited monthly from March through October. These stations contained flowing water during every monthly sampling event, which we measured and documented. This is further evidence that Vallecito Creek does contain perennial portions, as stated in NMAC 20.6.4.107.

There may be some confusions because some people refer to Vallecito Creek as Paliza Creek above the diversion and/or once it enters the canyon. According to the US Geological Survey, the official name is Vallecito Creek above the diversion. We will add a clarifying note to the Vallecito Creek entries on the Integrated List.

The designated uses stated in NMAC 20.6.4.107 apply to perennial portions of Vallecito Creek. These perennial portions are in the assessment unit named "Vallecito Ck (Paliza Campground to headwaters)." The *2004 State on New Mexico Integrated List of Assessed Surface Waters* entry for this assessment unit on page 193 of 338 notes all the designated uses that apply, and documents that this assessment unit is <u>not impaired</u> (i.e., IR Category 2). The lower assessment unit named "Vallecito Ck (Jemez Pueblo bnd to Ponderosa)" only lists the designated uses of Livestock Watering and Wildlife Habitat to acknowledge that this reach is not perennial. These two uses apply to all waters of the state. This assessment unit is listed as <u>not assessed</u> because there is not enough data to determinate whether or not these designated uses are impaired (i.e., IR Category 3).

In conclusion, NMAC 20.6.4.107 correctly indicates that Vallecito Creek does contain perennial portions. The *2004 State on New Mexico Integrated List of Assessed Surface Waters* correctly indicates that the upper portion contains perennial portions while the lower portion does not, and neither the upper or lower Vallecito Creek assessment units are currently listed as impaired.

If you have any additional questions or concerns, please feel free to contact me at (505)827-2904.

Sincerely,

Lynette Guevara

Lynette Guevara, Program Manager
Monitoring and Assessment Section

Return to "Pat" Perry-Piper, mailed 3-9-07

Chijuilla to Northern boundary Cuba). As stated in the Consent Decree, waters removed from the CWA §303(d) list will not require development of a TMDL.

A biological and stream bed assessment was also performed at the station Río Puerco @ Hwy 550 Bridge which confirmed the sedimentation/siltation listing and is discussed in Section 3.0 of this TMDL document.

Between March and July 2004, SWQB staff conducted surveys to assess the physical and biological condition of Río Puerco (Northern boundary Cuba to headwaters) at the only established station in this assessment unit - Río Puerco @ CR13 Bridge. Subsequent visits to this site in August to November 2004 revealed that this station was not flowing and SWQB staff were unable to collect additional water quality samples or biological samples.

Based on the information gathered during the 2004 Río Puerco survey, the SWQB has determined that Río Puerco (Northern boundary Cuba to headwaters) is not perennial for the entire length of this assessment unit. SWQB has therefore determined that the applicable water quality standard segment for this intermittent reach is 20.6.4.98. There are no temperature criteria associated with 20.6.4.98. The general bottom deposit criteria found in 20.6.4.13.A NMAC and SWQB's sedimentation/siltation assessment protocol are not applicable to non perennial reaches. Therefore, there were no identified water quality impairments for either sedimentation/siltation or temperature at this station during the 2004 survey. As stated in the Consent Decree, waters removed from the CWA §303(d) list will not require development of a TMDL.

Please [illegible] Mailed 3-9-07

Photo 4.1 Río Puerco at County Road 13 Bridge (September 1, 2004)

Vallecito Ck (Jemez Pueblo bnd to Ponderosa) Jemez

Assessment Unit ID:	Size (mi or ac):	WQS reference:	Monitoring Schedule:	Assessed Date:	IR Category:
NM-2105.5_20	1.12	unclassified	2005	1/1/1999	3

Use Information:

Designated Use (s):	Attainment:
Livestock Watering	Not Assessed
Wildlife Habitat	Not Assessed

Assessment Information:

Assessment Unit Comments:

Vallecito Ck (Paliza Campground to headwaters) Jemez

Assessment Unit ID:	Size (mi or ac):	WQS reference:	Monitoring Schedule:	Assessed Date:	IR Category:
NM-2105.5_21	9.55	20.6.4.107	2005	1/1/1999	2

Use Information:

Designated Use (s):	Attainment:
Coldwater Fishery	Fully Supporting
Irrigation	Fully Supporting
Livestock Watering	Not Assessed
Primary Contact	Not Assessed
Wildlife Habitat	Fully Supporting

Assessment Information:

Assessment Unit Comments:

Please fill out "Petty-Pyn" mailed 3-9-07

* see other side

Vallecito Ck (Ponderosa to Paliza Campground) Jemez

Assessment Unit ID:	Size (mi or ac):	WQS reference:	Monitoring Schedule:	Assessed Date:	IR Category:
NM-2105.5_22	4.27	20.6.4.107	2005	1/1/1999	3

Use Information:

Designated Use (s):	Attainment:
Coldwater Fishery	Not Assessed
Irrigation	Not Assessed
Livestock Watering	Not Assessed
Primary Contact	Not Assessed
Wildlife Habitat	Not Assessed

Assessment Information:

Assessment Unit Comments:

Refer to "Hot" Long-Term
Mailed 3-9-07

* see other side

copy retained, none sent out

March 9, 2007

Until I have reviewed requested hardcopy and am able to revise accordingly, my formal comment for inclusion in the public record, written form, is as follows:

-beginning-

I was told by SWQB, on September 27, 2005, that I would be notified in the mail by an Outreach Coordinator when draft 2006-2008 State of New Mexico Integrated Clean Water Act (CWA) Section 303(d)/305(b) List of Assessed Surface Waters (Integrated List) would be available to the public. I was not.

I would like to remind Ms Guevara to add a clarifying note to any Vallecito Creek entries on the Integrated List concerning how some people refer to Vallecito Creek as Paliza Creek above the diversion and/or once it enters the canyon.

I would also like to remind Ms Guevara that, as in the case of Rio Puerco (Northern boundary Cuba to headwaters), Vallecito Creek (Jemez Pueblo boundary to Ponderosa) and Vallecito Creek (Ponderosa to Paliza Campground)

Peter A. Hoff "Tony" Ben, mailed 3-19-07

copy retained, none sent out

(comment cont.) March 9, 2007

do not require development of a TMDL."

-end-

Respectfully,

Rebecca G. "Gert" Perry-Pepin

(I also enclosed Pages 193 and 194 of 335 of old Integrated List.)

Rebecca G. "Gert" Perry-Pepin
mailed 3-9-07

***RESPONSE**: SWQB apologizes for not mailing you the public notice for the draft Integrated List and is relieved that you noticed the public notice in the Albuquerque Journal. Per your request, SWQB mailed you a copy of the state water quality standards (20.6.4 NMAC), Assessment Protocols, draft 2006-2008 Integrated List, and associated draft Record of Decision (ROD) on March 14, 2007.*

As noted in the letter from SWQB to you on September 27, 2005, our Outreach Coordinator did put your name in our database. For public notices of a state-wide nature (such as the draft Integrated List), the past outreach process has been 1) publication of a public notice in several newspapers around the state, and 2) email notification to our state-wide notification list (approximately 400 addresses) regarding the opening of the list for public comment. Unfortunately, your request for a hard copy mailing of the public notice was inadvertently not fulfilled. Because you saw the public notice and informed us of the problem, we were able to send you a copy of everything you requested.

Regarding Vallecito Creek, the clarifying note you previously requested was included in the draft Integrated List that was open for public comment. The note reads: "This portion of Vallecito Creek that flows through Paliza Canyon is sometimes referred to as Paliza Creek. According to the US Geological Survey, the official name is Vallecito Creek above the diversion."

RESPONSE TO COMMENTS (part two)

2006-2008 STATE OF NEW MEXICO
INTEGRATED §303(d)/ §305(b)
LIST OF ASSESSED SURFACE WATERS

Table of Contents

COMMENT SET 7 – Los Alamos National Laboratory, Environmental Protection Division, Water Quality & RCRA, Los Alamos, NM

ENCLOSURE 1

LOS ALAMOS NATIONAL LABORATORY

COMMENTS TO DRAFT 2006 – 2008 NEW MEXICO 303(d) LIST

Los Alamos National Laboratory (the Laboratory, LANL) appreciates the opportunity to comment on the *Public Comment Draft 2006 - 2008 CWA §303(d)/§305(b) Integrated List of Assessed Surface Waters* issued by the New Mexico Environment Department (NMED). The following comments are discussed in greater detail in the following sections.

- The use of data from short-term storm water flows to evaluate conformance with long-term chronic criteria and listing based solely on storm water data is not appropriate.
- TMDL development should not be scheduled until the assessment or listing methodologies for ephemeral streams are established.
- Listing naturally occurring constituents that trigger exceedances of water quality criteria is not appropriate.
- Recent monitoring data show that selenium attains water quality criteria, consistent with previously documented recovery trends following the Cerro Grande Fire

The Laboratory has expressed some of these concerns in the past. While those are reiterated below, with supporting details, we would like to propose the following single, simple solution that addresses all issues in this comment letter.

Recommendation: The Laboratory recommends that all water bodies discussed in this comment letter be placed in Category 3, according to the 2005 Integrated Report (IR) Guidance released by EPA (EPA, 2005).

Previous Record of Comments

Many of the following comments address the methods used to assess whether a water body should be listed as impaired. These methods and procedures are described in the *Procedures for Assessing Standards Attainment for the Integrated §303(d) /§305(b) Water Quality Monitoring and Assessment Report: Assessment Protocol* (New Mexico, 2006) (Assessment Protocol). The Laboratory first commented on an earlier version of these procedures in the comments on the draft 2002-2004 303(d) list (August 8, 2002). In the October 16, 2002 response to these comments, the NMED Surface Water Quality Bureau (SWQB) indicated that many of the Laboratory's issues would be addressed during the 2003-2004 Triennial Review or during the 2003 update of the Assessment Protocol.

The Laboratory has subsequently reiterated these concerns in comments on the Assessment Protocol, comments on the 2004 – 2006 303(d) list, and again during the Triennial Review. Because the Assessment Protocol is fundamental to the determination of whether a water body is listed as impaired, many of the following general comments again address the Laboratory's concerns with the Assessment Protocol. Other concerns that have been expressed include constituents such as aluminum that are attributable to natural causes, the application of the Livestock Watering beneficial use to storm water, and the lack of a defensible basis for applying a 1.5 multiplying factor to chronic criteria to establish "screening values."

The Laboratory Recommends Placing All Water bodies in Category 3

The Laboratory proposes to put all of the listed water bodies in Category 3, due to a lack of adequate receiving water data and assessment methodologies and the presence of many constituents attributable to natural causes. Based on the IR Guidance recently released by EPA, Category 3 is defined as "no reliable monitored data and/or information to determine if any designated or existing use is attained" (EPA, 2005). For the water bodies noted in .

Table 1, we have consistently raised concerns about the use of storm water data to assess receiving water conditions. We have also raised concerns about natural causes for the occurrence of many listed constituents. Designating these water bodies to Category 3 would address those concerns. The detailed explanation of this proposal and how it is supported by evidence in the record as well as State and Federal policy is presented in the sections following Table 1.

The benefit of this proposal is that the constituents would remain on the 303(d) list, but the required action would be productive and result in studies to resolve uncertainties, rather than TMDLs to address constituents that have not been demonstrated to be impairing beneficial uses. The Laboratory supports an integrated approach to assessment of beneficial uses.

Table 1. IR Categories in the Public Review Draft of the 2006 – 2008 303(d) List and Changes Proposed by the Laboratory

Waterbody	Assessment Unit ID	Constituent	TMDL Date	Draft 303(d)/305(b) List IR Category	Proposed IR Category for Constituent	Proposed IR Category for Assessment Unit
Rendija Canyon (Guaje Canyon to headwaters)	NM-9000.B_045	Selenium	2007	5/5C	1	3
Los Alamos Canyon (within LANL)	NM-90000.a_006	Aluminum		5/5A	3	3
		Gross Alpha	2007		3	
		Mercury			3	
		PCB in water			3	
		Selenium	2007		1	
Los Alamos Reservoir	NM-9000.B_077	Other		5/5C	3	3
Pueblo Canyon (NM 502 to headwaters)	NM-90000.a_043	Aluminum		5/5A	3	3
		Gross Alpha	2007		3	
		Mercury	2007		3	
		PCB in water			3	
		Radium 226			3	
		Radium 228			3	
		Selenium	2007		1	

Canada Del Buey (within LANL)	NM-128.A_00	Aluminum		5/5A	3	3
		Gross Alpha			3	
		Radium 226			3	
		Radium 228			3	
Mortandad Canyon (within LANL)	NM-90000.a_042	Aluminum		5/5C	3	3
		Gross Alpha	2007		3	
		Selenium	2007		1	
Pajarito Canyon (within LANL above Starmers Gulch)	NM-128.A_07	Aluminum		5	3	3
		Gross Alpha			3	
		Radium 226			3	
		Radium 228			3	
		Selenium			1	
Pajarito Canyon (within LANL below Arroyo de La Delfe)	NM-128.A_08	Aluminum		5	3	3
		Gross Alpha			3	
		Radium 226			3	
		Radium 228			3	
		Selenium			1	
Sandia Canyon (Sigma Canyon to NPDES outfall 001)	NM-9000.A_047	Aluminum		5	3	3
		Gross Alpha			3	
		Mercury			3	
		PCB in water			3	
Sandia Canyon (Within LANL below Sigma Canyon)	NM--128.A_11	Aluminum		5	3	3
		Gross Alpha			3	
		Mercury			3	
		PCB in water			3	
Water Canyon (LANL bnd to headwaters)	NM-9000.B_052	Aluminum		5	3	3
Water Canyon (Within LANL below Area-A Cyn)	NM-128.A_13	Aluminum		5	3	3
		Arsenic			3	
		Cadmium			3	
		Copper			3	
		Gross Alpha			3	
		Selenium			1	
		Vanadium			3	
		Zinc			3	

***RESPONSE**: During past listing cycles, EPA Region 6 has instructed SWQB to utilize and assess stormwater data. The SWQB and EPA Region 6 therefore disagree with LANL's comment that there are not adequate data to make impairment determinations.*

SWQB agrees to change any Pajarito Plateau listings based on stormwater data that were listed on the public comment draft as "5" or " 5/5A" to "5/5C" to acknowledge the need for additional data, which are in part being collected in 2006-2007 during SWQB's intensive watershed survey of the area. We also revised the proposed "TMDL Schedule" date to 2008 since we expanded the current SWQB field effort on the Pajarito Plateau to two years.

We also would like to clarify how the various IR categories relate to the 303(d) list. The above comment "The benefit of this proposal is that the constituents would remain on the 303(d) list,…" is incorrect. The State of New Mexico chose to combine the 2006 section 305(b) report and section 303(d) list into a single report following EPA's listing guidance titled "Guidance for the 2006 Integrated Assessment and Reporting on the Quality of States' Waters" ("Integrated Report"). The Integrated Report includes five categories as established in EPA guidance. The 303(d) list is comprised of only category 5 (A, B, or C) waters. Category 1 through 4 waters are not considered part of the 303(d) list. Consequently, if an assessment unit is re-categorized from category 5 to category 3, the result would be a delisting action (i.e., removal from the 303(d) list). Also, there is only one IR category reported per each assessment unit. IR categories are not established for each individual assessment unit – constituent combination.

Regarding LANL's comment "the required action would be productive and result in studies to resolve uncertainties, rather than TMDLs to address constituents that have not been demonstrated to be impairing beneficial uses" -- The purpose of SWQB's assessment process is to demonstrate whether or not designated and existing uses are impaired. The numeric and general criteria in the state's surface water quality standards provide the concentration or level at which a contaminant is expected to protect designated and existing uses. If available data indicate that criteria are not met through application of Assessment Protocols and current water quality standards (20.6.4 NMAC), the use is impaired and the state is required to either develop TMDLs or make a compelling case for Category 4b..

IR Category 3 Addresses Data Gaps

The inclusion of the following comment in essentially all of NMED's listings that are triggered by storm water data shows responsiveness to one of the Laboratory's previously expressed concerns:

> "The listing is based on storm water data only. Additional data and assessment methodologies specific to incorporation of storm water data may be needed to verify the listing before scheduling subsequent TMDL development. There are currently (2006) no USEPA assessment or listing methodologies for incorporation of storm water data."

The monitoring data needed to assess impairment in receiving water and the assessment methodologies needed to evaluate those data do not exist. As a basis for moving forward, we propose that all the water bodies in the 303(d) list that have the comment above should be listed as Category 3.

Adopting the NMED list with these revised IR categories would be consistent with current regulations and guidelines for assessing and listing water bodies (EPA, 2005). As noted on page 58 of (EPA, 2005), which shows how a State documents "Good Cause" to move a segment from Category 5 to Category 3, the explanation required is:

> "Previous listing in Category 5 was inconsistent with assessment methodology. Available data insufficient to determine listing status."

The statements entered into the record by NMED as quoted above are clearly supportive of the documentation for good cause required by EPA for listing water bodies as Category 3.

This is not only consistent with EPA guidance, it is also sensible policy implementation. Before developing TMDLs for the constituents listed, it is necessary to evaluate whether beneficial uses of receiving waters are, in fact, impaired.

***RESPONSE**: See response above. SWQB believes that the Pajarito Plateau assessment units listed on the 2004-2006 list as Category 5 were consistent with assessment methodologies and the data were sufficient to determine listing status. During past listing cycles, EPA Region 6 has instructed SWQB to utilize and assess stormwater data. EPA continues to give us this instruction.*

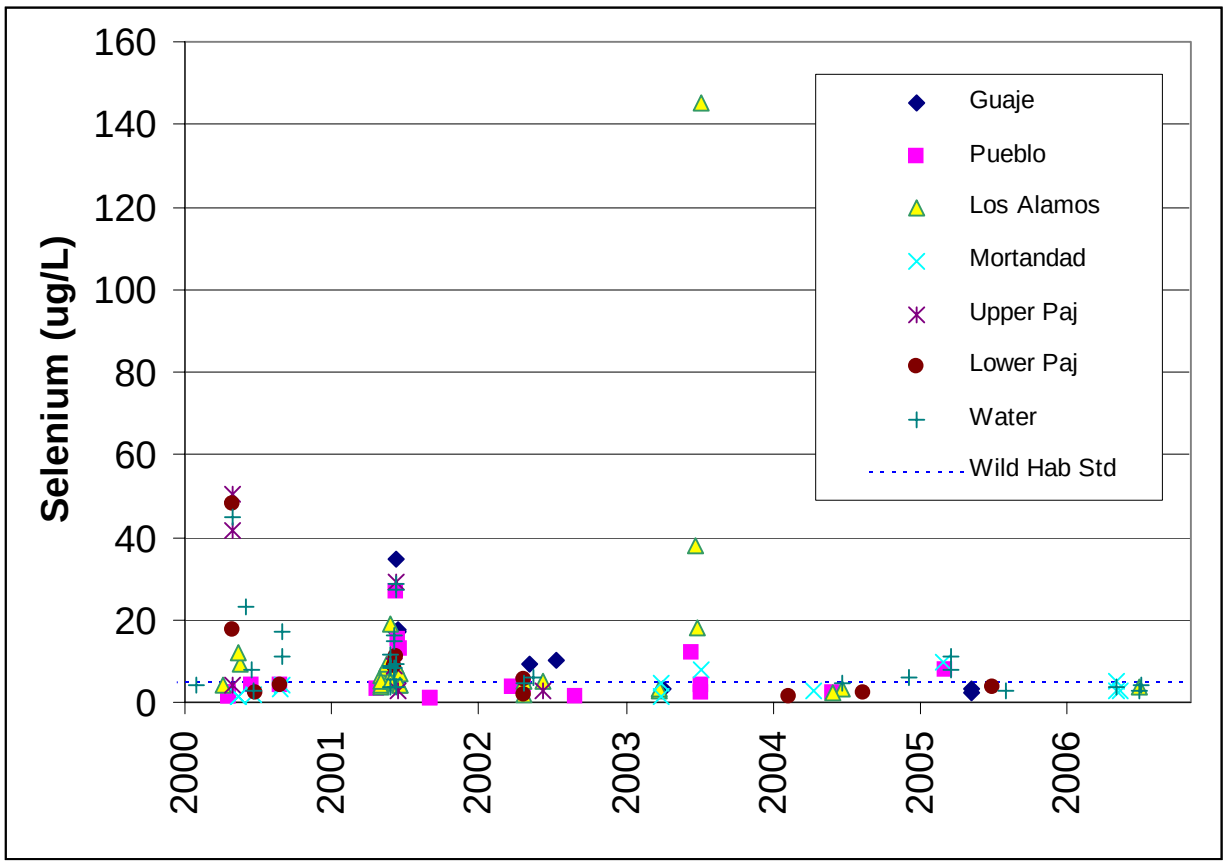
IR Category 3 Address Natural Causes

Category 3 would also address concerns we have expressed about naturally occurring constituents, such as aluminum, selenium, gross alpha, and metals. As noted in the Integrated Report Guidance (EPA 2005, p. 62):

> "In some cases, a segment may exhibit water quality characteristics or chemical concentrations approaching or exceeding those levels established in the state's water quality standards due solely to nonanthropogenic causes. If the state's water quality standards include a specific exclusion for exceedances caused by "natural conditions", these segments would not be considered impaired (i.e., they could be excluded from Categories 4 and 5). *These segments should instead be placed into Categories 1 through 3 as appropriate*. For such segments, these background or natural conditions can be defined by assessing the results of water quality monitoring efforts, by the use of predictive models, or a characterization based on data from a watershed with similar hydrologic, land use, and pollutant loading characteristics." [emphasis added] (EPA 2005, p. 62).

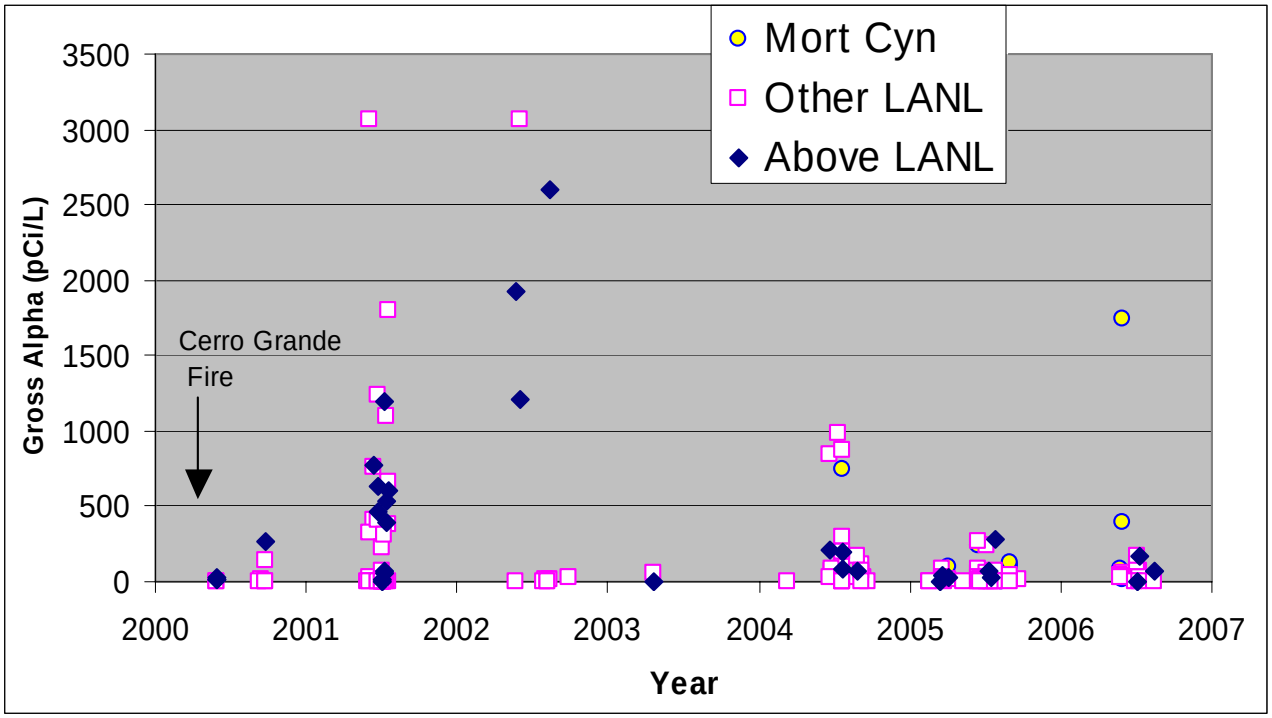
Aluminum is a naturally occurring major element, comprising approximately 12% of the earth's crust. Selenium is a naturally occurring trace element that was mobilized as a result of the Cerro Grande Fire. Selenium has been trending downward since that fire, as shown in **Error! Reference source not found.** and Table 2 below. Gross alpha emissions that result from the presence of thorium and uranium naturally occurring in the volcanic tuff present in watershed sediments can be a substantial component of natural background gross alpha emissions (LANL 1998). Like selenium, gross alpha emissions have also been trending downward since the Cerro Grande fire in all canyons except for Mortandad (Figure 2).

Figure 1. Selenium Trends in Storm Water Following the Cerro Grande Fire (updated figure based on LANL, 2004)



Decay of naturally occurring isotopes in watershed sediments as a source of gross alpha is further supported by the strong correlation between gross alpha and suspended sediment concentrations (SSC) shown in Figure 3. The relationship between gross alpha and SSC in stations within LANL is identical to stations upstream of LANL, with the exception of Mortandad Canyon.

Figure 2. Total Gross Alpha Activity Trends since the Cerro Grande Fire

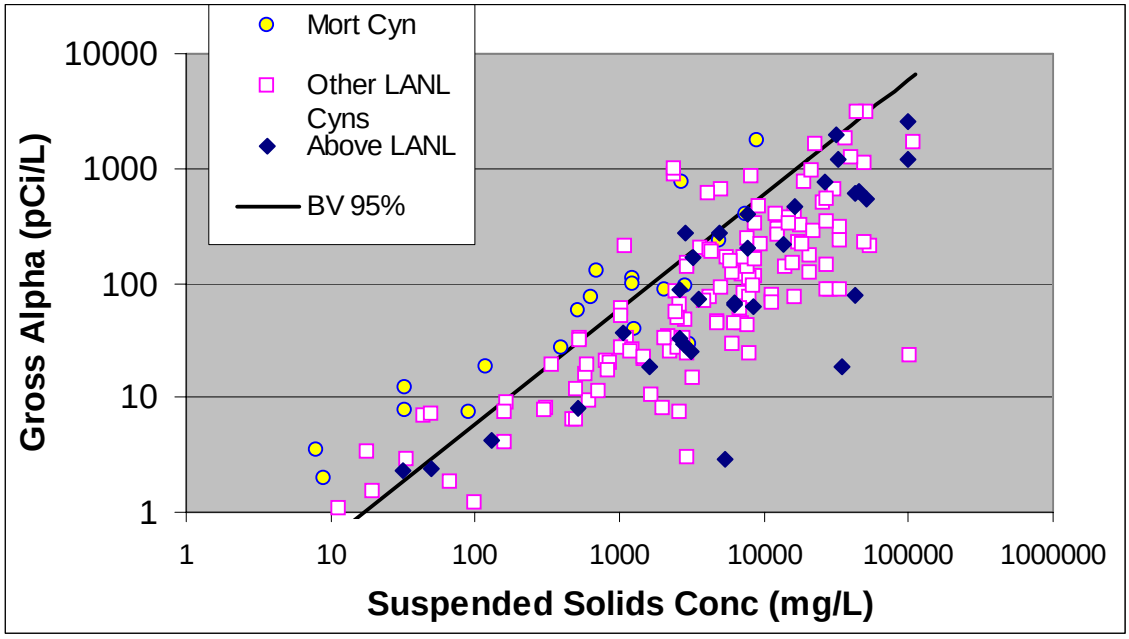


Mortandad Canyon requires special discussion. Mortandad Canyon has received discharges from the Laboratory's Radioactive Liquid Waste Treatment Plant. These discharges are of source, special nuclear, and byproduct material under the Atomic Energy Act, and are therefore exempt from the Clean Water Act and from the definition of adjusted gross alpha. However, it is possible that for Mortandad Canyon, the statistically significant elevation above the 95% confidence level for background stations shown in Figure 3 could be attributed to anthropogenic sources in storm water. But, as noted above, the presence of constituents in storm water is not a basis for listing receiving waters as impaired. Until methodologies are developed for assessing ephemeral streams, Mortandad Canyon should be placed in Category 3. At a minimum, as discussed below, it should be placed in Category 4B, recognizing the presence of existing regulatory programs covering gross alpha and other constituents.

Radium-226 is a product of the uranium-238 decay; radium-228 is a product of thorium-232 decay (USGS, 2001). Both uranium and thorium occur naturally in volcanic tuffs of the watershed (LANL, 1998). Like selenium, gross alpha emissions have also been trending downward since the Cerro Grande fire in all canyons except for Mortandad (Figure 2).

The presence of naturally occurring radium-226 and radium-228 above drinking water guidelines in groundwater throughout the United States is well-documented (USGS, 2001). Therefore, all of these constituents are reasonable candidates for Category 3 according to the guidance of EPA (2005).

Figure 3. Relation of Gross Alpha Activity with Suspended Sediment Concentrations since the Cerro Grande Fire, 2000-2006



Notes: Shown are data from Mortandad Canyon, from stations in other canyons crossing historic or current LANL lands, and from stations located above (upstream of) LANL. The gross alpha activity that is predicted to occur simply from natural stream sediments is shown as a line on the chart (BV 95%= upper 95th percentile of background range)

Classifying the water bodies listed in **.**

Table **1** as Category 3 would also be consistent with New Mexico regulations. The State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) at § 20.6.4.13.F(1) states: " … surface waters of the state shall be free of toxic pollutants *from other than natural causes* … " [emphasis added]. It is most probable that the concentrations of aluminum, selenium, gross alpha, and metals noted in storm water samples are due primarily to natural causes.

Category 3 is a valid way to use the 303(d) listing process to set appropriate priorities for action. Before moving ahead with TMDL development, it is essential to develop adequate information about receiving water conditions and verify the relative contributions of natural versus human-caused sources of the constituents of concern.

RESPONSE*: If there are significant data and information available to determine what amount of gross alpha, selenium, aluminum, radium-226, and radium-228 are attributable to natural sources, LANL and SWQB can work together to develop scientifically-valid arguments for segment-specific water quality standards for these parameters in this watershed. EPA Region 6 is obligated to use the most recently approved state water quality standards when reviewing our list. Therefore, the establishment of segment-specific criteria is the best way to address the issue of natural condition.*

SWQB currently does not have the necessary data or a mechanism in place in the Assessment Protocols or in water quality standards implementation guidance related to 20.6.4.13.F(1) to determine the portion of a pollutant load that is contributed from "natural" sources, so we must determine impairment based on the numeric criteria and available data.

SWQB will be preparing a revision to the Assessment Protocols prior to development of the 2008-2010 Integrated List. The above comments as well as the suggestions in EPA 2005c, p. 62, and the 2008 IR guidance will be taken into consideration during the revision. SWQB will also consider a mechanism to incorporate analysis of downward trends vs. the lumping of 5 to 10 years of data to acknowledge situations where there are multiple years of data available before and after events such as catastrophic fire. In the vast majority of watersheds through out the state, data are not available for several consecutive years. The large amount of data being collected for these canyons through LANL's monitoring efforts will greatly assist in the determination of anthropogenic vs. natural sources of impairment, as well as development of subsequent TMDLs or de-list rationales.

It would also be helpful to the listing process if LANL would submit data such as those presented in this Response to Comments during the solicitation of readily available data that occurs before preparation of every new Integrated List.

Selenium Impairments Should be Removed from the 303(d) List

The Laboratory has also consistently commented that selenium, a naturally occurring trace element, was elevated as a result of the Cerro Grande fire. We appreciate the following statement to that effect entered into the record by NMED:

> "Selenium may be naturally elevated in the watershed and mobilized by the Cerro Grande fire."

In the years following the Cerro Grande fire, Selenium has consistently trended downward (Figure 1). The 2005 and 2006 monitoring data from the Laboratory's storm water monitoring program shows that the criteria is no longer exceeded (Table 2, last column). Therefore, in contrast to the other constituents, the Laboratory recommends that selenium be placed in Category 1 (no longer impairing beneficial uses). Since most of the water bodies have other constituents that would still be in Category 3, the Assessment Units (AU) as a whole would remain in Category 3 as recommended. The only possible exception would be Rendija Canyon, from Guaje Canyon to the headwaters, which is only listed for selenium. For the sake of consistency and to allow time to gather adequate monitoring data, the Laboratory is amenable to waiting another listing cycle before requesting that Rendija Canyon be removed from the 303(d) list altogether.

Table 2. Selenium Storm Water Data Showing Attainment of Water Quality Criteria in Recent Years

Assessment Unit		Year	Number of Analyses	Number of Detects	Detection Rate (%)	Number > WQC	Exceedance Rate (%)
NM-9000.A_005	Guaje Canyon (San Ildefonso bnd to headwaters)	2001	6	3	50	3	50
		2002	5	2	40	2	40
		2003	5	1	20	0	0
		2004	1	0	0	0	0
		2005	2	1	50	0	0
		2006	1	0	0	0	0
NM-9000.A_043	Pueblo Canyon (NM 502 to headwaters)	2001	9	5	56	3	33
		2002	6	3	50	0	0
		2003	10	2	20	0	0
		2004	8	1	13	0	0

Assessment Unit		Year	Number of Analyses	Number of Detects	Detection Rate (%)	Number > WQC	Exceedance Rate (%)
		2005	11	1	9	1	9
		2006	9	0	0	0	0
NM-9000.A_006	Los Alamos Canyon (within LANL)	2001	43	17	40	10	23
		2002	3	3	100	1	33
		2003	9	4	44	3	33
		2004	10	2	20	0	0
		2005	22	0	0	0	0
		2006	20	1	5	0	0
NM-9000.A_042	Mortandad Canyon (within LANL)	2001	0				
		2002	4	0	0	0	0
		2003	4	1	25	1	25
		2004	5	1	20	0	0
		2005	9	0	0	0	0
		2006	14	3	21	0	0
NM-128.A_08	Pajarito Canyon (within LANL below Arroyo de La Delfe)	2001	11	2	18	2	18
		2002	4	2	50	1	25
		2003	1	0	0	0	0
		2004	10	2	20	0	0
		2005	16	2	13	0	0
		2006	10	1	10	0	0
NM-128.A_07	Pajarito canyon (within LANL above Starmers Gulch)	2001	7	3	43	2	29
		2002	1	1	100	0	0
		2003	1	0	0	0	0
		2004	3	0	0	0	0
		2005	10	1	10	0	0
		2006	5	0	0	0	0
NM-128.A_13	Water Canyon (within LANL below Area A Cyn)	2001	12	9	75	9	75
		2002	3	2	67	1	33
		2003	1	0	0	0	0
		2004	9	1	11	0	0
		2005	13	2	15	0	0
		2006	13	3	23	0	0

***RESPONSE**: As noted above, SWQB currently does not have the necessary data or a mechanism in place in the Assessment Protocols or in water quality standards implementation guidance related to 20.6.4.13.F(1) to determine the portion of a pollutant load that is contributed from "natural" sources, so we must determine impairment based on the numeric criteria and available data. SWQB will be preparing a revision to the Assessment Protocols prior to development of the 2008-2010 Integrated List. The above comments as well as the suggestions in EPA 2005c, p. 62, and the 2008 IR guidance will be taken into consideration during the revision. SWQB will also consider a mechanism to incorporate analysis of downward trends vs. the lumping of 5 to 10 years of data to acknowledge situations where there are multiple years of data available pre and post events such as catastrophic fire.*

Pollutants of Human Origin Are Already Regulated

The Laboratory acknowledges the importance of adequate monitoring and Best Management Practices for pollutants such as mercury and PCBs. The Laboratory believes that existing pollution control requirements are sufficient to protect water quality. Since no data have been provided other than storm water discharges, we still recommend listing these pollutants as Category 3.

According to the Integrated Report Guidance (EPA 2005, p. 54):

> "EPA regulations recognize that alternative pollution control requirements may obviate the need for a TMDL. Segments are not required to be included on the section 303(d) list if technology-based effluent limitations required by the Act, more stringent effluent limitations required by state, local, or federal authority, or "[o]ther pollution control requirements (e.g., best management practices) required by local, State or Federal authority" are stringent enough to implement applicable water quality standards (see 40 CFR 130.7(b)(1)) within a reasonable period of time. This guidance acknowledges that the most effective method for achieving water quality standards for some water quality impaired segments may be through controls developed and implemented without TMDLs (referred to as a "4b alternative")." (EPA 2005, p. 54)

If downstream water bodies are determined to be impaired, category 4B would be appropriate. However, for bioaccumulative pollutants such as mercury and PCBs, monitoring in the food chain (e.g., invertebrates or the eggs of foraging birds) and food web modeling are the tools most appropriate for evaluating protection of wildlife habitat. If a TMDL is determined to be necessary, this category can always be revised to 5/5A in a future listing. It is premature to make that determination with the available storm water monitoring information.

The pollution control requirements applicable to AUs potentially impacted by past and present LANL operations include:

- Multi-Sector General Permit (MSGP) for storm water discharges from industrial activities (Permit Nos. NMR05A734 and NMR05735).

- Federal Facility Compliance Agreement, entered into between Region VI of the United States Environmental Protection Agency (EPA) and the United States Department of Energy (DOE) on February 3, 2005, and Administrative Order (AO) Docket No. CWA-06-2005-1734 (Mar. 17, 2005) issued to the University of California (UC) as the Laboratory's Management and Operations Contractor for DOE. (Note: On June 1, 2006, Los Alamos National Security, LLC (LANS) became the Management and Operations Contractor of LANL for DOE, and a successor to UC. On November 16, 2006, the EPA issued an amended AO reflecting the operator change and substituting LANS for UC.)
    - The FFCA establishes a compliance program under the CWA for the regulation of storm water discharges from specifically identified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) until such time as these sources are regulated by an individual storm water permit issued by the EPA pursuant to the National Pollutant Discharge Elimination System (NPDES) Permit Program. Under the FFCA/AO, a monitoring and erosion control program has been established to control and limit contamination migration and transport from Sites within the Laboratory and within individual or combined site boundaries.

- The FFCA/AO requires LANL to apply for an NPDES individual storm water permit to regulate storm water discharges from point sources at SWMUs and AOCs that have the potential to impact surface waters. The individual permit will replace existing coverage for Sector K and L SWMUs under the MSGP. Other conventional industrial activities will continue to be regulated by the MSGP. The FFCA/AO will terminate upon issuance of an individual permit. The NPDES Individual Storm Water Permit Application was submitted to the EPA Region 6 office and the NMED Surface Water Quality Bureau (SWQB) on March 30, 2005, as required by the FFCA/AO. EPA has documented that the application is administratively complete.

- NPDES Permit No. NM0028355 (EPA 2001) (industrial outfall permit) authorizing discharges to the following receiving waters: Mortandad Canyon, Canada del Buey, Los Alamos Canyon, Sandia Canyon, Ten Site Canyon, Canon de Valle, and Water Canyon, in Water body Segment Nos. 20.6.4.126 and 20.6.4.128 of the Rio Grande Basin.

- Atomic Energy Act (AEA) of 1954. Gross alpha assessments should exclude radon and uranium, as well as the source, special nuclear and byproduct material regulated under the Atomic Energy Act (AEA) of 1954.

***RESPONSE**: Monitoring in the food chain (e.g., invertebrates or the eggs of foraging birds) and food web modeling is not necessary to determine whether or not wildlife habitat designated uses are impaired. The numeric and general criteria in the state's surface water quality standards provide the concentration or level at which a contaminant is expected to protect designated and existing uses. If available data indicate that criteria are not met through application of Assessment Protocols and current water quality standards (20.6.4 NMAC), the use is impaired.*

Any argument for Category 4b de-listing must include a compelling case to prove that other remediation efforts are being implemented and monitored in order to prove that they are addressing the specific parameter(s) of concern. The burden of proof is on the state, and the bar is high. The remediation efforts need to be site specific and designed to specifically address the listed impairment(s). Monitoring data and assurances must be available to document that the listed waters will achieve "Fully Supporting" status within a "reasonable period of time." EPA Region 6 has indicated that the pollution control strategies described above by LANL do not constituent a sufficient argument for moving these waters into Category 4b at this time.

Comments on the Assessment Protocol

We have several detailed concerns about the assessment protocol that are discussed below. These provide additional background and detail in support of our overall recommendation articulated above. Changing the listed water bodies to Category 3 as proposed in Table 1 would address essentially all of these concerns for the present listing cycle.

<u>Use of Storm Water Data for Assessing Use Support</u> - The majority of water quality data from the Laboratory was generated during storm water runoff events. Storm water runoff events in the arid Southwest are short-term events, usually lasting no more than a few hours. It is inappropriate to apply chronic water quality standards to storm water runoff events, as the Laboratory witnesses testified in the latest Triennial Review of New Mexico water quality standards.

Many of the samples used to determine listing are collected to meet requirements of the Multi-Sector General Permit for Storm Water Discharges from Industrial Activities (EPA 2000) and the FFCA/AO that collect water during the "first flush" during the first half hour of a storm event.

The purpose of sampling the first flush is to provide a worst-case estimate of contaminant release and the potential downstream impact. However, this sampling method is inappropriate to characterize in-stream impairment because it does not "characterize the water body throughout most of the hydrograph," which is a goal of the Assessment Protocol (p 8, Section 2.1.6). Accordingly, it does not provide a good estimate of the daily load required to calculate the total maximum daily load, particularly in canyons where base flow is commonly present in intermittent and perennial reaches.

US EPA's chronic water quality criteria for the protection of aquatic life used by SWQB are designed to be used as 4-day averages (US EPA 1991, 1994). The intent of this approach, which is conservative since many of the chronic criteria are based on toxicological tests with 20-30 day exposures, is to provide protection from long-term exposure to a pollutant. The wildlife habitat criteria consist of selected chronic aquatic life criteria known to cause problems in wildlife. 20.6.4.900.L NMAC clearly states that the wildlife habitat criteria are chronic. Therefore, the wildlife habitat criteria currently in 20.6.4 NMAC must be assessed using the same protocol as the chronic aquatic life criteria.

To our knowledge, livestock watering is not addressed by any current EPA guidance based on specific research on effects on livestock; the most relevant recent guidance is for domestic water supply and human health. Most of these criteria are directly carried over from the domestic water supply standards, which, in turn, come from the Safe Drinking Water Act Maximum Contaminant Levels of the National Primary Drinking Water Standards that are applicable to drinking water systems. These criteria, with the major exception of nitrate and nitrite, are generally chronic criteria designed to protect against ingestion of carcinogens in drinking water consumed by humans every day for 70 years. As such, these criteria are extremely conservative, especially when applied to intermittent and ephemeral streams that may only flow a few days per year. Since these criteria are either identical to, or have been derived in a similar manner to human health and domestic water supply criteria, compliance should be assessed in the same way, by comparison to the annual arithmetic or geometric mean, or median (US EPA 2002, Table 4-3, page 4-17). In the case of intermittent and ephemeral water bodies, these means or medians should be adjusted for the potential exposure of the livestock; when the water bodies are dry, livestock do not ingest the contaminant in drinking water. Thus, for days when the water body is dry, the level of the contaminant is zero.

The standards for Wildlife Habitat and PCBs are also chronic standards. The standards for Wildlife Habitat are generally derived from chronic standards for protection of aquatic life, over exposures of 28 days and longer. The standard for PCBs is intended to protect persons who eat fish from a body of water over a lifetime, so that the levels of PCBs bioaccumulated by the fish will not exceed fish consumption standards. As noted above, EPA recommends that compliance with human health standards be determined by comparing the annual average to the criterion (US EPA 2002).

Based on the above, it is common sense that short, flashy flows in ephemeral streams will not produce the long term exposures that produce impacts on an organism at low, chronic levels. For assessment purposes, the dose received by an organism must be evaluated by the exposure. At times when there is no flow, there is no exposure.

It may be administratively difficult for the NMED to obtain flow data from the widespread water bodies of the state. However, <u>when such data is available</u> for assessment purposes, it should be used to arrive at a more accurate assessment. The New Mexico Legislature charged NMED to create water quality standards based on "credible scientific evidence." 74-6-4 NMSA. Making use of such data when it is available would have the additional advantage of creating an incentive for landowners to collect such data.

As the above discussion demonstrates, the less exposure an organism has to storm water flows, the smaller dose it receives. Unless the organism is exposed to acute doses, which would impair its health with very brief exposures, the long term exposure can best be assessed by calculating an annual average daily exposure, as is done with drinking water for humans.

LANL has flow data which is publicly available, and can be used for this purpose in assessing water quality.

For example, suppose that contaminant Y has a chronic limit of 3 ug/L and an acute limit of 15 ug/L. Suppose further that the flow data show that Canyon X has flows on 50 days per year. Several samples indicate levels 5, 6, 7, 8 and 9 ug/L of contaminant Y (all below the acute value). The average is 7 ug/L. In order to obtain an annual average, multiply the average concentration -7- times the number of days of flow -50- (7 x 50 = 350) and divide by 365 (total days in the year). The average daily exposure is thus 0.96 ug/L, considerably below the chronic standard of 3.

In our view, in terms of assessing water quality and chronic exposure health effects, this simple calculation gives a more accurate assessment than only stating the values for several individual samples. It provides an assessment of an average dose over time.

With regard to gross alpha, LANL has two comments. First, LANL believes the gross alpha values, as applied to environmental samples taken on the Laboratory, tend to exaggerate the values for adjusted gross alpha. The reason is that gross alpha is a parameter derived from human drinking water standards. Most of the values for gross alpha come from the suspended solids in the sample; LANL streams during storm water flows tend to be turbid. However, such muddy water would be unacceptable for drinking; drinking water systems would settle or filter out the suspended solids. Testing filtered water that is suitable for drinking would produce much lower values.

Second, in terms of calculating the adjusted gross alpha, the definition in the regulations (20.6.2.7.B) states that the term “means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample, including radium-226, but excluding radon-222 and uranium. Also excluded are source, special nuclear and by-product material as defined by the Atomic Energy Act of 1954.”

The notes in the draft Record of Decision for the draft listing (see, e.g., page 85 for Pueblo Canyon; similar language is found in the descriptions of other canyons) indicate that the gross alpha data were taken from the RACER database, and adjusted to remove uranium, plutonium, and americium. Unfortunately, this adjustment is incomplete and the resulting values do not meet the definition of adjusted gross alpha in the regulations. Besides uranium, plutonium and americium, it is necessary to remove radon-222 because that compound is excluded from the definition. It is also necessary to remove thorium, which is found in surface water at LANL and which is a source material under the AEA. 42 USC 2014(z) (“The term ‘source material’ means (1) uranium, thorium . . . ”). Because NMED did not adjust the raw data as required by the New Mexico regulations, the results cited are not “Adjusted Gross Alpha” and cannot be compared with standards to support listing of waters as impaired for gross alpha.

The Assessment Protocol, to address the problem of small datasets consisting of grab samples, uses a multiplying factor of 1.5 to compare water quality data to chronic criteria. The Laboratory believes this approach lacks a credible scientific basis. This approach does not address the exposure assumptions inherent in chronic criteria. Moreover, as is discussed in detail below, the

basis for the selection of the 1.5 factor (as cited by the SWQB) is not applicable to evaluating ambient water quality data for assessment of use attainment.

***RESPONSE**: Several of LANL's comments relate to water quality standards concerns and will not be addressed in this Response to Comments. The appropriate avenue for those comments and suggested changes is during the water quality standards triennial review process. See previous responses regarding the use of stormwater data to assess impairment.*

LANL has taken the statement "…characterize the water body throughout most of the hydrograph..." out of context. This statement was in reference to our change in sampling regime to generally one sampling event per month for eight months during routine, intensive watershed surveys. It does not in any way restrict us from using first flush data to make impairment determinations, especially in situations where the waterbody only flows in response to storm events.

Regarding the need to assess wildlife habitat criteria currently in 20.6.4 NMAC using the same protocol as the chronic aquatic life criteria, the word "chronic" was struck from 20.6.4.900.G during the last triennial review. Accordingly, the 2006 Assessment Protocol was revised to remove the assessment approach applied to chronic criteria. SWQB is also going to research potential alternatives to the use of the 1.5 multiplier to determine chronic screening criteria during revision of the Assessment Protocol prior to development of the 2008-2010 Integrated List.

SWQB's position regarding LANL's concern with the calculation of adjusted gross alpha has not changed since the 2002 listing cycle (excerpts below). As stated in the ROD for all gross alpha listings on the Pajarito Plateau, all data used in the assessments were calculated as uranium-corrected gross alpha minus plutonium and americium.

> *The federal Clean Water Act defines "pollutant" to include "radioactive materials", 33 U.S.C. §1362(6), and the Code of Federal Regulations then provides an exception that the term does not include material regulated under the AEA, 40 C.F.R. §122.2 (definition of "pollutant"). Recognizing this exception, the state Water Quality Act and water quality standards include the exception that "water contaminant" does not include "source, special nuclear or by-product material." Except for those specified materials, however, radioactive materials are "water contaminants" subject to the Clean Water Act and the Water Quality Act.*
>
> *The gross alpha data was corrected in the following two ways. First, U-238, U-234, and U-235-236 was subtracted from the reported gross alpha result. Second, this value was further corrected by subtracting all known AEA alpha emmiters when there were available data. There were data available on Plutonium-238, Plutonium-239/240, and Americium-241 for the majority of data used in the assessment. These AEA radionuclides we found data on account for an average of 3.3% of the total gross alpha.*
>
> *Analyses have determined that the listed waters contain corrected gross alpha levels exceeding the applicable criterion, that are not attributable to "source, special nuclear or by-product material," and are thus presumptively water contaminants. The source(s) of the non-AEA regulated material is not identified. The comment proposes, without evidence, a presumption that both the AEA regulated and non-AEA regulated materials have a common source and that no further investigation is necessary. Such a presumption ignores the possibility that some separate sources of non-AEA material may exist.*

Listing of streams for the presence of contaminants was not at issue in either court case cited in the comment. In the case of Waste Action Project v. Dawn Mining Corp., 137 F.3d 1426 (9thCir.1998), cited in the comment, the issue involved authority over permitting and enforcement. In that case the court even acknowledged that the lack of authority to enforce standards did not prevent EPA from promulgating them.

> *... the UMTRCA granted the EPA authority to promulgate standards of general application for the protection of the public health, safety, and the environment from hazards associated with the possession, transfer, and disposal of byproduct materials as defined in section 11(e)(2). 42 U.S.C. S 2022(b). The EPA was not given authority to enforce any standards they set, however.*

The listing of streams for the presence of contaminants, like the promulgation of standards, is not of itself an enforcement matter. The listing informs the public that a standard has been exceeded and opens a process to determine the sources. If, after identification of the sources, enforcement is necessary the duty for enforcement will fall to whatever agency has the authority.

Chronic Screening Level – As noted above, it is not appropriate to apply a 1.5 factor (multiplied times a chronic standard) to calculate a chronic screening value to compare water quality data with chronic water quality standards.

The January 2006 Assessment Protocol states (page 8, section 2.1.6):

> "Few states and tribes are obtaining composite data over a 4-day sampling period for comparison to chronic criteria due primarily to budgetary and staff time constraints. USEPA believes that 4-day composites are not an absolute requirement for evaluating whether chronic criteria are being met when determining use attainment status. Therefore, USEPA affords states and tribes the flexibility to define how they will assess use attainment when 4-day composite data are not available (USEPA, 1997). If consecutive day data are not available, a chronic screening level of 1.5 times the chronic criteria will first be calculated. The multiplier of 1.5 was also derived as a way of addressing small data sets (USEPA, 1991). This chronic screening level value will then be compared to individual grab sample results as explained in the assessment tables (Section 3.0)."

The cited EPA references in the above quotation do not support the way the Assessment Protocol uses the 1.5 factor, particularly when applied to storm events and ephemeral streams.

The first reference, US EPA, 1997 (Guidelines for preparation of the comprehensive state water quality assessments (305(b) reports) and electronic uptakes: supplement. EPA-841-B-97-002B) discusses the conditions under which grab samples may be substituted for a 4-day composite sample:

> "EPA believes that 4-day composites are not an absolute requirement for evaluating whether chronic criteria are being met. Grab and composite samples (including 1-day composites) can be used in water quality assessments *if taken during stable conditions.*" (emphasis added).

The reference to stable conditions indicates that observations obtained from a grab sample (or 1-day composites) are equivalent to what would be observed over a 4-day consecutive period. Thus, a grab sample under stable conditions is presumed to provide results representative of chronic conditions. This presumption is not valid in ephemeral streams. Storm water flows are not stable; they are characterized by rising and falling flows over a few hours, with similarly rising and falling levels of contaminants. Consequently, based on the 1997 EPA reference, the Laboratory believes it is inappropriate to use storm water quality data to evaluate compliance with chronic water quality standards.

To date, the Laboratory found no specific reference for using the 1.5 factor in the second reference, US EPA, 1991 (Technical support document for water quality-based toxics control. EPA/505/2-90-001). In addition, this document provides no guidance on the use of small ambient water quality data sets for the purpose of assessing compliance with standards. Instead, the reference to the use of small data sets is limited to the discussion on how to use limited effluent monitoring data to determine the "reasonable potential" for an effluent discharge to cause an exceedance of an ambient water quality standard in the receiving water (see pages 52-56). The analysis of "reasonable potential" is an important procedure that is fundamental to establishing water quality-based effluent limitations in discharge permits, but it is not directly relevant to the assessment of ambient water quality for several reasons.

1. Chemical concentrations in effluent are dependent on the biological, mechanical and hydraulic conditions in the wastewater collection and treatment system and have no direct relevance to ambient conditions in New Mexico water bodies. The scenario envisioned by the EPA procedure is a steady flow of effluent that maintains a relatively stable quality. This scenario is inconsistent with what occurs during storm water events where water quality is highly variable.

2. The multiplying factor in the "reasonable potential" procedure is multiplied with the highest value in the effluent monitoring data set to determine the highest concentration in the effluent that could cause an exceedance in the receiving water. The resulting value is the number that is to be compared to the water quality standard. This approach is contrary to the assessment protocol where the multiplying factor is multiplied by the water quality standard.

3. The EPA Procedure does not generate a single value such as 1.5; it generates a range of values depending upon the number of samples, the observed variation between samples, and a stated level of uncertainty. In fact, using EPA principles, where the variability of water quality is high (CV > 1.5) and the number of samples is low (< 10) at the 95th percentile the multiplying factor would range from 3.1 to 64.9 – not the 1.5 used by the SWQB. While a value of 1.5 can be generated by the procedure, typical values are much higher, ranging as high as 368.3.

In summary, the SWQB's cited references do not support the use of a 1.5 multiplying factor to screen water quality data for exceedances of a chronic water quality standard. US EPA 1997 allows the use of single grab samples in place of 4-day samples, but only if the samples are "taken under stable conditions." This restriction limits the use of this approach to "base flow" or similar stable conditions, and does not allow the application of chronic criteria to flows in ephemeral streams lasting only a few hours. US EPA 1991 discusses assumptions that may be made when using small data sets but only in the context of evaluating effluent data to determine the reasonable potential for the effluent discharge to cause an exceedance of a receiving water standard. US EPA 1991 does not address evaluation of small data sets to evaluate compliance with chronic water quality standards for the purpose of assessing use support.

The record of previous comments submitted by the Laboratory establishes that this 1.5 multiplying factor was a convenient way to set a screening level for impairment. The central recommendation of this letter, placing all water bodies in Category 3, is a more defensible way for NMED to use the 303(d)/305(b) listing process to screen for constituents that warrant further investigation.

***RESPONSE**: As noted above, SWQB will research potential alternatives to the use of the 1.5 multiplier to determine chronic screening criteria during revision of the Assessment Protocol prior to development of the 2008-2010 Integrated List.*

General Comments on the Draft 303(d) List and ROD

Modifications to TMDL Schedule – In the 2002 – 2004 listing cycle, the schedule for TMDL development in the Laboratory stream segments was changed from 2017 (2002 303(d) list) to 2007. There was no reasonable explanation in the ROD why the schedule was accelerated. Listing water bodies as Category 3 as proposed in Table 1 would address this concern.

***RESPONSE**: The date 2017 is a default data based on the settlement agreement. As SWQB has a better idea when TMDL development could occur, we revise the proposed TMDL Schedule accordingly. For the final draft Integrated List, we revised the proposed "TMDL Schedule" date from 2007 to 2008 since we expanded the current SWQB field effort on the Pajarito Plateau to two years.*

Extent of Cerro Grande Fire Impacts:

Table 3 was compiled from the *Cerro Grande Fire Burned Area Emergency Rehabilitation Plan* (Interagency BAER Team, June 9, 2000) and shows the total area and the area severely burned in listed Pajarito Plateau watersheds:

Table 3. Areas Burned in Cerro Grande Fire in Listed Pajarito Plateau Watersheds

Canyon	Total % Area Burned	% Area High Severity
Guaje (excluding Rendija)	44	14
Rendija	78	51
Los Alamos (excluding Pueblo)	26	12
Pueblo	31	22
Sandia	11	0
Mortandad	37	0
Pajarito	62	16
Water	52	11
Frijoles	10	1

LANL supports NMED listing the Cerro Grande fire as the cause of elevated selenium and aluminum in these canyons. The Laboratory believes that gross alpha is naturally occurring and may have been increased by the fire (Gallaher et. al., 2004). All of this information supports listing the affected water bodies as Category 3. As shown in Figure 1, and Table 2, selenium has been downward trending since the fire, and currently is in attainment of water quality criteria. This supports listing selenium as Category 1 (i.e., no longer impairing beneficial uses).

***RESPONSE**: As noted above, SWQB will also consider a mechanism to incorporate analysis of downward trends vs. the lumping of 5 to 10 years of data to acknowledge situations where there are multiple years of data available pre and post events such as catastrophic fire. Please note Gallaher et al. 2004 is not included in the References section below – SWQB would like to request a copy of this report.*

Segment-Specific Comments

***RESPONSE NOTE**: Regarding all comments in the below sections that recommend inclusion of constituent concentrations in the ROD, SWQB can provide constituent concentration data to LANL if it wishes to validate listings. This approach is used to streamline the ROD and Integrated List.*

The following analysis of specific segments provides additional background information on the uses and activities in the water bodies that are the subject of this comment letter. We hope that this information helps NMED make reasonable decisions about the appropriate categories for listed water bodies, as proposed in Table 1 and Table 2.

Guaje Canyon: Guaje is a major tributary to Los Alamos Canyon that was listed as impaired for gross alpha and selenium in 2002. There is little development throughout the watershed. There are no known past Laboratory testing activities except for drinking water utilities. There is one known potentially contaminated site – an electrical transformer associated with old drinking water wells and an associated unpaved road. A small pumice mine is located north of the Rendija confluence on top of the mesa. Some post-development erosion and sedimentation could be associated with the well sites, the unpaved road, recreational use, and the pumice mine. Although this is a relatively undisturbed watershed, the exceedances triggering listings were among the greatest in magnitude. This supports the Laboratory's contention that constituent and waterbody listings are due primarily to natural causes.

***RESPONSE**: Thank you for this additional information on Guaje Canyon.*

Los Alamos Canyon: Los Alamos was listed for gross alpha and selenium in 2002. Newly proposed 2006 listings included aluminum, mercury, and PCBs. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing. Results from 2001 to 2005 data indicated mercury only exceeded standards in five of 78 samples. Additionally, the description of Los Alamos Canyon should be "San Ildefonso bnd to Los Alamos Reservoir."

Los Alamos Canyon often flows for several months or longer. However, all of the reported data are storm water data that do not characterize the chronic exposures. In the Integrated List on page 97, it states that "additional data and assessment methodologies specific to the incorporation of storm water data may be need to verify the listing before scheduling subsequent TMDL development". It is recommended to collect water quality data during "stable conditions" rather than during storm water runoff events.

***RESPONSE**: SWQB believes the assessment unit description is correct. NMED has established stations in Los Alamos Canyon as part of our current sampling effort in an attempt to collect base flow and spring runoff (where and when possible) as well as storm water samples.*

Pueblo Canyon: Pueblo is a tributary of Los Alamos Canyon and was listed for gross alpha and selenium in 2002. Mercury is newly proposed for listing in 2004. Aluminum, PCBs, radium-226, and radium-288 are newly proposed for listing in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

In the Integrated List on page 106, it states that "additional data and assessment methodologies specific to the incorporation of storm water data may be need to verify the listing before

scheduling subsequent TMDL development". It is recommended to collect water quality data during "stable conditions" rather than during storm water runoff events.

***RESPONSE**: NMED has established stations in Pueblo Canyon as part of our current sampling effort in an attempt to collect base flow and spring run off (where and when possible) as well as storm water samples.*

Rendija Canyon: Rendija Canyon is tributary to Guaje Canyon (which, in turn, is a tributary to Los Alamos Canyon) and was listed for selenium in 2002. The listing of Rendija Canyon appears to be based on a total of two storm water samples obtained 3-4 years ago. Aside from the use of only storm water samples, there does not appear to be sufficient data to list this canyon individually, especially considering it is a tributary to a tributary (Guaje) to a tributary (Los Alamos) of the Rio Grande. There were no additional data collected from 2001 to 2005 to include in the assessment.

***RESPONSE**: SWQB believes there are sufficient data for the listing. NMED has established a sample station in Rendija Canyon as part of our current sampling effort.*

Canada del Buey: This segment is newly proposed for gross alpha, aluminum, radium 226, and radium-228 in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

Canon de Valle (below LANL gage E256): This segment is newly proposed for gross alpha, and aluminum in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

Canon de Valle (LANL bnd to headwaters): This segment is newly proposed for aluminum, selenium, and lead in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

Mortandad Canyon: Mortandad is a relatively small watershed that originates near the main Laboratory Technical Area. Much of the watershed is relatively undisturbed native vegetation. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

All data appears to be from storm events and are not applicable to chronic conditions. The Laboratory suggests that the major impairment to wildlife and livestock watering is the almost complete lack of water, as indicated by 0 days of recorded flow since 1995 (Shaull et al. 1996a-2004). In the part of the canyon where effluent-created water is present intermittently over 200 days a year, no data representative of the associated chronic exposure conditions is presented. There is no basis for listing selenium, since only two storm event values are shown for a three year period. These values are not applicable to the chronic criterion and are below the acute aquatic life criterion.

***RESPONSE**: NMED has established stations in Mortandad Canyon as part of our current sampling effort in an attempt to collect base flow and spring run off (where and when possible) as well as storm water samples.*

Pajarito Canyon: Pajarito was listed for gross alpha and selenium in 2002. Radium 226+228 and aluminum are proposed for listing in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

The data was collected only during storm events, despite the existence of a perennial segment and the fact that much of the canyon is intermittent, flowing for as much as a month or more at a time. Selenium is declining.

***RESPONSE**: NMED has established stations in Pajarito Canyon as part of our current sampling effort in an attempt to collect base flow and spring run off (where and when possible) as well as storm water samples.*

Sandia Canyon (Sigma Canyon to NPDES outfall 001): This segment was proposed for listing for PCBs in 2002 based upon storm water samples tested using the 40 CFR 136 Aroclor method. Some of the data are flagged and should not be used for listing. A number of non-detects were not incorporated into the analysis for determining listing. Gross alpha, aluminum, and mercury are proposed for listing in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

***RESPONSE**: As noted in the 2004-2006 ROD and carried forward to the current ROD, some of the data used in this assessment were J-flagged. According to the Assessment Protocol (section 2.1.1), "…Concentrations detected below minimum quantification limit (ML) but above the method detection limit (MDL) are typically flagged with a "J" qualifier that indicates the reported concentration is estimated. The concentration is reported as estimated because the concentration being detected is below the lowest concentration on the calibration curve. There is certainty as to the identification of the chemical but uncertainty as to the reported concentration. These values may be used in an assessment.*

Sandia Canyon (within LANL below Sigma Canyon): This segment is added to the proposed list for PCBs, aluminum, mercury, and gross alpha in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing.

Water Canyon (LANL boundary to headwaters): Water Canyon is the southernmost major watercourse that crosses the Laboratory. Water Canyon (Rio Grande to headwaters) was listed for gross alpha and selenium in 2002. In 2006, it is proposed to separate this AU into four separate AUs. The 2002 listing for gross alpha and selenium are retained and aluminum is proposed for listing in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing. It is recommended that additional water quality samples be taken during stable hydrologic conditions to verify listing and the need for TMDL development.

The Integrated List on page 223 states the only sources of impairment are natural sources and "source unknown".

Despite the presence of several perennial and intermittent reaches, it appears that all data is based on storm water samples as far as we know. Note that no new selenium "exceedances" were reported during 2003.

***RESPONSE**: NMED has established stations in Water Canyon as part of our current sampling effort in an attempt to collect base flow and spring run off (where and when possible) as well as storm water samples.*

Water Canyon (within LANL below Area-A Cyn): Water Canyon is the southernmost major watercourse that crosses the Laboratory. Water Canyon (Rio Grande to headwaters) was listed for gross alpha and selenium in 2002. In 2006, it is proposed to separate this AU into four

separate AUs. The 2002 listing for gross alpha and selenium are retained and aluminum, arsenic, cadmium, copper, vanadium, and zinc are proposed for listing in 2006. Currently, the ROD does not list the newly proposed constituent concentrations and it is recommended this information is included to validate listing. It is recommended that additional water quality samples be taken during stable hydrologic conditions to verify listing and the need for TMDL development.

Despite the presence of several perennial and intermittent reaches, it appears that all data is based on storm water samples as far as we know. Note that selenium values are now in compliance with the standard.

***RESPONSE**: NMED has established stations in Water Canyon as part of our current sampling effort in an attempt to collect base flow and spring run off (where and when possible) as well as storm water samples.*

REFERENCES

EPA 2000. United States Environmental Protection Agency, NPDES Permits No. NMR05A734 and NMR05A735, Authorization to Discharge under the NPDES, issued to the University of California and DOE, respectively, effective December 23, 2000. (December 2000)

EPA 2001. United States Environmental Protection Agency, NPDES Permit No. NM0028355, Authorization to Discharge under the NPDES, issued to the University of California and the U.S. Department of Energy, effective February 1, 2001. (February 2001)

EPA 2005a. United States Environmental Protection Agency Region 6, In the Matter of United States Department of Energy and the Los Alamos National Laboratory, NPDES Nos. NMR05A735, NMR05A734, and NM0028355, Federal Facility Compliance Agreement. (February 2005) http://www.epa.gov/region6/6xa/lanl.pdf

EPA 2005b. United States Environmental Protection Agency Region 6, Administrative Order Docket No. CWA-06-2005-1734, NPDES No. NMR05A734. (March 2005) http://www.epa.gov/region6/6xa/lanl.pdf

EPA 2005c. *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to 303(d), 305(b) and 314 of the Clean Water Act*. (July 2005)

LANL 2004. *Cerro Grande Fire Impacts to Water Quality and Stream Flow near Los Alamos National Laboratory*: Results of Four Years of Monitoring, B.M. Gallaher and R.J. Koch, LA-14177. (September 2004)

LANL 1998. *Inorganic and Radionuclide Background Data for Soils, Canyon Sediments and Bandelier Tuff, at Los Alamos National Laboratory*, LA-UR-98-48-47. (September 1998).

New Mexico 2005. State of New Mexico, Compliance Order on Consent Proceeding Under the New Mexico Hazardous Waste Act § 74-4-10 and the New Mexico Solid Waste Act § 74-9-36(D) Issued to the United States Department of Energy, and the Regents of University of California for the Los Alamos National Laboratory, Los Alamos, New Mexico, March 1, 2005. (March 2005). http://www.nmenv.state.nm.us/hwb/lanl/OrderConsent/03-01-05/Order_on_Consent_2-24-05.pdf

New Mexico 2006. State of New Mexico, *Standards for Interstate and Intrastate Surface Waters,* 20.6.4 NMAC, as amended through February 16, 2006, New Mexico Water Quality Control Commission, Santa Fe, New Mexico. (February 2006) http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf

New Mexico 2007. Public Comment Draft, 2006 – 2008 State of New Mexico Clean Water Act 303(d) / 305(b) Integrated List. NMED, Surface Water Quality Bureau, Santa Fe, New Mexico. http://www.nmenv.state.nm.us/SWQB.

New Mexico 2007. Public Comment Draft, Record of Decision, 2006 – 2008 State of New Mexico Clean Water Act 303(d) / 305(b) Integrated List. NMED, Surface Water Quality Bureau, Santa Fe, New Mexico; downloaded from http://www.nmenv.state.nm.us/SWQB.

New Mexico 2006. State of New Mexico, *Standards for Interstate and Intrastate Surface Waters*, 20.6.4 NMAC, as amended through February 16, 2006, New Mexico Water Quality Control Commission, Santa Fe, New Mexico. (February 2006) http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf

New Mexico 2006. State of New Mexico, Procedures for Assessing Standards Attainment for the Integrated 303(d) / 305(b) Water Quality Monitoring and Assessment Report: Assessment Protocol. NMED, Surface Water Quality Bureau, Santa Fe, New Mexico. (http://www.nmenv.state.nm.us/SWQB

New Mexico 2004. State of New Mexico, Procedures for Assessing Standards Attainment for the Integrated 303(d) / 305(b) Water Quality Monitoring and Assessment Report: Assessment Protocol. NMED, Surface Water Quality Bureau, Santa Fe, New Mexico.

New Mexico 2003. Approved 2002 – 2004 State of New Mexico Clean Water Act 303(d) / 305(b) integrated list. NMED, Surface Water Quality Bureau, Santa Fe, New Mexico. http://www.nmenv.state.nm.us/SWQB.

United States Geological Survey, 2001. Occurrence of Selected Radionuclides in Ground Water Used for Drinking Water in the United States: A Reconnaissance Survey, 1998. Water Resources Investigations Report 00-4273. USGS, Reston, Virginia. http://pubs.usgs.gov/wri/wri004273/.