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MEMORANDUM

TO: Lynette Guevara, Assessment Coordinator

COPY: James Hogan, Surface Water Quality Bureau Chief
Shelly Lemon, MASS Program Manager

FROM: Jodey Kougioulis, Quality Assurance Officer

DATE: November 7, 2015 

SUBJECT: Quality Assurance Assessment of External Datasets for the Clean Water Act 303(d)/305(b) 2016-2018 Integrated List

Introduction

The New Mexico Surface Water Quality Bureau (SWQB) uses external datasets as well as data generated by the SWQB in the development of the 2016-2018 CWA Section 303(d)/305(b) Integrated List and Report. Chemical, physical, biological, and bacteriological (i.e., *E. coli*) data for any stream, river, lake, or reservoir in the state may be considered for assessment purposes and subject to New Mexico's water quality standards published in 20.6.4 NMAC. Prior to incorporation into the development of the Integrated List and Report, data obtained from external sources must first be reviewed with regards to data quality, usefulness, and consistency with SWQB procedures.

External data generally consists of data submitted from outside entities as well as data retrieved from publically-available national and regional water quality databases. The SWQB Water Quality Data Submittal Guidance and Checklist (<http://www.nmenv.state.nm.us/swqb/DataSubmittals/>) in combination with the SWQB Quality Assurance Project Plan (QAPP) (<http://www.nmenv.state.nm.us/swqb/QAPP/>), SWQB Standard Operating Procedures (SOPs) (<http://www.nmenv.state.nm.us/swqb/SOP/>), and CFR 136 Table II — Required Containers, Preservation Techniques, and Hold Times (<http://www.gpo.gov/fdsys/pkg/FR-2012-05-18/pdf/2012-10210.pdf>) are used to assess the quality of external datasets for inclusion into the development of the Integrated List and Report. Specifically, datasets and associated documentation are reviewed to determine: (1) if there is documentation of QA/QC procedures that, at a minimum, meet the QA/QC requirements described in the SWQB's most recent QAPP; and (2) if there is reasonable evidence or assurance that these procedures were followed. If these minimum requirements are met, these data may be used for assessment purposes and incorporated into the development of the Integrated List and Report.

Summary

Data were received from: (1) US Army Corp of Engineers; (2) Village of Ruidoso; (3) Valles Caldera National Preserve; (4) San Juan Soil & Water Conservation District, (5) Los Alamos National Laboratories (LANL), and Silver City Watershed Keepers (Gila Resource Information Project). Data were

retrieved from (1) EPA STORET/WQX and USGS NWIS public databases via the National Water Quality Monitoring Council Water Quality Portal, and (2) INTELLUS New Mexico public database. All available documentation associated with individual data submissions or data retrievals were evaluated and assessed with regards to documented methods of collection and preservation, verification and validation procedures, documented holding times, analysis methodology, formal or referenced standard operating procedures, sampling and analysis plans, and quality assurance project plans when available. Unless otherwise specifically noted, all methods, contracted labs, equipment, collection procedures, and preservation and analysis procedures were acceptable and met the minimum SWQB submitted data requirements. The quality of all submitted and acquired data follows:

US Army Corp of Engineers

Data Submitted: Physical Water Quality Parameters. Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), and turbidity.

Multi-parameter sonde and thermograph data related to their six year water quality survey of the Middle Rio Grande were received for assessment purposes. These data were collected under the *Continuous Water Quality Monitoring of the Rio Grande and Rio Chama* project funded and implemented by the Albuquerque District of the U.S. Army Corps of Engineers and the University of New Mexico, Department of Biology. The data collection and reporting procedures followed USGS *Guidelines and Standard Procedures for Continuous Water Quality Monitoring* (<http://pubs.usgs.gov/tm/2006/tm1D3/pdf/TM1D3.pdf>) These procedures, as well as the data analysis report provides details on methods, equipment, study design, calibration criteria, data validation, and site location methodology. There are reasonable assurances that these data are of acceptable data quality and may be used in the development Integrated List and Report.

Village of Ruidoso

Data Submitted: Physical Water Quality Parameters. Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), and turbidity.

The Village of Ruidoso submitted in-stream physical water parameter measurements (T, DO, pH, SC, and turbidity) collected under a previously submitted QAPP using equivalent or similar equipment, siting criteria, and quality assurance measures as the SWQB. Specifically, sonde data was evaluated with regards to anomalous signatures of probe bio fouling, and equipment exposure and burial. Verification and validation procedures noted the occurrence of potential bio-fouling and low battery voltage readings. Results associated with battery voltage less than 7.3 have been eliminated from the dataset. A submitted Project Completion Report Addendum (July 2013) describes the validation procedures used and specifically identifies data where biofouling and or low voltage readings occurred. These data are qualified as either rejected or estimated values. Use for assessment purposes should be limited to unqualified data. Upon further consultation with GEI (Village of Ruidoso contracted consultants), there are reasonable assurances that the QAPP, procedures, and validation criteria were followed and therefore these data meet the minimum QA requirements for outside data submission and may be used for standard attainment and the development of the Integrated List and Report.

Valles Caldera National Preserve

Data Submitted: Physical Water Quality Parameters. Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), and turbidity.

Monitoring staff at the Valles Caldera National Preserve (VNCNP) provided in-stream water quality physical parameter measurements (Temperature, Dissolved Oxygen, Specific Conductance, pH, and Turbidity) from six sites identified in the 2013 Jemez Field Sampling Plan. VNCNP staff provided long-term datasets (from four to six months) from YSI sondes collecting sensor information every fifteen minutes. For SWQB data collection consistency and assessment purposes, VNCNP agreed to follow SWQB QAPP and SOP criteria. SWQB MASS staff evaluated and combined the sonde data and QA/QC information submitted by VNCNP into corrected datasets for each monitoring location. Data not meeting calibration or verification criteria were rejected, as were data displaying evidence of exposure to air, burial in stream sediments, or

sensor failure. All temperature data were qualified as S2 (suspect, but usable) due to VNCP staff not following SOP for temperature verification. All other data, as qualified, may be used for assessment by SWQB.

San Juan Soil and Water Conservation District

Data Submitted: Nutrients (TKN, Ammonia, Phosphorous, Nitrate, Nitrite) and *E. coli*.

Nutrient and bacteria water quality data were collected in the Animas and San Juan River under an EPA approved Clean Water Act 604(b) Water Quality Management Planning Grant Quality Assurance Project Plan (QAPP). The data quality objectives and quality assurance and control measures are documented in the Animas and San Juan Concurrent Nutrient and Bacteria Monitoring San Juan Watershed Microbial Source Tracking QAPP. These data were verified and validated according to SWQB procedures. A large portion of the submitted nutrient data determined to not meet data quality objectives have been rejected from the dataset and the remaining data may be used for assessment purposes after consideration of all qualifier codes.

Silver City Watershed Keepers (Gila Resource Information Project)

Data Submitted: Physical Water Quality Parameters. Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), and turbidity.

Silver City Watershed Keepers (Gila Resource Information Project (GRIP)) submitted water quality data for San Vicente Creek for the period November 2, 2010 through May 16, 2014. The water quality data consisted of pH, dissolved oxygen, temperature, specific conductance, and turbidity. These data were collected by GRIP principle staff with occasionally assistance by Silver City SWQB staff and consisted of discrete instantaneous sampling events collected through the use individual field probes. As discussed in the Assessment Protocol, periodic instantaneous data do not provide information on maximum or minimum daily values, value duration, or diurnal fluctuations of parameters in ambient water. These considerations are needed to assess temperature and dissolved oxygen with respect to aquatic life use. Because of the limitations of grab data, continuous sonde and thermograph data are preferred. Continuously recording data loggers provide an extensive multiple-day record of discrete time intervals when temperature, dissolved oxygen, or pH values may be exceeding standards. SWQB monitoring staff deploy these devices to record values every fifteen minutes for a minimum of three days (72 hours). Based on the success of these deployments, a large data set assessment protocol was developed to address parameters with known diurnal fluxes. For this reason, the set received from Silver City Watershed Keepers (GRIP) do not provide the needed temporal duration and frequency needed for assessment purposes. These data may however be useful in providing background information for San Vicente Creek.

Los Alamos National Laboratory (LANL)

Data Submitted: Temperature (T).

Preliminary thermograph data for various stations in the upper Sandia Canyon watershed from a 2014-summer 2016 study were received to 1) inform NMED of the on-going study and 2) to assist NMED with the evaluation of temperature criteria in upper Sandia Canyon. These data and associated graphs were submitted by memo along with *Temperature Investigation Approach and Interim Findings* documentation. No detailed information regarding sampling SOPs/QAPPs was provided or requested since these data were noted as preliminary and the study is not complete. As stated in the 2016 Assessment Protocols (NMED/SWQB 2015b), provisional data are not used for assessment purposes. Therefore, these data were not used in the development of the 2016 Integrated List. SWQB anticipates these data will be final for development of the subsequent Integrated List.

STORET/WQX and USGS NWIS databases via the National Water Quality Monitoring Council Water Quality Portal

Data Retrieved: Physical Water Quality Parameters. Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), turbidity, and *E. coli*.

STORET (short for STORage and RETrieval) is EPA's repository and framework for sharing water quality monitoring data. It contains chemical, biological, and physical data collected by state and federal agencies, tribes, universities, and private and public entities. The National Water Information System (NWIS) retains USGS surface water quality data which is accessed through the Water Quality Portal (WQP). The WQP is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). The WQP combines both STORET/WQX and NWIS data, containing data collected by over 400 states, federal, tribal, and local agencies. These data are generally considered usable for assessment purposes dependent upon the associated qualification codes and intended use. *E. coli* data and in-stream physical water quality parameter data collected by the USGS, Pueblo of Santa Ana, Pueblo of Isleta, and the Pueblo of Sandia were retrieved from the WQP for use in the development of the Integrated List and Report. *E. coli* data from the Pueblo of Santa Ana were collected under EPA-approved QAPP and submitted to STORET through the Water Quality Exchange (WQX) for public retrieval. After all qualified data which results in rejection has been eliminated from data set; these data are considered usable for assessment purposes and the development of the Integrated List and Report.

INTELLUS New Mexico Database

Data Retrieved: Temperature (T), pH, specific conductance (SC), dissolved oxygen (DO), Polychlorinated Biphenyls (PCBs), metals, and radionuclides.

Intellus New Mexico contains environmental monitoring data provided by the Los Alamos National Laboratory (LANL) and the New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE OB). This regional database maintains public access to surface water quality data and may be accessed through the internet at (http://www.intellusnmdata.com/reporting/home_reporting.cfm). Data retrieved from this site were specific to PCBs, metals, and radionuclide data collected in the Middle Rio Grande up to the Buckman Diversion Dam. Relevant LANL and DOE OB SOPs, including QAPPs, were previously reviewed for consistency with the Bureau's data collection activities and quality assurance procedures. The continued use of these procedures has been verified for the retrieved dataset. These data meet the minimum SWQB submitted data requirements and are therefore found to be acceptable for incorporation in the development of the Integrated List and Report dependent upon further qualification. Prior to incorporation, these data are subject to specific qualifier developed for INTELLUS data during the 2014 Integrated List and Report and may therefore their use may be conditioned.

References

NMED/SWQB 2015a. *Standard Operating Procedures for Data Collection*. New Mexico Environment Department/Surface Water Quality Bureau. <https://www.env.nm.gov/swqb/SOP/>

NMED/SWQB 2015b. *Procedures for Assessing Water Quality Standards Attainment for the State of New Mexico CWA §303(d) /§305(b) Integrated Report: Assessment Protocol*. New Mexico Environment Department/Surface Water Quality Bureau. <https://www.env.nm.gov/swqb/protocols/>

NMED/SWQB 2013. *Water Quality Data Submittal Guidance*, New Mexico Environment Department/Surface Water Quality Bureau. <https://www.env.nm.gov/swqb/DataSubmittals/index.html>

NMED/SWQB 2013. *Quality Assurance Project Plan for Water Quality Management Programs (QAPP)*. New Mexico Environment Department/Surface Water Quality Bureau, February 2013. <https://www.env.nm.gov/swqb/QAPP/2013QAPP-Approved.pdf>

CFR 136 Table II—REQUIRED CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES. Federal Register / Vol. 77, No. 97 / Friday, May 18, 2012 / Rules and Regulations.
<http://www.gpo.gov/fdsys/pkg/FR-2012-05-18/pdf/2012-10210.pdf>

Los Alamos National Laboratory/Department of Energy Oversight Bureau New Mexico Environment Department 2014. Intellus New Mexico Public Access Environmental Monitoring Data Database.
<http://www.intellusnmdata.com/index.cfm>

STORET/WQX – EPA (STOrage and RETrieval) online public water quality data warehouse.
<http://www3.epa.gov/storet/>

United States Geological Survey - *Guidelines and Standard Procedures for Continuous Water-Quality Monitors: Station Operation, Record Computation, and Data Reporting.* 2006
<http://pubs.usgs.gov/tm/2006/tm1D3/pdf/TM1D3.pdf>

Water Quality Portal (WQP) – National Water Quality Monitoring Council, United States Geological Survey, US Department of Agriculture, EPA. Integrated online public water quality database.
<http://www.waterqualitydata.us/>

