July 14, 2020 (additional data determination added September 28, 2020)

Quality Assurance Assessment of External Datasets for Development of the Clean Water Act (CWA) §303(d)/ §305(b) 2020-2022 Integrated List

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The New Mexico Surface Water Quality Bureau (SWQB) used external datasets along with data generated by the SWQB to develop the 2020-2022 CWA §303(d)/§305(b) Integrated List. Chemical, physical, biological, and bacteriological 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 Data Submission Guidelines[1] in combination with the SWQB Quality Assurance Project Plan (QAPP), SWQB Standard Operating Procedures (SOPs)[2] are used to assess the quality of external datasets for inclusion into the development of the Integrated List. 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 quality assurance project plan (QAPP); and (2) if there is reasonable evidence or assurance that these procedures were followed. Data determined to be data quality level 3 or 4 as described in the Data Submission Guidelines meet required quality assurance standards for full assessment purposes.

For the 2020-2022 listing cycle, data packets were received or acquired from the following sources:

- Amigos Bravos & Sentinels - Rios de Taos,
- Buckman Direct Diversion (downloaded via the BDD website[3]),
- Chevron Questa Mine Superfund Site (submitted by the NMED Ground Water Quality Bureau),
- Cuidad Soil and Water Conservation District,
- Los Alamos National Laboratory/NB3 (downloaded via Intellus New Mexico[4]) for the Rio Grande near Buckman Diversion,
- NMED DOE Oversight Bureau (downloaded via Intellus New Mexico[3]) for the Rio Grande near Buckman Diversion,
- Upper Pecos Watershed Association in conjunction with Pathfinder Environmental, LLC, and
- Middle Rio Grande Technical Advisory Committee (MRG TAG).[5]

Attached are quality assurance reviews of the above-mentioned datasets. In addition, EPA and USGS data for the Animas and San Juan Rivers were download from the Water Quality Portal[6].

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[1] https://www.env.nm.gov/surface-water-quality/data-submittals/
[2] https://www.env.nm.gov/surface-water-quality/protocols-and-planning/
[3] https://bddproject.org/water-quality/monitoring-testing-reporting/stormwater-reports/
[4] https://www.intellusnm.com/
[5] Added 9/28/20 based on data submitted 9/10/20.
[6] https://www.waterqualitydata.us/

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: December 10, 2019

Subject: Quality Assurance Assessment of Outside Data Submittals by Amigos Bravos & Sentinels - Rios de Taos for the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**. The NMED SWQB received Amigos Bravos & Sentinels - Rios de Taos data submittal package on July 24, 2019 for data collected in 2017-2018. The data package was evaluated by the SWQB Quality Assurance Officer (QAO) for determination of Data Quality Level (DQL). The QAO composed a Data Determination Letter in which the QAO requested additional information from Amigos Bravos & Sentinels - Rios de Taos for determining DQL.

Amigos Bravos resubmitted final data package along with supporting documentation on November 21, 2019. The QAO was able to reevaluate and upgrade the DQL for particular parameters due to the additional documentation submitted by Amigos Bravos. Please see revised letter titled "Determination of Data Quality Level" regarding the QAO's data quality assessment. The 2019 Water Quality Data Submittal Guidance and Appendix A of the 2019 *Comprehensive Assessment and Listing Methodology* (CALM) were used in combination with all relevant SWQB Quality Assurance requirements, specifically the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the submitted data, determine its DQL and suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was documentation of Quality Assurance (QA) and Quality Control (QC) procedures that, at a minimum, meet the QA/QC requirements described in the SWQB's most recent QAPP; and (2) if there was reasonable evidence or assurance that these procedures were followed.

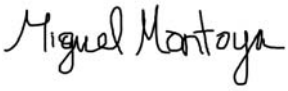
Determination of Data Quality Level

The data package submitted by Amigos Bravos & Sentinels - Rios de Taos for consideration in assessment of surface water for the IR included adequate information needed for the QAO to determine if the data met the QA/QC requirements identified in the SWQB QAPP and associated SOPs. The 2019 Water Quality Data Submittal Guidance and Appendix A of the CALM in combination with the SWQB QAPP and SOPs documents were used to determine the DQL for analyte and parameter results submitted.

Specific analyte DQLs have been issued by date due to insufficient supporting documentation for the entire data package. The DQL of nitrates, E. coli and aluminum have been revised for specific sampling dates due to the submittance of supporting QC documents by Amigos Bravo. The DQL and reasoning for the DQL selection for each analyte and parameter is stated in Table 1. According to Appendix A of the CALM, data with a level of 3 or 4 may be included in assessment for IR purposes (2019 CALM).

The QAO is currently working with Amigos Bravos to revise their QAPP with the expectation of increasing the DQL of future data. The QAO will work with Amigos Bravos & Sentinels - Rios de Taos to ensure their QAPP is developed in accordance with *EPA Requirements for Quality Assurance Project Plans* (EPA (QA/R5) and contains equivalent QA procedure as stated in the SWQB QAPP. The SWQB highly recommends the addition of field blanks for future chemical and bacteriological data collection events. The SWQB will no longer utilize external chemical and bacteriological data without field blanks for assessment purposes in the IR. The SWQB will also no longer accept chemical results analyzed at laboratories without laboratory result sheets and supporting laboratory QC information for assessment purposes in the IR. The SWQB also recommends that Amigos Bravos & Sentinels - Rios de Taos modify their procedure for collecting field measurements to include a calibration log and a post verification of calibration procedure for their multi-parameter instrument (TESTR 35). The QAO will ensure the information from an August 2017 email exchange between Amigos Bravos and SWQB personnel (which indicated a 10-micron filtering procedure regardless of turbidity for all aluminum samples prior to submitting for analysis[1]) is included in the revised QAPP for Amigos Bravos & Sentinels - Rios de Taos.

Sincerely,



Miguel Montoya
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[1] SWQB's CALM states that samples filtered with a 10-micron filter regardless of turbidity levels that exceed the applicable water quality criterion are assessable because unfiltered samples would have resulted in an even higher magnitude of exceedance.

Table 1.

Parameter/analyte (Date collected)	Method	DQL	Explanation
Analyzed by Sangre de Cristo Laboratory			
Total Dissolved Solids (2017 and 2018 data results)	EPA 160.1	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not equivalent to the method stated by the SWQB QAPP for analysis for total dissolved solids for water quality standard monitoring. The SWQB requires that analysis be performed using standard method SM 2540C or equivalent.
Nitrates (2017 data results)	EPA 300.0	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated in 40 CFR §136.3, for analysis of nitrates. However, the data lack the QC laboratory sheets for all nitrate results completed in 2017 resulting in a DQL of 2.
Nitrates (6/13/2018 and 9/11/2018 data results)	EPA 300.0	3	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated in 40 CFR §136.3, for analysis of nitrates. Amigos Bravos submitted the required laboratory QC reports for determination of DQL, resulting in a DQL of 3.
Nitrates (10/11/2018 data results)	EPA 300.0	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated in 40 CFR §136.3, for analysis of nitrates. However, the data lacks QC laboratory sheets for nitrate results completed on 10/11/2018 resulting in a DQL of 2.
Total Phosphorus (2017 and 2018 data results)	EPA 362.2	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not equivalent to the method stated by the SWQB QAPP for analysis of phosphate for water quality standard monitoring. The method 362.2 is usually utilized to analyze for ortho-phosphate (as P). The SWQB requires that analysis be performed using EPA method 365.4 or equivalent.
E. Coli (2017 and 2018 data results)	Colilert®	3	After communication with Amigos Bravos, the QAO discovered the method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos was a typo. The SWQB SOP 9.1 along with Colilert® were

			utilized by Amigos Bravos & Sentinels - Rios de Taos for E. coli sampling and analysis.
BOD (2017 and 2018 data results)	SM5210B	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated in 40 CFR §136.3, for analysis of BOD. However, the lack of laboratory QC reports poses a QA/QC issue, which lowers the DQL to a level 2.
Ammonia (2017 and 2018 data results)	4500NH3D	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not equivalent to the method stated by the SWQB QAPP for analysis for ammonia for water quality standard monitoring. The SWQB requires that analysis be performed using EPA method 350.1 or equivalent.
Residual Chlorine (2017 and 2018 data results)	EPA 300.5	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not equivalent to the method stated by the SWQB QAPP for analysis for residual chlorine for water quality standard monitoring. The SWQB requires that analysis be performed using EPA method 330.5 or equivalent.
Phosphate (2017 and 2018 data results)	EPA 420.1	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not equivalent to the method stated by the SWQB QAPP for analysis for phosphate for water quality standard monitoring. The EPA method 420.1 is listed under 40 CFR §136.3 for analysis for phenols, mg/l. The SWQB requires that analysis for phosphate be performed using EPA method 365.4 or equivalent.
Aluminum (2017 data results)	EPA 200.9	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated by the SWQB QAPP for analysis of aluminum. However, the data lacks QC laboratory sheets for all aluminum results completed in 2017 resulting in a DQL of 2.
Aluminum (6/13/2018 and 9/11/2018 data results)	EPA 200.9	3	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated by the SWQB QAPP. Amigos Bravos submitted the required laboratory QC reports for determination of DQL, resulting in a DQL of 3.

Aluminum (10/11/18 data results)	EPA 200.9	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is an equivalent method to the method stated by the SWQB QAPP for analysis of aluminum. However, the data lacks QC laboratory sheets for aluminum results completed on 10/11/2018 resulting in a DQL of 2.
Field parameter analyzed by Sentinels - Rios de Taos			
Dissolved Oxygen (2017 and 2018 data results)	CHEMets (Indigo Carmine method) Dissolved Oxygen Kit, Model K-7512	2	The method listed in the QAPP provided by Amigos Bravos & Sentinels - Rios de Taos is not identified by 40 CFR §136.3, Standard Methods 23rd edition, or the SWQB QAPP as an acceptable method for analysis of dissolved oxygen. Additionally, the method does not have an equivalent range as stated in the SWQB QAPP for analysis for dissolved oxygen. No calibration or post verification documented.
Hardness (2017 and 2018 data results)	Hach Model 5-EP, Model 1454-01 test kit	2	The Water Quality Standards for Interstate and Intrastate Surface expresses hardness-dependent aquatic life criteria as a function of dissolved hardness Waters (20.6.4.900.I NMAC). The method listed here is for total hardness; in addition, there is no prior filtering indicated in the method. The test kit listed is also not equivalent to EPA's method for total hardness because of the resolution of test kit. Although the CALM[2] states that exceedences determined with concurrent total hardness vs. dissolved hardness are allowable, SWQB would like to discuss alternative cost-effective ways for Amigos Bravos to collect concurrent preferably dissolved hardness data equivalent to EPA's methods going forward.
Temperature (2017 and 2018 data results)	Euteck Instruments PCTestr 35 from Oakton	2	Does not meet the QC criteria set forth in the SWQB QAPP. No calibration or post verification documented.
Conductivity (2017 and 2018 data results)	Euteck Instruments PCTestr 35 from Oakton	2	Does not meet the QC criteria set forth in the SWQB QAPP. No calibration or post verification documented.
pH (2017 and 2018 data results)	Euteck Instruments	2	Does not meet the QC criteria set forth in the SWQB QAPP. No post verification

2 https://www.env.nm.gov/surface-water-quality/calm/

	PCTestr 35 from Oakton		documented.

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: July 14, 2020

Subject: Quality Assurance Assessment of Data Collected by the City of Santa Fe Buckman Direct Diversion Surface Water Sampling Program for Consideration in Development of the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report

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The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicits outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB Assessment Coordinator requested 2015 – 2017 surface water data and supporting documentation from City of Santa Fe Buckman Direct Diversion surface water sampling program (BDD). The BDD collects surface water samples for both stormwater and baseflow on the Rio Grande. The requested results were for sampling conducted at the BDD on the east bank of the Rio Grande approximately 3.5 miles downstream from Otowi Bridge. The data are being considered for assessment of surface water quality in development of the **IR**. The data along with related BDD summary reports are available in portable document format (PDF) at https://bddproject.org/water-quality/monitoring-testing-reporting/stormwater-reports.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data, supporting documentation, and related email correspondence with the BDD, and has made a Data Quality Level (DQL) determination. The 2019 Water Quality Data Submittal Guidance was used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the data and to determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The surface water samples collected by the BDD included analytical results for inorganics, organics, and radionuclides. Data results did not include adequate supporting documentation to determine if the QA/QC requirements identified in the 2018 SWQB QAPP were met for assessment of surface water in the State of New Mexico's IR. The BDD surface water sampling program lacks a documented verification and validation procedure for analytical results of surface water samples. Due to this insufficiency, the SWQB QA Officer has determined the DQL to be a level two (2), defined as:

> **Data Quality 2 (Fair)** - Data, as submitted, does not meet all the requirements for assessment purposes but may be usable for purposes such as supporting data (i.e., estimated input parameters for applicable WQ criterion calculations), screening, planning, and informal information gathering to guide decision making.

For a more detailed description of DQLs[1] with respect to assessment refer to Appendix D of the SWQB's Comprehensive Assessment and Listing Methodology[2] (CALM).

The surface water samples collected at the BDD and the corresponding results are valuable to the State of New Mexico for restoring and maintaining the chemical, physical and biological integrity of surface water(s) of the State. The SWQB plans to continue conversations with the BDD regarding the value of this important dataset and potential use of their analytical results in upcoming IRs. SWQB's initial recommendations to improve the BDD data DQL with respect to assessment of surface water quality standards are as follows:

- completion of the "General Quality Assurance Project Plan for Water Quality Management Programs" for the BDD sampling program,
- implementation and documentation of a verification and validation process,
- collection and analysis for concurrent dissolved hardness (or dissolved calcium and magnesium) when sampling for metals with hardness-dependent water quality criteria in 20.6.4.900.I (1) and (2) NMAC, and
- collation of all water quality data into one master (or at least, yearly) electronic spreadsheet.

For information regarding the determination of the DQL contact the reviewing QA Officer (miguel.montoya@state.nm.us).

Reviewing QA Officer: Miguel Montoya Digitally signed by Miguel Montoya Date: 2020.07.14 12:21:07 -06'00' _____

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

2 For information on assessment and listing methodology, see https://www.env.nm.gov/surface-water-quality/calm/

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: February 3, 2020

Subject: Quality Assurance Assessment of Outside Data Submittals by the New Mexico Environment Department Ground Water Quality Bureau to the Surface Water Quality Bureau for the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB received a data submittal package on January 14, 2020 from the NMED Ground Water Quality Bureau (GWQB) for consideration in the SWQB's assessment of surface water quality in development of the **IR**. The data was collected August 20, 2019 and August 27, 2019.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has determined the data collected from Chevron Questa Mine Super Fund Site analyzed by Hall Environmental Analysis Laboratory (HEAL), Inc. in Order Number (OrderNo.) 1908E07 and 1908I45 does meet the quality assurance requirements for use in the development of the 2020-2022 IR. The 2019 Water Quality Data Submittal Guidance and Checklist were used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the submitted data and determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data package submitted by the NMED GWQB for data collected from the Chevron Questa Mine Super Fund Site analyzed by HEAL (OrderNo.: 1908E07 and 1908I45) included results for pH, alkalinity, anions, dissolved metals, hardness, total metals, total suspended solids, and total dissolved solids. Results submitted did include adequate supporting documentation to determine that the QA/QC requirements identified in the 2018 SWQB QAPP were met for consideration for assessment of surface water in the IR. All results for parameter identified in HEAL OrderNo.: 1908E07 and 1908I45 were given a Data Quality Level[1] (DQL) of 3 by the reviewing QA Officer. The reasoning for DQL is stated below.

Table 1.

Analyte	Method	DQL	Explanation
Surface water field parameters taken at Chevron Questa Mine Super Fund Site			
pH	Grab sample	3	Sample collection, instrument's precision, range and sensitivity described in SOP 8.0 Field Parameters Measurements attached as in appendix to the Overall Project Site Plan for Chevron Questa Mine Superfund site met the QA/QC requirements of the SWQB QAPP for the collection of a pH grab sample.
Analyzed by Hall Environmental Analysis Laboratory			
Alkalinity (Bicarbonate as CaCO3, Carbonate as CaCO3, and Total Alkalinity as CaCO3)	SM2320B	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908E07 and 1908I45) for analysis of analytes is identified as approved in the most recent SWQB QAPP and in 20.6.4.14.A NMAC. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the State Laboratory Department (SLD) and similar reporting limits as SLD, which met the QA/QC criteria in the SWQB QAPP.
Anions (Chloride, Fluoride, Sulfate, Nitrate + Nitrite as N)	EPA Method 300.0	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908E07 and 1908I45) for analysis of analytes is identified as approved in 20.6.4.14.A NMAC and is an approved method according to the

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

			U.S. Environmental Protection Agency for Clean Water Act purposes. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits, which met the QA/QC criteria in the SWQB QAPP.
Dissolved Metals	EPA 200.7 and 200.8	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908E07 and 1908I45) for analysis of analytes is identified as approved in 20.6.4.14.A NMAC, SWQB QAPP and is an approved method according to EPA for Clean Water Act purposes. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits, which met QA/QC criteria in the SWQB QAPP.
Hardness (dissolved)	SM2340B	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908I45 and 1908I45) for analysis of analytes is identified as approved in 20.6.4.14.A NMAC. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits, which met QA/QC criteria in the SWQB QAPP.
Total Metals	EPA 200.7 and 200.8	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908E07 and 1908I45) for analysis of analytes is identified as approved in 20.6.4.14.A NMAC, SWQB QAPP and is an approved method according to EPA for Clean Water Act purposes. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits,

			which met QA/QC criteria in the SWQB QAPP.
Total Dissolved Solids	SM2540C	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908E07and 1908I45) for analysis of analytes is identified as approved in the most recent SWQB QAPP and in 20.6.4.14.A NMAC. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits, which met QA/QC criteria in the SWQB QAPP.
Total Suspended Solids	SM2540D	3	The sample collection procedures in the Overall Project Site Plan for Chevron Questa Mine Superfund site which consisted of a QAPP, FSP, and SOPs contained procedures equivalent to that of the SWQB QAPP. Method listed in HEAL reports (OrderNo.: 1908I45) for analysis of analytes is identified as approved in the most recent SWQB QAPP and in 20.6.4.14.A NMAC. The HEAL QA/QC criteria set forth in their QAPP (effective date 3/21/17) contains equivalent laboratory procedure to that of the SLD and similar reporting limits, which met QA/QC criteria in the SWQB QAPP.

QA Officer Review: Miguel Montoya Date: 02/03/2020

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: August 30, 2019

Subject: Quality Assurance Assessment of Outside Data Submittals by Cuidad Soil and Water Conservation Service for the Project titled Characterization of Pathogenic Bacterial Impairment and Regrowth along the Rio Grande near Albuquerque to the Surface Water Quality Bureau for the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB received a data submittal package on September 12, 2018 from the Cuidad Soil and Water Conservation Service for the Project Characterization of Pathogenic Bacterial Impairment and Regrowth along the Rio Grande near Albuquerque for consideration in the SWQB's surface water quality assessment in development of the **IR**. The data was collected beginning July 2017 through May 2018.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has determined the data for Escherichia coli (E. coli) in surface water does meet the quality assurance requirements for use in the development of the 2020-2022 IR. The 2019 Water Quality Data Submittal Guidance and Checklist were used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the submitted data and determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data package submitted for E. coli in surface water by Cuidad Soil and Water Conservation Service for the Project Characterization of Pathogenic Bacterial Impairment and Regrowth along the Rio Grande near Albuquerque for consideration for assessment of surface water in the IR did include adequate supporting documentation to determine that the QA/QC requirements identified in the 2018 SWQB QAPP were met. The parameter E. coli in surface water identified in the data package was given a Data Quality Level[1] (DQL) of 3 by the reviewing QA Officer. The reasoning for DQL is stated in explanation column of Table 1.

Table 1.

Analyte	Method	DQL	Explanation
Analyzed by University of New Mexico Laboratory and Hall Environmental Laboratory			
E. Coli in surface water.	EPA 1604 and SM 9223 B	3	The methods listed in the SOPs provided by Cuidad Soil and Water Conservation Service for the Project Characterization of Pathogenic Bacterial Impairment and Regrowth along the Rio Grande near Albuquerque is an EPA approved method for the analysis of E. coli and is equivalent to the method stated by the SWQB QAPP for the analysis of E. coli. Documentation provided by the group also demonstrates reasonable evidence and assurance that these procedures were followed during the course of the project.

QA Officer Review: Miguel Montoya Date: August 30, 2019

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: May 7, 2020

Subject: Quality Assurance Assessment of Outside Data Collected by N3B for Consideration in the Development of the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB Assessment Coordinator pulled N3B data results for surface water analytes which included pollutants identified in 20.6.4.900 NMAC. The data was pulled on January 14, 2020 from Intellus for various watershed monitoring station on the Pajarito Plateau. The data is being considered for the SWQB's assessment of surface water quality in development of the **IR**. The data pulled from Intellus was collected during various seasons starting Summer 2014 until Fall 2018. The data was collected and analyzed using the procedures identified in the 2014-2019 Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) and Environmental & Remediation Support Services Standard Operating Procedures (SOPs). The documents are available at https://eprr.lanl.gov/.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has made a Data Quality Level (DQL) determination. The 2019 Water Quality Data Submittal Guidance was used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the data and to determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data results for monitoring sites at the Rio Grande at Buckman Direct Diversion Intake and the Rio Grande at Otowi Bridge collected by N3B pulled from Intellus by the SWQB Assessment Coordinator included results for nutrients, inorganic compounds, organic compounds, and radionuclides. Data results included adequate supporting documentation (the IFGMP and Environmental & Remediation Support Services SOPs) to determine if the QA/QC requirements identified in the 2018 SWQB QAPP were met for assessment of surface water in the IR. Please refer to Table 1 for reasoning and Data Quality Level[1] (DQL) determination by the reviewing QA Officer. Assessment will be completed according to the SWQB's Comprehensive Assessment and Listing Methodology[2] (CALM). Any validation code applied to a result which would exclude the result from meeting the QA/QC criteria in the SWQB QAPP will not be used for assessment of surface water quality in development of the IR**.**

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

2 For information on assessment and listing methodology, see https://www.env.nm.gov/surface-water-quality/calm/

Table 1.

Analyte	Method	DQL	Explanation
Analyzed by Laboratory			
Nutrients			
Nitrate-Nitrite as Nitrogen	EPA 353.2	3	The procedures and methods for sample collection, handling, and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Total Kjeldahl Nitrogen	EPA 351.2	3	The methods and procedures for sample collection, sample handling, and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Inorganics			
Aluminum (Al)	Solid Waste (SW)-846:6010C And EPA method 200.8	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hardness	SM:2340B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Antimony (Sb)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Arsenic (As)	EPA 200.8	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and

	And SW-846:6020		associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Barium (Ba)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Beryllium (Be)	EPA 200.8 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Boron(B)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Cadmium (Cd)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Chromium (Cr)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

Cobalt (Co)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Copper (Cu)	EPA 200.8 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Cyanide, (total)	EPA 335.4	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Lead (Pb)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Manganese (Mn)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Mercury (Hg)	EPA:245.2	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Molybdenum (Mo)	SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and

			associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Nickle (Ni)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Selenium (Se)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Silver (Ag)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Strontium (Sr)	SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Thallium (Ti)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the

			current SWQB QAPP.
Uranium (U)	EPA 200.8 And SW-846:6020	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Vanadium (V)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Zinc (Zn)	EPA 200.7 And SW-846:6010C	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Organics			
Total PCBs	EPA:1668A	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Acenaphthene	SW-846:8310 And SW-846: 8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Acrolein	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

Acrylonitrile	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Anthracene	SW-846:8310 And SW-846: 8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzidine	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(a)anthracene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(a)pyrene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(b)fluoranthene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and

			associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Bis(2-chloroethoxy) methane	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Bis(2-chloroethyl) ether	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Bis(2-ethylhexyl) phthalate	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Bromoform	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Butylbenzyl phthalate	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Carbon tetrachloride	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and

			associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Chlorobenzene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Chlorodibromomethane	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Chloroform	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2-Chloronaphthalene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2-Chlorophenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

Chrysene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Dibutyl phthalate (Di-n-butylphthalate)	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,2-Dichlorobenzene	SW-846:8260B And SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,3-Dichlorobenzene	SW-846:8260B And SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,4-Dichlorobenzene	SW-846:8260B And SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
3,3'-Dichlorobenzidine	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and

			validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Dichlorobromomethane (Bromodichloromethane)	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,2-Dichloroethane	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2,4-Dichlorophenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,2-Dichloropropane	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Diethylphthalate	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP.
Dimethyl phthalate	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to

			the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2,4-Dimethylphenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP.
2,4-Dinitrophenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2,4-Dinitrotoluene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Ethylbenzene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Fluoranthene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Fluorene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The

			program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hexachlorobenzene	SW-846:8270D And SW-846:8081B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hexachlorobutadiene	SW-846:8270D And SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hexachlorocyclopen-tadiene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hexachloroethane	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Indeno(1,2,3-cd)pyrene	SW-846:8270D And SW-846:8310	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Isophorone	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The

			method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2,4-Dinitrophenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP.
Methylene chloride	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Nitrobenzene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
N-Nitroso dimethylamine	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Pentachlorophenol	SW-846:8151A And SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Phenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The

			method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP.
Pyrene	SW-846:8270D And SW-846:8310	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,1,2,2-Tetrachloroethane	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Toluene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,2-Trans-dichloroethylene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,2,4-Trichlorobenzene	SW-846:8260B And SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
1,1,1-Trichloroethane	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The

And 1,1,2-Trichloroethane			method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
2,4,6-Trichlorophenol	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Vinyl chloride	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radionuclides (RADs)			
Note: The term "method detection limit" is not applied to radionuclides, however. " For radionuclides, the lowest detectable concentration varies depending upon the counting geometry, the photon energy, the sample size, and the actual counting time of detection. A laboratory analyzing radionuclides must pay attention to these factors in addition to correctly using the designated instrument and method[3]". For these reasons sample detection limits are continuously changing.			
Gross alpha	EPA 900	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method provides a rapid screening measurement to indicate whether specific analyses are necessary. This method has a minimum detectable level of 1.0 pCi/L for gross alpha for a 1,000-mL sample and 100-minute counting time. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Gross beta	EPA 900	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs.

3 For information regarding method detection limit for radionuclides, see Detection limit in the Compendium of EPA-Approved Analytical Methods for Measuring Radionuclides (June 1998). https://www.epa.gov/esam/compendium-epa-approved-analytical-methods-measuring-radionuclides-drinking-water

			This method provides a rapid screening measurement to indicate whether specific analyses are necessary. This method has a minimum detectable level of 0.5 pCi/L for gross beta for a 1,000-mL sample and 100-minute counting time. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radium-226	EPA 903.1	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method is specific for radium-226, and is based on the emanation and scintillation counting of radon-222, a daughter product of radium-226. The detection limit for this method assures measuring radium-226 concentrations as low as 0.1 pCi/L. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program also documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radium-228	EPA 904	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method has a minimum detectable level of 1.0 pCi/L for a 100-minute counting time analysis. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Strontium-90	EPA 905.0	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method has a minimum detectable level of 0.5 pCi/L for a 100-minute counting time. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program also documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

QA Officer Review: Miguel Montoya Digitally signed by Miguel Montoya Date: 2020.05.07 14:10:54 -06'00'

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: May 11, 2020

Subject: Quality Assurance Assessment of Outside Data Collected by the New Mexico Department of Energy Oversight Bureau (DOE OB) for Consideration in Development of the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB Assessment Coordinator pulled DOE OB data for surface water analytes on March 11, 2020 from Intellus for various watershed monitoring station on the Pajarito Plateau. The data consisted of pollutants identified in 20.6.4.900 NMAC. The data is being considered for assessment of surface water quality in development of the **IR**. The data pulled from Intellus was collected during various seasons from Summer 2014 until Winter 2019. Data was collected and analyzed using the procedures identified in the 2014-2020 Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) and Environmental & Remediation Support Services Standard Operating Procedures (SOPs). The documents are available on the internet at https://eprr.lanl.gov/.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has made a Data Quality Level (DQL) determination. The 2019 Water Quality Data Submittal Guidance was used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the data and to determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data results collected by DOE OB pulled from Intellus by the SWQB Assessment Coordinator included results for inorganic compounds, organic compounds, and radionuclides. Data results included adequate supporting documentation (the IFGMP and Environmental & Remediation Support Services SOPs) to determine if the QA/QC requirements identified in the 2018 SWQB QAPP were met for consideration for assessment of surface water in development of the IR. Please refer to Table 1 for reasoning and Data Quality Level[1] (DQL) determination by the reviewing QA Officer. Assessment will be completed according to the SWQB's Comprehensive Assessment and Listing Methodology[2] (CALM). Any validation code applied to a result which would exclude the result from meeting the QA/QC criteria in the SWQB QAPP will not be used for assessment of surface water quality**.**

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

2 For information on assessment and listing methodology, see https://www.env.nm.gov/surface-water-quality/calm/

Table 1.

Analyte	Method	DQL	Explanation
Analyzed by Laboratory			
Inorganics			
Aluminum (Al)	EPA 200.8 And Solid Waste (SW)-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hardness	SM:A2340B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Antimony (Sb)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Arsenic (As)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Barium (Ba)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

Beryllium (Be)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Cadmium (Cd)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Cobalt (Co)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Copper (Cu)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Cyanide, (total)	EPA 335.2	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Lead (Pb)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the

			current SWQB QAPP.
Manganese (Mn)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results are equivalent or lower to those in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Mercury (Hg)	SW-846:7470A	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Molybdenum (Mo)	EPA 200.8 And EPA 1638	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Nickle (Ni)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Selenium (Se)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Silver (Ag)	EPA 200.8, EPA 1638 And	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and

	SW-846:6010B		validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Strontium (Sr)	EPA 200.8 And EPA 1638	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Thallium (Ti)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Uranium (U)	EPA 200.8 And EPA 1638	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Vanadium (V)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Zinc (Zn)	EPA 200.8, EPA 1638 And SW-846:6010B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Organics			
Acenaphthene	SW-846: 8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and

			associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(a)anthracene	SW-846:8270D	2	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit identified in the data results contain low precision and sensitivity and do not meet the detection limit requirements identified in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzene	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(a)pyrene	SW-846:8270D	2	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit identified in the data results contain low precision and sensitivity and do not meet the detection limit requirements identified in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Benzo(k)fluoranthene	SW-846:8270D	2	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit identified in the data results contain low precision and sensitivity and do not meet the detection limit requirements identified in the SWQB's QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Fluorene	SW-846:8270D	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the

			current SWQB QAPP.
Hexachlorobenzene	SW-846:8270D	2	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain low precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Hexachlorobutadiene	SW-846:8270D And SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain moderate precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Vinyl chloride	SW-846:8260B	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method detection limit in the data results contain high precision and sensitivity compared to the detection limit identified in the SWQB QAPP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radionuclides (RADs)			
Note: The term "method detection limit" is not applied to radionuclides, however. " For radionuclides, the lowest detectable concentration varies depending upon the counting geometry, the photon energy, the sample size, and the actual counting time of detection. A laboratory analyzing radionuclides must pay attention to these factors in addition to correctly using the designated instrument and method[3]". For these reasons sample detection limits are continuously changing.			
Gross alpha	EPA 900	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method provides a rapid screening measurement to indicate whether specific analyses are necessary. This method has a minimum detectable level of 1.0 pCi/L for gross alpha for a 1,000-mL sample and 100-minute counting time. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB

3 For information regarding method detection limit for radionuclides, see Detection limit in the Compendium of EPA-Approved Analytical Methods for Measuring Radionuclides (June 1998). https://www.epa.gov/esam/compendium-epa-approved-analytical-methods-measuring-radionuclides-drinking-water

			QAPP.
Gross beta	EPA 900	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method provides a rapid screening measurement to indicate whether specific analyses are necessary. This method has a minimum detectable level of 0.5 pCi/L for gross beta for a 1,000-mL sample and 100-minute counting time. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radium-226	EPA 903.1	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. This method is specific for radium-226, and is based on the emanation and scintillation counting of radon-222, a daughter product of radium-226. The detection limit for this method assures measuring radium-226 concentrations as low as 0.1 pCi/L. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program also documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Radium-228	EPA 904	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The method has a minimum detectable level of 1.0 pCi/L for a 100-minute counting time analysis. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.
Strontium-90	ASTM:D5811	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. Detection flags are utilized for data results below method detection limit as described in the IFGMP. The program also documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

QA Officer Review: Miguel Montoya Digitally signed by Miguel Montoya Date: 2020.05.11 11:47:25 -06'00'

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MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: June 15, 2020

Subject: Quality Assurance Assessment of Outside Data Collected by the New Mexico Department of Energy Oversight Bureau (DOE OB) for Consideration in Development of the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB Assessment Coordinator pulled DOE OB data for total polychlorinated biphenyls (PCBs) from Intellus for various watershed monitoring station on the Pajarito Plateau. The data is being considered for assessment of surface water quality in development of the **IR**. The data pulled from Intellus was collected during various seasons from Summer 2015 until fall 2018. Data was collected and analyzed using the procedures identified in the 2015-2019 Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) and Environmental & Remediation Support Services Standard Operating Procedures (SOPs). The documents and the data are available on the internet at https://eprr.lanl.gov/.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has made a Data Quality Level (DQL) determination. The 2019 Water Quality Data Submittal Guidance was used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the data and to determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data results from samples collected by DOE OB pulled from Intellus by the SWQB Assessment Coordinator included results total PCBs. Data results included adequate supporting documentation (the IFGMP and Environmental & Remediation Support Services SOPs) to determine if the QA/QC requirements identified in the 2018 SWQB QAPP were met for consideration for assessment of surface water in development of the IR. Please refer to Table 1 for reasoning and Data Quality Level[1] (DQL) determination by the reviewing QA Officer. Assessment will be completed according to the SWQB's Comprehensive Assessment and Listing Methodology[2] (CALM). Any validation code applied to a result which would exclude the result from meeting the QA/QC criteria in the SWQB QAPP will not be used for assessment of surface water quality**.**

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

2 For information on assessment and listing methodology, see https://www.env.nm.gov/surface-water-quality/calm/

Table 1.

Analyte	Method	DQL	Explanation
Analyzed by Laboratory			
Organics			
Total PCBs	EPA:1668A	3	The methods and procedures for sample collection, handling and analysis detailed in the IFGMP and associated SOPs are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

QA Officer Review: Miguel Montoya Digitally signed by Miguel Montoya Date: 2020.06.15 13:14:45 -06'00'

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Jennifer J. Pruett
Deputy Secretary

MEMORANDUM

To: Lynette Guevara, Assessment Coordinator, SWQB

From: Miguel Montoya, Quality Assurance Officer, SWQB

Date: October 3, 2019

Subject: Quality Assurance Assessment of Outside Data Submittal by the Upper Pecos Watershed Association & Pathfinder Environmental, LLC for Cow Creek (Upper and Lower) to the Surface Water Quality Bureau for the State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report.

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicited outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

The NMED SWQB received a data submittal package on July 30, 2019 from the Upper Pecos Watershed Association (UPWA) & Pathfinder Environmental, LLC for Cow Creek for consideration in the SWQB's surface water quality assessment in development of the **IR**. The data was collected beginning June 2016 through September 2018 in both Upper Cow Creek and Lower Cow Creek.

The SWQB Quality Assurance Officer (QA Officer) has reviewed the data and the supporting documentation and has determined the data for temperature in surface water does meet the quality assurance requirements for use in the development of the 2020-2022 IR. The 2019 Water Quality Data Submittal Guidance and Checklist were used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the submitted data and determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with each dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The data package submitted by the UPWA & Pathfinder Environmental, LLC for stream temperature collected by data loggers in Cow Creek for consideration for assessment of surface water in the IR did include adequate supporting documentation to determine that the QA/QC requirements identified in the 2018 SWQB QAPP were met. The parameter temperature in surface water identified in the data package was given a Data Quality Level[1] (DQL) of 3 by the reviewing QA Officer. The reasoning for DQL is stated in explanation column of Table 1.

Table 1.

Analyte	Method	DQL	Explanation
Collected by Pathfinder Environmental, LLC			
Temperature of surface water	Hobo® Water Temp Pro V2 data logger using SWQB Standard Operating Procedure *6.3 Thermographs*	3	The methods listed in the SOPs provided by the UPWA and Pathfinder Environmental, LLC for the analysis of surface water temperature is the method stated by the SWQB QAPP. Documentation provided by the group also demonstrates reasonable evidence and assurance that these procedures were followed during the course of the project.

QA Officer Review: Miguel Montoya Date: October 3, 2019

1 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/2019/07/Data-Submittal-Guidelines_v2.pdf

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September 24, 2020

Dave Gatterman, Facilities Operations Director
SSCAFCA

Kali Bronson, Stormwater Program Compliance Manager
Bernalillo County

Patrick Chavez, Storm Water Quality Engineer
Albuquerque Metropolitan Arroyo Flood Control Authority

Regarding water quality data submitted 9/10/20 on behalf of the Middle Rio Grande Technical Advisory Group

Delivered via email to: dgatterman@sscafca.org, kbronson@bernco.gov, and pchavez@amafca.org

Dear Mr. Gatterman, Ms. Bronson, and Mr. Chavez -

The New Mexico Environment Department ("NMED") Surface Water Quality Bureau ("SWQB") solicits outside organizations to submit chemical, physical, biological, habitat and bacteriological (i.e., *E. coli*) data for all streams, rivers, lakes, and reservoirs in the state, acquired in the last five (5) years that could be considered subject to New Mexico's water quality standards published in 20.6.4 NMAC and incorporated into the development of the **State of New Mexico's Clean Water Act (CWA) §303(d) / §305(b) Integrated Report (IR)**.

Middle Rio Grande Technical Advisory Group (MRG TAG) members and SWQB staff communicated via an August 7th Zoom call and related email exchanges regarding surface water data, supporting quality assurance documentation, and the data submittal and review process for the IR. The NMED SWQB Assessment Coordinator suggested to Patrick Chavez that he submit instream surface water data to the SWQB in the Data Template format (i.e., Microsoft Excel) located on the SWQB data submittal webpage[1] along with supporting documentation needed for a Data Quality Level[2] (DQL) determination for consideration in development of the IR. The formatted data in the Data Template would provide the metadata (e.g., sample location, method of analysis, and method detection limits) needed for DQL review and ensure summitted data was accessible in a centralized location. Surface water quality data were not submitted in the requested format. Instead, as part of the MRG TAG comments to the public draft Integrated List, a webpage link to a file repository was provided that included Compliance

[1] https://www.env.nm.gov/surface-water-quality/data-submittals/
[2] https://www.env.nm.gov/wp-content/uploads/sites/25/2019/09/FINAL-CALM-APP-A-Data-Levels-190903.pdf

Monitoring Cooperative (CMC) data in a file titled *CMC Water Quality Monitoring Results Database 06_26_2019.xlsx*, several Hall Environmental Analysis Laboratory (HEAL) reports in PDF format, and other supporting documentation (e.g., QAPPs and FSPs) in PDF format. The *CMC Water Quality Monitoring Results Database* (CMC DMR) file contained surface water results but did not include all necessary supporting metadata (e.g., method of analysis or method detection limits) contained in the recommended Data Template to make a DQL determination.

Through the thorough and extensive investigation of laboratory reports by the SWQB Quality Assurance Officer (QAO), the method of analysis, detection limit, and other supporting information necessary to make a DQL determination for E. coli results were identified. E. coli results contained in the CMC DMR file, as well as in submitted PDF laboratory reports, were then reformatted and collated by the Assessment Coordinator and QAO into the assessment Data Template for review and consideration in the development of the **IR**. The collated file is titled *MGR TAG Submitted EColi data assessment.xlsx*, and is attached in Appendix A.

The QAO has reviewed the data in the *MRG TAG Submitted EColi data assessment.xlsx* file, its supporting documentation, and related email correspondence with MRG TAG personnel, and has made a DQL determination. The 2019 Water Quality Data Submittal Guidance was used in combination with all relevant SWQB Quality Assurance requirements, namely the 2018 SWQB Quality Assurance Project Plan for *Water Quality Management Programs* (SWQB QAPP) and associated SWQB Standard Operating Procedures (SOPs) to assess the quality of the data and to determine its suitability for inclusion into the development of the IR.

Specifically, the submitted documentation associated with the dataset was reviewed to determine: (1) if there was 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 was reasonable evidence or assurance that these procedures were followed.

Data Quality Level Determination

The instream surface water samples collected by the CMC on the Rio Grande upstream and downstream of Albuquerque's urbanized metropolitan were analyzed for E. coli at HEAL using Standard Method Enzyme Substrate Test 9223B. The E. coli results collated into the assessment file *MGR TAG Submitted EColi data assessment.xlsx* included the adequate supporting information needed to determine if the QA/QC requirements identified in the 2018 SWQB QAPP were met for assessment of surface water in the State of New Mexico's IR. The supporting information was gathered from review of associated QAPPs, FSPs, and HEAL reports. The QAO has determined the DQL to be a three (3).

Data Quality 3 (Fair) - Data, as submitted, meet the quality assurance standards requirements to be used for assessment purposes in the IR.

For a more detailed description of DQLs[3] with respect to assessment refer to Appendix A of the SWQB's Comprehensive Assessment and Listing Methodology[4] (CALM).

3 For a description of these levels with respect to assessment, see https://www.env.nm.gov/wp-content/uploads/sites/25/2019/07/Data-Submittal-Guidelines_v2.pdf

4 For information on assessment and listing methodology, see https://www.env.nm.gov/surface-water-quality/calm/ -

Analyzed by Hall Environmental Analysis Laboratory			
Analyte	Method	DQL	Explanation
E. coli	SM 9223B	3	The method of analysis and detection limit for E. coli results identified in HEAL reports are comparable to those identified in the SWQB QAPP. The procedures for sample collection, handling and transportation detailed in supporting documentation are equivalent, or comparable to, those identified in the SWQB QAPP and SOPs. The program documents the verification and validation of analytical results. The QA/QC procedures are comparable to those outlined in the current SWQB QAPP.

The focus of this data determination is limited to the submitted E. coli data due to the timing of this data submittal and the extensive amount of time required to review the data in the submitted format. Although some of these submitted data also reside in NetDMR, the needed metadata and supporting information necessary to perform a DQL determination with respect to assessment are not available in NetDMR so SWQB could not have utilized a NetDMR or ECHO download as a complete source of the assessment data and supporting information necessary to make a DQL determination with respect to the assessment process.

The instream surface water samples collected by the CMC and the corresponding results are valuable to the State of New Mexico for restoring and maintaining the chemical, physical and biological integrity of surface water(s) of the State. The SWQB plans to continue conversations with the MRG TAG regarding the value of the dataset and potential use in upcoming IRs through continued discussion, as well as through invitation to a Data Sharing Network workshop, hosted by the SWQB in early 2021. Additionally, the SWQB recommends that the CMC expand the CMC DMR file to collate all available instream water quality data and incorporate the recommended Data Template format for future IR submittals. The SWQB has also made a request to the EPA Office of Water to explore expanding the NetDMR database in order to house the additional metadata necessary to make data determinations with respect to IR development.

For information regarding the determination of the DQL, please contact me at miguel.montoya@state.nm.us or (505) 819.9882.

Sincerely,

Miguel Montoya Digitally signed by Miguel Montoya Date: 2020.09.24 13:54:22 -06'00'

Quality Assurance Officer

AU ID (if known)	AU / Waterbody Name	Submitter / Data Source	STATION_NAME	Sample Date and Time	FIELD NOTES (if any)	Parameter Name	Reported Value (if "<", leave blank)	UNITS	Detection Limit (reported as PQL)	DL UNITS	Analytical Method	DILUTION FACTOR	LAB Name	ANALYSIS DATE AND TIME	CMC ID #	HALL Report #	Lab Id	Data Determination Level (MM)	Exceeds applicable WQC (410 CFU/100mL)
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	8/11/16	Wet Seas	E. coli	1106	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	8/12/16 15:37	CMC SAMPLE 1	1608678	1608678-002	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	9/13/16	Wet Seas	E. coli	959	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	9/14/16 13:25	CMC SAMPLE 2	1609609	1609609-002A	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	9/22/16	Wet Seas	E. coli	517.2	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	9/22/16	CMC SAMPLE 3	1609C98	1609C98-002A	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	11/22/16	Dry Seas	E. coli	7270	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	11/23/16	CMC SAMPLE 4	1611B75	1611B75-002A	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	7/28/17	Wet Seas	E. coli	235.9	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	7/29/17 15:29	CMC SAMPLE 5	1707E46-	1707E46-003D	Level 3	No
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	9/27/17 12:00	Wet Seas	E. coli	2359	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	9/28/17 18:51		1709F32	1709F32-001	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	9/28/17	Wet Seas	E. coli	6131	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	9/29/17 15:20	CMC SAMPLE 6	709F81-	1709F81-001	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	9/28/17 11:00	Wet Seas	E. coli	9804	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	9/29/17 15:20		1709F79	1709F79-003	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	7/31/18 13:00	Wet Seas	E. coli	4352	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	8/1/18 16:15		1807G30	1807G30-002	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	10/24/18 13:10	Wet Seas	E. coli	3076	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	10/25/18 16:32		1810C79	1810C79-004	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	1/11/19 15:10	Dry seas	E. coli	1421	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	1/12/19 19:17		1901479	1901479-003	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	1/11/19 15:15	Dry seas	E. coli	1789	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	1/12/19 19:17		1901479	1901479-004	Level 3	Yes - Dup
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande South at Isleta Dam (at Isleta Brid	3/13/19	Dry Seas	E. coli	594	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	3/14/19 17:05	CMC SAMPLE 7	1903661	1903661-003	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	9/17/19 12:30	Dry seas	E. coli	2909	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	1/18/19 16:29		1909895	1909895-001D	Level 3	Yes
NM-2105_50	Rio Grande (Isleta Pueblo bounda	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	Rio Grande at Isleta Lakes	11/20/19 15:00	Dry seas	E. coli	1725	MPN/100ml	10	MPN/100ml	SM 9223B	10	Hall	11/21/19 17:45		1911999	1911999-002	Level 3	Yes
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	11/21/16	Dry Seas	E. coli	43.5	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	11/22/16 16:34	CMC SAMPLE 4	1611B12	1611B12-001	Level 3	No
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	7/27/17	Wet Seas	E. coli	20	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	7/28/17 16:04	CMC SAMPLE 5	1707E07-	1707E07-002	Level 3	No
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	9/27/17	Wet Seas	E. coli	733	CFU/100mL	10	CFU/100mL	SM 9223B	10	Hall	9/28/17 18:51	CMC SAMPLE 6	1709F09	1709F09-001	Level 3	Yes
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	3/11/19	Dry Seas	E. coli	31.8	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	3/12/19 16:45	CMC SAMPLE 7	1903477	1903477-001	Level 3	No
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	8/10-8/11/16	Wet Seas	E. coli	35.9	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	8/11/16 15:35	CMC SAMPLE 1	1608623	1608623-001	Level 3	No
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	9/12-9/13/2016	Wet Seas	E. coli	55.6	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	9/13/16 17:02	CMC SAMPLE 2	1609527	1609527-001	Level 3	No
NM-2108_00	Rio Grande (non-pueblo Angostu	MRG TAG: Sumitted via CMC DMR file - SWQB reformatted	Rio Grande North at (upstream of - according	9/21-9/22/2016	Wet Seas	E. coli	31.1	CFU/100mL	1	CFU/100mL	SM 9223B	1	Hall	9/22/16 15:52	CMC SAMPLE 3	1609B94	1609B94-001	Level 3	No

ASSESSMENT SUMMARY:

NM-2105_50	**Rio Grande (Isleta Pueblo boundary to Tijeras Arroyo)**	**E. coli**	**13/14 exceedences**
NM-2108_00	**Rio Grande (non-pueblo Angostura Div to Cochiti Rsrv)**	**E. coli**	**1/7 exceedences**

Key:

Duplicate

Potential Transcrition Errors in the CMC DMR Database file - updated according to HEAL Reports

Data not included (sample location unknown):

AU ID (if known)	AU / Waterbody Name	Submitter / Data Source	STATION_NAME	Sample Date and Time	FIELD NOTES (if any)	Parameter Name	Reported Value (if "<", leave blank)	UNITS	Detection Limit (reported as PQL)	DL UNITS	Analytical Method	DILUTION FACTOR	LAB Name	ANALYSIS DATE AND TIME	CMC ID #	HALL Report #	Lab Id	Data Determination Level (MM)	Exceeds applicable WQC?
?	?	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	RGD-18.03.28 (exact sampling location could	3/28/18 11:00	Dry seas	E. coli	224.7	MPN/100ml	1	MPN/100ml	SM 9223B	1	Hall	3/29/18 15:49		1803F06	1803F06-001	Level 3	No
?	?	MRG TAG: Submitted via HEAL reports - not contained in CMC DMR file	RGD-18.03.28 (exact sampling location could	3/28/18 11:00	Dry seas	E. coli	206.4	MPN/100ml	1	MPN/100ml	SM 9223B	1	Hall	3/29/18 15:49		1803F06	1803F06-001	Level 3	No-Dup