

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

**MONITORING AND REPORTING PROGRAM R5-2021-0029**  
FOR  
GRIMMWAY ENTERPRISES, INC.  
AND  
MINTER FIELD AIRPORT DISTRICT  
SHAFTER CARROT PACKING PLANT  
KERN COUNTY

This Monitoring and Reporting Program (MRP), which is separately issued pursuant to Water Code section 13267, subdivision (b)(1), establishes monitoring and reporting requirements related to the waste discharges regulated under Waste Discharge Requirements Order R5-2021-0029 (WDRs Order). Each of the Findings set forth in the WDRs Order, including those pertaining to the need for submission of reports, are hereby incorporated as part of this MRP.

Grimmway Enterprises, Inc. (Grimmway) owns and operates the Shafter Carrot Packing Plant (Carrot Packing Plant or Facility) and has a land use agreement with the Minter Field Airport District (District) to operate the Land Application Area (LAA) owned by the District that is subject to the WDRs Order. Grimmway also operates the Shafter Airport Wastewater Treatment Facility (WWTF) ponds (owned by Minter Field Airport District), which stores wastewater from the Carrot Packing Plant before discharge to the LAA. The monitoring reports are necessary to determine compliance with the WDRs Order. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopts, or the Executive Officer issues, a revised MRP

A glossary of terms used in this MRP is included on the last page.

This MRP may be separately revised by the Executive Officer, in accordance with their delegated authority under Water Code section 13223.

## **I. GENERAL MONITORING REQUIREMENTS**

### **A. FLOW MONITORING**

Hydraulic flow rates shall be measured at the monitoring points specified in this MRP. All flow monitoring systems shall be appropriate for the conveyance system (i.e., open channel flow or pressure pipeline) and liquid type. The measurements may be based on flow meter readings or pump run time estimate. The method of measurement must be specified. Unless otherwise specified, each flow meter shall be equipped with a flow totalizer to allow reporting of cumulative volume as well as instantaneous flow rate. Flow meters shall be calibrated at the frequency recommended by the manufacturer; typically, at least once per year and records of calibration shall be maintained for review upon request.

**B. MONITORING AND SAMPLING LOCATIONS**

Samples shall be obtained at the monitoring points specified in this MRP. The Central Valley Water Board Executive Officer shall approve any proposed changes to sampling locations prior to implementation of the change.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this MRP:

**Table 1 - Monitoring Location Designations**

<b>Monitoring Location</b>	<b>Monitoring Location Description</b>
INF-001	Location where a representative sample of the wastewater can be obtained prior to the discharged to the unlined settling ponds at the Carrot Packing Plant.
PND-001 through PND-007	Carrot Packing Plant Wastewater Ponds 1 through 7
P1-M through P5-M	Shafter Airport WWTF Ponds 1 through 5
EFF-001	Effluent samples shall be collected after Pond P5-M (or whichever is the last storage pond before discharge to the LAA) and prior to discharge to the LAA.
SW-001	Location where a representative sample of the water supply entering the Plant can be obtained.
SUP-001	Location where a representative sample of supplemental irrigation water can be obtained prior to discharge to the LAA.
LAA-001 through LAA-006	Minter Field Airport District Land Application Area (LAA) fields (as depicted in Attachment C of Waste Discharge Requirements Order R5-2021-0029)

**C. SAMPLING AND SAMPLE ANALYSIS**

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, soil, solids/sludges and groundwater. The time, date, and location of each sample shall be recorded on the sample chain of custody form. For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation.

Field test instruments (such as those used to measure pH, temperature, electrical conductivity, dissolved oxygen, wind speed, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated at the frequency recommended by the manufacturer;

3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the “Reporting” section of this MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA);
- *Test Methods for Evaluating Solid Waste* (EPA);
- *Methods for Chemical Analysis of Water and Wastes* (EPA);
- *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA);
- *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and
- *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125).

Approved editions shall be those that are approved for use by the United States Environmental Protection Agency (EPA) or the State Water Resources Control Board (State Water Board), Division of Drinking Water’s Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency. This monitoring program shall remain in effect unless and until a revised MRP is issued.

## II. SPECIFIC MONITORING REQUIREMENTS

### A. SETTLING POND INFLUENT MONITORING (INF-001)

Representative samples shall be collected of the waste stream immediately before it enters the wastewater settling ponds at the Carrot Packing Plant. Settling Pond Influent Monitoring shall include the following:

**Table 2 – Influent Monitoring**

<b>Constituent/Parameter</b>	<b>Units</b>	<b>Sample Type</b>	<b>Frequency</b>
pH	s.u.	Grab	Weekly
EC	µmhos/cm	Grab	Weekly
BOD <sub>5</sub>	mg/L	Grab	Monthly
TDS	mg/L	Grab	Monthly

Constituent/Parameter	Units	Sample Type	Frequency
FDS	mg/L	Grab	Monthly
Nitrate (as N)	mg/L	Grab	Monthly
Ammonia (as N)	mg/L	Grab	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly
Total Nitrogen	mg/L	Computed or Grab	Monthly
General Minerals	various	Grab	Quarterly
Disinfection byproducts (see 1 below)	mg/L	Grab	Quarterly

1. Total trihalomethanes (chloroform, bromoform, bromodichloromethane, and dibromochloromethane) and five haloacetic acids (monochloro-, dichloro-, trichloro-, monobromo-, dibromo-).

#### B. EFFLUENT MONITORING (EFF-001)

Effluent samples shall be collected after Pond P5-M (or whichever is the last storage pond before discharge to the LAA) and prior to discharge to the LAA. Effluent monitoring shall include at least the following when discharge to the LAA occurs:

**Table 3 – Effluent Monitoring**

Constituent/Parameter	Units	Sample Type	Frequency
Flow	mgd	Meter	Continuous
pH	s.u.	Grab	Weekly
EC	µmhos/cm	Grab	Weekly
BOD <sub>5</sub>	mg/L	Grab	Weekly
Nitrate (as N)	mg/L	Grab	Weekly
TKN (as N)	mg/L	Grab	Weekly
Total Nitrogen (as N)	mg/L	Grab/Calculated	Weekly
TDS	mg/L	Grab	Twice Monthly
FDS	mg/L	Grab	Twice Monthly
General Minerals	various	Grab	Quarterly

#### C. POND MONITORING (PND-001 – PND-007 & P1-M – P5-M)

Permanent markers (e.g., staff gages) shall be placed in all ponds at the Carrot Packing Plant (PND-001 through PND-007) and Shafter Airport WWTF (Pond P1-M through P5-M) that are used for the Grimmway discharge. The markers shall have calibrations indicating water level at the design capacity and available operational freeboard. Samples for each pond shall be collected opposite the pond inlet at a depth of one foot and freeboard shall be measured to the nearest 0.1 foot vertically from the surface of

the water to the lowest elevation of the berm. Pond monitoring shall include at least the following for each pond:

**Table 4 – Pond Monitoring**

Constituent/Parameter	Units	Sample Type	Frequency
pH	s.u.	Grab	Weekly
DO	mg/L	Grab	Monthly
Freeboard	Nearest 0.1 Feet	Grab	Monthly

Samples for DO and pH shall be collected between 8:00 am and 10:00 a.m. when there is more than one foot of water in the pond. If there is insufficient water in the pond, no sample shall be collected, and the Discharger shall report that in the appropriate monitoring report. If offensive odors are detected by or brought to the attention of the Discharger, the Discharger shall monitor the potential source pond(s) at least daily for DO and pH until the odor issue has been resolved and the DO in the pond is greater than 1.0 mg/L.

In addition, the Discharger shall inspect the condition of the ponds at least once per week and document visual observations. Notations shall include color of the water in the pond (e.g., dark green, brown, gray, etc.), presence of odors or nuisance conditions, and whether grease, dead algae, vegetation, scum, or debris are accumulating in the ponds. A summary of these entries shall be included in the subsequent monitoring report.

**D. SOURCE WATER MONITORING (SW-001)**

Samples shall be representative of the source water supplied to the Facility. If the source water is from more than one source, the results shall be presented as a flow-weighted average of all sources. At a minimum, source water shall be monitored as specified below:

**Table 5 – Source Water Monitoring**

Constituent/Parameter	Units	Sample Type	Frequency
EC	µmhos/cm	Grab	Monthly
TDS	mg/L	Grab	Quarterly
FDS	mg/L	Grab	Quarterly
General Minerals	mg/L	Grab	Annually

**E. SUPPLEMENTAL IRRIGATION WATER MONITORING (SUP-001)**

Samples shall be representative of the supplemental irrigation water supplied to the LAA. If the supplemental irrigation water is from more than once source, the results shall be presented as a flow-weighted average of all sources. At a minimum, when in use, supplemental irrigation water shall be monitored as specified below:

**Table 6 – Supplemental Irrigation Water Monitoring**

Constituent/Parameter	Units	Sample Type	Frequency
EC	µmhos/cm	Grab	Monthly
Nitrate (as N)	mg/L	Grab	Quarterly
TDS	mg/L	Grab	Quarterly
FDS	mg/L	Grab	Quarterly
General Minerals	mg/L	Grab	Annually

**F. LAND APPLICATION AREA MONITORING (LAA-001- LAA-006)**

The Discharger shall perform the following routine monitoring and loading calculations for the LAA. The Discharger shall inspect the LAA at least once daily prior to and during irrigation events. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions (i.e., flies, ponding, etc.) shall be noted in the Facility’s logbook and included as part of the quarterly monitoring report. In addition, the Discharger shall perform the following routine monitoring and loading calculations for each discrete irrigation area within the LAA each day when wastewater is applied. If supplemental irrigation water is used, samples shall be collected from its source. The data shall be collected and presented in graphical (map) and/or tabular format and shall include the following:

**Table 7 – Land Application Area Monitoring**

Frequency	Constituent/Parameter	Units	Sample Type
Daily	Fields Irrigated	Acres	n/a
Daily	Wastewater flow	Gallons	Metered
Daily	Wastewater loading	Inches/day	Calculated
Daily	Supplemental irrigation flow	Gallons	Metered
Daily	Supplemental irrigation loading	Inches/day	Calculated
Daily	Precipitation	Inches	Rain gage (see 1 below)
Monthly	Total Hydraulic Loading (see 2 below)	Inches	Calculated

Frequency	Constituent/Parameter	Units	Sample Type
<b>BOD Loading</b> (see 3 below)			
Day of Application	Daily (see 4 below)	lbs/acre/day	Calculated
Cycle	Cycle Average Loading Rate (see 5 below)	lbs/acre/day	Calculated
<b>Nitrogen Loading</b> (see 3 below)			
Annually	From wastewater	lbs/acre/year	Calculated
Annually	From fertilizers and residual solids	lbs/acre/year	Calculated
Annually	From supplemental irrigation water	lbs/acre/year	Calculated
<b>Salt Loading</b> (see 3 below)			
Annually	From wastewater	lbs/acre/year	Calculated
Annually	From supplemental irrigation water	lbs/acre/year	Calculated

1. National Weather Service or CIMIS data from the nearest weather station is acceptable.
2. Combined loading from wastewater, irrigation water, and precipitation.
3. The BOD, nitrogen, and salt loading rates shall be calculated as specified in Section III of this MRP.
4. The daily BOD loading rate is calculated by taking the pounds of BOD applied to the LAA on a given day, divided by the area used for irrigation.
5. A cycle average is calculated by taking the pounds of BOD applied to the LAA in a given period, divided by the sum of the total days wastewater was applied plus the number of days of rest (no application of wastewater) times the area used for irrigation, see section III of this MRP for the calculation.

### III. REPORTING REQUIREMENTS

All monitoring reports should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: [centralvalleyfresno@waterboards.ca.gov](mailto:centralvalleyfresno@waterboards.ca.gov). Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board  
 Region 5 – Fresno Office  
 1685 “E” St.  
 Fresno, California 93706

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email or transmittal sheet:

Program: Non-15,  
Facility: Grimmway Enterprises, Inc., Shafter Carrot Packing Plant  
Order: R5-2021-0029  
County: Kern  
Place ID: 249124

**A transmittal letter shall accompany each monitoring report.** The letter shall include a discussion of all violations of the WDRs and this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, groundwater, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with WDRs and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the MRP shall be reported in the next scheduled monitoring report.

Laboratory analysis reports should be included in the monitoring reports. In addition, all laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3. of the SPRRs. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

In addition to the requirements of Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

All monitoring reports that involve planning, investigation, evaluation or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

## **A. QUARTERLY MONITORING REPORTS**

Quarterly Monitoring Reports shall be prepared and submitted to the Central Valley Water Board by the **1<sup>st</sup> day of the second month following the quarter** (i.e., the January-March quarterly report is due by 1<sup>st</sup> May). Each Quarterly Monitoring Report shall include the following:

1. Results of the **Settling Pond Influent Monitoring** as specified in Section II.A.



2. Results of the **Effluent Monitoring** as specified in Section II.B., including:
  - a. Calculation of average total nitrogen concentration for each month;
  - b. Calculation of the 12-month rolling average EC of the discharge for each month of the quarter using the EC value for that month averaged with the EC values for the previous 11 months (results must include supporting calculations);
  - c. Calculation of the maximum daily flow, monthly average flow, and cumulative annual flow, for each month of the quarter.
3. Results of the **Pond Monitoring** as specified in Section II.C.
4. Results of the **Source Water Monitoring** as specified in Section II.D, including:
  - a. If multiple sources are used, the Discharger shall calculate the flow-weighted average concentrations for each constituent monitored. Results must include supporting calculations and
  - b. Calculation of the 12-month rolling average EC of the source water for each month of the quarter using the EC value for that month averaged with the EC values for the previous 11 months (results must include supporting calculations);
5. Results of the **Supplemental Irrigation Water Monitoring** as specified in Section II.E.
6. Results of the **Land Application Area Monitoring** as specified in Section II.F, including:
  - a. A summary of the inspection activities conducted by the Discharger for the LAA;
  - b. Calculated daily BOD<sub>5</sub> Loading Rate for the LAA for each day of discharge of wastewater to the LAA;
    - i. The mass of BOD<sub>5</sub> applied to the LAA, on a daily basis, shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{A}$$

Where:             $M$  = Mass of BOD<sub>5</sub> applied to an LAA in lbs/acre/day  
                       $C$  = Concentration of BOD<sub>5</sub> in mg/L based on the most recent monitoring results

- $V$  = Volume of wastewater applied to the LAA in millions of gallons per day  
 $A$  = Area of the LAA irrigated in acres  
8.345 = Unit conversion factor.

c. Calculated cycle average BOD<sub>5</sub> loading rate for the LAA.

- i. The mass of BOD<sub>5</sub> applied to each field within the LAA on a cycle average basis shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{AT}$$

- Where:
- $M$  = Mass of BOD<sub>5</sub> applied to an LAA in lbs/acre/day  
 $C$  = Concentration of BOD<sub>5</sub> in mg/L based on the three most recent monitoring results  
 $V$  = Total volume of wastewater applied to the LAA during the irrigation cycle, in millions of gallons  
 $A$  = Area of the LAA irrigated in acres  
 $T$  = Irrigation cycle length in days (from the first day water was applied to the last day of the drying time)  
8.345 = Unit conversion factor.

7. A comparison of monitoring data to the flow limitations and discharge specifications and an explanation of any violation of those requirements, including the calculation of the 12-month rolling average net increase in EC (source water compared to effluent) for each month of the quarter. The 12-month rolling average net increase value shall be compared to the EC limit specified in Effluent Limitation B.1 of the WDRs Order.
8. A copy of calibration log page(s) verifying calibration of all hand-held monitoring instruments used during the quarter.
9. If wastewater was discharged to the emergency pond during the quarter, provide a summary of the estimated volume of discharge, reason for using the emergency pond (i.e., cause of the emergency), and the duration of wastewater present in the pond. The summary should include any proposed corrective actions that will be implemented to correct the problem from reoccurring again in the future.

**B. FOURTH QUARTER MONITORING REPORT**

In addition to the above the Discharger shall submit the following information as part of the Fourth Quarter Monitoring Report due on **1<sup>st</sup> February** of each year:

1. Total annual effluent flow, and the average monthly flows for each month of the year, compared to the monthly average and total annual flow limitations of the WDRs Order.
2. For the LAA, a chronological log of dates of fertilizer application, residual solids application, irrigation, precipitation, and runoff control operations. Nitrogen and salt loading calculations shall be included.
3. The types of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes including potassium (as estimated by technical references or, preferable, defined by representative plant tissue analysis).
4. Calculated total mass loading for total nitrogen and salts (FDS) for each discrete field within the LAA. The mass of total nitrogen and FDS applied to each LAA field shall be calculated using the following formula and compared to published crop demand for the crops actually grown:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

- Where:
- |       |   |  |
|-------|---|--|
| $M$   | = | Mass of nitrogen/FDS applied to the LAA in lbs/ac/yr                                 |
| $C_i$ | = | Monthly average concentration of total nitrogen for month $i$ in mg/L                |
| $V_i$ | = | Volume of wastewater applied to the LAA during calendar month $i$ in million gallons |
| $A$   | = | Area of the LAA irrigated in acres   |
| $i$   | = | The number of the month (e.g., January = 1, February = 2, etc.)                      |
| $M_x$ | = | Nitrogen/FDS mass from other sources (e.g., fertilizer and compost) in pounds        |
| 8.345 | = | Unit conversion factor   |

5. Tabular and graphical summaries of all data collected during the year.
6. A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the MRP.
7. Names, titles, and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
8. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

9. Discussion on annual chemical usage at the Plant (e.g., chemical name, purpose, and quantity used).
10. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.
11. A summary of the solids removed from the Facility (i.e., from the mesh screen and from the settling ponds). The summary should include estimated volumes and where the solids were hauled to.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with California Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Resources Control Board must receive the petition by 5:00 p.m., 30 days after the date of this MRP, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Resources Control Board by 5:00 p.m. on the next business day. [Copies of the law and regulations applicable to filing petitions](#) may be found on the internet ([http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)) or will be provided on request.

The Discharger shall implement the above monitoring program **starting 1 May 2021**.

I, PATRICK PULUPA, Executive Officer, do hereby certify the forgoing is a full, true and correct copy of the Monitoring and Reporting Program R5-2021-0029 issued by the California Regional Water Quality Control Board, Central Valley Region, on 22 April 2021.

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PATRICK PULUPA, Executive Officer

#### IV. GLOSSARY

BOD <sub>5</sub>	Five-day biochemical oxygen demand
CaCO <sub>3</sub>	Calcium carbonate
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
TDS	Total dissolved solids
TKN	Total Kjeldahl nitrogen
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-hr Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots over a 24-hour period.
Daily	Every day except weekends or holidays.
Twice Weekly	Twice per week on non-consecutive days.
Weekly	Once per week.
Twice Monthly	Twice per month during non-consecutive weeks.
Monthly	Once per calendar month.
Quarterly	Once per calendar quarter.
Semiannually	Once every six calendar months (i.e., two times per year) during non-consecutive quarters.
Annually	Once per year. Annual samples shall be collected in the third quarter between July and September.
mg/L	Milligrams per liter
mg/kg	Milligrams per kilogram
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
gpd	Gallons per day
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis shall include; alkalinity (as CaCO <sub>3</sub> ), bicarbonate (as CaCO <sub>3</sub> ), boron, calcium, carbonate (as CaCO <sub>3</sub> ), chloride, iron, magnesium, manganese, nitrate as N, phosphate, potassium, sodium, sulfate, and verification that the analysis is complete (i.e., cation/anion balance).