

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2015-XXXX

FOR

GRIMMWAY ENTERPRISES, INC.  
SHAFTER CARROT PACKING PLANT  
AND  
NORTH KERN WATER STORAGE DISTRICT  
KERN COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *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 or the State Water Resources Control Board, Division of Drinking Water Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of 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.

A glossary of terms used within this MRP is included on page 11.

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

<b>Monitoring Location Name</b>	<b>Monitoring Location Description</b>																
<b>EFF-001</b>	Location where a representative sample of the wastewater can be obtained prior to the discharge to unlined ponds (e.g., the recycle pond).																
<b>PND-001 through PND-007</b>	Location representative of wastewater ponds 1 through 7 (on the Plant property).																
<b>REC-001</b>	Location representative of the return wastewater flow from any pond back to the Plant for reuse.																
<b>EFF-002</b>	Location where a representative sample of the wastewater effluent from the ponds can be obtained prior to discharge to the land application areas (LAAs).																
<b>SPL-001</b>	Location where a representative sample of the water supply entering the Plant can be obtained.																
<b>RCH-001</b>	Location where a representative sample of the North Kern Water Storage District recharge water can be obtained as it is applied to the land application areas.																
<b>LAA-001 through LAA-00X</b>	Distinct land application areas where wastewater is applied at the North Kern Water Storage District Rosedale Groundwater Recharge Area.																
<b>MW-004</b>	North Kern Water Storage District groundwater monitoring well.																
<b>EXW-001 through EXW-007</b>	<p>North Kern Water Storage District groundwater extraction wells within the recharge area.</p> <table border="0"> <thead> <tr> <th><u>North Kern Name</u></th> <th><u>Monitoring Location Name</u></th> </tr> </thead> <tbody> <tr> <td>99-00-017</td> <td>EXW-001</td> </tr> <tr> <td>99-00-018</td> <td>EXW-002</td> </tr> <tr> <td>99-00-022</td> <td>EXW-003</td> </tr> <tr> <td>99-02-004</td> <td>EXW-004</td> </tr> <tr> <td>99-02-006</td> <td>EXW-005</td> </tr> <tr> <td>99-02-008</td> <td>EXW-006</td> </tr> <tr> <td>99-04-005</td> <td>EXW-007</td> </tr> </tbody> </table>	<u>North Kern Name</u>	<u>Monitoring Location Name</u>	99-00-017	EXW-001	99-00-018	EXW-002	99-00-022	EXW-003	99-02-004	EXW-004	99-02-006	EXW-005	99-02-008	EXW-006	99-04-005	EXW-007
<u>North Kern Name</u>	<u>Monitoring Location Name</u>																
99-00-017	EXW-001																
99-00-018	EXW-002																
99-00-022	EXW-003																
99-02-004	EXW-004																
99-02-006	EXW-005																
99-02-008	EXW-006																
99-04-005	EXW-007																

**POND DISCHARGE MONITORING**

The Discharger shall monitor wastewater discharge to unlined ponds at EFF-001 for the constituents listed below. Wastewater samples shall be representative of the volume and nature of the discharge. Time of collection of the samples shall be recorded. Effluent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Influent Flow	mgd	Meter
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	Grab
Weekly	BOD	mg/L	24-Hour Composite
Monthly	TDS	mg/L	24-Hour Composite
Monthly	Nitrate as nitrogen	mg/L	24-Hour Composite
Monthly	Ammonia as nitrogen	mg/L	24-Hour Composite
Monthly	Total Kjeldahl Nitrogen	mg/L	24-Hour Composite
Monthly	Total Nitrogen	mg/L	Computed
Quarterly <sup>1</sup>	General Minerals <sup>2</sup>	various	24-Hour Composite
Quarterly <sup>1,3</sup>	Disinfection byproducts <sup>4</sup>	mg/L	24-Hour Composite

<sup>1</sup> Samples to be collected in January, April, July, and October.

<sup>2</sup> Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

<sup>3</sup> Quarterly for one year, starting in July 2015, and once every five years thereafter (e.g., July 2021 and July 2026).

<sup>4</sup> Total trihalomethanes (chloroform, bromoform, bromodichloromethane, and dibromochloromethane) and five haloacetic acids (monochloro-, dichloro-, trichloro-, monobromo-, dibromo-).

### EFFLUENT MONITORING

The Discharger shall monitor effluent at EFF-002 for the constituents listed below. Effluent samples shall be representative of the volume and nature of the discharge. Time of collection of the samples shall be recorded. Effluent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Monthly	pH	pH Units	Grab
Monthly	EC	umhos/cm	Grab
Monthly	Biochemical Oxygen Demand	mg/L	Grab
Monthly	Total Dissolved Solids	mg/L	Grab
Monthly	Nitrate as nitrogen	mg/L	Grab
Monthly	Ammonia as nitrogen	mg/L	Grab
Monthly	Total Kjeldahl Nitrogen	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Computed
Quarterly <sup>1</sup>	General Minerals <sup>2</sup>	various	Grab

<sup>1</sup> Samples to be collected in January, April, July, and October.

<sup>2</sup> Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

### POND MONITORING

The Discharger shall inspect the condition of each settling and recycle pond on the Plant property once per week and write visual observations in a bound logbook (Pond Monitoring Log). Evidence of erosion, runoff, or the presence of nuisance conditions (i.e., flies, odors, etc.) shall be noted in the logs and included as part of the quarterly monitoring report.

Wastewater pond monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Recycle Flow <sup>1</sup>	mgd	Meter
Weekly	Freeboard	feet <sup>2</sup>	Measurement <sup>3</sup>
Weekly	Dissolved Oxygen <sup>4</sup>	mg/L	Grab

<sup>1</sup> Return wastewater flow from any pond back to the Plant for reuse.

<sup>2</sup> To the nearest tenth of a foot.

<sup>3</sup> Measured value unless freeboard is fixed by design, in which case the fixed freeboard shall be reported and noted as such.

<sup>4</sup> As measured in a sample collected approximately one (1) foot below the surface of the pond.

### SOURCE WATER MONITORING

The Discharger shall collect samples of its source water for the Plant (SPL-001) and from supplemental water applied to land application areas for the purpose of groundwater recharge (RCH-001), and analyze them for the constituents specified below. If the source water is from more than one source, the results shall be presented as a flow-weighted average of all sources.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Monthly	EC	umhos/cm	Grab
Annually <sup>1</sup>	General Minerals <sup>2</sup>	various	Grab

<sup>1</sup> Samples to be collected in July.

<sup>2</sup> Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

### LAND APPLICATION AREA MONITORING

The Discharger shall inspect the condition of the land application areas once per week and write visual observations in a bound logbook (LAAs Monitoring Log). Evidence of erosion, runoff, or the presence of nuisance conditions (i.e., flies, odors, etc.) shall be noted in the logs 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 land application area (LAA-001 through LAA-00X). The data shall be collected and presented in tabular format and shall include the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
------------------	------------------------------	--------------	--------------------

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Daily <sup>1</sup>	Application area	acres	Estimated
Daily <sup>1</sup>	Wastewater flow	gallons	Meter
Daily <sup>1</sup>	Wastewater loading	inches/day	Calculated
Daily	Precipitation	inches	Rain gage <sup>3</sup>
Monthly	Supplemental water <sup>2</sup>	gallons	Meter
Monthly	Total hydraulic loading <sup>4</sup>	inches/acre-month	Calculated
Monthly	Ratio, wastewater to recharge <sup>5</sup>	unitless	Calculated
<u>BOD Loading</u> <sup>6</sup>			
Daily	Day of application	lbs/acre-day	Calculated
Average	Cycle average <sup>7</sup>	lbs/acre-day	Calculated
<u>Salt Loading</u> <sup>6,8</sup>			
Annually	From wastewater	lbs/acre-year	Calculated
Annually	From supplemental water	lbs/acre-year	Calculated

<sup>1</sup> When discharging and while wastewater is applied to the land application area.

<sup>2</sup> Water applied as supplemental irrigation water or for groundwater recharge to the land application area.

<sup>3</sup> National Weather Service or CIMIS data from the nearest weather station is acceptable.

<sup>4</sup> Combined loading from wastewater, irrigation water, and precipitation.

<sup>5</sup> The discharger shall maintain running totals of hydraulic loading from wastewater and from other applied water (including precipitation) for each land application area. The start date of each sum shall be the date of implementation of this Monitoring and Reporting Program. The ratio of running totals shall be calculated monthly for each land application area.

<sup>6</sup> Loading rates shall be calculated using the applied volume of wastewater, applied acreage, and average effluent concentration.

<sup>7</sup> The BOD loading rate shall be divided by the number of days between applications for each individual application area to determine the cycle average loading rate.

<sup>8</sup> Salt loading shall be calculated using the average effluent concentration of TDS.

## GROUNDWATER MONITORING

The Discharger shall measure well water levels in all wells prior to pumping for purging or sampling. Samples shall be representative of formation water for the constituent concentrations and parameters being monitored, which is typically achieved in groundwater monitoring wells by purging 3 to 5 well casing volumes. In lieu of purging each well to this extent, the Discharger may provide alternative support for the conclusion that a sample is representative of formation water (i.e., documentation that pH, EC, reduction potential, and turbidity stabilized during reduced purging).

The Discharger shall monitor the groundwater extraction wells in the spreading grounds area (EXW-001 through EXW-007), the monitoring well there (MW-004), and any subsequent additional wells installed there as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Depth to Water	Feet <sup>1</sup>	Measured
Quarterly	Groundwater Elevation	Feet <sup>2</sup>	Calculated
Quarterly <sup>3</sup>	pH	s.u.	Grab
Quarterly <sup>3</sup>	EC	umhos/cm	Grab

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly <sup>3</sup>	General Minerals <sup>4</sup>	various	Grab
Quarterly <sup>3</sup>	Total Organic Carbon	mg/L	Grab

<sup>1</sup> To the nearest hundredth foot.

<sup>2</sup> Groundwater elevation shall be calculated based on depth-to-water measurements from a surveyed measuring point.

<sup>3</sup> Samples shall be collected for chemical analysis from EXW-001 through EXW-007 on a quarterly basis while in use (i.e., during dry years). Samples from groundwater monitoring wells shall be collected every quarter.

<sup>4</sup> Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

The Discharger shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) is dry for more than four consecutive sampling events, the Discharger shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following Executive Officer approval of the work plan and time schedule.

### REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports**, which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

- First Quarter Monitoring Report: **1 May**
- Second Quarter Monitoring Report: **1 August**
- Third Quarter Monitoring Report: **1 November**
- Fourth Quarter Monitoring Report: **1 February.**

The Central Valley Water Board has gone to a Paperless Office System. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence 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 50MB or larger should be transferred to a disk and mailed to the appropriate regional water board office, in this case 1685 E Street, Fresno, CA, 93706.

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any email used to transmit documents to this office:

Program: Non-15, WDID: 5C15NC00025  
 Facility Name: Shafter Carrot Packing Plant, Order: R5-2015-XXXX

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements. In addition to the details specified in 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.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

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.

In the future, the State or Central Valley Water Board may notify the Discharger to electronically submit and upload monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site <http://www.waterboards.ca.gov/ciwqs/index.html> or similar system.

**A. All Quarterly Monitoring Reports** shall include the following:

**Pond Discharge and Effluent Reporting**

1. Tabulated results of pond discharge monitoring and effluent monitoring specified on page 3.
2. For each month of the quarter, calculation of the maximum daily flow, monthly average flow, and cumulative annual flow.
3. For each month, calculation of the 12-month rolling average EC of the discharge using the EC values for that month averaged with EC values for the previous 11 months. The report shall compare the result to the concurrent 12-month rolling average EC of the source water.

**Pond Reporting**

1. Tabulated results of pond discharge monitoring and effluent monitoring specified on page 4.
2. A summary of the notations made in the Pond Monitoring Log during each quarter. The entire contents of the log do not need to be submitted unless requested by Central Valley Water Board staff.

**Source Water Reporting**

1. The results of the source water monitoring for the Plant and recharge water monitoring specified on page 4. If multiple sources are used the Discharger, shall calculate the flow-weighted average concentrations for the specified constituents. Results must include supporting calculations, if required.

**Land Application Area Reporting**

1. The results of monitoring and loading calculations specified on pages 4 and 5.
2. Calculation of the hydraulic load for wastewater and supplemental irrigation water to the land application area in gallons and/or acre-feet.

3. A summary of the notations made in the LAAs Monitoring Log during each quarter. The entire contents of the log do not need to be submitted unless requested by Central Valley Water Board staff.
4. For each week, calculation of the daily and average BOD loading for the application cycle, using the BOD results for that month.

### **Groundwater Reporting**

1. The result of groundwater monitoring specified on pages 5 and 6. If there is insufficient water in the well(s) for sampling, the monitoring well(s) shall be reported as dry for that quarter.
2. For each well, a table showing groundwater depth, elevation, and constituent concentrations for the five previous years, up through the present quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow. The map shall also include locations of all wells monitored and wastewater storage and application areas.

### **B. Fourth Quarter Monitoring Reports**, in addition to the above, shall include the following:

#### **Facility Information**

1. The names and telephone numbers of persons to contact regarding the discharge for emergency and routine situations.
2. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
3. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

#### **Effluent Monitoring Reporting**

1. A summary of tabulated results of effluent monitoring specified on page 3.
2. Calculation of the maximum daily flow, monthly average flow, and cumulative annual flow.

#### **Solids Reporting**

1. Annual production totals for solids (excluding trash and recyclables) in dry tons or cubic yards.
2. A description of disposal methods, including the following information related to the disposal methods used. If more than one method is used, include the percentage disposed of by each method.
  - a. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.
  - b. For land application, include: the location of the site (field identification), and the Order number of any WDRs that regulate it.
  - c. For incineration, include: the name and location of the site where incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).

- d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.
- e. For animal feed, include: the location of the site, and the Order number of any WDRs that regulate it.

### **Source Water Reporting**

1. The results of annual monitoring of source water and supplemental irrigation water supply as specified on page 4. If multiple sources are used, the Discharger shall calculate the flow-weighted average concentrations for the specified constituents. Results must include supporting calculations, if required.

### **Land Application Area Reporting**

1. The monthly and annual discharge and supplemental water volumes during the reporting year expressed in millions of gallons and inches.
2. A monthly balance for the reporting year that includes:
  - a. Monthly average ET (evapotranspiration from plants in the land application areas) – Information sources include California Irrigation Management Information System (CIMIS) <http://www.cimis.water.ca.gov>.
  - b. Monthly average precipitation – this data is available at <http://www.cimis.water.ca.gov> or at <http://www.ncdc.noaa.gov/data-access/land-based-station-data/>.
  - c. Monthly average and annual average discharge flow rate.
  - d. Monthly estimates of the amount of wastewater percolating below the root zone (i.e., amount of wastewater applied in excess of plant requirements).
3. A summary of average and cycle BOD loading rates.
4. The total pounds of fixed dissolved solids (FDS) or TDS that have been applied to the land application areas in lbs/acre-year, as calculated from the sum of the monthly loadings.

### **Additional Reporting**

1. A Plant salt balance for the calendar year presenting salt input and output in pounds. Salt inputs shall be estimated from source water flow and TDS/EC concentrations, and estimated contributions of salt by processes at the Plant (e.g., soil from fields on the carrots and chemical usage). Salt outputs shall be estimated from discharge flow and concentration data, including evaporation and percolation estimates. The salt balance shall include an estimate of the mass reduction in salt discharged as a result of water saving efforts at the Plant. Results must include supporting calculations.

MONITORING AND REPORTING PROGRAM R5-2015-XXXX  
GRIMMWAY ENTERPRISES, INC., SHAFTER CARROT PACKING PLANT  
AND NORTH KERN WATER STORAGE DISTRICT  
KERN COUNTY

-10-

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by:

\_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)

### GLOSSARY

BOD <sub>5</sub>	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	Unless otherwise specified or approved, samples shall be a flow-proportioned composite consisting of at least eight aliquots.
Daily	Samples shall be collected every day.
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.
Weekly	Samples shall be collected at least once per week.
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.
Monthly	Samples shall be collected at least once per month.
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in March and September.
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.
mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis for General Minerals shall include at least the following:
	Alkalinity (as CaCO <sub>3</sub> )      Carbonate (as CaCO <sub>3</sub> )      Magnesium      Sodium
	Bicarbonate (as CaCO <sub>3</sub> ) Chloride      Manganese      Sulfate
	Boron      Hardness      Nitrate (NO <sub>3</sub> -N)      TDS
	Calcium      Iron      Potassium
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.