CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2015-0057

WASTE DISCHARGE REQUIREMENTS

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

The California Regional Water Quality Control Regional Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 19 March 2013, Grimmway Enterprises, Inc., submitted a Report of Waste Discharge (RWD) that describes expansion of the discharge of carrot washing wastewater from its existing Shafter Carrot Packing Plant (hereafter "Plant"), and a change in discharge location to North Kern Water Storage District's Rosedale groundwater recharge area spreading basins. Additional information to complete the RWD was submitted as a technical report on 25 July 2014.

2. Grimmway Enterprises, Inc. (hereafter "Discharger" or "Grimmway"), owns and operates the facility that generates the waste. North Kern Water Storage District (hereafter "Discharger" or "North Kern") owns the land application areas (LAAs), which are within the Rosedale recharge area. Grimmway and North Kern are responsible for compliance with these Waste Discharge Requirements (WDRs). The term "Discharger" shall be used to refer to Grimmway Enterprises, Inc., and North Kern Water Storage District, collectively.

3. The Plant and wastewater storage ponds are at 6301 South Zerker Road in Shafter (Section 15, T28S, R26E, MDB&M), occupying Assessor's Parcel Number (APN) 091-090-18. The LAAs are the North Kern spreading basins at the Rosedale groundwater recharge area (Sections 22 and 27, T28S, R26E, MDB&M), which cover an area of about 592 acres adjacent to and south of the Calloway Canal at Zerker Road, occupying APNs 091-190-17 and 091-120-04. Attachment A, which is attached hereto and made part of this Order by reference, is a vicinity map. Attachments B and C, also attached hereto and made part of this Order by reference, are site maps for the Plant property and LAAs, respectively.

4. WDRs Order 5-01-140, adopted by the Central Valley Water Board on 14 June 2001, prescribes requirements for the existing discharge to onsite ponds prior to discharge of up to 0.300 million gallons per day (mgd), as a monthly average, to the collection system of the Minter Field Airport District Wastewater Treatment Facility (Minter Field WWTF). The Minter Field WWTF is closing down and the local sewer system will no longer be available for disposal of Plant wastewater. The Discharger proposes to expand the Plant to produce up to 0.700 mgd, cease discharging to the Minter Field WWTF, and discharge to the North Kern Rosedale recharge project instead. Therefore, Order 5-01-140 will be rescinded and replaced with this Order.

## Facility and Discharge

5. The Plant receives fresh, whole carrots, packs them, and ships them to buyers or to another Grimmway facility for processing. The 79-acre Plant property includes office buildings, truck

parking, truck unloading, carrot washing facilities, a storm water basin, and a system of unlined wastewater ponds.

6. Trucks haul carrots from the field to soaker sheds at the Plant where carrots are initially rinsed with well water. The carrots are then flushed from the trailers at the washout area to a flume using recycled wash water pumped from a wastewater settling pond, which Grimmway calls the recycle pond (POND-004). The carrots are then conveyed to the packing shed, where they are cleaned using brush washers and fresh chlorinated water. The final wash occurs during the hydro-cooling process using more fresh chlorinated water. Grimmway packs and stores the clean carrots. Attachment D, which is attached hereto and made part of this Order by reference, is a process flow diagram for the Plant and discharge.

7. All carrot-washing wastewater is combined in the recycle pond for settling of sand and silt. Water from the recycle pond is pumped back to the Plant for reuse in the washout area and flume. Grimmway has not recorded wastewater flow from the Plant to the unlined ponds or the flow of wastewater recycled back to the Plant. The RWD does not include estimates of evaporation or percolation from the ponds.

8. Valve settings control whether the ponds are in series or parallel, and allow Grimmway to take particular ponds out of service for maintenance while continuing to use the remaining ponds. The effluent pump controls the water level in the final pond. The water level in all the other ponds is generally fixed at the elevation of each outflow pipe. Grimmway has occasionally reconfigured the unlined ponds to optimize operation and maintenance without significantly changing the purpose or location of the pond system.

9. Grimmway's current discharge from the last unlined pond into the Minter Field WWTF collection system will be replaced with discharge to a wastewater line connected to LAAs at the North Kern recharge project. In 2013, the average flow out of the final pond into the collection system was about 0.14 mgd.

10. The domestic wastewater stream at the Plant is entirely separate from the wash water stream. Wastewater from evaporative cooling processes at the Plant is discharged to the domestic system rather than to the wastewater ponds. The RWD states that the domestic wastewater system will be connected to the City of Shafter community sewer line in preparation for closure of the Minter Field WWTF. The City's sewer conveys wastewater to the North of River Sanitary District No. 1 WWTF, about 10 miles southwest of the Plant.

11. Supply water for the Plant is provided by an onsite well. The supply water is relatively poor quality with respect to salinity. Table 1 presents the average results of quarterly water supply monitoring from September 2011 through August 2014.

Table 1. Plant Water Supply Well Quality

| Parameters | Units | Average | Range |
|---|---|---|---|
| EC [1] | umhos/cm | 1,550 | 1,350 – 2,100 |
| TDS [2] | mg/L | 1,030 | 930 – 1,120 |
| Nitrate (as N) | mg/L | < 0.1 | < 0.1 - 0.1 |
| Sodium | mg/L | 285 | 254 - 308 |

| Parameters | Units | Average | Range |
|---|---|---|---|
| Chloride | mg/L | 285 | 247 - 305 |
| Sulfate | mg/L | 384 | 320 - 420 |
| Boron | mg/L | < 0.1 | < 0.1 - 0.2 |
| Hardness (as $CaCO_3$) | mg/L | 209 | 152 - 571 |

[1] Electrical conductivity.
[2] Total dissolved solids.

12. As required by WDRs Order 5-01-140, Grimmway monitors wastewater quality prior to discharge to the Minter Field WWTF. Table 2 presents the average results of quarterly wastewater monitoring from September 2011 through August 2014.

Table 2. Plant Wastewater Quality

| Parameters | Units | Average | Range |
|---|---|---|---|
| BOD [1] | mg/L | 161 | 27 – 690 |
| EC | umhos/cm | 2,130 | 1,902 – 2,250 |
| TDS | mg/L | 1,560 | 1,280 – 1,920 |
| Total Nitrogen | mg/L | 3.6 | < 1.0 – 10 |
| Sodium | mg/L | 329 | 280 – 409 |
| Chloride | mg/L | 388 | 330 – 420 |
| Sulfate | mg/L | 456 | 330 – 800 |
| Boron | mg/L | 0.4 | < 0.1 – 2.3 |
| Hardness (as $CaCO_3$) | mg/L | 577 | 218 – 2,120 |

[1] Five-day biochemical oxygen demand.

13. Grimmway submitted Materials Safety Data Sheets describing the chemicals used at the Plant for sanitation and disinfection. The active ingredients in the chemicals include: acetic acid, citric acid, phosphoric acid, peroxyacetic acid, hydrogen peroxide, 2-butoxyethanol, lauramine oxide, n-alkyl dimethyl benzyl ammonium chlorides, n-alkyl dimethyl ethylbenzyl ammonium chlorides, polyethylene glycol mono(nonyl phenol) ether, tetrasodium ethylenediaminetetraacetate, sodium hypochlorite, sodium hydroxide, potassium hydroxide, sodium metasilicate, sodium tripolyphosphate, and surfactants. The organic chemicals are commonly used and considered low toxicity.

14. Grimmway and North Kern were actively negotiating the terms of an agreement during preparation of this Order. The agreement is expected to authorize Grimmway's long-term discharge to the Rosedale recharge area and define the roles and responsibilities of each party. Grimmway has indicated it will accept responsibility for compliance with all the terms and conditions of this Order. North Kern reportedly intends to allow Grimmway access to its facilities. This Order requires the Discharger to submit, for Executive Officer approval,

documentation that the parties have a certified agreement consistent with compliance with this Order.

15. Grimmway intends to grow orchard grass to increase atmospheric nitrogen losses in the LAAs, but it will not harvest a crop. The RWD describes LAAs varying in size from 17 acres to 440 acres. The wastewater may be blended with surface water at times, but will generally be applied unblended. As surface water becomes available, North Kern will apply it to the same areas that receive wastewater. This Order requires the Discharger to submit a Land Application Area Management Plan describing how it will minimize localized groundwater degradation by rotating wastewater application through different LAAs within the North Kern recharge project.

16. Organic matter in the discharge increases the biochemical oxygen demand (BOD). Overloading of LAAs with high organic strength wastewater can create objectionable odors and induce soil conditions leading to groundwater degradation with metals and other constituents. The minimum acreage of LAA described in the RWD is 17 acres. The cycle average and maximum instantaneous BOD loading rates are expected to be less than 50 pounds per acre per day and 250 pounds per acre per day, respectively.

17. North Kern has agreements with various parties for access to water for groundwater recharge. The availability of water for recharge depends primarily on precipitation in the region. Table 3 presents recharge flows applied per year in millions of gallons (MG) from 1991 through 2013, calculated from data presented in the RWD.

Table 3. Recharge Water Quantity (1991 through 2013)

| Year | MG | Year | MG |
|---|---|---|---|
| 1991 | 0 | 2003 | 0 |
| 1992 | 489 | 2004 | 17 |
| 1993 | 882 | 2005 | 11,000 |
| 1994 | 100 | 2006 | 19,800 |
| 1995 | 20,300 | 2007 | 4,760 |
| 1996 | 7,450 | 2008 | 12 |
| 1997 | 10,400 | 2009 | 660 |
| 1998 | 24,900 | 2010 | 392 |
| 1999 | 2,590 | 2011 | 21,200 |
| 2000 | 0 | 2012 | 959 |
| 2001 | 0 | 2013 | 0 |
| 2002 | 67 | | |

18. The average annual recharge volume reported for the period of 1991 through 2013 is about 5,480 MG (about 16,800 acre-feet), or 28.4 feet of water spread over the 592-acre recharge area. Over the same 23-year period, there were four years when North Kern applied over 100 feet of surface water to the area. At the proposed maximum wastewater flow (182 MG/year), Grimmway's proposed discharge would average less than a 1-foot depth of water over the 592 acres of application areas, which represents about three percent of the total water applied.

19. Table 4 presents average surface water quality data from the Beardsley canal used for recharge in 2012 and 2013.

Table 4. Recharge Water Quality

| Parameters | Units | Average | Range |
|---|---|---|---|
| EC | umhos/cm | 192 | 140 - 250 |
| TDS | mg/L | 112 | 42 - 170 |
| Nitrate (as N) | mg/L | < 0.5 | < 0.5 - 0.8 |
| Sodium | mg/L | 17 | 13 – 26 |
| Chloride | mg/L | 7.0 | 4.1 – 11 |
| Sulfate | mg/L | 20 | 9.9 – 38 |
| Boron | mg/L | < 0.2 | < 0.1 - 0.2 |

**Site-Specific Conditions**

20. The Plant and Land Application Area are at an elevation of approximately 415 feet and 375 feet above mean sea level, respectively. The climate is arid, with hot summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evaporation (Class 'A' pan) in the area are about 6.0 inches and 64.8 inches, respectively, according to information published by the California Department of Water Resources (DWR). The California Irrigation Management Information System (CIMIS) database reports an annual average potential evapotranspiration (ETo) of 57 inches for Shafter.

21. According to United States Department of Agriculture, Natural Resources Conservation Service soil survey maps, soils in the vicinity of the Plant, including areas containing the unlined ponds, and the majority of the LAA, are Driver series coarse sandy loam. These soils are described as nonsaline, well drained, moderately high hydraulic conductivity, and prime farmland when irrigated. The land capability classification of the soil for irrigation is II-s, which has little or no restrictions on cultivation.

22. According to Federal Emergency Management Agency (FEMA) map number 06029C1800E, updated 26 September 2008, the Plant and application area are outside of the 100-year return frequency flood zones.

23. The commodities (crops) identified in the 2013 Kern County pesticide permitting database within two miles of the Plant and land application areas are: almond, grape, alfalfa, potato, pistachio, apple, cotton, wheat, carrot, garlic, tomato, cherry, onion, oat, and safflower. The most recent DWR land use survey for Kern County (dated 2006) also identifies the same crops, as well as green beans, dry beans, carrots, and olives.

## Groundwater Conditions

24. The Plant is in the North Kern Hydrologic Area (No. 558.80) of the South Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by State Water Resources Control Board in August 1986.

25. According to United States Geologic Survey maps, the unconfined aquifer underlying the Plant and application area extends to a depth of over 2,000 feet below ground surface. The discharges are outside the Corcoran Clay area and the alluvium is not expected to contain any continuous, low-permeability confining layers.

26. Groundwater underlying the LAAs is generally first encountered at about 250 feet below ground surface (bgs) in the area of the Plant and LAAs, and flows north according to *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 2010. The recharge project induces intermittent, localized groundwater mounding.

27. The 2007 Annual Water Supply Report from the Kern County Water Agency includes a map with lines of equal concentration of total dissolved solids based on data from samples of first encountered groundwater collected prior to 1991. The map shows that a zone of groundwater in the vicinity of the Grimmway Plant, approximately 10 miles long and 6 miles wide, has elevated total dissolved solids ranging from about 500 mg/L to 2,500 mg/L. Based on the map, groundwater beneath the Plant has a concentration of total dissolved solids of about 2,000 mg/L, which corresponds to an EC of about 3,000 umhos/cm. The source of the elevated salinity has not been identified, but is likely historical oil field discharges. Published data from nearby groundwater wells show the high concentrations of saline constituents (largely sulfate, sodium, and chloride) in the vicinity of the Plant date back to at least 1936.

28. North Kern has operated the groundwater recharge project at the application area since the 1950s. North Kern applies surface water from the Kern River and, to a lesser extent, from other surface water sources to the LAAs, where it percolates to recharge groundwater. During wet years like 1995, 1998, 2006, and 2011, North Kern applied more than 100 feet of water per year to the LAAs (about 10 billion gallons). North Kern monitors water quality during dry years when it draws water from its network of groundwater extraction wells. North Kern also maintains one groundwater monitoring well in the center of the recharge area to monitor first-encountered groundwater. Monitoring data from the North Kern wells show the significant influence of the recharge project on local groundwater quality.

29. Based on electric logs of nearby wells and considering sources of recharge in the area, groundwater near the surface is expected to be of poorer quality than deeper groundwater near the Plant. However, near the recharge project and unlined canals (i.e., the Lerdo Canal), first encountered groundwater is expected to be of better quality than deeper groundwater.

30. Table 5 summarizes published groundwater quality data for wells near the Plant and discharge area. The data show that groundwater near the Plant is of much poorer quality than groundwater underlying the application area (groundwater recharge area). None of the data necessarily represent first-encountered groundwater, but the top of the screened intervals is thought to be within 200 feet of the groundwater surface.

Table 5. Groundwater Quality

| | | *Groundwater Near the Plant* | | *Groundwater at the Application Area* |
|---|---|---|---|---|
| Parameters | Units | North Kern Well [1] | USGS Well [2] | North Kern Wells [3] |
| pH [4] | std. | 7.7 | 7.8 | 8.2 |
| EC | umhos/cm | 2,650 | 2,960 | 472 |
| TDS | mg/L | 1,740 | 1,980 | 295 |
| Nitrate (as N) | mg/L | 13 | 8.1 | 1.3 |
| Sodium | mg/L | 307 | 52 | 73 |
| Chloride | mg/L | 371 | 480 | 52 |
| Sulfate | mg/L | 712 | 750 | 88 |
| Boron | mg/L | 0.1 | 0.1 | 0.1 |
| Hardness (as $CaCO_3$) | mg/L | 608 | 680 | 53 |

[1] Average of all results from 1977 through 2013 for North Kern well 8-03-009, near the western boundary of the Plant property.

[2] Results of a single sample collected in 1955 from USGS well 028S026E15F001M (total depth 522 feet below ground surface), immediately north of the Plant property.

[3] Average of all results from 1977 through 2013 for seven North Kern wells within the LAAs (99-00-017, 99-00-018, 99-00-022, 99-02-004, 99-02-006, 99-02-008, and 99-04-005).

[4] Value shown for pH is the median, rather than average.

31. The Antidegradation Analysis submitted as part of the RWD states that nearby well tests show the transmissivity of the aquifer is 160,000 to 460,000 gallons per day per foot and the hydraulic conductivity is 441 to 1,270 gallons per day per foot. It indicates that at an average gradient of 17 feet per mile, the flow of groundwater underlying the application area is between 3.8 mgd and 11 mgd. The analysis demonstrates that groundwater flow beneath the discharge area will likely affect the fate of waste in groundwater.

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

32. The *Water Quality Control Plan for the Tulare Lake Basin,* Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

33. Local drainage is to Valley Floor Waters. The beneficial uses of Valley Floor Waters, as stated in the Basin Plan for Hydrologic Area No. 558, are agricultural supply; industrial service supply; industrial process supply; groundwater recharge; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; preservation of biological habitats of special significance; and enhancement of rare, threatened, or endangered species.

34. The beneficial uses of underlying groundwater, as stated in the Basin Plan for Detailed Analysis Unit 256 within the Kern County Basin hydrologic unit, are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

35. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.

36. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in groundwater designated for municipal or domestic supply (MUN).

37. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

38. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

39. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

40. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

41. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until a mechanism to carry salts out of the basin is established. To limit the degradation, the Basin Plan establishes several salt management requirements, including:

    a. Industrial dischargers shall be required to limit the increase in EC of a point source discharge to surface water or land to a maximum of 500 umhos/cm. A lower limit may be required to assure compliance with water quality objectives.

    b. Discharges of municipal and domestic wastewater to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride

concentration of 175 mg/L, or a boron concentration of 1.0 mg/L. The Basin Plan states that effluent limits established for municipal waste discharges will generally apply to industrial wastes.

42. The Basin Plan allows an exception to the EC limit of source water plus 500 umhos/cm when the discharger technically demonstrates that allowing a greater net incremental increase in EC will result in lower mass emissions of salt and in conservation of water, provided that beneficial uses are protected. Grimmway has implemented water saving measures (recycle flows) that result in lower mass emissions of salt at the Plant. In December 2013, Grimmway reportedly began reducing recycle flows in order to reduce final effluent EC. As a result, Grimmway reduced the difference in EC between the supply well and wastewater from an average of almost 700 umhos/cm in 2013 to less than 400 umhos/cm in 2014. While Grimmway has not presented a full technical demonstration that it meets the criteria for exception from the incremental EC limit, there is enough information in the record to justify the exception. Monitoring and Reporting Program (MRP) R5-2015-0057, which is attached hereto and made part of this Order by reference, requires Grimmway to submit salt balance calculations, quantifying the mass emissions of salt saved through water conservation at the Plant on an on-going basis.

43. Since the discharge meets the conditions for exception from the Basin Plan incremental EC limit for EC (Finding 42), which includes the expectation that potential groundwater degradation will not adversely affect beneficial uses of groundwater (see Findings 24 through 31), the specific effluent limits for EC and chloride listed in Finding 41(b) do not appear to be appropriate in this case. The effluent limit for boron appears to be applicable, but unnecessary given the low concentrations of boron in the discharge.

44. The Basin Plan states that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. As groundwater salinity increases, the first adverse effects generally impact agricultural beneficial use of water for irrigation of salt-sensitive crops. The list of crops in Finding 23 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but it is representative of current and historical agricultural practices in the area. Growers rely on groundwater supplies for irrigation of salt-sensitive crops in the area.

**Antidegradation Analysis**

45. State Water Resources Control Board Resolution 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the state.

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses.

    c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and

    d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

46. Degradation of groundwater quality by some of the typical waste constituents associated with discharges from food processing plants, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger's operation provides 420 local jobs, with more anticipated with the planned expansion. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the state, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

47. There are two discharge areas where underlying groundwater may be affected by discharge from the Plant: the unlined ponds on the Plant property and the LAAs at the North Kern recharge basins. As described in Finding 30, groundwater quality differs between these two areas. Assessment of potential groundwater degradation requires a separate analysis for each discharge location.

48. Table 6 summarizes the available data for constituents of concern in the discharge, groundwater underlying both discharge locations, and presents the projected long-term average character of water to be applied to the LAAs.

Table 6. Summary of Constituent Concentrations

| Parameters | Units | Discharge [1] | Plant Property Groundwater [2] | LAA Groundwater [3] | Projected Long-Term Average of Applied Water [4] |
|---|---|---|---|---|---|
| EC | umhos/cm | 2,130 | 2,650 | 472 | 256 |
| TDS | mg/L | 1,560 | 1,740 | 295 | 154 |
| Total Nitrogen | mg/L | 3.6 | 13 | 1.3 | 2.0 |
| Nitrate (as N) | mg/L | < 1 | 13 | 1.3 | 1.3 |
| Sodium | mg/L | 329 | 307 | 73 | 27 |
| Chloride | mg/L | 388 | 371 | 52 | 19 |
| Sulfate | mg/L | 456 | 712 | 88 | 37 |
| Boron | mg/L | 0.4 | 0.1 | 0.1 | 0.2 |

[1] Average from October 2009 through September 2014.

[2] Average of results from 1977 through 2013 for North Kern well 8-03-009, near the western boundary of the Plant property.

[3] Average of all results from 1977 through 2013 for North Kern wells within the application area (99-00-017, 99-00-018, 99-00-022, 99-02-004, 99-02-006, 99-02-008, and 99-04-005).

[4] Calculated flow-weighted average values using average recharge flows from 1991 through 2013 with the maximum annual wastewater flow of 182 MG.

49. Self-monitoring reports in the record characterize the quality of effluent from the unlined ponds on the Plant property. While there is no data describing pond influent, it is expected to have higher concentrations of settleable solids (due to settling of sand and silt) and lower concentrations of dissolved solids (due to evaporation in the ponds) than pond effluent.

50. Table 6 shows that groundwater underlying the Plant property is generally poorer quality than the discharge. As the record does not yet contain shallow groundwater monitoring data, the groundwater data shown in Table 6 is based on samples from relatively deep wells. The characterization is thought to approximate groundwater conditions. As explained in Finding

29, groundwater underlying the Plant is expected to be poorer quality near the surface. However, the available data shows concentrations of chloride and boron in the wastewater are near and may be slightly higher than receiving groundwater concentrations.

51. Constituents of concern having potential to degrade groundwater underlying the Plant property include chloride and boron.

    a. **Chloride**. Groundwater chloride concentrations already exceed the Recommended Secondary MCL for chloride of 250 mg/L. The difference between the chloride concentrations shown in Table 6 for groundwater and wastewater appear to be insignificant and groundwater degradation with chloride is unlikely. If the discharge to unlined ponds causes groundwater degradation with chloride, it will not exceed the Upper Secondary MCL for chloride of 500 mg/L.

    b. **Boron**. While some degradation of groundwater quality with boron may occur, the discharge does not threaten to cause groundwater to exceed the lowest potential water quality goal for boron of 0.5 mg/L.

52. Assessment of potential groundwater degradation at the LAAs needs to consider that dilution with recharge flows will occur intermittently, depending primarily on surface water availability. As presented in Findings 17 and 18, recharge flow data from North Kern for the period of 1991 through 2013 show an average of 5,760 million gallons per year with highs of over 20 billion gallons per year. Based on the average for this period, the maximum proposed annual wastewater discharge (182 MG) represents about three percent of the average annual recharge flow over the long term. At current discharge flows (about 52 MG in 2013), the wastewater represents less than one percent of the average applied water.

53. Groundwater underlying the LAAs is significantly better quality than water quality goals for the designated beneficial uses. Discharge to the LAAs over extended dry periods (i.e., five years or more) may result in some degradation of groundwater with salts. However, recharge during wet years will dilute the concurrent wastewater discharge, and dilute groundwater affected by percolating/percolated wastewater from previous dry years. The long-term viability of discharge to the LAAs depends on surface water flows to maintain suitable groundwater quality before the discharge adversely affects beneficial uses. This Order, by MRP R5-2015-0057, requires the Discharger to monitor the North Kern groundwater monitoring well and the extraction well network in order to track trends in groundwater quality.

54. Constituents of concern in the discharge that have the potential to degrade groundwater quality underlying the LAAs include salts (EC, TDS, and specific ions including sodium, chloride, and sulfate), nitrogen (organic nitrogen that can convert to nitrate), and boron.

    a. **Electrical Conductivity, Total Dissolved Solids, Chloride, Sulfate and Sodium.** The discharge, if not properly managed, has potential to degrade groundwater with EC, TDS, chloride, and sulfate. However, as mentioned in Findings 52 and 53, above, dilution of these constituents will prevent the discharge from causing excessive degradation. This Order implements limits and requires sufficient monitoring to prevent the discharge from causing degradation in excess of water quality objectives.

    b. **Nitrate.** The discharge has very limited potential to degrade groundwater quality with nitrate. The average concentration of total nitrogen in the wastewater, primarily present in the form of organic nitrogen, is less than 5 mg/L and does not threaten to cause groundwater to contain nitrate above the Primary MCL of 10 mg/L as nitrogen.

c. **Boron**. In the same way as the unlined pond discharge at the Plant property, while some degradation of groundwater quality with boron may occur, the discharge does not threaten to cause groundwater to exceed the lowest potential water quality goal for boron of 0.5 mg/L.

55. This Order establishes effluent and groundwater limitations for the Plant that will not unreasonably threaten present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

56. The Discharger provides treatment and control of the discharge that incorporates:

a. Segregation of domestic wastewater from industrial wastewater;

b. Wastewater reuse;

c. Wastewater settling basins;

d. Appropriate solids management practices;

e. Blending of wastewater with good quality water for groundwater recharge;

f. Preparation and implementation of a Salinity Management Plan; and

g. Preparation and implementation of a Land Application Management Plan.

These treatment and control practices are reflective of BPTC of the discharge.

57. This Order imposes effluent and groundwater limitations and requires monitoring to ensure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved while minimizing any degradation that may occur. Depending on monitoring results, this Order will be reopened if necessary to reconsider effluent limitations and other requirements to comply with Resolution 68-16. Based on the existing record, the discharge authorized by this Order is consistent with the antidegradation provisions of Resolution 68-16.

**Other Regulatory Considerations**

58. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

59. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2B as defined below:

a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

b. Category B complexity, defined as: “Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units.”

60. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

> The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:
>
> **…**
>
> (b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:
>
> (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
>
> (2) the discharge is in compliance with the applicable water quality control plan; and
>
> (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.
>
> **…**

61. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

    a. Discharges to the unlined ponds on the Plant property and to the LAAs are exempt pursuant to Title 27, section 20090(b) because they are discharge of wastewater to land and:

        i. The Central Valley Water Board is issuing WDRs.

        ii. The discharge is in compliance with the Basin Plan, and;

        iii. The treated effluent discharged to the ponds does not need to be managed as hazardous waste.

    b. Discharge of food processing residual solids to the LAAs is exempt pursuant to Title 27, section 20090(b) because it constitutes use of nonhazardous decomposable waste as a soil amendment and this Order requires implementation of applicable best management practices.

62. Although the discharge is exempt from Title 27, the statistical data analysis methods of Title 27, section 20415(e) are appropriate for determining whether the discharge complies with Groundwater Limitations specified in this Order.

63. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger is exempt from coverage under NPDES General Permit CAS000001 because all storm water is contained onsite.

64. Water Code section 13267(b) states:

> In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those report, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2015-0057 are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges waste subject to this Order.

65. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 74-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

66. The City of Shafter certified a negative declaration on 7 October 2014 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The negative declaration and initial study describe the project as moving the discharge of carrot wash water from the Minter Field WWTF to LAAs at the North Kern Rosedale recharge project, using the City right-of-way to install a pipeline parallel to Zerker Road, and increasing the discharge flow from 0.300 mgd to 0.700 mgd.

67. The negative declaration, which includes Grimmway's RWD as an attachment, finds that the project will have no impact on groundwater quality. While the discharge has some potential to impact groundwater quality, the Central Valley Water Board concurs with the City's findings to the extent that impacts due to the project would be less than significant. Compliance with this Order will mitigate or avoid significant impacts to water quality.

68. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

**Public Notice**

69. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

70. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.

71. All comments pertaining to the discharge were heard and considered in a public hearing.

**IT IS HEREBY ORDERED** that Waste Discharge Requirements Order 5-01-140 is rescinded except for purposes of enforcement, and, pursuant to Water Code sections 13263 and 13267, Grimmway Enterprises, Inc., and North Kern Water Storage District, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

## A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.

3. Bypass around, or overflow from, the settling/recycling pond(s) is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.

4. Application of residual solids to the land application areas is prohibited.

5. Discharge of domestic waste to the process wastewater system or facility other than a septic system, regularly serviced portable toilets, or a community sewer system is prohibited.

6. Discharge of waste at a location or in a manner different from that described in the Findings of this Order is prohibited.

## B. Flow Limitations

1. The discharge shall not exceed a maximum daily discharge flow of 0.700 mgd or an annual flow of 182 million gallons per year. [Monitored at EFF-002]

## C. Effluent Limitations

1. The 12-month rolling average EC of the discharge shall not exceed the 12-month flow weighted average EC of the source water plus 700 umhos/cm. Compliance with this effluent limitation shall be determined monthly based on representative samples from location EFF-002, as identified in MRP R5-2015-0057.

2. The discharge (EFF-001) shall not contain total nitrogen (the total mass of nitrogen occurring in any form) in a concentration exceeding 10 mg/L as nitrogen.

## D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause violation of the Groundwater Limitations of this Order.

2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

3. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.

4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

5. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

6. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.

7. As a means of discerning compliance with Discharge Specification C.6, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond on the Plant property shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

8. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond on the Plant property shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each wastewater pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

9. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

10. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications 8 and 9.

11. All ponds and open containment structures on the Plant property shall be managed to prevent breeding of mosquitoes. Specifically:

    a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

e. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but not during, the April 1 to June 30 bird nesting season.

12. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.

13. Wastewater contained in any unlined pond shall not have a pH less than 6.0 or greater than 9.0.

14. Additional settling ponds and fines deposition areas may be constructed as needed within the confines of the Plant property as defined on Attachment B.

15. All stockpiled products shall be managed to prevent erosion that causes discharge of sediment to surface water drainage courses.

16. Process wash water used for on-site dust control or landscape irrigation shall be used in a manner that will not cause discharge of eroded sediment in storm water runoff to areas not controlled by the Discharger.

## E. Groundwater Limitations

Release of waste constituents from any treatment, reuse, or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or background quality, whichever is greater:

1. Nitrate as nitrogen of 10 mg/L;

2. For constituents identified in Title 22, the MCLs quantified therein.

## F. Land Application Area Specifications

1. Land application of wastewater shall be managed to minimize erosion.

2. The LAAs shall be managed to prevent breeding of mosquitoes.

3. Land application of wastewater at the LAAs shall occur only when appropriately trained personnel are immediately available.

4. The Discharger shall conduct periodic inspections of the LAAs to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with the requirements of this Order, the Discharger shall immediately implement corrective actions. If corrective actions cannot be implemented immediately, then the Discharger shall cease recycled water use in the LAA where the noncompliance is occurring until corrective actions can be implemented.

5. Wastewater application shall be confined to the LAAs and shall not enter any surface water drainage course or storm water drainage system.

6. Discharge of storm water runoff from the LAAs to off-site surface water drainage courses is prohibited.

## G. Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid organic matter removed from wastewater treatment, settling, and storage vessels or ponds. Solid waste refers to solid inorganic matter removed by screens and soil sediments from washing of unprocessed fruit or vegetables. Except for waste solids originating from meat processing, residual solids means organic food processing byproducts such as culls, pulp, stems, leaves, and seeds that will not be subject to treatment prior to disposal or land application.

1. Sludge and solid waste shall be removed from screens, sumps, and ponds as needed to ensure optimal operation and adequate storage capacity.
2. Any handling and storage of sludge, solid waste, and residual solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.
3. If removed from the site, sludge, solid waste, and residual solids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for reuse as animal feed, or land disposal at facilities (i.e., landfills, composting facilities, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.
4. Any proposed change in solids use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

## H. Provisions

1. **By 18 May 2015** the Discharger shall submit documentation for Executive Officer approval that Grimmway is authorized to discharge to the North Kern Rosedale groundwater recharge area in a manner consistent with the discharge described herein. The documentation shall include a description of the roles and responsibilities of each party in a form that clearly demonstrates that all monitoring and reporting can be carried out as required (e.g., site access restrictions will not preclude a party from performing required monitoring).

2. **By 19 October 2015** the Discharger shall submit a Salinity Management Plan for Executive Officer approval describing methods it will use to determine all sources of

salinity in the wastewater and measures it can implement to further reduce wastewater salinity. The Plan shall quantify the mass of salt and the volume of water saved as a result of reusing wastewater in the Plant, and set appropriate goals to minimize the mass of salt discharged from the Plant. The Plan shall include a proposed implementation schedule that the Discharger shall follow upon plan approval by the Executive Officer.

3. **By 19 October 2015** the Discharger shall submit a Land Application Management Plan for the Central Valley Water Board record. The Plan shall discuss all aspects of managing the discharge operation to comply with the terms and conditions of this order, including scheduled rotation of wastewater application to alternate LAAs within the recharge project area, and how to make field adjustments as necessary to preclude nuisance conditions. A copy of the Land Application Management Plan shall be kept at the Plant or LAAs for reference by operating personnel and they shall be familiar with its contents.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its wastewater infrastructure. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.

5. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional’s signature and stamp.

6. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

7. The Discharger shall comply with Monitoring and Reporting Program R5-2015-0057 which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.

8. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

9. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a

written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

11. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

12. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.

13. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

14. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

15. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

16. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

17. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

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 Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, 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 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 at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 17 April 2015.

*Original signed by:*

PAMELA C. CREEDON, Executive Officer

Order Attachments:
A Vicinity Map
B Plant Site Map
C LAA Site Map
D Process Flow Diagram
Monitoring and Reporting Program R5-2015-0057
Information Sheet
Standard Provisions (1 March 1991)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2015-0057

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:

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

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| 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 [1] | General Minerals [2] | various | 24-Hour Composite |
| Quarterly [1,3] | Disinfection byproducts [4] | mg/L | 24-Hour Composite |

[1] Samples to be collected in January, April, July, and October.

[2] Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

[3] Quarterly for one year, starting in July 2015, and once every five years thereafter (e.g., July 2021 and July 2026).

[4] 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:

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| 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 [1] | General Minerals [2] | various | Grab |

[1] Samples to be collected in January, April, July, and October.

[2] 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:

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| Continuous | Recycle Flow [1] | mgd | Meter |
| Weekly | Freeboard | feet [2] | Measurement [3] |
| Weekly | Dissolved Oxygen [4] | mg/L | Grab |

[1] Return wastewater flow from any pond back to the Plant for reuse.
[2] To the nearest tenth of a foot.
[3] Measured value unless freeboard is fixed by design, in which case the fixed freeboard shall be reported and noted as such.
[4] 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.

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| Continuous | Flow | mgd | Meter |
| Monthly | EC | umhos/cm | Grab |
| Annually [1] | General Minerals [2] | various | Grab |

[1] Samples to be collected in July.
[2] 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:

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

[1] When discharging and while wastewater is applied to the land application area.

[2] Water applied as supplemental irrigation water or for groundwater recharge to the land application area.

[3] National Weather Service or CIMIS data from the nearest weather station is acceptable.

[4] Combined loading from wastewater, irrigation water, and precipitation.

[5] 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.

[6] Loading rates shall be calculated using the applied volume of wastewater, applied acreage, and average effluent concentration.

[7] 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.

[8] 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:

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| Quarterly | Depth to Water | Feet [1] | Measured |
| Quarterly | Groundwater Elevation | Feet [2] | Calculated |
| Quarterly [3] | pH | s.u. | Grab |
| Quarterly [3] | EC | umhos/cm | Grab |

| Frequency | Constituent/Parameter | Units | Sample Type |
|---|---|---|---|
| Quarterly [3] | General Minerals [4] | various | Grab |
| Quarterly [3] | Total Organic Carbon | mg/L | Grab |

[1] To the nearest hundredth foot.

[2] Groundwater elevation shall be calculated based on depth-to-water measurements from a surveyed measuring point.

[3] 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.

[4] 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. 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: R5-2015-0057

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.

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

Ordered by: *Original signed by:*

PAMELA C. CREEDON, Executive Officer

17 April 2015

(Date)

## GLOSSARY

| | |
|---|---|
| $BOD_5$ | 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 CaCo3) | Carbonate (as CaCO3) | Magnesium | Sodium |
| Bicarbonate (as CaCO3) | Chloride | Manganese | Sulfate |
| Boron | Hardness | Nitrate ($NO_3$-N) | TDS |
| Calcium | Iron | Potassium | |

General Minerals analyses shall be accompanied by documentation of cation/anion balance.

INFORMATION SHEET

ORDER R5-2015-0057
GRIMMWAY ENTERPRISES, INC.
SHAFTER CARROT PACKING PLANT AND
NORTH KERN WATER STORAGE DISTRICT
KERN COUNTY

**Background**

Grimmway Enterprises, Inc. (Grimmway), owns and operates the Shafter Carrot Packing Plant in Shafter near the intersection of State Highway 99 and Lerdo Highway in Kern County. The Plant is strictly for washing and packing carrots (no grinding, chopping, juicing, etc.). The packed carrots are either delivered to buyers or further processed offsite at another Grimmway facility. The Plant was built in 1973, regulated by Waste Discharge Requirements (WDRs) Order 73-149. Grimmway purchased the Plant in 1991 from Belridge Farms, Inc. The Central Valley Water Board adopted WDRs Order 5-01-140 on 14 June 2001, which regulates the discharge of up to 0.300 mgd of wash water to unlined ponds on the Plant property, followed by discharge to the Minter Field Airport District community sewer system for treatment at the Minter Field WWTF.

The Minter Field WWTF is closing down soon. Minter Field and Grimmway's Plant are in the City of Shafter, which is transitioning sewer service for the area to the North of River Sanitary District No. 1 WWTF, about 10 miles southwest of the Plant. Grimmway will not be able to dispose of carrot washing wastewater in the sewer. On 25 July 2014, Grimmway submitted a Report of Waste Discharge, including a technical report, proposing to install a pipeline to convey its wastewater to the North Kern Water Storage District (North Kern) Rosedale spreading grounds. The spreading grounds is an approximately 592-acre groundwater recharge project about a mile and a half south of the Plant.

**Plant and Discharge**

The Plant receives fresh, whole carrots, packs them, and ships them to buyers or to another Grimmway facility for processing. Grimmway typically operates the Plant five days per week for 16-hour days. The 79-acre Plant property includes office buildings, truck parking, truck unloading, carrot washing facilities, a storm water basin, and a system of unlined wastewater ponds.

Trucks haul carrots from the field to soaker sheds at the Plant where carrots are initially rinsed with well water. The carrots are then flushed from the trailers at the washout area to a flume using recycled wash water pumped from an initial wastewater settling pond, which Grimmway calls the recycle pond. The carrots are then conveyed to the packing shed, where they are cleaned using brush washers and fresh chlorinated water. The final wash occurs during the hydro-cooling process using more fresh chlorinated water. Grimmway packs and stores the clean carrots.

All carrot washing wastewater is combined in the recycle pond for settling of sand and silt. Water from the recycle pond is pumped back to the Plant for reuse in the washout area and flume. Grimmway has not recorded wastewater flow from the Plant to the unlined ponds or the flow of wastewater recycled back to the Plant. The RWD does not include estimates of evaporation or percolation from the ponds.

Valve settings control whether the ponds are in series or parallel, and allow Grimmway to take particular ponds out of service for maintenance while continuing to use the remaining ponds. The effluent pump controls the water level in the final pond. The water level in all the other ponds is generally fixed at the elevation each outflow pipe. Grimmway has occasionally reconfigured the unlined ponds to optimize operation and maintenance without significantly changing the purpose or location of the pond system.

Grimmway's current discharge from the last unlined pond into the Minter Field WWTF collection system will be replaced with discharge to a wastewater line connected to LAAs at the North Kern recharge project. In 2013, the average flow into the collection system was about 0.14 mgd.

Grimmway had previously operated a citrus packing plant on the Plant property concurrent with carrot washing operations. The citrus packing building remains on the property and Grimmway reports it will likely be used to expand the carrot washing and packing activities, resulting in the proposed increase in wastewater flow to 0.700 mgd. Grimmway no longer accepts any citrus fruit and only washes and packs carrots.

The domestic wastewater stream at the Plant is entirely separate from the wash water stream. Wastewater from evaporative cooling processes at the Plant is discharged to the domestic system rather than to the wastewater ponds. The RWD states that the domestic wastewater system, currently connected to the Minter Field WWTF, will be connected to the City of Shafter community sewer line in preparation for closure of the Minter Field WWTF.

Supply water for the Plant is provided by an onsite well. The supply water is relatively poor quality with respect to salinity. The table below presents the average results of quarterly water supply monitoring from September 2011 through August 2014.

| Parameters | Units | Average | Range |
|---|---|---|---|
| EC [1] | umhos/cm | 1,550 | 1,350 – 2,100 |
| TDS [2] | mg/L | 1,030 | 930 – 1,120 |
| Nitrate (as N) | mg/L | < 0.1 | < 0.1 - 0.1 |
| Sodium | mg/L | 285 | 254 - 308 |
| Chloride | mg/L | 285 | 247 - 305 |
| Sulfate | mg/L | 384 | 320 - 420 |
| Boron | mg/L | < 0.1 | < 0.1 - 0.2 |
| Hardness (as $CaCO_3$) | mg/L | 209 | 152 - 571 |

[1] Electrical conductivity.
[2] Total dissolved solids.

As required by WDRs Order 5-01-140, Grimmway monitors wastewater quality prior to discharge to the Minter Field WWTF. The table below presents the average results of quarterly wastewater monitoring from September 2011 through August 2014.

| Parameters | Units | Average | Range |
|---|---|---|---|
| BOD [1] | mg/L | 161 | 27 – 690 |
| EC | umhos/cm | 2,130 | 1,902 – 2,250 |
| TDS | mg/L | 1,560 | 1,280 – 1,920 |
| Total Nitrogen | mg/L | 3.6 | < 1.0 – 10 |

| Parameters | Units | Average | Range |
|---|---|---|---|
| Sodium | mg/L | 329 | 280 – 409 |
| Chloride | mg/L | 388 | 330 – 420 |
| Sulfate | mg/L | 456 | 330 – 800 |
| Boron | mg/L | 0.4 | < 0.1 – 2.3 |
| Hardness (as $CaCO_3$) | mg/L | 577 | 218 – 2,120 |

[1] Five-day biochemical oxygen demand.

Grimmway submitted Materials Safety Data Sheets describing the chemicals used at the Plant for sanitation and disinfection. The active ingredients in the chemicals include: acetic acid, citric acid, phosphoric acid, peroxyacetic acid, hydrogen peroxide, 2-butoxyethanol, lauramine oxide, n-alkyl dimethyl benzyl ammonium chlorides, n-alkyl dimethyl ethylbenzyl ammonium chlorides, polyethylene glycol mono(nonyl phenol) ether, tetrasodium ethylenediaminetetraacetate, sodium hypochlorite, sodium hydroxide, potassium hydroxide, sodium metasilicate, sodium tripolyphosphate, and surfactants. The organic chemicals are commonly used and considered low toxicity. Grimmway has not provided estimated chemical usage rates for these chemicals, other than for sodium hypochlorite, which it uses at a rate of about one ton per week (approximately 250 gallons) in a concentration of 12.5 percent.

Grimmway and North Kern were actively negotiating the terms of an agreement during preparation of this Order. The agreement is expected to authorize Grimmway's long-term discharge to the Rosedale recharge area and define the roles and responsibilities of each party. Grimmway has indicated it will accept responsibility for compliance with all the terms and conditions of this Order. North Kern reportedly intends to allow Grimmway access to its facilities. This Order requires the Discharger to submit, for Executive Officer approval, documentation that the parties have a certified agreement consistent with compliance with this Order

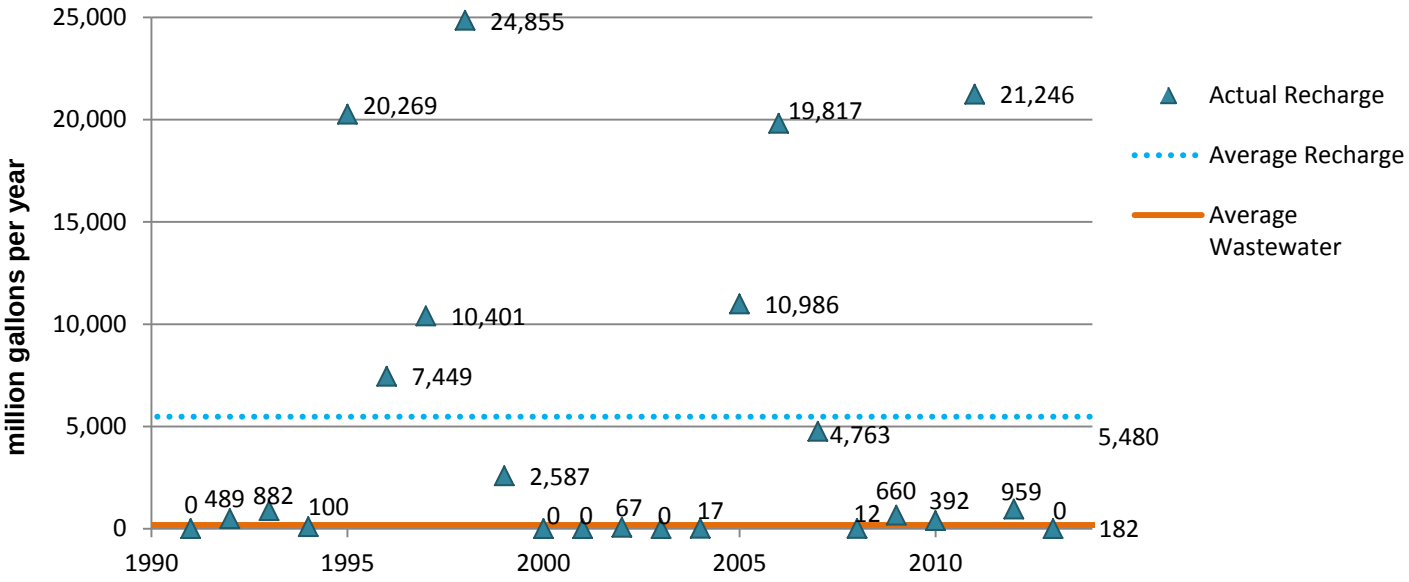
Grimmway intends to grow orchard grass to increase atmospheric nitrogen losses in the LAAs, but it will not harvest a crop. The RWD describes LAAs varying in size from 17 acres to 440 acres. The wastewater may be blended with surface water at times, but will generally be applied unblended. According to availability of supplemental water (i.e., surface water), North Kern will apply it to the same areas that will receive wastewater. This Order requires the Discharger to submit a Land Application Area Management Plan describing how it will minimize localized groundwater degradation by rotating wastewater application through different LAAs within the North Kern recharge project.

North Kern reportedly refers to individual recharge basins as "ponds". To aide in distinguishing between discharges to the Plant property from those at the Rosedale recharge area, the proposed Order refers to the ponds near the Plant as "wastewater ponds" and those at the recharge area as "recharge basins" or LAAs. Pond monitoring requirements only apply to the wastewater ponds at the Plant property. LAA monitoring requirements only apply to the recharge basins at the recharge area.

Organic matter in the discharge increases the biochemical oxygen demand (BOD). Overloading of LAAs with high organic strength wastewater can create objectionable odors and induce soil conditions leading to groundwater degradation with metals and other constituents. BOD concentrations in the

discharge are high enough that the discharge must be managed to prevent overloading. Based on the average proposed flow and proper rotation of LAAs across the available area, the cycle average BOD loading will be less than 50 pounds per acre per day. Based on the maximum recorded effluent BOD concentration of 690 mg/L (December 2011) and the smallest LAA described in the RWD (17 acres), the maximum instantaneous BOD loading rate is expected to be less than about 250 pounds per acre per day.

North Kern has agreements with various parties for access to water for groundwater recharge. The availability of water for recharge depends primarily on precipitation in the region. The figure below presents recharge flows applied per year in millions of gallons (MG) from 1991 through 2013, calculated from data presented in the RWD.




The average annual recharge volume reported for the period of 1991 through 2013 is about 5,480 MG (about 16,800 acre-feet), or 28.4 feet of water spread over the 592-acre recharge area. Over the same 23-year period, there were six years when no water was applied and four years when North Kern applied over 100 feet of surface water to the area. At the proposed maximum wastewater flow (182 MG/year), Grimmway's proposed discharge would average less than one foot of water over the 592 acres of application areas, which represents about three percent of the total water applied.

The table below presents average surface water quality data from the Beardsley canal used for recharge in 2012 and 2013.

| Parameters | Units | Average | Range |
|---|---|---|---|
| EC | umhos/cm | 192 | 140 - 250 |
| TDS | mg/L | 112 | 42 - 170 |
| Nitrate (as N) | mg/L | < 0.5 | < 0.5 - 0.8 |
| Sodium | mg/L | 17 | 13 – 26 |

| Parameters | Units | Average | Range |
|---|---|---|---|
| Chloride | mg/L | 7.0 | 4.1 – 11 |
| Sulfate | mg/L | 20 | 9.9 – 38 |
| Boron | mg/L | < 0.2 | < 0.1 - 0.2 |

**Site-Specific Conditions**

The Plant and Land Application Area are at an elevation of approximately 415 feet and 375 feet above mean sea level, respectively. The climate is arid, with hot summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evaporation (Class 'A' pan) in the area are about 6.0 inches and 64.8 inches, respectively, according to information published by the California Department of Water Resources (DWR). The California Irrigation Management Information System (CIMIS) database reports an annual average potential evapotranspiration (ETo) of 57 inches for Shafter.

According to United States Department of Agriculture, Natural Resources Conservation Service soil survey maps, soils in the vicinity of the Plant, including areas containing the unlined ponds, and the majority of the LAA, are Driver series coarse sandy loam. These soils are described as nonsaline, well drained, moderately high hydraulic conductivity, and prime farmland when irrigated. The land capability classification of the soil for irrigation is II-s, which has little or no restrictions on cultivation.

According to Federal Emergency Management Agency (FEMA) map number 06029C1800E, updated 26 September 2008, the Plant and application area are outside of the 100-year return frequency flood zones.

The commodities (crops) identified in the 2013 Kern County pesticide permitting database within two miles of the Plant and land application areas are: almond, grape, alfalfa, potato, pistachio, apple, cotton, wheat, carrot, garlic, tomato, cherry, onion, oat, and safflower. The most recent DWR land use survey for Kern County (dated 2006) identifies the same crops, as well as green beans, dry beans, carrots, and olives.

**Groundwater Conditions**

The Plant is in the North Kern Hydrologic Area (No. 558.80) of the South Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by State Water Resources Control Board in August 1986.

According to United States Geologic Survey maps, the unconfined aquifer underlying the Plant and application area extends to a depth of over 2,000 feet below ground surface. The discharges are outside the Corcoran Clay area and the alluvium is not expected to contain any continuous, low-permeability confining layers.

Groundwater underlying the LAAs is generally first encountered at about 250 feet below ground surface (bgs) in the area of the Plant and LAAs, and flows north according to *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 2010. No site-specific groundwater gradient information is available.

In December 2011, North Kern constructed one groundwater monitoring well onsite (MW-004). The six-inch diameter well is screened from 70 to 240 feet bgs with a gravel pack from 60 to 270 feet bgs. The well provides a means of monitoring first-encountered groundwater near the center of the recharge area. The proposed Order includes monitoring of MW-004 on a quarterly basis.

The 2007 Annual Water Supply Report from the Kern County Water Agency includes a map with lines of equal concentration of total dissolved solids based on data from samples of first encountered groundwater collected prior to 1991. The map shows that a zone of groundwater in the vicinity of the Grimmway Plant, approximately 10 miles long and 6 miles wide, has elevated total dissolved solids ranging from about 500 mg/L to 2,500 mg/L. Based on the map, groundwater beneath the Plant has a concentration of total dissolved solids of about 2,000 mg/L, which corresponds to an EC of about 3,000 umhos/cm. The source of the elevated salinity has not been identified, but is likely historical oil field discharges. Published data from nearby groundwater wells show the high concentrations of saline constituents (largely sulfate, sodium, and chloride) in the vicinity of the Plant date back to at least 1936.

North Kern has operated the groundwater recharge project at the application area since the 1950s. North Kern applies surface water from the Kern River and, to a lesser extent, from other surface water sources to the LAAs, where it percolates to recharge groundwater. During wet years like 1995, 1998, 2006, and 2011, North Kern applied more than 100 feet of water to the LAAs (about 10 billion gallons). North Kern monitors water quality during dry years when it draws water from its network of groundwater extraction wells. Monitoring data from the North Kern wells show the significant influence of the recharge project on local groundwater quality.

Based on electric logs of nearby wells and considering sources of recharge in the area, groundwater near the surface is expected to be of poorer quality than deeper groundwater near the Plant. However, near the recharge project and unlined canals (i.e., the Lerdo Canal), first encountered groundwater is expected to be of better quality than deeper groundwater.

The table below summarizes published groundwater quality data for wells near the Plant and discharge area. The data show that groundwater near the Plant is of much poorer quality than groundwater underlying the application area (groundwater recharge area). None of the data necessarily represents first-encountered groundwater, but the top of the screened intervals is thought to be within 200 feet of the groundwater surface.

| | | *Groundwater Near the Plant* | | *Groundwater at the Application Area* |
|---|---|---|---|---|
| Parameters | Units | North Kern Well [1] | USGS Well [2] | North Kern Wells [3] |
| pH [4] | std. | 7.7 | 7.8 | 8.2 |
| EC | umhos/cm | 2,650 | 2,960 | 472 |
| TDS | mg/L | 1,740 | 1,980 | 295 |
| Nitrate (as N) | mg/L | 13 | 8.1 | 1.3 |
| Sodium | mg/L | 307 | 52 | 73 |

| | | *Groundwater Near the Plant* | | *Groundwater at the Application Area* |
|---|---|---|---|---|
| Parameters | Units | North Kern Well [1] | USGS Well [2] | North Kern Wells [3] |
| Chloride | mg/L | 371 | 480 | 52 |
| Sulfate | mg/L | 712 | 750 | 88 |
| Boron | mg/L | 0.1 | 0.1 | 0.1 |
| Hardness (as $CaCO_3$) | mg/L | 608 | 680 | 53 |

[1] Average of all results from 1977 through 2013 for North Kern well 8-03-009, near the western boundary of the Plant property.

[2] Results of a single sample collected in 1955 from USGS well 028S026E15F001M (total depth 522 feet below ground surface), immediately north of the Plant property.

[3] Average of all results from 1977 through 2013 for seven North Kern wells within the LAAs (99-00-017, 99-00-018, 99-00-022, 99-02-004, 99-02-006, 99-02-008, and 99-04-005).

[4] Value shown for pH is the median, rather than average.

The Antidegradation Analysis submitted as part of the RWD states that nearby well tests show the transmissivity of the aquifer is 160,000 to 460,000 gallons per day per foot and the hydraulic conductivity is 441 to 1,270 gallons per day per foot. It indicates that at an average gradient of 17 feet per mile, the flow of groundwater underlying the application area is between 3.8 mgd and 11 mgd. The analysis demonstrates that groundwater flow beneath the discharge area will likely affect the fate of waste in groundwater.

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

The *Water Quality Control Plan for the Tulare Lake Basin,* Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

Local drainage is to Valley Floor Waters. The beneficial uses of Valley Floor Waters, as stated in the Basin Plan for Hydrologic Area No. 558, are agricultural supply; industrial service supply; industrial process supply; groundwater recharge; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; wildlife habitat; preservation of biological habitats of special significance; and enhancement of rare, threatened, or endangered species.

The beneficial uses of underlying groundwater, as stated in the Basin Plan for Detailed Analysis Unit 256 within the Kern County Basin hydrologic unit, are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.

The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.

The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until a mechanism to carry salts out of the basin is established. To limit the degradation, the Basin Plan establishes several salt management requirements. Industrial dischargers shall be required to limit the increase in EC of a point source discharge to surface water or land to a maximum of 500 umhos/cm. A lower limit may be required to assure compliance with water quality objectives. Also, discharges of municipal and domestic wastewater to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L. The Basin Plan states that effluent limits established for municipal waste discharges will generally apply to industrial wastes.

The Basin Plan allows an exception to the EC limit of source water plus 500 umhos/cm when the discharger technically demonstrates that allowing a greater net incremental increase in EC will result in lower mass emissions of salt and in conservation of water, provided that beneficial uses are protected. Grimmway has reportedly implemented water saving measures (recycle flows) that result in lower mass emissions of salt at the Plant. In December 2013, Grimmway reportedly began reducing recycle flows in order to reduce final effluent EC. As a result, Grimmway reduced the difference in EC between the supply well and wastewater from an average of almost 700 umhos/cm in 2013 to less

than 400 umhos/cm in 2014. While Grimmway has not presented a full technical demonstration that it meets the criteria for exception from the incremental EC limit, there is enough information in the record to justify the exception. The proposed Order implements a performance-based effluent limit for EC of no more than 700 umhos/cm over source water. In combination with implementation of a Salinity Control Plan (required by the proposed Order), the limit is consistent with maximizing water reuse and minimizing salt discharge from the Plant, and is expected to maintain a lower EC in the onsite ponds than receiving groundwater EC.

Monitoring and Reporting Program (MRP) R5-2015-0057, which is attached hereto and made part of this Order by reference, requires Grimmway to submit salt balance calculations, quantifying the mass emissions of salt saved through water conservation at the Plant on an on-going basis.

Since the discharge meets the conditions for exception from the Basin Plan incremental EC limit for EC, which includes the expectation that potential groundwater degradation will not adversely affect beneficial uses of groundwater, the specific effluent limits for EC and chloride do not appear to be appropriate in this case. The effluent for boron appears to be applicable, but unnecessary given the low concentrations of boron in the discharge.

The Basin Plan states that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. As groundwater salinity increases, the first adverse effects generally impact agricultural beneficial use of water for irrigation of salt-sensitive crops. The list of crops identified herein is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but it is representative of current and historical agricultural practices in the area. Growers rely on groundwater supplies for irrigation of salt-sensitive crops in the area.

**Antidegradation Analysis**
State Water Resources Control Board Resolution 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that: the degradation is consistent with the maximum benefit to the people of the state; the degradation will not unreasonably affect present and anticipated future beneficial uses; the degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and the discharger employs best practicable treatment or control (BPTC) to minimize degradation.

Degradation of groundwater quality by some of the typical waste constituents associated with discharges from food processing plants, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger’s operation provides 420 local jobs, with more anticipated with the planned expansion. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the state, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

There are two discharge areas where underlying groundwater may be affected by discharge from the Plant: the unlined ponds on the Plant property and the LAAs at the North Kern recharge basins. Groundwater quality differs between these two areas. Assessment of potential groundwater degradation requires a separate analysis for each discharge location.

The table below summarizes the available data for constituents of concern in the discharge, groundwater underlying both discharge locations, and the projected long-term average quality of the discharge.

| Parameters | Units | Discharge [1] | Plant Property Groundwater [2] | LAA Groundwater [3] | Projected Long-Term Average of Applied Water [4] |
|---|---|---|---|---|---|
| EC | umhos/cm | 2,130 | 2,650 | 472 | 256 |
| TDS | mg/L | 1,560 | 1,740 | 295 | 154 |
| Total Nitrogen | mg/L | 3.6 | 13 | 1.3 | 2.0 |
| Nitrate (as N) | mg/L | < 1 | 13 | 1.3 | 1.3 |
| Sodium | mg/L | 329 | 307 | 73 | 27 |
| Chloride | mg/L | 388 | 371 | 52 | 19 |
| Sulfate | mg/L | 456 | 712 | 88 | 37 |
| Boron | mg/L | 0.4 | 0.1 | 0.1 | 0.2 |

[1] Average from October 2009 through September 2014.

[2] Average of results from 1977 through 2013 for North Kern well 8-03-009, near the western boundary of the Plant property.

[3] Average of all results from 1977 through 2013 for North Kern wells within the application area (99-00-017, 99-00-018, 99-00-022, 99-02-004, 99-02-006, 99-02-008, and 99-04-005).

[4] Calculated flow-weighted average values using average recharge flows from 1991 through 2013 with the maximum annual wastewater flow of 182 MG.

The table above shows that groundwater underlying the Plant property is generally poorer quality than the discharge. As the record does not yet contain shallow groundwater monitoring data, the groundwater data in the table represents deeper groundwater. The characterization is thought to approximate groundwater conditions. Groundwater underlying the Plant is expected to be poorer quality near the surface. However, the available data shows concentrations of chloride and boron in the wastewater are near and may be slightly higher than receiving groundwater concentrations.

All of the wastewater ponds are unlined with unknown percolation rates. Grimmway's water balance did not include an estimate of total wastewater production at the Plant, nor estimated percolation or evaporation from the unlined ponds. This Order requires sufficient monitoring to characterize the discharge to the ponds, but there is currently enough data in the record (table above) to conclude that there is limited potential for discharges to the unlined ponds to degrade groundwater quality.

Constituents of concern having potential to degrade groundwater underlying the Plant property include chloride and boron.

a. **Chloride**. Groundwater chloride concentrations already exceed the Recommended Secondary MCL for chloride of 250 mg/L. The difference between the chloride concentrations for groundwater and wastewater appear to be insignificant and groundwater degradation with chloride is unlikely. If the discharge to unlined ponds causes groundwater degradation with chloride, it will not exceed the Upper Secondary MCL for chloride of 500 mg/L.

b. **Boron**. While some degradation of groundwater quality with boron may occur, the discharge does not threaten to cause groundwater to exceed the lowest potential water quality goal for boron of 0.5 mg/L.

Assessment of potential groundwater degradation at the LAAs needs to consider that dilution with recharge flows will occur intermittently, depending primarily on surface water availability. Recharge flow data from North Kern for the period of 1991 through 2013 show an average of 5,760 million gallons per year with highs of over 20 billion gallons per year. Based on the average for this period, the maximum proposed annual wastewater discharge (182 MG) represents about three percent of the average annual recharge flow over the long term. At current discharge flows (about 52 MG in 2013), the wastewater represents less than one percent of the average applied water.

Groundwater underlying the LAAs is significantly better quality than water quality goals for the designated beneficial uses. Discharge to the LAAs over extended dry periods (i.e., five years or more) may result in some degradation of groundwater with salts. However, recharge during wet years will dilute the concurrent wastewater discharge, and dilute groundwater affected by percolating/percolated wastewater from previous dry years. The long-term viability of discharge to the LAAs depends on surface water flows to maintain suitable groundwater quality before the discharge adversely affects beneficial uses. This Order, by MRP R5-2015-0057, requires the Discharger to monitor the North Kern extraction well network and groundwater monitoring well in order to track trends in groundwater quality.

Constituents of concern in the discharge that have the potential to degrade groundwater quality underlying the LAAs include salts (EC, TDS, and specific ions including sodium, chloride, and sulfate), nitrogen (organic nitrogen that can convert to nitrate), and boron.

a. **Electrical Conductivity, Total Dissolved Solids, Chloride, Sulfate and Sodium.** The discharge, if not properly managed, has potential to degrade groundwater with EC, TDS, chloride, and sulfate. However, dilution of these constituents will prevent the discharge from causing excessive degradation. This Order implements limits and requires sufficient monitoring to prevent the discharge from causing degradation in excess of water quality objectives.

b. **Nitrate.** The discharge has very limited potential to degrade groundwater quality with nitrate. The average concentration of total nitrogen in the wastewater, primarily present in the form of organic nitrogen, is less than 5 mg/L and does not threaten to cause groundwater to contain nitrate above the Primary MCL of 10 mg/L as nitrogen.

c. **Boron**. In the same way as the unlined pond discharge at the Plant property, while some degradation of groundwater quality with boron may occur, the discharge does not threaten to cause groundwater to exceed the lowest potential water quality goal for boron of 0.5 mg/L.

This Order establishes effluent and groundwater limitations for the Plan that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

The Discharger provides treatment and control of the discharge that incorporates: segregation of domestic wastewater from industrial wastewater; wastewater reuse; wastewater settling basins; appropriate solids management practices; blending of wastewater with good quality water for groundwater recharge; preparation and implementation of a Salinity Management Plan; and

preparation and implementation of a Land Application Management Plan. These treatment and control practices are reflective of BPTC of the discharge.

This Order imposes effluent and groundwater limitations and requires monitoring to ensure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved while minimizing any degradation that may occur. Depending on monitoring results, this Order will be reopened if necessary to reconsider effluent limitations and other requirements to comply with Resolution 68-16. Based on the existing record, the discharge authorized by this Order is consistent with the antidegradation provisions of Resolution 68-16.

**Other Regulatory Considerations**
In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt land application of wastewater; specifically, those for which the Central Valley Water Board has issued WDRs, the discharge is in compliance with the Basin Plan, and the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

Although the discharge is exempt from Title 27, the statistical data analysis methods of Title 27, section 20415(e) are appropriate for determining whether the discharge complies with Groundwater Limitations specified in this Order.

The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger is exempt from coverage under NPDES General Permit CAS000001 because all storm water is contained onsite.

The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

**CEQA**
The City of Shafter certified a negative declaration on 7 October 2014 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The negative declaration describes the project as moving the discharge of carrot wash water from the Minter Field WWTF to LAAs at the North Kern recharge project, using the City right-of-way to install a pipeline parallel to Zerker Road, and increasing the discharge flow from 0.300 mgd to 0.700 mgd. The City of

Shafter performed an initial study and found that potential impacts to groundwater quality due to the project would be less than significant. Compliance with this Order will mitigate or avoid significant impacts to water quality.

## Proposed Order Terms and Conditions

**Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions**
The proposed Order would prohibit discharge to surface waters and surface water drainage courses.

The proposed Order would limit the daily maximum discharge flow to 700,000 gpd (or 0.700 mgd), and set a maximum annual flow limit of 182 million gallons.

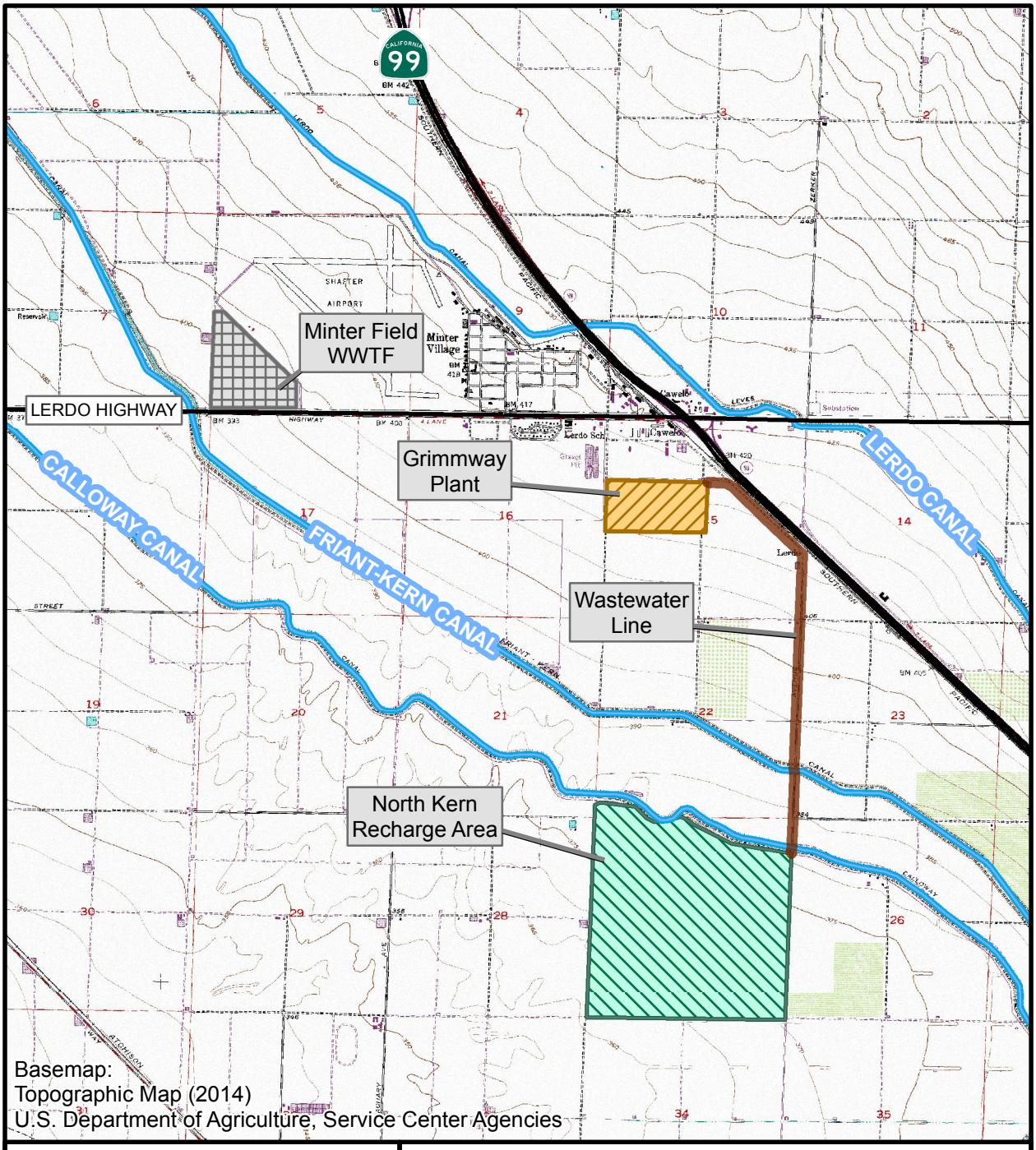
The proposed Order includes provisions requiring the Discharger to prepare and implement a Salinity Control Plan and a Land Application Management Plan.

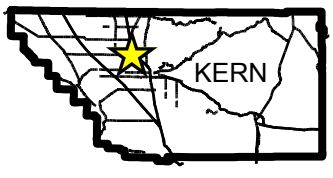
The proposed Order would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest, and sets a specific limit for nitrate of 10 mg/L as nitrogen, consistent with the Primary MCL.

**Monitoring Requirements**
Section 13267 of the Water Code authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code Section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes monitoring of effluent, source water, ponds, groundwater, supplemental water, and land application areas. This monitoring is necessary to evaluate the potential for degradation resulting from the discharge.

**Reopener**
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.



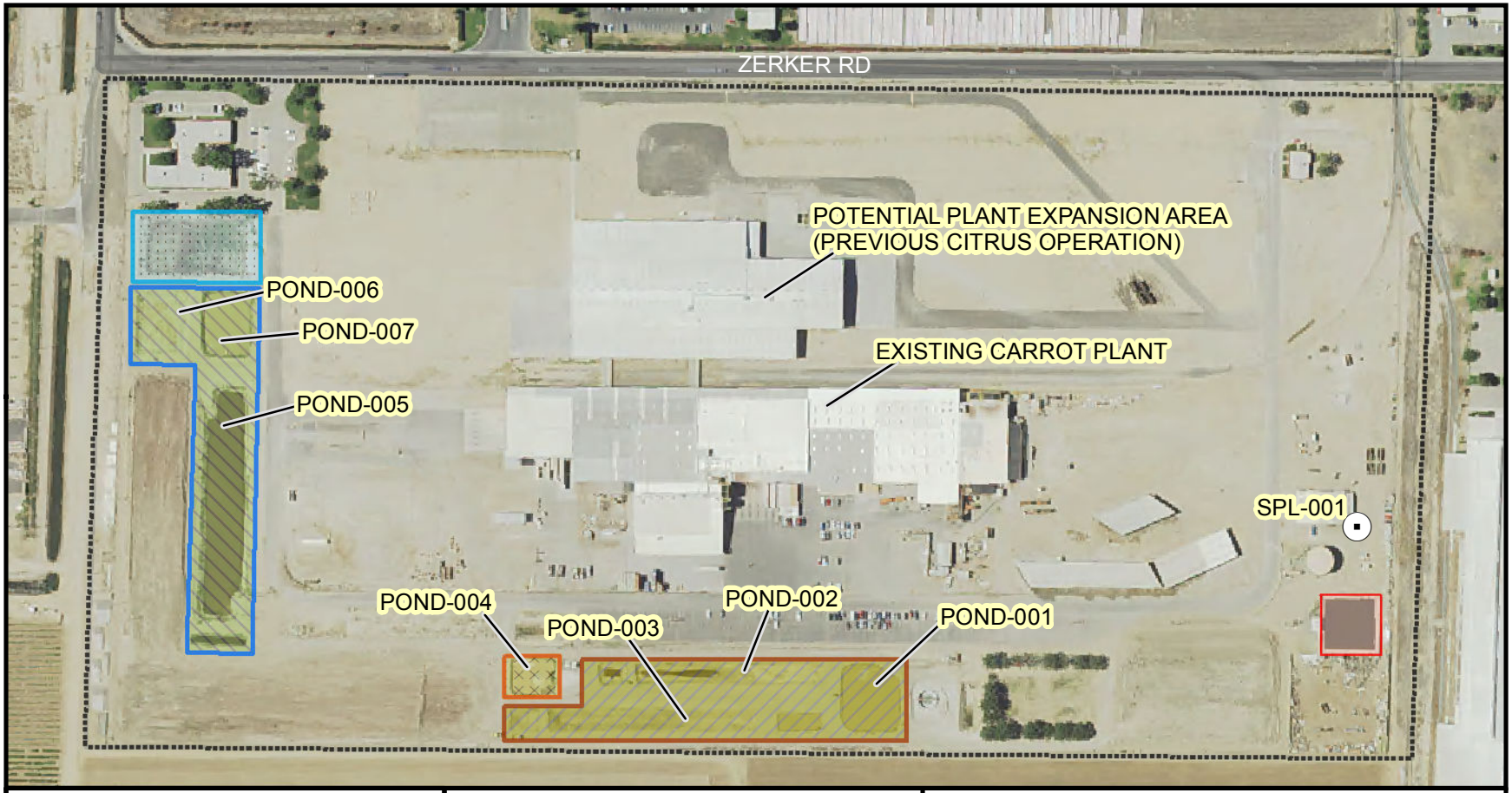

N

S

0 0.375 0.75 1.5 Miles

**VICINITY MAP**
ORDER R5-2015-0057
WASTE DISCHARGE REQUIREMENTS
GRIMMWAY ENTERPRISES, INC.
SHAFTER CARROT WASHING PLANT
AND
NORTH KERN WATER STORAGE DISTRICT
KERN COUNTY

**ATTACHMENT A**




Plant Supply Well
Pre-Recycle Settling Ponds
Recycle Pond
Final Settling Ponds
Fire Suppression Reservoir
Storm Water Basin

Basemap Source:
2014 National Agricultural Imagery Program
Service Center Agencies
U.S. Department of Agriculture

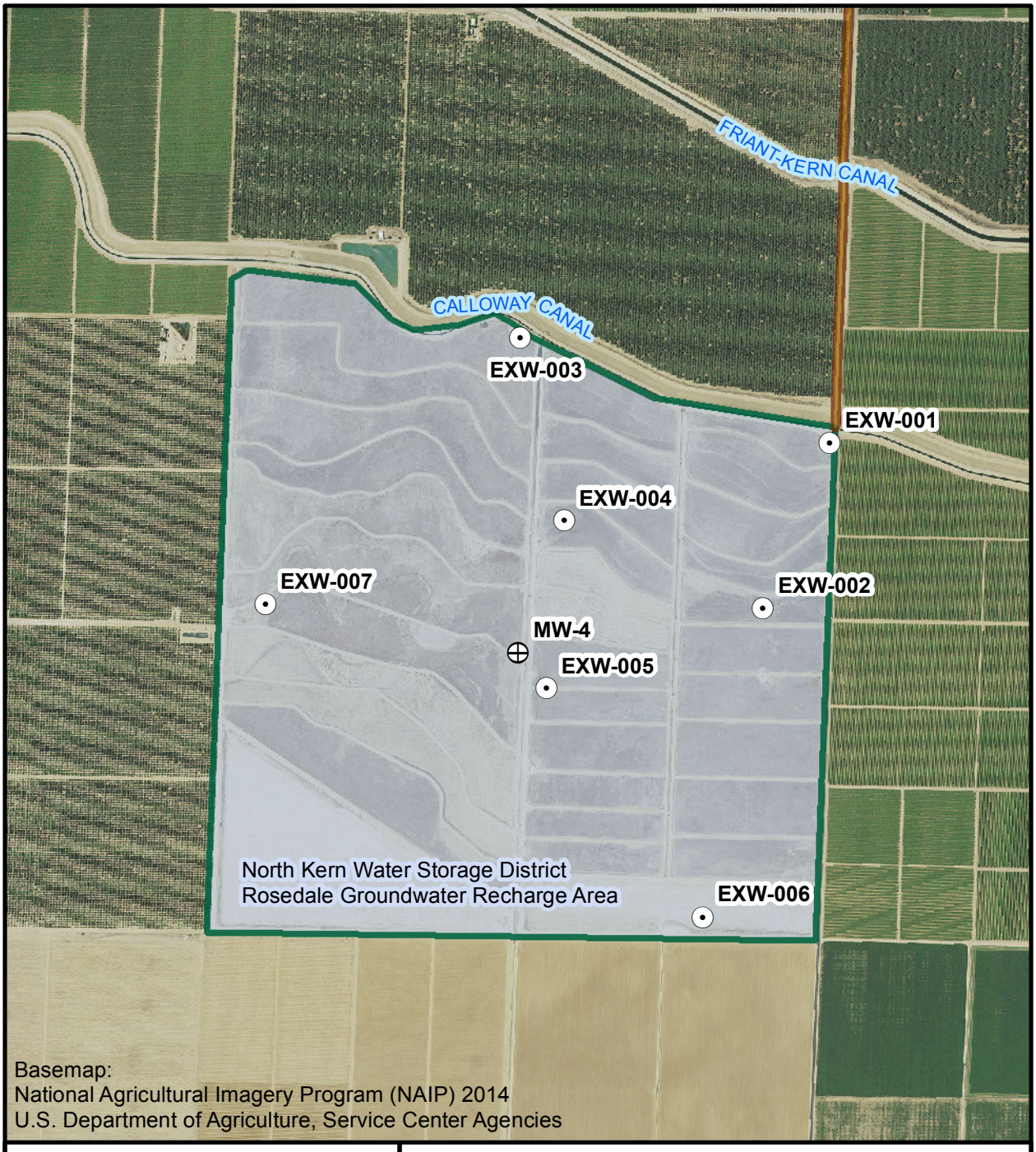
0 100 200 400 600 ft

N

**PLANT SITE MAP**

ORDER R5-2015-0057
WASTE DISCHARGE REQUIREMENTS
GRIMMWAY ENTERPRISES, INC.,
SHAFTER CARROT WASHING PLANT
AND
NORTH KERN WATER STORAGE DISTRICT
KERN COUNTY

**ATTACHMENT B**




boundary of LAAs

wastewater line

N

North Kern Water Storage District Wells

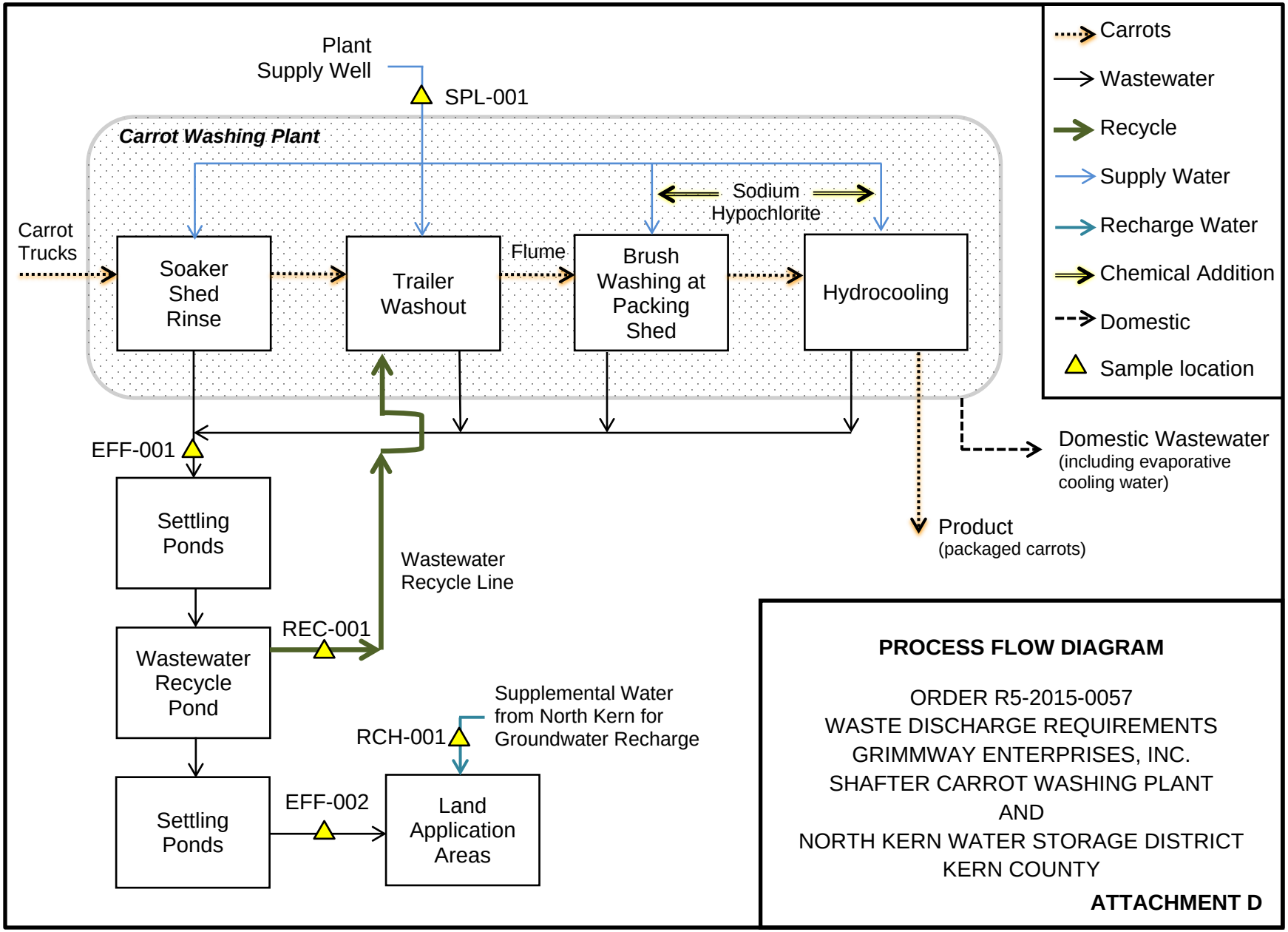
Groundwater extraction well

Groundwater monitoring well

0 625 1,250 2,500 Feet

**LAA SITE MAP**
ORDER R5-2015-0057
WASTE DISCHARGE REQUIREMENTS
GRIMMWAY ENTERPRISES, INC.
SHAFTER CARROT WASHING PLANT
AND
NORTH KERN WATER STORAGE DISTRICT
KERN COUNTY

**ATTACHMENT C**


Plant
Supply Well
SPL-001
Carrot Washing Plant
Sodium
Hypochlorite
Carrot
Trucks
Soaker
Shed
Rinse
Trailer
Washout
Flume
Brush
Washing at
Packing
Shed
Hydrocooling
Carrots
Wastewater
Recycle
Supply Water
Recharge Water
Chemical Addition
Domestic
Sample location
EFF-001
Settling
Ponds
Wastewater
Recycle Line
Domestic Wastewater
(including evaporative
cooling water)
Product
(packaged carrots)
REC-001
Wastewater
Recycle
Pond
Supplemental Water
from North Kern for
Groundwater Recharge
RCH-001
Settling
Ponds
EFF-002
Land
Application
Areas
PROCESS FLOW DIAGRAM
ORDER R5-2015-0057
WASTE DISCHARGE REQUIREMENTS
GRIMMWAY ENTERPRISES, INC.
SHAFTER CARROT WASHING PLANT
AND
NORTH KERN WATER STORAGE DISTRICT
KERN COUNTY
ATTACHMENT D