

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2018-0030

WASTE DISCHARGE REQUIREMENTS
FOR
SOUTHERN MINNESOTA BEET SUGAR COOPERATIVE,
SPRECKELS SUGAR COMPANY, INC., AND MEYERS FARMING, LLC
SURFACE IMPOUNDMENTS CLOSURE AND POSTCLOSURE MAINTENANCE
FORMER SPRECKELS MENDOTA FACILITY
FRESNO COUNTY

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

1. Spreckels Sugar Company, Inc. (SSCI), presently a wholly-owned subsidiary of Southern Minnesota Beet Sugar Cooperative (SMBSC), previously owned and operated a sugar beet processing facility (Facility) in Fresno County, near Mendota. Up until 1991, operations at the Facility involved the discharge of high-salinity wastewater to shallow pools, known as “Steffen’s Ponds.” As a result of such discharge, the soil and groundwater beneath the Facility have become degraded.

SSCI began operating the Facility in approximately 1962. Although SSCI initially operated as a subsidiary of AMSTAR Corporation (AMSTAR), now ASR Group International, Inc. (ASR), corporate ownership of SSCI was eventually sold to Spreckels Industries, Inc. (SII) in 1987. In 1996, SII was purchased by or merged with the Holly Sugar Corporation (HSC), a subsidiary of the Imperial Holly Corporation (IHC). In 2001, IHC filed for bankruptcy protection. IHC sold SSCI assets to SMBSC in September, 2005. SSCI and SMBSC subsequently ended all sugar beet processing activity in fall 2008, and all sugar beet packaging operations in spring 2009.
2. The Facility covers approximately 1,863 acres, and is comprised in part of Assessor Parcel Nos. (APN) 013-030-17S, 019-061-79S, and 019-070-61S. The Facility’s location map (Attachment A) and site map (Attachment B) are attached to this Order and incorporated by reference herein.
3. SSCI, along with its various corporate parents, operated a sugar refinery at the Facility between 1962 and 2008. The Facility has been regulated under Waste Discharge Requirements (WDRs) Resolution No. 61-147, adopted in December 1961. The 1961 WDRs provide in pertinent part that “[w]aste discharge shall not cause a pollution of useable ground or surface waters.” The 1961 WDRs further provided that “[i]f there is any future change in the conditions of the discharge, or in use of the disposal area, it may be necessary for the Central Valley Water Board to revise these requirements to conform to the new conditions or use.”
4. In 2004, Meyers Farming, LLC (Meyers) began purchasing the parcels of which the Facility is comprised. When Meyers purchased the final parcel in 2015, it became the sole owner of the Facility.

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5. As the entity responsible for remediating wastes that have impacted, or threaten to impact, groundwater beneath and downgradient of the Facility, SSCI may be ordered by the Central Valley Water Board to clean up or abate this condition. SMBSC, SSCI's parent corporation, is similarly liable for cleanup and abatement. SSCI, as it is presently organized, was not a direct discharger of waste material at the Facility. The discharge was discontinued in 1991 by the SSCI's ownership as it existed at the time. The parent companies who subsequently purchased the property, Imperial Sugar in 1996 and SMBSC, who purchased the Facility in 2005, assumed liability for the contamination and continued to work toward closing the Steffen's Ponds. The current SSCI ownership have worked cooperatively with staff in developing this Order.
6. As the current owner of the Facility, Meyers is also responsible for the cleanup and abatement of the wastes present at the Facility. Although SMBSC and Meyers have purportedly entered into an agreement for SMBSC to remediate the property, Meyers remains responsible as a "discharger." Accordingly, SMBSC, SSCI and Meyers will be collectively referred to herein as "Dischargers." To the extent that SMBSC or SSCI complies with this Order, Meyers shall be deemed to be in compliance as well.
7. SMBSC has proposed a remediation strategy that includes closing the former Steffen's Ponds consistent with the provisions of California Code of Regulations, title 27, section 20005 et seq. (Title 27) that apply to the closure of surface impoundments, and that includes closing the former Factory Ponds (see Finding 11, below) and Precipitated Calcium Carbonate Ponds (see Findings 8 and 12, below) by removing impacted soils consistent with the clean-closure provisions of Title 27. This Order provides regulatory coverage for the remediation of the Facility.

BACKGROUND

8. Throughout the operational lifetime of the Facility, beet sugar was extracted from a dilute molasses solution using activated Precipitated Calcium Carbonate (PCC), commonly known as "lime." This operation is commonly referred to as the "Steffen's Process." The Steffen's Process resulted in a nutrient-rich, high-saline residual solution (Steffen's Waste), which consisted of organic and inorganic constituents contributing to high levels of Total Dissolved Solids (TDS). Specifically, Steffen's Waste consisted of total organic contents of approximately 9,500 milligrams per liter (mg/L) and inorganic salt concentrations of approximately 11,500 mg/L. Until 1991, all Steffen's Waste was discharged into approximately 128 acres of shallow unlined ponds (i.e., Steffen's Ponds), as described above.
9. In April 1991, SII constructed and began operating a Concentrated Steffen's Filtrate evaporator, which recovered the salts for inclusion with the beet pulp that was then sold as cattle feed. As a result, all discharge to the former Steffen's Ponds ceased. Nevertheless, soil testing results indicate elevated nitrate and salt concentrations in soils beneath the Steffen's Ponds, while groundwater monitoring indicates the presence of a TDS plume beneath and downgradient of the Steffen's Ponds.
10. After discharges to the Steffen's Ponds ceased in April 1991, SII and SSCI proposed constructing a series of above-ground clay-lined ponds ("Sedimentation Ponds"; see

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Attachment B) to collect sediment from the sugar beet wash water. The Sedimentation Ponds were constructed on top of a portion of the old Steffen's Ponds. By letter dated 5 May 1993, Central Valley Water Board staff conceptually approved the Sedimentation Ponds. SII and SSCI (purchased by IHC in 1996) proceeded to construct Ponds I–VIII, over the westernmost 43 acres of the former Steffen's Ponds area, in several phases from 1994 to 2004. During each phase, the Sedimentation Ponds were filled with sediment collected during sugar beet processing. However, the final Sedimentation Pond constructed prior to the Facility's closure in 2009, Pond VIII, was never filled with sediment due to the cessation of sugar beet processing in 2008.

11. In addition to the Steffen's discharge, approximately two to four million gallons per day of Facility process wastewater were conveyed to approximately 130 acres of ponds ("Factory Ponds"; see Attachment B) located to the southwest of the Steffen's Ponds. Analytical data collected from 2006 to 2008 from nine Facility wastewater samples indicate an average TDS concentration of approximately 1,800 mg/L. Discharges to the Factory Ponds ended when the Facility ended operations in 2008. Soil sample results collected in 2012 indicate elevated nitrates in soils beneath the former Factory Ponds.
12. Spent PCC generated during the sugar beet purification process was discharged to five unlined ponds ("PCC Ponds"; see Attachment B) covering approximately 10 acres located just southeast of the Steffen's Ponds. PCC was periodically harvested from the PCC Ponds and sold as a soil amendment. Discharges to the PCC Ponds ended in 2008, when the Facility ceased sugar beet processing operations altogether. Since then, all remaining PCC has been removed from the PCC Ponds. Nevertheless, no clean-closure confirmation sampling of the PCC Ponds has been performed.

SITE DESCRIPTION

13. Land uses within 2,000 feet of the Facility consist of irrigated agriculture, recreation, residential, wetlands, and open land. As for the Facility itself, current uses include farmland, commercial space, open land, and groundwater banking. The northernmost portion of the Facility consists of approximately 240 acres of olive trees and the southernmost portion of the Facility consists of approximately 220 acres of pistachio trees. East of San Mateo Avenue, the easternmost portion of the Facility consists of approximately 960 acres of undeveloped land. (See Attachment B.)
14. The western portion of the Facility is used as a privately-owned groundwater bank. The privately-owned Meyers Family Farm Trust groundwater bank ("Meyers Bank Ponds"; see Attachment B) consists of four large recharge ponds located approximately 1,000 feet west of the former Steffen's Ponds and one recharge pond immediately north of the former Steffen's Ponds. As needed, the banked groundwater is extracted through a series of "shallow zone" (above the A-clay—see Finding 28, below) extraction wells and the groundwater is pumped back to the Mendota Pool (see Attachment A), where it is exchanged through an existing agreement with the United States Bureau of Reclamation ("Bureau of Reclamation").

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15. Farmers Water District (FWD) borders the northern portion of the Facility and encompasses 2,222 acres (see Attachment B). FWD infrastructure includes 10 irrigation supply wells and approximately 4.75 miles of underground pipeline.
16. The Fresno Slough reach of the Mendota Pool borders the western portion of the Facility and is approximately three-quarters of a mile west of the former Steffen's Ponds while the San Joaquin River reach of the Mendota Pool, is located approximately two miles north of the former Steffen's Pond (see Attachments A and B). The Mendota Wildlife Area, consisting of approximately 11,800 acres of seasonally flooded wetland habitat, is located approximately one-quarter mile south of the Facility. (See Attachments A and B.) According to the Federal Emergency Management Agency's (FEMA) 18 February 2009 Flood Insurance Rate Map—Panel Nos. 0650292025H, 06019C1465H, 06019C1470H, and 06019C2025H, the entire Facility is within "Flood Zone A." This flood zone designation indicates a zone in which base flood elevations have not been established.
17. The Mendota Pool Group (MPG) is an unincorporated association of farmers with groundwater production wells located near the Mendota Pool. Groundwater from MPG production wells are exchanged with the Bureau of Reclamation for surface waters in accordance with the Agreement for Mendota Pool Transfer Pumping Project for use as irrigation water by MPG members in the Westlands and the San Luis Water Districts located to the west of the Mendota Pool. The Central Valley Water Board was involved in the permitting process promulgated by the Bureau of Reclamation.
18. The Facility lies within the center of the larger Mendota Pool Group Study Area. The purpose of the Study Area is to identify the environmental effects of surface water diversions and groundwater transfer pumping within the Study Area, including the effects on non-MPG wells. Data collected in the Study Area is presented in annual reports which are prepared every year for the MPG.
19. Data provided by the Western Regional Climate Center indicates that the Facility receives an average of 6.8 inches of precipitation per year, as measured at the Five Points 5 SSW Weather Station (No. 043083). The mean annual evapotranspiration (ET) is 62.32 inches, as measured at the California Irrigation Management Information System (CIMIS) Westlands Station #105. The 100-year, 24-hour precipitation event for the Facility is estimated to be 2.58 inches, and the 1,000 year, 24-hour precipitation event is estimated to be 3.77 inches based on data presented in the National Oceanic and Atmospheric Administration (NOAA) Atlas, 14 Point Precipitation Frequency Estimates. The mean annual pan evaporation is 79.09 inches as measured at the Mendota 1 NNW station.
20. The geologic deposits beneath the Facility consist of younger alluvium near the surface, older alluvium to depths of approximately 3,000 feet, and a mixture of continental and marine rocks and deposits extending to depths greater than 9,000 feet below ground surface (bgs). Younger alluvial sediments consist of Holocene river and flood-basin deposits. River deposits consist of gravel, sand, silt, and minor amounts of clay deposited along channels, flood plains, and natural levees of main streams. Flood-basin deposits consist of clay, silt, and some sand. Older alluvium consists of Oligocene to Holocene continental rocks and deposits consisting of a heterogeneous mixture of

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generally poorly-sorted clay, silt, sand, and gravel, with some beds of claystone, siltstone, sandstone, and conglomerate. Continental and marine rocks and deposits consist of Pre-Tertiary to Oligocene deposits of clay, shale, sandstone and conglomerate.

21. The Facility is not within a Seismic Hazard Zone delineated by the California Geological Survey. Seismic Hazard Zones are areas shown on Seismic Hazard Zone maps where site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. The nearest Seismic Hazard Zone is approximately 120 kilometers (75 miles) northwest of the Facility.
22. The Facility is not within an Earthquake Fault Zone delineated for active faults by the California Geological Survey. An active fault is a fault which has exhibited surface rupture within the Holocene epoch (about the last 11,000 years). For ground motion that has 1 chance in 475 of being exceeded each year, which is equal to a 10 percent probability of being exceeded over a 50-year period, Probabilistic Seismic Hazard maps from the California Geological Survey indicate that the Facility would experience a peak ground acceleration (PGA) of 0.269 g. According to United States Geological Survey maps, the peak horizontal acceleration (PHA) with a 7 percent probability of exceedance in 75 years at the Facility is estimated to be 0.25 g.

GROUNDWATER CONDITIONS

23. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised July 2016 (Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Resources Control Board (State Water Board). In accordance with California Water Code section 13263, subdivision (a), this Order implements the Basin Plan.
24. The Facility is in the Raisin Hydrologic Area (551.20) of the South Valley Floor Hydrologic Unit. The designated surface water beneficial uses of Valley Floor Waters as specified in the Basin Plan are: Agricultural Supply (AGR); Industrial Service Supply (IND); Industrial Process Supply (PRO); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Warm Fresh Water Habitat (WARM); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); and Ground Water Recharge (GWR).
25. The Facility is in the Delta-Mendota Basin Hydrologic Unit, Detailed Analysis Unit (DAU) 235. The designated beneficial uses of groundwater as specified in the Basin Plan for DAU 235 are Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Non-Contact Water Recreation (REC-2), and Wildlife Habitat (WILD).
26. Based on surface water monitoring data presented in the MPG 2010 annual report, TDS concentrations from the Fresno Slough reach of the Mendota Pool upstream and downstream of the Facility average approximately 300 mg/L. Based on data provided by

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the Department of Water Resources for the San Joaquin River Lower Bifurcation Station, located approximately one mile northeast of the Facility, TDS concentrations along that section of the San Joaquin River average approximately 50 mg/L.

27. At the Facility, first encountered groundwater occurs in the upper unconfined aquifer. Depth to first encountered groundwater ranges from approximately 20 to 40 feet bgs. From 1995 to 2016, depth to groundwater at Monitoring Well MW-18, located within the footprint of the former Steffen's Ponds, ranged from 15 to 47 feet bgs.
28. In the general vicinity of the Facility, the upper unconfined aquifer is described as a water-bearing zone termed "shallow zone" for the zone above the A-clay and the "deep zone", which represents the zone between the A-clay and the E-Clay (Corcoran Clay). The A-clay is encountered below the Facility at a depth of approximately 70 to 80 feet bgs and the E-Clay is encountered at a depth of approximately 450 feet bgs. The A-clay has a thickness of approximately five (5) to 15 feet, but is discontinuous in the vicinity of the Facility. The principle water-bearing zones in the vicinity of the Facility are the "shallow zone" and the "deep zone" of the upper unconfined aquifer.
29. According to the 2011 Department of Water Resources (DWR) maps titled *Present and Potential Drainage Problem Areas* and *Electrical Conductivity in Shallow Groundwater*, shallow groundwater is encountered west of the Fresno Slough and west of the San Joaquin River (north of Mendota Dam, see Attachment A) at depths ranging from five (5) to 15 feet bgs. The DWR maps indicate that approximately one mile west of the Facility, estimated concentrations of TDS in shallow groundwater range from approximately 1,000 to 2,000 mg/L and at five miles west of the Facility, estimated TDS concentrations in shallow groundwater range from approximately 3,000 to 6,000 mg/L.
30. Since groundwater monitoring data collection began in 1982 for the Facility, the predominant overall groundwater flow direction across the Facility for the "shallow zone" of the upper unconfined aquifer has been northeast. Groundwater pumping of shallow wells surrounding the Mendota Pool with discharge of the water to the Pool creates a groundwater depression causing a western flow in the shallow zone beneath the west part of the Facility towards the Pool. The groundwater flow direction reverses to the east beneath the west part of the Facility when the shallow wells surrounding the Mendota Pool are not pumping, causing recharge water from the Pool to create a groundwater mound. Groundwater flow direction for the "deep zone" of the aquifer is north to northeast. Groundwater gradients for the "shallow zone" and the "deep zone" each average approximately 0.005 foot/foot.

GROUNDWATER MONITORING

31. Groundwater monitoring began at the Facility in 1982, and most of the monitoring wells were installed between 1984 and 1990. There are two networks of monitoring wells—one in a "shallow zone" and the other in a "deep zone." The "shallow zone" well network includes MW-1 through MW-6, MW-9, MW-13, MW-15, MW-17 through MW-21, and MW-23 through MW-32; whereas the "deep zone" well network includes MW-7, MW-8, MW-10, MW-11, MW-12, MW-14, MW-16, and MW-22. The Facility also has a line of eight "deep zone" production wells that stretch from west to east along its northern

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boundary, PW-1 and PW-6 through PW-12. (See Attachment B.) The production wells were used as a source of industrial production water for beet sugar processing and to restrict the off-site movement of the salt plume into the FWD. More recently, these production wells have continued to meet agricultural water standards for the crops grown on-site and have been used for irrigation water. Most of these production wells have been consistently monitored semi-annually since the mid-1980s. Wells PW-1 and PW-8 were sealed and closed at some point prior to 2003; no groundwater samples have been collected or analyzed from these two wells since then.

32. Results of analyses of groundwater samples taken from the on-site monitoring wells indicate that discharges of wastes to the former Steffen's Ponds have impacted groundwater and created a salt plume beneath and downgradient of the former Steffen's Ponds. The TDS plume extends horizontally northeast and east of the former Steffen's Ponds to beyond the northern and eastern boundaries of the Facility, and extends vertically from the "shallow zone" to the "deep zone" of the upper unconfined aquifer. Impacts to groundwater from the Facility are being addressed by a separately-issued Cleanup and Abatement Order.
33. **Table 1** below depicts TDS concentrations detected in monitoring wells in October 1991, September 2008 and October 2013, as well as the historical high TDS concentration measured from each well. As noted above, discharges of Steffen's waste to the Steffen's Ponds ceased in 1991 while the Facility ceased operation in 2009. On average, the October 2013 results are roughly one-half of the historical highs.

Table 1—Historical and Recent TDS Concentrations Detected at Monitoring Wells.

Well No.	Well Type	Hist. High TDS Conc. (mg/L)	Oct. 1991 TDS Conc. (mg/L)	Sept. 2008 TDS Conc. (mg/L)	Oct. 2013 TDS Conc. (mg/L)	Oct. 2013 divided by Historic High TDS
MW-1	Shallow	3,045	1,365	1,100	450	0.15
MW-2	Shallow	2,190	1,255	1,600	880	0.40
MW-3	Shallow	3040	1,995	940	630	0.21
MW-4	Shallow	1623	1,120	1,200	1,100	0.68
MW-5	Shallow	1,500	775	870	960	0.64
MW-6	Shallow	1,500	950	1,300	1,500	1.00
MW-7	Deep	5,000	3,860	4,000	4,100	0.82
MW-8	Deep	1,100	485	1,000	880	0.80
MW-9	Shallow	1,300	650	1,000	590	0.45
MW-10	Deep	900	1,000	880	840	0.93
MW-11	Deep	1,400	1,000	1,400	1200	0.86
MW-12	Deep	3,540	2,540	2,100	2,000	0.56

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Well No.	Well Type	Hist. High TDS Conc. (mg/L)	Oct. 1991 TDS Conc. (mg/L)	Sept. 2008 TDS Conc. (mg/L)	Oct. 2013 TDS Conc. (mg/L)	Oct. 2013 divided by Historic High TDS
MW-13	Shallow	1,900	1,310	380	310	0.16
MW-14	Deep	1,190	860	640	690	0.58
MW-15	Shallow	17,300	11,200	5,600	1,600	0.09
MW-16	Deep	6,800	4,360	3,300	3,200	0.47
MW-17	Shallow	4,700	1,985	2,700	3,300	0.70
MW-18	Shallow	4,660	2,930	2,200	720	0.15
MW-19	Shallow	9,600	7,320	5,000	3,000	0.31
MW-20	Shallow	2,520	2,125	1,800	1,800	0.71
MW-21	Shallow	3,900	2,340	NA	2,500	0.64
MW-22	Deep	2,780	2,540	1,700	2,000	0.79
MW-23	Shallow	4,460	3,930	NA	3,000	0.67
MW-24	Shallow	2,900	1,280	1,400	1,900	0.66
MW-25	Shallow	8,100	1,635	2,300	2,100	0.26
MW-26	Shallow	10,800	8,400	4,000	920	0.09
MW-27	Shallow	7,020	2,560	3,700	700	0.10
MW-28	Shallow	1,500	NA	1,200	1,500	1.00
MW-29	Shallow	1,760	NA	1,300	1,300	0.74
MW-30	Shallow	900	NA	590	670	0.74
MW-31	Shallow	650	NA	590	420	0.65
MW-32	Shallow	600	NA	210	220	0.37
Average						0.54

NA = Not Analyzed
 mg/L = milligrams per liter

34. **Table 2** below shows that data collected in 2013 at some of the “shallow zone” monitoring wells indicate groundwater TDS, chloride, and sulfate concentrations are in excess of applicable water quality objectives for drinking water. The Recommended Secondary Maximum Contaminant Level (MCL) for TDS is 500 mg/L with an Upper limit of 1,000 mg/L, while the Recommended Secondary MCL for both chloride and sulfate is 250 mg/L, with an Upper limit of 500 mg/L.

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Table 2—TDS, Chloride and Sulfate Concentrations of “Shallow Zone” Samples Collected in 2013.

Shallow Zone Well No.	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
MW-1	450	63	87
MW-2	880	170	35
MW-3	630	120	130
MW-4	1,100	260	130
MW-5	960	220	120
MW-6	1,500	400	190
MW-9	590	110	140
MW-13	310	84	54
MW-15	1,600	200	270
MW-17	3,300	330	740
MW-18	720	160	120
MW-19	3,000	630	350
MW-20	1,800	330	240
MW-21	2,500	380	180
MW-23	3,000	500	290
MW-24	1,900	450	170
MW-25	2,100	380	57
MW-26	920	160	130
MW-27	700	160	120
MW-28	1,500	240	360
MW-29	1,300	170	420
MW-30	670	77	250
MW-31	420	29	180
MW-32	220	9	66

POND CLOSURE

35. The proposed method of closure of the Steffen’s Ponds, as former surface impoundments, is to close them in-place with the construction of a closure cap system in accordance with the closure requirement for a solid waste management unit (Unit) contained in Title 27.

Closure requirements for surface impoundments contained in Title 27 allow closure as a Class III landfill pursuant to its closure and post-closure maintenance requirements for solid waste management units. Section 20950, subdivision (a)(2)(A)(1) of Title 27 states that the goal of closure for a surface impoundment closed as a landfill is “...to minimize the infiltration of water into the waste, thereby minimizing the production of leachate and gas.” Section 20950, subdivision (a)(2)(A)(2) states, “...the goal of post-closure

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maintenance at such Units is to assure that the Unit continues to comply with the performance standard of section 20950, subdivision (a)(2)(A)(1) until such time as the waste in the Unit no longer constitutes a potential threat to water quality.”

36. Title 27, section 21090 provides the minimum prescriptive final cover components for class III landfills consisting of, in ascending order, the following layers:
 - a. A two-foot soil foundation layer;
 - b. A one-foot soil layer compacted to exhibit a maximum field hydraulic conductivity of 1×10^{-6} centimeters per second (cm/s) or equal to the hydraulic conductivity of any bottom-liner system; and
 - c. A one-foot soil erosion resistant/vegetative layer.
37. Title 27, section 20080, subdivision (b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with section 20080, subdivisions (c)(1) and (2), the discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The discharger must also demonstrate that the proposed engineered alternative system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with section 20080(b)(2).
38. In this instance, SMBSC demonstrates that clean-closure of the Steffen's Ponds in accordance with the prescriptive standard would be substantially more expensive than the proposed engineered alternative. In particular, SMBSC's engineering consultant estimates that clean-closure would involve excavating the ponds to 20 feet bgs and hauling the nitrate and salt impacted soils offsite to a permitted landfill—at an estimated cost of half a billion dollars. Moreover, to construct a prescriptive Class III landfill cover would be cost prohibitive given the absence of large on-site clay deposits (see Finding No. 20) and thus necessitate the need to import large quantities of clay.
39. Likewise, SMBSC is proposing to close the former Steffen's Ponds using a soil evapotranspiration (ET) cover as an engineered alternative to the prescriptive standard required by Title 27. The proposed cover is to be constructed by bulldozing down Sedimentation Ponds I–VIII (covering the westernmost 43 acres; see Attachment B) and incorporating their sediments into a soil foundation layer covering the entire 125-acre area. Borrow soil taken from the former Factory Ponds, PCC Ponds and native soils in the vicinity of the Factory Ponds will be placed on top of the bulldozed Sedimentation Pond soil. Lastly, a mitigation plan proposes to phytoremediate the nitrate-impacted soils used to construct the cover with an approved crop for five years, followed by a permanent perennial grass and/or native vegetative cover.

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40. On 15 April 2015, SMBSC submitted infiltration modeling results for the proposed ET cover design for the Steffen's Ponds which show that the design would be protective of groundwater quality and achieve performance equivalent to the final cover prescriptive standard for landfills described in Title 27. The precipitation infiltration modeling of the ET cover was conducted using the computer model HYDRUS-1D (a finite element computer model that numerically solves the Richards equations) with the assumption that all precipitation infiltrates.
41. The proposed method of closure of the former Factory Ponds and PCC Ponds is to remove the nitrate and PCC impacted soils from the ponds to background levels and, by doing so, closing the respective ponds in accordance with Title 27's clean-closure requirements for a solid waste management unit.
42. Section 21090, subdivision (a)(4)(A) of Title 27 requires that a periodic leak search, including a method for identifying and repairing breaches in the low-hydraulic conductivity layer, be a component of the final cover post-closure maintenance plan. A common way to conduct a leak search on a prescriptive final cover utilizing a low-hydraulic conductivity layer as part of its design is to monitor the surface of the cover for landfill gas emissions. However, in an ET cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the base of the cover. A leak in this kind of cover can be detected by using a device that directly measures moisture flux through the cover, such as a pan lysimeter. This Order requires the Dischargers to construct a pan lysimeter beneath a portion of the final cover.
43. During construction of the final cover, the casing of monitoring well MW-18 is anticipated to be lengthened to accommodate new surface elevations. This Order requires that monitoring well MW-18 be re-surveyed and if necessary, all monitoring wells be re-surveyed to establish elevations for groundwater measurements.
44. Once construction of the final cover is complete, this Order requires submittal of a certified Construction Quality Assurance (CQA) Plan for review and approval by the Executive Officer prior to construction of the final cover. Specific CQA plan requirements are contained in Title 27, section 20324.
45. The annual fee for persons named by this Order is based on the discharge's threat to water quality (TTWQ) and complexity rating. The discharges from the proposed closure of the former Steffen's Ponds is considered to be TTWQ Category "2" discharge (a discharge that could impair the designated beneficial uses, cause short-term violations of water quality objectives, violate secondary drinking water standards, etc.), with a complexity category of "B". Annual fees for this discharge classification are set forth in Section 2200 of Title 23 of the California Code of Regulations. The annual fee rating of 2B for these closure WDRs is consistent with the annual fee rating for the sugar beet processing plant when it was operating under WDRs Resolution No. 61-147.

CEQA AND OTHER REGULATORY CONSIDERATIONS

46. The action to revise WDRs for an existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000 et seq., in accordance with California Code of Regulations, title 14, section 15301. Alternatively, this action may be considered exempt from CEQA because it is both an action by a regulatory agency for the protection of natural resources (see Cal. Code Regs., tit. 14, § 15307), and an action by a regulatory agency for the protection of the environment (see *id.*, § 15308).
47. Although SMBSC's proposal for closing the Steffen's Ponds, the Factory Ponds and PCC Ponds is consistent with the applicable requirements of Title 27, the activities regulated by this Order are exempt from Title 27, in accordance with section 20090, subdivision (d) of Title 27, because the actions are being undertaken by a discharger, at the direction of the Central Valley Water Board to cleanup or abate conditions of pollution or nuisance resulting from the unauthorized discharge of waste, and because:
 - a. Wastes removed from the immediate place of release (the wastes removed from the Factory Ponds and PCC Ponds) will be discharged according to applicable Title 27 regulations; and
 - b. The cleanup actions intended to contain wastes at the place of release (the closure of the Steffen's Ponds) implement the applicable State Water Board-promulgated Title 27 regulations to the extent feasible.
48. The Board is developing Basin Plan amendments to incorporate new programs for addressing ongoing salt and nitrate accumulation in the Central Valley. These programs would change how the Board issues permits for discharges of salt and nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. Should the Board adopt amendments to the Basin Plan, this Order may be amended or modified to incorporate any newly-applicable requirements.
49. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has been coordinating efforts to implement the new salt and nitrate management strategies. The Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.
50. Subdivision (b) of Water Code section 13267 provides that:

In conducting an investigation..., 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 waste within its

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region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters 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 report and the benefits to be obtained from the reports. In requiring those reports, 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 are necessary to assure compliance with this Order.

51. Dischargers whose projects disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction, General Permit Order 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the Facility.
52. This Order requires full containment of wastes and does not permit degradation of surface water or groundwater. An antidegradation analysis is therefore not needed. The discharge is consistent with the antidegradation provisions of State Water Board Resolution No. 68-16.

PROCEDURAL REQUIREMENTS

53. The Central Valley Water Board notified the Dischargers and interested agencies and persons of its intent to prescribe WDRs for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that WDRs Resolution No. 61-147 be rescinded and that Southern Minnesota Beet Sugar Cooperative, Spreckels Sugar Company Inc. and Meyers Farming LLC (collectively, "Dischargers"), as well as their respective agents, successors and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

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A. PROHIBITIONS

1. Discharge of hazardous wastes, as that term is defined in California Code of Regulations, Title 22, section 66261.1 et seq., is prohibited.
2. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
3. Ponding of liquids on the final cover surface is prohibited.
4. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
5. The discharge of waste to a closed waste management unit is prohibited.
6. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.

B. DISCHARGE SPECIFICATIONS

1. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by California Water Code section 13050.
2. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
3. The discharge shall remain within the designated disposal area at all times.

C. FACILITY SPECIFICATIONS

1. Water used on the final cover shall be limited to the minimum amount necessary for dust control, moisture conditioning of cover soil, and to establish and maintain vegetation.
2. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of five (5) feet above the highest anticipated elevation of underlying groundwater, including the capillary fringe.
3. The Dischargers shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method.
4. The Dischargers shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of containment features or the waste management unit.
5. The Dischargers shall maintain in good working order any Facility, control system, or monitoring device installed to achieve compliance with this Order.

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6. The Dischargers shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
7. The Dischargers shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

D. STEFFEN'S PONDS CLOSURE SPECIFICATIONS

1. The Dischargers shall submit for Executive Officer review and approval, no later than 90 days after the adoption of this Order, design plans and specifications for a final cover system for the Steffen's Ponds that includes a Construction Quality Assurance (CQA) Plan meeting the requirements of section 20324 of Title 27 and a time schedule for construction. The final cover shall be designed by, and construction shall be supervised by, a California Registered Civil Engineer or a Certified Engineering Geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order. Construction shall only proceed after all applicable construction quality assurance plans have been approved by the Executive Officer.
2. The final cover system for the Steffen's Ponds shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities. The final cover system shall be designed and constructed to prevent inundation or washout due to the 100-year flood event. The final cover design shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer and with one or more pan lysimeters to monitor the effectiveness of the cover. Construction or repair of the final cover system is to be carried out in accordance with the approved construction quality assurance plan.
3. The Dischargers shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of the final cover system (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.
4. A third-party independent of both the Dischargers and the construction contractor shall perform all of the construction quality assurance (CQA) monitoring and testing during the construction of the final cover system. The CQA program shall be supervised by a California Registered Civil Engineer or Certified Engineering Geologist who shall be designated the CQA officer.
5. **By 90 days** following the completion of construction of the final cover system for the Steffen's Ponds, the final documentation required in section 20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall contain sufficient information and test results to verify that construction was conducted in

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accordance with the approved design plans and specifications, and with the standards and performance goals of Title 27. It shall be certified by a California Registered Civil Engineer or Certified Engineering Geologist and include a statement that the final cover system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of this Order, and that it meets the performance goals of Title 27.

E. STEFFEN'S PONDS POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Dischargers shall monitor the final cover system for the Steffen's Ponds in accordance with Monitoring and Reporting Program No. R5-2018-0030. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes from the closed Steffen's Ponds no longer pose a threat to water quality.
2. The Dischargers shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Dischargers shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed Steffen's Ponds during the period the vegetation is being established. Further, prior to and during the rainy season, the Dischargers shall perform any and all necessary reseeding of the final cover to maintain adequate vegetation.
3. Annually, prior to the anticipated rainy season but no later than **1 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the Facility and to prevent surface drainage from contacting or percolating through wastes.
4. The Dischargers shall periodically inspect and identify problems with the final cover system including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operation. Once a problem is identified, the Dischargers shall, in a timely manner, repair any areas of the final cover system in accordance with the final cover CQA Plan that have been damaged by erosion, cracking, differential settlement, subsidence or any other causes that could allow ponding of surface water or percolation of surface water into the wastes.
5. The Dischargers shall submit a report for Executive Officer review and approval **by 90 days** following the completion of final cover construction for the Steffen's Ponds proposing the amount of moisture that would constitute significant infiltration through the final cover system as measured by the pan lysimeter(s) with supporting documentation.
6. Monitoring of the final cover system for the Steffen's Ponds shall include inspecting and recording the volume of moisture collected by the pan lysimeter(s). In the event the pan lysimeter(s) detect significant moisture infiltration through the cover, **within 30 days of detection**, the Dischargers shall submit a plan and time schedule, for Executive Officer review and approval, to evaluate the problem and recommend and implement corrective measures.

F. FACTORY PONDS AND PCC PONDS CLEAN-CLOSURE SPECIFICATIONS

1. **At least 120 days prior to** initiating clean-closure activities as an alternative to the construction of a final cover system for the Factory Ponds and the PCC Ponds, the Dischargers shall submit for Executive Officer review and approval, a clean-closure plan pursuant to Title 27, section 21090(f) and a time schedule for implementation. The clean-closure plan shall include specifications for the removal or in-situ treatment or beneficial re-use of all nitrate and lime containing soils for vegetative cover growth, and confirmation testing that includes a Sample Collection and Analysis Plan meeting the requirements of Title 27, section 21090(f).
2. **By 31 January 2020**, the Dischargers shall submit for Executive Officer review and approval, the final documentation demonstrating clean-closure of the Factory Ponds and PCC Ponds has been completed in accordance with section 21090, subdivision (f) of Title 27. The Dischargers' report shall be certified by a California Registered Civil Engineer or Professional Geologist, and shall contain sufficient information and test results to verify that all waste and waste constituents have been removed and that the landfill has been clean-closed pursuant to Title 27.
3. A third-party, independent of the Dischargers and the construction contractor, shall perform sample collection and analyses during clean-closure. The third-party's sample collection and analyses program shall be supervised by a California Registered Civil Engineer or Professional Geologist.

G. GENERAL PROVISIONS

1. The Dischargers may be required to establish an irrevocable fund (or provide another financial means) for closure and post-closure maintenance of the Steffen's Ponds in accordance with an approved closure and post-closure maintenance plan pursuant to section 20950, subdivision (f) and section 22207, subdivision (a) of Title 27.
2. The Dischargers shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the Steffen's Ponds in accordance with section 20380, subdivision (b) and section 22222 of Title 27.
3. The Dischargers shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991 (Standard Provisions), which are incorporated as part of this Order.
4. The Dischargers shall comply with Monitoring and Reporting Program (MRP) R5-2018-0030, which is incorporated as part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.
5. The Dischargers and their employees shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for

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compliance with this Order or with Monitoring and Reporting Program No. R5-2018-0030, as required by sections 13750 through 13755 of the California Water Code.

6. The Discharger shall maintain 16 feet of separation between groundwater at the invert of the soil evapotranspiration (ET) cover once it is built on top of the former Steffen's Ponds. If groundwater levels rise to within 16 feet of the invert of the soil ET cover, the Discharger shall submit a groundwater separation work plan with control measures to maintain groundwater to no higher than within 15 feet of the invert of the soil ET cover. The groundwater separation work plan should, at a minimum, include the actions described in the Bureau of Reclamation's "Finding of No Significant Impact; Amendment to the Meyers Groundwater Banking Exchange Agreement; FONSI-11-013." The groundwater separation plan shall be subject to approval by the Executive Officer. Once groundwater level control measures are implemented by the Discharger, they shall continue them until groundwater levels drop to within 16 feet of the invert of the soil ET cover.
7. The Dischargers shall at all times properly operate and maintain their respective facilities and systems of treatment and control (and related appurtenances) that are installed or used to achieve compliance with the conditions of this Order. Proper operation and maintenance also include 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 only when the operation is necessary to achieve compliance with the conditions of this Order.
8. All technical reports and work plans required herein 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. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
9. The Dischargers shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Dischargers shall submit to the Central Valley Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Dischargers will be in compliance. The Dischargers shall notify the Central Valley Water Board by letter when they return 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. In the event of any change in control or ownership of land or waste management facilities presently owned or controlled by Meyers Farming LLC, Meyers shall notify the

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succeeding owner or operator of the existence of this Order by letter. A copy of that notification shall be sent to the Central Valley Water Board.

11. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Dischargers shall notify the Central Valley Water Board prior to the effective date of the change.
12. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within 14 days of assuming ownership or operation of this Facility. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name, 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 requirements contained in 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 California Water Code. 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.
13. The Dischargers shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. If, for any reason, the Dischargers are unable to perform any activity or submit any report in compliance with the schedule set forth in this Order (or any work schedule incorporated herein), the Dischargers may request an extension from the Executive Officer. To be considered by the Executive Officer, an extension request must: be made in writing; set forth a definite period of extension (no indefinite extensions); and include justification for the delay. Any extension request shall be submitted as soon as the situation is recognized and no later than the compliance date. Untimely requests may be disregarded. All requests not approved by the Executive Officer in writing with reference to this Order, within 30 days of the original deadline, are denied. An extension may be granted by revision of this Order, or by a letter from the Executive Officer.
14. As described in the Standard Provisions, the Dischargers shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
15. If the Central Valley Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of an objective for groundwater, this Order may be reopened for consideration of addition or revision of appropriate numerical effluent or groundwater limitations for the problem constituents.
16. The Central Valley Water Board is currently implementing the Central Valley Salinity Alternatives for Long-term Sustainability Initiative (CV-SALTS) to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort, the Basin Plan will be amended to define how the narrative water

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quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.

17. A copy of this Order, including the MRP, Information Sheet, Attachments and Standard Provisions, shall be kept at the Facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
18. The Central Valley Water Board will review this Order periodically and revise the requirements when necessary.

If, in the opinion of the Executive Officer, the Dischargers fail 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 California 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 California Water Code section 13320 and California Code of Regulations (CCR), 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 the 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 laws 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, Central Valley Region, on 6 April 2018.

Original signed by

PAMELA C. CREEDON, Executive Officer

Order Attachments:

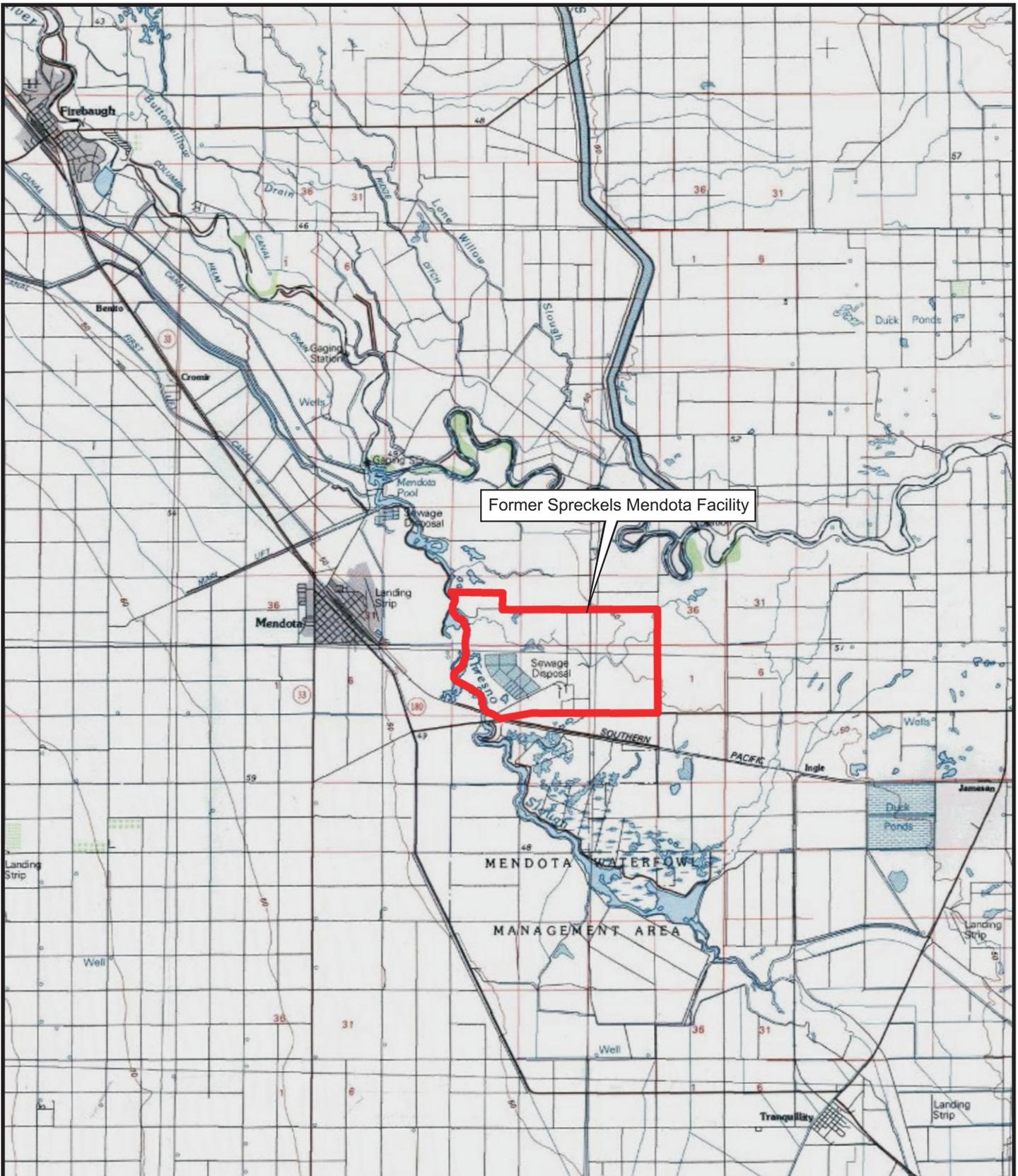
Attachment A - Location Map

Attachment B - Site Map

Monitoring and Reporting Program R5-2018-0030

Information Sheet

Standard Provisions (1 March 1991) (separate attachment to Discharger)



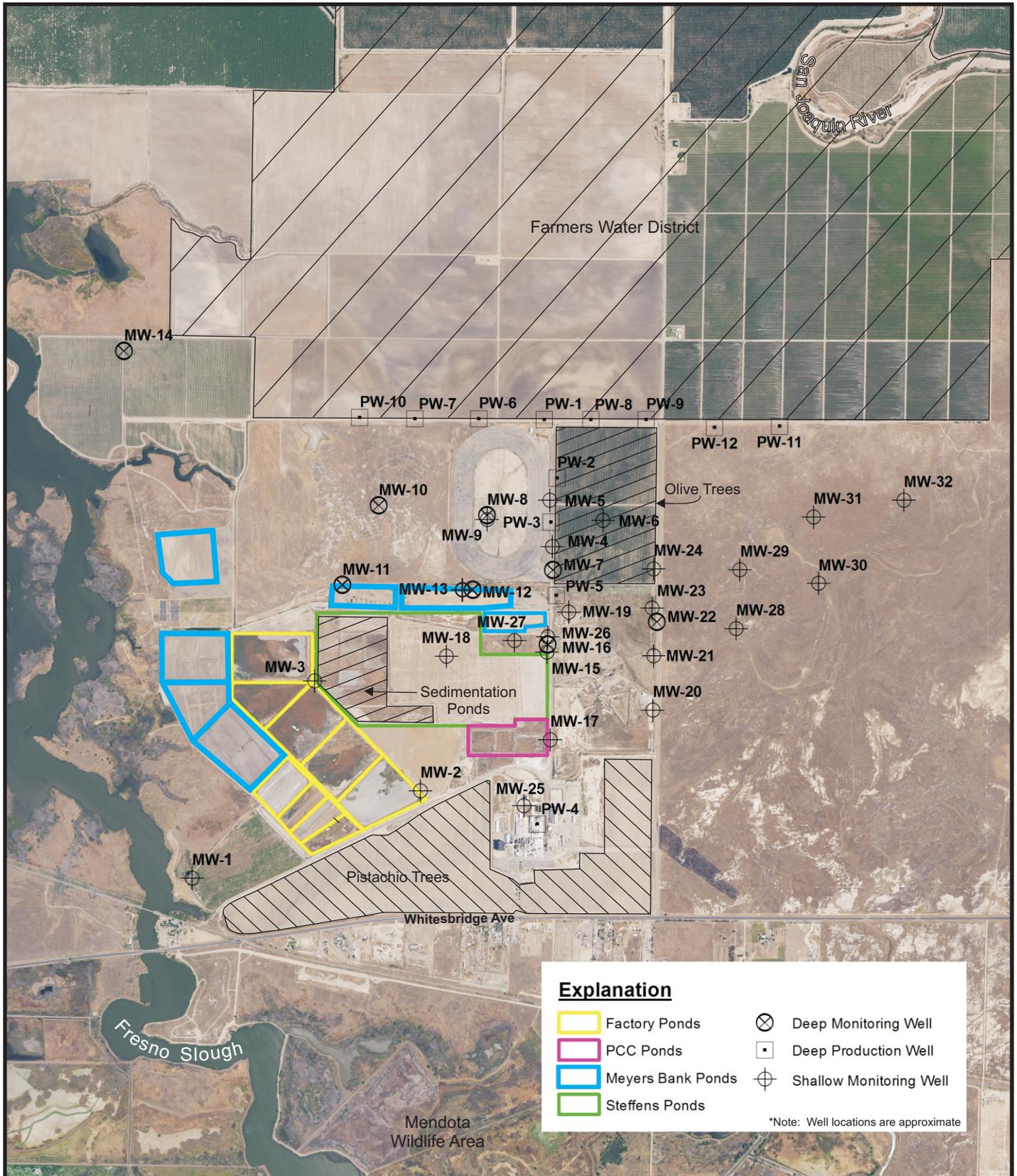
Former Spreckels Mendota Facility

Map Source:
 ArcGIS Online Premium Services
 USA Topo Maps, National Geographic Society



LOCATION MAP
 ORDER NO. R5-2018-0030
 WASTE DISCHARGE REQUIREMENTS
 FOR
 SPRECKELS SUGAR COMPANY INC, SOUTHERN MINNESOTA BEET SUGAR COOPERATIVE,
 AND MYERS FARMING LLC
 FOR
 SURFACE IMPOUNDMENTS CLOSURE AND POSTCLOSURE MAINTENANCE
 FORMER SPRECKELS MENDOTA FACILITY
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ATTACHMENT A

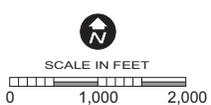


Explanation

Factory Ponds	Deep Monitoring Well
PCC Ponds	Deep Production Well
Meyers Bank Ponds	Shallow Monitoring Well
Steffens Ponds	

*Note: Well locations are approximate

Map Source:
 USDA, NAIP Aerial Photograph, 2014
 Sections 33, 34, and 35, T13S, R15E, MDB&M
 Sections 2, 3, and 4, T14S, R15E, MDB&M



SITE MAP
 ORDER NO. R5-2018-0030
 WASTE DISCHARGE REQUIREMENTS
 FOR
 SPRECKELS SUGAR COMPANY INC, SOUTHERN MINNESOTA BEET SUGAR COOPERATIVE,
 AND MYERS FARMING LLC
 FOR
 SURFACE IMPOUNDMENTS CLOSURE AND POSTCLOSURE MAINTENANCE
 FORMER SPRECKELS MENDOTA FACILITY
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ATTACHMENT B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2018-0030
FOR
SOUTHERN MINNESOTA BEET SUGAR COOPERATIVE,
SPRECKELS SUGAR COMPANY, INC., AND MEYERS FARMING LLC
SURFACE IMPOUNDMENTS CLOSURE AND POST-CLOSURE MAINTENANCE
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This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267. Failure to comply with this program constitutes noncompliance with the Water Code, which can result in the imposition of civil liability. The Dischargers 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 California Department of Public Health's Environmental Laboratory Accreditation Program. The Dischargers 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 Dischargers may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency. Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report. All analyses must be performed by a California Department of Public Health certified laboratory.

The Dischargers shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Central Valley Water Board.

GROUNDWATER MONITORING

In accordance with the schedule listed below, the Dischargers shall collect groundwater samples from shallow and deep groundwater monitoring wells (provided sufficient water exists in a well to be sampled) and from production wells. Any monitoring or production wells installed in the future shall be added to the groundwater monitoring program and sampled at the specified frequency. The groundwater surface elevation (in feet and hundredths, mean seal level) in all monitoring wells shall be measured and used to determine the gradient and direction of groundwater flow. The Dischargers shall monitor each groundwater monitoring well for the following:

Constituent/Parameter	Units	Sample Type	Frequency
Groundwater Elevation	Feet ¹	Measurement	Semi-Annually
General Minerals ²	mg/L	Grab	Semi-Annually
Nitrogen Forms ³	mg/L	Grab	Semi-Annually
Dissolved Metals ⁴	mg/L	Grab	Every Three Years ⁵

¹ In feet and hundredths, relative to Mean Sea Level (MSL)

² General Minerals include: Alkalinity (as CaCO₃), Bicarbonate (as CaCO₃), Boron, Calcium, Carbonate (as CaCO₃), Chloride, Hardness (as CaCO₃), Iron, Magnesium, Manganese, Nitrate, Phosphate, Potassium, Sodium, Sulfate, Total Dissolved Solids, Electrical Conductivity (EC), and an anion/cation balance

³ Nitrogen Forms include: Ammonia as Nitrogen, Nitrate as Nitrogen, Total Nitrogen, and Total Kjeldahl Nitrogen (TKN)

⁴ Dissolved Metals include: Arsenic, Barium, and Chromium VI

⁵ Dissolved Metals sampling frequency: once every three years beginning with the first year the Monitoring and Reporting Program is adopted.

COVER INTEGRITY MONITORING

The Dischargers shall operate and maintain an unsaturated zone detection monitoring device (e.g., pan lysimeter) beneath a portion of the 3-foot thick monofill soil evapotranspiration (ET) cover to determine if water is infiltrating through the final cover. The Dischargers shall install an unsaturated zone detection monitoring device concurrent with the constructed final cover after review and approval of the unsaturated zone monitoring device design by the Executive Officer. Unsaturated zone samples shall be collected from the unsaturated zone detection monitoring device and analyzed for the parameters and constituents listed below. In accordance with the specified methods and frequencies (pan lysimeters need only be sampled when liquid is present). The unsaturated zone monitoring device shall be inspected for the presence of liquid **annually**. If liquid is detected in a previously dry unsaturated zone monitoring device, the Dischargers shall verbally notify Central Valley Water Board staff within

seven days and shall immediately sample and test the liquid for the following and continue sampling at the frequencies listed below:

Constituent/Parameter	Units	Sample Type	Frequency
General Minerals ¹	mg/L	Grab	Annually
Nitrogen Forms ²	mg/L	Grab	Annually
Dissolved Metals ³	mg/L	Grab	Every Three Years ⁴

¹ General Minerals include: Alkalinity (as CaCO₃), Bicarbonate (as CaCO₃), Boron, Calcium, Carbonate (as CaCO₃), Chloride, Hardness (as CaCO₃), Iron, Magnesium, Manganese, Nitrate, Phosphate, Potassium, Sodium, Sulfate, Total Dissolved Solids, Electrical Conductivity (EC), and an anion/cation balance

² Nitrogen Forms include: Ammonia as Nitrogen, Nitrate as Nitrogen, Total Nitrogen, and Total Kjeldahl Nitrogen (TKN)

³ Dissolved Metals include: Arsenic, Barium, and Chromium VI

⁴ Dissolved Metals sampling frequency: Once every three years beginning with the first year the Monitoring and Reporting Program is adopted.

REMEDIATION SYSTEMS

Reports on remediation systems at the site shall be included with the groundwater monitoring reports and submitted semi-annually. The reports shall contain the following information regarding the site remediation systems:

1. Maps showing location of all wells being used as part of remediation system;
2. Status of each remediation system including amount of time operating and down time for maintenance and/or repair;
3. A written summary and a table showing the amount and frequency of groundwater removal from all on-site production wells.
4. Daily field sheets documenting any field activities (e.g., sampling, maintenance) conducted during the sampling period shall be included in the semi-annual reports.

REPORTING REQUIREMENTS

1. The Dischargers shall report all monitoring data and information as specified herein. Reports that do not comply with the required format will be REJECTED and the Dischargers shall be deemed to be in noncompliance with the Monitoring and Reporting Program.

2. Monitoring data shall be submitted to the Central Valley Water Board in accordance with the schedule below.

<u>Semi-Annual Monitoring Period</u>	<u>Report Due</u>
January – June	July 31
July – December	January 31
<u>Annual Monitoring Period</u>	<u>Report Due</u>
January – December	January 31
<u>Three Year Monitoring Period</u>	<u>Report Due</u>
Every Third Year but Beginning with the First Year	January 31

Each report shall include the following minimum information:

- (a) a description and discussion of the groundwater sampling event and results, including trends in the concentrations of pollutants and groundwater elevations in the wells, how and when samples were collected, and whether the pollutant plume is fully treated by the existing remediation systems; If there are any deficiencies during the sampling event or if impacts to groundwater extend beyond recent historical boundaries, the report shall include an explanation and/or evaluation and propose options for addressing or correcting the deficiencies;
- (b) field logs that contain, at a minimum, water quality parameters measured before, during, and after purging, method of purging, depth of water, volume of water purged, etc.; water quality parameters shall include electrical conductivity, temperature, pH, dissolved oxygen, and oxygen reduction potential;
- (c) groundwater contour maps for applicable groundwater zones;
- (d) pollutant isoconcentration maps for applicable groundwater zones. The maps shall include at a minimum plots of TDS, sodium, chloride, sulfate and nitrate for each of the groundwater zones monitored;
- (e) a table showing well construction details that shall include at a minimum well number, groundwater zone being monitored, measuring point elevation, depth to top and bottom of screen, water level elevation, and depth to water;
- (f) a table showing historical lateral and vertical (if applicable) flow directions and gradients;
- (g) cumulative data tables containing all historical water quality analytical results and depth to groundwater;
- (h) a copy of all laboratory analytical data reports;

- (i) results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program or at other locations at the site shall be reported to the Central Valley Water Board;
 - (k) an update and status on each of the outstanding tasks required by the CAO or Executive Officer;
 - (l) a map showing the location of all wells being used for groundwater monitoring;
 - (m) a table summarizing water quality parameters measured during the current semi-annual period.
3. In reporting the monitoring data, the Dischargers shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements. All data shall be submitted in an electronic form acceptable to the Executive Officer.
 4. The Dischargers shall submit an annual report by 31 January of each year for the preceding calendar year. The report can be combined with the Dischargers' second semi-annual report of each year. The report shall contain:
 - (a) both tabular and graphical summaries of all data obtained during the year;
 - (b) an in-depth evaluation of groundwater conditions at the site including short and long-term trends of the constituents of concern in each area of the site;
 - (c) an evaluation of the effectiveness of the groundwater monitoring network in delineating the lateral and vertical extent of impacts to groundwater in all affected areas of the site. This should include an identification of any data gaps and potential deficiencies in the monitoring system or reporting program. The report shall include recommendations to address any deficiencies in the monitoring and report program;
 - (d) an evaluation of the effectiveness of each of the remediation systems. The evaluation shall include the effectiveness of the systems in remediating impacted groundwater and each of the source areas or suspected source areas. The report shall include recommendations for improving or expanding the systems, if necessary;
 - (e) a summary of the performance of each remediation system including the amount and percentage of operating and downtime.
 5. For each required annual report, one report shall be submitted containing all monitoring data collected at the site by all Dischargers and include all information cited in the above sections. A hard copy of all required reports on/or responses shall be submitted by the due date unless otherwise arranged with Central Valley Water Board staff.

6. The Dischargers shall maintain a data base containing historical and current monitoring data in an electronic form acceptable to the Executive Officer. The data base shall be updated semi-annually and provided to the Central Valley Water Board in electronic format.
7. The Dischargers shall submit electronic copies of all workplans, reports, analytical results, and groundwater elevation data over the Internet to the State Water Board Geographic Environmental Information Management System database (GeoTracker) at <http://geotracker.swrcb.ca.gov>. Electronic submittals shall comply with GeoTracker standards and procedures as specified on the State Water Board's web site. Uploads to Geotracker shall be completed on or prior to the due date. In addition, a hardcopy of each document shall be submitted to the Central Valley Water Board at 1685 E Street, Fresno, CA 93706, attention Cleanup Unit.

Original signed by

PAMELA C. CREEDON, Executive Officer

4/6/2018

(Date)

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2018-0030
FORMER SPRECKELS MENDOTA FACILITY,
SURFACE IMPOUNDMENTS CLOSURE AND POST-CLOSURE MAINTENANCE
FRESNO COUNTY

Spreckels Sugar Company, Inc. (SSCI), presently a wholly-owned subsidiary of Southern Minnesota Beet Sugar Cooperative (SMBSC), previously owned and operated a sugar beet processing facility (Facility) in Fresno County, near Mendota.

SSCI began operating the Facility in approximately 1962. Although SSCI initially operated as a subsidiary of AMSTAR Corporation (AMSTAR), now ASR Group International, Inc. (ASR), corporate ownership of SSCI was eventually sold to Spreckels Industries, Inc. (SII) in 1987. In 1996, the Facility and other SII assets were acquired by Holly Sugar Corporation (HSC), a subsidiary of the Imperial Holly Corporation (IHC). In 2001, IHC filed for bankruptcy protection. SSCI assets were sold to SMBSC in 2005. SSCI and SMBSC subsequently ended all sugar beet processing activity in fall 2008, and all sugar beet packaging operations in spring 2009.

The Facility has been regulated under Resolution No. 61-147, which was adopted on 14 December 1961. The Facility's operators disposed of a nutrient-rich and high-salt waste to 28 shallow unlined surface impoundments, referred to as "Steffen's Ponds," covering approximately 130 acres. Discharges to the Steffen's Ponds occurred between 1962 and 1991. Discharges to the Steffen's Ponds ended once the operators began using a Concentrated Steffen's Filtrate evaporator, which recovered the salts for inclusion with the beet pulp that was then sold as cattle feed.

In addition to waste discharged at Steffen's Ponds, approximately two to four million gallons of wastewater were discharged each day to 10 unlined wastewater and sedimentation ponds covering approximately 130 acres in total size (Factory Ponds). SSCI and SII also discharged Precipitated Calcium Carbonate (PCC) generated during the sugar beet purification process to five unlined ponds covering approximately 10 acres (PCC Ponds). Discharges to the Factory Ponds and PCC Ponds ended with all other sugar beet-related operations in 2009.

The geologic deposits beneath the Facility consist of younger alluvium near the surface, older alluvium to depths of approximately 3,000 feet, and a mixture of continental and marine rocks and deposits extending to depths greater than 9,000 feet below ground surface (bgs). Younger alluvial sediments consist of Holocene river and flood-basin deposits. Older alluvium consists of Oligocene to Holocene continental rocks and deposits consisting of a heterogeneous mixture of generally poorly sorted clay, silt, sand, and gravel, with some beds of claystone, siltstone, sandstone, and conglomerate. Continental and marine rocks and deposits consist of Pre-Tertiary to Oligocene deposits of clay, shale, sandstone and conglomerate.

First encounter groundwater beneath the Facility occurs in the upper unconfined aquifer and ranges in depth from approximately 20 to 40 feet bgs. The upper unconfined aquifer in the vicinity of the Facility has been subdivided into two water-bearing zones—the "shallow zone" and the "deep zone". The "shallow zone" is termed for the zone above the A-clay and the "deep zone", which is termed for the zone between the A-clay and the E-Clay (Corcoran Clay). The A-clay is encountered at a depth of approximately 70 to 80 feet bgs and the E-Clay is encountered at a depth of approximately 450 feet bgs.

The current groundwater monitoring network for the Facility is comprised of 24 monitoring wells in the “shallow zone,” and eight monitoring wells in the “deep zone.” Although not originally required, SSCI began groundwater monitoring in 1982, with a majority of the monitoring wells installed between 1984 and 1990. Since the advent of monitoring in 1982, groundwater has predominantly flowed northeast across the Facility in the “shallow zone” of the upper unconfined aquifer, and north-to-northeast in the “deep zone” of the aquifer.

Analyses of groundwater samples from on-site monitoring wells indicate that discharges of wastes from previous activities at the facility have degraded groundwater. The concentrations of total dissolved solids (TDS), in milligrams per liter (mg/L), detected in the various on-site monitoring wells are presented in **Table 1**, below.

Table 1—Concentrations of TDS in Monitoring Wells						
Monitoring Well	Well Type	Historic High (mg/L)	Oct. 1991, End of Discharge to Steffen’s Ponds (mg/L)	Sept. 2008, End of All Operations (mg/L)	Oct. 2015 (mg/L)	Oct. 2015 divided by Historic High
MW-1	Shallow	3,045	1,365	1,100	1,900	0.62
MW-2	Shallow	2,190	1,255	1,600	1,500	0.68
MW-3	Shallow	3,040	1,995	940	650	0.21
MW-4	Shallow	1,623	1,120	1,200	1,100	0.68
MW-5	Shallow	1,500	775	870	960	0.64
MW-6	Shallow	1,600	950	1,300	1,600	1.00
MW-7	Deep	5,000	3,860	4,000	3,800	0.76
MW-8	Deep	1,100	485	1,000	920	0.84
MW-9	Shallow	1,300	650	1,000	770	0.59
MW-10	Deep	1,400	1,000	880	1,400	1.00
MW-11	Deep	1,400	1,000	1,400	1,300	0.93
MW-12	Deep	3,540	2,540	2,100	1,300	0.37
MW-13	Shallow	1,900	1,310	380	420	0.22
MW-14	Deep	1,190	860	640	690	0.58
MW-15	Shallow	17,300	11,200	5,600	3,400	0.20
MW-16	Deep	6,800	4,360	3,300	3,000	0.44
MW-17	Shallow	4,700	1,985	2,700	2,100	0.45
MW-18	Shallow	4,660	2,930	2,200	1,400	0.30
MW-19	Shallow	9,600	7,320	5,000	4,500	0.47
MW-20	Shallow	2,520	2,125	1,800	1,800	0.71
MW-21	Shallow	3,900	2,340	NA	2,300	0.59
MW-22	Deep	2,780	2,540	1,700	2,100	0.76
MW-23	Shallow	4,460	3,930	NA	2,300	0.52
MW-24	Shallow	2,900	1,280	1,400	2,100	0.72

Table 1—Concentrations of TDS in Monitoring Wells

Monitoring Well	Well Type	Historic High (mg/L)	Oct. 1991, End of Discharge to Steffen's Ponds (mg/L)	Sept. 2008, End of All Operations (mg/L)	Oct. 2015 (mg/L)	Oct. 2015 divided by Historic High
MW-25	Shallow	8,100	1,635	2,300	2,200	0.27
MW-26	Shallow	10,800	8,400	4,000	1,400	0.13
MW-27	Shallow	7,020	2,560	3,700	1,200	0.17
MW-28	Shallow	1,500	NA	1,200	1,500	1.00
MW-29	Shallow	1,760	NA	1,300	1,100	0.63
MW-30	Shallow	900	NA	590	640	0.71
MW-31	Shallow	650	NA	590	610	0.94
MW-32	Shallow	600	NA	210	290	0.48

Twelve supply wells have been installed on-site. The initial and highest total concentrations of TDS for each well are presented in **Table 2**, below.

Table 2—Concentrations of TDS in On-Site Supply Wells

Supply Well	Initial Concentration (mg/L)	Initial Date	High Concentration (mg/L)	Oct. 2015 Concentration (mg/L)
PW-1	235	Mar. 1962	1,975	Closed & Sealed
PW-2	121	Oct. 1963	1,605	Closed & Sealed
PW-3	138	Oct. 1963	617	Closed & Sealed
PW-4	382	Oct. 1963	1,600	Closed & Sealed
PW-5	134	Oct. 1963	4,433	Closed & Sealed
PW-6	310	April 1983	1,600	750
PW-7	270	May 1983	1,200	870
PW-8	265	Sept. 1984	2,300	Closed & Sealed
PW-9	670	Nov. 1984	2,400	1,500
PW-10	390	Dec. 1988	840	800
PW-11	96	Oct. 2001	500	450
PW-12	320	Mar. 2004	900	900

Monitoring data from groundwater monitoring wells indicate that the wastes discharged at the facility have impacted underlying groundwater. Concentrations of TDS, chloride, and sulfate for water samples collected in October 2015 from monitoring wells for the “shallow zone” of the upper unconfined aquifer are presented in **Table 3**, below.

Table 3—Oct. 2015 Concentrations of TDS, Chloride, and Sulfate in Shallow Monitoring Wells			
Shallow Zone Monitoring Well	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
MW-1	1,900	270	420
MW-2	1,500	250	7
MW-3	650	99	86
MW-4	1,100	240	150
MW-5	960	210	130
MW-6	1,600	440	180
MW-9	770	130	190
MW-13	420	100	79
MW-15	3,400	400	1,000
MW-17	2,100	450	260
MW-18	1,400	260	130
MW-19	4,500	730	850
MW-20	1,800	330	240
MW-21	2,300	330	160
MW-23	2,300	360	140
MW-24	2,100	490	120
MW-25	2,200	440	170
MW-26	1,400	210	180
MW-27	1,200	250	160
MW-28	1,500	240	470
MW-29	1,100	170	410
MW-30	640	39	240
MW-31	610	59	210
MW-32	290	19	98

Concentrations of TDS, chloride, and sulfate for water samples collected in October 2015 from monitoring wells and supply wells for the “deep zone” of the upper unconfined aquifer are summarized below.

Table 4—Oct. 2015 Concentrations (mg/L) of TDS, Chloride and Sulfate in Deep Zone Monitoring Wells and Production Wells

Deep Zone Well	TDS (mg/L)	Chloride (mg/L)	Sulfate (mg/L)
MW-7	3,800	1,000	<1
MW-8	920	210	12
MW-10	1,200	280	9
MW-11	1,300	300	5
MW-12	1,300	260	16
MW-14	690	120	97
MW-16	3,000	530	130
MW-22	2,100	430	13
PW-6	750	140	68
PW-7	870	160	54
PW-9	1,500	320	87
PW-10	800	180	72
PW-11	450	50	97
PW-12	900	150	120

Because monitoring wells were installed at the site approximately 20 years after facility operations began, pre-facility operation groundwater data is unavailable. Upgradient groundwater (west of the Mendota Pool) has high salinity originating from natural causes and irrigation practices and does not reflect background conditions for the Spreckels site.

In their 2 December 2009 report, *Revised Comments on the Steffens Ponds Closure Plan*, Luhdorff & Scalmanini Consulting Engineers (Luhdorff & Scalmanini) estimated background groundwater quality for the Facility. Luhdorff & Scalmanini used historical and contemporaneous data from onsite and offsite wells not yet affected by the plume originating from the former Steffen's Ponds. Upper Tolerance limits were calculated for the western, central, and eastern portions of the site in both the shallow and deeper groundwater zones. Luhdorff & Scalmanini's background groundwater quality estimates are included in **Table 5**, below.

Table 5—Upper Tolerance Bounds for Background TDS Concentrations			
	Location	Sample Size	Upper Tolerance Bound (mg/L)
Shallow Zone	Western Area	51	1,170
	Central Area	55	740
	Eastern Area	70	362
Deep Zone	Western Area	35	1,100
	Central Area	93	453
	Eastern Area	26	380

The Central Valley Water Board concurs with Luhdorff & Scalmanini's estimates. A calculation of background groundwater quality was also made by consulting engineer John Minney. Mr. Minney's calculation includes data from west of the Mendota Pool, as well as data from wells as much as three miles away from the Facility. Much of this data originates from

groundwater regimes distinctly different than that of the Facility, which are not reflective of groundwater conditions beneath the Facility. Accordingly, the Central Valley Water Board does not consider Mr. Minney's background estimates to be correct for the site.

Past discharges have caused soils and underlying groundwater to be impacted with TDS, chloride and sulfate, at greater than background concentrations. Impacts to groundwater from the Facility are being addressed by a separately-issued Cleanup and Abatement Order.

SMBSC and SSCI propose to close the former surface impoundments by removing impacted sediments and soils from the PCC Ponds and Factory Ponds and incorporating these wastes into the footprint of the Steffen's Ponds. The entire footprint of the former Steffen's Ponds is proposed to be closed as a landfill using an engineered alternative to the prescriptive final cover requirements contained in California Code of Regulations, title 27, section 21090, subdivisions (a)(1)-(3). The proposed final cover is an evapotranspiration (ET) cover design, which is an engineered alternative. In an ET cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the base of the cover.

Section 20080(b) of Title 27 allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. The proposed engineered alternative cover system needs to be consistent with the performance goal addressed by the particular prescriptive standard, and provide protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27. Steffen's Ponds Closure Specification D.1 of this Order requires submittal of final construction and design plans for Executive Officer approval to ensure the ET cover meets the standard for the engineered alternative approved by the Central Valley Water Board.