CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

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Waste Discharge Requirements Order R8-2024-0016

ORDER INFORMATION

Status:	ADOPTED
Program:	Site Cleanup Program
Discharger(s):	Sanmina Corporation
Facility:	Former Sanmina Plant 1 Facility and Michelson Plaza Property
County:	Orange County
Prior Order(s):	(none)

CERTIFICATION

I, JAYNE JOY, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on May 3, 2024.

Jayne Joy
Digitally signed by Jayne Joy
Date: 2024.05.15 09:39:20 -07'00'
Water Boards

JAYNE JOY, P.E.
Executive Officer

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SANTA ANA REGION
ORDER NO. R8-2024-0016

WASTE DISCHARGE REQUIREMENTS FOR IN-SITU CHEMICAL REDUCTION REMEDIATION PILOT TEST AT THE FORMER SANMINA PLANT 1, 18522 VON KARMAN AVENUE, AND MICHELSON PLAZA, 2400 MICHELSON DRIVE, IRVINE, ORANGE COUNTY

FINDINGS

The California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) hereby finds as follows:

Introduction

1. The Santa Ana Water Board is overseeing the cleanup and abatement of pollutants at the Former Sanmina Plant 1 Facility, located at 18522 Von Karman Avenue, Irvine, and the Michelson Plaza Property, located at 2400 Michelson Drive, Irvine (collectively, Site). The Former Sanmina Plant 1 Facility manufactured printed circuit boards at the Site from 1969 to 2004. Historical manufacturing activities included using the solvent trichloroethene (TCE) from about 1980 to 1991. Investigations conducted at the Site have identified volatile organic compounds (VOCs), composed primarily of TCE, as pollutants in groundwater at the Site. The Site is assigned Global Identification No. SL208073862 in GeoTracker, the State Water Resources Control Board's (State Water Board's) internet-accessible database system.

2. Cleanups at polluted sites such as the Former Sanmina Plant 1 Facility may be accomplished in whole or in part via the addition (discharge) of chemicals and other reactive materials (amendments) to soil and groundwater (in-situ), to promote remediation. A person or entity applying or proposing to discharge such amendments to soil or groundwater to promote remediation within a specified treatment zone must file a report of waste discharge (ROWD) pursuant to Water Code section 13260 and obtain waste discharge requirements (WDRs) for the discharge from the Santa Ana Water Board.

3. Sanmina Corporation (Discharger) has proposed to conduct an in-situ groundwater remediation pilot test in the residual source areas at the Former Sanmina Plant 1 Facility and the downgradient plume area at the Michelson Plaza Property to address the VOC concentrations observed in groundwater beneath the Site

(Attachment A). The primary remediation method for the pilot test will be in-situ chemical reduction (ISCR), combined with bioremediation augmentation and enhancement and a carbon-based permeable reactive barrier (PRB). The results of the pilot test will be used to determine the final design of a full-scale ISCR treatment program at the Site.

4. The requirements for this Order were developed based upon the proposed scope of work, background information, and site-specific data presented in *Report of Waste Discharge (ROWD) for In-situ Chemical Reduction Field-Scale Pilot Study* (dated November 7, 2023), as well as electronic submittals to Santa Ana Water Board staff between December 2023 to January 2024.

5. This Order consists of WDRs regulating the ISCR of the specified waste constituents, namely VOCs, in groundwater at the Site. The Santa Ana Water Board has determined that issuance of these individual WDRs is more appropriate than enrollment under Order No. R8-2018-0092, *General Waste Discharge Requirements for In-situ Groundwater Remediation at Sites within the Santa Ana Region* (General Order), given that the extent of the groundwater plume extends beyond the Site boundaries and a compliance point that is located outside of the treatment zone and boundaries of the plume, as required by the General Order, is not available or accessible for this Site.

6. **Executive Officer Delegation of Authority.** The Santa Ana Water Board, through Resolution No. R8-2019-0056, has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the Santa Ana Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223, or this Order explicitly states otherwise. The Santa Ana Water Board authorizes the Executive Officer to make non-substantive changes to this Order to correct typographical errors, including correcting misspellings/grammar, ensuring correct cross-references, correcting formatting/numbering, and conforming changes made during the development and adoption of this Order that were inadvertently not carried through the entire Order. The Executive Officer may also modify or revise Monitoring and Reporting Program R8-2024-0016.

Discharge Characteristics

7. The covered discharge includes ISCR at three test areas (Test Areas A, B, and C) at the Site conducted as a pilot test to verify the effectiveness of ISCR and to obtain additional critical parameters to refine full-scale remedial implementation (Attachment A). Injection activities will begin in Test Area C and will be completed before proceeding with injection activities in Test Area B. Once injection activities in Test Area B are completed, then injection activities will begin in Test Area A.

8. **Test Area A, Former Excavation Source Area.** Up to 1,925 gallons of a combined solution of approximately 2,000 pounds of Sulfidated Micro-Scale Zero-Valent Iron (S-MZVI™), 394 pounds of 3-D MicroEmulsion (3DME®), and 1,745 gallons of water are authorized to be applied into a treatment zone of approximately 400 square feet (sq. ft.) to a depth of approximately 30-35 feet below ground surface (bgs) through 11 injection points using direct push methods.

9. **Test Area B, Residual Source Area.** Up to 6,000 gallons of a combined solution of approximately 2,450 pounds of S-MZVI™, 780 pounds of 3DME®, 18 liters of Bio-Dechlor Inoculum Plus (BDI-Plus™), and 5,740 gallons of water are authorized to be applied into a treatment zone of approximately 250 sq. ft. to a depth of approximately 19-39 feet bgs through four injection points using direct push methods.

10. **Test Area C, Downgradient Plume Area.** Up to 10,800 gallons of a combined solution of approximately 6,069 pounds of S-MZVI™, 6,069 pounds of PlumeStop™, and 9,672 gallons of water are authorized to be applied into a treatment zone of approximately 30 linear feet to a depth of approximately 13-33 feet bgs through 12 injection points using direct push methods.

11. Amendment solutions for each test area will be prepared in batches at an on-Site field trailer equipped with mixing tanks and pumps.

12. The injection rate of the authorized amendments will range between 3 to 10 gallons per minute (gpm) per injection point with a maximum injection pressure of 50 pounds per square inch (psi).

13. A network of eleven groundwater wells will be monitored before and after the ISCR pilot test takes place to ensure that groundwater quality standards are met outside the treatment area in both upgradient and downgradient monitoring wells. The groundwater monitoring wells are identified in Table 1 of the accompanying Monitoring and Reporting Program R8-2024-0016 (M&RP). Similarly, Table 2 of the M&RP states that baseline samples will be collected for all constituents prior to ISCR implementation and post-implementation samples will be collected for select constituents on a monthly and quarterly basis.

Basin Plan and Related Regulatory Considerations

14. Water Code section 13263 authorizes the Santa Ana Water Board to prescribe WDRs as to the nature of any proposed or existing discharge with relation to the conditions existing in the disposal area or receiving waters upon, or into, which the discharge is made or proposed. The WDRs must implement relevant water quality control plans and take into consideration the beneficial uses of water to be protected, the water quality objectives (WQOs) reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Water Code section 13241.

15. The Santa Ana Water Board adopted a revised Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) on March 11, 1994. The Basin Plan was subsequently approved by the State Water Board on July 21, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Santa Ana Water Board and approved by the State Water Board as recently as November 2022. The Basin Plan identifies beneficial uses and WQOs for waters within the Santa Ana Region, including various Groundwater Management Zones (GMZs).

16. The Site is located within the Irvine GMZ. The Basin Plan states that the beneficial uses of groundwater in the Irvine GMZ are:

    a. Municipal and Domestic Supply (MUN)

    b. Agricultural Supply (AGR)

    c. Industrial Service Supply (IND); and

    d. Industrial Process Supply (PROC).

17. This Order establishes WDRs pursuant to division 7, chapter 4, article 4 of the Water Code for discharges that are not subject to regulation under Clean Water Act section 402 (33 U.S.C. § 1342). These WDRs implement numeric and narrative WQOs for groundwater and surface waters established by the Basin Plan and other applicable state laws and policies.

18. 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. Both the State Water Board and the Santa Ana Water Board recognized this right in Resolution No. 2016-0010 and Resolution R8-2019-0079, respectively. This Order supports the human right to water by including conditions to ensure proper cleanup and remediation of pollutants at the Site.

19. Consistent with Water Code section 13241, the Santa Ana Water Board in establishing the requirements contained herein, considered factors including, but not limited to, the following:

    a. Past, present, and probable future beneficial uses of water

    b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto

    c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area

    d. Economic considerations

    e. The need for developing housing within the region; and

    f. The need to develop and use recycled water.

20. Water Code section 13267 authorizes the Santa Ana Water Board to require technical and monitoring reports. The M&RP establishes monitoring and reporting requirements necessary to evaluate compliance with the terms and conditions of this Order and to ensure protection of waters of the state. The burden, including costs, of preparing the technical and monitoring reports bears a reasonable relationship to the need for the reports and benefits to be obtained from them.

21. In accordance with California Code of Regulations, Title 23, section 2200, a discharger for whom WDRs have been prescribed is required to submit an annual fee to the State Water Board. The annual fee is based on (1) the threat to water quality and (2) the complexity of the discharge, in accordance with the ratings in the annual fee schedule contained in section 2200. It is expected that the discharge covered by this Order will have a threat to water quality of Category 3 and a complexity rating of B, for a combined rating of 3-B. Category 3 is the lowest threat to water quality category, and Category B is the middle complexity rating, for dischargers that have a physical, chemical or biological treatment system, and do not meet the higher complexity rating definition for Category A. Discharges with a rating of 3-B contain pollutants that could degrade water quality or cause a minor impairment of designated beneficial uses within the treatment zone of the receiving groundwater.

Antidegradation Analysis

22. Pursuant to State Water Board Resolution No. 92-49, the Santa Ana Water Board must require actions for cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance to conform to the provisions of State Water Board Resolution No. 68-16 (Resolution No. 68-16), Statement of Policy with Respect to Maintaining High Quality Water in California, and the Basin Plan. The Santa Ana Water Board must ensure that Dischargers are required to cleanup and abate the effects of discharges in a manner that promotes attainment of background water quality, or if background levels of water quality cannot be restored, the best water quality that is reasonable and complies with the Basin Plan, including applicable WQOs.

23. Resolution No. 68-16 generally prohibits the Santa Ana Water Board from authorizing discharges that will result in the degradation of high quality waters, unless it is demonstrated that any change in water quality will: (a) be consistent with maximum benefit to the people of the state, (b) not unreasonably affect beneficial uses, and (c) not result in water quality less than that prescribed in state and regional policies (e.g., the violation of one or more WQOs). The Discharger must also employ best practicable treatment or control (BPTC) to minimize the degradation of high quality waters.

24. While the Irvine GMZ has not been established as a high quality water, the temporary degradation allowed by this Order within the in-situ treatment zone is consistent with Resolution No. 68-16 because: (a) the purpose of discharging

amendments to the soil and groundwater is to accelerate and enhance remediation of both soil and groundwater pollution, and such remediation will benefit the people of the state; (b) the degradation is limited in scope and duration; (c) best practicable treatment and control, including adequate monitoring and hydraulic control to assure protection of water quality, are required by this Order; and (d) the proposed discharge is not anticipated to cause WQOs to be exceeded beyond the observation monitoring well network, and potential increases in concentrations above WQOs within the zone of distribution are expected to be temporary, and not result in any long-term deleterious effects on water quality.

CEQA and Public Participation

25. The Santa Ana Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA; Public Resources Code, section 21100 et seq.). The issuance of WDRs for the cleanup of the Site is exempt from CEQA in accordance with California Code of Regulations, Title 14, section 15308 and section 15330.

26. In the past, the Santa Ana Water Board has conducted public outreach at various stages of cleanup at the Site, including in January 2020 distributing a Fact Sheet concerning the cleanup to nearby property owners surrounding the Site.

27. The Santa Ana Water Board has notified tribal and/or disadvantaged communities in the vicinity of the Site of its intent to prescribe WDRs for the discharge associated with the ISCR pilot test in accordance with Water Code section 189.7.

28. The Santa Ana Water Board has notified interested agencies and persons of its intent to prescribe WDRs for the discharge associated with the ISCR pilot test and has provided them with an opportunity to submit written comments.

29. The Santa Ana Water Board, in a public meeting held on May 3, 2024, heard and considered all oral comments pertaining to the WDRs.

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that the Discharger shall comply with the following:

A. Discharge Prohibitions

1. The discharge of amendments or waste in a manner other than as described in this Order is prohibited.

2. The discharge of treated or untreated solid or liquid waste to surface waters or tributaries of surface waters is prohibited, unless authorized under a separate permit issued by the Santa Ana Water Board or State Water Board.

3. The use of any amendment other than the compounds identified in Findings 8, 9, and 10 above is prohibited.

4. The discharge of any radiological, chemical, or biological warfare agent or high-level radiological waste is prohibited.

5. Discharges to groundwater and the surrounding geological formation that are conducted in a manner that increases the mobility and/or extent of the contaminants in groundwater through fracturing of the geologic formation are prohibited. Additionally, fracturing of an aquitard that separates two distinct water-bearing zones is prohibited under any condition.

6. The discharge of amendments or waste to property that is not owned or "under the control" of the Discharger is prohibited. The property "under the control" of the Discharger includes the horizontal borders of the treatment zone where the Discharger holds an access agreement with the overlying property owner for purposes of investigation and remediation.

B. Discharge Limitations and Specifications

1. The amendment injection program shall be implemented in such a manner as to minimize or prevent the surfacing of wastes or an overflow of wastes or chemicals used in the treatment process. Any injection that results in excessive surfacing of waste shall be discontinued, and measures shall immediately be taken to eliminate further surfacing.

2. The discharge of amendments shall not cause the total dissolved solids (TDS) concentration to exceed 910 milligrams per liter (mg/L), as specified in Table 4-1 of the Basin Plan for the Irvine Groundwater Management Zone (GMZ), at any location outside the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP. If the background TDS levels prior to injection of amendment exceed the water quality objective for TDS in the Irvine GMZ, the discharge of amendments shall not cause increases of this parameter over the background levels.

3. The discharge of amendments shall not cause nitrogen as nitrate-nitrogen (NO3-N) concentration to exceed 5.9 mg/L, as specified in Table 4-1 of the Basin Plan for the Irvine GMZ, at any point outside the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP. If the background NO3-N levels prior to injection of amendment exceed the water quality objective for NO3-N in the Irvine GMZ, the discharge of amendments shall not cause increases of this constituent over the background levels.

4. The discharge of amendments shall not cause the pH of the receiving groundwater to either exceed or be below the range of 6 to 9, at any point

outside the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP.

5. The discharge of amendments shall not cause the remediation-target constituents, including their intermediate degradation products, to exceed background concentrations at any location outside of the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP.

6. The discharge of amendments shall not cause any other applicable WQOs specified in the Basin Plan to be exceeded in the affected groundwater at any point outside the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP. If the background levels for any constituents prior to injection of amendment exceed WQOs for the Irvine GMZ, the discharge of amendments shall not cause increases of constituents over the background levels.

7. The discharge shall not cause groundwater to contain taste- or odor-producing substances at concentrations that cause a nuisance or adversely affect beneficial uses at any location outside the treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP.

8. The discharge of amendments shall not cause the concentrations of chemical constituents of the receiving groundwater, which is designated for use as domestic and municipal supply, to exceed state or federal maximum contaminant levels (MCLs) and/or notification levels (NLs) for drinking water at any location outside treatment area, with compliance determined at the upgradient and downgradient wells specified in the M&RP. If the background levels for any constituents prior to injection of amendment exceed the state or federal MCLs and/or NLs, the discharge of amendments shall not cause increases of constituents over the background levels.

9. The injection or reuse of treated groundwater shall be limited to the same aquifer where the impacted groundwater was withdrawn for treatment. Re-injection of treated groundwater to which materials or amendments have been added shall be limited to the same aquifer and within the treatment zone.

C. Monitoring and Reporting Program

1. The Discharger shall submit technical and monitoring reports to the Santa Ana Water Board in accordance with the M&RP and as amended by the Executive Officer.

2. Among other things, the M&RP requires the Discharger to evaluate changes in geochemistry that may alter the oxidation/reduction state of one or more constituents, and consequently may result in the production of undesirable compounds (such as hexavalent chromium) during the oxidation or reduction

process of the in-situ remediation under these WDRs. Anticipated negative impacts to geochemistry as a result of implementation of remediation at the Site shall be addressed pursuant to the Contingency Plan identified in item K of the ROWD.

D. Provisions

1. **Noncompliance.** The Discharger shall comply with all terms, requirements, and conditions of this Order and the M&RP. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (Wat. Code, §13000 et seq.) and grounds for: (1) an enforcement action; (2) termination, revocation and reissuance, or modification of this Order; or (3) denial of an Order renewal application.

2. **Proper Operation and Maintenance.** The Discharger shall, at all times, properly operate and maintain all facilities and systems of management and control (and related appurtenances) installed or used by the Discharger to achieve compliance with this Order. Proper operation and maintenance include, but are not limited to, effective performance, sufficient funding, appropriate quality assurance procedures, proper operator staffing and training, and adequate process controls. This provision requires the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of this Order.

3. **Reporting of Noncompliance.** The Discharger shall report any noncompliance that may endanger the environment. Information shall be provided orally to the Santa Ana Water Board office and the Office of Emergency Services within 24 hours of when the Discharger becomes aware of the incident. If noncompliance occurs outside of business hours, the Discharger shall leave a message on the Santa Ana Water Board's office voicemail. A written report shall also be provided within five business days of the time the Discharger becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance. All other forms of noncompliance shall be reported with the Discharger's next scheduled Monitoring Report, or earlier if requested by the Executive Officer.

4. **Duty to Mitigate.** The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.

5. **Familiarity with Order.** The Discharger shall ensure that all site-operating personnel are familiar with the content of this Order and maintain a copy of this Order at the Site.

6. **Material Changes.** Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall report all pertinent information in writing to the Santa Ana Water Board, and if required by the Santa Ana Water Board, obtain revised requirements before any modifications are implemented. A material change includes, but is not limited to, the following:

    a. An increase in location, area, or depth to be treated beyond that specified in the Order; or

    b. A change in the type(s) of amendment(s), injection volumes, or the amendment solution mixing ratios being used at the Site.

7. **Inspection and Entry.** The Discharger shall allow the Santa Ana Water Board or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter upon the premises regulated by this Order, or the place where records are kept under the conditions of this Order

    b. Have access to and copy, at reasonable times, any records kept under the conditions of this Order

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

    d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Order, or as otherwise authorized by the Water Code, any substances or parameters at any location.

8. **Records Retention.** The Discharger shall retain copies of all reports required by this Order and the M&RP. Records shall be maintained for the duration of cleanup activities and a minimum of five years from the date of the sample, measurement, report, or application. Records may be maintained electronically. This period may be extended during the course of any unresolved litigation or when requested by the Santa Ana Water Board's Executive Officer.

9. **Change in Ownership.** This Order is not transferable to any person without written approval by the Santa Ana Water Board's Executive Officer. Prior to any change in ownership, the Discharger shall notify the Executive Officer in writing at least 30 days in advance. The notice must include a written transfer agreement between the existing owner and the new owner. At a minimum, the transfer agreement must contain a specific date for transfer of responsibility for compliance with this Order and an acknowledgment that the new owner or operator is liable for compliance with this Order from the date of transfer. The Santa Ana Water Board may require modification or revocation and reissuance

of this Order to change the name of the Discharger and incorporate other requirements as may be necessary under the Water Code.

10. **Monitoring Wells.** The Discharger shall comply with all notice and reporting requirements of the California Department of Water Resources and with any well permitting requirements imposed by a local agency regarding the construction, alteration, destruction, maintenance, or abandonment of any monitoring wells used for compliance with this Order and the M&RP, as required under Water Code sections 13750 and 13755 and local agency requirements.

11. **Qualified Professionals.** In accordance with 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 California registered professionals (i.e., civil engineer, engineering geologist, geologist, etc.) competent and proficient in the fields pertinent to the required activities. All technical reports required under this Order that contain work plans, describe the conduct of investigations and studies, or 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 contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal. Additionally, all field activities are to be conducted under the direct supervision of one or more of these professionals.

12. **Certification of Submitted Documents.**

    a. All reports required by this Order and any other information required by the Santa Ana Water Board shall be signed and certified as follows:

        i. For a corporation: by a responsible corporate officer of at least the level of vice-president

        ii. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively

        iii. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected official

        iv. For a military installation: by the base commander or the person with overall responsibility for environmental matters in that branch of the military.

    b. Documents may also be signed and certified by a duly authorized representative of a person identified in subsection (a) of this provision. An individual is a duly authorized representative only if all the following are true:

i. The authorization is made in writing by the person described in subsection (a) of this provision

ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and

iii. The written authorization is submitted to the Executive Officer.

c. Any person signing a document under this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. **Compliance with Other Laws.** This Order does not authorize the violation of any other applicable federal, state, or local laws and regulations.

14. **Other Permits.** This Order does not alleviate the responsibility of the Discharger to obtain other applicable local, state, and federal permits necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.

15. **No Vested Right to Discharge.** In accordance with Water Code section 13263(g), this Order does not create a vested right to continue to discharge and is subject to rescission and/or modification. The discharge of waste into the waters of the state is a privilege, not a right.

16. **Modification, Revocation, Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for an Order modification, rescission, or reissuance, or the Discharger's notification of planned changes or anticipated noncompliance, does not stay any Order condition. Causes for modification include, but are not limited to, the violation of any term or condition contained in this Order, a material change in the character, location, or volume of discharge, a change in land application plans or disposal practices, or the adoption of new regulations by the State Water Board, Santa Ana Water Board (including revisions to the Basin Plan), or federal government.

17. **Severability.** The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

18. **Effective Date.** This Order becomes effective on the date of adoption by the Santa Ana Water Board.

LIST OF ATTACHMENTS

Attachment A – Maps

Attachment B – Monitoring and Reporting Program R8-2024-0016

ENFORCEMENT

The Santa Ana Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to timely comply with this Order or any provisions of the M&RP may subject the Discharger to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350, a Time Schedule Order (TSO) issued pursuant to Water Code sections 13300 and 13308, or referral to the California Attorney General for recovery of judicial civil liability.

ADMINISTRATIVE REVIEW

Any person aggrieved by this Santa Ana Water Board action may petition the State Water Resources Control Board for review in accordance with Water Code section 13320 and California Code of Regulations, Title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Resources Control Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Resources Control Board by 5:00 p.m. on the next business day. The law and regulations applicable to filing petitions are available on the State Water Resources Control Board website (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.

Attachment A – Maps

Figure 1: Project Site

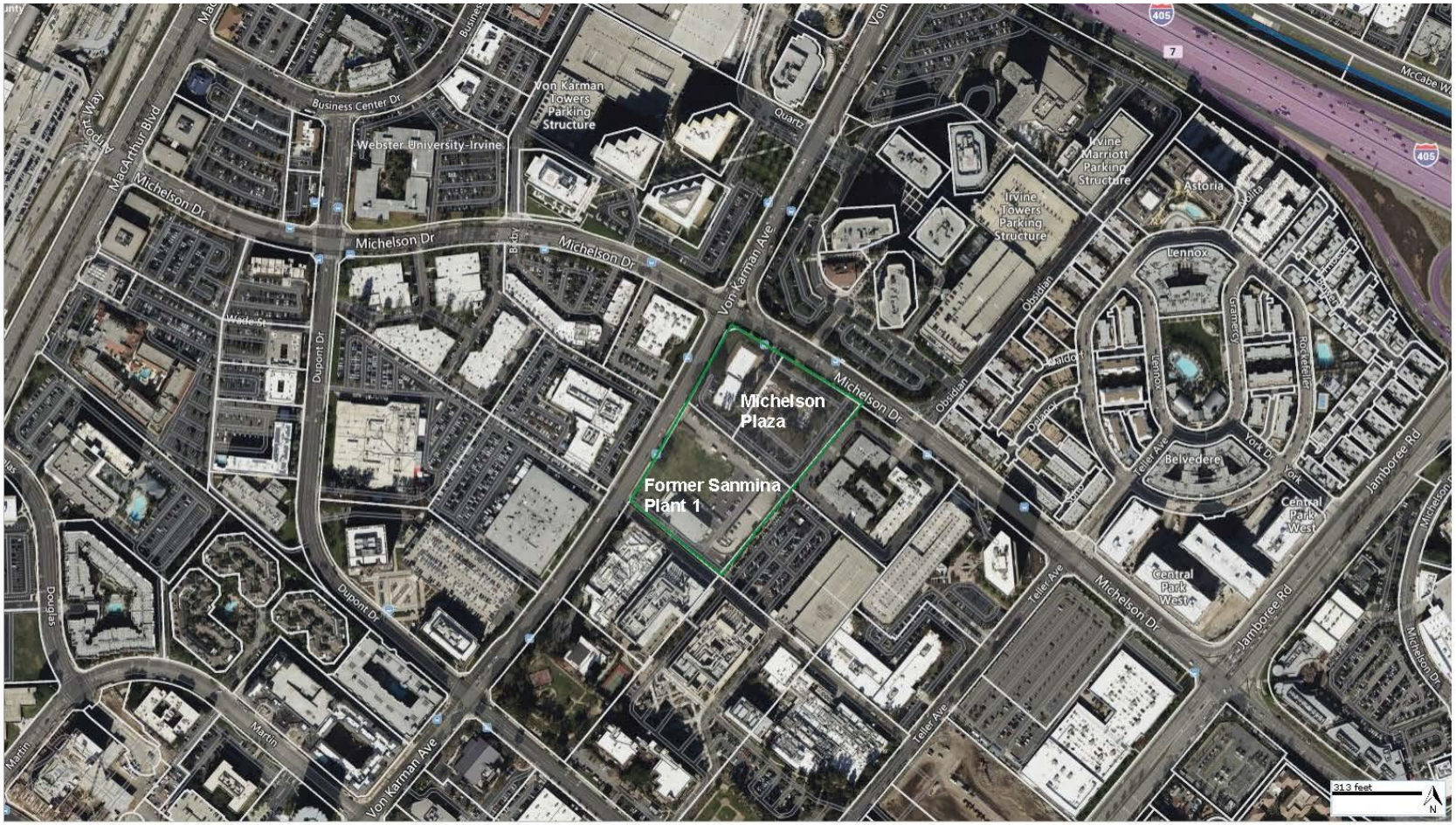
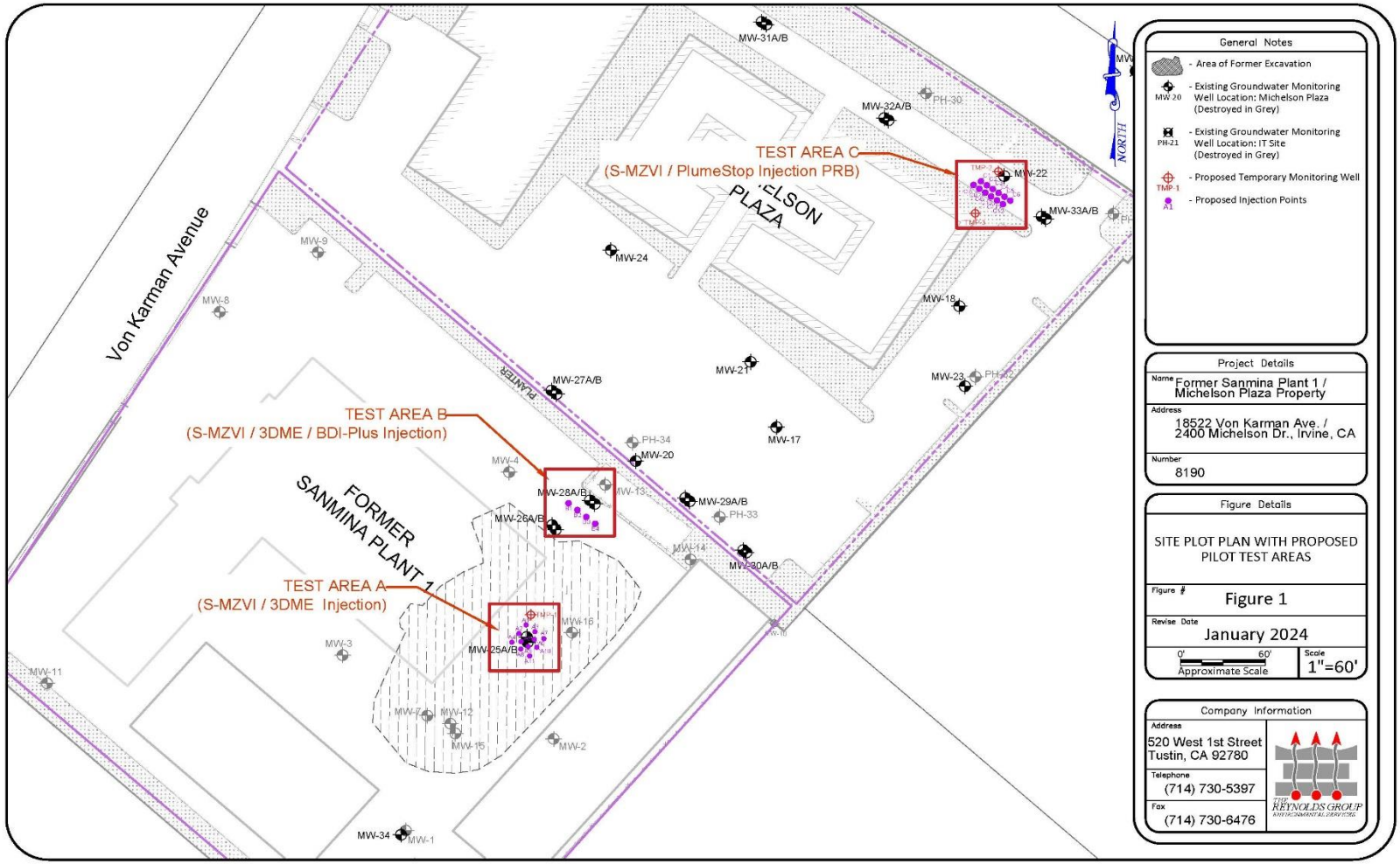


Figure 2: Site Plot Plan with Proposed Pilot Test Areas



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

MONITORING AND REPORTING PROGRAM NO. R8-2024-0016 FOR IN-SITU CHEMICAL REDUCTION REMEDIATION PILOT TEST AT THE FORMER SANMINA PLANT 1, 18522 VON KARMAN AVENUE, AND MICHELSON PLAZA, 2400 MICHELSON DRIVE, IRVINE, ORANGE COUNTY

(DISCHARGE AUTHORIZED ON MAY 3, 2024)

This Monitoring and Reporting Program (M&RP) is issued to Sanmina Corporation (Discharger) pursuant to Water Code section 13267. The monitoring requirements in this M&RP are necessary to determine if the Discharger is in compliance with Waste Discharge Requirements (WDRs) Order R8-2024-0016 (Order) authorizing in-situ remediation of groundwater at Former Sanmina Plant 1, located at 18522 Von Karman Avenue, Irvine, and Michelson Plaza, located at 2400 Michelson Drive, Irvine (collectively, Site) and to ensure protection of waters of the state. The Santa Ana Water Board authorizes the Executive Officer to modify or revise this M&RP. The Discharger shall not implement any changes to this M&RP unless a revised M&RP is issued by the California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) or its Executive Officer.

A. Monitoring Requirements

1. All sampling, sample preservation, transport and analyses must be conducted in accordance with the current edition of *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association, American Water Works Association, and Water Environment Federation) and/or with U.S. Environmental Protection Agency's guidelines for sampling, collection, and preservation, unless other test procedures have been specified in this Order or by the Executive Officer.

2. Unless otherwise permitted by the Executive Officer, all analyses shall be conducted at a laboratory certified to perform such analyses by the State Water Resources Control Board, Division of Drinking Water's Environmental Laboratory Accreditation Program (ELAP). Certified laboratories can be found on the ELAP website (www.waterboards.ca.gov\elap).

3. Laboratory data must quantify each constituent down to the approved reporting levels for specific constituents. All analytical data shall be reported with method detection limits (MDLs) and with either the reporting level or limits of quantitation (LOQs) according to 40 Code of Federal Regulations part 136, Appendix B.

4. The Discharger shall notify the Executive Officer within 24 hours by telephone of any adverse condition resulting from the discharge; such notification shall be affirmed in writing within five working days.
5. If the Discharger monitors any parameters more frequently than required by this M&RP, using applicable test procedures, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's monitoring report. The increased frequency of monitoring shall also be reported.
6. Monitoring data collected to meet the requirements of this M&RP must be collected and analyzed in a manner that ensures the quality of the data. The Discharger must follow sampling and analytical procedures as specified in the approved Quality Assurance Project Plan (QAPP).
7. All monitoring instruments and devices which are used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
8. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
9. Monthly samples shall be collected on any representative day of each month.
10. Quarterly samples shall be collected on any representative day of each quarter of the year. The explicit months contained within each quarterly period are defined in Section D.
11. The Discharger shall assure that records of all monitoring information are maintained and accessible for a period of at least five years from the date of the sample, report, or application. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or at the request of the Executive Officer at any time. Records of monitoring information shall include:
    a. The date, exact place, and time of sampling or measurements
    b. The individual(s) who performed the sampling and/or measurements
    c. The methods used for groundwater purging/sampling/measuring
    d. The date(s) and location(s) where analyses were performed
    e. The individual(s) who performed the analyses
    f. The analytical techniques or methods used; and
    g. All sampling and analytical results, including:
        i. units of measurement used

ii. minimum reporting limit for the analysis (minimum level)

iii. results less than the reporting limit but above the method detection limit (MDL)

iv. data qualifiers and a description of the qualifiers

v. quality control test results (and a written copy of the laboratory quality assurance plan)

vi. dilution factors, if used; and

vii. sample matrix type.

12. The Discharger shall file a report of any material change or proposed change in the character, location, or volume of the discharge that is not mentioned in the Remedial Action Plan (RAP).

B. Monitoring Plan

A sampling station shall be established for each point of discharge and shall be located where representative samples of the discharge can be obtained. The monitoring wells specified in Table 1 shall be used for the monitoring program.[1] Table 2 provides the monitoring parameters that must be sampled and the required frequency of sampling.

Table 1. Site Well Information

Well ID[1,2]	Well Type	Latitude[3]	Longitude[3]	Elevation (feet amsl)[4,5]
MW-34^{L}	Upgradient Monitoring	35.0065318	-119.6292187	43.30
MW-25A^{U}	Monitoring – Test Area A	35.0069308	-119.6289303	42.60
MW-25B^{L}	Monitoring – Test Area A	35.00692	-119.6289282	42.59
TMP-1^{L}	Monitoring – Test Area A	33.674487	-117.853308	43
MW-26A^{U}	Monitoring – Test Area B	35.0071551	-119.6288751	41.61

[1] A Groundwater Monitoring Program is currently established for the Site and will continue concurrently with the M&RP for the In-situ Remediation Pilot Test. The Groundwater Monitoring Program currently includes quarterly monitoring and sampling for 18 Site wells that are not included in the M&RP.

Well ID[1,2]	Well Type	Latitude[3]	Longitude[3]	Elevation (feet amsl)[4,5]
MW-26B^{L}	Monitoring – Test Area B	35.007146	-119.6288665	41.64
MW-28A^{U}	Monitoring – Test Area B	35.0071987	-119.6287755	40.73
MW-28B^{L}	Monitoring – Test Area B	35.0072056	-119.6287871	40.75
MW-22^{U}	Monitoring – Test Area C	35.0078662	-119.6278237	38.16
TMP-2^{L}	Monitoring – Test Area C	33.675403	-117.852244	38
TMP-3^{U}	Monitoring – Test Area C	33.675293	-117.852312	39
A1	Injection Point – Test Area A	33.674481	-117.853322	43
A2	Injection Point – Test Area A	33.674464	-117.853339	43
A3	Injection Point – Test Area A	33.674467	-117.853303	43
A4	Injection Point – Test Area A	33.674444	-117.853353	43
A5	Injection Point – Test Area A	33.674447	-117.853333	43
A6	Injection Point – Test Area A	33.674453	-117.853303	43
A7	Injection Point – Test Area A	33.674453	-117.853281	43
A8	Injection Point – Test Area A	33.674431	-117.853333	43
A9	Injection Point – Test Area A	33.674436	-117.853317	43
A10	Injection Point – Test Area A	33.674436	-117.853297	43
A11	Injection Point – Test Area A	33.674419	-117.853314	43
B1	Injection Point – Test Area B	33.674725	-117.853228	42
B2	Injection Point – Test Area B	33.674711	-117.853211	42

Well ID[1,2]	Well Type	Latitude[3]	Longitude[3]	Elevation (feet amsl)[4,5]
B3	Injection Point – Test Area B	33.674697	-117.853189	42
B4	Injection Point – Test Area B	33.674683	-117.853167	42
C1	Injection Point – Test Area C	33.675381	-117.852289	38
C2	Injection Point – Test Area C	33.675372	-117.852275	38
C3	Injection Point – Test Area C	33.675364	-117.852261	38
C4	Injection Point – Test Area C	33.675358	-117.852247	38
C5	Injection Point – Test Area C	33.675350	-117.852233	38
C6	Injection Point – Test Area C	33.675342	-117.852222	38
C7	Injection Point – Test Area C	33.675372	-117.852306	38
C8	Injection Point – Test Area C	33.675364	-117.852292	38
C9	Injection Point – Test Area C	33.675358	-117.852281	38
C10	Injection Point – Test Area C	33.675350	-117.852267	38
C11	Injection Point – Test Area C	33.675342	-117.852253	38
C12	Injection Point – Test Area C	33.675336	-117.852236	38

Table 1 Notes:
1. MW-22, MW-25A/B, MW-26A/B, MW-28A/B, and MW-34 are existing groundwater monitoring wells. TMP-1, TMP-2, and TMP-3 are proposed temporary groundwater monitoring wells.
2. ^{U} indicates monitoring well is screened in the upper Middle Sand Zone
   ^{L} indicates monitoring well is screened in the lower Middle Sand Zone
3. Coordinates for TMP-1, TMP-2, TMP-3, A-1 through A-11, B-1 through B-4, and C-1 through C-12 are approximate
4. Elevations for TMP-1, TMP-2, TMP-3, A-1 through A-11, B-1 through B-4, and C-1 through C-12 are approximate
5. Elevation is measured from the top of the well casing in feet above mean sea level (amsl)

Table 2. Monitoring Parameters and Frequency[1]

Sample Parameter	Parameter Type	Unit	Method of Analysis	Sample Location	Baseline	Months 1 and 2	Quarters 1, 2, 3, and 4
Volatile Organic Compounds	Contaminants of Concern	µg/L	EPA 8260B (full scan)	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
1,4-Dioxane	Contaminants of Concern	µg/L	EPA 8270C SIM	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
Ethene, Ethane, Methane	Contaminants of Concern	µg/L	ASTM D1945	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Dissolved Title 22 metals	Geochemistry Analysis	mg/L	EPA 6010B	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Total and dissolved Manganese	Geochemistry Analysis	mg/L	EPA 6010B	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Chloride, Nitrate, Nitrite, Sulfate	Geochemistry Analysis	mg/L	EPA 300.0	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
Total and dissolved Iron (ferrous and ferric)	Geochemistry Analysis	mg/L	EPA 6010B / SM 3500-Fe D	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
Total Dissolved Solids	Geochemistry Analysis	mg/L	SM 2540C	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Field Parameters[2]	General Groundwater Parameters	Various[2]	Field Meter	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
Total Organic Carbon	General Groundwater Parameters	mg/L	SM 5310C	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X	X	X
Alkalinity	General Groundwater Parameters	mg/L	SM 2320B	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Total biomass and DNA analysis	Microbial Analysis	cells/mL	CENSUS qPCR / PLFA	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X
Metabolic Acids / Volatile Fatty Acids	Carbon Substrate Usage	mg/L	VFA-IC	MW-22, MW-25A/B, MW-26A/B, MW-28A/B, MW-34, TMP-1, TMP-2, TMP-3	X		X

Table 2 Notes:
Abbreviations: mg/L = milligrams per liter; µg/L = micrograms per liter; mV = millivolts; µS/cm = microsiemens per centimeter; °C = degrees Celsius; NTU = nephelometric turbidity units; cells/mL = cells per milliliter
1. Monitoring parameters and frequency are subject to modification by the Executive Officer, as deemed appropriate. A minimum of four quarterly groundwater monitoring events are required.
2. Field parameters include Dissolved Oxygen (mg/L), Oxidation Reduction Potential (mV), pH (Standard Unit), Specific Conductance (µS/cm), Temperature (°C), and Turbidity (NTU).

C. Reporting Requirements

1. All analytical data shall be reported with method detection limits (MDLs)[2] and with identification of either reporting level or limits of quantitation (LOQs).
2. Laboratory data for effluent samples must quantify each constituent down to the approved reporting levels for specific constituents. Any internal quality control data associated with the sample must be reported when requested by the Executive Officer. The Santa Ana Water Board will reject the quantified laboratory data if quality control data are unavailable or unacceptable.
3. Discharge monitoring data shall be submitted in a format that is acceptable to the Executive Officer and must be arranged in a manner that clearly demonstrates compliance and/or noncompliance with this Order. Monitoring results shall be reported in a tabulated format which identifies all applicable chemical constituents required to be analyzed under the monitoring program and presents the associated sample collection dates and analytical detections for each compound in relation to waste discharge limitations and requirements established by this Order.
4. For every item of monitoring data where the requirements are not met, the monitoring report shall include a statement discussing the reasons for noncompliance, and of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Executive Officer by letter when compliance with the time schedule has been achieved.
5. Conclusions and recommendations regarding continuation of the existing monitoring program or any proposed modifications thereto shall be clearly presented for agency consideration, along with appropriate supporting justification or rationale.
6. All reports, plans and documents required under the Order and this M&RP shall be prepared under the direction of appropriately qualified professionals. The lead professional performing engineering and geologic evaluations and judgments shall sign and affix their professional geologist or civil engineering license stamp to all technical reports, plans or documents submitted to the Santa Ana Water Board.

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[2] The standardized test procedure to be used to determine the method detection limit (MDL) is given at Appendix B, "Definition and Procedure for the Determination of the Method Detection Limit" of 40 CFR 136.

7. All reports and/or information submitted to the Santa Ana Water Board shall be signed by a responsible officer or duly authorized representative of the discharger and shall be submitted under penalty of perjury.

8. Monitoring reports are required to be submitted electronically via the State Water Resources Control Board's GeoTracker database using Global Identification No. WDR100056226, which is accessed at https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=WDR100056226. To comply with state regulations, the submission to the GeoTracker database must include the following minimum information:

    a. The elevation of groundwater in any permanent monitoring well relative to the surveyed elevation

    b. A site map or maps showing the location of all sampling points referred to in the report

    c. The depth to the screened interval and the length of screened interval of any permanent monitoring well

    d. Boring logs, in PDF format

    e. Laboratory analytical data from any soil testing and/or groundwater monitoring shall be reported in Electronic Deliverable Format (EDF) in accordance with Water Code section 13195 et. seq. requirements, if applicable; and

    f. A complete copy of the report, in PDF format, which includes the signed transmittal letter and professional certification.

D. Report Schedule

Monitoring reports must include all data collected during the monitoring period, and must be submitted on a quarterly basis to Santa Ana Water Board staff in accordance with the following schedule:

Monitoring Period	Report Due
January – March	May 1st
April – June	August 1st
July – September	November 1st
October – December	February 1st

The Executive Officer has the authority to change the report submittal schedule, if deemed necessary, based on changes to Site conditions.

Monitoring reports shall be submitted to:

Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501

I, JAYNE JOY, Executive Officer, hereby certify that the following is a full, true, and correct copy of the Monitoring and Reporting Program adopted by the California Regional Water Quality Control Board, Santa Ana Region, on May 3, 2024.

Jayne Joy
Digitally signed by Jayne Joy
Date: 2024.05.15 09:39:40 -07'00'
Water Boards

JAYNE JOY, P.E.
Executive Officer

ENFORCEMENT

The Santa Ana Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to timely comply with any provisions of this Monitoring and Reporting Program may subject the Discharger to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350, a Time Schedule Order (TSO) issued pursuant to Water Code sections 13300 and 13308, or referral to the California Attorney General for recovery of judicial civil liability.

ADMINISTRATIVE REVIEW

Any person aggrieved by this Santa Ana Water Board action may petition the State Water Resources Control Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Resources Control Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Resources Control Board by 5:00 p.m. on the next business day. The law and regulations applicable to filing petitions are available on the State Water Resources Control Board website (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.