CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

DRAFT CLEANUP AND ABATEMENT ORDER NO. R3-2022-0016
Issued to
The County of San Luis Obispo
for the
LOS OSOS CLOSED LANDFILL
2285 TURRI ROAD, SAN LUIS OBISPO, SAN LUIS OBISPO COUNTY

This Cleanup and Abatement Order No. R3-2022-0016 (Order) is issued to the County of San Luis Obispo (hereinafter referred to as Discharger) based on provisions of Water Code sections 13304 and 13267, which authorize the California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) to issue this Cleanup and Abatement Order and require the submittal of technical reports.

FINDINGS

The Central Coast Water Board finds that:

Site Description and Location

1. The 25-acre unlined Los Osos Closed Landfill (Landfill or Site) is located at 2285 Turri Road, San Luis Obispo, approximately 1.5 miles northeast of the community of Los Osos in San Luis Obispo County (**Attachment A, Figure 1** and **Figure 2**). The location is described as Section 16, Township 30 south, Range 11 east, Mount Diablo Base Line and Meridian. The Assessor Parcel Number for the Landfill property is 067-011-047.

2. The Landfill is currently permitted by Waste Discharge Requirements (WDRs) Order No. R3-2007-0023 (Landfill Order) as a closed non-hazardous waste landfill under California Code of Regulations (CCR), title 27. Post closure maintenance and monitoring at the Landfill will continue under the Landfill Order or a successor permit. Additional Site Regulation History is described in **Attachment B**, which is incorporated herein.

3. The Landfill is located adjacent to and upslope of Warden Creek, a seasonally flowing creek, which joins Los Osos Creek half a mile downstream from the Landfill and then discharges to Morro Bay approximately two miles from the Landfill. Both Warden Creek and Los Osos Creek are waters of the United States.

4. The Landfill is located within the Los Osos Hydrologic Unit. Groundwater beneath and near the Landfill are waters of the State. Groundwater occurs beneath the Landfill in clayey sandstone bedrock of the Paso Robles Formation and recent alluvial deposits overlying the Paso Robles Formation (**Attachment A**, **Figure 3**). The Franciscan Complex, which underlies the Paso Robles Formation, is non-water bearing. On the south side of Warden Creek, groundwater occurs in both the recent alluvial deposits and in the underlying Paso Robles Formation. The recent alluvial deposits thicken to the south toward the valley center and away from Warden Creek, while to the north the alluvial deposits pinch out against the Paso Robles Formation beneath Warden Creek. The contact between the alluvial deposits and Paso Robles Formation is gradational and is not a barrier to groundwater flow. Groundwater beneath the Landfill generally flows south toward Warden Creek. Shallow groundwater near Warden Creek periodically switches flow direction. Warden Creek is a gaining and a losing stream depending on the time of year. During the rainy season, Warden Creek appears to recharge the alluvial deposits, and groundwater flows to the south and west. In the summer months, Warden Creek acts as a drain, and groundwater flow within the alluvial deposits to the north and east.

5. In the monitoring reports submitted to comply with the Landfill Order, the County designates the water-bearing sediments of recent alluvial deposits and the Paso Robles Formation into a shallow zone and a deep zone for water quality monitoring purposes. The shallow groundwater bearing-zone is within the alluvial deposits and clayey sandstone whereas the deeper groundwater-bearing zone is within gravelly sandstone. The two zones have different measured hydraulic conductivities. Groundwater in the alluvial deposits and the upper portion of the Paso Robles Formation represent the shallow zone, and the gravelly sandstone at the base of the Paso Robles Formation represents the deep zone.

6. In 1958, waste disposal operations at the Landfill began. The Landfill operators placed waste as area fill on native silty clay, sandy clay, and sandy soils, without a liner or leachate collection and removal system.

7. The Landfill accepted waste until November 26, 1988, with approximately 838,000 tons of waste in place.

Landfill Owner and Operator History

8. George Sousa acquired the Landfill property on November 13, 1955. On March 5, 1985, George Sousa transferred the property to George G. Martines and Ann E. Martines. On January 11, 2002, George G. Martines and Ann E. Martines transferred the Landfill property to Jeena W. Piccuta. Upon Jeena W. Piccuta's death on October 20, 2016, the Landfill property transferred to Charles A. Piccuta. On May 17, 2021, Charles A. Piccuta transferred the Landfill property to the Charles Picutta Living Trust, the current Landfill property owner.

9. The County leased the Landfill from its owners from December 1, 1958 through November 30, 1988.

10. From December 1, 1958 through November 30, 1988, the County further leased the Landfill and its operation to William Gibbs and Marjorie Ann Gibbs (together, "Gibbs"). On July 30, 1982, Marjorie Ann Gibbs assigned to Western Lion Limited the lease between the County and the Gibbs dated October 16, 1978, and its amendment dated November 23, 1981.

11. The County entered into a "Landfill Closure and Monitoring Agreement", effective December 1, 1988, with the then-current owner of the Landfill, George Martines. Under the agreement, George Martines granted the County a right to enter and use the Landfill premises for the purpose of closing and monitoring the Landfill until the Landfill is in compliance with all federal, state, and local environmental and health statutes and ordinances.

12. George G. Martines and Ann E. Martines assigned the "Landfill Closure and Monitoring Agreement" to Jeena W. Piccuta, effective January 11, 2002.

13. The Charles Picutta Living Trust, Charles A. Piccuta, Jeena W. Piccuta, George G. Martines, Ann E. Martines, George Sousa, the County, William Gibbs, Marjorie Ann Gibbs, and Western Lion Limited are current and previous landowners and operators of the Landfill. They are all dischargers because they caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged to waters of the State, which creates, or threatens to create, a condition of pollution or nuisance. This Cleanup and Abatement Order (Order) is issued to the County based on its history of conducting closure and cleanup activities at the Site since its closure in 1988 (see **Attachment B**) and the execution of the Landfill Closure and Monitoring Agreement between the County and George Martines.

Regulatory Considerations

14. Water Code section 13304, subdivision (a), states in relevant part:

> Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

15. Water Code section 13267, subdivision (b)(1), states:

> 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 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.

16. State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Water of California (hereafter referred to as the Anti-degradation Policy) requires that disposal of waste into waters of the State be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state. The quality of some waters of the State is higher than that established by adopted policies, and that higher quality water must be maintained to the maximum extent possible consistent with the Anti-degradation Policy.

17. State Water Board Resolution No. 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code section 13304, sets forth the policies and procedures to be used during an investigation or cleanup of a polluted site and requires that cleanup levels be consistent with State Water Board's Anti-degradation Policy. Resolution 92-49 and the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background levels, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with CCR, title 23, section 2550.4. Any alternative cleanup level to background must (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of such water; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Water Board.

18. The Basin Plan designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board.

    a. Surface water from the Landfill drains to the adjacent Warden Creek. The Basin Plan designates the beneficial uses of Warden Creek as municipal and domestic supply; water contact recreation; non-water contact recreation; and protection of aquatic life.

b. Warden Creek flows to Los Osos Creek about a half a mile downstream from the Landfill. Both Warden Creek and Los Osos Creek are waters of the United States. The Basin Plan designates the beneficial uses of Los Osos Creek as municipal and domestic supply; agricultural supply; groundwater recharge; wildlife habitat; water contact recreation; non-contact water recreation; wildlife habitat; cold freshwater habitat; warm freshwater habitat; migration of aquatic organisms, spawning reproduction and/or early development; rare, threatened, or endangered species; freshwater replenishment; and commercial and sport fishing.

c. The Basin Plan designates the beneficial uses of the underlying groundwater as municipal and domestic water supply, agricultural supply, and industrial use.

19. The exceedance of applicable narrative or numeric water quality objectives in the Basin Plan constitutes pollution as defined in Water Code section 13050, subdivision (l)(1).

20. The Scope of Actions for corrective action programs within CCR, title 27, section 20430(c) states:

> The discharger shall implement corrective action measures that ensure that COCs [constituents of concern] achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof that extend beyond the facility boundary, by removing the waste constituents or treating them in place. The discharger shall take other action approved by the RWQCB to prevent noncompliance with those limits due to a continued or subsequent release from the Unit.

21. Landfill Order Discharge Prohibition B.2 prohibits the discharge of waste or leachate to ponded water or waters of the State, including groundwater.

22. The Landfill Order, Water Quality Protection Standard D.1, requires that the discharge of waste shall not cause a statistically significant difference in water quality over background concentrations for proposed concentration limits for each constituent of concern or monitoring parameter per MRP Order No. R3-2007-0023 (Landfill MRP) at the point of compliance[1]. Under Water Quality Protection Standard D.1, the permittee is required to maintain the concentration limits for as long as waste poses a threat to water quality, and the discharge of waste shall not adversely impact the quality of State waters.

[1] The point of compliance is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit, as defined in CCR, title 27, section 20405 and Landfill Order Water Quality Protection D.1.

Impacts to Water Quality and Corrective Actions

23. The discharges of waste at the Landfill exceed or threaten to exceed the water quality objectives applicable to the receiving waters.

24. The Landfill has been regulated by waste discharge requirements since 1974. Groundwater monitoring has consistently shown the presence of VOCs in groundwater directly downgradient from the Landfill since 1984, which has been reported in semiannual monitoring reports. The presence of VOCs in downgradient groundwater violates Landfill Order Discharge Prohibition B.2 and Water Quality Protection Standard D.1.

25. Semiannual groundwater monitoring indicates the continued presence of VOCs in groundwater, and that the Landfill is the source of the waste discharge. VOCs in groundwater downgradient from the Landfill include chlorinated ethene compounds such as tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride. A fraction of the total VOC mass detected in groundwater also includes freons and aromatic hydrocarbons.

26. The Basin Plan section 3.3.4 (Water Quality) Objectives for Groundwater establishes that groundwaters designated the municipal and domestic supply beneficial use shall not contain concentrations of organic chemicals in excess of maximum contaminant levels (MCLs) for primary drinking water standards specified in CCR, title 22.

27. Certain VOCs have exceeded MCLs, and consequently the relevant water quality objectives, at the point of compliance, in groundwater monitoring wells downgradient from the Landfill. Examples include, but are not limited to, the following constituents:

    a. The concentration of cis-1,2 dichloroethene (cis 1,2-DCE) in monitoring well 2 (MW-2) was 78 micrograms per liter (µg/L) in October 2020, compared to the MCL of 6 µg/L.

    b. The concentration of tetrachloroethene (PCE) in MW-2 was 77 µg/L in October 2020, compared to the MCL of 5 µg/L.

    c. The concentration of trichloroethene (TCE) in MW-2 was 46 µg/L in October 2020, compared to the MCL of 5 µg/L.

    d. The concentration of vinyl chloride in MW-2 was 5.8 µg/L in October 2020, compared to the MCL of 0.5 µg/L.

28. Trace to low levels of VOCs also occur sporadically in surface water samples collected within Warden Creek in the area influenced by groundwater subject to impacts from the Landfill. VOCs in surface water samples were last detected in November 2018.

29. Pursuant to Water Code section 13304, the Discharger has discharged waste into waters of the State in violation of waste discharge requirements issued by the Central Coast Water Board.

30. Pursuant to Water Code section 13304, the Discharger has caused or permitted waste to be discharged or deposited into the waters of the State where it creates, or threatens to create, a condition of pollution or nuisance.

31. This Order requires the Discharger to submit technical or monitoring reports under Water Code section 13267. Existing data and information indicate that waste was discharged at the Landfill during the Discharger's operation of the Landfill. Monitoring reports submitted by the Discharger indicate the presence of certain constituents of concern, including certain VOCs, above their respective concentration limits. The burden of providing the technical reports, including costs, bears a reasonable relationship to the need for the reports. The technical reports required by this CAO are necessary to ensure compliance with this Order, the Landfill Order, and other local, federal, and/or state permits that may be issued to allow the discharge of treated groundwater. The quarterly progress reports required by this Order are needed to ensure proper implementation of groundwater cleanup activities including tracking cleanup progress to reduce concentrations of constituents of concern to levels below their respective concentration limits throughout the entire zone affected by the release, to protect the beneficial uses of waters of the State, to protect against nuisance, and to protect human health and the environment. The cost of preparing the quarterly progress reports are estimated to be approximately $2,000 - $6,000. This cost is based on estimates for other similar required workplans. However, the Discharger should base budgeting decisions and cost estimates on estimates provided directly from the company or consulting firm(s) expected to put together the reports. The estimated cost does not establish minimum or maximum costs for reports required under this Order. Costs may vary based on the specifics of the report.

32. The County's June 24, 2015, Design Report states in relevant part:

    "California regulations state that detection of any non-naturally occurring contaminant, including all VOCs, in water downgradient of a landfill, is considered degradation of the waters of the State, unless other extenuating circumstances, such as a source other than the landfill, can be demonstrated. Therefore, the clean-up goal for groundwater is to reduce VOCs in groundwater to the point they are no longer detectable using approved laboratory analysis methods and detection limits."

    Therefore, the concentration limits and cleanup levels for non-naturally occurring substances, such as VOCs and PFAS, is non-detect.

33. This Order requires the Discharger to operate the extraction and treatment system as an approved corrective action until the Discharger demonstrates to the satisfaction of the Central Coast Water Board that the concentrations of the constituents of concern are reduced to levels below their respective concentration limits throughout the entire zone affected by the release pursuant to CCR, title 27, section 20430(f).

Additional Considerations

34. Issuance of this Order is being taken for the protection of the environment and as such is exempt from provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et seq.) in accordance with CCR, title 14, sections 15061(b)(3), 15306, 15307, 15308, and 15321. This Order generally requires the Discharger to submit plans for approval prior to implementation of cleanup activities at the Site. Mere submittal of plans is exempt from CEQA as submittal will not cause a direct or indirect physical change in the environment and/or is an activity that cannot possibly have a significant effect on the environment. CEQA review at this time would be premature and speculative, as there is not enough information concerning the Discharger's proposed remedial activities and possible associated environmental impacts. If the Central Coast Water Board determines that implementation of any plan required by this Order will have a significant effect on the environment, the Central Coast Water Board will conduct the necessary and appropriate environmental review prior to Executive Officer's approval of the applicable plan.

35. The Central Coast Water Board has notified the Discharger and all interested agencies and persons of its intent pursuant to Water Code sections 13304 and 13267 to issue this Order. The Central Coast Water Board has made every reasonable attempt to notify these individuals and has provided them with an opportunity to submit their written comments. The draft Order was sent to interested persons on June 30, 2022. The Central Coast Water Board accepted public comments on the draft Order until August 1, 2022.

36. Pursuant to Water Code section 13304, the Central Coast Water Board may seek reimbursement for all reasonable costs to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.

37. It is the policy of the State of California and the policy of the Central Coast Water Board that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring the Discharger to clean up the groundwater to meet water quality objectives based on drinking water standards.

38. This CAO No. 2022-0016 supersedes CAO No. 95-66 and establishes a schedule to initiate corrective actions to address Landfill groundwater impacts.

IT IS HEREBY ORDERED, pursuant to Water Code sections 13304 and 13267, and Resolution No. R3-2014-0043, , on behalf of the California Regional Water Quality Control Board, Central Coast Region, that the County of San Luis Obispo, its agents, successors or assigns, must investigate, clean up the waste and abate the effects of the waste discharging at and from the Los Osos Closed Landfill in accordance with the requirements and schedule set forth below.

REQUIRED ACTIONS

1. **Within 90 days of receiving this Order,** the County must submit a water well survey that identifies water wells within a mile radius of the Landfill. This includes the submittal of a table with the list of water wells, the type of well, well status (active, inactive, abandoned), estimated yearly pumping rate (if available), and a map showing the well locations. This information will be used to assess potential wells that may be impacted because of discharges of waste from the Landfill to groundwater and/or whether pumping from nearby wells may be influencing the groundwater plume. The well survey must use several lines of evidence to determine the existence, status, and location of wells including, but not limited to, the following:

    a. Results of a well survey questionnaire from each property owner (conduct door-to-door surveys, mail/email questionnaires, etc.), if applicable

    b. Review of historical well surveys, if applicable

    c. Collection of well data from the Department of Water Resources, US Geological Survey, San Luis Obispo County Environmental Health Department well records, and GeoTracker GAMA.

2. **From the date of this Order and until operation of the groundwater extraction and treatment system,** the County must submit quarterly progress reports, due September 1, 2022, December 1, 2022, and quarterly thereafter. The progress reports must include County progress on analyzing potential extracted groundwater contingency disposal options. The reports must include the contingency disposal options the County has explored and the results of those investigations.

3. **By December 31, 2022**, the County must submit a contingency discharge analysis report that includes viable options to discharge extracted groundwater if discharge pursuant to the NPDES General Permit becomes infeasible or undesirable. The report must include short-term options for discharging extracted groundwater other than discharge pursuant to the NPDES General Permit. The analysis should include details of each alternative discharge option including necessary permits, timelines, financial planning, and potential site limitations. The contingency discharge analysis

report must include at least one feasible backup discharge option that would allow the extraction system to operate immediately in place of discharge pursuant to the NPDES General Permit. **By December 31, 2022**, the County must begin operating its groundwater extraction and treatment system. The County must maintain the groundwater extraction and treatment system to ensure continued system operation to address groundwater impacts from the Landfill as an approved corrective action. Corrective action must continue until one of the following occurs:

a. Another method for implementing corrective actions to address groundwater pollution is approved by the Central Coast Water Board, or

b. The County demonstrates that the corrective actions have sufficiently addressed groundwater impacts such that all concentrations of constituents are reduced below their respective concentration limits throughout the entire zone affected by the Landfill release, and the Central Coast Water Board approves corrective action program termination pursuant to CCR, title 27 section 20430(f).

4. **By December 31, 2022**, and continuing until the Central Coast Water Board's Executive Officer approves the termination of the corrective action program, the County must submit quarterly corrective action progress reports. The main purpose of these reports is to provide results, evaluations, and recommendations to evaluate the effectiveness of the groundwater extraction and treatment system as a corrective action to address groundwater pollution associated with waste discharges from the Landfill. The quarterly progress reports must be submitted by the 15th day of the month following the end of the quarter (due January 15, April 15, July 15, and October 15). The 1st through 4th quarter monitoring periods are January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31, respectively. At a minimum the report must include:

   a. An update on the effectiveness of the cleanup activities based on monitoring data. The report should include an updated performance evaluation with well-specific graphical representation of groundwater data collected (e.g., concentration versus time graphs, iso-concentration contours, VOC or other constituent plume modeling, etc.);

   b. An update on any treatment system improvements or changes;

   c. A table that reports the volume of liquid treated, disposal method(s) of extracted groundwater, date of disposal specific to the method used, and mass removal of each constituent.

5. California Code of Regulations, title 23, sections 3890 through 3895 require electronic submittal of information using the State Water Board GeoTracker data management system. The County must upload all reports required in this Order,

correspondence, and groundwater data in electronic deliverable format (EDF) on GeoTracker. All reports detailed above must be submitted to the Los Osos Closed Landfill GeoTracker page (GeoTracker Global ID L10004709809) by the required due dates. Instructions and a copy of the regulations can be found at:

https://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal

Provisions

1. All reports required by this Order must be signed by the submitting Discharger as follows:

   a. For a public agency – by either a principal executive officer or ranking elected official;

   b. For a partnership or proprietorship – by a general partner or the proprietor, respectively;

   c. For a corporation – by a principal executive officer of at least the level of a vice president; or

   d. A "duly authorized representative".[2]

2. A California Registered Civil Engineer or Certified Engineering Geologist must sign and stamp engineering reports.

3. Any person signing a report submitted pursuant to this Order must make the following certification:

   "I certify under penalty of perjury I have personally examined and am familiar with the information submitted in this document and all attachments and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of a fine and imprisonment."

4. This Order requires investigation and cleanup of groundwater impacted by the discharge of waste from the Landfill in compliance with the Water Code, the Basin Plan, State Water Board Resolutions No. 92-49 and No. 68-16, and other applicable plans, policies, and regulations.

[2] A "duly authorized representative" means a person who has written authorization from the Discharger to sign required reports on behalf of the Discharger.

5. This Order is not intended to permit or allow the Discharger to cease any work required by any other Order issued by the Central Coast Water Board, nor must it be used as a reason to stop or redirect any investigation or cleanup or remediation programs ordered by the Central Coast Water Board or any other agency. Furthermore, this Order does not exempt the Discharger from compliance with any other laws, regulations, or ordinances which may be applicable, nor does this Order authorize waste discharge from the Landfill or from any groundwater extraction and treatment system or other treatment system that may be installed. This Order leaves unaffected by any further restrictions on those facilities that may be contained in other statutes or required by other agencies.

6. The Discharger must submit a written 30-day advance notice to the Central Coast Water Board of any planned changes in name, ownership, control of the Landfill, or any planned physical changes to the Site that may affect compliance with this Order. In the event of a change in ownership or operator, the Discharger also must provide a 30-day advance notice, by letter, to the succeeding owner/operator of the existence of this Order and shall submit a copy of this advance notice to the Central Coast Water Board.

7. Abandonment of any groundwater well(s) at the Landfill must be approved by and reported to the Central Coast Water Board at least 30 days in advance. Any groundwater wells removed must be replaced within a reasonable time, at a location approved by the Central Coast Water Board. With written justification, the Central Coast Water Board may approve the abandonment of groundwater wells without replacement. When a well is removed, all work must be completed in accordance with California Department of Water Resources Bulletin 74-90, “California Well Standards,” Monitoring Well Standards Chapter, Part III, Sections 16-19.

8. In the event compliance cannot be achieved within the terms of this Order, the Discharger has the opportunity to request, in writing, an extension of the time specified. The extension request must include an explanation why the specified date could not or will not be met and justification for the requested period of extension. Any extension request must be submitted as soon as the situation is recognized and no later than the compliance date. Extension requests not approved in writing with reference to this Order are denied.

9. The Central Coast Water Board, through its Executive Officer, may revise this Order as additional information becomes available. Upon request by the Discharger, and for good cause shown, the Executive Officer may defer, delete, or extend the date of compliance for any action required of the Discharger under this Order. The authority of the Central Coast Water Board, as expressed in the Water Code, to order investigation and cleanup, in addition to that described herein, is in no way limited by this Order.

10. Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, imposed either administratively by the Central Coast Water Board or judicially by the Superior Court in accordance with Water Code sections 13268, 13304, 13308, and/or 13350, and/or referral to the Attorney General of the State of California.

11. None of the obligations imposed by this Order on the Discharger are intended to constitute a debt, damage claim, penalty, or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are imposed pursuant to the police powers of the State of California intended to protect the public health, safety, welfare, and environment.

12. Any person aggrieved by this action of the Central Coast Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and 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 this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions will be provided upon request or may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality

This Order is effective upon the date of signature.

Ordered by:

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Matthew T. Keeling, Executive Officer

ATTACHMENT A

Figure 1: Landfill Location

Closed Los Osos Landfill, San Luis Obispo County, California

Imagery provided by National Geographic Society, Esri and its licensors © 2019. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

0 1,000 2,000
Scale in Feet

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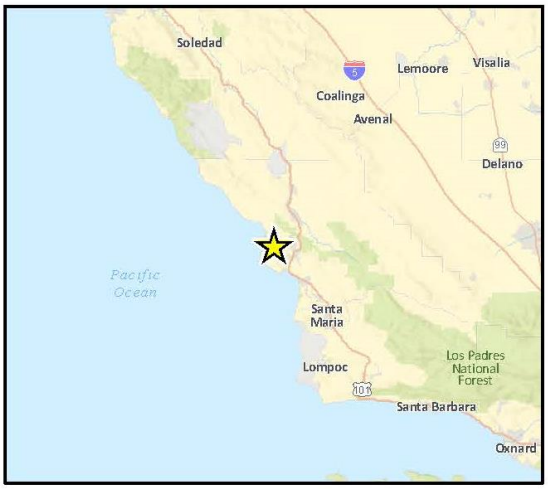


Vicinity Map

Figure 1

Rincon Consultants, Inc.

Figure 2: Landfill location near Warden Creek

Figure 3: Site Cross Section

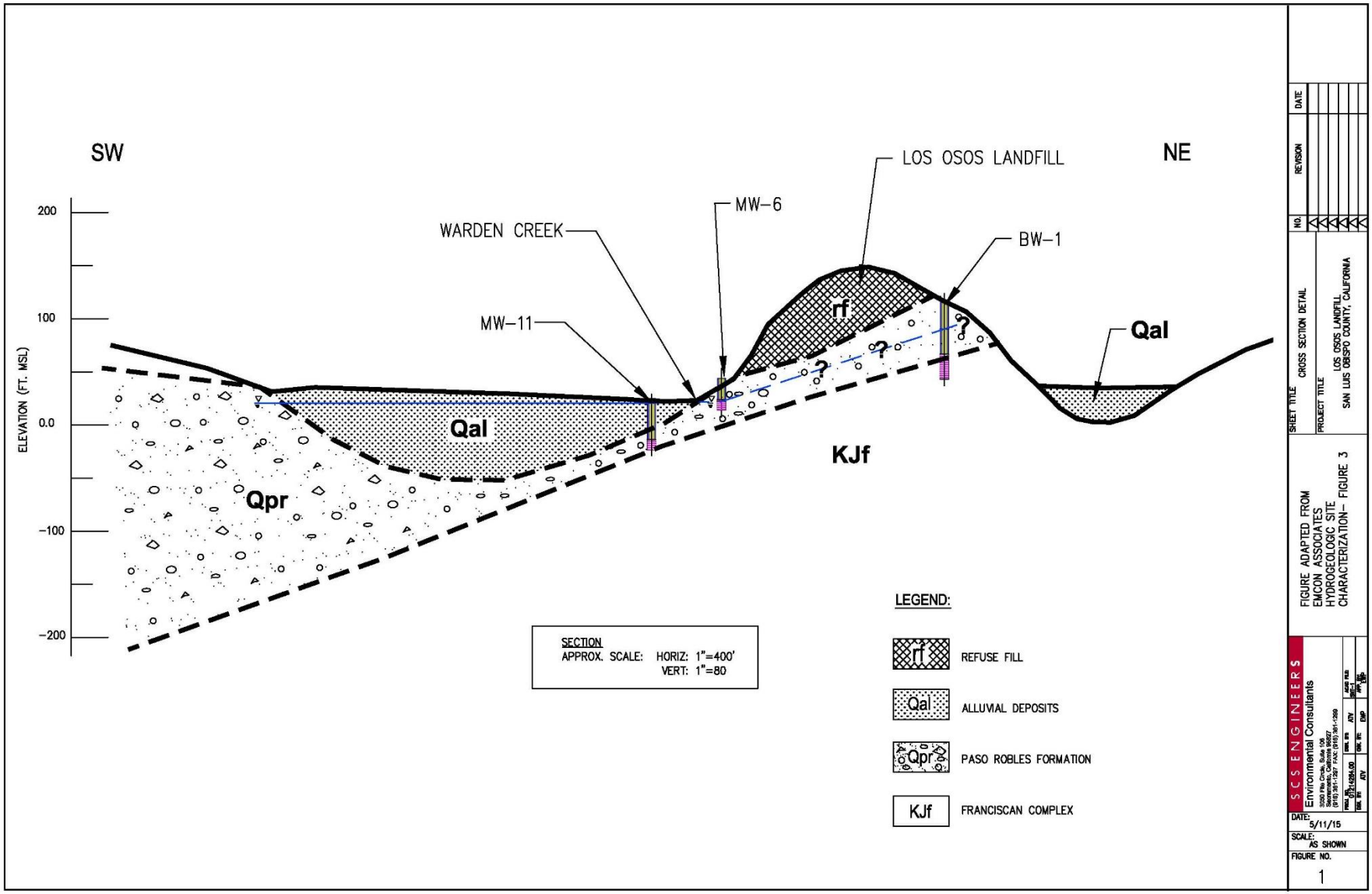
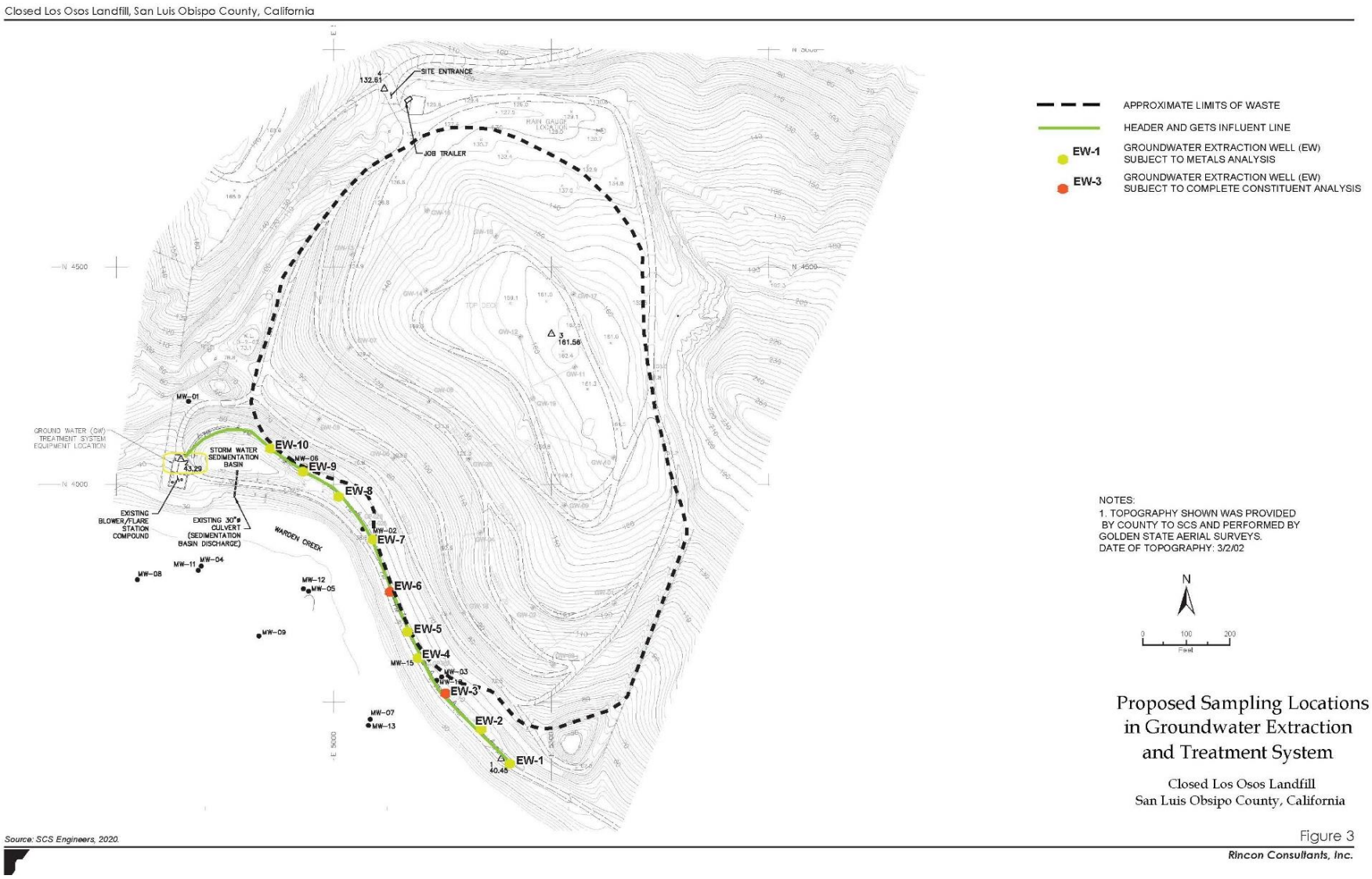


Figure 4: Groundwater Extraction and Treatment System



ATTACHMENT B

History of Regulation

1. The Central Coast Water Board has been regulating waste discharges from the Landfill since it issued Waste Discharge Requirements (WDRs) Order No. 77-66 on November 18, 1977.

2. On March 27, 1989, the Central Coast Water Board issued Cleanup and Abatement Order (CAO) No. 89-80 to address groundwater and surface water pollution originating from the Landfill. CAO No. 89-80 required the San Luis Obispo County Public Works Department (County) to characterize the nature and extent of groundwater and surface water impacts and develop and implement an appropriate remedial response.

3. In response to the requirements included in CAO No. 89-80, between 1989 and 1994, the County installed a series of groundwater monitoring wells to define the nature and extent of the waste discharged from the Landfill.

4. In 1990, the County constructed a final cover on the Landfill to prevent water from percolating into underlying waste to minimize the potential for leachate formation and to minimize landfill gas production. In 1991, the County installed additional surface drainage improvements at the site.

5. On May 25, 1994, the Central Coast Water Board rescinded CAO No. 89-80.

6. In June 1995, the County performed a geologic investigation that included the installation of a background well (BW-2) on the valley floor, a downgradient monitoring well (MW-13), and three landfill exploratory wells to determine whether leachate was accumulating in the refuse. The three landfill wells were found to be dry. The three wells were later converted to landfill gas extraction wells GW-18, GW-19, and GW-20.

7. On August 7, 1995, the Central Coast Water Board issued CAO No. 95-66 requiring the County to submit a corrective action plan and to clean up groundwater impacted by the release of wastes from the Landfill.

8. In 1996, in response to the requirements included in CAO No. 95-66, the County installed a landfill gas extraction system to minimize landfill gas and volatile organic compounds (VOC) impacts to groundwater. The County also made enhancements to the Landfill cover to prevent water from percolating into underlying waste to minimize the potential for leachate formation and to minimize landfill gas production. The Landfill gas extraction system began operating in September 1998.

9. On December 29, 2005, Central Coast Water Board staff informed the County that the County successfully completed the delineation of VOCs downgradient from the Landfill but failed to provide plans for a corrective action program to clean up groundwater pollution.

10. In November 2006, the County submitted an Engineering Feasibility Study for Corrective Action that included a proposal to clean up VOC groundwater impacts using enhanced bioremediation technologies as part of the corrective action program.

11. On May 11, 2007, the Central Coast Water Board adopted WDRs Order No. R3-2007-0023 (Landfill Order), which currently regulates waste discharges from the Landfill. The Landfill Order described the VOC impacts to groundwater and cited the County's Engineering Feasibility Study for Corrective Action as an enhancement to the ongoing title 27-required corrective action program. The prior corrective actions taken by the County, such as the installation and operation of a Landfill gas extraction system with a flare system and enhancements of the Landfill cover, were also corrective action measures implemented to comply with the title 27-required corrective action program, but these previous actions were not sufficient in addressing the groundwater pollution.

12. On August 24, 2011, Central Coast Water Board staff met with County staff to discuss the need to address the continued presence of VOCs elevated beyond background levels at the point of compliance.

13. On November 18, 2011, the County sent the Central Coast Water Board a letter indicating that a pilot study conducted in 2008 deemed bio-enhanced remediation ineffective. The letter included a commitment from the County to evaluate alternative corrective actions to reduce VOCs in groundwater beyond the Landfill point of compliance. The letter included a proposed schedule with 12 project milestones including County submittal of a conceptual groundwater extraction and treatment system pilot study plan by February 2012. The schedule also included operation of a pilot groundwater extraction and treatment system by August 2013.

14. On March 16, 2012, the County followed up on its November 18, 2011, letter and submitted a Quarterly Progress Update Regarding the Corrective Action Workplan (Progress Report). The Progress Report included an evaluation of the conclusions and recommendations of the 2006 Engineering Feasibility Study and the 2008 bio-enhancement pilot study to determine needed alternate corrective actions to address impacted groundwater at the Landfill. The Progress Report included procedures for a conceptual-level groundwater extraction pilot program to assess the feasibility of groundwater extraction at the point of compliance. The Progress Report indicated the County's plans to proceed with step rate testing on existing groundwater

monitoring wells at the site to determine the feasibility of extracting groundwater and to evaluate whether further tests were warranted to quantify aquifer conditions.

15. On December 4, 2012, Central Coast Water Board staff and County staff met to discuss the need for the County to implement corrective actions to address the VOC plume at the toe of the Landfill, such as commencing the County's proposal to operate a groundwater extraction and treatment system. Central Coast Water Board staff emphasized the need to move beyond a basic 24-hour pump test and to evaluate installing observation well(s) and then pumping to understand the aquifer parameters and radius of influence and capture zone of pumped well(s). County staff acknowledged the need to take a more aggressive approach, but staff indicated that additional time was needed to obtain Board of Supervisors approval to implement the proposal. County staff indicated that the County would come up with a proposal for the Board of Supervisors that would cover the entire project budget at one time, to prevent the need for staff to routinely go back to the Board of Supervisors for funding approval prior to each project phase. The Board of Supervisors approved funding for the proposal on February 26, 2013.

16. In 2012 and 2013, the County performed groundwater monitoring well step-rate testing to evaluate the feasibility of groundwater extraction.

17. On September 30, 2014, the County submitted a project schedule that included the completion of plans, specifications, estimates, and bid documents related to the installation of the groundwater extraction and treatment system by March 25, 2015.

18. On June 24, 2015, the County submitted the Technical Memorandum #2: Groundwater Modeling and Extraction/Treatment System Evaluation, and Conceptual Design (Design Report). The Design Report included a recommendation to use groundwater extraction and treatment with granular activated carbon (GAC) as the most technically feasible and cost-effective corrective action for addressing groundwater pollution from the Landfill. The Design Report included a recommendation that post-treatment water be discharged to the stormwater retention basin located in the southwest corner of the Landfill.

19. On July 1, 2015, the County submitted an updated schedule for installation of the groundwater extraction and treatment system with system start up and testing by September 30, 2016.

20. On July 21, 2015, the Central Coast Water Board sent the County a concurrence letter for implementing the scope of work included in the Design Report and the County's proposed schedule for startup and testing of the groundwater extraction and treatment system by September 30, 2016. The concurrence letter states, in relevant part:

"[Central Coast] Water Board staff encourages the County to explore other disposal options for the treated groundwater including land application on County property outside of the landfill waste footprint or working with neighboring property owners to land apply the water. An NPDES discharge should only be considered once the County has evaluated all land disposal options for the treated water discharge due to the potentially significant monitoring requirements and liability if water quality objectives are exceeded."

21. On October 12, 2015, the County submitted the Schedule Memorandum, which included an updated schedule. The schedule included completion of final design plans, specification, and estimates by February 26, 2016, and system startup by March 24, 2017.

22. On November 23, 2015, the County submitted the Technical Memorandum #3, Statistical Analysis of Inorganics for Treated Water Discharge (Statistical Analysis Report), prepared by SCS Engineers. The Statistical Analysis Report used Landfill groundwater monitoring data to determine whether the proposed treatment system would be capable of meeting the effluent limits established by the General Permit for Discharges of Highly Treated Groundwater to Surface Waters, National Pollutant Discharge Elimination System (NPDES) Permit No. CAG993002, Waste Discharge Requirements Order No. R3-2011-0222 (NPDES General Permit).[3] The Statistical Analysis Report notes:

"This general permit requires that discharges of treated groundwater do not exceed certain Daily Maximum Effluent Limits, including both organic and inorganic parameters. The recommended groundwater treatment system should be successful in removing all detectable volatile organic compounds (VOCs), but it was unknown if the treated water may contain inorganic parameters (mostly metals) that may exceed the general permit effluent limits. GAC treatment generally does not remove dissolved metals from water so it is possible that metals could pass through the treatment system and be discharge[d] to the storm water basin or creek… Although some individual historic monitoring analysis results are above the general permit effluent limits for inorganics, it is believed that the mean concentrations, for the combined aquifer results, more accurately represent the expected concentrations during operation. Therefore, it appears that the combined groundwater effluent will not exceed the general permit effluent limits…If simple system adjustments cannot attain compliance with the effluent limits, additional treatment steps may be needed to eliminate or reduce the parameter(s) that are above the effluent limits."

[3] The General NPDES Permit Order No. R3-2011-0222 has since been replaced by Order No. R3-2016-0035. The most recent permit can be found on the Central Coast Water Boards Adopted Orders, Permits, Resolutions, and Settlements webpage.

23. On February 25, 2016, the County submitted final plans and specifications for the groundwater extraction and treatment system. In an email to Central Coast Water Board staff, County staff noted that the County planned to submit an application for a coastal development permit to the California Coastal Commission within the next couple weeks. County staff noted that once a coastal development permit was issued for the project, the County would advertise construction bids for the project.

24. From February 2016 to December 2016, Central Coast Water Board staff periodically requested that County staff provide project updates based on dates listed in the October 12, 2015, Schedule Memorandum, which indicated startup would occur on March 24, 2017. On December 1, 2016, Central Coast Water Board staff emailed County staff and requested a project update and asked if the County expected to meet the February 24, 2017, construction target listed in the Schedule Memorandum. County staff indicated that the project was experiencing delays and that the County was addressing conditions included in the California Coastal Commission coastal development permit into the project design. County staff indicated that they would develop a new project schedule.

25. On March 8, 2017, the County submitted an updated schedule that indicated system startup and testing would occur by March 30, 2018, with system evaluation and recommendations complete by July 30, 2018.

26. On October 16, 2017, Central Coast Waster Board staff requested that the County provide a project update. The County provided an updated schedule for notice of completion of the project expected by August 23, 2018.

27. On June 13, 2018, the County indicated via email that there were additional project delays due to a new County policy requiring a Building Permit from the Planning Department and provided an updated schedule with construction beginning January 4, 2019.

28. On August 7, 2018, the Board of Supervisors approved the plans and specifications for the construction of the groundwater extraction and treatment system and authorized the project to be bid.

29. On September 13, 2018, bids were opened. The two bids received were approximately three times the estimate prepared by the design consultant.

30. On October 10, 2018, Central Coast Water Board staff and County staff met to discuss implementation of the corrective action plan and the need for the County to cleanup impacted groundwater downgradient of the Landfill as required by CAO No. 95-66. Central Coast Water Board staff expressed concern with the amount of time that had passed since the issuance of CAO No. 95-66 and that the ongoing

corrective action plan and previous actions had since yielded results below expectations for removal of VOCs in groundwater.

31. On October 31, 2018, the County sent the Central Coast Water Board a letter that summarized the October 10, 2018, meeting. The letter included the County's concern about the effectiveness of the groundwater extraction and treatment system in reducing VOCs in groundwater downgradient of the Landfill but agreed to move forward with the project and evaluate technical and economic feasibility of the corrective action measures after operation.

32. On January 15, 2019, the County Board of Supervisors rejected all bids and directed County staff to re-evaluate the project design and repackage the contract.

33. On January 17, 2019, Central Coast Water Board staff left a voicemail message with County staff inquiring about project construction that was scheduled to commence on January 4, 2019, according to County staff's June 13, 2018, email. County staff responded via email that the groundwater extraction and treatment system was being evaluated to determine project phasing and funding options in order to develop an engineer's estimate to rebid the project. County staff indicated that the estimate was expected by the end of February and the County would then assess the remaining funds and either request a budget adjustment or request necessary funds for the next fiscal year. County staff noted that the County needed approval of additional funds before the project could go out to be rebid. Central Coast Water Board staff responded and requested that County staff keep the Central Coast Water Board updated on the groundwater extraction and treatment system progress and funding issues.

34. On August 20, 2019, the County again advertised for construction bids for the groundwater extraction and treatment system.

35. On September 20, 2019, Central Coast Water Board staff asked County staff for a project update. On September 24, 2019, County staff informed Central Coast Water Board staff in an email that the project contract would go out to bid on September 26, 2019. The email included an updated timeline for project completion and treatment system startup by May 2020.

36. On November 5, 2019, the County awarded the construction contract to Jensen Drilling and approved the necessary budget adjustment to increase the project funds.

37. On December 4, 2019, Central Coast Water Board staff informed the County via email that per- and polyfluoroalkyl substances (PFAS) testing must be performed prior to groundwater extraction and treatment system discharge to Warden Creek.

This requirement was based on the review of data[4] from active landfills in the Central Coast Region that indicate municipal solid waste is a likely PFAS source, and therefore, the municipal solid waste placed in the unlined Los Osos Closed Landfill could be impacting groundwater downgradient from the Landfill and/or be present in treated groundwater.

38. On April 21, 2020, the County submitted a notice of intent (NOI) to enroll in the General Permit for Discharges of Highly Treated Groundwater to Surface Waters, National Pollutant Discharge Elimination System (NPDES) Permit No. CAG993002, Waste Discharge Requirements Order No. R3-2016-0035 (NPDES General Permit) to regulate discharges from the Landfill groundwater treatment system.

39. On September 17, 2020, Central Coast Water Board staff requested via email that County staff provide a project update. County staff indicated that the project was experiencing delays due to the need for the County Board of Supervisors to approve additional project funding.

40. On December 2, 2020, the Central Coast Water Board issued the County a notice of applicability (NOA) of the NPDES General Permit for discharges from the Landfill groundwater treatment system, authorizing the discharge of treated effluent from the groundwater extraction and treatment system to Warden Creek if the treated groundwater could meet permit effluent limits.

41. In an email on December 15, 2020, County staff informed Central Coast Water Board staff that groundwater extraction and treatment system construction was complete. The groundwater extraction and treatment system includes ten groundwater extraction wells located between the Landfill and Warden Creek (**Attachment A**, **Figure 4**). Extraction wells are screened across both the shallow and deep groundwater zones as described in **Finding 5**. The County pumped groundwater to an equalization/mixing tank, then treated the extracted groundwater through a duplex bag filter system, and then through 1,000-pound liquid phase carbon canisters. The initial system startup test occurred on December 3, 2020, and treated effluent was stored onsite in a storage tank until the effluent data was analyzed.

42. On January 7, 2021, the County submitted the analytical results from the treatment system startup test to the Central Coast Water Board. The results indicated NPDES General Permit effluent limitation exceedances for certain metals. The report did not include PFAS testing results. County staff and Central Coast Water Board staff communicated via email and County staff expressed interest in learning about other

[4] On March 20, 2019, the State Water Resources Control Board (State Water Board) issued Order No. WQ-2019-0006-DWQ to active landfill operators to investigate the presence of PFAS in landfill leachate and groundwater. Analytical results from testing at the active landfills indicate that municipal solid waste is a likely PFAS source.

potential permitting options to discharge treated water to land. Central Coast Water Board staff noted that discharges to land likely would need to be regulated under the General Waiver for Specific Types of Discharges Order No. R3-2019-0089, would need a site specific MRP, and that PFAS would need to be evaluated prior to the discharge. Central Coast Water Board staff indicated that they would provide additional application information related to the General Waiver for Specific Types of Discharges, if the County wanted to pursue discharging treated water to land. Since the effluent did not meet the NPDES General Permit discharge requirements due to exceedances for certain metals, the effluent was hauled offsite for treatment and disposal.

43. Between January and February 2021, Central Coast Water Board staff and County staff discussed development of a PFAS workplan. On February 4, 2021, County staff indicated via email that they expected to have a workplan completed by April 2021.

44. On March 2, 2021, and March 9, 2021, Central Coast Water Board staff and County staff had phone meetings to discuss the project and the need for additional treatment system improvements and testing. County staff inquired about elements needed in the PFAS workplan. Central Coast Water Board staff indicated that due to project and testing delays, staff were working on an order that would require the County to submit a workplan, including PFAS testing. County staff indicated that they would continue to develop the workplan but would wait to submit the workplan to ensure that the submittal would meet the requirements of the pending order.

45. On April 21, 2021, Central Coast Water Board staff emailed County staff asking for an update on the status of the updated financial assurance report that was due by March 21, 2021, as required by the Landfill Order. Central Coast Water Board staff reminded County staff that the financial assurance report must demonstrate that the County has the ability to respond, in a timely manner, to the expenses assured for current or future corrective action needed to address all known or reasonably foreseeable releases from the Landfill. On July 27, 2021, the County submitted the 2021 Financial Assurance Report.

46. Due to the continued project delays, on June 11, 2021, the Central Coast Water Board issued an order pursuant to California Water Code section 13267 (13267 Order) to the County that required submittal of a workplan by August 11, 2021, to investigate the presence of PFAS in groundwater and the treated effluent, to propose needed treatment system improvements to address known or potential pollutant exceedances for certain metals and PFAS, to propose revised treatment system testing to ensure that the treated effluent could meet discharge permit requirements, and to include a revised schedule for treatment system operation by February 11, 2022.

47. On August 10, 2021, the County responded to the 13267 Order by submitting a Metals and PFAS Investigation Workplan (Workplan) with a proposed schedule with interim deadlines for system evaluation and testing, and system readiness by September 2022.

48. On October 1, 2021, the Central Coast Water Board issued a notice of violation (NOV) to the County for submitting an incomplete workplan and not adequately addressing the 13267 Order requirements. The proposed schedule included in the County's Workplan exceeded the required due date for operation of the treatment system by February 11, 2022, in the 13267 Order, the Workplan did not include a discussion on the needed improvements to the treatment system, and the Workplan did not include a description on what treatment system testing would be done to demonstrate that the treatment system will be effective at removing pollutants in compliance with permit effluent limits. Operation of the groundwater extraction and treatment system continued to experience a number of project delays, one such reason being the need to get approval for additional budget from the County Board of Supervisors as was noted in emails from County staff on January 17, 2019, and September 17, 2020. For this reason, the NOV stated:

    "Additionally, on June 27, 2021, the County submitted an updated financial assurance cost estimate to address corrective action costs associated with treatment system modifications and system operation. Proper financial assurance estimates and planning should ensure that the County has funding for project implementation, which should reduce the need for substantial project delays."

49. On October 7, 2021, October 20, 2021, and November 2, 2021, Central Coast Water Board staff met with County staff and/or County consultants to discuss the Workplan deficiencies and the need to implement corrective actions to address groundwater impacts at the Landfill.

50. On November 2, 2021, the County submitted the Revised Metals and PFAS Investigation Workplan (Updated Workplan) for treatment system improvements, system testing, and system startup scheduled for February 2022. The schedule included within the Updated Workplan included conducting a 9-hour groundwater extraction and treatment system startup test to assess metals concentrations, and to evaluate whether components of the groundwater extraction and treatment system contain PFAS. The schedule indicated that the County would submit an interim report that would describe findings and recommendations after startup testing. The schedule indicated system readiness by February 2022.

51. On November 8, 2021, the Central Coast Water Board issued a concurrence letter, which includes a statement that the Updated Workplan met the 13267 Order requirements. The Updated Workplan included a commitment by the County to begin implementation of its approved corrective action of operating the onsite

groundwater extraction and treatment system to contain impacted groundwater at the Landfill by February 11, 2022.

52. On November 11, 2021, the County notified Central Coast Water Board staff that a groundwater extraction and treatment system test would be performed to evaluate PFAS and metals.

53. On December 16, 2021, Central Coast Water Board staff met with County staff and County consultants to discuss the project and the results of groundwater samples collected from extraction wells that were redeveloped. The County's consultants noted that there was an overall reduction in turbidity but arsenic and zinc continued to exceed NPDES General Permit effluent limitations. The County indicated that they were evaluating improvements to the treatment system and disposal options other than discharging to Warden Creek. County staff indicated that the other proposed disposal options would likely take months to years to finalize. Central Coast Water Board staff emphasized the already significant project delays and informed County staff that the County must implement corrective actions to address groundwater impacts as soon as possible, and that the County was still required to meet the February 11, 2022, deadline to operate the groundwater extraction and treatment system.

54. On February 7, 2022, Central Coast Water Board staff met with County staff to discuss the County's plans to begin operating the groundwater extraction and treatment system and outstanding report submittals. County staff noted that they were in the process of finalizing the interim report that would include system testing results and evaluations. County staff noted that the project would be delayed since they were in the process of evaluating whether to add an ion exchange system to address the metals that exceed the NPDES General Permit effluent limitations. The County's updated schedule included operation of the groundwater extraction and treatment system by September 30, 2022. Central Coast Water Board staff noted that the County must implement corrective actions in the interim to address groundwater impacts.

55. On February 8, 2022, County staff provided an updated project schedule for operation of the groundwater extraction and treatment system by September 30, 2022.

56. On February 17, 2022, the County submitted the Interim Report which included data from a groundwater PFAS analysis, data from groundwater extraction and treatment system testing for metals and PFAS, and water quality data after extraction well redevelopment. The Interim Report indicated the presence of PFAS in groundwater downgradient from the Landfill and initial data indicated that the treatment system was successful at removing PFAS during a startup test.

57. On March 11, 2022, County staff submitted results of a bench scale treatability study and indicated that the design of a full-scale ion exchange treatment system was in progress based on the results of the treatability study to address the outstanding metal NPDES General Permit exceedances.