# Appendix H3

Cleanup and Abatement Order No. R9-2021-0042

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**
**SAN DIEGO REGION**

# CLEANUP AND ABATEMENT ORDER NO. R9-2021-0042

## AN ORDER DIRECTING ROHR AND GOODRICH CORPORATION TO CLEAN UP OR ABATE THE EFFECTS OF WASTE DISCHARGED FROM THE ROHR/GOODRICH NORTH CAMPUS PROPERTY, CHULA VISTA, SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds that:

1. **Legal and Regulatory Authority.** This Cleanup and Abatement Order (CAO) conforms to and implements (1) policies and requirements of the Porter-Cologne Water Quality Control Act (division 7, commencing with Water Code section 13000) including sections 13267 and 13304; (2) applicable state and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution No. 68-16); Resolution No. 88-63, *Sources of Drinking Water*; Resolution No. 92-49, *Policies and Procedures for Investigation, and Cleanup and Abatement of Discharges under Water Code Section 13304* (Resolution No. 92-49); California Code of Regulations (Cal. Code Regs.) title 23, chapter 16, article 11; and Cal. Code Regs., title 23, section 3890 et seq.; and (5) relevant standards, criteria, and advisories adopted by other state and federal agencies.

2. **Basis for Cleanup and Abatement Order.** Water Code section 13304 authorizes the San Diego Water Board to require dischargers to clean up or abate the effects of waste discharge(s) where the discharge creates or threatens to create a condition of pollution or nuisance.

3. **Cleanup and Abatement Order No. 98-08.** The San Diego Water Board issued CAO No. 98-08 to Rohr, Inc., operating as BF Goodrich Aerospace Aerostructures Group, and its parent company, the BF Goodrich Company, in 1998. CAO No. 98-08 addresses the cleanup and abatement of wastes discharged from Rohr's manufacturing operations located at 850 Lagoon Drive in Chula Vista, California (North Campus Property). CAO No. 98-08 includes directives to (1) conduct a site-wide environmental site assessment, (2) conduct a comprehensive storm water runoff sampling program, (3) conduct a comprehensive storm water conveyance system investigation, (4) perform a site-wide data compilation and evaluation, and

(5) conduct interim remedial actions. The first four directives are complete. Interim remedial actions are currently underway at the off-property area known as Parcel H-3, pursuant to CAO No. 98-08.

This CAO supersedes CAO No. 98-08 except for the interim remedial actions that will occur at Parcel H-3, which will continue under CAO No. 98-08 until complete. The Dischargers named in this CAO (see Finding 7) are required to submit reports pursuant to CAO No. R9-2021-0042. Upon completion of the interim remedial actions at Parcel H-3 and submittal of the Cleanup and Abatement Completion Report (see **Directive B.1.c**), the San Diego Water Board will determine if the directives in CAO No. 98-08 are satisfied and if the directives are met no further work will be required pursuant to CAO No. 98-08.

4. **Scope of Cleanup and Abatement Order No. R9-2021-0042.** This CAO addresses the cleanup and abatement of all wastes discharged to soil, soil gas, and groundwater from the North Campus Property manufacturing operations **(Figure 1)**. This CAO provides the following definitions for "On-Property," "Off-Property," and "Site."

    a. *On-Property* refers to wastes discharged within the North Campus Property boundary (**Figure 2)**. The approximately 82-acre North Campus Property is bounded by F & G Street Marsh and Lagoon Drive to the north, Bay Boulevard to the east, Marina Parkway to the west, and H Street to the south. The North Campus Property is planned for redevelopment and is separated into three parcels: Parcels A, B, and C **(Figure 2)**. Parcel A is approximately 15 acres and has been sold to PSIP Wohl Bay Boulevard, LLC (Owner). The new Owner plans to repurpose Building 29, potentially involving demolishing limited portions of the structure, and may demolish all or portions of Buildings 99 and 100 on Parcel A. Parcel A also includes the vacant properties to the north of Buildings 99 and 100 at 350, 360, 364, and 368 Bay Boulevard. Parcel B is subdivided into two parts: B-1 and B-2. Parcels B-1 and B-2 total approximately 34 acres. Subject to a pending lot line adjustment, Parcel B-1 will be approximately 26 acres and Parcel B-2 will be approximately 8 acres. The potential buyer plans to demolish all the existing buildings on Parcel B. Parcel C is approximately 40 acres and includes 11 buildings. Parcel C is currently not for sale.

    b. *Off-Property* refers to all adjacent areas outside the North Campus Property boundaries affected by the wastes discharged to soil, soil gas, and groundwater from manufacturing operations at the North Campus Property **(Figure 3)**. The Off-Property area to the south of the North Campus Property includes H Street and the former South Campus Property. Cleanup and abatement of wastes discharged to this area must be coordinated with the cleanup and abatement activities currently underway at the former South Campus Property

(pursuant to CAO No. R9-2014-0019). The Off-Property areas located north, east, and west of the North Campus Property include the F & G Street Marsh (a federally protected tidal marsh), railroad right-of-way, and Parcel H-3, respectively. Parcel H-3 will be redeveloped as part of the Chula Vista Bayfront Master Plan.[1] As described in **Finding 3**, cleanup and abatement of wastes discharged to Parcel H-3 is currently underway as an interim remedial action pursuant to CAO No. 98-08 due to an accelerated redevelopment schedule.

c. *Site* refers to the On-Property and Off-Property areas where wastes were discharged to soil, soil gas, and groundwater from manufacturing operations at the North Campus Property. All wastes discharged to the Site must be identified and cleaned up or abated pursuant to this CAO.

**5. Site History.** Prior to Rohr's occupancy in 1941, the Site had a variety of historical uses. In the 1920s, a facility just south of G Street and west of the railroad right-of-way (R&H Tyce/Pioneer Pyrophyllite) manufactured a cementitious material called Tycrete. The facility included a rotary kiln, laboratory, and paint shop. Businesses occupied parcels along Bay Boulevard beginning in the early 1950s that included aircraft parts manufacturing, refrigeration unit repair, storage, junkyards, and a veterinary hospital. The property immediately north of G Street was used for industrial purposes as early as 1918, when a magnesite ore processing company and aviation company occupied this area. The aviation company included three machine shops and a plating shop. To the west, where Building 61 is currently located, the City of Chula Vista operated a sewage treatment plant north of G Street from the late 1930s until the mid-1960s. There were two settling ponds at the current location of Building 61 from about 1944 to 1959 and two settling ponds west of Building 61 around 1965. Treated effluent was discharged to San Diego Bay via an outfall. In 1960-1962, the Unified Port of San Diego placed dredged fill from the bay along the historical shoreline on the western portions of Parcels B and C, Parcel H-3, and the areas west of the site.[2]

**6. Discharge of Waste.** Since 1941, structural and engine components for use in the aviation and aerospace industry have been manufactured at the North Campus Property. Chemicals stored at the North Campus Property and used during manufacturing operations have been found in the soil, soil gas, and groundwater as reported in environmental investigation reports and groundwater monitoring reports. The chemicals discharged include, but are not limited to, volatile organic compounds (VOCs), metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and

[1] Chula Vista Bayfront Project
[2] Adrian Brown Consultants, 1998. ASTM Phase I Site Assessment, B.F. Goodrich Aerospace, 850 Lagoon Drive, Chula Vista, California. June 4.

polychlorinated biphenyls (PCBs) (chemicals of concern [COCs]). The discharge of these COCs to the environment constitutes a discharge of waste, as defined in Water Code section 13050, subsection (d).

7. **Persons Responsible for the Discharge of Waste.** Beginning in 1941, Rohr Aircraft Corporation manufactured structural and engine components for use in the aviation and aerospace industry in Chula Vista, California. The company incorporated in 1969 as Rohr Corporation and subsequently became Rohr Industries in 1971, and Rohr, Inc., in 1992. The BF Goodrich Company acquired Rohr, Inc., in 1997, and Rohr, Inc., began operating as BF Goodrich Aerospace Aerostructures Group. Rohr, Inc., operating as BF Goodrich Aerospace Aerostructures Group, and Rohr, Inc.'s predecessors, including but not limited to Rohr Aircraft Corporation, Rohr Corporation, and Rohr Industries, Inc., are collectively referred to as "Rohr."

   In 2001, BF Goodrich Company changed its name to Goodrich Corporation (Goodrich). On July 26, 2012, United Technologies Corporation (UTC) acquired the stock of Goodrich (Goodrich Acquisition). As a result of the Goodrich Acquisition, Goodrich became a wholly owned subsidiary of UTC and Rohr remained a wholly owned subsidiary of Goodrich. UTC combined Goodrich with Hamilton Sundstrand Corporation, including their respective affiliates and subsidiaries, to operate as a new business segment, referred to as UTC Aerospace Systems.

   On November 26, 2018, UTC completed its acquisition of Rockwell Collins, Inc., through which it purchased all the company's outstanding shares (the Collins Acquisition). As a result of the Collins Acquisition, Rockwell Collins became a wholly owned subsidiary of UTC. Following the Collins Acquisition, UTC re-branded UTC Aerospace Systems to begin operating as "Collins Aerospace."

   Most recently in 2020, UTC merged with Raytheon Company, at which time Raytheon Company became a wholly owned subsidiary of UTC. UTC then changed its name to Raytheon Technologies Corporation. Following each of the above, Rohr, Inc., has remained the legal owner of the Property and a wholly owned subsidiary of Goodrich. Rohr and its related predecessor companies referenced above are collectively referred to as "Dischargers" in this CAO.

8. **Beneficial Uses of Groundwater.** The Site is located within the La Nacion Hydrologic Subarea (9.12) in the Lower Sweetwater Hydrologic Unit (9.10) of the Sweetwater Hydrologic Unit (9.00). The Basin Plan designates beneficial uses for waters of the state and establishes water quality objectives to protect these uses. Present and potential future beneficial uses of groundwater within the Lower Sweetwater Hydrologic Unit (9.10) include municipal and domestic supply (MUN), agricultural supply (AGR), and industrial service supply (IND). Water quality objectives to support the MUN use are more stringent than those for AGR and IND uses. The water

quality objectives for MUN are the Maximum Contaminant Levels (MCLs)[3] specified in Table 64444-A of Cal. Code Regs. title 22, section 64444.

9. **Threat to Water Quality and Human Health.** Since the late 1990s, the Dischargers conducted environmental investigations for soil, soil gas, indoor air, and groundwater at the Site pursuant to CAO No. 98-08. The results of these investigations indicate there is a threat to water quality and human health at the Site due to wastes discharged from the manufacturing operations at the North Campus Property.

**Soil Investigations**

Pursuant to CAO No. 98-08, soil investigations conducted at the Site have identified COCs in vadose-zone soil. The concentrations of these COCs exceed the respective Environmental Screening Levels (ESLs),[4] which indicate they may leach into groundwater at concentrations impacting the MUN beneficial use and may pose a cancer risk and noncancer hazard to commercial/industrial and construction workers via ingestion, inhalation, and dermal exposures. ESLs were derived by the California Regional Water Quality Control Board, San Francisco Bay Region (San Francisco Bay Water Board), to provide conservative screening levels for over 100 chemicals found at sites with contaminated soil and groundwater. They are intended to help expedite the identification and evaluation of potential environmental concerns at contaminated sites.

**Tables 1 through 3** list COCs in vadose-zone soil that exceed the ESLs, but do not represent a complete list of exceedances.

[3] Maximum Contaminant Levels
[4] Environmental Screening Levels

**Table 1. COCs Exceeding ESLs for Potential Leaching to Groundwater**

| Chemical of Concern | Sample ID | Year | Depth (feet below ground surface [bgs]) | Maximum Soil Concentration (micrograms per kilogram [µg/kg]) | Potential Leaching to Groundwater ESL (µg/kg) |
|---|---|---|---|---|---|
| Trichloroethene (TCE) | GB24 | 2021 | 1 | 110,000 | 85 |
| cis-1,2-Dichloroethene (cis-1,2-DCE) | PB-150 | 2019 | 1 | 34,500 | 190 |
| Vinyl Chloride | PB-109 | 2017 | 2.5 | 4,600 | 1.5 |
| 1,1,1-Trichloroethane (1,1,1-TCA) | PB-033 | 2017 | 3 | 20,000 | 7,000 |
| Tetrachloroethene (PCE) | GB9 | 2021 | 1 | 7,700 | 80 |
| Methylene Chloride | GB9 | 2021 | 1 | 2,000 | 120 |

**Table 2. COCs Exceeding ESLs for Direct Exposure to Commercial and Industrial Workers**

| Chemical of Concern | Sample ID | Year | Depth (feet bgs) | Maximum Soil Concentration (µg/kg) | Cancer Risk ESL (µg/kg) | Noncancer Risk ESL (µg/kg) |
|---|---|---|---|---|---|---|
| TCE | GB24 | 2021 | 1 | 110,000 | 6,100 | 19 |
| Lead | PB-109 | 2017 | 2.5 | 21,000,000 | 380,000 | 320,000 |
| PCB Aroclor 1242 | GB49 | 2021 | 4 | 17,000 | 940 | Not applicable |
| PCB Aroclor 1248 | UT-28 | 2013 | 1 | 44,000 | 940 | Not applicable |
| PCB Aroclor 1254 | PB-109 | 2017 | 2.5 | 41,000 | 940 | Not applicable |
| PCB Aroclor 1260 | GB81 | 2021 | 4 | 7,600 | 940 | Not applicable |

**Table 3. COCs Exceeding ESLs for Direct Exposure to Construction Workers**

| Chemical of Concern | Sample ID | Year | Depth (feet bgs) | Maximum Soil Concentration (µg/kg) | Cancer Risk ESL (µg/kg) | Noncancer Risk ESL (µg/kg) |
|---|---|---|---|---|---|---|
| TCE | GB24 | 2021 | 1 | 110,000 | 130,000 | 18,000 |
| Lead | PB-109 | 2017 | 2.5 | 21,000,000 | 2,700,000 | 160,000 |
| PCB Aroclor 1242 | GB49 | 2021 | 4 | 17,000 | 940 | Not applicable |
| PCB Aroclor 1248 | UT-28 | 2013 | 1 | 44,000 | 5,500 | Not applicable |
| PCB Aroclor 1254 | PB-109 | 2017 | 2.5 | 41,000 | 5,500 | Not applicable |
| PCB Aroclor 1260 | GB81 | 2021 | 4 | 7,600 | 940 | Not applicable |

**Groundwater Investigations**

Pursuant to CAO No. 98-08, groundwater investigations at the Site have identified the presence of COCs within the three water-bearing zones at the Site:

- Zone A – extends to a depth of approximately 25 feet bgs.
- Upper Zone B – extends approximately 25 to 55 feet bgs.
- Lower Zone B – extends approximately 55 to 125 feet bgs.

The concentrations of these COCs exceed the (1) MCLs, which indicate they are impacting the MUN beneficial use in the three zones, and (2) vapor intrusion ESLs, which indicate they may pose a potential vapor intrusion risk to current and future building occupants.

**Tables 4 through 7** list COCs that exceed the MCLs and ESLs, but do not represent a complete list of exceedances.

**Table 4. COCs in Zone A Groundwater Exceeding MCLs**

| Chemical of Concern | Sample ID | Year | Maximum Groundwater Concentration (micrograms per liter [µg/L]) | MCL (µg/L) |
|---|---|---|---|---|
| TCE | HP57-7A | 1993 | 300,000 | 5 |
| cis-1,2-DCE | HPNC-14 | 2001 | 160,000 | 6 |
| Vinyl Chloride | HPNC-06 | 2001 | 32,000 | 0.5 |
| 1,1,1-TCA | HP57-6B-17 | 1993 | 420,000 | 200 |

**Table 5. COCs in Zone A Groundwater Exceeding Vapor Intrusion ESLs**

| Chemical of Concern | Sample ID | Year | Maximum Groundwater Concentration (µg/L) | Cancer Risk ESL (µg/L) | Noncancer Risk ESL (µg/L) |
|---|---|---|---|---|---|
| TCE | HP57-7A | 1993 | 300,000 | 7.5 | 22 |
| cis-1,2-DCE | HPNC-14 | 2001 | 160,000 | Not applicable | 21 |
| Vinyl Chloride | HPNC-06 | 2001 | 32,000 | 0.14 | 400 |
| 1,1,1-TCA | HP57-6B-17 | 1993 | 420,000 | Not applicable | 6,300 |

**Table 6. COCs in Upper Zone B Groundwater Exceeding MCLs**

| Chemical of Concern | Sample ID | Year | Maximum Groundwater Concentration (µg/L) | MCL (µg/L) |
|---|---|---|---|---|
| TCE | HP18 | 2018 | 22,000 | 5 |
| cis-1,2-DCE | HP21 | 2018 | 3,600 | 6 |
| Vinyl Chloride | HP21 | 2018 | 730 | 0.5 |

**Table 7. COCs in Lower Zone B Groundwater Exceeding MCLs**

| Chemical of Concern | Sample ID | Year | Maximum Groundwater Concentration (µg/L) | MCL (µg/L) |
|---|---|---|---|---|
| TCE | HP22 | 2018 | 2,200 | 5 |
| cis-1,2-DCE | HP22 | 2018 | 320 | 6 |

**Soil Gas Investigations**

Limited soil gas investigations were conducted at the North Campus Property in May 2018, September 2019, and August 2020. A comprehensive soil gas investigation must be conducted throughout the Site to evaluate the distribution and extent of the contamination and to evaluate vapor intrusion risks to future building occupants due to wastes discharged from the North Campus Property.

The May 2018 and August 2020 soil gas investigations were conducted at Buildings 29, 99, and 100, located on Parcel A of the North Campus Property. The September 2019 soil gas investigation was conducted on Parcel B of the North Campus Property. These investigations assessed the presence of COCs in soil gas beneath building slabs and hardscape. The concentrations of certain VOCs exceeded the respective soil gas ESLs, which indicate they may pose a potential vapor intrusion risk to future building occupants. **Table 8** lists VOCs that exceed the ESLs but does not represent a complete list of exceedances.

**Table 8. COCs in Soil Gas Exceeding ESLs**

| Chemical of Concern | Sample ID | Depth (feet bgs) | Maximum Soil Gas Concentration (micrograms per cubic meter [µg/m$^3$]) | Soil Gas ESL (µg/m$^3$) |
|---|---|---|---|---|
| Benzene | PB-V13 | 3 | 1,200 | 14 |
| Ethylbenzene | PB-V13 | 3 | 2,700 | 160 |
| Carbon Tetrachloride | PB-V02 | 3 | 320,000 | 68 |
| Bromodichloro -methane | PW-09 | 4.5 | 140 | 11 |
| Chloroform | B-29-SV03-5' | 5 | 39,000 | 18 |
| 1,1-DCA | PB-V06 | 3 | 380,000 | 260 |
| 1,2-DCA | PB-V03 | 3 | 2,500 | 16 |
| PCE | PB-V03 | 3 | 170,000 | 67 |
| 1,1,2-TCA | PB-V06 | 3 | 630 | 26 |
| TCE | PB-V02 | 3 | 87,000,000 | 100 |
| 1,1,1-TCA | PB-V03, PB-V06 | 3 | 1,000,000 | 150,000 |
| Vinyl chloride | PB-V06 | 3 | 120,000 | 5.2 |

**<u>Indoor Air Investigations</u>**

Limited indoor air investigations were conducted at the North Campus Property in September 2018 and February 2019. A comprehensive indoor air investigation must be conducted in buildings throughout the Site to evaluate the distribution and extent of the contamination and to evaluate vapor intrusion risks to current and future building occupants due to wastes discharged from the North Campus Property.

The September 2018 indoor air investigations were conducted at Buildings 29 and 1, located on Parcels A and B, respectively, of the North Campus Property. These investigations screened for the presence of TCE entering the buildings through potential vapor intrusion preferential pathways. Indoor air concentrations were measured using a direct-reading instrument. The concentrations are representative of concentrations at a given point in time and differ from time-weighted average concentrations collected over an 8-hour workday. TCE screening results were the following:

Building 29

- TCE concentrations reported ranged from 0.012 to 5.5 µg/m$^3$ in the breathing zone.
- TCE concentrations of 1.6 and 352 µg/m$^3$ were reported near two drains.
- TCE was reported at a concentration of 599 µg/m$^3$ inside a crack in the slab.

Building 1

- TCE concentrations reported ranged from 0.12 to 6.8 µg/m$^3$ in the breathing zone.
- TCE concentrations of 0.56, 2.0, and >107 µg/m$^3$ were reported near utility trenches.

While the TCE concentrations in the breathing zone do not exceed the U.S. Environmental Protection Agency (EPA) Region 9 Interim TCE Indoor Air Response Levels (RLs)[5] for a commercial/industrial worker (8-hour workday), a comprehensive indoor air investigation must be conducted at Building 29. The rollup doors were open and indoor fans were operating when measurements were taken; TCE concentrations therefore may be biased low.

Indoor air screening was conducted again in February 2019 at the same locations. Doors and windows that are typically open were closed in February. TCE screening results for the February 2019 event were the following:

Building 29:

- TCE concentrations reported ranged from 1.5 µg/m$^3$ to 114 µg/m$^3$. Concentrations reported at six locations in the former Maintenance Department exceeded the RL in the breathing zone.
- TCE was reported at a concentration of 9.6 µg/m$^3$ for the drain where 352 µg/m$^3$ was previously reported. A hole in the cover was welded shut following the September 2019 screening event.
- TCE concentration of 121 µg/m$^3$ was reported inside the crack in the slab.

[5] California Department of Toxic Substances Control, Human and Ecological Risk Office Human Health Risk Assessment Note 5

Building 1:

- TCE concentrations reported ranged from 0.11 to 136 µg/m$^3$ in the breathing zone. Concentrations reported at eight locations in the building exceeded the RL.

- TCE concentrations of 0.60, 0.92, and 600 µg/m$^3$ were reported at the utility trenches previously monitored during the September 2018 screening event.

10. **Potential Environmental Concerns.** The North Campus Property is almost entirely paved with concrete and asphalt and has over one million square feet of office and industrial buildings. These improvements make it difficult to identify all discharges of waste in soil, soil gas, and groundwater beneath the North Campus Property.

    Similar manufacturing operations were conducted at the North Campus Property and the former South Campus Property. There is a high probability that potential environmental concerns (PECs) will be encountered at the North Campus Property when the surface and subsurface structures are demolished (e.g., existing buildings, concrete, and foundations), similar to the PECs found at the former South Campus Property[6] (Exchange Parcel, H Street Extension, and the remainder of the South Campus Property).

11. **Cleanup Levels Pursuant to Resolution No. 92-49.** Resolution No. 92-49 sets forth the policies and procedures used during an investigation or cleanup of a discharge of waste and requires that cleanup levels be consistent with Resolution No. 68-16. Resolution No. 92-49 applies to the cleanup and abatement of the effects of waste discharged at the Site.

    Resolution No. 92-49 requires that dischargers clean up or abate the effects of discharges in a manner that promotes the attainment of background water quality, or the best water quality that is reasonable if background water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. Any alternative cleanup level greater than 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 waters of the state; 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.

12. **Conceptual Site Model.** In May 2020, Rohr submitted a Conceptual Site Model (CSM) report for the North Campus Property to the San Diego Water Board in anticipation of issuance of this CAO. In October 2020, the San Diego Water Board provided written comments on the CSM, which will

[6] Pursuant to CAO No. R9-2014-0019.

require revisions to the CSM report. Rohr is currently reviewing and considering the San Diego Water Board's comments.

13. **Data Gap Assessment Reports.** In November 2019 and May 2020, Rohr submitted Data Gap Assessment Reports for Parcel B and Parcel A – Building 29, respectively. Additional data gaps may be identified for Parcels A, B, and C based on the San Diego Water Board's comments on the CSM report for the North Campus Property (**Finding 12**). Summaries of the Data Gap Assessment Reports are provided below:

    a. **Parcel B.** The purpose of the data gap assessment for Parcel B was to support the sale of the parcel by (1) further investigating soil in the vicinity of former outfalls located along the historical shoreline and at the former Western Drainage Ditch, and (2) conducting a supplemental soil gas survey at former potential release areas. Rohr concluded the following based on the results of the data gap assessment:

        i. The soil investigation identified additional VOCs, metals, and PCBs in the vicinity of the former outfalls located along the historical shoreline.

        ii. The soil gas survey identified the presence of potential residual VOCs including TCE, PCE, 1,1,1-TCA, benzene, toluene, ethylbenzene, and xylenes in the locations of their historical storage and use. The mobile laboratory conducted limited dilutions, given the elevated VOC concentrations in some of the samples. Therefore, some of the elevated results reported may not be representative of actual field conditions. Accordingly, these analytical results should be considered semi-quantitative and should be confirmed through analysis by a fixed laboratory.

    b. **Parcel A – Building 29.** The purpose of the data gap assessment for Building 29 at Parcel A was to support development of a Human Health Risk Assessment (HHRA) and Soil Remedial Action Plan for this CAO. Additional soil and groundwater samples were collected to further investigate data gaps associated with historical environmental features. Rohr concluded the following based on the results of the data gap assessment:

        i. Arsenic was detected in soil at concentrations above the Groundwater Protection Level (GPL) at boring B29-07A.

        ii. PCBs were not detected in soil at concentrations above the commercial/industrial California Department of Toxic Substances Control screening levels (DTSC-SLs) at the step-out borings.

iii. Analytical results of soil and groundwater samples collected at the reported locations of the former mills and lathes did not identify impacted areas associated with these former features.

iv. Analytical results for borings B29-23 and B29-24 suggest that there are sources of TCE in soil beneath the former Maintenance Department. The soil samples from these borings had TCE concentrations that were above the commercial/industrial DTSC-SL and the commercial/industrial ESL for the vapor intrusion-sand scenario. TCE in the sample from boring B29-23 was also above the GPL.

v. TCE was present in Zone A and Upper Zone B groundwater beneath the Former Maintenance Department at concentrations that exceed the MCL.

**14. Site Background Soil and Groundwater Cleanup Levels.** In October 2019, pursuant to Resolution No. 92-49, Rohr submitted a technical analysis to the San Diego Water Board to identify the background cleanup levels for inorganic chemicals in soil and groundwater at the Site, which includes Parcel H-3.[7] The cleanup levels for inorganic chemicals in (1) soil must lead to attainment of background water quality in groundwater, and (2) groundwater must attain background water quality.

The technical analysis concluded that the background levels for metals in soil and groundwater at the South Campus Property, as established in Addendum No. 2 to CAO No. R9-2014-0019, are applicable to the Site. This conclusion is based on the following rationale:

a. The Site and South Campus Property are contiguous parts of the same manufacturing facility and similar lithologic conditions occur at both locations.

b. The statistical analysis techniques used for the South Campus Property background analysis follow the same processes used in current statistical software.

c. The statistical analysis techniques used for determining background concentrations for metals in groundwater at the South Campus Property used a recent version of the EPA-approved statistical software (ProUCL Version 5.0.00). The analysis is directly applicable to current conditions, including assessing background groundwater conditions at the Site.

[7] AECOM, 2019. Revised Background Soil and Groundwater Report for the North Campus. Rohr, Inc., North Campus Facility, Chula Vista, California. October 24.

d. The statistical analysis techniques used for determining background concentrations for hexavalent chromium in groundwater for the South Campus Property used ProUCL Version 5.0.00. The analysis is directly applicable to current conditions, including assessing background groundwater conditions at the Site. To support this analysis, Rohr used ProUCL Version 5.0.00 and Version 5.1 to assess an antimony soil data set for the South Campus Property. The same background result was produced for both ProUCL versions (0.392 milligrams per kilogram). As such, there are no technical differences in the statistical software used to develop these background concentrations.

For all organic chemicals, the background soil and groundwater cleanup levels are non-detect concentrations. The detection limits for all organic chemicals in soil must not exceed the respective EPA Region 9 Regional Screening Levels (RSLs)[8] and the San Francisco Bay Water Board ESLs.[9] The detection limits for all organic chemicals in groundwater must not exceed the respective MCLs.

15. **Site Feasibility Study for Cleanup to Background Levels in Soil and Groundwater.** As of the date of issuance of this CAO, Rohr has not prepared a feasibility study to determine if it is technologically and economically feasible to clean up the wastes in soil to the background cleanup levels. Rohr must prepare and submit this feasibility study to the San Diego Water Board to meet the requirements of Resolution No. 92-49.

In April 2020, pursuant to Resolution No. 92-49, Rohr prepared a feasibility study to determine if it is technologically and economically feasible to clean up the wastes in groundwater at the Site (includes Parcel H-3) to the background cleanup levels.[10] While Rohr concluded that it is infeasible based on (1) the results of the site-specific trend analysis and (2) the presumed slow back-diffusion of VOC mass stored in fine-grained layers beneath the Site, the San Diego Water Board requires that Rohr confirm its conclusion by collecting additional data during implementation of the Site groundwater Remedial Action Plan (RAP) as required in **Directive C.6.b**. At a minimum, remediation performance monitoring data shall be used to reevaluate the technical feasibility and incremental cost benefit of remediating to background water quality conditions, including evaluating whether back-diffusion is a significant deterrent to reaching background water quality conditions.

Because Rohr determined it was infeasible to clean up to the background cleanup levels in its April 2020 feasibility study, Rohr proposed the

[8] USEPA Region 9 Regional Screening Levels
[9] San Francisco Bay Water Board Environmental Screening Levels
[10] AECOM, 2020. Revised Alternative Cleanup Levels Report for the North Campus/Parcel H-3. Rohr, Inc., North Campus Facility, Chula Vista, California. April 2.

alternative cleanup levels in **Table 9**; however, these levels have not been accepted by the San Diego Water Board as of the date of this CAO.

**Table 9. Proposed Alternative Cleanup Levels for Site Groundwater**

| Groundwater Zone | Alternative Cleanup Level |
|---|---|
| Zone A | MCLs, Notification Level (NL) for 1,4-dioxane[11], and California Toxics Rule (CTR) criteria[12] (only for point-of-compliance monitoring wells located along the shoreline) |
| Upper/Lower Zone B | MCLs, NL for 1,4-dioxane, and CTR criteria (only for point-of-compliance monitoring wells located along the shoreline) |

16. **Parcel H-3.** Parcel H-3 is located on filled tidelands surrounded by the North Campus Property, Chula Vista Marina, San Diego Bay, and the wetlands of the Sweetwater National Wildlife Refuge **(Figure 1)**.

    a. **Site History.** The Off-Property area that includes Parcel H-3 was reclaimed from San Diego Bay in 1960-1962 through the placement of dredged material from the Bay. In 1966, three warehouse buildings (Buildings 910, 911, and 912) were constructed in the fill area and leased to Rohr, which occupied the buildings until 1993. Buildings 911 and 912 were within the footprint of what is now Parcel H-3. Building 910 was located just south of Parcel H-3. Rohr operations in these buildings included material storage, material cutting and rough-finishing, and small-parts fabrication. Rohr reportedly used a vapor degreaser at Building 912. During this timeframe, Rohr also operated a material storage yard to the east of the buildings that had a paint booth, welding booth, and wash bay with a grease interceptor pit. After Rohr vacated the buildings, they were leased to Eco Building Systems, Inc., and afterward AFS Industries, LLC. The above-grade structures of the warehouse buildings were demolished in 2008 and 2009. The building pads were removed in 2018 prior to importing fill at Parcel H-3.

    Parcel H-3 also includes a triangular parcel in the northeast corner that was acquired by Rohr from the Port of San Diego in 1999 under the Relocation Agreement[13]. The triangular parcel was used for employee/contractor parking. The Unified Port of San Diego

[11] California State Water Resources Control Board - Department of Drinking Water, Notification Level for 1,4-Dioxane
[12] Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule)
[13] Relocation Agreement - City of Chula Vista, Redevelopment Agency of the City of Chula Vista, San Diego Unified Port District, and Rohr, Inc., Operating as BF Goodrich Aerospace Aerostructures Group

acquired ownership of that triangular parcel in 2018 through an eminent domain process.

b. **Conceptual Site Model.** In September 2019, Rohr finalized the Conceptual Site Model (CSM) report[14] for Parcel H-3.

The releases of chlorinated VOCs and 1,4-dioxane at the North Campus Property have migrated in groundwater flowing to the west onto Parcel H-3 and extending towards the Chula Vista Marina. Environmental features that appear to be sources of VOC migration include the former TCE/1,1,1-TCA aboveground storage tank, historical releases in the Oiler Shed area located at the southwest corner of Building 1, and possibly former vapor degreasers or other features in the northwest portion of the North Campus Property **(Figure 4)**.

Seawater intrudes below less saline water in the western area of the groundwater plume, causing upward vertical gradients and upward VOC plume migration into the overlying freshwater zones. Based on the presence of degradation products, reductive dechlorination and abiotic degradation are important mass removal mechanisms for chlorinated ethenes and ethane in groundwater. However, given the abundance of silt/clay layers in contact with the VOC plumes, back-diffusion of VOCs from these silts/clays along flow paths is expected to sustain VOC concentrations and extend remedial timeframes. **Figure 5** shows a schematic illustration of the CSM.

c. **Human Health Risk Assessment.** In March 2020, Rohr finalized the HHRA[15] for Parcel H-3. The overall objective of the HHRA is to define the potential risks to human health from exposure to COCs within the Parcel H-3 boundaries.

As summarized in the CSM report for Parcel H-3, VOCs have migrated from the North Campus Property to Parcel H-3. Therefore, the primary medium of concern for Parcel H-3 is groundwater containing VOCs. Secondary impacted media include saturated soil in contact with VOCs in groundwater and soil gas containing VOCs that have volatilized from shallow groundwater. Potential human and ecological risks for areas downgradient of Parcel H-3 will be evaluated as part of the risk assessment for the North Campus Property and the other Off-Property areas.

[14] AECOM, 2019. Conceptual Site Model Report - Parcel H3 and Offsite Areas. North Campus, Chula Vista, California. September 30.
[15] AECOM, 2020. Human Health Risk Assessment - Parcel H3. North Campus, Chula Vista, California. March 13.

Parcel H-3 is proposed to be redeveloped as a hotel/convention center space with an attached pool/water park area. Based on the proposed Parcel H-3 redevelopment activities, potential future receptors at Parcel H-3 will include construction workers, landscape workers, utility workers, commercial workers, and hotel guests/recreational users.

Cumulative cancer risks and noncancer hazards for commercial workers and hotel guests potentially exposed to soil gas through the vapor-intrusion-to-indoor-air pathway are less than the DTSC target cancer risk level of $1x10^{-5}$ and target noncancer hazard index (HI) of 1. These results confirm the conclusions of the previous vapor intrusion investigations that no unacceptable health risk is anticipated for commercial workers or hotel guests of the future buildings through the vapor intrusion pathway, even under the conservative use of the maximum detected soil gas concentrations combined with a default attenuation factor of 0.03 to estimate indoor air concentrations.

For the Parcel H-3 West exposure area (Water Park), predicted construction worker and landscaper exposures based on maximum detected concentrations in saturated subsurface soil and groundwater in the Water Park exposure area resulted in noncancer HIs that exceed the target health goal of 1 and cancer risks that exceeded the acceptable risk level range of $1x10^{-6}$ to $1x10^{-4}$. Cancer risks were driven almost entirely by exposure to vinyl chloride and TCE in groundwater. Exposure to soil alone does not pose an unacceptable risk to construction workers or landscapers in this area. The reported risks and hazards in the Water Park exposure area are driven by a single set of groundwater sample results at boring location H3-DP14 at the 10-foot depth interval near the northwest property boundary. February 2020 sampling results confirm that the concentrations of VOCs measured at boring location H3-DP14 are anomalous, and the groundwater results from boring location HP-70 should supersede the concentrations measured in H3-DP14. These results also indicate that concentrations in shallow groundwater at boring location HP-70 are less than the health-based remediation goals for construction and landscape workers (discussed further below) and thus do not pose an unacceptable health hazard or cancer risk to construction and landscape workers. As such, the risk assessment for Parcel H-3 West indicates a noncancer target health goal less than 1 and an excess cancer risk within the acceptable risk level range of $1x10^{-6}$ to $1x10^{-4}$.

For the Parcel H-3 East exposure area (Resort Hotel and Convention Center), construction and landscape worker exposures based on maximum detected concentrations in saturated

subsurface soil and shallow groundwater resulted in noncancer HIs equal to or below the target health goal of 1 and excess cancer risks within the acceptable risk level range of $1x10^{-6}$ to $1x10^{-4}$. For both receptors, cancer risks exceeded the DTSC target risk level of $1x10^{-5}$ and were driven almost entirely by exposure to vinyl chloride in groundwater. Saturated soil and shallow groundwater do not exceed the target health goal, and cancer risks are within the acceptable risk level range of $1x10^{-6}$ to $1x10^{-4}$; however, the estimated excess cancer risks exceed the DTSC threshold risk level of $1x10^{-5}$. Cancer risks are driven almost entirely by exposure to vinyl chloride in groundwater. The maximum concentration of vinyl chloride of 7.1 µg/L was measured at boring location H3-DP1. The only other detection of vinyl chloride in Parcel H-3 East was much lower (0.39 µg/L at boring location DP-465).

Health-based remediation goals for the primary risk drivers in groundwater (TCE and vinyl chloride) were calculated to be protective of construction workers (vinyl chloride: 3 µg/L and TCE: 34 µg/L) and landscape workers (vinyl chloride: 1 µg/L and TCE: 18 µg/L). These health-based remediation goals were exceeded at only two locations across the entire Parcel H-3. In the Parcel H-3 East exposure area (Resort Hotel and Convention Center), vinyl chloride at boring location H3-DP1 exceeded the remediation goal for construction worker and landscaper receptors and will be addressed with a Groundwater Management Plan (GMP). In the Water Park exposure area, health-based remediation goals for vinyl chloride and TCE were exceeded at boring location H3-DP14 for the construction and landscaper worker receptors. However, VOCs measured in boring location H3-DP14 are anomalous, and the groundwater results for samples collected from boring location HP-70 supersede the results for boring location H3-DP14. TCE and vinyl chloride were not detected in the shallow groundwater sample collected at boring location HP-70 and, thus, the TCE and vinyl chloride in groundwater do not pose an unacceptable noncancer or cancer risk for construction and landscape workers in this area.

No other exceedances of health-based remediation goals were noted. Concentrations of site-related chemicals measured in saturated subsurface soil to a depth of 15 feet bgs and shallow groundwater indicate health risks for construction worker and landscaper exposures are expected to be much lower based on (1) the conservative assumptions inherent in the risk assessment process, and (2) the fact that exposures are unlikely to occur at a single location across the exposure area.

d. **Site Background Soil and Groundwater Cleanup Levels.** In October 2019, pursuant to Resolution No. 92-49, Rohr submitted a technical analysis to the San Diego Water Board to identify the

background cleanup levels for inorganic chemicals in soil and groundwater at the Site, which includes Parcel H-3. The cleanup levels for inorganic chemicals in (1) soil must lead to attainment of background water quality in groundwater, and (2) groundwater must attain background water quality.

The technical analysis concluded that the background levels for metals in soil and groundwater at the South Campus Property, as established in Addendum No. 2 to CAO No. R9-2014-0019, are applicable to Site. This conclusion is based on the following rationale:

i. The Site and South Campus Property are contiguous parts of the same manufacturing facility, and similar lithologic conditions occur at both locations.

ii. The statistical analysis techniques used for the South Campus Property background analysis follow the same processes used in current statistical software.

iii. The statistical analysis techniques used for determining background concentrations for metals in groundwater at the South Campus Property used a recent version of the EPA-approved statistical software (ProUCL Version 5.0.00). The analysis is directly applicable to current conditions, including assessing background groundwater conditions at the Site.

iv. The statistical analysis techniques used for determining background concentrations for hexavalent chromium in groundwater for the South Campus Property used ProUCL Version 5.0.00. The analysis is directly applicable to current conditions, including assessing background groundwater conditions at the Site. To support this analysis, Rohr used ProUCL Version 5.0.00 and Version 5.1 to assess an antimony soil data set for the South Campus Property. The same background result was produced for both ProUCL versions (0.392 milligrams per kilogram). As such, there are no technical differences in the statistical software used to develop these background concentrations.

For all organic chemicals, the background soil and groundwater cleanup levels are non-detect concentrations. The detection limits for all organic chemicals in soil must not exceed the respective EPA Region 9 RSLs and the San Francisco Bay Water Board ESLs. The detection limits for all organic chemicals in groundwater must not exceed the respective MCLs.

e. **Feasibility Study for Groundwater Background Cleanup Levels.** In April 2020, pursuant to Resolution No. 92-49, Rohr

prepared a feasibility study to determine if it is technologically and economically feasible to clean up the wastes in groundwater at the Site (includes Parcel H-3) to the background cleanup levels. While Rohr concluded that it is infeasible based on (1) the results of the site-specific trend analysis, and (2) the presumed slow back-diffusion of VOC mass stored in fine-grained layers beneath the Site, the San Diego Water Board requires that Rohr confirm its conclusion by collecting additional data during implementation of the Site groundwater RAP as required in **Directive B.1.b**. At a minimum, remediation performance monitoring data shall be used to reevaluate the technical feasibility and incremental cost benefit of remediating to background water quality conditions, including evaluating whether back-diffusion is a significant deterrent to reaching background water quality conditions.

Because Rohr determined in its April 2020 feasibility study that it was infeasible to clean up to the background cleanup levels, Rohr proposed the alternative cleanup levels in **Table 10**, however these levels have not been accepted by the San Diego Water Board as of the date of this CAO.

**Table 10. Proposed Alternative Cleanup Levels for Parcel H-3 Groundwater**

| Groundwater Zone | Alternative Cleanup Level |
|---|---|
| Zone A | MCLs or risk-based cleanup levels (whichever is lower), NL for 1,4-dioxane, and CTR criteria (only for point-of-compliance monitoring wells located along the shoreline) |
| Upper/Lower Zone B | MCLs, NL for 1,4-dioxane, and CTR criteria (only for point-of-compliance monitoring wells located along the shoreline) |

f. **Interim Groundwater Remediation.** In March 2020, Rohr finalized a groundwater feasibility study and RAP (FS-RAP) report[16] for Parcel H-3. The objectives of the FS-RAP are to identify and implement an interim groundwater remedial alternative within Parcel H-3 to meet the following remedial action objectives: (1) protect human health, (2) reduce the flux of VOCs migrating from the North Campus Property to Parcel H-3, (3) remove VOC mass from groundwater beneath Parcel H-3, and (4) achieve MCLs in groundwater by working in concert with the remedy for the North

[16] AECOM, 2020. Revised Groundwater Feasibility Study Report - Remedial Action Plan Interim Groundwater Remediation for Parcel H3. North Campus, Chula Vista, California. March 16.

Campus Property and the other adjacent off-site areas.

The selected remedial alternative for Parcel H-3 includes a combination of the following remedial technologies to meet the remedial action objectives:

i. **In Situ Chemical Reduction and Enhanced In Situ Bioremediation.** In situ chemical reduction (ISCR) and enhanced in situ bioremediation (EISB) amendments were injected into Zone A and Upper Zone B groundwater to create four permeable reactive barriers (PRBs). The amendments consist of zero valent iron (ZVI), emulsified vegetable oil (EVO), and a commercial Dehalococcoides (DHC) culture KB-1™ or equivalent.

   The treatment areas are primarily focused on TCE concentrations that exceed 5,000 µg/L. The barrier located near the property boundary of the North Campus Property (Barrier 1) will target Zone A and Upper Zone B groundwater to limit migration of TCE and other chlorinated VOCs from North Campus Property onto Parcel H-3. Barrier 2, located in the center of Parcel H-3, will target Upper Zone B groundwater and intercept 10,000-µg/L TCE isoconcentration contours with an estimated in situ VOC treatment period of 5 years. Barriers 3 and 4, located near the downgradient boundaries of Parcel H-3, will target Upper Zone B groundwater to limit migration of VOCs from Parcel H-3.

ii. **Enhanced In Situ Bioremediation and Bioaugmentation.** EISB and bioaugmentation amendments were injected into Zone A and Upper Zone B groundwater in a grid pattern to reduce contaminant mass directly within the inferred 10,000-µg/L TCE contours. The amendments consist of EVO and a microbial consortium.

iii. **Monitored Natural Attenuation.** Monitored natural attenuation will be implemented by monitoring existing and new monitoring wells to demonstrate plume stability and/or declining VOC and 1,4-dioxane concentrations within and near Parcel H-3.

iv. **Engineered Controls.** The HHRA identified one isolated area within Parcel H-3 where VOC concentrations in shallow groundwater may pose unacceptable risks to construction or landscape workers. In the Convention Center exposure area, vinyl chloride at H3-DP1 exceeded the remediation goal for construction worker and landscaper receptors. VOC

concentrations are expected to decline over time at this location as the remedy is implemented and through natural attenuation processes.

Potential risks to future construction and landscape workers will be managed through implementation of a GMP. The GMP will be prepared to protect workers from possible contact with chemicals in groundwater that may be generated by dewatering for subsurface construction, including excavation and utility placement. The GMP will describe appropriate dewatering control and discharge requirements, including the engineered controls necessary to minimize worker contact with groundwater, and the treatment technologies and methods required to meet applicable discharge criteria specified in project permits and approvals. The GMP will be submitted to the San Diego Water Board for review and approval.

g. **Implementation Schedule.** In March 2020, Rohr began implementing the selected interim remedial alterative pursuant to CAO No. 98-08. Injections were completed in September 2020; however, additional injections will be conducted later once specific areas become accessible.

h. **Interim Remedial Action Reporting.** Rohr, as discussed in the FS-RAP, will submit routine progress reports to the San Diego Water Board. These monitoring reports will document the implementation of remedial activities at Parcel H-3, including well logs, quantities and types of amendments injected into the subsurface, the sequence of amendment injections, monitoring results, and supporting data. Rohr will also submit Quarterly Monitoring Reports in accordance with Monitoring and Reporting Program No. R9-2008-0081 for In-Situ Groundwater Remediation Projects within the San Diego Region.[17]

**17. Need and Benefit of Technical and Monitoring Reports.** The San Diego Water Board is authorized by Water Code section 13267 to require any person who has discharged, discharges, or is suspected of having discharged or discharging waste within the Region to prepare technical reports and monitoring reports. The technical and monitoring reports required by this CAO are needed to provide information to the Board regarding (a) the nature and extent of the discharge, (b) the nature and extent of nuisance conditions in state waters created by the discharge, (c) the potential for vapor risk to human health as a result of the discharge, and (d) appropriate cleanup and abatement measures, if needed, capable of

[17] Order No. R9-2008-0081 - General Waste Discharge Requirements for In Situ Groundwater Remediation Projects within the San Diego Region

meeting cleanup levels consistent with Resolution No. 92-49. The technical and monitoring reports will enable the Board to understand the vertical and lateral extents of the discharge and provide information to determine which cleanup and abatement measures are necessary to bring the Site into compliance with Resolution No. 92-49 and ensure protection of human health. Based on the nature of the discharge and possible effects and consequences associated with the discharge at the Site, as described in the Findings above, the burden of providing the required technical and monitoring reports, including the costs, bears a reasonable relationship to the need for the reports, and to the benefits to be obtained from the reports.

As provided by Rohr, the estimated total cost associated with the implementation of the directives included in this CAO range from $18.7M to $26.8M and are described in **Table 11**:

**Table 11. Estimated Costs for this CAO**

| Task | Estimated Cost Range |
|---|---|
| Site Assessment and Investigation | $2.2M to $3.8M |
| Remedial Action – Soil | $4.0M to $6.0M |
| Remedial Action – Soil Gas | $0.7M to $1.0M |
| Remedial Action – Groundwater | $9.8M to $12.5M |
| Post-Remediation Site Monitoring | $2.0M to $3.5M |
| ***Estimated Total*** | **$18.7M to $26.8M** |

18. **California Environmental Quality Act Compliance.** Interim remedial activities are ongoing at Parcel H-3 pursuant to Order No. 98-08. Issuance of this CAO is not subject to the California Environmental Quality Act (CEQA) because it can be seen with certainty that there is no possibility that issuance of this CAO may have a significant effect on the environment.[18] This CAO directs the Dischargers to undertake corrective actions through implementation of remedial action plans, but the details of the remedial action plans are not yet known. The San Diego Water Board will evaluate compliance with CEQA when it considers approval of the Dischargers' proposed remedial action plans.

19. **Qualified Professionals.** The Dischargers' reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigations. Professionals must be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under direction of licensed professionals.

[18] See Cal. Code Regs., title 14, section 15061(b)(3).

**20. Cost Recovery.** Pursuant to Water Code section 13304, subsection (c), and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board is entitled to, and will seek reimbursement for, all reasonable costs incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this or a subsequent CAO.

**IT IS HEREBY ORDERED** that (1) this CAO supersedes CAO No. 98-08 except for the performance of ongoing interim remedial actions at Parcel H-3, which will be conducted pursuant to CAO No. 98-08, and (2) pursuant to sections 13267 and 13304 of the Water Code, the Dischargers must comply with the following directives:

**A. Cleanup or Abatement of Discharged Wastes.** The Dischargers must take all corrective actions necessary to clean up or abate the effects of the discharges to soil, soil gas, and groundwater at the Site.

1. Wastes in soil at the Site must be cleaned up or abated in a manner that promotes attainment of background concentrations or alternative cleanup levels in groundwater and protects human health.

2. Wastes in groundwater at the Site must be cleaned up or abated in a manner that attains background concentrations or alternative cleanup levels approved by the San Diego Water Board.

3. Wastes in groundwater at the point-of-compliance wells located along San Diego Bay and Chula Vista Marina shorelines must be cleaned up or abated in a manner that attains (a) background concentrations in groundwater or (b) CTR water quality standards for human ingestion of water/seafood and risk-based concentrations protective of aquatic receptors.

4. Wastes in soil gas at the Site caused by soil and/or groundwater contamination must be cleaned up or abated in a manner that protects human health.

**B. Off-Property Cleanup or Abatement.** The Dischargers must clean up or abate discharges of waste to soil, soil gas, and groundwater that have migrated and continue to migrate from the North Campus Property to Off-Property areas. Remedial actions at the Off-Property areas, except for Parcel H-3, must be addressed in parallel with the cleanup or abatement of wastes discharged on the North Campus Property. Remedial actions at Parcel H-3 are being implemented prior to the other Off-Property areas due to an accelerated redevelopment schedule. The directives for Parcel H-3 and the other Off-Property areas are provided in this directive and **Directive C**, respectively. Directives associated with Parcel H-3 are as follows:

1. **Parcel H-3 Interim Groundwater Remedial Actions.** Interim groundwater remedial actions are underway at Parcel H-3 pursuant to CAO No. 98-08. The interim remedial actions must be capable of achieving MCLs in groundwater. The following reports are required under CAO No. R9-2021-0042:

    a. **Parcel H-3 Remedial Action Plan Progress Reports.** The Dischargers must prepare monthly RAP Progress Reports. RAP Progress Reports must be submitted to the San Diego Water Board for approval **no later than 30 calendar days following the close of each month**. The first RAP Progress Report must be submitted after the first full month of RAP implementation.

    The Dischargers can propose an alternate schedule upon completing the installation of the selected remedial alterative. The proposed alternate schedule must be submitted in writing to the San Diego Water Board for Executive Officer approval.

    Each progress report must include, but is not limited to, the following:

    i. A detailed description of the remedial actions conducted and any deviations from the activities described in the RAP.

    ii. Supporting information such as analytical laboratory reports and waste manifests.

    iii. Remediation schedule updates.

    iv. Conclusions and recommendations.

    b. **Parcel H-3 Groundwater Cleanup Levels Report.** The Dischargers must prepare a Parcel H-3 Groundwater Cleanup Levels Report that reevaluates the technological and economic feasibility of cleaning up the wastes discharged in groundwater at Parcel H-3 to background groundwater cleanup levels. At a minimum, remediation performance monitoring data collected during the groundwater remedial actions at the Site shall be used to develop the background feasibility study. The Parcel H-3 Groundwater Cleanup Levels Report must be submitted to the San Diego Water Board (1) after 1 year of Groundwater RAP monitoring and data collection, and (2) **no later than 60 calendar days after the San Diego Water Board has approved the report for the last Groundwater RAP monitoring and sampling event in the 1-year period.**

The Parcel H-3 Groundwater and Soil Gas Remedial Alternatives Report must include, but is not limited to, the following:

i. A summary of the Feasibility Study, as described in **Finding 16.e**, that evaluated the technological and economic feasibility of cleaning up the wastes discharged to groundwater at Parcel H-3 to background groundwater cleanup levels and proposed alternative cleanup levels.

ii. Identification of COC source areas and the lateral and vertical extents of COCs in groundwater and soil gas.

iii. Reevaluation of whether back-diffusion from the low-permeability silt/clay layers to more permeable sand layers is a significant deterrent to reaching background water quality conditions.

iv. Reevaluation of whether it is technologically and economically infeasible to reaching background water quality conditions. If the San Diego Water Board accepts the Dischargers reevaluation confirming it is infeasible to clean up to background water quality conditions, the Dischargers will implement the alternative cleanup levels proposed in **Finding 16.e**.

c. **Parcel H-3 Cleanup and Abatement Completion Report.** The Dischargers must prepare a Cleanup and Abatement Completion Report verifying the completion of all cleanup activities in contaminated groundwater that have migrated from the North Campus Property to Parcel H-3. The Cleanup and Abatement Completion Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the San Diego Water Board has approved the Parcel H-3 RAP Progress Report for the last Groundwater RAP monitoring and data collection event**.

The Cleanup and Abatement Completion Report must demonstrate that (1) all corrective actions necessary to clean up or abate the effects of the wastes discharged to groundwater from the North Campus Property to Parcel H-3 have been completed, and (2) background concentrations or alternative cleanup levels have been met in groundwater beneath Parcel H-3.

**C. Site Cleanup or Abatement (excluding Parcel H-3).** The Dischargers must clean up or abate discharges of waste to soil, soil gas, and groundwater at the Site.

Discharges of waste from the North Campus Property to Parcel H-3 are being addressed separately due to an accelerated redevelopment schedule for Parcel H-3. The directives for Parcel H-3 are provided in **Directive B**. Directives associated with the Site, excluding Parcel H-3, are as follows:

1. **Updated Conceptual Site Model Report.** The Dischargers must prepare an updated CSM Report for discharges of waste to soil, soil gas, and groundwater at the Site, excluding Parcel H-3, based on the San Diego Water Board's October 2020 comments on Rohr's CSM report submitted in May 2020.

   In general, CSM Reports must be updated routinely when new information is obtained throughout the life of the project. Development and refinement of the CSM Reports help identify potential investigation data gaps, which can ultimately support remedial decision-making.

   The updated CSM Report must include, but is not limited to, the following:

   a. A description of the Site, excluding Parcel H-3. The description must include the history, geology, hydrogeology, environmental features, source areas, previous investigation and remediation activities, contaminant migration pathways, receptors of concern, and extent of COCs in soil, soil gas, and groundwater.

   b. A graphical illustration of the environmental features, source areas, and contaminant migration/exposure pathways in soil, soil gas, and groundwater.

   c. A flowchart showing the primary/secondary sources and release mechanisms, tertiary sources and release mechanism, quaternary sources and release mechanism, potential exposure pathways, and receptors.

   d. An identification and discussion of the site investigation data gaps associated with source identification, lateral and vertical extents of contamination, and potential threats to water quality and human health.

   The updated CSM Report must be submitted to the San Diego Water Board for approval **no later than 60 calendar days after the date of this CAO**.

2. **Site Investigation Data Gaps.** The Dischargers must address the data gaps identified in the CSM Report. The following deliverables are required:

a. **Site Data Gap Investigation Work Plan.** The Dischargers must prepare a Site Data Gap Investigation Work Plan to address the data gaps identified in the updated CSM Report. The Site Data Gap Investigation Work Plan must be submitted to the San Diego Water Board for approval **no later than 120 calendar days after the date of this CAO**.

   The Site Data Gap Investigation Work Plan must include, but is not limited to, the following:

   i. A summary of the updated CSM Report described in **Directive C.1**.

   ii. A detailed description of all activities planned to address the data gaps.

   iii. An implementation schedule.

b. **Site Data Gap Investigation Report.** The Dischargers must prepare a Site Data Gap Investigation Report that presents the findings of implementation of the Site Data Gap Investigation Work Plan. The Site Data Gap Investigation Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the last scheduled activity in the work plan is completed**.

   The Site Data Gap Investigation Report must include, but is not limited to, the following:

   i. A detailed description of all activities completed to address the data gaps.

   ii. Supporting information such as boring logs, data tables, maps, and laboratory analytical data.

   iii. Results, conclusions, and recommendations.

3. **Site Human Health Risk Assessment.** The Dischargers must prepare an HHRA for discharges of waste to soil, soil gas, and groundwater at the Site, excluding Parcel H-3. The HHRA must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site Data Gap Investigation Report.**

   The HHRA must include, but is not limited to, the following:

   a. A summary of the updated CSM Report described in **Directive C.1**.

b. An assessment of the potential risks to current and future receptors due to the discharges of waste to soil, soil gas, and groundwater at the Site, excluding Parcel H-3.

c. An assessment of the potential risks to current and future building occupants due to vapor intrusion.

d. An assessment of the potential threat to receptors in San Diego Bay due to the migration of impacted groundwater from the North Campus Property.

e. The development of risk-based soil cleanup and/or soil gas mitigation/remediation levels for discharges of waste to vadose-zone soil and soil gas at the Site, excluding Parcel H-3, to protect current and future receptors.

4. **Site Soil and Soil Gas Feasibility Study.** Pursuant to Resolution No. 92-49, the Dischargers must conduct a Site Soil and Soil Gas Feasibility Study that: (1) evaluates the feasibility of cleaning up wastes discharged to vadose-zone soil to cleanup levels that promote attainment of background water quality or to alternative cleanup levels, (2) evaluates a variety of remedial alternatives, (3) proposes a remedial alternative(s) capable of achieving the soil cleanup levels in **Directive C.4.a**, and (4) proposes a remedial alternative(s) capable of achieving the risk-based soil gas mitigation/remediation levels in **Directive C.3.e**. The following deliverables are required under this directive:

a. **Site Soil Cleanup Levels Report.** The Dischargers must prepare a Site Soil Cleanup Levels Report that evaluates the feasibility of cleaning up wastes discharged to soil at the Site, excluding Parcel H-3, to cleanup levels that will achieve background water quality or alternative cleanup levels. The Site Soil Cleanup Levels Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site HHRA.**

The Site Soil Cleanup Levels Report must include, but is not limited to, the following:

i. Identification of COC source areas and the lateral and vertical extents of COCs in soil and soil gas.

ii. An evaluation of the potential for back-diffusion from the low-permeability silt/clay layers to more permeable sand layers.

iii. An evaluation of the technological and economic feasibility of cleaning up the wastes discharged to soil

at the Site, excluding Parcel H-3, to cleanup levels that promote attainment of background water quality.

iv. If applicable, the Dischargers must develop a range of alternative cleanup levels between cleanup levels that promote attainment of background water quality conditions and cleanup levels that promote attainment of MCLs in groundwater. The alternative cleanup levels must (1) be consistent with maximum benefit to the people of the state, (2) not unreasonably affect present and anticipated beneficial uses of such water, and (3) not result in water quality less than prescribed in the Water Quality Control Plans and policies adopted by the State and Regional Water Boards. The development of alternative cleanup levels is only acceptable when it is technologically and/or economically infeasible to clean up to levels that promote attainment of background water quality.

b. **Site Soil and Soil Gas Remedial Alternatives Report.** The Dischargers must evaluate a variety of remedial alternatives and selects a remedial alternative(s) capable of achieving the soil cleanup and soil gas mitigation/remediation levels described in **Directives C.4.a and C.3.e**, respectively. The Site Soil and Soil Gas Remedial Alternatives Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site Soil Cleanup Levels Report**.

The Site Soil and Soil Gas Remedial Alternatives Report must include, but is not limited to, the following:

i. An evaluation of a variety of remedial alternatives capable of effectively cleaning up or abating the sources of COCs in (1) soil to achieve the background cleanup levels or to achieve the selected alternative cleanup levels, and (2) soil gas to achieve risk-based cleanup levels that protect current and future receptors.

Potential single or combined remedial alternatives must be evaluated based on effectiveness, implementability, overall protection of human health, and cost.

ii. The Dischargers must select a single or combined remedial alternatives from the options evaluated in **Directive C.4.b.i**. The selected remedial alternative(s) must be capable of achieving the cleanup levels for all waste constituents at all monitoring points and

throughout the zone(s) affected by the waste constituents at the Site, excluding Parcel H-3.

5. **Site Soil and Soil Gas Remedial Actions.** The Dischargers must conduct remedial actions to address the wastes discharged to soil and soil gas at the Site, excluding Parcel H-3. The remedial actions must be capable of achieving the soil cleanup levels identified in the Site Soil and Soil Gas Feasibility Study and the soil gas mitigation/remediation levels identified in the HHRA. The following deliverables are required under this directive:

    a. **Site Soil and Soil Gas Remedial Action Plan.** The Dischargers must prepare a Site Soil and Soil Gas Remedial Action Plan (Soil RAP) for wastes discharged to soil and soil gas at the Site, excluding Parcel H-3. The Soil RAP must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site Soil and Soil Gas Remedial Alternatives Report**.

    The Soil RAP must include, but is not limited to, the following:

        i. A summary of the HHRA pertaining to the potential soil and soil gas risks to current and future receptors, and the development of risk-based cleanup levels, as completed under **Directive C.3**.

        ii. A summary of the Site Soil and Soil Gas Feasibility Study, as completed under **Directive C.4**.

        iii. A detailed description of all activities planned to implement the remedial alternative(s) selected in the Site Soil and Soil Gas Remedial Alternatives Report.

        iv. An implementation schedule.

    b. **Site Soil and Soil Gas Remedial Action Plan Implementation.** The Dischargers must initiate implementation of the Soil RAP for the Site, excluding Parcel H-3, **no later than 60 calendar days after the Board has approved the Soil RAP**.

    The San Diego Water Board must be notified in writing of the Dischargers' intent to implement the Soil RAP. Notification must be provided **no later than 14 calendar days prior to implementation of the Soil RAP**.

    c. **Site Soil and Soil Gas Remedial Action Plan Progress Reports.** The Dischargers must prepare quarterly Soil RAP Progress Reports for the Site, excluding Parcel H-3. The Soil

RAP Progress Reports must be submitted to the San Diego Water Board for approval **no later than 30 calendar days following the close of each quarter**. The first progress report must be submitted after the first full quarter of Soil RAP implementation.

Each quarterly Soil RAP Progress Report must include, but is not limited to, the following:

i. A detailed description of the remedial actions conducted and any deviations from the activities described in the Soil RAP.

ii. Supporting information such as analytical laboratory reports and waste manifests.

iii. Remediation schedule updates.

iv. Conclusions and recommendations.

d. **Site Soil and Soil Gas Remedial Action Plan Completion Report.** The Dischargers must prepare a Site Soil and Soil Gas Remedial Action Plan Completion Report verifying the completion of all soil cleanup and soil gas mitigation/remediation activities at the Site, excluding Parcel H-3. The Site Soil and Soil Gas Remedial Action Plan Completion Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the San Diego Water Board has approved the Soil RAP Progress Report for the last scheduled activity in the Soil RAP**.

The Site Soil and Soil Gas Remedial Action Plan Completion Report must demonstrate that all corrective actions necessary to clean up or abate the effects of the wastes discharged to soil and soil gas at the Site, excluding Parcel H-3, have been completed and all final cleanup levels have been achieved.

6. **Site Groundwater and Soil Gas Feasibility Study.** Pursuant to Resolution No. 92-49, the Dischargers must conduct a Site Groundwater and Soil Gas Feasibility Study that (1) evaluates the feasibility of cleaning up wastes discharged to groundwater to cleanup levels that will achieve background water quality or alternative cleanup levels, (2) evaluates a variety of remedial alternatives, and (3) proposes a remedial alternative(s) capable of achieving groundwater cleanup levels and soil gas mitigation/remediation levels. The following deliverables are required under this directive:

a. **Site Groundwater and Soil Gas Remedial Alternatives Report.** The Dischargers must prepare a Site Groundwater and Soil Gas Remedial Alternatives Report that evaluates a variety of remedial alternatives and selects a remedial alternative(s) capable of achieving background water quality or alternative cleanup levels in groundwater and the risk-based soil gas mitigation/remediation levels identified in the HHRA. The Site Groundwater and Soil Gas Remedial Alternatives Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site Soil and Soil Gas Remedial Action Plan Completion Report.**

The Site Groundwater and Soil Gas Remedial Alternatives Report must include, but is not limited to, the following:

i. An evaluation of a variety of single and combined remedial alternatives capable of effectively (1) cleaning up or abating the sources of COCs in groundwater to achieve background concentrations or alternative cleanup levels, (2) cleaning up or abating the sources of COCs in groundwater at the point-of-compliance wells located along the San Diego Bay and Chula Vista Marina shorelines to achieve background concentrations or CTR water quality standards, (3) cleaning up or abating the sources of COCs in soil gas to achieve concentrations that protect current and future receptors, and (4) preventing continued migration of pollutants from the North Campus Property to the Off-Site areas, San Diego Bay, and Chula Vista Marina.

Potential single or combined remedial alternatives must be evaluated based on effectiveness, implementability, overall protection of human health, and cost.

ii. The Dischargers must select a single or combined remedial alternatives from the options evaluated in **Directive C.6.a.i**. The selected remedial alternative(s) must be capable of achieving the background concentrations or alternative cleanup levels for all waste constituents at all monitoring points and throughout the zones affected by the waste constituents at the Site, excluding Parcel H-3.

b. **Site Groundwater Cleanup Levels Report.** The Dischargers must prepare a Site Groundwater Cleanup Levels Report that reevaluates the technological and economic feasibility of cleaning up the wastes discharged in groundwater at the Site,

excluding Parcel H-3, to background groundwater cleanup levels. At a minimum, remediation performance monitoring data collected during the groundwater remedial actions at the Site shall be used to develop the background feasibility study. The Site Groundwater Cleanup Levels Report must be submitted to the San Diego Water Board (1) after 6 months of Groundwater RAP monitoring and data collection, and (2) **no later than 60 calendar days after the San Diego Water Board has approved the report for the last Groundwater RAP monitoring and sampling event in the 6-month period.**

The Site Groundwater and Soil Gas Remedial Alternatives Report must include, but is not limited to, the following:

i. A summary of the Feasibility Study, as described in **Finding 15**, that evaluated the technological and economic feasibility of cleaning up the wastes discharged to groundwater at the Site to background groundwater cleanup levels and proposed alternative cleanup levels.

ii. Identification of COC source areas and the lateral and vertical extents of COCs in groundwater and soil gas.

iii. Reevaluation of whether back-diffusion from the low-permeability silt/clay layers to more permeable sand layers is a significant deterrent to reaching background water quality conditions.

iv. Reevaluation of whether it is technologically and economically infeasible to reaching background water quality conditions. If the San Diego Water Board accepts the Dischargers reevaluation confirming it is infeasible to cleanup to background water quality conditions, the Dischargers will implement the alternative cleanup levels specified in **Finding 15**.

7. **Site Groundwater and Soil Gas Remedial Actions.** The Dischargers must conduct remedial actions to address the discharge of waste to groundwater and soil gas at the Site, excluding Parcel H-3. The remedial actions must be capable of achieving background concentrations or alternative cleanup levels in groundwater, background concentrations or CTR water quality standards at the point-of-compliance wells located along the San Diego Bay and Chula Vista Marina shorelines, and the risk-based soil gas mitigation/remediation levels proposed in the HHRA. The following are required under this directive:

a. **Site Pilot Tests.** The Dischargers may conduct pilot tests, if needed, to confirm that the selected remedial alternative(s) in the Site Groundwater and Soil Gas Feasibility Study will be effective in achieving the groundwater cleanup and soil gas mitigation/remediation levels. If pilot tests are proposed, the Dischargers must submit the following to the San Diego Water Board:

   i. A work plan for the pilot test that includes, but is not limited to, the purpose of the pilot test, field work activities to be completed, and a description of proposed performance monitoring activities.

   ii. A report describing the completed field work activities in the work plan, results, conclusions, and recommendations.

b. **Site Groundwater and Soil Gas Remedial Action Plan.** The Dischargers must prepare a Site Groundwater and Soil Gas Remedial Action Plan (Groundwater RAP) for discharges of waste to groundwater and soil gas at the Site, excluding Parcel H-3. The Groundwater RAP must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the Board has approved the Site Groundwater and Soil Gas Feasibility Study**.

   The Groundwater RAP must include, but is not limited to, the following:

   i. A summary of the HHRA pertaining to the groundwater and soil gas risks to current and future receptors, and the development of risk-based cleanup levels, as completed under **Directive C.3**.

   ii. A summary of the Site Groundwater and Soil Gas Feasibility Study, as completed under **Directive C.6**.

   iii. A detailed description of all activities planned to implement the selected remedial alternative(s) in the Site Groundwater and Soil Gas Feasibility Study.

   iv. A detailed description of all activities planned to reevaluate the technical feasibility and incremental cost benefit of remediating to background water quality conditions, including evaluating whether back-diffusion is a significant deterrent to reaching background water quality conditions.

   v. An implementation schedule.

c. **Site Groundwater and Soil Gas Remedial Action Plan Implementation.** The Dischargers must implement the Groundwater RAP **no later than 60 calendar days after the Board has approved the Groundwater RAP**.

The San Diego Water Board must be notified in writing of the Dischargers' intent to implement the Groundwater RAP. Notification must be provided **no later than 14 calendar days prior to implementation of the Groundwater RAP**.

d. **Site Groundwater and Soil Gas Remedial Action Plan Progress Reports.** The Dischargers must prepare quarterly Groundwater RAP Progress Reports. The Groundwater RAP Progress Reports must be submitted to the San Diego Water Board for approval **no later than 30 calendar days following the close of each quarter**. The first progress report must be submitted after the first full quarter of Groundwater RAP implementation.

Each quarterly progress report must include, but is not limited to, the following:

i. A detailed description of the groundwater remediation and/or soil gas mitigation/remediation actions conducted and any deviations from the activities described in the Groundwater RAP.

ii. Supporting information such as analytical laboratory reports and waste manifests.

iii. Remediation schedule updates.

iv. Conclusions and recommendations.

e. **Site Groundwater and Soil Gas Remedial Action Plan Completion Report.** The Dischargers must submit a Site Groundwater and Soil Gas Remediation Action Plan Completion Report verifying the completion of all Site groundwater cleanup and soil gas mitigation/remediation activities, excluding Parcel H-3. The Site Groundwater and Soil Gas Remedial Action Plan Completion Report must be submitted to the San Diego Water Board for approval **no later than 90 calendar days after the San Diego Water Board has approved the Soil RAP Progress Report for the last scheduled activity in the Groundwater RAP**.

The report must demonstrate that:

i. All corrective actions necessary to clean up or abate the effects of wastes discharged to groundwater and soil gas at the Site, excluding Parcel H-3, have been completed and background concentrations or alternative cleanup levels have been met.

ii. The groundwater concentrations at the point-of-compliance wells located along the Chula Vista Marina shoreline are protective of the three target receptors in San Diego Bay (**Table 12**). Protection of the three target receptors must be demonstrated by (1) comparing the groundwater concentrations to the CTR water quality standards for human ingestion of water/seafood, (2) comparing the groundwater concentrations to risk-based concentrations protective of aquatic receptors, and (3) running a final groundwater chemical fate-and-transport model using the latest post-remedial groundwater concentrations.

**Table 12. Target Receptors in San Diego Bay**

| Beneficial Use | Target Receptor(s) |
|---|---|
| Commercial and Sport Fishing | Human Health |
| Shellfish Harvesting | Human Health |
| Estuarine Habitat | Benthic Community, Wildlife, Finfish |
| Marine Habitat | Benthic Community, Wildlife, Finfish |
| Wildlife Habitat | Wildlife |
| Rare, Threatened, or Endangered Species | Wildlife, Finfish |
| Preservation of Biological Habitats of Special Significance | Wildlife, Finfish |
| Spawning, Reproduction, and/or Early Development | Finfish |

**D. Groundwater Monitoring Program.** The Dischargers must continue to implement the 2017 revised Groundwater Monitoring Program (2017 GMP)[19] or implement the most updated GMP that supersedes the 2017 GMP. The goals of the GMP are to evaluate temporal changes in COC concentrations over time and to determine if groundwater plumes are decreasing in size and/or mass.

[19] AECOM, 2017. Revised Groundwater Monitoring Program Modifications. North Campus, Chula Vista, California. June 21.

The GMP must be implemented pursuant to the sampling and analysis schedule presented in the 2017 Program or any subsequent groundwater monitoring program. Groundwater monitoring reports must be submitted to the San Diego Water Board for approval **no later than 60 calendar days after conducting each groundwater monitoring and sampling event**.

**E. North Campus Property Demolition.** The Dischargers must submit a letter notifying the San Diego Water Board when all or some portion of the surface and subsurface structures at the North Campus Property will be demolished (e.g., existing buildings, concrete, and foundations). The letter must be submitted to the San Diego Water Board **no later than 90 calendar days prior to the start date of the demolition and notification of completion of proposed demolition must be provided no later than 14 calendar days after completion**.

**F. Compliance Dates.** The compliance dates for the requirements of this CAO are summarized in **Table 13** below.

**G. Modify or Suspend Soil, Soil Gas, and Groundwater Cleanup Activities.** The Dischargers may modify or suspend soil, soil gas, and groundwater cleanup activities only when authorized by the San Diego Water Board.

**H. Penalty of Perjury Statement.** All documents submitted to the San Diego Water Board must be signed by the Dischargers' corporate officers or duly authorized representatives, and must include the following statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

> *"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."*

**I. Document Submittals.** Electronic Reporting Regulations require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005.[20] The electronic document submittals must be uploaded on or prior to the regulatory compliance due dates set forth in this CAO or addenda thereto. To comply with these requirements, the Dischargers must upload documents and information to the GeoTracker database. The Dischargers must submit the required documents as follows:

[20] Cal. Code Regs. title 23, chapter 30, division 3, and title 27, division 3.

1. **GeoTracker.** All information submitted to the San Diego Water Board in compliance with this CAO is required to be submitted electronically to the GeoTracker database[21] under GeoTracker Global ID **T10000001489 (North Campus)** and **T10000011095 (Parcel A)**. The Dischargers must upload the following minimum information to the GeoTracker database:

    a. **Reports.** A complete copy of all work plans and assessment, monitoring, and cleanup reports, including the signed transmittal letters, professional certifications, and all data presented in the reports in a text-searchable portable document format (PDF), and converted to text-searchable format. Reports larger than 400 megabytes (MB) must be divided into separate files at logical places in the report to keep the file sizes under 400 MB.

    b. **Site Maps.** A site map, as a stand-alone document, including notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable as a PDF file. When appropriate, the Dischargers should provide required information on multiple site maps.

    c. **Laboratory Analytical Data.** Analytical data, including geochemical data, for all soil, groundwater, soil gas, and indoor air samples in Electronic Data File (EDF) format.

    d. **Locational Data.** The latitude and longitude of all sampling locations for which data are reported in EDF.

    Upon receipt of the required documents, the San Diego Water Board will use the upload date and time to determine compliance with the due dates specified in the CAO.

2. **Other Submittals.** The San Diego Water Board may also request information or documents in hard copy and/or other appropriate media, including email.

    a. **Hard and Electronic Copies.** If requested by the San Diego Water Board, the Dischargers must also provide the following to the Board: a hard copy of the complete document, a hard copy of the cover/transmittal letter, a hard copy of oversized drawings or maps, and an electronic copy of the complete document.

    b. **Email.** If requested by the San Diego Water Board, the Dischargers must also submit a PDF copy of all documents including signed transmittal letters, professional certifications,

[21] California State Water Resources Control Board - GeoTracker Data Management System

and all data presented in the documents to sandiego@waterboards.ca.gov.

Upon receipt of the required documents, the San Diego Water Board will use the receipt date and time, and/or the email date and time to determine compliance with the due dates specified in the CAO.

**J. Violation Reports.** If the Dischargers violate any requirement of this CAO, or addenda thereto, they must notify the San Diego Water Board case manager by email as soon as practicable. The Board may, depending on violation severity, require the Dischargers to submit a separate technical report addressing the violation no later than five working days of the email notification.

**K. Other Reports.** The Dischargers must notify the San Diego Water Board in writing prior to any activities at the Dischargers' facilities that have the potential to cause further migration of pollutants.

**L. Provisions**

1. **Optional Document Submittals.** The Dischargers may conduct parcel-specific investigations and may submit separate plans and reports for Parcels A, B-1, B-2, and C or combined documents (e.g., the soil FS and soil RAP) for consideration by the San Diego Water Board. Within 45 days of issuance of this CAO, the Dischargers must notify the Board in writing of their intent to submit separate or combined plans and reports, specifically identifying the parcels and phases for which separate or combined documents will be submitted and timelines for submittal, which shall be consistent with the deadlines set forth in this CAO.

2. **Waste Management.** The Dischargers must properly manage, store, treat, and dispose of contaminated media in accordance with applicable federal, state, and local laws and regulations. The storage, handling, treatment, or disposal of media associated with the assessment required by this CAO must not create conditions of nuisance as defined in Water Code section 13050, subsection (m).

3. **Contractor/Consultant Qualifications.** The Dischargers must ensure that all work plans and technical reports required under this CAO are prepared under the direction of appropriately qualified professionals. Reports submitted by the Dischargers must include a statement of qualifications and license numbers, if applicable, of the responsible lead professional and all professionals making significant and/or substantive contributions. The lead professional performing the engineering and geologic evaluations and judgments must sign and affix their professional geologist or civil engineer registration stamp to all work plans and technical reports submitted to the San Diego Water Board.

4. **Laboratory Qualifications.** The Dischargers must ensure that all soil and groundwater samples be analyzed by Environmental Laboratory Accreditation Program (ELAP)-certified laboratories using analytical methods approved by EPA for the type of analysis to be performed. ELAP only accredits for analytical test methods approved for regulatory purposes. If an analytical test method is not on the Field of Testing Sheet[22], ELAP does not offer the method for accreditation.

   The Dischargers must ensure that all soil vapor and air samples be analyzed by an appropriately certified laboratory.

5. **Laboratory Analytical Reports.** The Dischargers must ensure that any report presenting new analytical data include the complete laboratory analytical report(s). The laboratory analytical report(s) must be signed by the laboratory director and contain:

   a. Complete sample analytical reports.

   b. Complete laboratory quality assurance/quality control (QA/QC) reports.

   c. A discussion of the sample and QA/QC data.

   d. A transmittal letter that demonstrates the analytical work was supervised by the director of the laboratory and contains the following statement:

      *"All analyses were conducted at an Environmental Laboratory Accreditation Program-certified laboratory using methods approved by the U.S. Environmental Protection Agency."*

6. **Analytical Methods.** The Dischargers must ensure that analytical methods used be identified in all technical and monitoring reports. If the Dischargers propose to use methods or test procedures other than those included in the most current version of EPA's "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-486" or Code of Federal Regulations, title 40, part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants," the methodology must be submitted for review and approved by the San Diego Water Board prior to use.

## M. Notifications

1. **Cost Recovery.** Upon receipt of invoices, and in accordance with instruction therein, the Dischargers must reimburse the State Water

[22] California State Water Resources Control Board - Environmental Laboratory Accreditation Program

Board for all reasonable costs incurred by the San Diego Water Board to investigate discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this CAO and consistent with the annual estimation of work.

2. **Change of Owner or Operator Reporting.** The Dischargers must notify the San Diego Water Board in writing of any changes in site occupancy or ownership associated with any portions of all the Property described in this CAO within 14 days of the change.

3. **Applicable Permits and Permissions.** The Dischargers must obtain all permits and access agreements needed to implement the requirements of this CAO. This CAO does not relieve the Dischargers of the responsibility to obtain permits or other entitlements to perform necessary assessment activities. This includes, but is not limited to, actions that are subject to local, state, and/or federal discretionary review and permitting.

4. **Enforcement Discretion.** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this CAO.

5. **Enforcement Notification.** Failure to comply with requirements of this CAO may subject the Dischargers to enforcement action, including but not limited to administrative enforcement orders requiring the Dischargers to cease and desist from violations, imposition of administrative civil liability, pursuant to Water Code section 13268 in an amount not to exceed $1,000 for each day in which the violation occurs, or imposition of civil liability pursuant to Water Code section 13350 in an amount not to exceed $5,000 for each day in which the violation occurs, or referral to the State Attorney General for injunctive relief, and referral to the District Attorney for criminal prosecution. The Dischargers are jointly and severally liable for the entire amount of the administrative civil liability. The San Diego Water Board reserves the right to seek administrative civil liability from any or all the Dischargers.

6. **Requesting Administrative Review by the State Water Board.** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and Cal. Code Regs., title 23, section 2050. The State Water Board (Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812) must receive the petition **within 30 calendar days** of the date of this CAO. Copies of the laws and regulations applicable to filing petitions will be provided upon request.

Ordered by:

David W. Gibson

Digitally signed by David W. Gibson
Date: 2021.07.12 14:58:46 -07'00'

Water Boards

_____ _____

DAVID W. GIBSON
Executive Officer

Date

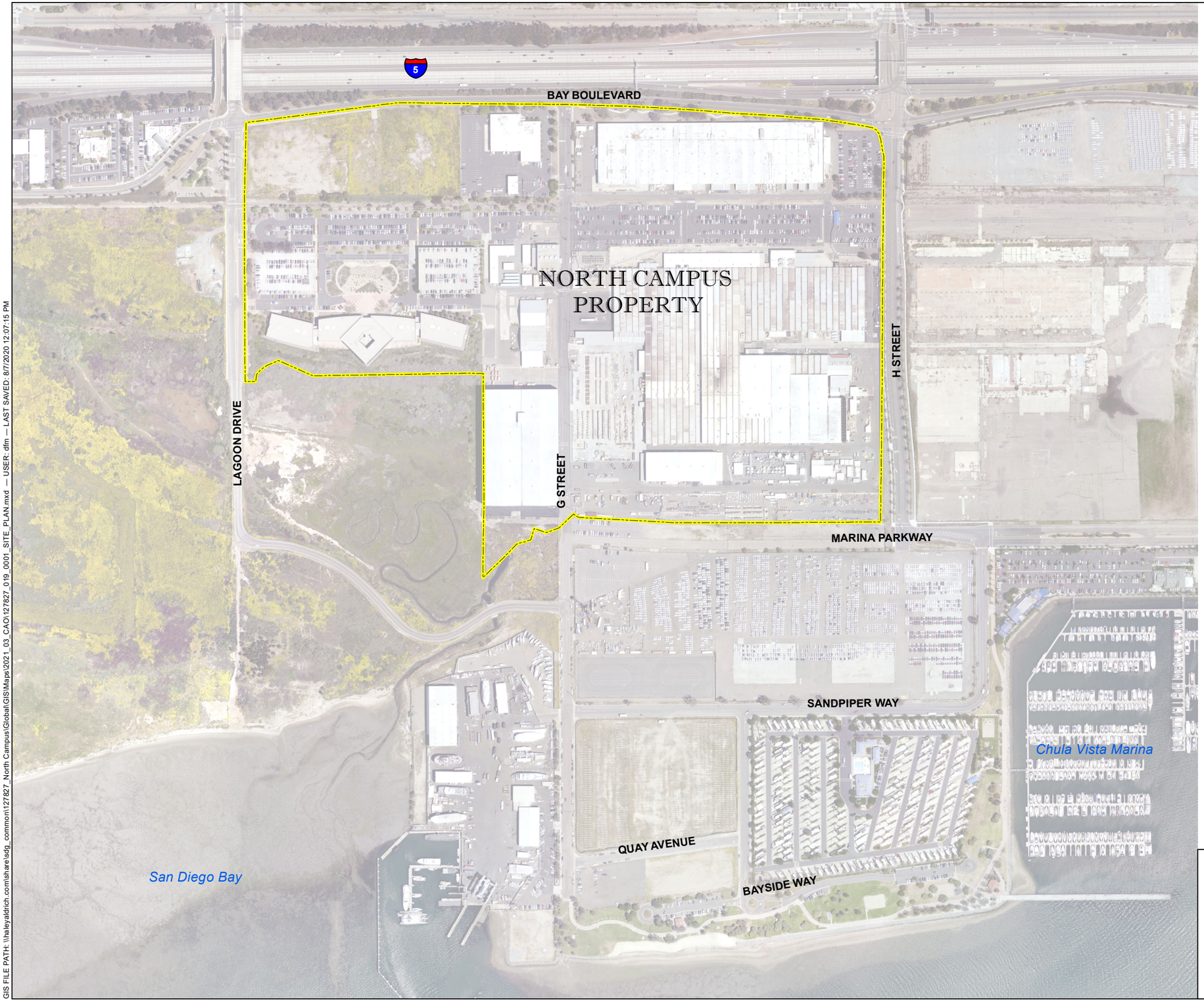
**Table 13. Summary of Compliance Dates**

| Directive | Requirement | Due Date |
|---|---|---|
| B.1.a | Parcel H-3 Remedial Action Plan Progress Reports | Submit no later than 30 calendar days following the close of each month.<br><br>Submit first RAP Progress Report after the first full month of RAP implementation. |
| B.1.b | Parcel H-3 Groundwater Cleanup Levels Report | Submit (1) after 1 year of Groundwater RAP monitoring and data collection, and (2) no later than 60 calendar days after the San Diego Water Board has approved the report for the last Groundwater RAP monitoring and sampling event in the 1-year period. |
| B.1.c | Parcel H-3 Cleanup and Abatement Completion Report | Submit no later than 90 calendar days after the San Diego Water Board has approved the Parcel H-3 RAP Progress Report for the last Groundwater RAP monitoring and data collection event. |
| C.1 | Updated Conceptual Site Model Report | Submit no later than 60 calendar days after the date of this CAO. |
| C.2.a | Site Data Gap Investigation Work Plan | Submit no later than 120 calendar days after the date of this CAO. |
| C.2.b | Site Data Gap Investigation Report | Submit no later than 90 calendar days after the last scheduled activity in the work plan is completed. |
| C.3 | Site Human Health Risk Assessment | Submit no later than 90 calendar days after the San Diego Water Board has approved the Site Data Gap Investigation Report. |
| C.4.a | Site Soil Cleanup Levels Report | Submit no later than 90 calendar days after the Board has approved the Site HHRA. |
| C.4.b | Site Soil and Soil Gas Remedial Alternatives Report | Submit no later than 90 calendar days after the San Diego Water Board has |

| Directive | Requirement | Due Date |
|---|---|---|
| | | approved the Site Soil Cleanup Levels Report. |
| C.5.a | Site Soil and Soil Gas Remedial Action Plan | Submit no later than 90 calendar days after the San Diego Water Board has approved the Site Soil and Soil Gas Remedial Alternatives Report. |
| C.5.b | Site Soil and Soil Gas Remedial Action Plan Implementation | Implement no later than 60 calendar days after the San Diego Water Board has approved the Soil RAP.<br><br>Submit notification letter of the Dischargers' intent to implement the Soil RAP no later than 14 calendar days prior to implementation of the Soil RAP. |
| C.5.c | Site Soil and Soil Gas Remedial Action Plan Progress Reports | Submit no later than 30 calendar days following the close of each quarter.<br><br>Submit first progress report after the first full quarter of Site Soil and Soil Gas RAP implementation. |
| C.5.d | Site Soil and Soil Gas Remedial Action Plan Completion Report | Submit no later than 90 calendar days after the San Diego Water Board has approved the Soil RAP Progress Report for the last scheduled activity in the Soil RAP. |
| C.6.a | Site Groundwater and Soil Gas Remedial Alternatives Report | Submit no later than 90 calendar days after the San Diego Water Board has approved the Site Soil and Soil Gas Remedial Action Plan Completion Report. |
| C.6.b | Site Groundwater Cleanup Levels Report | Submit (1) after 6 months of Groundwater RAP monitoring and data collection, and (2) no later than 60 calendar days after the San Diego Water Board has approved the report |

| Directive | Requirement | Due Date |
|---|---|---|
| | | for the last Groundwater RAP monitoring and sampling event in the 6-month period. |
| C.7.b | Site Groundwater and Soil Gas Remedial Action Plan | Submit no later than 90 calendar days after the San Diego Water Board has approved the Site Groundwater and Soil Gas Feasibility Study. |
| C.7.c | Site Groundwater and Soil Gas Remedial Action Plan Implementation | Implement no later than 60 calendar days after the San Diego Water Board has approved the Groundwater RAP.<br><br>Submit notification letter of the Dischargers' intent to implement the Groundwater RAP no later than 14 calendar days prior to implementation of the Groundwater RAP. |
| C.7.d | Site Groundwater and Soil Gas Remedial Action Plan Progress Reports | Submit no later than 30 calendar days following the close of each quarter.<br><br>Submit first progress report after the first full quarter of Groundwater RAP implementation. |
| C.7.e | Site Groundwater and Soil Gas Remedial Action Plan Completion Report | Submit approval no later than 90 calendar days after the San Diego Water Board has approved the Soil RAP Progress Report for the last scheduled activity in the Groundwater RAP |
| D | Groundwater Monitoring Reports | Submit no later than 60 calendar days after conducting each groundwater monitoring and sampling event. |
| E | North Campus Property Demolition Notification | Submit a notification letter no later than 90 calendar days prior to the start date of the demolition.<br><br>Submit a notification letter no later than 14 calendar days |

| Directive | Requirement | Due Date |
|---|---|---|
| | | after completion of the proposed demolition. |
| L.1 | Optional Document Submittal Notification | Submit a notification letter no later than 45 calendar days prior to the intent to submit separate or combined plans and reports, specifically identifying the parcels and phases for which separate or combined documents will be submitted and timelines for submittal, which shall be consistent with the deadlines set forth in this CAO. |




**LEGEND**

SITE BOUNDARY

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. AERIAL IMAGERY SOURCE: SAN DIEGO COUNTY, 2017

0 400 800
SCALE IN FEET

HALEY ALDRICH

ROHR, INC. A COLLINS AEROSPACE COMPANY,
CLEANUP AND ABATEMENT ORDER NO. R9-2020-0099
CHULA VISTA, CALIFORNIA

SITE PLAN

MARCH 2021

FIGURE 1

GIS FILE PATH: \\haleyaldrich.com\share\sdg_common\127827_North Campus\Global\GIS\Maps\2021_03_CAO\127827_019_0001_SITE_PLAN.mxd — USER: dfm — LAST SAVED: 8/7/2020 12:07:15 PM

**LEGEND**

PARCEL BOUNDARY

B1 PARCEL DESIGNATION

29 BUILDING NUMBER

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. AERIAL IMAGERY SOURCE: SAN DIEGO COUNTY, 2017

0 250 500
SCALE IN FEET

HALEY ALDRICH

ROHR, INC. A COLLINS AEROSPACE COMPANY,
CLEANUP AND ABATEMENT ORDER NO. R9-2020-0099
CHULA VISTA, CALIFORNIA

ON-PROPERTY AREAS

MARCH 2021

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\sdg_common\127827_North Campus\Global\GIS\Maps\2021_03_CAO\127827_019_0002_ON_PROPERTY_AREAS.mxd — USER: dfm — LAST SAVED: 3/16/2021 4:24:18 PM

**LEGEND**

- SITE BOUNDARY
- H-3 MASTER PLAN APPROXIMATE BOUNDARY
- FUTURE PARK DEVELOPMENT

**NOTES**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. AERIAL IMAGERY SOURCE: SAN DIEGO COUNTY, 2017

0 400 800
SCALE IN FEET

HALEY ALDRICH

ROHR, INC. A COLLINS AEROSPACE COMPANY,
CLEANUP AND ABATEMENT ORDER NO. R9-2020-0099
CHULA VISTA, CALIFORNIA

OFF-PROPERTY AREAS

MARCH 2021

FIGURE 3

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## LEGEND

APPROXIMATE LOCATIONS OF FORMER OUTFALLS BY YEAR (SOURCE: ADRIAN BROWN, 1998)

- 1940s
- 1960s

HISTORICAL SHORELINE, BY YEAR

- HISTORICAL SHORELINE, 1944
- HISTORICAL SHORELINE, 1960
- SDG&E 10" FUEL LINE (ABANDONED IN-PLACE)

STORM WATER CONVEYANCE SYSTEM

- CURRENT
- FORMER (PRE-1998)

FORMER VESSELS AND VAULTS

- UST (UNDERGROUND STORAGE TANK)
- UV (UNDERGROUND VESSEL)
- AST (ABOVEGROUND STORAGE TANK)
- PAINT BOOTH
- DEGREASER
- VAULT LOCATION
- FORMER MILLS/LATHES
- FORMER EXCAVATION AREA
- DEBRIS PILES
- SLUDGE PONDS
- APN# 5670223 ASSESSOR'S PARCEL BOUNDARY AND NUMBER
- FORMER SEWAGE TREATMENT PLANT OUTFALL
- FUTURE PARK DEVELOPMENT
- PARCEL H3
- FORMER BUILDING FOOTPRINT
- FORMER SHALLOW SWALE (1948)
- FORMER "LUMBER YARD" (1948)
- FORMER "AGRICULTURE - CITRUS" (1948)
- SITE BOUNDARY
- 118 BUILDING NUMBER (GRAYED FOR FORMER)

**NOTES:**

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SEE PARCEL H-3 CSM FOR HISTORICAL ENVIRONMENTAL FEATURES ON THIS PARCEL
3. AERIAL IMAGERY SOURCE: SAN DIEGO COUNTY, 2017

0 120 240 360 480
SCALE IN FEET

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ROHR, INC. A COLLINS AEROSPACE COMPANY,
CLEANUP AND ABATEMENT ORDER NO. R9-2020-0099
CHULA VISTA, CALIFORNIA

# HISTORICAL ENVIRONMENTAL FEATURES

MARCH 2021

FIGURE 4

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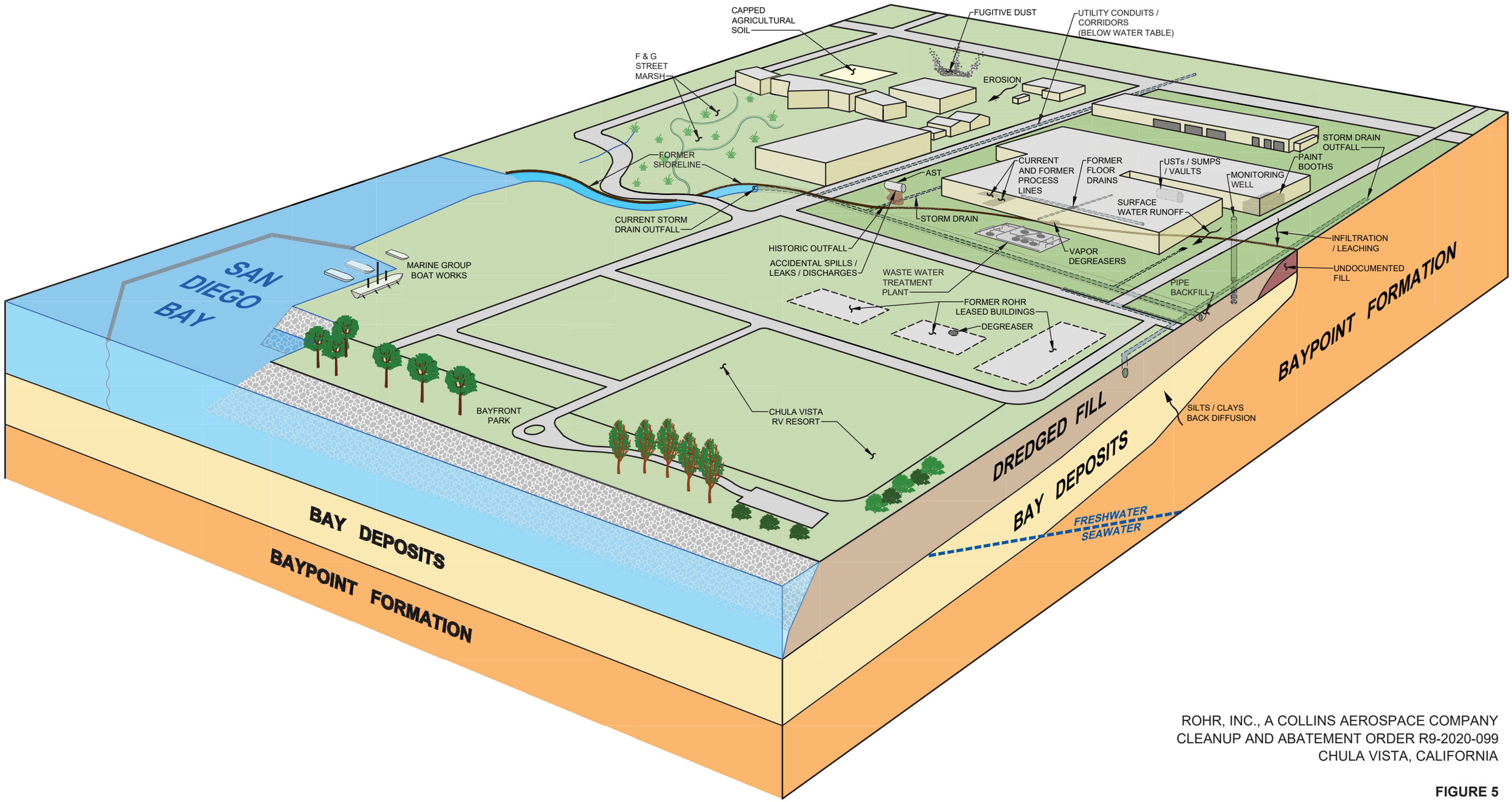


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CHULA VISTA, CALIFORNIA

**FIGURE 5**

**CONCEPTUAL SITE MODEL**

MARCH 2021

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