February 12, 2020
Item No. 8
Supporting Document No. 11

California Regional Water Quality Control Board
San Diego Region

Supplemental Response to Comments Report

Tentative Order No. R9-2019-0166

NPDES No. CA0107433

Waste Discharge Requirements for the City of Oceanside
San Luis Rey Water Reclamation Facility, La Salina Wastewater Treatment Plant, and Mission Basin Groundwater Purification Facility
Discharge to the Pacific Ocean through the Oceanside Ocean Outfall

February 12, 2020

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INTRODUCTION

On October 28, 2019, the City of Oceanside (City) provided comments on Tentative Order No. R9-2019-0166, NPDES No. CA0107433, *Waste Discharge Requirements for the City of Oceanside, San Luis Rey Water Reclamation Facility, La Salina Wastewater Treatment Plant, and Mission Basin Groundwater Purification Facility Discharge to the Pacific Ocean through the Oceanside Ocean Outfall* (Tentative Order). At the December 11, 2019, Board Meeting, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) opened a public hearing to consider adoption of the Tentative Order and heard staff testimony regarding the Tentative Order. The San Diego Water Board continued the matter to the February 12, 2020, Board Meeting to allow staff time to meet with the City to review the costs associated with the Tentative Order's monitoring and reporting program, and to further consider other concerns regarding permit provisions. By email dated December 24, 2019, the San Diego Water Board requested the City submit additional information regarding its cost estimates for the monitoring and reporting program. By email dated January 6, 2020, the City provided additional information on the cost estimates initially provided in the City's October 28, 2019, comment letter. On January 13, 2020, the San Diego Water Board met with the City and discussed the information provided on January 6, 2020.

The City's summarized written comments and San Diego Water Board responses are set forth below beginning on page 5. Responses include a description of any actions taken to revise the Tentative Order in response to the comment. Proposed revisions to the Tentative Order are in red-underline for added text and ~~red strikeout~~ for deleted text for changes made after the September 27, 2019 public release. Proposed revisions to the Tentative Order are in yellow highlight and red-underline for added text and ~~yellow highlight and red strikeout~~ for deleted text for changes made after the December 11, 2019 Board Meeting.

COMMENTS AND RESPONSES

1. Monitoring Cost Calculations

1.1. Comment –

The San Diego Water Board requested the City provide cost calculations and price quotes for monitoring costs presented at the December 11, 2019, Board Meeting.

In response, the City provided some price quotes (Supporting Document No. 10) and the following tables regarding the monitoring costs:

Monitoring Costs for Order No. R9-2011-0016

Sample or Study	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Intensive Monitoring		$150,000				$150,000
Plume Tracking						$0
Receiving Water Monitoring	$11,000	$11,000	$11,000	$11,000	$11,000	$55,000
Human Marker HF183						$0
TCDD Increased Monitoring	$1,800	$1,800	$1,800	$1,800	$1,800	$9,000
Tributyltin	$330	$330	$330	$330	$330	$1,650
Chronic Toxicity	$4,900	$11,500	$4,900	$11,500	$4,900	$37,700
Totals	$18,030	$174,630	$18,030	$24,630	$18,030	$253,350

Monitoring Costs for Tentative Order No. R9-2019-0166

Sample or Study	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Intensive Monitoring (add Rig fishing and trawl)		$175,000				$175,000
Plume Tracking*	$143,333	$149,000	$24,133			$316,466
Receiving Water (add Continuous Profile and Chemistry)	$9,700	$9,700	$9,700	$9,700	$9,700	$48,500
Human Marker HF183(1)	$192,000	$192,000	$192,000	$192,000	$192,000	$960,000
TCDD Increased Monitoring (1/month first year, quarterly in subsequent years)**	$10,800	$1,800	$1,800	$1,800	$1,800	$18,000
Tributyltin (1/month first year, quarterly in subsequent years)**	$1,980	$330	$330	$330	$330	$3,300
Chronic Toxicity (1/month first year, semiannual in subsequent years)**	$29,400	$11,500	$4,900	$11,500	$4,900	$62,200
Totals	$387,213	$539,330	$232,863	$215,330	$208,730	$1,583,466

*Cost is not equally distributed per year, first sampling events cost more than subsequent events.

**First year increased monitoring, subsequent years will be reduced to previous schedule potentially.

(1) Price estimates for HF183 monitoring ranges from $40,000, best case scenario, to $192,000, worst case scenario.

Increased Monitoring Cost Comparison for Tentative Order No. R9-2019-0166

Sample or Study	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Intensive Monitoring (add Rig fishing and trawl)	$0	$25,000	$0	$0	$0	$25,000
Plume Tracking*	$143,333	$149,000	$24,133	$0	$0	$316,466
Receiving Water Continuous Profile and Chemistry	($1,300)	($1,300)	($1,300)	($1,300)	($1,300)	($6,500)
Human Marker HF183(1)	$191,520	$191,520	$191,520	$191,520	$191,520	$957,600
TCDD Increased Monitoring (1/month first year, quarterly in subsequent years)**	$9,000	$0	$0	$0	$0	$9,000
Chronic Toxicity (1/month first year, semiannual in subsequent years)**	$24,500	$0	$0	$0	$0	$24,500
Totals	$367,053	$364,220	$214,353	$190,220	$190,220	$1,326,066

*Cost is not equally distributed per year, first sampling events cost more than subsequent events.

**First year increased monitoring, subsequent years will be reduced to previous schedule potentially.

(1) Price ranges from $40,000, best case scenario, to $192,000, worst case scenario.

Additional Reports and Work Plans	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Climate Action Plan						$150,000
Pollutant Minimization Program						$20,000
Initial TRE Work Plan						$10,000
Benthic Monitoring Work Plan						$150,000
Plume Tracking Work Plan						$50,000
State of the Ocean						$7,000
Purchase of -80°C Freezer						$6,200
Totals						$393,200

Response

Intensive Monitoring (Community Trawls and Rig Fishing):

Attachment E, Monitoring and Reporting Program, of Order No. R9-2011-0016 (Current Order) requires the City to conduct diver surveys. However, the City conducted community trawls through the Southern California Bight Regional Monitoring Program, as allowed under the Current Order. Therefore, the Tentative Order has no increased cost for the requirement to conduct community trawls.

The San Diego Water Board acknowledges that rig fishing for fish tissue analysis could cost approximately $25,000 per permit term, which is shared between the three publicly owned treatment works (POTW) agencies discharging through the Oceanside Ocean Outfall (OOO). The City provided a price quote for 1) laboratory costs to conduct fish tissue analyses totaling approximately $12,240 and 2) sample collection costs of between $2,000 to $4,000 per site. However, it is unlikely the City will need to conduct three separate sampling events to collect a total of 27 fish for fish tissue analysis because the 27 fish are likely to be caught in less than three sampling events. The San Diego Water Board previously estimated the cost increase in the monitoring and reporting program for fish tissue analysis to be $10,800 in laboratory costs over the permit term of five years. This cost estimate was incorporated in the San Diego Water Board's total increased cost estimate of the receiving water monitoring requirements and presented at the December 2019 Board Meeting. The laboratory cost difference between the San Diego Water Board's cost estimate and the City's cost estimate is due to the differences in laboratory price quotes.

The San Diego Water Board's cost estimate assumes the cost to collect fish for fish tissue analysis is equivalent to the cost to sample sediment. In the absence of more specific information, the cost for sediment sampling and fish tissue collection and analysis is likely to be similar because the personnel and time required for sampling events are presumed to be similar. The number of sediment sampling events was decreased from two sampling events in the Current Order to one sampling event in the Tentative Order. This reduction in sediment sampling events compensates for the additional sampling events required to conduct rig fishing for fish tissue analysis. Based on this rationale, no cost increase for the rig fishing for fish tissue analysis is included in the San Diego Water Board's cost estimates.

Plume Tracking:

The San Diego Water Board agrees that the cost of the Tentative Order's plume tracking requirement is approximately $316,466 over the five-year permit term, not including the cost of developing the Plume Tracking Work Plan. This cost could be shared between the three POTW agencies discharging to the Oceanside Ocean Outfall. The cost per agency for compliance with the plume

tracking requirement will vary depending on the cost sharing formula agreed upon by the agencies.

Receiving Water Profile and Chemistry:

The City did not provide sufficient information to support calculation of the Receiving Water Profile and Chemistry monitoring costs. The San Diego Water Board previously estimated a cost saving of approximately $289,000 over the five-year permit term, resulting from the Tentative Order's reduction to the nearshore and offshore bacteria monitoring requirements. The San Diego Water Board's cost saving calculation was based on a price quote from American Scientific Laboratories of $165 per sample for *Enterococci* and fecal coliform (single price for both parameters) and $35 per sample for total coliform. Additional cost information for boat and personnel cost information was obtained from Southern California Coastal Water Research Project (SCCWRP). SCCWRP's price quote for boat use ranged from $1,000 to $3,000 per sampling event and $100 per hour for personnel. The San Diego Water Board calculated costs based on $2,000 for boat use and $800 for personnel (assumes an 8-hour workday based on SCCWRP's estimated sampling time of a full day). This cost estimation was incorporated in the San Diego Water Board's total increased cost estimate of the receiving water monitoring requirements and presented at the December 2019 Board Meeting.

On January 6, 2020, the City provided a spreadsheet with 2017 laboratory costs for $30 per sample for *Enterococci*, $15-25 per sample for fecal coliform, and $15 per sample for total coliform. The City also provided an invoice from Marine Taxonomic Services, Ltd. (MTS) for "Monthly Offshore Water Sampling – November 2019" at a cost of $945. However, the invoice does not specify what service is provided for that sampling. Fallbrook Public Utility District's (District's) January 6, 2020, comment letter noted that the City pays MTS $11,000 per year for sample collection. Therefore, the MTS invoice appears to be only for sample collection. Using the City's price quotes for bacteria and the cost of $945 for sample collection, the San Diego Water Board estimates the costs savings of the reduced nearshore and offshore bacteria monitoring at approximately $92,700 per permit term. This cost saving could be shared between the three POTW agencies that discharge through the OOO.

The Tentative Order includes a requirement for receiving water monitoring of total nitrogen and total phosphorus at the offshore and nearshore monitoring locations. The City did not provide a price quote for these parameters. The San Diego Water Board used a price quote from American Scientific Laboratories of $35 per sample for total nitrogen and $35 per sample for total phosphorous to estimate that this requirement costs approximately $26,600 per permit term. This cost could be shared among the three POTW agencies discharging through the OOO.

The City did not provide an estimate for conductivity, temperature, and depth (CTD) profile sampling. However, the San Diego Water Board has modified the Tentative Order to provide additional cost savings by revising the Tentative Order to give the City the option to sample for temperature, dissolved oxygen, light transmittance, pH, and salinity at the nearshore monitoring locations by either the use of a CTD profiler throughout the entire water column or by the collection of grab samples at the surface.

Human Marker HF183 Monitoring:

The City did not provide sufficient information on the basis of the City's cost estimate for the HF183 monitoring requirement of $40,000 to $192,000 per year. The City provided a price quote from Source Molecular dated January 6, 2020, after the submittal of the City's Comment Letter submitted on October 28, 2019, and after the December 2019 Board Meeting. The City's price quote submitted on January 6, 2020, is inconsistent with the price quote included in their October 28, 2019, Comment Letter. The San Diego Water Board requested the City provide the HF183 price quote as presented in the October 28, 2019, but the City did not provide this information. Rather, the City provided a new price quote for the HF183 analysis from a new laboratory, Source Molecular, located in Florida. The City did not provide an explanation for selecting a laboratory in Florida when laboratories in Southern California are capable of conducting the HF183 analyses.

The Tentative Order requires HF183 samples be collected concurrently with fecal coliform samples. However, analysis of HF183 samples is only required if the concurrent fecal coliform single sample exceeds the receiving water limitation. While the analysis of HF183 samples are only required if the sample for fecal coliform exceeds the single sample maximum limitation, additional costs are associated with the collection of HF183 samples, such as filtration and storage of the samples. Using the price quote provided in the City's October 28, 2019, comment letter, the San Diego Water Board calculated the cost to monitor for HF183 to be approximately $83,430 over the permit term, assuming the unlikely worst case scenario where every sample at every offshore monitoring location exceeds the receiving water limitation for fecal coliform. This cost could be shared between the three POTW agencies discharging through the OOO.

While the unlikely worst-case scenario could cost approximately $83,430 per permit term (shared by all three POTW agencies), based on historical fecal coliform exceedances which occurred on average approximately once per quarter between the years 2011 and 2019, the San Diego Water Board estimated the expected cost for HF183 monitoring will be approximately $34,290 per permit term. This cost could be shared between the three POTW agencies discharging through the OOO. As reported by the City at the December 2019 Board Meeting, the agencies must assume the unlikely worst-case scenario for budgeting purposes. However, the agencies are unlikely to spend the fully

budgeted cost in a given year, and any savings could be carried over to the next budget cycle.

The price quote from Source Molecular is $1,800 per sample with triplicate filters using USEPA method 1696, $600 per sample with a single filter using USEPA method 1696, and $354 per sample using the droplet digital polymerase chain reaction (ddPCR) method developed by SCCWRP. As noted in the quote, USEPA method 1696 can be performed on a single filter for a reduced cost. The costs provided in the Source Molecular quote on January 6, 2020, are significantly higher than the costs provided in the City's October 28, 2019, Comment Letter, which was from a laboratory in Southern California. The City did not report the name of the local Southern California laboratory that provided the price quote contained in the City's October 28, 2019, comment letter.

While the price quote from Source Molecular does not include the cost to filter the samples, extract the DNA/RNA, store the samples, or conduct cooler preparation, the City's October 28, 2019, Comment Letter stated the cost to filter HF183 samples is $45, the cost to extract the DNA/RNA and store for one year is $49 per sample, and the cost for cooler preparation is $175 per sampling event. Using the price quote from Source Molecular for the cost of sample analysis and the price quote in the City's October 28, 2019, Comment Letter for sample filtration, DNA/RNA extraction and storage, and cooler preparation, the San Diego Water Board estimates that the cost for HF183 monitoring will be approximately $586,460 per five-year permit term for an unlikely worst-case scenario where every station and sample exceeds the fecal coliform receiving water limitation. This cost could be shared among the three POTW agencies discharging through the OOO. The cost estimate includes filtration of 42 samples to obtain triplicate filters with three samples at mid-depth and three samples at the surface for each offshore monitoring station, DNA/RNA extraction and storage of 42 filters, cooler preparation, and $1,800 for analysis of each triplicate filter. The City reports the HF183 monitoring requirement could cost up to approximately $957,600 per permit term. The City did not provide the basis for the calculation of this cost.

The unlikely worst-case scenario could cost approximately $586,460 per permit term for the HF183 monitoring requirements. However, based on historical fecal coliform exceedances which occurred approximately once per quarter between the years 2011 to 2019, the San Diego Water Board estimates the expected cost for HF183 monitoring to be approximately $118,460 per permit term. This cost could be shared among the three POTW agencies discharging through the OOO. This estimate uses the price quote provided by the City from Source Molecular of $1,800 per sample for analysis of triplicate filters using USEPA method 1696, and the price quote in the City's October 28, 2019 Comment Letter for sample filtration, DNA/RNA extraction and storage, and cooler preparation.

If the City analyzes the samples for HF183 using the ddPCR method rather than USEPA method 1696 with triplicate filters, the cost for HF183 monitoring is estimated to be approximately $128,940 per year. This estimate assumes the worst-case scenario and includes filtration of 14 samples, RNA extraction and storage of 14 filters, cooler preparation, and analysis using ddPCR. The actual HF183 monitoring cost is likely to be much less than this estimate, since historically only one station, not every station, exceeds the fecal coliform receiving water limit every quarter.

The Tentative Order allows the City to propose alternative methods for measuring HF183 in the receiving water that do not need to use USEPA methods. The City may propose an alternative method which could be more cost effective. However, the San Diego Water Board has modified the Tentative Order to allow analysis of HF183 samples using the cheaper ddPCR method. Analysis using the ddPCR method is as accurate as analysis using USEPA method 1696 as long as proper QA/QC procedures are followed.

TCDDs and Tributyltin Effluent Monitoring:

The San Diego Water Board does not agree with the City that the cost to monitor effluent for 2,3,7,8 tetrachlorodibenzodioxins (TCDDs) and tributyltin effluent has increased under the Tentative Order. The Tentative Order reduced the effluent monitoring frequency of both TCDDs and tributyltin from once per quarter to twice per year. Using the price quote provided by the City on January 6, 2020, for TCDDs and tributyltin, the San Diego Water Board estimates the reduced monitoring frequency will yield a cost savings of approximately $2,130 per year.

Chronic Toxicity Monitoring:

The San Diego Water Board acknowledges that the chronic toxicity monitoring cost may increase by $24,500 per five-year permit term. The City states that that chronic toxicity monitoring is required monthly and can be reduced to semiannually after the first year. However, the Tentative Order requires chronic toxicity monitoring once per month for the first year and provides for the option to reduce monitoring to once per quarter in subsequent years subject to the San Diego Water Board's approval.

The Tentative Order removes the requirement to conduct concurrent reference toxicant screening and allows the City to use the monthly reference toxicant screening. The San Diego Water Board has modified the Tentative Order to clarify that monthly reference toxicant screenings are sufficient if in accordance with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995). As shown in the City's price quote, concurrent chronic toxicity reference toxicant screening is an additional 50% of the cost of the chronic toxicity test (e.g., if a chronic toxicity test cost $1,500, the reference toxicant screening is an additional $750). Laboratories have noted that the monthly

reference toxicant screening can be provided at no additional charge, and not all laboratories charge for concurrent reference toxicant screenings (see Fallbrook Public Utility's chronic toxicity price quote, Item 9, Supporting Document No. 11). The Tentative Order may provide additional cost savings if the monthly reference toxicant is sufficient. The City provided chronic toxicity price quotes ranging from $1,250 to $1,550 depending on species, and concurrent reference toxicant screenings for an additional 50% of the cost of the chronic toxicity test. Using these price quotes, the San Diego Water Board estimates the cost increase of chronic toxicity monitoring to be between $16,250 to $41,850 per permit term depending on the species used and whether concurrent reference toxicant screenings are required. This estimate only includes sample analysis and does not include the cost to collect the effluent sample or laboratory delivery fees.

Benthic Sediment Monitoring:

The receiving water monitoring costs provided by the City do not account for the Tentative Order's reduced requirements for sediment monitoring. The Current Order required the full suite of sediment chemistry parameters to be monitored once per permit term and a smaller subset of sediment chemistry parameters to be monitored twice per permit term. In comparison, the Tentative Order requires that the full suite of sediment chemistry parameters be monitored only once per permit term and not a smaller subset monitored more frequently. The City provide a price quote for analysis of sediment grain size, total organic carbon, and total nitrogen at $180 per sample, but did not provide a quote for all the sediment chemistry parameters that were required semiannually in the Current Order. To be conservative, the San Diego Water Board assumed that the sediment chemistry parameters that are required to be monitored twice per permit term cost $180 per sample. This cost estimate does not include all the required parameters. Using this cost estimate, the Tentative Order's reduction in sediment chemistry monitoring is estimated to yield a cost savings of $1,260 per permit term in laboratory costs.

The Current Order requires that sediment infauna be monitored twice per permit term, with three samples per station. The Tentative Order reduced the requirement for sediment infauna monitoring to once per permit term with only one sample per station. The City provided a price quote of $1,000 for sediment infauna sample analyses. The price quote notes that the cost of sediment infauna sample analyses may double in the year 2020. The Tentative Order's reduction in monitoring for sediment infauna monitoring saves approximately $35,000 over the five-year permit term and up to $70,000 per permit term if the cost to analyze sediment infauna increases to $2,000 per samples in the year 2020, as noted in the City's price quote.

In total, the reduction of sediment monitoring requirements in the Tentative Order is expected to save approximately $32,760 to $67,760 per permit term in laboratory costs. This estimate includes the Tentative Order's new requirement

to monitoring for sediment toxicity but does not include boat and personnel costs to conduct one extra sediment sampling event that would be required under the Current Order. The San Diego Water Board assumes the cost to collect sediment is approximately equivalent to the cost to collect fish for fish tissue analysis. The difference in the San Diego Water Board's original cost estimates provided at the December 2019 Board Meeting is due to differences between the laboratory price quotes used for this calculation.

Additional Reports and Work Plans:

The City's price quote to develop the Climate Change Action Plan (CCAP) of up to $150,000 is considered a high estimate. For reference, the price quoted for the CCAP is approximately equivalent to the cost of hiring one full-time staff for a year. The City of San Diego stated the CCAP for the Point Loma Ocean Outfall cost approximately $50,000, and this cost includes staff time and a consultant. The City of San Diego used information from the city-wide Climate Action Plan to assist in the development of the Point Loma CCAP. The City could develop their Climate Action Plan using information in the existing city-wide Climate Action Plan. The Tentative Order's CCAP requirement is included in all newly reissued NPDES permits for POTWs in the San Diego Region and has been since 2017. The CCAP requirement is consistent with Governor Newsom's Executive Order N-10-1920, the State Water Board's Resolution No. 2017-0012, *Comprehensive Response to Climate Change*, and the San Diego Water Board's Resolution No. R9-2018-0051, *Addressing Threats to Beneficial Uses from Climate Change* which require a proactive approach to climate change in all state and regional actions.

The San Diego Water Board agrees that Pollutant Minimization Program could cost up to $20,000. The Pollutant Minimization Program is required by section III.C.9 of the Water Quality Control Plan for Ocean Waters of California (Ocean Plan).

The San Diego Water Board agrees that the Initial TRE Work Plan may cost an additional $10,000 to develop. However, the Current Order already requires the City to develop a TRE Work Plan. To satisfy the Tentative Order's requirement for the Initial TRE Work Plan, the City need only update the previous TRE Work Plan submittal with current information.

The City provided a price quote that the Benthic Monitoring Work Plan may cost up to $150,000 to develop. However, SCCWRP has published guidance documents on sediment sampling protocols, methods for analyzing sediment data and integrating the three lines of evidence, and appropriate quality assurance project plans for sediment monitoring. The City can incorporate these documents to fulfill most of the Benthic Monitoring Work Plan requirements. Furthermore, the San Diego Water Board has modified the Tentative Order in Attachment E section IV.C.4.a to remove the requirement to submit a Benthic Monitoring Work Plan if the City is fulfilling the sediment monitoring

requirements through a regional monitoring program. If the City participates in the regional monitoring program, additional cost savings can be achieved by not developing the Benthic Monitoring Work Plan.

The City provided a price quote of $50,000 to develop the Plume Tracking Work Plan. However, Dr. Michael Welch, the consultant who drafted the Plume Tracking Work Plan and will be drafting the Plume Tracking Monitoring Plan for the San Elijo and Encina Ocean Outfalls, stated that the OOO Plume Tracking Work Plan and Plume Tracking Monitoring Plan will likely cost a total of approximately $25,000. This cost could be shared by the three POTW agencies discharging through the OOO.

The San Diego Water Board acknowledges that the State of the Ocean oral report may cost $7,000. However, it's important to note that the State of the Ocean oral report is only a summary presented to the Board of the receiving water monitoring report required by the Tentative Order, and does not include new information or analyses.

The San Diego Water Board acknowledges that the City may need to purchase a cryogenic freezer to temporarily store HF183 samples while results for concurrently sampled fecal coliform are obtained. However, the City's October 28, 2019 comment letter included a cost of $49 per sample for one year of cold storage. This cost was included in the San Diego Water Board's HF183 cost estimate.

Action Taken

Modified Attachment E section III.C.5.d:

d. Monthly reference toxicant testing is sufficient if in accordance with *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995). All reference toxicant test results should be reviewed and reported using the effects concentration at 25 percent (EC25).

Modified Attachment E, section IV.B.1, Table E-8:

Table E-8 Nearshore and Offshore Water Quality Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Visual Observations	--	Visual	(note 1)
Fecal Coliform	CFU /100 ml	Grab (notes 2 and 3)	1/Quarter
Enterococci	CFU/100 ml	Grab (notes 2 and 3)	1/Quarter
Human Marker ~~HF-183~~HF183	Number of copies (molecules)/100 mL	Grab (note~~s 2 and~~ 4)	1/Quarter
Nitrogen, Total	mg/L	Grab (note 2)	1/Quarter
Phosphorus, Total (as P)	mg/L	Grab (note 2)	1/Quarter
Temperature and Depth	˚C, meters	~~Continuous Profile~~(note 5)	1/Quarter
Dissolved Oxygen	mg/L	~~Continuous Profile~~(note 5)	1/Quarter
Light Transmittance	percent	~~Continuous Profile~~(note 5)	1/Quarter
pH	standard units	~~Continuous Profile~~(note 5)	1/Quarter
Salinity	ppt	~~Continuous Profile~~(note 5)	1/Quarter

Notes for Table E-8

1. Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), water color, oil and grease, turbidity, and odor shall be recorded. The proximity of recreational and commercial vessels to monitoring locations shall also be recorded. These observations shall be taken whenever a sample is collected.
2. At the surface for nearshore monitoring locations N1 through N7 and surface and mid-depth for offshore monitoring locations A1 through A5, B1, and B2.
3. Samples for fecal coliform and enterococci shall be collected on the same day fecal coliform and enterococci are sampled at monitoring location M-004.
4. Samples shall be collected at the surface and mid-depth at offshore monitoring locations A1-A5, B1 and B2 and analyzed in~~In~~ accordance with section IV.B.2 of this MRP.

5. For offshore monitoring locations A1-A5, B1 and B2, temperature ~~Temperature~~, depth, dissolved oxygen, light transmittance, pH, and salinity profile data shall be measured throughout the entire water column using a ~~conductivity-temperature-depth (~~CTD~~)~~ profiler during the quarterly sampling events. Depth profile measurements shall be obtained using multiple sensors to measure parameters through the entire water column (from the surface to as close to the bottom as practicable). For nearshore monitoring locations N1 through N7, temperature, depth, dissolved oxygen, light transmittance, pH, and salinity shall be measured throughout the entire water column by a CTD profiler or at the surface by grab samples.

Modified Attachment E, section IV.B.2.b:

Sample Analysis. If a result for fecal coliform exceeds the single sample maximum receiving water limitation of 400 CFU per 100 mL (section V.A.1.a.i.(b) of this Order), the Discharger shall analyze the Human Marker ~~HF-183~~HF183 sample that was collected concurrently with the fecal coliform sample that exceeded the receiving water limitation. Samples shall be analyzed in accordance with EPA method 1696, the droplet digital polymerase chain reaction (ddPCR) method developed by the Southern California Coastal Waters Research Project (SCCWRP), or an alternative method proposed by the Discharger with comparable accuracy, unless the alternative method is not accepted by the San Diego Water Board. If the Discharger proposes to use the ddPCR method, the Discharger shall submit a QA/QC procedure for concurrence with the San Diego Water Board. The Discharger shall follow all quality control and quality assurance procedures outlined in the method or as approved by the San Diego Water Board. If the results for fecal coliform are below receiving water limitations, the discharger may discard the Human Marker ~~HF-183~~HF183 sample.

Modified Attachment E, section IV.C.4.a:

Benthic Monitoring Work Plan. The Discharger shall submit to the San Diego Water Board within 180 days after the effective date of this Order, a Benthic Monitoring Work Plan to implement the sediment monitoring program. The Benthic Monitoring Work Plan is not required if the Discharger is fulfilling the benthic monitoring requirements contained in Attachment E section IV.C.1 through IV.C.3 by participating in a regional monitoring program, as described in Attachment E section V.B. If required, the~~The~~ Benthic Monitoring Work Plan shall include the following elements:

2. San Diego Water Board Cost Analysis Summary

The San Diego Water Board does not agree with the City's quote that the total cost increase for effluent and receiving water monitoring under the Tentative Order is $1,326,066 over the five-year permit term, not including work plans. The receiving water monitoring costs can be shared among the agencies discharging through the

OOO. The San Diego Water Board estimates the total cost increase for effluent monitoring is between $7,900 to $33,500 and the total cost increase for receiving water monitoring is between $126,637 to $850,807, not including work plans.

2.1. Increase in Receiving Water Monitoring Costs Per Permit Term

The following table shows the increase in costs for the receiving water monitoring requirements. Estimates are derived by the San Diego Water Board, District, and City. The costs presented by the San Diego Water Board and City represent the total cost for the outfall, these costs may be shared among the agencies:

Monitoring Requirement	San Diego Water Board Original Estimate[5]	San Diego Water Board New Estimate[5]	District's Estimate[1]	City's Estimate
Surf Zone Bacteria	$39,000	$9,000 to $22,500	N/A	N/A
Nearshore and Offshore Bacteria	(-$289,300) (-$584,500 if used price for bacteria quoted in District's October 28, 2019 comment letter)	(-$92,700) to (-$204,200)	$2,400	(-$6,500)
Nearshore and Offshore Nutrients	$26,600	$26,600	N/A	N/A
Plume Tracking	$316,467	$316,467	$100,000	$316,466
Fish Tissue Analysis	$10,800[2]	$12,240 ($14,240 to $24,240 with sample collection)	$2,500	$25,000
Sediment Monitoring	(-$31,850)[3]	(-$32,760) to (-$67,760)[3,4]	N/A	N/A
HF183	Worst case scenario: $83,430 scenario Expected based off exceedance history: $34,290	Worst case scenario: $83,430 to $586,460 Expected: $34,290 to $118,460	$35,000	$200,000 to $957,600
Total	$106,007 to $155,147	$126,637 to $850,807	$139,900	$534,966 to $1,292,566

1. Estimates are District's portion of the costs and may include administrative cost.
2. Does not include the cost to collect the sample and assumes that the cost to collect fish for fish tissue analysis was equivalent to the cost of an extra sediment sampling event.

3. Does not include the cost to collect the sample and assumes that the cost to sample sediment was equivalent to the cost to collect fish for fish tissue analysis.
4. Underestimation due to the unknown cost for some sediment chemistry parameters. City's price quote states infauna analysis cost may double next year.
5. Negative values in the table indicate cost savings due to reductions in monitoring requirements in the Tentative Order compared to the requirements of the Current Order.

2.2. Increase in Effluent Monitoring Cost Per Permit Term

The following table shows the estimate for the increase in cost for the effluent monitoring requirements derived by the San Diego Water Board and City:

Monitoring Parameter(s)	San Diego Water Board's Original Estimate[1]	San Diego Water Board's New Estimate[1]	City's Original Estimate	City's New Estimate
Total Nitrogen and Total Phosphorous	$1,400	$1,400	N/A	N/A
Enterococci and Fecal Coliform	$3,300	$900	N/A	N/A
TCDD	(-$4,050)	(-$9,000)	$14,400	$9,000
Tributyltin	(-$2,000)	(-$1,650)	N/A	$1,650
Chronic Toxicity	$18,000	$16,250 to $41,850	$18,000	$24,500
Total Cost	$16,650	$7,900 to $33,500	$32,400	$35,150

1. Negative values in the table indicate cost savings due to reductions in monitoring requirements in the Tentative Order compared to the requirements of the Current Order.

2.3. Work Plan Cost Per Permit Term

The following table presents the estimated increase in costs for the Work Plans associated with the Tentative Order derived by the San Diego Water Board, City, and District:

Work Plan	Water Board's Estimate	City's Estimate	District's Estimate
Climate Change Action Plan	$50,000 (Based on City of San Diego's cost, includes staff time and consultant. Also used information from city-wide CCAP)	$150,000	$100,000

Work Plan	Water Board's Estimate	City's Estimate	District's Estimate
Pollutant Minimization Program	$15,000 to $20,000 (Ocean Plan Required)	$20,000	$15,000
Initial TRE Work Plan	$0 (Staff Time) to $10,000	$10,000	$10,000
Benthic Monitoring Work Plan	$0 to $150,000	$150,000	N/A
Plume Tracking Work Plan and Monitoring Plan	$25,000	$50,000	$31,647
State of the Ocean Oral Report	$0 (Staff Time) to $7,000	$7,000	N/A