

## **APPENDIX A**

### **Air Quality Technical Memorandum**



# Technical Memorandum

October 11, 2022

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<b>From</b>	GHD	<b>Project No.</b>	11176121
<b>Project Name</b>	Doheny Desalination Project		
<b>Subject</b>	Revised Criteria Air Pollutant and Greenhouse Gas Emissions Analysis		

## 1. Introduction

The Doheny Ocean Desalination Project (Project) Environmental Impact Report was certified on June 27, 2019 (certified EIR) for the proposed up to 5 MGD Project. South Coast Water District (SCWD) is the CEQA Lead Agency. California State Parks has recently requested several minor modifications to the construction phasing and approach for the subsurface intake slant wells at Doheny State Beach (DSB) to align with improvements it has planned for the DSB campground. These modifications change some assumptions used in the permitting process for estimating air pollutant and greenhouse gas emissions from the construction of the slant wells. These modifications include:

- A single 18-month construction period instead of a total of 19 months of construction over two off-season construction periods.
- Construction of all four of the slant wells within the DSB campground. Modelling done for the certified EIR conservatively assumed that the wells would be located at the furthest proposed location within the north day use area of DSB from where the conveyance pipeline would exit DSB and continue to the plant site. The construction of all four slant wells within the DSB campground will result in a shortened length of intake conveyance pipeline and no tunnelling under the San Juan Creek lagoon. This revised assumption results in reduced soil export haul volume during construction.

As demonstrated below, these modifications would not generate a new significant impact or substantially increase the severity of a previously identified impact.

### 1.1 Purpose of this Memorandum

The purpose of this memorandum is to identify potential criteria air pollutant and greenhouse gas emissions associated with proposed modifications to the Doheny Desalination Project. Specifically, this memorandum analyzes the potential air quality and greenhouse gas emissions associated with modifications to the development timelines and reduced soils export haul volumes for the Project. For the purposes of clarity, the approved project analyzed in the certified EIR is referred to in this memorandum as the “Project”, and the proposed modifications are referred to as “Proposed Modifications.”

This Technical Memorandum is provided as an interim output under our agreement with South Coast Water District. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

## 2. Air Quality and Greenhouse Gas Analysis

The certified EIR included quantification for development of the 5 MGD Project, identified in certified EIR Appendix 10.3, Air Quality and Greenhouse Gas Calculations, as phases 1 through 29.

The air quality and greenhouse gas analysis in the certified EIR assumed construction of the 5 MGD Project would begin in October 2019 and be completed by October 2021. The certified EIR analysis assumed construction period would take just over 24 months to complete. All import/export for soils and demolition materials were entered in phase 7 “Project-wide pipework” for clarity of analysis. Emissions for the Project were quantified using CalEEMod version 2016.3.2. Construction would occur 7 days a week.

Under Proposed Modifications, construction would begin in fall 2024 and be completed within 24 months during a single construction window. The assumed construction timelines analyzed in the certified EIR and with Proposed Modifications are shown in Table 1. As shown in the table, the total duration of working days would not change under the Proposed Modifications. Please note that all start and end dates are approximate. Construction emissions with the Proposed Modifications were quantified using CalEEMod version 2020.4.0.

**Table 1** Assumed Construction Timeline for Slant Wells 1-4 and Project-wide Pipework

No	Construction Phase	Project			Proposed Modifications		
		Start Date	End Date	Duration	Start Date	End Date	Duration
1	Preliminary Site Work	10/04/2019	11/02/2019	30	09/11/2024	10/10/2024	30
2	Slant Wells 1-2 Drilling	10/01/2019	03/28/2020	180	09/08/2024	03/06/2025	180
3	Slant Well 1 Development	01/01/2020	01/30/2020	30	03/11/2025	04/09/2025	30
4	Slant Well 2 Development	04/02/2020	05/01/2020	30	04/10/2025	05/09/2025	30
5	Raw Water Pipeline	10/02/2019	09/15/2020	350	09/27/2024	09/11/2025	350
6	Preliminary Site Work 2	11/15/2019	01/23/2020	70	10/23/2024	12/31/2024	70
7	Project-Wide Pipework Excavation	02/01/2020	04/02/2021	427	01/09/2025	03/11/2026	427
8	Yard Piping	02/01/2020	08/18/2020	200	10/23/2024	07/27/2025	200
9	Floc/Sed Basins	02/01/2020	08/28/2020	210	10/23/2024	08/06/2025	210
10	Chemical Storage Area	04/01/2020	10/27/2020	210	10/23/2024	10/05/2025	210
11	Brine Holding Tank	04/01/2020	10/27/2020	210	10/23/2024	10/05/2025	210
12	Product Water Tank	04/01/2020	10/27/2020	210	10/23/2024	10/05/2025	210
13	Outside Process Equipment Concrete Pads	06/01/2020	09/08/2020	100	10/23/2024	08/17/2025	100
14	RO Building Foundation	06/01/2020	09/08/2020	100	10/23/2024	08/17/2025	100
15	R&D Pad	07/01/2020	10/08/2020	100	10/23/2024	09/16/2025	100
16	Administration Building Foundation	07/01/2020	10/08/2020	100	10/23/2024	09/16/2025	100
17	Electrical Building Foundation	07/01/2020	09/28/2020	90	10/23/2024	09/06/2025	90
18	Electrical Building	11/01/2020	02/28/2021	120	10/10/2025	02/06/2026	120

No	Construction Phase	Project			Proposed Modifications		
		Start Date	End Date	Duration	Start Date	End Date	Duration
19	Outside Process Equipment Mechanical/ Electrical Installation	10/01/2020	09/30/2021	365	09/9/2025	09/08/2026	365
20	RO Building	10/01/2020	02/27/2021	150	09/9/2025	02/05/2026	150
21	Administration Building	10/01/2020	03/29/2021	180	09/9/2025	03/07/2026	180
22	Electrical Equipment Installation	01/01/2021	08/28/2021	240	12/10/2025	08/06/2026	240
23	Electrical Equipment Mechanical Installation	03/01/2021	10/26/2021	240	02/7/2026	10/04/2026	240
24	Slant Wells 3-4 Drilling	10/01/2020	03/29/2021	180	05/17/2025	11/12/2025	180
25	Slant Well 3 Development	01/10/2021	02/08/2021	30	11/13/2025	12/12/2025	30
26	Slant Well 4 Development	04/01/2021	04/30/2021	30	12/13/2025	01/11/2026	30
27	RO Building Mechanical/ Electrical Installation	03/01/2021	09/16/2021	200	02/7/2026	08/25/2026	200
28	Architectural Finishes	04/02/2021	05/31/2021	60	03/11/2026	05/9/2026	60
29	Process Equipment Corrosion Protection	02/01/2021	04/01/2021	60	06/9/2026	08/7/2026	60

As stated above, all import/export for soils and demolition materials were entered in Phase #7, Project-wide Pipework, for clarity of analysis. Project construction would include soils movement during construction of the raw water pipeline and slant wells at DSB, and plant site grading, detention basin, electrical conduits, and grubbing at the Project plant site. Soils movement was calculated for four (4) alternatives. Of the four alternatives, Plant Site Alternative 1 was estimated to result in the worst-case, or most-volume soils movement scenario. The total calculated import and export for Alternative 1 in the certified EIR was input into the materials movement screen for construction #7, Project-wide Pipework, to more appropriately reflect the duration and temporal distribution of soils movement during Phase 1 construction. The air quality and greenhouse gas emissions quantification for the Project, and contained in the certified EIR, included 64,580 cubic yards (cy) of soils import, and 15,039 cy of soils export.

Under the Proposed Modifications, soils movement would be reduced, and consist of 64,580 cubic yards (cy) of soils import, and 13,663 cy of soils export due to the reduced length of intake conveyance pipeline and no tunnelling under San Juan Creek lagoon.

## 2.1 Certified EIR Analysis

The certified EIR found that air quality impacts, including construction-generated regional emissions, localized emissions, and general conformity, would be potentially significant. However, these impacts would be reduced to less than significant with implementation of mitigation measures. Specifically, the Project would implement Mitigation Measures AQ-1 through AQ-3.

- AQ-1** During Project construction, all internal combustion engines/construction, equipment operating on the Project site shall meet EPA-Certified Tier 4 emissions standards, or higher according to the following:

- All off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 4 off-road emissions standards. In addition, all construction equipment shall be outfitted with BACT devices certified by ARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by ARB regulations.
- A copy of each unit's certified tier specification, BACT documentation, and ARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

**AQ-2** On-road vehicle idling time shall be minimized and shall not exceed a five-minute maximum. Additionally, off-road engines shall not idle for longer than five minutes per § 2449(d)(3) of Title 13, Article 4.10, Chapter 9 of the California Code of Regulations. Clear signage of this requirement shall be provided for construction workers at all access points to construction areas.

**AQ-3** Although the Project's construction emissions are not projected to exceed the PM10 or PM2.5 significance threshold; the District is committed to reducing levels of particulate matter emissions. This includes the implementation of a fugitive dust control plan that is in accordance with techniques prescribed by SCAQMD's Fugitive Dust Mitigation Measure Tables XI-A through XI-E. Actions would include the following:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard;
- Apply water three times daily, or apply (non-toxic) soil stabilizers, on unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 4 days or more);
- Enclose, cover, or water twice daily exposed stockpiles (dirt, sand, etc.);
- Limit traffic speeds on unpaved roads to 15 miles per hour;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Wheel washers shall be installed and used by truck operators at the exits of the construction sites.

## **2.2 Comparison of Construction Emissions Estimates Between the Project and Proposed Modifications**

As stated in the prior section, air quality and greenhouse gas construction emissions for the Project were estimated using CalEEMod version 2016.3.2 and disclosed in the certified EIR. Emissions for the Proposed Modifications were estimated using the same construction equipment mix, horsepower, hours of use, and load factor as were used in the certified EIR but using the newer CalEEMod version 2020.4.0, the updated construction timeline, and updated haul volumes. A comparison of the air quality emissions from the Project and with Proposed Modifications is provided in Table 2. As shown in the table, unmitigated emissions estimates under the Proposed Modifications scenario would be substantially less than or the same as the Project. As shown in the table, mitigated emissions would be less than or the same as the Project. The SCAQMD's regional thresholds of significance are provided in the table for informational purposes. The Proposed Modifications would not generate a new significant air quality impact or substantially increase the severity of a previously identified air quality impact.

Additionally, the greenhouse gas emissions estimate for construction of the 5 MGD Project is 13,489 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>). With Proposed Modifications, construction of the 5 MGD is estimated to generate 13,142 MTCO<sub>2e</sub>, which would be a reduction of approximately 347 MTCO<sub>2e</sub> from the Project.

This technical memo focuses on construction emissions, as there are no planned changes in overall Project operational conditions (the same number of slant wells pumping, and the same desalination facility size and reverse osmosis energy demands). However, since certification of the Final EIR in June 2019, the local electricity provider, San Diego Gas & Electric, has recently announced even more aggressive plans to further reduce GHG emissions to net zero by 2045.<sup>1</sup> In addition, similar to construction emission rates, the operational emission rates would be roughly the same or lower than anticipated in the Final EIR given that the opening year is now anticipated to be 2026 (rather than 2021 as assumed in the EIR). Also, conversion of campsites from generator use to electrical hookups will further reduce operational emissions. Therefore, operational emissions for the Project would be roughly the same or lower than estimated in the Final EIR. The Proposed Modifications would not generate a new significant greenhouse gas impact or substantially increase the severity of a previously identified greenhouse gas impact.

**Table 2 Comparison Air Quality Emissions from Construction of 5 MGD**

Analysis Scenario	Maximum Daily Emissions (lbs/day)					
	ROG	NOX	CO	PM10	PM2.5	SOX
<b>PROJECT</b>						
<u>Unmitigated Emissions</u>						
2019	19.91	192.50	115.44	16.44	10.60	0.41
2020	33.60	310.27	229.85	24.19	17.58	0.77
2021	38.50	323.75	252.56	23.27	16.69	0.90
<i>Maximum Unmitigated</i>	38.50	323.75	252.56	24.19	17.58	0.90
<u>Mitigated Emissions</u>						
2019	5.43	23.46	185.27	4.81	2.40	0.41
2020	11.12	70.05	342.82	7.09	3.99	0.77
2021	14.77	70.29	406.62	7.14	4.01	0.90
<i>Maximum Mitigated</i>	14.77	70.29	406.62	7.14	4.01	0.90
<b>PROPOSED MODIFICATION</b>						
<u>Unmitigated Emissions</u>						
2024	14.88	105.20	106.26	13.65	7.52	0.41
2025	25.49	200.01	244.80	18.96	11.87	0.69
2026	19.52	143.38	168.29	14.63	9.13	0.55
<i>Maximum Unmitigated</i>	25.49	200.01	244.80	18.96	11.87	0.69
<u>Mitigated Emissions</u>						
2024	5.31	23.31	184.78	5.00	3.24	0.41
2025	10.22	55.46	336.04	7.28	3.77	0.69
2026	9.64	39.21	257.91	5.61	2.98	0.55
<i>Maximum Mitigated</i>	10.22	55.46	336.04	7.28	3.77	0.69
<b>CHANGE IN EMISSIONS</b>						
Maximum Unmitigated	-13.01	-123.74	-7.76	-5.23	-5.72	-0.22
Maximum Mitigated	-4.55	-14.83	-70.58	0.14	-0.23	-0.22

<sup>1</sup> <https://www.sdge.com/more-information/environment/sustainability-approach> (accessed September 26, 2022).

Analysis Scenario	Maximum Daily Emissions (lbs/day)					
	ROG	NOX	CO	PM10	PM2.5	SOX
<i>SCAQMD Regional Criteria Pollutant Threshold</i>	75	100	550	150	55	150
<i>New or Substantially Increased Impact?</i>	No	No	No	No	No	No