

SECTION 6.0 ALTERNATIVES TO THE PROPOSED ACTION

In order to fully evaluate proposed projects, CEQA requires that alternatives be discussed. Section 15126.6 of the State CEQA Guidelines requires the discussion of “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The alternatives discussion is intended to “focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives as listed in Section 3.0 of this EIR. The alternatives discussion focuses on the desalination plant aspect of the PDP.

The Alternatives discussion in this EIR focuses on four project alternatives: a No Project/No Development Alternative, an Alternative Site Location Alternative, a Modified Intake Design Alternative, and a Reduced Project Capacity Alternative.

6.1 NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Under the No Project/No Development Alternative, existing conditions on the site and existing operations within the PDP area would continue – Fuel oil tank #3 would remain and the Encina Power Station would continue to operate in its current condition. None of the impacts identified for the proposed project would result from implementation of the No Project/No Development Alternative. However, it should be noted that the analysis of the project contained in Section 4 of this EIR did not identify any significant unavoidable adverse effects associated with the project, with the exception of cumulative air quality, for which no feasible mitigation is available at a project level, and potential growth inducement. Additionally, the No Project/No Development Alternative would not meet any of the project objectives related to providing a local source of potable water supply to supplement imported water supplies, improving water supply reliability, or improving water quality for the City of Carlsbad. ~~Regional planning for a desalination plant is assumed to continue under the No Project/No Development Alternative. Therefore, the No Project/No Development Alternative does not represent elimination of potential regional or cumulative effects that may be associated with development of regional desalination facilities.~~

6.2 ALTERNATIVE SITE LOCATION

As part of planning activities for the proposed project, the applicant considered alternative locations for the proposed desalination plant. Based on siting limitations relative to proximity of

existing intake and outfall structures, two primary project locations were identified, the proposed project site (including several variations on the location and configuration of the facility within the Encina Power Station (EPS), as discussed in *Section 4.8, Land Use/Planning*), and a site that is part of the land associated with the Encina Water Pollution Control Facility (EWPCF), a wastewater treatment facility ~~owner~~-owned by the six member agencies of the Encina Wastewater Authority. For purposes of this analysis, the alternative site is the EWPCF, since the various locations within EPS are substantially the same as the proposed project.

The alternative site is located within a 37-acre parcel immediately south of the EWPCF facility. The Alternative Site project would utilize the existing treated wastewater ocean outfall. However, because of size limitations to the outfall pipeline, the maximum product water capacity of the desalination plant would be 10 mgd. Source water for the plant would be piped from the EPS cooling water discharge, or alternatively, a new intake structure would be constructed offshore of the EWPCF.

Aesthetics

Overall, aesthetic impacts associated with the alternative location would not be substantially different from the proposed project since the size and general design of the facilities would be the same. The reduced capacity of the Alternative Site Alternative would result in a smaller facility footprint. However, the site is more visible from public viewpoints than the proposed project. The site would be readily visible from the I-5 freeway. It is anticipated that design and/or mitigation would be available to avoid significant effects. However, it should be noted that no significant unavoidable impacts were identified for the proposed project. Therefore, no substantial impact avoiding or reducing benefits are provided with this alternative.

Air Quality

It is anticipated that the reduced capacity of the Alternative Site Alternative would result in reduced air emissions, both associated with construction and operation. Because the facility would have the capacity to produce only 10 mgd of product water, the size of the facility and related construction emissions would be reduced, as would pumping and other operational requirements. However, the proposed project was not found to result in any significant impacts relative to air quality, and therefore, the alternative does not provides substantial environmental benefits in terms of air quality impact reductions.

Biological Resources

The proposed alternative site consists primarily of disturbed, non-sensitive land covers, and it is not anticipated that any significant biological resources would be affected on the alternative plant site. Impacts associated with the water delivery pipelines are anticipated to be similar to those identified for the proposed project, since the product water would be conveyed in the same manner and to the same locations as with the project. It is likely that the sizing of the pipes would be reduced. However, this would not necessarily translate to reduced impacts, since construction techniques and total impact areas would be substantially the same as with the project.

The Alternative Site Alternative would result in reduced seawater intake and hypersaline discharge volumes due to its reduced capacity. Impacts to marine biological resources would vary based on the wastewater effluent flow rates which would affect dilution ratios. Additionally, this alternative also considers the option of a separate outfall structure which would not provide of “in-pipe” dilution. Overall, it is anticipated that the reduction in total volume of discharge would result in reduced impacts. However, as discussed in *Section 4.3*, the proposed project would not result in significant impacts to marine resources, and therefore, the Alternative Site Alternative does not provide substantial advantages in terms of impact reductions.

Cultural Resources

Impacts to cultural resources would be similar with the Alternative Site Alternative, since as noted above, it is anticipated that the water delivery pipeline alignments would be substantially that same as for the project. As the proposed project would not result in significant impacts to cultural resources, neither would the Alternative Site Alternative.

Geology and Soils

Impacts to cultural resources would be similar with the Alternative Site Alternative, since as noted above, it is anticipated that the water delivery pipeline alignments would be substantially that same as for the project. No significant impacts would be anticipated for either the proposed project or the Alternative Site alternative.

Hazards and Hazardous Materials

Since this alternative requires a reduced capacity plant, it is anticipated that the quantity of chemicals used and stored on the site would be reduced. In addition, the location of the Alternative Site Alternative would not require removal and handling of fuel oil associated with

the fuel oil storage tank located on the proposed project site. Consequently, hazards associated with this alternative maybe slightly less, although hazards associated with the water delivery pipeline alignments would be substantially the same as for the project. Therefore, the alternative does not offer avoidance of any significant impacts, since no significant unavoidable impacts were identified for the project.

Hydrology/Water Quality

As noted in the discussion of biological impacts, the Alternative Site Alternative would result in reduced seawater intake and hypersaline discharge volumes due to its reduced capacity. In addition, this alternative also considers the option of a separate outfall structure which would not provide “in-pipe” dilution. Overall, it is anticipated that the reduction in total volume of discharge would result in reduced impacts to seawater quality. However, as discussed in *Section 4.7*, the proposed project would not result in significant impacts related to seawater quality, and therefore, the Alternative Site Alternative does not provide substantial advantages in terms of impact reductions. Other impacts associated with water quality and hydrology would be similar to the proposed project since the character of onsite and offsite uses would be substantially the same.

Land Use/Planning

The Alternative Site Alternative would result in similar land use impacts since both projects would be located on sites planned for utility uses. No significant impacts to land use or planning would result with either the proposed project or this alternative.

Noise

Because this alternative would be smaller in scale than the proposed project, it would involve equipment that would generate lower levels of operational noise. In addition, construction time may be reduced resulting in less exposure time to construction noise effects. However, the alternative site is located adjacent to the I-5 freeway, and as such, any reductions in operational noise would be inconsequential. Further, noise impacts associated with the water pipeline alignments would remain substantially the same. Neither the proposed project nor the Alternative Site Alternative are anticipated to result in significant noise effects.

Traffic/Circulation

Impacts associated with increased traffic levels may be slightly reduced because of the smaller plant size, which would likely require less overall construction activity and would generate less

operational related traffic. Under this alternative or the proposed project, impacts associated with the water pipeline alignments would be substantially the same. The proposed project would not result in significant impacts to traffic, and therefore, this alternative would not offer substantial benefits in terms of impact reduction.

Public Utilities and Service Systems

Impacts to public utilities and services would be similar to the proposed project, with the exception of energy use and wastewater utility impacts. Because of the smaller capacity of the Alternative Site Alternative, it would result in less energy demand than the proposed project. However, as noted in *Section 4.11*, the project would not result in new electrical generation or transmission facilities to be built, and would offset energy requirements associated with imported water. Also because of the smaller capacity of the Alternative Site Alternative, it would result in a lower total dissolved solids (TDS) loading to the local water recycling facilities. However, as noted in *Section 4.11*, the Applicant is required to mitigate the net increase in TDS at the local water recycling facilities to the extent that the TDS increase is attributable to the proposed project. Therefore this alternative does not offer substantial benefits in terms of impact reduction.

Summary

In summary, the Alternative Site Alternative would not alleviate any significant unavoidable impacts associated with the proposed project, as none have been identified, with the exception of cumulative air quality and growth inducing impacts, for which this alternative would not reduce impacts to less than significant levels. In addition, the alternative would not provide the capacity of water supply anticipated for the local area, and it is anticipated that additional or expanded facilities would be needed in other locations to meet projected regional supply goals. Therefore, the alternative would not be as effective as the proposed project in satisfying the objectives of the project.

6.3 MODIFIED INTAKE DESIGN

In developing the design for the proposed project, a number of alternatives for source water intake were examined to determine the feasibility of options in place of the proposed co-location of intake with the Encina Power Station (EPS) cooling water discharge. The purpose of examining these alternatives was to avoid impacts associated with impingement/entrainment related to an open water intake system. It should be noted that, as described in *Section 4.3*, the project as proposed with source water intake from the EPS, would result in entrainment of less than one percent of larvae. Such a small proportion of marine organisms lost to entrainment as a

result of the desalination plant would not have a substantial effect on the species' ability to sustain their populations. Therefore, none of these design alternatives provide impact avoidance or reduction that would be required to reduce project impacts to less than significant levels. The following options were considered:

Vertical Intake Wells

Vertical intake wells consist of water collection systems that are drilled vertically into a source water aquifer. Vertical intake wells would be of relatively small diameter (6 to 18 inches) with a well casing and submersible pump. The depth would vary, but would not be expected to exceed 250 feet. The approximate yield from a vertical well would be approximately 1 mgd. The project would therefore require 100 vertical wells to produce the volume of source water necessary to produce 50 mgd of product water. Siting, construction and operation of 100 wells would not be practical (and potentially infeasible) and could result in potentially significant impacts depending on the locations of the wells. Therefore, this design alternative is not being considered.

Horizontal Beach Wells

Horizontal intake wells would consist of a caisson that extends below the ground surface with laterals extending horizontally in multiple directions into the surrounding aquifer. Their application to the project would require location of the wells along the beach to access ocean water. Since the laterals are placed horizontally, it increases the surface area from which water is drawn, and thus these wells have a higher output capacity than vertical wells – up to approximately 5 mgd. The caissons would house the pump mechanism, and would be approximately 10 to 15 feet high by 15 to 30 feet in diameter concrete structures. Approximately 25 of the wells would be required, spaced a minimum of 400 feet apart (lateral length would be approximately 200 feet). Siting of 25 beach wells along 4 miles of the Carlsbad beaches would likely result in significant unmitigable impacts to visual resources and recreation. In addition, temporary impacts to biological resources would also likely be significant. Therefore, this design alternative is not being considered.

Infiltration Galleries

Infiltration galleries consist of a trench that is excavated and filled with filtration media, similar to filter media used in water treatment operations. This design is typically applied where hydrogeological conditions are not conducive to vertical or horizontal wells. An infiltration gallery that has dimensions of 4 feet wide and 500 feet long would have a capacity of up to 2.5 mgd. For the proposed project, the infiltration gallery would need to be sited along the beach to

access seawater. The estimated depth for each well would be approximately 30 feet, over an approximately 4-mile stretch of beach, requiring the removal and disposal of extensive quantities of earth material and resulting in potentially significant temporary impacts to biological resources. Because of these potentially significant construction-related impacts, this design alternative is not being considered.

Since the proposed project does not result in substantial losses of marine organisms due to entrainment, and because of the infeasibility and/or significant temporary and permanent impacts resulting from the design alternatives that are available, the co-located EPS intake was pursued for the proposed project.

6.4 REDUCED PROJECT CAPACITY

The Reduced Project Capacity would consist of a desalination facility with a maximum product water output of 25 mgd, or half that of the proposed project. This alternative would meet the minimum requirements for the first phase of water delivery identified in the Water Purchase Agreement between the City of Carlsbad and Poseidon. However, this project would not provide sufficient production capacity to meet planned water supplies for seawater desalination as a component of regional water supplies and additional regional desalination supply alternatives would likely need to be explored to satisfy regional objectives for local water supply reliability.

Aesthetics

Aesthetic impacts associated with the reduced facility size would not be substantially different from the proposed project since the general design of the facilities would be the same and the facility would occupy roughly the same location. The reduced capacity of this alternative would result in a smaller facility footprint, but the difference would not be readily detectable from public vantage points. It is anticipated that design and/or mitigation would be available to avoid significant effects. However, it should be noted that no significant unavoidable impacts were identified for the proposed project. Therefore, the Reduced Capacity Alternative would not provide substantial benefits in terms of impact reduction or avoidance.

Air Quality

The Reduced Capacity Alternative would result in reduced air emissions, both associated with construction and operation, because the size of the facility and related construction emissions would be reduced, as would pumping and other operational requirements. However, the proposed project was not found to result in any significant impacts relative to air quality, and therefore, the alternative does not provide substantial environmental benefits in terms of air quality impact reductions.

Biological Resources

The Reduced Capacity Alternative would result in substantially similar impacts to terrestrial biological resources as the proposed project, since the facility location and the location of offsite water delivery pipelines would be similar. It is likely that the size of the pipes would be reduced. However, this would not necessarily translate to reduced impacts, since construction techniques and total impact areas would be substantially the same as with the project.

The Reduced Capacity Alternative would result in reduced seawater intake and discharge volumes due to its reduced production capacity. Assuming the same power plant cooling water flows, reduced discharge from the facility would result in lower salinity levels in the combined discharge. However, as discussed in *Section 4.3*, the discharge from the proposed project at an ultimate 50 mgd capacity would not **result** in significant impacts to marine organisms, either in the average or extreme scenarios. Therefore, the Reduced Capacity Alternative does not provide substantial advantages in terms of impact reductions.

Cultural Resources

Impacts to cultural resources would be similar with the Reduced Capacity Alternative, since as noted above, it is anticipated that the water delivery pipeline alignments would be substantially the same as for the project. As the proposed project would not result in significant impacts to cultural resources, neither would the Reduced Capacity Alternative.

Geology and Soils

Impacts to cultural resources would be similar with the Reduced Capacity Alternative, since as noted above, it is anticipated that the water delivery pipeline alignments would be substantially the same as for the project. No significant impacts would be anticipated for either the proposed project or the Reduced Capacity alternative.

Hazards and Hazardous Materials

It is anticipated that the quantity of chemicals used and stored on the site would be reduced because of the alternative's reduced capacity. Consequently, hazards associated with this alternative may be slightly less, although hazards associated with the water delivery pipeline alignments would likely be similar. In conclusion, the alternative does not offer avoidance of any significant impacts, since no significant unavoidable impacts were identified for the project.

Hydrology/Water Quality

As noted in the discussion of biological impacts, the Reduced Capacity Alternative would result in reduced seawater intake and discharge volumes. Overall, it is anticipated that the reduction in total volume of discharge would result in reduced impacts to the quality of the seawater. However, as discussed in *Section 4.7*, the proposed project would not result in significant impacts related to seawater quality, and therefore, the Reduced Capacity Alternative does not provide substantial advantages in terms of impact reductions. Other impacts associated with water quality and hydrology would be similar to the proposed project since the character of onsite and offsite uses would be substantially the same.

Land Use/Planning

The Reduced Capacity Alternative would result in similar land use impacts since the land use characteristics of both would be the same.

Noise

Because this alternative would be smaller in scale than the proposed project, it would involve equipment that would generate lower levels of operational noise. However, the proposed project is not anticipated to result in significant noise effects. Therefore the Reduced Capacity Alternative does not offer substantial environmental benefits in terms of impact reduction or avoidance.

Traffic/Circulation

Impacts associated with increased traffic levels may be slightly reduced because of the smaller plant size, which would likely require less overall construction activity and would generate less operational related traffic. However, traffic impacts associated with construction of the water pipeline alignments would be substantially the same. Since the proposed project would not result in significant impacts to traffic, this alternative would not offer substantial benefits in terms of impact reduction.

Public Utilities and Service Systems

Impacts to public utilities and services would be similar to the proposed project, with the exception of energy use. Because of the smaller capacity of the Reduced Capacity Alternative, it would result in less energy demand than the proposed project. However, as noted in *Section 4.11*, the project would not result in new electrical generation or transmission facilities to be

built, and would offset energy requirements associated with imported water. Also because of the smaller capacity of the Alternative Site Alternative, it would result in a lower total dissolved solids (TDS) loading to the local water recycling facilities. However, as noted in *Section 4.11*, the Applicant is required to mitigate the net increase in TDS at the local water recycling facilities to the extent that the TDS increase is attributable to the proposed project. Therefore this alternative does not offer substantial benefits in terms of impact reduction,

Summary

In summary, no significant unavoidable adverse impacts have been identified for the proposed project with the exception of cumulative air quality and growth inducing impacts, which cannot be mitigated to less than significant levels by this alternative. ~~, and~~ Therefore, the Reduced Capacity Alternative would not provide mitigation or avoidance of impacts that cannot be otherwise mitigated. However, this alternative has been identified as the Environmentally Superior Alternative pursuant to the requirements of the CEQA Guidelines, Section 15126.6.

~~In addition,~~ The alternative would not provide the capacity of water supply anticipated for the local area, and it is anticipated that additional or expanded facilities would be needed in other locations to meet projected regional supply goals. Therefore, the alternative would not be as effective as the proposed project in satisfying the objectives of the project.