

Appendix A
Subsurface Seawater Intake Feasibility Screening Tool
Subsurface Seawater Intake Study
West Basin Municipal Water District

Geosyntec Consultants

	Value	Units	Data Quality	Default values?
1) What is the design intake rate for the project?	48	MGD		No
2) Is there a cliff at the coastline?	No		High	No
3) Is the planned construction at an inlet?	No		High	No
4) What is the depth to bedrock at the planned construction site?	200	ft	High	No
5) What is the width of the beach at the planned construction site?	400	ft	Medium	No
6) What is the length of the available beach front?	43,425	ft	Medium	No
7) What is the area of available land onshore?	17,802,000	sq ft	Medium	No
8) What is the area of available land offshore?	125,042,000	sq ft	Medium	No
9) What is the available area for drilling, construction and staging?	463,000	sq ft	Medium	No
10) What is the linear beach front required per unit?				
Vertical Wells	100	ft/well	Low	Yes
Slant Wells	600	ft/cluster of 3 wells	Low	Yes
Radial Collectors	350	ft/group of collectors	Low	Yes
Horizontal Wells	140	ft/fan of 10 drains	Low	Yes
Beach Infiltration Gallery	0.0033	ft/per sq ft	Low	Yes
11) What is the area required per unit?				
Vertical Wells	250	sq ft/well	Low	Yes
Slant Wells	500	sq ft/cluster of 3 wells	Low	Yes
Radial Collectors	10,000	sq ft/group of collectors	Low	Yes
Horizontal Wells	15,000	sq ft/fan of 10 drains	Low	Yes
Beach Infiltration Gallery	6,950	sq ft/MGD	Low	Yes
Seabed Infiltration Gallery	13,900	sq ftMGD	Low	Yes
12) What is the expected capacity per unit?				
Vertical Wells	1	MGD/well	Low	Yes
Slant Wells	5	MGD/cluster of 3 wells	Low	Yes
Radial Collectors	5	MGD/group of collectors	Low	Yes
Horizontal Wells	3	MGD/drain	Low	Yes
Beach Infiltration Gallery	0.1	gpm/sq ft	Low	Yes
Seabed Infiltration Gallery	0.05	gpm/sq ft	Low	Yes
Water Tunnel	1.8	gpm/ft	Low	Yes
13) What is the topography in the vicinity of the planned construction site?	flat		High	No
14) What is the seabed slope at the planned construction site?	low slope		High	No
15) What is the depth to seabed at the planned construction site?	20	ft	High	No
16) What is the transmissivity of the sediments underlying the planned construction site?				
Vertical Wells	130,000	gpd/ft	Medium	No
Slant Wells	130,000	gpd/ft	Medium	No
Radial Collectors	20,000	gpd/ft	Medium	No
Horizontal Wells	5,000	gpd/ft	Medium	No
Water Tunnel	12,000	gpd/ft	Medium	No
17) What is the leakance of the sediment overlying the planned SSI site?				
Vertical Wells	0.05	1/d	Medium	No
Slant Wells	0.05	1/d	Medium	No
Radial Collectors	0.1	1/d	Medium	No
Horizontal Wells	0.15	1/d	Medium	No
Water Tunnel	0.06	1/d	Medium	No

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	Value	Units	Data Quality	Default values?
18) What is the typical significant wave height at the planned construction site?				
Beach Infiltration Gallery	2.5	ft	Medium	No
Seabed Infiltration Gallery	2.5	ft	Medium	No
Water Tunnel	2.5	ft	Medium	No
19) What is the water depth at the seaward end of the gallery?				
Beach Infiltration Gallery	3	ft	Low	Yes
20) What is the water depth at the depth of closure?				
Seabed Infiltration Gallery	< 10	ft	Low	Yes
21) What is the distance of the depth of closure from the shore?				
Seabed Infiltration Gallery	< 1,000	ft	Low	Yes
22) Has the beach been re-nourished in the last 10 years?				
	Yes		High	No
23) What is the beach peak annual mean sea level (MSL) shoreline change?				
	20	ft	Medium	No
24) Is the inland groundwater level of the coastal aquifer above sea water level?				
	Yes		High	No
25) Is there existing contaminant plume(s) in the vicinity (less than 5,000 ft from planned construction the site)?				
	Yes		High	No
26) Is the planned SSI infrastructure located within the 40 year (from project initiation) potentially impacted area by sea level rise?				
	No		Low	Yes
27) What is the sedimentation rate at the planned construction site?				
Horizontal Wells	6	mm/yr	Medium	No
Beach Infiltration Gallery	6	mm/yr	Medium	No
Seabed Infiltration Gallery	6	mm/yr	Medium	No
28) What is the source water turbidity?				
Vertical Wells	Potential for clogging is high	NTU	Low	Yes
Slant Wells	Potential for clogging is medium	NTU	Low	Yes
Radial Collectors	Potential for clogging is medium	NTU	Low	Yes
Horizontal Wells	5	NTU	Medium	No
Beach Infiltration Gallery	5	NTU	Medium	No
Seabed Infiltration Gallery	5	NTU	Medium	No
Water Tunnel	5	NTU	Medium	No
29) What is the Silt Density Index (SDI₁₅) value of the feedwater?				
Vertical Wells	< 2		Low	Yes
Slant Wells	< 2		Low	Yes
Radial Collectors	< 2		Low	Yes
Horizontal Wells	3		Medium	No
Beach Infiltration Gallery	3		Medium	No
Seabed Infiltration Gallery	3		Medium	No
Water Tunnel	3		Medium	No
30) Will the source water be considered extremely impaired source by DDW?				
	Yes		Medium	No
31) What is the Saturation Index of selected precipitates in the source water?				
Vertical Wells	Potential for clogging is high		Low	Yes
Slant Wells	Potential for clogging is medium		Low	Yes
Radial Collectors	Potential for clogging is medium		Low	Yes
Horizontal Wells	Potential for clogging is high		Low	Yes
Water Tunnel	Potential for clogging is low		Low	Yes

Notes:

d = day
 DDW = Division of Drinking Water
 ft = feet
 gpd = gallon per day
 gpm = gallon per minute
 MGD = Millions of Gallons per Day

mm = millimeter
 NTU = Nephelometric Turbidity Unit
 sq ft = square feet
 SSI = Subsurface Seawater Intake
 yr = year