

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

MEMORANDUM

DATE: November 24, 2010 – *Revised November 30, 2010*

TO: Water Supply Planning Committee Members:
Directors Brower, Markey, and Edwards

FROM: Andrew M. Bell, District Engineer *AMB*

CC: Board of Directors
Darby Fuerst, General Manager
David C. Laredo, General Counsel

SUBJECT: Water Supply Quantities in August 2008 MPWMD 95-10 Project Constraints Analysis Report

At the November 16, 2010 meeting of the Water Supply Planning Committee, Committee members asked that staff clarify a table from the August 2008 Constraints Analysis report that is included on page 60 in the packet for the November 15, 2010 Board meeting.

Table 1 of the Constraints Analysis report (copy attached, with hand-written potable water yields in acre-feet per year) lists 25 alternatives for development of feed water for a desalination project. The first 24 alternatives are listed in groups of three, each group representing a single location with lines in the table separating the groups. For each of the first eight locations, feed water capacity is listed for three different well technologies: horizontal directionally-drilled (HDD) wells, radial wells, and conventional (vertical) wells. **Only one of the three types of wells could be constructed at each site.** For example, in the first group of three alternatives, for the “Sand City Desal Site – Sand City” the stated feed water collection rate for an HDD well is 3,000 gallons per minute (gpm), for radial wells is 6,000 gpm, and for conventional wells is 7,500 gpm. In this case, the table shows conventional wells to have the greatest capacity. In the second group of three alternatives, for the “Sand City - Malibu Development LLC” site, the feedwater collection rate for an HDD well is 1,000 gpm, for a radial well is 3,000 gpm, and for conventional wells is 1,000 gpm. In this case, a radial well would have the greatest capacity.

It should also be noted that the feed water capacities at two or more sites could be combined for a larger project yield. Examples of combining sites are shown in the Constraints Analysis report on Table 5 (copy attached, with hand-written potable water yields in acre-feet per year). In Table 5, Example Project 2 combines two feed water sites with conventional wells, Alternatives 18 and 23. Example Project 3 combines three feed water sites with conventional wells, Alternatives 18, 24, and 25. Example Project 4 combines four feed water sites, three with conventional wells (Alternatives 18, 24, and 25) and one with a radial well (Alternative 22).

Development and use of any of the sites is subject to technical and regulatory constraints.

Please see next page for list of attachments.

Attachments: August 2008 report, *MPWMD 95-10 Project Constraint Analysis*, by ICF Jones & Stokes and Camp, Dresser & McKee, Inc.

- Cover
- Table 1 – Summary of Feed Water Collection Well Alternatives
- Table 2 – Potential Projects and Capacities

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**Monterey Peninsula Water
Management District**

**95-10 Project
Constraints Analysis**

Prepared for:

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August 2008

Assumptions: 50% recovery
 Plant operation 90%
 of time
 1 gpm = 1.6129 AF/yr

Potable
 Water
 (AF/yr)

Table 1. Summary of Feed Water Collection Well Alternatives

Alt	Location Owner	Description	Well Type	Details	Flow Rate	Public property?	
1	Sand City Desal Site- Sand City	South of Tioga Avenue.	HDD	1,500 ft	3,000 gpm	Y	2,200
2		Project facilities located in vicinity of Sand City collection and disposal wells.	Radial	2 wells	6,000 gpm	Y	4,400
3			Conv. (Shallow)	15 wells	7,500 gpm	Y	5,400
4	Sand City - Malibu Development LLC	North of Tioga Avenue.	HDD	500 ft	1,000 gpm	N	700
5		Property slated for re-development, though no identified active plans.	Radial	1 well	3,000 gpm	N	2,200
6			Conv. (Shallow)	2 wells	1,000 gpm	N	700
7	Sand City - Sand City Re- Development Agency	Property owned by Sand City Re-development Agency. An EIR is underway for a resort planned at this site.	HDD	500 ft	1,000 gpm	N	700
8			Radial	2 wells	6,000 gpm	N	4,400
9			Conv. (Shallow)	7 wells	3,500 gpm	N	2,500
10	Sand City - Monterey Peninsula Regional Parks District	Property owned by Monterey Peninsula Regional Parks District.	HDD	1,000 ft	2,000 gpm	Y	1,500
11			Radial	1 well	3,000 gpm	Y	2,200
12			Conv. (Shallow)	5 wells	2,500 gpm	Y	1,800
13	Sand City - SNG Development Corporation	Property owned by SNG. Property slated for re-development.	HDD	600 ft	1,200 gpm	N	900
14			Radial	2 wells	6,000 gpm	N	4,400
15			Conv. (Shallow)	6 wells	3,000 gpm	N	2,200
16	Former Fort Ord: Bunker Site- DPR	Approximate northern extent of Seaside Basin.	HDD	1,000 ft	2,000 gpm	Y	1,500
17		Former ammunition supply bunkers. Slated for development as a camping area.	Radial	2 wells	6,000 gpm	Y	4,400
18			Conv. (Shallow)	8 wells	4,000 gpm	Y	2,900
19	Former Fort Ord: MW-1- DPR	Location of Seaside Basin Sentinel Well # 1, and test boring location in 2004 CDM study.	Radial	1 well	3,000 gpm	Y	2,200
20			Conv. (Shallow)	2 wells	1,000 gpm	Y	700
21			HDD	1,000 ft	2,000 gpm	Y	1,500
22	Former Fort Ord: Stilwell- DPR	Former site of Stillwell Hall. Planned parking area and trail access point.	Radial	1 well	3,000 gpm	Y	2,200
23			Conv. (Shallow)	4 wells	2,000 gpm	Y	1,500
24			Conv. (180')	2 wells	4,000 gpm	Y	2,900
25	Former Fort Ord: WWTP DPR	Site of former Fort Ord Wastewater Treatment Plant.	Conv. (180')	2 wells	4,000 gpm	Y	2,900

Potable Water yield, based on
 "WTP Capacity"
 1 MGD = 1,120.1 AF/yr

7.5 mgd, 15 mgd (10,400 gpm) of feed water collector capacity is required. Additional capacity must also be included, assuming that at least one well is out of service at any given time for maintenance. Table 5 summarizes four possible combinations of the alternatives that could be developed into a project.

Table 5. Potential Projects and Capacities

Project	Alternatives in Project	Total Capacity	Firm Capacity (1)	WTP Capacity	Notes	Handwritten: Potable Water (AF/yr)
<i>Projects in the Dune Sands Aquifer</i>						
Example Project 1						
	Alt 18: Conventional Wells at Bunker Site	4,000			Least implementation issues of all projects evaluated.	
	Totals (gpm)	4,000	3500			
	Totals (mgd)	5.8	5.0	2.5		2,800
Example Project 2						
	Alt 18: Conventional Wells at Bunker Site	4,000			Potential inter-basin transfer issues for wells at Stilwell.	
	Alt 23: Conventional Wells at Stilwell Site	2,000				
	Totals (gpm)	6,000	5,500			
	Totals (mgd)	8.6	7.9	4.0		4,500
<i>Projects in the Dune Sands Aquifer and 180-foot Aquifer</i>						
Example Project 3						
	Alt 18: Conventional Wells at Bunker/Dune Sands	4,000			Potential inter-basin transfer issues for wells at Stilwell and WWTP	
	Alt 24: Conventional Wells at Stilwell/180-foot Aquifer	4,000				
	Alt 25: Conventional Wells at WWTP/180-foot Aquifer	4,000				
	Totals (gpm)	12,000	10,000			
	Totals (mgd)	17.3	14.4	7.2		8,100
Example Project 4						
	Alt 18: Conventional Wells at Bunker/Dune Sands	4,000			Potential inter-basin transfer issues for wells at Stilwell and WWTP	
	Alt 22: Radial Well at Stilwell/Dune Sands	3,000				
	Alt 24: Conventional Wells at Stilwell/180-foot Aquifer	4,000				
	Alt 25: Conventional Wells at WWTP/180-foot Aquifer	4,000				
	Totals (gpm)	15,000	12,000			
	Totals (mgd)	21.6	17.3	8.7		9,700

(1) Computed assuming the largest well out of service as a standby