

FINAL REPORT
**Assessment of Long-Term Water
Supply Alternatives**



Cambria Community Services District
Cambria, California

June 2004
K/J 024602.10

Kennedy/Jenks Consultants

Kennedy/Jenks Consultants

1000 Hill Road, Suite 200
Ventura, California 93003
805-658-0607
805-650-1522 (Fax)

FINAL Assessment of Long-Term Water Supply Alternatives

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Prepared for
Cambria Community Services District
1316 Tamson Drive, Suite 201
Cambria, CA 93428

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List of Abbreviations

ACE	Army Corps of Engineers
AF	Acre-feet
AFY	Acre-feet per year
AL	Action Level
BMP	Best Management Practice
CalTRANS	California Department of Transportation
CCC	California Coastal Commission
CCF	Hundred Cubic Feet
CCL	Contaminant Candidate List
CCR	California Code of Regulations
CCSD	Cambria Community Services District
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CPUC	California Public Utilities Commission
D/DBP	Disinfectants/Disinfection By-Products
DHS	Department of Health Services
DLR	Detection Limit for Purposes of Reporting
DWR	Department of Water Resources
ECS	Environmental Control System, Inc.
EDU	Equivalent Dwelling Unit
EIR	Environmental Impact Report
ENR	Engineering News Record
ES	Engineering-Science, Inc.
ESA	Earth Science Associates
ft	Feet
GAC	Granular Activated Carbon
GIS	Geographic Information System
GPC	Geographic Planning Collaboration
gpd	Gallons per day
gpm	Gallons per minute
HAA	Haloacetic acid
HDPE	High density polyethylene

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hp	Horsepower
hr	Hour
ICR	Information Collection Rule
IDSE	Initial Distribution System Evaluation
kW	Kilowatt
LRAA	Local Running Annual Average
MCL	Maximum Contamination Level
MCLG	Maximum Contamination Level Goal
MCWRA	Monterey County Water Resources Agency
MDRL	Maximum Disinfectant Residual Limit
MG	Million gallons
MGD	Million gallons per day
mg/l	Milligrams per liter
MtBE	Methyl tert-Butyl Ether
NDMA	N-Nitrosodimethylamine
NF	Nanofiltration
NOM	Natural Organic Matter
NPDES	National Pollutant Discharge Elimination System
NPDWR	National Primary Drinking Water Regulations
OEHHA	Office of Environmental Health Hazard Assessment
O&M	Operation and maintenance
PHG	Public Health Goal
PG&E	Pacific Gas and Electric
PLC	Programmable Logic Controller
psi	Pounds per square inch
PV	Photovoltaic
PVC	Polyvinyl chloride
RAA	Running Annual Average
RO	Reverse Osmosis
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SLO	San Luis Obispo
SVWP	Salinas Valley Water Project
SWRCB	State Water Resources Control Board
TCA	Trichloroethane
TCR	Total Coliform Rule
THM	Trihalomethane
TOC	Total Organic Carbon
WRDA	Water Resources Development Act
WWTP	Wastewater Treatment Plant
UCMR	Unregulated Contaminant Monitoring Rule
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
µg/l	Micrograms per liter

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Glossary of Key Terms

- Annual Capital Cost: Annual capital costs are associated with the costs for retiring long-term debt used to construct new facilities. This would be similar to the mortgage payment on a house assuming no initial down payment. Annualized capital cost formulas are typically used as a means for comparing the front-end costs for construction over a fixed time frame. Capital cost estimates were annualized using a 4 percent interest rate for 30 years. Annual capital costs are expressed in total dollar amounts.
- Annual Fixed Cost and Variable Cost: The annual fixed costs is the sum of the fixed O&M and the annualized capital costs. It is expressed in total dollars amounts.

The variable cost consists of the variable O&M cost and is expressed in dollars per AF.

- Capital Costs: Capital costs are based on the required infrastructure that would be needed to built or modified to implement the alternative, including pump stations, pipelines, wells, and equipment. The capital costs are for planning level purposes only. They include 30 percent contingency factor and 15 percent for engineering and legal fees.
- ENR Index: The ENR Index is compiled by the Engineering News Record trade publication. Each year, various ENR indexes are compiled for key construction industry sectors. For purposes of this report, a construction cost index for the 20-city national average area of 6605 based on July 2002 cost estimate was used to update costs from past studies.
- Fixed Operations and Maintenance (O&M) Costs: Fixed O&M costs refer to annual cost that are independent of production and may include labor and regular maintenance costs. The labor cost included differences in hourly wages dependent upon operator certification requirements, which reflects the difficulty in use of the infrastructure. Cost for maintenance of infrastructure was based on the following percentages of the capital costs: 0.1 percent for dams/diversion structures, pipeline, and wells and 1.0 percent for pump stations. Fixed O&M costs are expressed in total dollar amounts.
- Variable O&M Costs: Variable O&M costs are dependent on operation and thus will vary based on production. Variable costs include power costs, chemical costs, and water purchase costs. A power rate of \$0.15/kw-hr was assumed for this report. Variable costs are expressed in dollars per AF.