

## EXHIBIT A

- Fresno/Clovis Metropolitan Water Resources Management Plan, Phase I Report, Existing Water Supply System Assessment (January 1992) (FRESNO-MTBE-13508, 13518, 13524-13526)
- 2010 Urban Water Management Plan, Chapter 4.1.2.2 (Prepared for City of Fresno November 2012), <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm> (last visited March 20, 2013)
- Deposition of Brock Buche, pgs. 367-368 (Apr. 1, 2011)
- California Historical Statutes, Water Code §§ 10610.4, 10631.

FRESNO / CLOVIS METROPOLITAN

# Water Resources

MANAGEMENT PLAN

## Phase I Report

### Existing Water Supply System Assessment

Volume I of II

LOAN COPY.

RETURN TO

**CH2M HILL**

January 1992



## FINDINGS AND CONCLUSIONS

The major findings and conclusions of Phase I of the Fresno/Clovis Metropolitan Water Resources Management Plan follow. "Findings" are defined as statements of fact, and "conclusions" are analyses of the findings.

### Findings

- The water resources management plan is a five-agency effort to address the long-range water needs for the Fresno/Clovis Metropolitan Area (FCMA).
- The objectives of the plan are to:
  - Provide safe, adequate, and dependable water supplies to meet the future needs of the metropolitan area in an economical manner
  - Protect groundwater quality from further degradation
  - Provide an implementable plan
- Three planning horizons are used: 1997, 2010, and 2050.
- To promote this planning effort, a technical advisory committee was formed from the sponsoring agencies and a public information program has been implemented.
- Over a 1-year period, three study phases will be completed, each of which will be summarized in a separate report. A summary report on the entire study and an EIR will also be prepared within this timeframe.
- The FCMA relies solely on untreated, un-disinfected groundwater as a source of potable water.
- Contamination was discovered in some wells in the late 1970s. At least 42 of the 352 public water agency wells in the FCMA have already been deactivated due to groundwater quality degradation.
- Recent and anticipated water quality regulations will likely require some form of wellhead treatment at every public water agency well in the FCMA.

- Municipal allocations from FID's Kings River supply are "run-of-the-river" (no associated storage rights). This could require the cities to take their allocations during snowmelt runoff from the Sierra Nevada.

### Conclusions

- If the planned levels of savings due to Fresno residential meter retrofit and urban conservation are realized, water demand would actually decrease in the near term. Demand would not recover to its present level until the year 2005.
- Reducing the estimated water savings due to conservation and phasing-in the impacts of residential water meter retrofit over a longer period of time results in demand increasing by approximately 157,000 acre-feet between 1992 and 2050.
- Current General Plans do not provide sufficient area for development beyond 2010. City of Clovis would need to amend its Sphere of Influence before the year 2005.
- A total of approximately 68,000 acres would be urbanized in the FCMA between 1992 and 2050.
- Of the 68,000 acres, 63,000 would likely be within FID. This reduces FID's total irrigated acreage by about 40 percent.
- The conversion of agricultural land to urban use results in a net decrease in total demand of about 7,000 acre-feet per year by 2050.
- The conversion of land use reduces water consumption from 510,000 acre-feet per year to 420,000 (Table 7-2).
- The alternative land use scenario (development allowed north of Copper Avenue) results in a net increase of 17,800 acre-feet in combined urban and agricultural water demand by 2050. This is due to smaller acreage (7,000 acres) of irrigated agriculture converted to urban use.
- Although a large groundwater reservoir is present, intentional recharge of surface water is necessary to maintain groundwater levels. A significant increase in the intentional recharge volume will be necessary in the future to balance increases in groundwater pumpage.
- The best locations for additional basin recharge facilities are in the northwestern portion of the study area where permeable alluvial deposits

are found. In the eastern and northern parts of the study area, considerable deposits of low permeability materials will significantly limit the quantity of water that can be recharged.

- Under current operations, contaminants will continue to move toward pumping wells. The rate of contaminant movement is slow, on the order of 100's to 1,000's of feet per year, but eventually contaminants will reach pumping wells.
- Positive action will be required to control groundwater contamination to prevent degradation of presently uncontaminated areas of the aquifer. A major objective of the next phase of study will be to develop a groundwater management alternative that meets the supply needs of the community while at the same time controls the movement of contaminants in the aquifer.
- Northwest Hydrogeologic Conditions:
  - Predominantly permeable deposits above and below the water table; high well yields and good recharge capacity
  - Excellent water quality for development of urban supply
- Northeast Hydrogeologic Conditions:
  - Widespread occurrence of fine grained materials above and below the water table, generally decreasing well yields and recharge capacity relative to the northwest area
  - Large areas of DBCP contamination
  - Localized areas of high inorganic constituents in groundwater
  - Thick clay strata and shallow bedrock occur in several portions of the area
  - Groundwater elevations have been declining more rapidly than in the remainder of the urban area
- Southeast Hydrogeologic Conditions:
  - DBCP and EDB contamination is widespread
  - The urban pumping depression is drawing contaminated water into the urban area

- Southwest Hydrogeologic Conditions:
  - DBCP and nitrate contamination occur in large portions of this area
  - To the southwest of the urban area groundwater levels are substantially elevated due to wastewater disposal
- Seasonal and carryover storage would allow more effective utilization of presently available surface water supplies.
- It would be desirable, from a water quality point of view, to use more of the high quality imported surface water for municipal purposes, using more groundwater and reclaimed wastewater for agriculture.
- FID has adequate capacities in the major canals to serve future urban and agricultural demands in most months; however, peak demands will have to be managed through system enlargement, conjunctive use, or altered recharge schedules.
- Intentional recharge in flood control basins could be increased substantially through revised design criteria and operations.
- If the current pattern of well closures continues, urban water suppliers can expect pressures to fall below the statutory limit of 20 psi in some areas unless poor quality wells are kept operating and the customers notified.
- Municipal distribution systems are typified by 12-inch pipes at 1/2 mile spacing. This grid is not large enough to provide adequate pressures in the vicinity of a well closure.
- The lack of redundancy or reliability in the distribution systems of the FCMA is a critical deficiency of the existing system. In order for the existing system to adequately serve the future needs in areas of well closures, the wells must be replaced or fitted with wellhead treatment.
- The five agencies need to focus on renewal of USBR contracts for FID, Garfield Water District, and International Water District in the near term (1994-1995) and the City of Fresno contract in the future (2006).
- The cities should firm up their contracts with FID to provide equitable, long-term commitments of surface water and wastewater.

# 2010 URBAN WATER MANAGEMENT PLAN

---

Prepared for  
**City of Fresno**

November 2012

WEST YOST  
  
ASSOCIATES  
439-02-11-10



---

Elizabeth Drayer

4.1.2.2 Groundwater Management

*10631 (b)(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.*

In 2006, the Fresno Area Regional Groundwater Management Plan (FARGMP) was prepared to comply with AB 3030 and SB 1938. Participating agencies, including the City, adopted the FARGMP in 2006. Participating agencies and adoption dates are listed in Table 4-5.

Agency	Adoption Date
Fresno Irrigation District	01/25/2006
Fresno Metropolitan Flood Control District	02/08/2006
City of Clovis	02/13/2006
Malaga County Water District	02/14/2006
City of Kerman	03/01/2006
Bakman Water Company	03/13/2006
City of Fresno	04/18/2006
County of Fresno	07/18/2006
Pinedale County Water District	09/20/2006
Garfield Water District	11/01/2006

The FARGMP boundaries generally coincide with FID, but also include a small area northeast of FID. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. Specific objectives include the following:

- Preserve and enhance the existing quality of the area’s groundwater;
- Correct the overdraft and stabilize groundwater levels at the highest practical beneficial levels;
- Preserve untreated groundwater as the primary source of domestic water;
- Maximize the available water supply, including conjunctive use of surface water and groundwater;
- Conserve the water resource for long-term beneficial use and assure an adequate supply for the future;
- Manage groundwater resources to the extent necessary to ensure reasonable, beneficial, and continued use of the resource;
- Monitor groundwater quality and quantity to provide the requisite information for establishing groundwater policies, goals, and recommended actions; and
- Improve coordination and consistency among agencies responsible for the monitoring and management of groundwater in the Plan Area.



Although FID led the development of the FARGMP, the October 2005 Memorandum of Understanding between the participating agencies makes it clear that each participating agency retains authority and responsibility for groundwater management within its own jurisdiction.

A copy of the Fresno Area Regional Groundwater Management Plan is provided in Appendix E of this UWMP.

#### 4.1.2.3 Description of Groundwater Basin

*10631 (b)(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.*

As described below, the City of Fresno overlies the Kings Subbasin of the San Joaquin Valley Groundwater Basin. The Kings Subbasin (DWR Basin No. 5-22.08) underlies Fresno, Kings, and Tulare Counties and has a surface area of 976,000 acres (1,530 square miles). The Kings Subbasin has not been adjudicated. However, as described further in Section 4.1.2.3.6, the Kings Subbasin was identified in DWR's Bulletin 118-80 to be in a critical condition of overdraft.

##### 4.1.2.3.1 Basin Location

The SJV Basin comprises the southern portion of the Great Central Valley of California, and is bounded to the north by the Sacramento-San Joaquin Delta and Sacramento Valley, to the east by the Sierra Nevadas, to the south by the San Emigdio and Tehachapi Mountains, and to the west by the Coast Ranges.

The Kings Subbasin, located within the southern half of the SJV Basin, is bounded to the north by the San Joaquin River, to the east by the alluvium-granite rock interface of the Sierra Nevada foothills, and to the west by the Delta-Mendota and Westside Subbasins. The Kings Subbasin is bounded to the south by the northern boundary of the Empire West Side Irrigation District, the southern fork of the Kings River, the southern boundary of the Laguna Irrigation District, the northern boundary of the Kings County Water District, and the western boundary of Stone Corral Irrigation District. Figure 4-1 illustrates the location of the City relative to the boundaries of the Kings Subbasin.

##### 4.1.2.3.2 Area Geology

The upper several hundred feet within the Kings Subbasin generally consists of highly permeable, coarse-grained deposits, which are termed older alluvium. Coarse-grained stream channel deposits, associated with deposits by the ancestral San Joaquin and Kings Rivers, underlie much of northwest Fresno. Additionally, a recent study completed in 2004 indicated the presence of a laterally extensive clay layer, at an average depth of approximately 250 feet below the ground surface, beneath most of the south and southeastern portions of the City.

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

IN RE:

Methyl Tertiary Butyl : Master File No. 1:00-1898  
Ether ("MTBE") : MDL 1358 (SAS)  
Products Liability :  
Litigation :

---

This Document Relates to:

City of Fresno v. Chevron U.S.A.  
Inc., et al., et al.,  
Case no. 04 Civ. 04973 (SAS)

---

-----  
APRIL 1, 2011  
-----

Videotaped Deposition of BROCK BUCHE and  
ROBERT C. LITTLE, Volume II, City of Fresno's 30(b)(6)  
Designee re Damages and Remedies, held in the Law Offices  
of McCormick Barstow LLP, 5 River Park Place East,  
Fresno, beginning at 9:04 a.m., before Sandra Bunch  
VanderPol, FAPR, RPR, RMR, CRR, CSR #3032

GOLKOW TECHNOLOGIES, INC.  
877.370.3377 ph|917.591.5672 fax  
deps@golkow.com

1 APPEARANCES:

2  
3 MILLER, AXLINE & SAWYER  
4 MICHAEL AXLINE, Esq.  
5 Maxline@toxictorts.org  
6 1050 Fulton Avenue, Suite 100  
7 Sacramento, California 95825-4272  
8 (916) 488-6688  
9 Counsel for the Plaintiff

10 SHEPPARD, MULLIN, RICHTER & HAMPTON LLP  
11 WHITNEY JONES ROY, Esq.  
12 wroy@sheppardmullim.com  
13 333 South Hope Street, 43rd Floor  
14 Los Angeles, California 90071-1448  
15 (213) 620-1780  
16 Counsel for Defendant ExxonMobil Corporation

17 ARNOLD & PORTER LLP  
18 JAMES FINSTEN, Esq.  
19 James.finsten@aporter.com  
20 777 South Figueroa Street, 44th Floor  
21 Los Angeles, California 90017-5844  
22 (213) 243-4125  
23 Counsel for Defendant BP

24 MUNGER, TOLLES & OLSON LLP  
25 LEO GOLDBARD, Esq. (Via telephone)  
leo.goldbard@mto.com  
355 South Grand Avenue, 35th Floor  
Los Angeles, California 90071-1560  
(213) 683-9296  
Counsel for Defendants Shell Oil Company, Equilon  
Enterprises and Equiva Services, LLC

KING & SPALDING  
DAVID GREJARDO, Esq.  
dgrejarado@kslaw.com  
1100 Louisiana Street, Suite 4000  
Houston, Texas 77002-5213  
(713) 276-7378  
Counsel for Defendant Chevron U.S.A.

Page 365

1 BY MR. FINSTEN:  
 2 Q. Has the City ever incurred treatment  
 3 costs for any constituent that it decided, on its  
 4 own, it needed to incur those costs where the  
 5 constituent was below the state Action Level or the  
 6 MCL?  
 7 MR. MILLER: Same objection and same  
 8 objections. It was covered repeatedly in depositions  
 9 with Mr. Little, who is the more appropriate person  
 10 to ask.  
 11 BY MR. FINSTEN:  
 12 Q. Will the City institute treatment for  
 13 MTBE at levels below the secondary MCL?  
 14 MR. MILLER: Same objection.  
 15 MR. FINSTEN: That's directly under the  
 16 notice. That's -- if you're going to instruct on  
 17 that --  
 18 MR. MILLER: I didn't instruct. I said,  
 19 "Same Objection."  
 20 MR. FINSTEN: Okay. Okay.  
 21 Q. You can answer the question.  
 22 A. I don't have a definitive answer for  
 23 that.  
 24 Q. Who at the City would have a  
 25 definitive answer as to whether or not it would

Page 366

1 institute treatment for MTBE at levels below the  
 2 secondary MCL?  
 3 A. I don't think that policy decision  
 4 has been made yet.  
 5 Q. Okay. But the City, nevertheless,  
 6 expects that it will need to spend at least  
 7 \$40 million to construct future treatment costs for  
 8 MTBE?  
 9 A. At a minimum.  
 10 Q. At a minimum. Okay. Anybody at the  
 11 City Council know that?  
 12 A. I'm not aware.  
 13 Q. Anybody at the Mayor's office know  
 14 that?  
 15 A. I don't know.  
 16 Q. You've never talked to anybody at the  
 17 Mayor's office about the need to spend \$40 million  
 18 for treating MTBE?  
 19 A. I have not.  
 20 Q. You haven't talked to anybody at the  
 21 City Council about that?  
 22 A. I have not.  
 23 Q. Why not? Not important?  
 24 A. No. Absolutely it's important.  
 25 Q. Then why haven't you told them?

Page 367

1 MR. MILLER: Argumentative.  
 2 THE WITNESS: Well, they --  
 3 MR. MILLER: Go ahead.  
 4 THE WITNESS: I mean, I don't know --  
 5 Council has been made aware, the Mayor has been made  
 6 aware in, you know, authorized pursuit of the  
 7 lawsuit.  
 8 I'm not aware they've been given information  
 9 in the interim or continuing basis. Perhaps -- well,  
 10 I don't know. Can I talk about city attorney?  
 11 MR. FINSTEN: No.  
 12 MR. MILLER: No.  
 13 BY MR. FINSTEN:  
 14 Q. Are you aware of any cost-benefit  
 15 analysis involving detections to treat Fresno water  
 16 for MTBE contamination?  
 17 A. Where cost?  
 18 Q. Cost-benefit analysis.  
 19 A. I'm not aware.  
 20 Q. Do you know what cost-benefit  
 21 analysis is?  
 22 A. Yes.  
 23 Q. Typically your construction projects  
 24 for wellhead treatment are subject to cost-benefit  
 25 analysis, right?

Page 368

1 MR. MILLER: Objection. Assumes facts not  
 2 in evidence. Argumentative. Vague.  
 3 THE WITNESS: If there's a contaminant in  
 4 our water, like the DBCP, we have litigation that we  
 5 can go install that wellhead treatment. There's not  
 6 a cost-benefit analysis for that.  
 7 Our -- our priority is to maintain the  
 8 quality of our aquifer. Once a contaminant has  
 9 impacted our wells, it's -- the preservation of that  
 10 resource, that we install the treatment so we can  
 11 pump and treat and extract the contaminant, you know,  
 12 from that resource.  
 13 I don't know that a cost-benefit analysis is  
 14 necessarily appropriate for every installation when  
 15 the higher calling is to protect and preserve the  
 16 groundwater supply.  
 17 BY MR. FINSTEN:  
 18 Q. Do you think it's appropriate in the  
 19 case of MTBE, where we're talking about detections  
 20 that are 250 times below the secondary MCL?  
 21 A. Appropriate? It's always appropriate  
 22 to be monitoring and watching what's happening.  
 23 When -- you know, we go through these files here, and  
 24 we see free product setting on the water, and, you  
 25 know, it's migrating for how many years because it

West's Ann.Cal. Water Code § 10610.4

WEST'S ANNOTATED CALIFORNIA CODES  
WATER CODE  
DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES  
PART 2.6. URBAN WATER MANAGEMENT PLANNING  
CHAPTER 1. GENERAL DECLARATION AND POLICY  
Copr. (C) West Group 1998. All rights reserved.

§ 10610.4. Policy regarding water resources

The Legislature finds and declares that it is the policy of the state as follows:

- (a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
- (b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- (c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

CREDIT(S)

1992 Main Volume

(Added by Stats.1983, c. 1009, § 1.)

1998 Electronic Pocket Part Update

(Amended by Stats.1995, c. 854 (S.B.1011), § 2.)

HISTORICAL AND STATUTORY NOTES

9CAP

1995 Legislation

Section 19 of Stats.1995, c. 854 (S.B.1011), provides:

“This act does not apply to any urban water management plan due before January 1, 1996.”

West's Ann. Cal. Water Code § 10610.4  
CA WATER § 10610.4

END OF DOCUMENT

West's Ann.Cal.Water Code § 10631

WEST'S ANNOTATED CALIFORNIA CODES  
WATER CODE  
DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES  
PART 2.6. URBAN WATER MANAGEMENT PLANNING  
CHAPTER 3. URBAN WATER MANAGEMENT PLANS  
ARTICLE 2. CONTENTS OF PLANS  
Copr. (C) West Group 1998. All rights reserved.

§ 10631. Descriptions and provisions in plans

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a).

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

- (1) An average water year.
- (2) A single dry water year.
- (3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e)(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

- (A) Single-family residential.
- (B) Multifamily.
- (C) Commercial.
- (D) Industrial.
- (E) Institutional and governmental.
- (F) Landscape.
- (G) Sales to other agencies.
- (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments as described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all

of the following:

- (A) Interior and exterior water audits and incentive programs for single-family residential, multifamily residential, governmental, and institutional customers.
  - (B) Enforcement of plumbing fixture efficiency standards and programs to retrofit less efficient fixtures.
  - (C) Distribution system water audits, leak detection, and repair.
  - (D) Metering with commodity rates for all new connections and retrofit of existing connections.
  - (E) Large landscape water audits and incentives.
  - (F) Landscape water conservation requirements for new and existing commercial, industrial, institutional, governmental, and multifamily developments.
  - (G) Public information.
  - (H) School education.
  - (I) Commercial and industrial water conservation.
  - (J) New commercial and industrial water use review.
  - (K) Conservation pricing for water service and conservation pricing for sewer service, where the urban water supplier also provides sewer service.
  - (L) Landscape water conservation for new and existing single-family homes.
  - (M) Water waste prohibitions.
  - (N) Water conservation coordinator.
  - (O) Financial incentives to encourage water conservation.
  - (P) Ultra-low-flush toilet replacement.
- (2) A schedule of implementation for all water demand management measures proposed or described in the plan.
- (3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
- (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of such savings on the supplier's ability to further reduce demand.
- (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, which offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
- (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
  - (2) Include a cost-benefit analysis, identifying total benefits and total costs.
  - (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
  - (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
- (h) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

CREDIT(S)

1992 Main Volume

(Added by Stats.1983, c. 1009, § 1. Amended by Stats.1990, c. 355 (A.B.2661), § 1; Stats.1991-92, 1st Ex.Sess., c. 13 (A.B.11), § 3; Stats.1991, c. 938 (A.B.1869), § 3.)

1999 Electronic Pocket Part Update