



DOCKET
09-AFC-1

July 14, 2011

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814-5512

DATE	July 14 2011
RECD.	July 14 2011

Re: Watson Cogeneration Steam and Electric Reliability Project
Application for Certification 09-AFC-1

On behalf of Watson Cogeneration Company, the applicant for the above-referenced Watson Cogeneration Steam and Electric Reliability Project, we are pleased to submit the following:

- Responses to June 15, 2011 CEC Data Requests.

This document is being submitted to the CEC for docketing.

Sincerely,
URS Corporation

Cindy Kyle-Fischer
Project Manager

Enclosure

cc: Proof of Service List

RESPONSES TO JUNE 15, 2011 CEC DATA REQUESTS APPLICATION FOR CERTIFICATION (09-AFC-1) for Watson Cogeneration Steam and Electric Reliability Project



Submitted to:
California Energy Commission
1516 9th Street , MS 15
Sacramento, CA 95814-5504



Submitted by:
Watson Cogeneration Company
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July 2011

Responses to June 15, 2011 CEC Data Requests

Soils and Water Resources.....1

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Figures (in order of appearance)

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Figure 7-1 Watson Cogeneration Facility Simplified Water Delivery Diagrams

Appendices

Appendix A Cleanup and Abatement Order

List of Acronyms and Abbreviations Used in Responses

AFC	Application for Certification
AFY	acre-feet per year
Applicant	Watson Cogeneration Company
BP	British Petroleum
BP Refinery	BP Carson Refinery
Cal Water	Municipal Supply consisting of groundwater and imported water provided by the California Water Services Company
CAO	Cleanup and Abatement Order
CEC	California Energy Commission
CEQA	California Environmental Quality Act
Fresh Water	Groundwater produced by BP Refinery on-site wells [Well Water] and Cal Water
IND	Industrial Service Supply
LARWQCB	Los Angeles Region of the California Regional Water Quality Control Board
MOU	Memorandum of Understanding
NAPL	Non-Aqueous Phase Liquid
PROC	Industrial Process Supply
Project	Watson Cogeneration Steam and Electric Reliability Project
ROST™	Rapid Optical Screen Test
WBMWD	West Basin Municipal Water District
Well Water	Groundwater produced by BP Refinery on-site wells

INTRODUCTION

The following key points provide fundamental context to the Watson Cogeneration Company's (the Applicant's) responses to this set of requests from the California Energy Commission (CEC):

- The Watson Cogeneration Steam and Electric Reliability Project (the Project) will be an expansion of the existing Watson Cogeneration Facility, which is an entirely separate legal entity from the British Petroleum (BP) Carson Refinery (BP Refinery). Although BP is currently one of the primary investors of the Watson Cogeneration Facility, the Applicant has no authority to access proprietary, operational, or other information from BP nor can it dictate methods of operation at the BP Refinery any more than it can access proprietary information or dictate methods of operation of its other investors.
- The operation permit for the existing Watson Cogeneration Facility does not limit the rate of freshwater use. Nonetheless, the Applicant will accept a condition of certification ensuring that the expansion of the Watson Cogeneration Facility (including the Project) will result in no net annual increase in freshwater consumption from the overall facility. To meet this condition, the Applicant will ensure that the annual average flowrate of fresh water (i.e., groundwater produced by BP Refinery on-site wells [Well Water] and California Water Services Company municipal water [Cal Water]) that BP Refinery would provide to the expanded Watson Cogeneration Facility (including the Project) will not increase from the current freshwater levels that BP Refinery is providing to the existing Watson Cogeneration Facility. As a result of this condition, which follows the precedent of other recent California Energy Commission cases such as the Mariposa Energy Project, there will be no change in freshwater use compared to the California Environmental Quality Act (CEQA) baseline and, therefore, no potentially-significant adverse environmental impact. Similarly, this condition ensures compliance with all applicable laws, ordinances, regulations and standards pertinent to water use.
- The proposed industrial uses of water by the Project (cooling water supply and generation of high-quality, high-pressure steam) are consistent with the Industrial Service Supply (IND) and Industrial Process Supply (PROC) beneficial uses of groundwater from the West Coast Basin, as designated in the Basin Plan by the Los Angeles Regional Water Quality Control Board and the State Water Resources Control Board¹. These designated beneficial uses are defined as follows:
 - Industrial Service Supply (IND) – Uses of water for industrial activities that do not depend primarily on water quality including but not limited to mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
 - Industrial Process Supply (PROC) – Uses of water for industrial activities that depend primarily on water quality.

¹ Water Quality Control Plan – Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, California Regional Water Quality Control Board-Los Angeles Region (4), June 13, 1994; State Water Resources Control Board, November 17, 1994, Table 2-2, p. 2-17.

- The BP Refinery provides the water supply (i.e., Well Water, Cal Water, and a blend of Well Water and Cal Water) to the existing Watson Cogeneration Facility's dedicated water treatment facility. This water supply will be augmented with treated reclaimed water when available via the BP Refinery. The groundwater wells that supply Well Water to the BP Refinery are located at the BP Refinery and are not operated by the Applicant. The Well Water provided by the BP Refinery wells is not dedicated to the Watson Cogeneration Facility, but is provided both to the BP Refinery's internal water distribution system and via a dedicated line to the Watson Cogeneration Facility. Therefore, the relative proportion of Well Water and Cal Water provided to the Watson Cogeneration Facility merely reflects the relative proportion of supplies to the BP Refinery's water distribution system at any given point in time. The Cal Water consists of a blend of groundwater from municipal wells located in the same groundwater basin as the BP Refinery wells and imported water sources. The BP Refinery cannot dictate the sources of municipal supply provided by the California Water Services Company. Similarly, the Applicant cannot dictate the sources of water provided by the BP Refinery.
- Unlike other facilities permitted by the CEC, the primary objectives of the Project and the existing Watson Cogeneration Facility are to produce high-quality, high-pressure steam for sale and to increase the reliability of that steam supply. Unlike dedicated power generating facilities, the primary consumptive use of water by the Watson Cogeneration Facility consists of steam provided to the BP Refinery, not cooling tower makeup. The Watson Cogeneration Facility produces power as a byproduct and enhances the overall energy efficiency of the steam generation operation relative to alternative dedicated steam generation systems.

The Applicant previously proposed a condition of certification to limit the quantity of combined water supply from wells and municipal supplies to the historic baseline use of the existing units (i.e., no additional freshwater supplies will be used). The Applicant also proposed to use recycled water, if and when it becomes available. Consequently, the Project will not increase the use of freshwater supplies. Reclaimed water supplies, when available, will be required for increased water use needed for expanded operations. This fact alone provides a strong incentive to the Applicant to obtain recycled water if and when it becomes reasonably available.

SOILS AND WATER RESOURCES

Technical Area: Soils and Water Resources

Author: Mark Lindley, P.E.

BACKGROUND:

On March 28, 2011 Table 5.5-4, Water Balance Flow Values, provided in the updated water resources section of the Application for Certification (AFC) (Revised Section 5.5 [Water Resources]), which was provided in the March 28, 2011 workshop response Table 5.5-4, Water Balance Flow Values, reflects 2,724 acre-feet per year (AFY) of total water supply for the fifth train, including 2,285 AFY of treated water for fogger supply and boiler feed water and 439 AFY for cooling tower makeup. The updated water balance reflecting a freshwater supply (following treatment) is similar to the water balance presented in the original AFC reflecting a reclaimed water supply with the primary difference being the use of second pass reverse osmosis treatment of reclaimed water. In Data Response 48, the applicant indicated that condensate return from the Steam Turbine Generators and BP Refinery would reduce the total water use for the project. In revised Table 5.5-9 in the updated AFC section provided in the March 28, 2011 workshop response, the applicant indicates that the fifth train would utilize 1,718 AFY of reclaimed water, however, it is not clear if this reflects reclaimed water before or after second pass reverse osmosis treatment.

Staff would like to clarify the information provided in the updated and original AFC sections to gain a better understanding of the volumes of water to be utilized by the fifth train under the freshwater and reclaimed water supply scenarios and specifically how condensate returns are accounted for in the water balances.

DATA REQUEST

- 1. Please provide updated versions of Table 5.5-4 and Figure 5.5-1, Water Balance Flow Values and Diagram included in the updated AFC section provided in the March 28, 2011 workshop response that reflect the condensate return in the water balance for the fifth train. Please breakdown how much of the 2,286 AFY of treated water and 439 AFY of cooling tower make up, or the revised values, are comprised of freshwater and condensate return.*

RESPONSE

On March 28, 2011, the Applicant filed (at the CEC's request) an updated water resources description for the AFC that reflects the current Project. This Revised Section 5.5 (Water Resources) contained Revised Table 5.5-4. In response to this CEC Data Request, this table has been revised to reflect the condensate return in the water balance for the fifth train (i.e., the Project). The revision is presented below as Second Revision Table 5.5-4. Only the treated

water from the Watson Cogeneration Facility contains condensate return. Consequently, the values for the cooling tower makeup water have not been revised.

Second Revision Table 5.5-9 from the Applicant's March 2011 Revised Section 5.5 (Water Resources) requires no revision, but has been re-printed within this document for convenient reference.

Figure 5.5-1 (Second Revision) from the Applicant's March 2011 Revised Section 5.5 (Water Resources) already incorporates condensate return, so it has not been revised, although it has been re-printed within this document for convenient reference.

**Second Revision Table 5.5-4
Water Balance Flow Values**

		Maximum Daily (gal/day)	Average Daily (gal/day)	Average Annual (acre-feet/year)
Water Supply				
	Treated Makeup Water from Watson Cogeneration Facility	1,170,504	1,141,704	1,279
	Estimated Condensate Return from Watson Cogeneration Facility	898,776	898,776	1,007
A	Total Treated Water From Watson Cogeneration Facility	2,069,280	2,040,480	2,286
B	Cooling Tower Makeup Water (no condensate return)	593,280	391,680	439
	Total	2,662,560	2,432,160	2,725
Internal Flows				
C	Fogger Supply	72,000	43,200	48
D	Treated Water to Boiler Feed System	1,997,280	1,997,280	2,237
E	Not Used	0	0	0
F	Not Used	0	0	0
FA	Not Used	0	0	0
FB	Not Used	0	0	0
G	Cycle Makeup to Steam Cycle	1,821,600	1,821,600	2,040
H	Cycle Makeup to Fifth Train Desuperheater	156,960	156,960	176
I	Steam Cycle Blowdown to Blowdown Tank	93,600	93,600	105
J	Steam Cycle Blowdown to Refinery HP Water	70,560	70,560	79
K	Vent Steam from Blowdown Tank	23,040	23,040	26
L	Not Used	0	0	0
M	Process Steam to Facility Header	1,884,960	1,884,960	2,111
N	Not Used	0	0	0
O	Cooling Tower Cell Evaporation	413,280	276,480	310
Wastewater				
P	Cooling Tower Cell Blowdown	180,000	115,200	129
Q	Cycle Makeup and Miscellaneous Losses	18,720	18,720	21
	Total	198,720	133,920	150

Source: Kiewit Power Engineers Co., 2008, 2011; Watson Cogeneration Steam and Electric Reliability Project Team, 2011.

Notes:

The maximum daily use is based on 24 hours of full-load operation during the design hottest day (102 °F day/16 percent rh).

The average daily use is 24 hours of the average of the full-load use at the average daily temperature (63.1 °F day/60 percent rh).

The average annual use is based on 8,760 hours/year at the average daily rate.

°F = degrees Fahrenheit

gal = gallon(s)

HP = high-pressure

rh = relative humidity

**Second Revision Table 5.5-9
Watson Water Sources and Uses/Wastewater Production**

	Average Daily ¹ (mgd)		Maximum Daily (mgd)		Average Annual (acre/feet)		Percent Increase from Fifth Train
	Existing Watson Facilities	With Fifth Train	Existing Watson Facilities	With Fifth Train	Existing Watson Facilities	With Fifth Train	
Sources:							
Existing Water Supply ²	4.11	4.11	5.65	≤7.41	4,609	4,609	
Reclaimed Water	0	1.53	0	≥0	0	1,718	
Total Sources	4.11	5.64	5.65	7.41	4,609	6,327	37%
Uses:							
BFW	2.92	4.06	3.78	4.95	3,274	4,519	
Foggers	0.14	0.14	0.14	0.14	160	194	
Cooling Tower	1.05	1.44	1.73	2.32	1,175	1,614	
Total Uses	4.11	5.64	5.65	7.41	4,609	6,327	37%
Wastewater to Sewer	0.81	0.94	1.21	1.41	904	1,054	17%

Source: Kiewit Power Engineers Co., 2008; Watson Cogeneration Steam and Electric Reliability Project Team, 2011.

Notes:

¹The average daily use is computed by dividing the average annual use by 365 days per year.

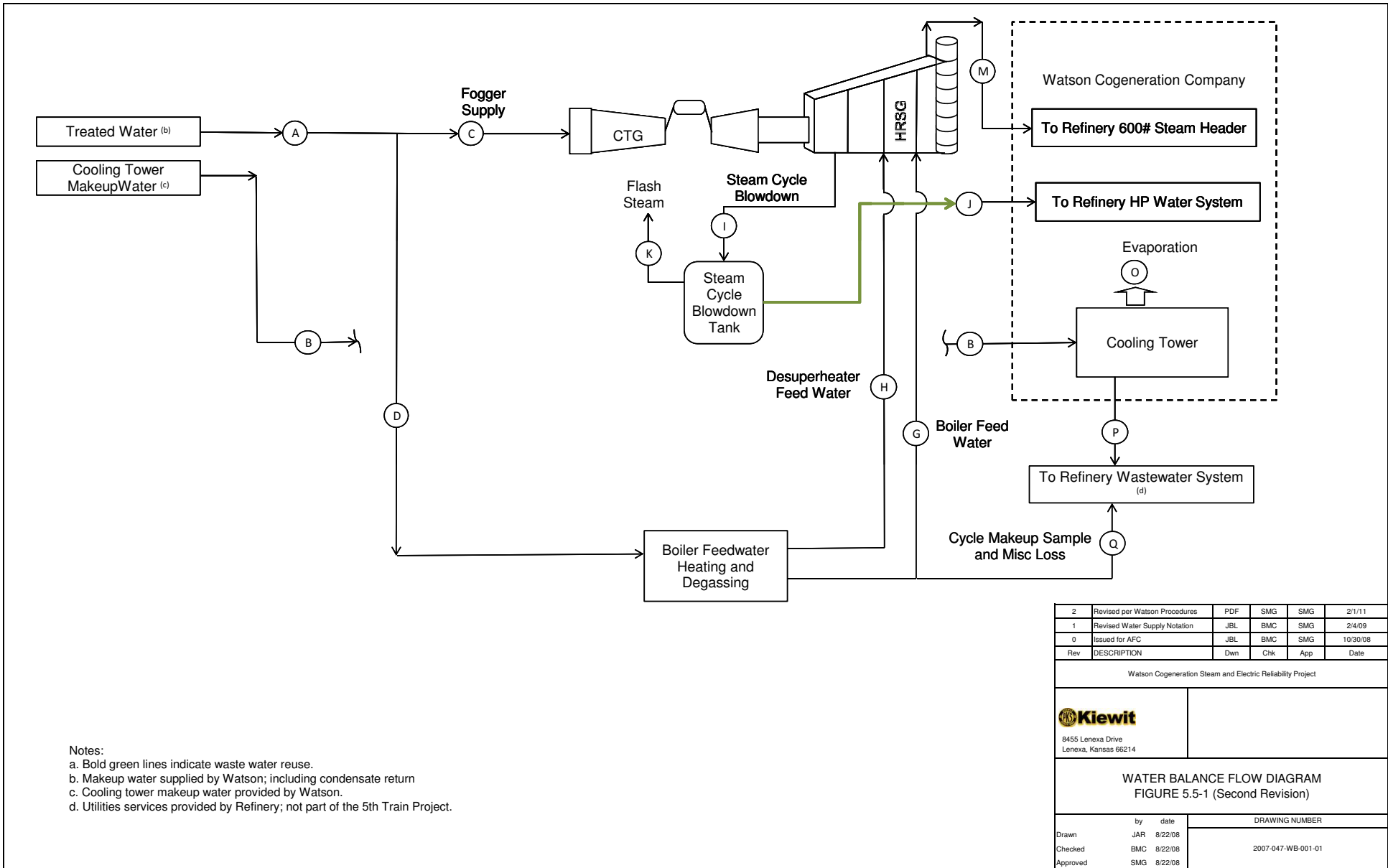
²Existing water supply = sum of municipal water supply and groundwater supply.

≤ = less than or equal to

≥ = greater than or equal to

BFW = boiler feed water

mgd = million gallons per day



DATA REQUEST

- Please clarify how much reclaimed water used would be nitrified reclaimed water and reverse osmosis treated reclaimed water. Also, clarify if the volumes of reclaimed water used reflect first pass reverse osmosis treatment of reclaimed water delivered by the West Basin Municipal Water District (WBMWD) or after second pass reverse osmosis treatment onsite.*

RESPONSE

The original Table 5.5-4 that appeared in the Applicant's March 2009 Application for Certification presented the quantities of first-pass reverse osmosis and nitrified water that the CEC alluded to in their request above. However, the Applicant will not have control over the category of reclaimed water that is provided from the BP Refinery. Consequently, in the Revised Table 5.5-4, which was included in the Applicant's March 2011 Revised Section 5.5, the itemizations of the reverse osmosis and nitrified water supplies were replaced with itemizations of treated water from the Watson Cogeneration Facility and cooling tower makeup water. The Applicant has revised this table in response to Data Request 1 within this document to clarify the effect of condensate return (see Second Revision Table 5.5-4 in the Response to Data Request 1).

The proportions of nitrified reclaimed water and reverse osmosis water depend on the outcome of negotiations between the BP Refinery and WBMWD related to obtaining supplies of reclaimed water. The quantities of reverse osmosis supplies are based on the supply after second-pass treatment. Treatment of reverse osmosis supplies are not part of the Project.

The 1,718 AFY of total reclaimed water presented in Revised Table 5.5-9 in the Applicant's March 2011 Revised Section 5.5 is processed water suitable for use as Treated Water or Cooling Tower Makeup Water (as depicted on Figure 5.5-1 [Second Revision] in the Applicant's March 2011 Revised Section 5.5 and as quantified in Second Revision Table 5.5-4 in the Applicant's response to Data Request 1 within this document).

The variables beyond the Applicant's control that may affect the proportions of types of reclaimed water used may include ambient temperature and humidity and BP Refinery steam requirements, as these factors may result in increased demand for nitrified water for cooling towers.

DATA REQUEST

- Please provide updated versions of Table 5.5-4 and Figure 5.5-1, Water Balance Flow Values and Diagram that reflect the condensate return in the water balance for the fifth train for the future reclaimed water scenario. Please breakdown how much the 2,855 AFY of first pass reverse osmosis treated reclaimed water and 160 AFY of nitrified reclaimed water cooling, or the revised values, would be reduced by condensate return.*

RESPONSE

As explained in the Applicant's responses to Data Requests 1 and 2 within this document, Revised Table 5.5-4 (in the Applicant's March 2011 Revised Section 5.5) replaced the itemizations of the reverse osmosis and nitrified water supplies with itemizations of treated water from the Watson Cogeneration Facility and cooling tower makeup water. Second Revision Table 5.5-4 (in the Applicant's response to Data Request 1) clarifies the effect of condensate return.

Since reclaimed supplies will be treated prior to delivery to the Watson Cogeneration Facility and the Project, the values presented in Table 5.5-4 (the original and the subsequent revisions) are viable for both freshwater and reclaimed water scenarios. The value presented in Second Revision Table 5.5-4, Line A (Treated Water from Watson Cogeneration), is based on post treatment and is ready for use as fogger supply and boiler feedwater.

Figure 5.5-1 (Second Revision, which was filed within the Applicant's March 2011 Revised Section 5.5 Water Resources) already reflects the condensate return. Consequently, no revision is necessary. For convenient reference, this figure has been re-printed in the Applicant's response to Data Request 1.

BACKGROUND

In the March 28, 2011 workshop response, the applicant indicated that the baseline treated water use at the existing Watson Cogeneration Facility is 4,609 AFY, based on an average over the past 11 years. This baseline water use is being proposed by the applicant as a water use cap over the fifth train in conjunction the existing four Watson Cogen trains. The water used is following treatment of municipal water and groundwater at BP Refinery. Any increase in water use at the five trains combined would be limited to that derived from reclaimed water. The majority of reclaimed water supplied by WBMWD would be provided as first pass reverse osmosis with a significantly smaller volume of nitrified water. As compared to the freshwater blend of municipal water and groundwater, the first pass reverse osmosis water treated reclaimed water would be of much higher quality than the existing freshwater supplies (hardness, total cations, and conductivity reduced by more than 99.9 percent) and, as a result, will require significantly less onsite treatment for use in the fifth train.

Staff needs additional information related to raw water supply and treatment required to provide the 4,609 AFY of treated water supply at the existing Watson facility in order to compare the existing freshwater supply requirements with the requirements for reclaimed water treated with first pass reverse osmosis. This information is required by the Energy Commission staff in order to make findings about the BP Watson facility's water use and baseline environmental conditions that are a part of staff's assessment of the application for certification.

DATA REQUEST

- 4. Please provide a table of the annual volume of water supplied to the project's water purveyor, the BP Refinery, to produce the water used by the project. Please quantify, at a minimum, water from the following three sources over the last five years: (1) groundwater from wells located at the BP Carson Refinery; (2) recycled water supplied by the West Basin or other reclaimed water providers; and (3) municipal water supplied by the WBMWD.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. The Watson Cogeneration Facility is not the sole user of water provided by the BP Refinery. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard. Without waiving this objection, the Applicant will voluntarily provide certain information in response to this request.

In the CEC's Background statement above, they stated, "the applicant indicated that the baseline treated water use at the existing Watson Cogeneration Facility is 4,609 AFY, based on an average over the past 11 years." Please note that Section 5.5.1.7 of the Applicant's March 2011

Revised Section 5.5 states, "...the existing Watson configuration requires an annual average total *raw* water supply of 4.1 mgd..."

Water is currently supplied to the Watson Cogeneration Facility via three supply lines: Well Water, Blended Water, and Cal Water. No recycled water supplies have been provided to the Watson Cogeneration Facility over the last five years.

DATA REQUEST

5. *Please provide the efficiency of water treatment processes utilized to provide the 4,609 AFY of treated freshwater to the Watson facility (i.e., how much raw freshwater [municipal and groundwater] is required to generate the 4,609 AFY of treated freshwater to supply the Watson facility.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing Watson Cogeneration Facility, rather than the proposed Project. Information regarding the existing Watson Cogeneration Facility is beyond the scope of this proceeding, not relevant, and unduly burdensome. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

As clarified in the Applicant's response to Data Request 4 within this document, the 4,609 AFY referenced by the CEC in their Data Request is actually the quantity of raw, untreated water, not the quantity of treated water. Also, as described in the introduction, the Cal Water consists of a blend of imported water and groundwater produced by municipal wells located in the same groundwater basin as the BP Refinery wells.

DATA REQUEST

- Please provide an estimate of the operation and maintenance costs for first pass reverse osmosis treatment of raw freshwater (municipal and groundwater) to generate freshwater supply of similar quality to the first pass reverse osmosis treated reclaimed water that would be supplied by WBMWD for the fifth train.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the proprietary negotiations between the existing BP Refinery and WBMWD, rather than the proposed Project. The Applicant is not a party to these discussions. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

DATA REQUEST

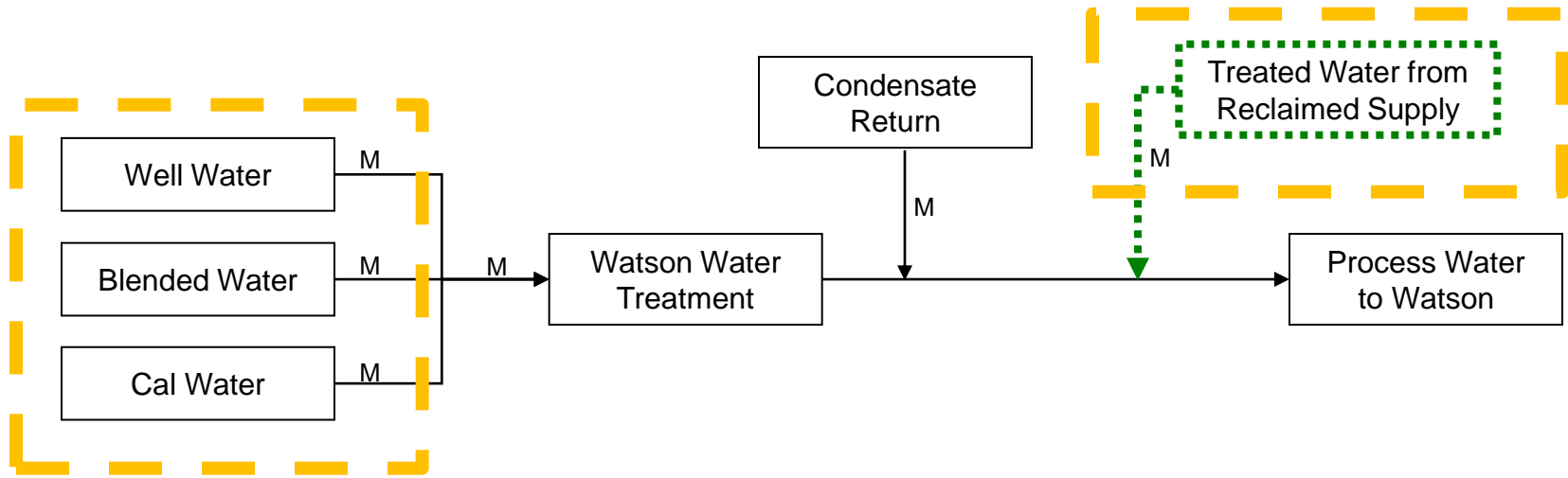
7. *Please describe how water use will be accounted for, measured, and reported for the combined five trains to ensure that water use from non-reclaimed sources does not exceed the cap.*

RESPONSE

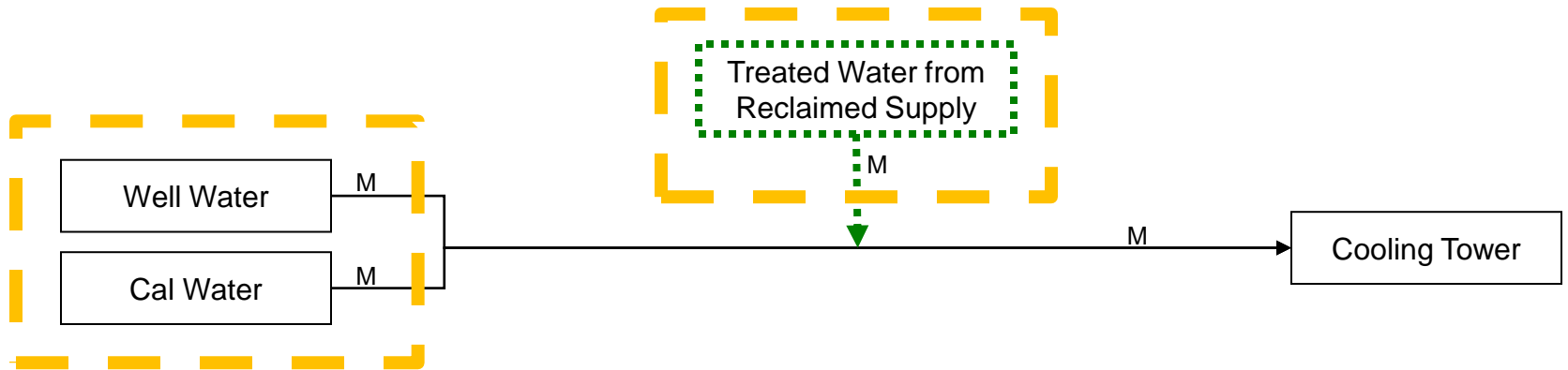
Non-reclaimed water is currently supplied to the Watson Cogeneration Facility via three supply lines: Well Water, Blended Water, and Cal Water. Water delivered to the Watson Cogeneration Facility from each of the three water supply lines is metered. Figure 7-1 presents simplified water delivery diagrams for the process water supply to the Watson Cogeneration Facility and for the cooling tower makeup water supply to the Watson Cogeneration Facility cooling towers.

As the Applicant noted in their response to Data Request 48 filed in January 2010, the Applicant has agreed to file with the CEC an Annual Water Use Summary which will include total usage for each water supply (reclaimed, Cal Water, and Well Water) for the five-train Watson Cogeneration Facility.


PROCESS WATER SUPPLY



COOLING TOWER SUPPLY



Legend

-  BP Refinery
-  Existing
-  Future
- M Metered

Watson Cogeneration Facility
Simplified Water Delivery Diagrams
 Watson Cogeneration Steam and Electric Reliability Project
 Figure 7-1

BACKGROUND

The West Basin Memorandum of Understanding (MOU) attached to the January 14, 2009, BP West Coast Products Will Serve letter states that the WBMWD has been asked by the BP Carson Refinery to prepare for possibly serving recycled water to the refinery. The MOU also states that the BP Carson Refinery has not yet decided to proceed with the recycled water delivery project.

DATA REQUEST

8. *Please provide an account of the status of the effort to provide recycled water to the BP Carson Refinery, the Watson Cogeneration Facility, and ultimately, the project. Please provide a detailed accounting of the negotiations over the past two and a half years and the primary issues that are impeding an agreement and the implementation of the reclaimed water supply project for the Watson facility.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the proprietary negotiations between the existing BP Refinery and WBMWD, rather than the proposed Project. The Applicant is not a party to these discussions. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

As noted in the Applicant's March 2011 Revised Section 5.5, WBMWD has performed engineering studies and the BP Refinery and WBMWD are negotiating and evaluating options for reclaimed water.

DATA REQUEST

9. *Please provide any studies done by the Watson facility, the Watson facility's water purveyor, the BP Carson Refinery, and/or the WBMWD that evaluate the economic and technical feasibility of the Watson facility increasing its use of reclaimed water from West Basin or other reclaimed water providers.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the proprietary negotiations between the existing BP Refinery and WBMWD, rather than the proposed Project. The Applicant is not a party to these discussions and the Watson Cogeneration Facility is not the sole user of water provided by the BP Refinery. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

In the 2009 AFC and in the February 25, 2010 Responses to Questions from the January 20, 2010 Issues Resolution Workshop, the Applicant provided the Will Serve letter from the BP Refinery and the associated agreement between the BP Refinery and WBMWD that demonstrated the intent to prepare for the future provision of recycled (i.e., reclaimed) water.

BACKGROUND

The West Coast Groundwater Basin currently operates a groundwater injection program to help address sea water intrusion impacts related to groundwater pumping within the basin. About 44,400 AFY of groundwater is withdrawn from the basin and 23,900 AFY is injected to address sea water intrusion. The Watson facility's average use of approximately 1,534 AFY of groundwater is about 3.5 percent of the average total groundwater withdrawn from the basin. The proximity of the project's groundwater wells to the Dominguez Gap Barrier Project indicate that the Watson Cogeneration Facility contribution to the sea water intrusion impacts in the basin may be significantly more than its incremental contribution to groundwater pumping in the basin. Energy Commission staff has previously requested information related to historical groundwater pumping, water levels, and water quality, however, this information was not included in the most recent submittal from the Watson facility. Energy Commission staff needs additional information related to groundwater pumping to supply over one third of the Watson facility's water supply to help analyze its contribution to existing sea water intrusion impacts and the required mitigation through the West Coast Groundwater Basin's groundwater recharge programs. This information is required by the Energy Commission staff in order to make findings about the BP Watson facility's water use and baseline environmental conditions that are a part of staff's assessment of the AFC.

DATA REQUEST

- 10. Please provide historical data on groundwater pumping volumes for wells that supply groundwater to the existing Watson facility. Provide detailed annual data from the past 10 years and historical data since the Energy Commission licensed the Watson facility in 1986.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. The Watson Cogeneration Facility is not the sole user of water provided by the BP Refinery. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard. Without waiving this objection, the Applicant will voluntarily provide certain information in response to this request.

As described in AFC Section 5.5 (and its subsequent March 2011 revision), groundwater for the existing Watson Cogeneration Facility (and hence, the proposed Project) comes from BP Refinery Well Number 13, which is at the north end of the BP Refinery. The Cal Water provided to Watson by the Refinery consists of imported water and groundwater produced by municipal wells located in the same groundwater basin as the BP Refinery wells. Information on the operation of those wells is beyond the scope of this project. Table 10-1 presents extraction information for this BP Refinery well. However, Watson Cogeneration Facility is not the sole recipient of groundwater from this well.

Table 10-1 Groundwater Extractions from Well 13 Serving Watson Cogeneration Facility (and other BP Refinery uses) (in Acre-Feet/Year)	
Year	Well 13
2009	1,089.04
2008	1,499.15
2007	667.26
2006	1,076.56
2005	1,533.53
2004	1,655.96
2003	1,760.49
2002	1,570.77
2001	2,160.33
2000	1,749.10
Source: Watermaster Service in the West Coast Basin, Los Angeles County, 2011.	

DATA REQUEST

11. *Please provide groundwater level data collected in for groundwater supply wells and monitoring wells surrounding the pumping wells that provide groundwater to the existing Watson facility. Provide detailed annual data from the past 10 years and historical data since the Energy Commission licensed the Watson facility in 1986.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. The Watson Cogeneration Facility is not the sole user of water provided by the BP Refinery nor are the BP Refinery wells the only supply of groundwater to Watson inasmuch as the Cal Water consists of a blend of imported and groundwater. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. The Applicant does not have access to this information. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

DATA REQUEST

12. *Please provide water quality data for the groundwater supply wells and monitoring wells surrounding the pumping wells that provide groundwater to the existing Watson facility. Provide detailed annual data from the past 10 years and historical data since the Energy Commission licensed the Watson facility in 1986.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. The Watson Cogeneration Facility is not the sole user of water provided by the BP Refinery. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard.

BACKGROUND

Energy Commission Staff learned from the Regional Water Quality Control Board at the January 2011 Preliminary Staff Assessment Workshop that the groundwater below the project site is significantly impacted by hydrocarbons including up to 14 feet of non-aqueous liquid phase petroleum hydrocarbons on the groundwater surface above the shallow water table. However, based on the West Coast Groundwater Basin pumping records, groundwater was not pumped at the site as part of a program to address the existing hydrocarbon impacts. Impacted shallow groundwater could help augment the project's water supply. A groundwater pumping and treatment program could offer dual benefits related to treating existing groundwater impacts at the Watson site while augmenting the project's water supply and limiting the use of higher quality, imported freshwater that is in limited supply. Energy Commission staff needs additional information to assess the existing groundwater impacts at the project site, the adequacy of existing cleanup programs, and the suitability of shallow impacted groundwater to augment the water supply for the proposed expansion of the Watson plant.

DATA REQUEST

- 13. Please provide detailed data on the existing soil and groundwater contamination at the Watson site. Sample locations, depths, contaminants, and levels of contamination for both soil and groundwater at the Watson site should be provided. Provide detailed annual data from the past 10 years and historical data since the Energy Commission licensed the Watson facility in 1986.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. The Applicant is not a responsible party to the groundwater contamination. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard. Without waiving this objection, the Applicant will voluntarily provide certain information in response to this request.

The Project Site is located within the boundaries of the existing Watson Cogeneration Facility, which is within the property boundaries of the BP Refinery. As explained in the Applicant's October 2009 Response to CEC Data Request 37, the BP Refinery is under Cleanup and Abatement Order (CAO) Number 90-121, issued by the Los Angeles Region of the California Regional Water Quality Control Board (LARWQCB) with Environmental Protection Agency involvement. The BP Refinery is conducting ongoing assessment and remedial activities on the refinery per the CAO under the jurisdiction of the LARWQCB. The CAO is presented in Appendix A.

In 1985, prior to construction of the Watson Cogeneration Facility, a limited soil investigation was conducted. The areal extent of the soil borings encompassed the area of the now existing Watson Cogeneration Facility, as well as the Project Site. The Applicant filed the 1985 report as Appendix L (Geotechnical Report) of the 2009 AFC and also summarized the findings of the report within Appendix A (Phase I Environmental Site Assessment) of the 2009 AFC. In summary, evidence of hydrocarbons was encountered in several borings within the fill soil and the underlying native soil. Additional assessments to determine the type and quantity of hydrocarbons present were not performed.

No additional soil contamination data is available for the Project Site or the existing Watson Cogeneration Facility. Aside from a single groundwater monitoring well located near the cooling towers, there are no groundwater monitoring wells within the footprint of the Watson Cogeneration Facility (including the proposed Project Site). Groundwater monitoring wells are present in the surrounding areas of the refinery including wells directly downgradient of the Project Site.

The BP Refinery has been submitting groundwater monitoring reports to LARWQCB on a quarterly or semiannual basis since 1986. Reports from 2005 to present are electronically available in the GeoTracker database, which is accessible from the following page of the LARWQCB website:

http://www.waterboards.ca.gov/losangeles/resources/public_records_center.shtml

The database is also accessible from the following link within the California State Water Resources Control Board web site:

<http://geotracker.waterboards.ca.gov/>

The Applicant will provide under separate cover a compilation of soil and groundwater data from areas near the Project Site. This compilation will be in the Applicant's responses to the LARWQCB's June 30, 2011 response to the CEC's request for participation.

Additional soil data will be obtained during the Project geotechnical assessment, which will be performed prior to construction.

The CEC's Background statement above includes a statement regarding, "...up to 14 feet of non-aqueous liquid phase petroleum hydrocarbons on the groundwater surface above the shallow water table." The Applicant clarifies that although a monitoring well near the Project Site has contained up to 14 feet of non-aqueous phase liquid (NAPL), data from adjacent Rapid Optical Screen Test (ROST™) borings indicate NAPL-bearing zone(s) are substantially thinner (e.g., less than 5 feet).

DATA REQUEST

- 14. Please provide a detailed description of plans to remediate existing soil and groundwater contamination at the Watson site including the area for the proposed fifth train. Please describe how construction of the proposed fifth train affect plans to cleanup and remediate existing contamination?**

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. The Applicant is not a responsible party to the soil and groundwater contamination and is not a party to the LARWQCB's CAO. Furthermore, the Applicant objects to this question with regard to the proposed Project as it calls for information which staff does not need to determine compliance with CEQA or any other applicable law, ordinance, regulation or standard. Without waiving this objection, the Applicant will voluntarily provide certain information in response to this request.

As the Applicant described in the response to Data Request 13 within this document, the Project Site is located within the boundaries of the existing Watson Cogeneration Facility, which is within the property boundaries of the BP Refinery. The BP Refinery is conducting ongoing assessment and remedial activities on the refinery property (which includes the Watson Cogeneration Facility) per the CAO under the jurisdiction of the LARWQCB. The objective of the remedial activities is to contain contamination upgradient of the property boundaries. There are no remediation plans that address the Watson Cogeneration Facility separately from the overall BP Refinery. However, it should be noted that the BP Refinery operates a remediation system that captures groundwater beneath the Project Site.

Groundwater monitoring is currently taking place throughout the entire BP Refinery via more than 300 groundwater monitoring wells. In addition, 22 recovery wells exist throughout the BP Refinery. The purpose of the recovery wells is to remove both product and contaminated groundwater and to control the plume of contaminated groundwater. Some of the BP Refinery recovery system is focused on the area directly downgradient of the Project Site, with one well located approximately 150 feet west of the Project Site.

Construction of the Project is not anticipated to affect the BP Refinery's plans to clean up and remediate existing contamination. The BP Refinery has programs in place for soil management during excavation and construction activities. During excavation, soil will be monitored and characterized for disposal. The Applicant filed a copy of the BP Refinery's soil management procedures with the CEC in the Applicant's June 2010 Responses to Questions from California Energy Commission Staff.

DATA REQUEST

15. *Please discuss in detail the levels of groundwater contamination at the Watson site, and how shallow contaminated groundwater could be pumped and treated to be utilized to augment water supply for the project.*

RESPONSE

The Applicant objects to this question insofar as it seeks information regarding the operation of the existing BP Refinery rather than the proposed Project. Information regarding the BP Refinery is beyond the scope of this proceeding, not relevant, and unduly burdensome. The Applicant is not a responsible party to the soil and groundwater contamination and is not a party to the LARWQCB's CAO. The Applicant is a recipient of water supplied by the BP Refinery and does not have any responsibility for assessing the feasibility of extracting and treating contaminated groundwater.

APPENDIX A
CLEANUP AND ABATEMENT ORDER

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION
CLEANUP AND ABATEMENT ORDER NO. 90-121

REQUIRING ATLANTIC RICHFIELD COMPANY TO CLEANUP AND ABATE
THE GROUND WATER POLLUTION CAUSED BY THE UNCONTROLLED
RELEASE OF HYDROCARBON PRODUCT FROM ITS LOS ANGELES REFINERY

(File No. 84-11)

The California Regional Water Quality Control Board, Los Angeles Region, finds:

1. ARCO Products Company, a division of Atlantic Richfield Company (ARCO), operates the Los Angeles Refinery located at 1801 East Sepulveda Boulevard, Carson, California. The Refinery has two main facilities: the Southwest Tank Farm (SWTF), located at the southeastern corner of the intersection of Wilmington Avenue and Sepulveda Boulevard, and the main refinery (formerly referred to as the main Watson Refinery) located in the area bounded by Sepulveda Boulevard, Wilmington Avenue, the Dominguez Channel and Alameda Street.
2. Board Order No. 85-17 required ARCO, along with fourteen other refineries, to conduct a subsurface investigation and site assessment to detect and characterize any ground water pollution beneath the facility. Order No. 85-17 also required that in the event that the ground water pollution extends beyond the facility borders, the investigation shall be extended to define the edges of the plumes.
3. Subsurface investigation conducted by Engineering Enterprise Inc. identified that there are two main free phase hydrocarbon product pools and two smaller pools present under perched and regional ground water table conditions beneath the ARCO Los Angeles Refinery. The two main pools are referred to as coalesced pools because they consist of individual accumulations of different products. The two small pools, which appear to consist of relatively uniform product types, are referred to as subpools.
4. Waste Discharge Requirements Order No. 86-72 adopted by this Regional Board on September 22, 1986, permits ARCO to extract ground water from below the pool of

August 22, 1990

Atlantic Richfield Company

File 85-007

hydrocarbons in the underlying perched water bearing zone and reinject the water, without treatment, directly into the same perched zone at the perimeter of the hydrocarbon pool. This type of extraction/reinjection operation, by forming a cone of depression, essentially enhances recovery of free hydrocarbon product from the perched aquifer.

5. As of December 31, 1989, 185,355 barrels of free hydrocarbon product have been recovered from the perched and Gage aquifer beneath the ARCO South West Tank Farm and 56,269 barrels from the Main Refinery area.
6. A soil gas survey was performed to delineate the lateral extent of offsite migration of the free hydrocarbon product present underlying the refinery. Results of the soil gas survey are not conclusive in defining the lateral extent of free product pools. It is believed that both the free hydrocarbon product and dissolved components have migrated offsite and offsite assessment has not been completed to fully define the extent of the free hydrocarbon product and its dissolved compound plume(s).
7. An offsite investigation workplan was submitted in February 1990, however, ARCO made a request to revise the workplan and the revised workplan has not been completed.
8. A source elimination program report was submitted to this Board, but will need to be modified to meet Requirement No. 4 of this Order.
9. Chlorinated compounds were detected in downgradient property boundary well MW-55 during a recent ground water sampling. Regional Board's results show 1,2-DCA was detected at 1,800 ppb in Well MW-55.
10. The Board adopted a Revised Water Quality Control Plan for Los Angeles River Basin on November 27, 1978. The Plan contains water quality objectives for ground water in Central Basin, Coastal Plain Subunit.
11. Ground water in the Coastal Plain is beneficially used for municipal and domestic supply, agricultural supply, and industrial service and process supply.

Atlantic Richfield Company

File 85-007

12. This project involves an action taken for the protection of the environment and as such is exempt from the provisions of the California Environmental Quality Act in accordance with California Code of Regulations, Title 14, Chapter 3, Section 15321.

The Board has notified Atlantic Richfield Company of its intent to issue an Order requiring Atlantic Richfield Company to cleanup and abate a condition of ground water pollution caused by the uncontrolled release of petroleum hydrocarbons from their properties and has provided them with an opportunity to submit their written views and recommendations.

The Board in a public meeting heard and considered all comments pertaining to this Order.

IT IS HEREBY ORDERED, that Atlantic Richfield Company, shall comply with the following:

1. ARCO is directed to conduct offsite subsurface investigation to fully assess the horizontal and vertical extent of ground water pollution by free phase hydrocarbon product and its dissolved components originated from onsite source(s). A revised offsite subsurface investigation workplan shall be submitted to the this Board within 30 days after this Order is adopted for Executive Officer's approval.
2. After evaluating the current free hydrocarbon product recovery activity along with all the available hydrogeology data, ARCO is directed to develop a revised free phase hydrocarbon product recovery plan to improve the recovery efficiency and expedite the recovery rate. The revised plan shall be submitted to this Board for Executive Officer's approval according to the schedule in Attachment A.
3. ARCO is directed to design a revised source elimination program to detect leakage from above ground tanks and underground piping in the early stage and to remediate any contamination in a timely manner. If the existing monitoring well network can not properly cover the entire above ground tank/underground piping area, a sufficient number of wells shall be installed to assure that the potential leakage is closely monitored. The revised

Atlantic Richfield Company

File 85-007

- source elimination plan is due to this Regional Board 90 days after this Order is adopted.
4. ARCO is directed to identify source(s) of other organic contaminants, such as phenols and chlorinated compounds, present in the onsite monitoring wells. If these organic contaminants originated from onsite source(s), ARCO shall fully define the horizontal and vertical extent of subsurface contamination caused by the organic compounds.
 5. An analytical and numerical ground water model shall be developed to characterize and predict the fate and transport of the free hydrocarbon product and its dissolved components in the aquifers underlying ARCO Los Angeles Refinery. This modeling shall ultimately provide data necessary for designing an optimal ground water cleanup strategy. This requirement may be waived upon approval of the Executive Officer if ARCO participates in the Carson Regional Ground Water Modeling Program.
 6. In order to prevent the residual petroleum hydrocarbons remaining in the soil as continuous source of contamination to the underlying ground water, ARCO is directed to review the currently available technologies and develop a soil cleanup workplan, consistent with the depth and quantity of contaminants present. The soil cleanup workplan is due to this Regional Board 180 days after this Order is adopted.
 7. ARCO is directed to implement the ground water cleanup and investigation activities according to the time schedule specified in Attachment A of this Cleanup and Abatement Order.
 8. Monthly progress reports detailing all activities implemented and results obtained during the previous month, as required by this Cleanup and Abatement Order, shall be submitted to this Board by the 15th day of the following month. A final report describing all the activities and results with a workplan for the overall ground water remediation shall be submitted to this Board when any phase of ground water cleanup and investigation is completed according to the time schedule in Attachment A.
 9. If contamination is found to be present at the lower

Atlantic Richfield Company

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portion of the Gage Aquifer, a proposal and time schedule to install vertical monitoring wells to detect any such contamination in the Lynwood Aquifer will be prepared for the Executive Officer's approval. The proposal shall be submitted to this Board within sixty days after the contamination of the lower Gage Aquifer is confirmed.

10. In order to achieve the goal of optimal ground water cleanup in the regional aquifer in an effective manner, this Board believes full cooperation with all the neighboring refineries and tank farms during the course of investigation and cleanup is essential. Therefore, ARCO is required to coordinate all offsite assessment and negotiate joint mitigation activities in good faith with all the neighboring refineries. It is the intent of this Board to issue Cleanup and Abatement Orders to all the refineries currently under the Board's investigation in the area and to encourage a regional ground water cleanup effort. The Executive Officer of this Regional Board shall act in the role of liaison in directing such a regional ground water cleanup program.
11. The investigation and cleanup program shall be directed and conducted by a registered civil engineer or geologist or a certified engineering geologist.
12. In order to facilitate these cleanup and abatement activities, when the ground water treatment system is completed, it is the intent of this Board to issue a revised Waste Discharge Requirements or other orders pursuant to Section 13260, Section 13304 and/or Section 13350 of the Water Code to include the requirement of ground water treatment prior to reinjection back into the underlying aquifers.
13. This Order is not intended to stop or redirect any investigation or cleanup or remediation programs ordered by this Board or any other agency.
14. The Executive Officer is authorized to take appropriate action as provided for in Sections 13268 and 13350 of the Water Code against ARCO for any noncompliance with this Order including assessment of penalties in the amount of up to \$5000.00 per day for each day on which any technical data requested by this Cleanup and Abatement Order is not submitted.

Atlantic Richfield Company

File 85-007

15. This Order in no way limits the authority of the Board as contained in the California Water Code, to require additional investigation and cleanup pertinent to this project. This Order may be revised by the Executive Officer as additional information on this project becomes available. Upon request by ARCO, and for good cause shown, the Executive Officer may delete or extend the date of compliance for any action required of ARCO under this Order.
16. Unless otherwise approved by the Executive Officer, failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities either administratively by the Regional Board or judicially by the Superior Court in accordance with Section 13350, et. seq. of the California Water Code, and/or referral to the Attorney General of the State of California for such legal action as he or she may deem appropriate.

I, Robert P. Ghirelli, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on August 20, 1990.

Robert P. Ghirelli

ROBERT P. GHIRELLI, D.Env.
Executive Officer

Atlantic Richfield Company

File 85-007

ATTACHMENT A

CLEANUP AND INVESTIGATION ACTIVITY SCHEDULE

Activities	Completion Date
ONSITE ASSESSMENT	October 1, 1990
<ul style="list-style-type: none">. identification of sources of other organic compounds. delineation of the extent of organic contamination	
OFFSITE ASSESSMENT	December 15, 1990
<ul style="list-style-type: none">. installation of offsite monitoring wells. sampling and analyses of ground water samples. delineation of the extent of dissolved hydrocarbons	
ONSITE/OFFSITE FREE PRODUCT DELINEATION AND RECOVERY PLAN	December 15, 1990
<ul style="list-style-type: none">. delineation of the lateral extent of free product offsite migration. evaluation of the current recovery activity. evaluation of the available hydrogeologic data. development of a revised free product recovery plan	
OVERALL GROUND WATER REMEDIATION WORKPLAN	April 30, 1991
<ul style="list-style-type: none">. ground water modeling (numerical and analytical model). design of extraction/injection system. design of ground water treatment facility	
BEGIN REMEDIATION OF OFFSITE DISSOLVED PETROLEUM HYDROCARBON CONTAMINATION	April 30, 1992





**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION
FOR THE *WATSON COGENERATION STEAM
AND ELECTRICITY RELIABILITY PROJECT***

DOCKET NO. 09-AFC-1
PROOF OF SERVICE LIST
(Revised 5/4/11)

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DECLARATION OF SERVICE

I, Cindy Kyle-Fischer, declare that on July 14, 2011, I served and filed copies of the attached *Responses to June 15, 2011 CEC Data Requests*, dated July 2011. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [www.energy.ca.gov/sitingcases/watson].

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

sent electronically to all email addresses on the Proof of Service list

by personal delivery or by depositing in the United States mail at Denver, Colorado with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (**preferred method**);

OR

___ depositing in the mail an original and ___ paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 09-AFC-1
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.



Cindy Kyle-Fischer