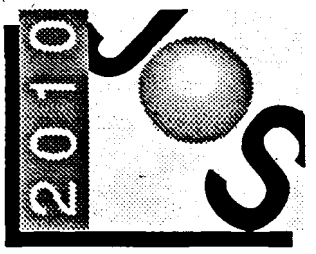
Chapter 6

Energy and Chemicals



Chapter 6. Energy and Chemicals

INTRODUCTION

This chapter summarizes the potential effects on energy and chemical consumption associated with implementation of the JOS 2010 Plan. Information on existing and proposed regional energy consumption was compiled based on information from SCE, the Los Angeles Department of Water and Power (LADWP), The Gas Company, and the California Department of Transportation (Caltrans). Information on existing and proposed energy and chemical consumption at JOS facilities was provided by the Districts.

As described in Chapter 1, "Introduction", this EIR provides project-specific CEQA compliance for full secondary treatment and solids processing at the JWPCP. Other elements of the 2010 Plan are analyzed on a program level when site-specific information is unavailable or locations of sites are not identified.

SETTING

Regional Setting

This section describes existing and future (2010) consumption of electricity, natural gas, and diesel fuel in the JOS service area. Energy sales in Los Angeles County are used to describe energy consumption in the JOS service area.

Electricity Consumption

Two suppliers, SCE and LADWP, provide most of the electricity consumed in the JOS service area; some industrial consumers generate additional electricity through cogeneration or through small power production.

In 1993, SCE sold approximately 32,411 gigawatt-hours (GWh) of electricity and LADWP sold 21,132 GWh of electricity to customers in the JOS service area. Customers in the LADWP service area and smaller utilities in Los Angeles County generated an additional 6,078 GWh in 1993. (SCE does not have equivalent information for customer-generated electricity in the JOS service area.) This represents a total of 59,621 GWh of electricity consumed in the JOS service area in 1993 (one GWh is equivalent to one million kilowatt-hours [kWh]).

In 2010, SCE expects to sell 53,802 GWh of electricity, and LADWP expects to sell 29,055 GWh of electricity to customers in the JOS service area. LADWP also expects consumers in its service area to generate an additional 1,651 GWh and smaller utilities are expected to generate approximately 4,844 GWh in 2010. This represents a total of 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010 (Farhangi and Mureau pers. comms.).

Natural Gas Consumption

The Gas Company is the main supplier of natural gas in the JOS service area. In 1993, The Gas Company sold approximately 4.9 billion therms of natural gas to customers in the JOS service area (one therm is equal to 100,000 BTU), and it expects to sell 6.5 billion therms of natural gas to customers in the JOS service area in 2010 (Archibald pers. comm.).

Diesel Fuel Consumption

Diesel fuel is supplied by various oil companies in the JOS service area. In 1993, diesel fuel consumption in the JOS service area totaled approximately 360 million gallons. In 2010, diesel fuel consumption in the JOS service area is projected to be approximately 640 million gallons (California Department of Transportation 1991, 1992).

Joint Water Pollution Control Plant

Electricity is used at the JWPCP to power equipment such as pumps, sludge collection equipment, centrifuges, compressors, aerators, and miscellaneous motor drives. Existing electricity consumption at the JWPCP totals approximately 120 GWh annually (Table 6-1). This electricity is a combination of that purchased from SCE and that generated by a combined-cycle power plant that converts digester gas to electricity at the JWPCP. Existing electricity production capacity at the JWPCP currently totals approximately 162 GWh annually. Natural gas purchased from The Gas Company is used at the JWPCP as a supplemental fuel for the digester gas combustion turbines which, under normal operating conditions, produce sufficient electricity to meet the facility's electrical demand. As shown in Table 6-1, existing natural gas consumption at the JWPCP totals approximately 2 million therms annually.

Existing annual consumption of chemicals used at the JWPCP is shown in Table 6-2. The chemicals include anionic polymer, cationic polymer, chlorine, lime, ferrous chloride, and ferric chloride. Each of these substances except lime is considered to be hazardous, with chlorine considered to be acutely hazardous. See Chapter 10, "Public Health", for information on the potential health effects of these substances.

Table 6-1. Existing and Projected Annual Utility Consumption at JOS Wastewater Treatment Plants

Plant	Consumption						Change in Consumption			
		Alternative (2010)					Alternative			
	Existing (1993)	No Project	1	2	3	4	1	2	3	4
Electricity (GWh per Year)										
JWPCP	120	131	206	206	206	190	75	75	75	59
Los Coyotes WRP	17	19	25	38	19	31	6	19	0	12
San Jose Creek WRP	29	36	44	36	36	44	8	0	0	8
Whittier Narrows WRP	6	9	9	9	22	22	0	0	13	13
Total electricity consumption for all plants	172	195	284	289	283	287	89	94	88	92
Natural gas (thousand therms per year)										
JWPCP	2,000	2,000	2,022	2,022	2,022	2,022	22	22	22	22
Los Coyotes WRP	0	0	0	0	0	0	0	0	0	0
San Jose Creek WRP	36	36	36	36	36	36	0	0	0	0
Whittier Narrows WRP	0	0	0	0	0	0	0	0	0	0
Total natural gas consumption for all plants	2,036	2,036	2,058	2,058	2,058	2,058	22	22	22	22

Note: Change in consumption was calculated by subtracting future no-project consumption from consumption under each of the alternatives.

Sources: County Sanitation Districts of Los Angeles County 1993c, 1994d.

Table 6-2. Existing and Projected Chemical Consumption at JOS Wastewater Treatment Plants

Plant	Consumption						Change in Consumption Relative to No Project			
			Alternative (2010)				Alternative			
	Existing (1993)	No Project	1	2	3	4	1	2	3	4
Ferrous chloride (pounds per year)										
JWPCP	10,000,000	11,737,805	12,195,122	12,195,122	12,195,122	10,670,732	457,317	457,317	457,317	(1,067,073)
Los Coyotes WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
San Jose Creek WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Whittier Narrows WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Total ferrous chloride consumption for all plants	10,000,000	11,737,805	12,195,122	12,195,122	12,195,122	10,670,732	457,317	457,317	457,317	(1,067,073)
Ferric chloride (pounds per year)										
JWPCP	1,017,155	1,193,917	1,240,433	1,240,433	1,240,433	1,085,379	46,516	46,516	46,516	(108,538)
Los Coyotes WRP	866,667	958,702	1,278,270	1,917,405	958,702	1,597,837	319,568	958,703	0	639,135
San Jose Creek WRP	2,381,457	2,914,880	3,643,600	2,914,880	2,914,880	3,643,600	728,720	0	0	728,720
Whittier Narrows WRP	0	0	0	0	1,093,080	1,093,080	0	0	1,093,080	1,093,080
Total ferric chloride consumption for all plants	4,265,279	5,067,499	6,162,303	6,072,718	6,207,095	7,419,896	1,094,804	1,005,219	1,139,596	2,352,397
Anionic polymer (pounds per year)										
JWPCP	165,438	194,188	201,754	201,754	201,754	176,534	7,566	7,566	7,566	(17,654)
Los Coyotes WRP	13,940	15,420	20,560	30,841	15,420	25,701	5,140	15,421	0	10,281
San Jose Creek WRP	30,193	36,956	46,195	36,956	36,956	46,195	9,239	0	0	9,239
Whittier Narrows WRP	0	0	0	0	13,860	13,860	0	0	13,860	13,860
Total anionic polymer consumption for all plants	209,571	246,564	268,509	269,551	267,990	262,290	21,945	22,987	21,426	15,726

Plant	Consumption						Change in Consumption Relative to No Project			
			Alternative (2010)				Alternative			
	Existing (1993)	No Project	1	2	3	4	1	2	3	4
Cationic polymer (pounds per year)										
JWPCP	1,367,165	1,604,752	1,667,274	1,667,274	1,667,274	1,458,865	62,522	62,522	62,522	(145,887)
Los Coyotes WRP	1,045	1,156	1,541	2,312	1,156	1,927	385	1,156	0	771
San Jose Creek WRP	35,688	43,682	54,602	43,682	43,682	54,602	10,920	0	0	10,920
Whittier Narrows WRP	2,772	3,960	3,960	3,960	20,341	20,341	0	0	16,381	16,381
Total cationic polymer consumption for all plants	1,406,670	1,653,550	1,727,377	1,717,228	1,732,453	1,535,735	73,827	63,678	78,903	(117,815)
Chlorine (pounds per year)										
JWPCP	22,728,000	26,677,680	9,741,120	9,741,120	9,741,120	9,375,828	(16,936,560)	(16,936,560)	(16,936,560)	(17,301,852)
Los Coyotes WRP	835,757	924,510	1,232,680	1,849,020	924,510	1,540,850	308,170	924,510	0	616,340
San Jose Creek WRP	2,138,930	2,618,029	3,272,537	2,618,029	2,618,029	3,272,537	654,508	0	0	654,508
Whittier Narrows WRP	387,770	553,957	553,957	553,957	1,535,718	1,535,718	0	0	981,761	981,761
Total chlorine consumption for all plants	26,090,457	30,774,176	14,800,294	14,762,126	14,819,377	15,724,933	(15,973,882)	(16,012,050)	(15,954,799)	(15,049,243)
Lime (tons per year)										
JWPCP	7,272	8,536	3,117	3,117	3,117	3,000	(5,419)	(5,419)	(5,419)	(5,536)
Los Coyotes WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
San Jose Creek WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Whittier Narrows WRP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Total lime consumption for all plants	7,272	8,536	3,117	3,117	3,117	3,000	(5,419)	(5,419)	(5,419)	(5,536)

Plant	Consumption						Change in Consumption Relative to No Project			
			Alternative (2010)				Alternative			
	Existing (1993)	No Project	1	2	3	4	1	2	3	4
Sulfur dioxide (pounds per year)										
JWPCP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Los Coyotes WRP	264,200	292,257	389,676	584,513	292,257	487,094	97,419	292,256	0	194,837
San Jose Creek WRP	725,727	888,283	1,110,353	888,283	888,283	1,110,353	222,070	0	0	222,070
Whittier Narrows WRP	168,630	240,900	240,900	240,900	574,006	574,006	0	0	333,106	333,106
Total sulfur dioxide consumption for all plants	1,158,557	1,421,440	1,740,929	1,713,696	1,754,546	2,171,453	319,489	292,256	333,106	750,013
Alum (gallons per year)										
JWPCP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Los Coyotes WRP	28,850	31,914	42,552	63,827	31,914	53,190	10,638	31,913	0	21,276
San Jose Creek WRP	20,509	25,103	31,379	25,103	25,103	31,379	6,276	0	0	6,276
Whittier Narrows WRP	8,130	11,614	11,614	11,614	21,028	21,028	0	0	9,414	9,414
Total alum consumption for all plants	57,489	68,631	85,545	100,544	78,045	105,597	16,914	31,913	9,414	36,966
Defoamant (gallons per year)										
JWPCP	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
Los Coyotes WRP	5,280	5,841	7,788	11,681	5,841	9,735	1,947	5,840	0	3,894
San Jose Creek WRP	15,400	18,849	23,562	18,849	18,849	23,562	4,713	0	0	4,713
Whittier Narrows WRP	2,445	3,493	3,493	3,493	10,562	10,562	0	0	7,064	7,064
Total defoamant consumption for all plants	23,125	28,183	34,843	34,023	35,252	43,859	6,660	5,840	7,064	15,676

Notes: Change in consumption was calculated by subtracting future no-project consumption from consumption under each of the alternatives.

NU = not used at this facility.

Sources: County Sanitation Districts of Los Angeles County 1993c, 1994a.

Anionic polymer is used at the JWPCP in the primary clarifier to enhance the settling process. Cationic polymer is used as a coagulant in sludge dewatering and the dissolved air flotation thickeners. Chlorine is used to disinfect effluent before it is discharged. Lime is used to make calcium hypochlorite, which is also used to disinfect effluent. Ferrous chloride is used to remove sulfides in digester tanks at the JWPCP, yielding digester gas with reduced levels of hydrogen sulfide. Ferric chloride is used to enhance settling of residual solids in the centrifuge supernatant, which is pumped back into the primary treatment process after solids are removed in the centrifuge. Caustic solution, made from caustic soda, is used in odor-control processes at the JWPCP. Because caustic soda use is relatively low, it is not included in Table 6-2.

Los Coyotes Water Reclamation Plant

Electricity purchased from SCE is used to power pumps, compressors, and miscellaneous motor drives at the Los Coyotes WRP. Existing electricity consumption at the Los Coyotes WRP totals approximately 17 GWh annually. No natural gas is consumed at the Los Coyotes WRP. Chemicals used at the Los Coyotes WRP include ferric chloride, anionic polymer, cationic polymer, chlorine, sulfur dioxide, alum, and defoamant. Approximate existing annual consumption of each of these chemicals at the Los Coyotes WRP is shown in Table 6-2.

At the Los Coyotes WRP, ferric chloride and anionic polymer are used in the primary clarifier to coagulate solids, which enhances the settling process. Cationic polymer is used as a coagulant in the secondary clarifiers. Chlorine is used to disinfect tertiary effluent. Sulfur dioxide is used to dechlorinate reclaimed water. Alum is also used in the tertiary treatment process as a final coagulant before the water is sent through the prefilters. Defoamant is used in the final stage of reclamation to remove foam from the water before it is disposed of or reused.

San Jose Creek Water Reclamation Plant

Electricity purchased from SCE is used at the San Jose Creek WRP for the same purposes as at the Los Coyotes WRP. Existing electricity consumption at the San Jose Creek WRP totals approximately 29 GWh annually (Table 6-1). Existing consumption of natural gas, used to heat laboratories and administrative buildings at the San Jose Creek WRP, totals approximately 36,000 therms annually. Natural gas consumed at the San Jose Creek WRP is purchased from The Gas Company. Chemicals used at the San Jose Creek WRP are the same as those used at the Los Coyotes WRP with the addition of caustic soda. Caustic soda is used to make caustic solution, which is used in emergency situations to scrub chlorine or sulfur dioxide gas if a leak occurs in the chlorine or sulfur dioxide containment buildings. The uses of these chemicals are the same as described for the Los Coyotes WRP.

Approximate annual consumption of each of these chemicals at the San Jose Creek WRP is shown in Table 6-2, except for caustic soda, which is used only in emergency situations, as previously described.

Whittier Narrows Water Reclamation Plant

Electricity purchased from SCE is used at the Whittier Narrows WRP for the same purposes as at the Los Coyotes WRP. Existing electricity consumption at the Whittier Narrows WRP totals approximately 6 GWh annually. No natural gas is consumed at the Whittier Narrows WRP. Chemicals used at the Whittier Narrows WRP include cationic polymer, chlorine, sulfur dioxide, caustic soda, alum, and defoamant. The uses of these chemicals are the same as those described for the Los Coyotes WRP. Approximate annual consumption of each of these chemicals at the Whittier Narrows WRP is shown in Table 6-2.

Biosolids Disposal and Reuse

As shown in Table 6-3, approximately 408,800 gallons of diesel fuel are currently consumed each year to transport biosolids by truck from the JWPCP to appropriate disposal and reuse sites located in Southern California and western Arizona.

Table 6-3. Diesel Fuel Consumed Transporting Biosolids from JWPCP to Disposal/Reuse Sites (1993)

Destination	Biosolids Delivered (Tons)	Truck Trips	Fuel Consumption (gallons)
Kellogg Supply, Inc.	82,900	3,770	117,000
Recyc Inc.	40,400	1,840	26,600
Ag Tech Company	47,600	2,160	125,000
Pima Gro Systems	44,700	2,260	70,200
Puente Hills Landfill	247,900	11,300	70,000
Total	468,500	21,330	408,800

Note: Assumptions made in this table include a truck capacity of 22 tons and an average fuel efficiency of 9.66 mpg.

Source: County Sanitation Districts of Los Angeles County 1993c.

Reclaimed Water Disposal and Reuse

Wastewater reclaimed at the inland WRPs is either reused or piped via gravity into nearby rivers for eventual disposal in the Pacific Ocean. Conveyance of reclaimed water is accomplished either through gravity flow or pumping to certain reuse areas. Purchasers of reclaimed water pay the Districts for the operations and maintenance costs of producing that water, as well as the costs of any necessary pumping. Approximately 5 GWh of electricity per year is currently consumed for all pumping of reclaimed water to reuse areas from all WRPs in the JOS. As a result, less than 5 GWh of electricity is consumed per year to pump reclaimed water from the WRPs discussed in this document.

IMPACTS AND MITIGATION MEASURES OF THE 2010 PLAN ALTERNATIVES

Methodology and Assumptions for Impact Analysis

Construction-related energy impacts are evaluated in this chapter using a qualitative assessment of construction practices. Construction activities associated with implementation of the 2010 Plan are not expected to involve the consumption of major amounts of chemicals. Therefore, the consumption of chemicals during construction is not discussed further in this chapter. It should be noted that it has not yet been determined which dust suppressant would be used during construction and it is possible that a chemical suppressant would be used. However, as discussed in Chapter 8, "Air Quality", if a chemical suppressant is used, it will be nontoxic.

Operations-related energy impacts are evaluated using a comparison of the increase in annual energy consumption generated by implementation of each alternative with regional energy demand. The increase in annual energy consumption is the difference between annual energy consumption in 2010 under no-project conditions and annual energy consumption in 2010 under proposed project conditions for each of the plant sites. Regional energy demand is defined as the annual energy demand projected to exist in the JOS service area in 2010 without the proposed project.

Operations-related chemical consumption impacts are evaluated using a comparison of annual chemical consumption in 2010 under proposed project conditions with annual chemical consumption in 2010 under no-project conditions for each of the plant sites.

Criteria for Determining Significance

Based on Appendices G and I of the State CEQA Guideline, an alternative is considered to have a significant impact if it would:

- use energy or chemicals in a wasteful manner during construction or annual operation,
- consume enough energy during construction or annual operation to cause energy suppliers difficulty in meeting the increased energy demand, or
- consume enough energy during construction or annual operation to require construction of additional facilities for energy generation or distribution to meet the increased demand.

Comparison of Alternatives

Table 6-4 at the end of this chapter shows that the impacts associated with Alternatives 2, 3, and 4 are similar to those associated with Alternative 1, with some variation. This variation in impacts is described below for each alternative.

Alternative 1: Upgrade JWPCP/Expand Los Coyotes WRP/San Jose Creek WRP

Construction Impacts

Impact: Increase in Energy Consumption Resulting from Construction at the JWPCP. Construction at the JWPCP would consume a large amount of energy over the 11-year construction period. However, construction activities would not result in consumption of an unnecessary amount of energy or consume energy in a wasteful manner, and would not consume enough energy to require the construction of additional facilities for energy generation or distribution. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Energy Consumption Resulting from Construction at the Los Coyotes and San Jose Creek WRPs. Construction at the Los Coyotes and San Jose Creek WRPs would not consume significant amounts of energy. This impact is considered less than significant.

Mitigation. No mitigation is required.

Impacts of Treatment Plant Operations

Impact: Minimal Increase in Electricity and Natural Gas Consumption Resulting from the Increase in Operations at the JWPCP. Under Alternative 1, the level of wastewater treatment would be increased to full secondary and the amount of flow treated would increase from 385 mgd to 400 mgd. As shown in Table 6-1, this increase in treatment capacity would result in an increase in consumption of 75 GWh per year of electricity and 22,000 therms per year of natural gas over no-project conditions at the JWPCP. A major portion of this increase is caused by the shift to full secondary treatment.

The increase in annual electricity consumption represents 0.08% (eight hundredths of 1%) of the 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010. It is expected that the digester gas combustion turbines would produce sufficient electricity to meet the increase in electricity demand generated by increased solids processing or secondary treatment that would occur under Alternative 1 conditions. Therefore, construction of additional facilities for electricity generation or distribution would not be necessary to meet the increased demand.

The increase in annual natural gas consumption represents less than 0.001% of the 6.5 billion therms of natural gas expected to be consumed in the JOS service area in 2010. Natural gas suppliers are not expected to experience difficulty in meeting the increase in natural gas demand generated by increased solids processing that would occur under Alternative 1 conditions. Furthermore, construction of additional facilities for natural gas production or distribution would not be necessary to meet the increased demand. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Chemical Consumption Resulting from the Increase in Operations at the JWPCP. Table 6-2 shows that the increase in wastewater treatment and solids processing capacities that would occur at the JWPCP under Alternative 1 would result in additional use of chemicals, including ferrous chloride, ferric chloride, and anionic and cationic polymer, over use under no-project conditions. Additionally, beginning in late 1995, aqueous ammonia will be used to reduce emissions of nitrogen oxides (NO_x) from turbines located at the JWPCP. Also, by the year 2005, all existing secondary influent pump station engines will be retrofitted with selective catalytic reduction systems that will also utilize aqueous ammonia to reduce emissions of NO_x. However, the increase in the amount of chemicals used is minimal. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Electricity Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes and San Jose Creek WRPs. Under Alternative 1, the Los Coyotes WRP treatment capacity would be increased from 37.5 mgd to 50 mgd and

the San Jose Creek WRP treatment capacity would be increased from 100 mgd to 125 mgd. As shown in Table 6-1, the proposed treatment expansions would result in an increase in electricity consumption of 6 GWh per year at the Los Coyotes WRP and 8 GWh per year at the San Jose Creek WRP over no-project conditions. Therefore, the total increase in electricity consumption at the inland WRPs under Alternative 1 would be 14 GWh per year.

This increase in annual electricity consumption represents 0.02% of the 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010. Electricity suppliers are not expected to experience any difficulty in meeting the increase in electricity demand generated by increases in treatment capacity at inland WRPs that would occur under Alternative 1. Furthermore, construction of additional facilities for electricity generation or distribution would not be necessary to meet the increased demand. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Chemical Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes and San Jose Creek WRPs. Table 6-2 shows that increasing wastewater treatment capacity at the Los Coyotes and San Jose Creek WRPs under Alternative 1 would result in additional use of chemicals, including ferric chloride, anionic and cationic polymer, chlorine, sulfur dioxide, alum, and defoamant, over no-project conditions. This impact is considered less than significant for reasons described above under the discussion of JWPCP impacts.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Energy Consumption Resulting from Pumping of Reclaimed Wastewater. As described above under "Setting", reclaimed water at the inland WRPs is either made available for reuse or discharged to nearby rivers for eventual disposal in the Pacific Ocean. Approximately 5 GWh of electricity per year is currently consumed pumping reclaimed water to reuse areas. As part of the Consent Decree, the Districts have agreed to make their best effort to attain and maintain a water reuse goal of 150 mgd by 2002. If this goal were achieved, approximately 10-15 GWh per year could be used by water purveyors to pump reclaimed water to reuse sites. This represents an increase of 5-10 GWh per year in the amount of electricity used for this purpose, which is approximately 0.01% of the electricity expected to be consumed in the JOS service area in 2002. Electricity suppliers are not expected to experience any difficulty in meeting the increase in electricity demand generated by increased water reuse or disposal activities that would occur under Alternative 1. Furthermore, construction of additional facilities for electricity generation or distribution would not be necessary to meet the increased demand. There is also avoided energy use associated with water supply replaced by reclaimed water. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impacts of Biosolids Disposal and Reuse

Impact: Minimal Increase in Diesel Fuel Consumption Resulting from Biosolids Disposal and Reuse through 2010. As shown in Table 6-3, approximately 408,800 gallons of diesel fuel are currently consumed each year to transport biosolids by truck from the JWPCP to appropriate disposal and reuse sites. Currently, biosolids generated in the treatment process at the JWPCP are trucked to five different sites: Kellogg Supply in Thermal, Recyc Inc. in Corona, Pima Gro Systems in Thermal, Puente Hills Landfill near the City of Industry, and Ag Tech Company in Yuma, Arizona. In 2010, there will be an estimated 77% increase in the amount of biosolids produced at the JWPCP under Alternative 1. Specific future disposal site locations are not currently known. Potential future sites that could be used for disposal or reuse that would involve truck haul include the Bolo Landfill in San Bernardino County (263 miles away), Eagle Mountain Landfill in Riverside County (232 miles away), and Mesquite Landfill in Imperial County (229 miles away) and several land application sites within approximately 250 miles, many of which are in Kern or Kings County. Assuming that specific disposal locations chosen for truck haul are approximately the same distance from the JWPCP as existing disposal locations, it is estimated that approximately 800,000 to 1 million gallons of diesel fuel would be consumed to truck biosolids to appropriate disposal sites.

Assuming that specific disposal locations chosen for truck haul are approximately the same distance from the JWPCP as existing disposal locations, it is not expected that diesel fuel suppliers would experience difficulty in meeting the increased demand. Construction of additional diesel facilities for fuel production or distribution would not be necessary to meet the increased demand. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Alternative 2: Upgrade JWPCP/Expand Los Coyotes WRP

Under Alternative 2, impacts at the JWPCP and the Los Coyotes WRP would be the same as under Alternative 1, except that energy and chemical consumption would be slightly higher at the Los Coyotes WRP. No impacts would occur at the San Jose Creek or Whittier Narrows WRPs because these plants would not be expanded. An additional impact would result from construction of sewer lines; this impact is described below.

Construction Impacts

Impact: Minimal Increase in Energy Consumption Resulting from Construction of Sewer Lines. Implementation of Alternative 2 would involve construction of a relief sewer to accommodate increased flows from the expanded facilities. Construction of expanded sewer facilities would not result in unnecessary consumption of energy or consume energy

in a wasteful manner. Furthermore, construction activities would not consume enough energy to cause local energy supply shortages or require the construction of additional facilities for energy generation or distribution. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impacts of Treatment Plant Operations

Impact: Minimal Increase in Electricity Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes WRP. Under Alternative 2, the Los Coyotes WRP treatment capacity would be increased from 37.5 mgd to 75 mgd. As shown in Table 6-1, this increase in capacity would result in an increase in electricity consumption of 19 GWh per year at the Los Coyotes WRP facility over no-project conditions. This increase in annual electricity consumption represents 0.02% of the 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010. This impact is considered less than significant for reasons described above under Alternative 1.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Chemical Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes WRP. Table 6-2 shows that increasing wastewater treatment capacity at the Los Coyotes WRP under Alternative 2 would result in additional use of chemicals, including ferric chloride, anionic and cationic polymer, chlorine, sulfur dioxide, alum, and defoamant, over no-project conditions. This impact is considered less than significant for reasons described above for the JWPCP under Alternative 1.

Mitigation. No mitigation is required.

Alternative 3: Upgrade JWPCP/Expand Whittier Narrows WRP

Under Alternative 3, impacts at the JWPCP would be the same as under Alternatives 1 and 2. No impacts would occur at the Los Coyotes or San Jose Creek WRPs or sewer lines because these facilities would not be modified. Impacts at the Whittier Narrows WRP are described below.

Construction Impacts

Impact: Minimal Increase in Energy Consumption Resulting from Construction at the Whittier Narrows WRP. This impact is considered less than significant for reasons described above for the Los Coyotes and San Jose Creek WRPs under Alternative 1.

Mitigation. No mitigation is required.

Impacts of Treatment Plant Operations

Impact: Minimal Increase in Electricity Consumption Resulting from Wastewater Treatment Expansion at the Whittier Narrows WRP. Under Alternative 3, Whittier Narrows WRP treatment capacity would be increased from 15 mgd to 52.5 mgd. As shown in Table 6-1, this increase in capacity would result in an increase in electricity consumption of 13 GWh per year at the Whittier Narrows WRP over no-project conditions.

The increase in annual electricity consumption represents 0.01% of the 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010. Electricity suppliers are not expected to experience difficulty in meeting the increase in electricity demand generated by increases in treatment capacity at the Whittier Narrows WRP that would occur under Alternative 3. Furthermore, construction of additional electricity generation or distribution facilities would not be necessary to meet the increased demand. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Chemical Consumption Resulting from Wastewater Treatment Expansion at the Whittier Narrows WRP. Table 6-2 shows that the increase in water reclamation that would occur at the Whittier Narrows WRP under Alternative 3 would result in additional use of chemicals, including ferric chloride, anionic and cationic polymer, chlorine, sulfur dioxide, alum, and defoamant, over no-project conditions. This impact is considered less than significant for reasons described above for the JWPCP under Alternative 1.

Mitigation. No mitigation is required.

Alternative 4: Upgrade JWPCP/Expand Los Coyotes WRP/ San Jose Creek WRP/Whittier Narrows WRP

Under Alternative 4, impacts at the JWPCP and the Los Coyotes and San Jose Creek WRPs would be the same as under Alternative 1, except that electricity and chemical consumption at the JWPCP would be slightly less and electricity and chemical consumption at the Los Coyotes WRP would be slightly more. Similarly, electricity and chemical consumption at the Whittier Narrows WRP would be the same as under Alternative 3. Impacts on sewer lines would be the same as under Alternative 2. Variations in these impacts are described below.

Impact: Minimal Increase in Electricity Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes, San Jose Creek, and Whittier Narrows WRPs. Under Alternative 4, Los Coyotes WRP treatment capacity would be increased from 37.5 mgd to 62.5 mgd, the San Jose Creek WRP treatment capacity would be increased from

100 mgd to 125 mgd, and the Whittier Narrows WRP treatment capacity would be increased from 15 mgd to 52.5 mgd. These increases in capacity would result in an increase in electricity consumption over no-project conditions of 12 GWh per year at the Los Coyotes WRP facility, 8 GWh per year at the San Jose Creek WRP facility, and 13 GWh per year at the Whittier Narrows WRP facility (Table 6-1). Therefore, the total increase in electricity consumption at the inland WRPs under Alternative 4 would be 33 GWh per year.

This increase in annual electricity consumption represents 0.04% of the 89,352 GWh of electricity expected to be consumed in the JOS service area in 2010. Electricity suppliers are not expected to experience difficulty in meeting the increase in electricity demand generated by increases in treatment capacity at inland WRPs that would occur under Alternative 4. Furthermore, construction of additional facilities for electricity generation or distribution would not be necessary to meet the increased demand. Therefore, this impact is considered less than significant.

Mitigation. No mitigation is required.

Impact: Minimal Increase in Chemical Consumption Resulting from Wastewater Treatment Expansion at the Los Coyotes, San Jose Creek, and Whittier Narrows WRPs. As shown in Table 6-2, the increase in water reclamation that would occur at the Los Coyotes WRP, San Jose Creek WRP, and Whittier Narrows WRP under Alternative 4 would result in additional use of chemicals, including ferric chloride, anionic and cationic polymer, chlorine, sulfur dioxide, alum, and defoamant, over no-project conditions. This impact is considered less than significant for reasons described above for the Los Coyotes and San Jose Creek WRPs under Alternative 1.

Mitigation. No mitigation is required.

No-Project Alternative

Under the No-Project Alternative, no increase in treatment capacity or upgrade in the level of treatment would occur at the JWPCP or any of the inland WRPs. However, it should be noted that neither the JWPCP nor the inland WRPs are currently operating at full capacity. Under the No-Project Alternative, these plants would be operating at full capacity. Consumption of energy and chemicals would increase in proportion to increases in wastewater flow and biosolids generation as shown in Tables 6-1 and 6-2. No significant impacts related to energy or chemical use would occur under this alternative.

Table 6-4. Comparison of Energy and Chemical Impacts by Alternative

Impacts and Mitigation Measures	Alternative 1			Alternative 2			Alternative 3		Alternative 4				
	JWPCP	LC	SJC	JWPCP	LC	Sewers	JWPCP	WN	JWPCP	LC	SJC	WN	Sewers
Construction Impacts													
Impact: Increase in energy consumption resulting from construction at the JWPCP (LT)	✓			✓			✓		✓				
No mitigation is required													
Impact: Minimal increase in energy consumption resulting from construction at the Los Coyotes and San Jose Creek WRPs (LT)		✓	✓		✓					✓	✓		
No mitigation is required													
Impact: Minimal increase in energy consumption resulting from construction of sewer lines (LT)						✓							✓
No mitigation is required													
Impact: Minimal increase in energy consumption resulting from construction at the Whittier Narrows WRP (LT)								✓				✓	
No mitigation is required													
Impacts of Treatment Plant Operations													
Impact: Minimal increase in electricity and natural gas consumption resulting from the increase in operations at the JWPCP (LT)	✓			✓			✓		✓				
No mitigation is required													
Impact: Minimal increase in chemical consumption resulting from the increase in operations at the JWPCP (LT)	✓			✓			✓		✓				
No mitigation is required													
Impact: Minimal increase in electricity consumption resulting from wastewater treatment expansion at the Los Coyotes and San Jose Creek WRPs (LT)		✓	✓		✓					✓	✓		
No mitigation is required													

LT = less than significant.

Impacts and Mitigation Measures	Alternative 1			Alternative 2			Alternative 3		Alternative 4				
	JWPCP	LC	SJC	JWPCP	LC	Sewers	JWPCP	WN	JWPCP	LC	SJC	WN	Sewers
Impact: Minimal increase in chemical consumption resulting from wastewater treatment expansion at the Los Coyotes and San Jose Creek WRPs (LT) No mitigation is required		✓	✓		✓					✓	✓		
Impact: Minimal increase in electricity consumption resulting from wastewater treatment expansion at the Whittier Narrows WRP (LT) No mitigation is required								✓				✓	
Impact: Minimal increase in chemical consumption resulting from wastewater treatment expansion at the Whittier Narrows WRP (LT) No mitigation is required								✓				✓	
Impact: Minimal increase in energy consumption resulting from pumping of reclaimed wastewater (LT) No mitigation is required		✓	✓		✓			✓		✓	✓	✓	
Impacts of Biosolids Disposal and Reuse Impact: Minimal increase in diesel fuel consumption resulting from biosolids disposal and reuse through 2010 (LT) No mitigation is required	✓			✓			✓		✓				

No beneficial or significant energy or chemical impacts would occur.

LT = less than significant.