

## 4.19 UTILITIES

### 4.19.A Wastewater Treatment by City

This response addresses comments FA1-15, FA1-27, O24-34, O24-32, O24-33, O31-60, SA1-11, LA6-18, I38-2, I38-5, as well as other similar comments, which concern the use of the City of Merced's Wastewater Treatment Plant (WWTP) to serve the Campus. It also addresses comments regarding the current regulatory issues concerning the Merced WWTP.

The Draft EIR discusses the cease and desist order that the City's WWTP is currently operating under on pages 4.8-29 and 4.15-5. The existing cease and desist order had limited allowed effluent flow to 7.7 mgd because the WWTP was not designed for nitrification. On page 4.15-5, the Draft EIR describes these improvements that the City is constructing to address the ammonia exceedances that were responsible for triggering the cease and desist order. The City is currently designing the third 5 mgd aeration basin for the secondary portion of the WWTP, and the project should be completed by June 2003. Once on line, it will be possible to retrofit the two original aeration basins, one at a time, with diffused fine-bubble aeration and baffles.

Nitrification/denitrification will be provided, restoring these two basins to their design capacity of 10 mgd. With the addition of the third aeration basin, the City will not only have addressed the cease and desist order, but also completed the first phase of the WWTP expansion, with 15 mgd of secondary aeration capacity (Tucker 2001). In August 2001, the RWQCB authorized an increase in effluent flow to 8.5 mgd pending completion of the construction for which design is currently underway. This action is due to the fact that the quality of the City's effluent continues to be excellent and the City has continued to meet the requirement for nitrogen removal, which was not part of the original plant design and for which the cease and desist order was imposed. It should also be noted that the RWQCB does not approve remedial plans as such; it is the City's responsibility to determine the process and implement it. The RWQCB will lift the cease and desist order when updated facilities are on line and working (Tucker 2001).

One of the commenters noted that the City's WWTP is required to meet conditions in its NPDES permit related to pH and temperature, and that the EIR should discuss this issue. The City of Merced has informed the University that it has joined with the City of Roseville and other agencies in requesting a basin plan amendment that would cover pH and temperature of effluent-dominated waterbodies. The time schedule is unknown at this time. However, the present pH, temperature, and turbidity are all covered under the City's NPDES permit for the WWTP. The City will comply with the requirements set forth until the basin plan amendment is adopted, or rejected. This decision is unknown at this time (Tucker 2001).

Relative to the ability of the WWTP to serve the projected regional growth as well as the proposed campus, the LRDP Draft EIR notes that the City has indicated that the WWTP will be expanded to a capacity of 20 mgd in two increments of 5 mgd. As mentioned above, the first of these increments will be completed by 2003 and the next one as and when needed. The City of Merced prepared and certified an EIR in 1994 for the expansion of the WWTP to a capacity of 20 mgd. The improvements necessary for this expansion were analyzed for their impacts on the environment in that EIR. The WWTP EIR is on file with the City.

Some commenters have expressed concern that with the adoption of Total Maximum Daily Loads (TMDL) for San Joaquin River in the future, the City's WWTP may not be able to

discharge the effluent as currently treated to the river. TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. The CWA Section 303 establishes the water quality standards and TMDL programs. On August 23, 1999, USEPA published proposed rules that specify that approvable TMDLs must include a minimum of 10 elements. Within the source assessment step, an approvable TMDL will need to include an identification of the source categories, source subcategories, or individual sources of the pollutant for which the wasteload allocations and load allocations are being established. Both the Lower Merced and the San Joaquin rivers are considered impaired water bodies and the USEPA is anticipating TMDL submittals. Currently though, the USEPA has not received any TMDL reports from the state.

The City currently discharges to an agricultural drain in which the City's effluent is of better quality than the flow already in the drain. This drain is a tributary to the San Joaquin River, but the effluent is blocked by drainage dams and does not reach the river or other surface waters. The effluent is used beneficially for agricultural irrigation and wetlands habitat. The City's existing discharge standards will remain in effect for the foreseeable future (Tucker 2001). The City of Merced has however indicated that if future regulatory conditions tighten the discharge requirements, plant improvements will be designed and constructed to meet such requirements. Proposed treatment plant processes and expansion covered by the WWTP EIR lend themselves to being upgraded (improvement in effluent quality to meet higher discharge standards) as necessary (Tucker 2001). A University backup plan for wastewater treatment is unnecessary at this time but could be developed in the future, if needed. There is no evidence of groundwater degradation, nor is such an impact expected. Both the City and the University will comply with environmental regulations that are in existence now and are adopted in the future, and will take all steps that are necessary to ensure full compliance.

The City has not had any flooding problems in its wastewater collection system. Infiltration/inflow is below the threshold where any action is required. Infiltration/inflow is generally related to wet weather or high groundwater conditions. The City has several sewer lift stations with backup generators to handle flows in the event of power outages. As part of the present design, the City is planning to install SCADA instrumentation on all of its sewer lift stations, which will allow centralized monitoring of all pump station conditions. The WWTP has levees around the perimeter, protecting it from a 100-year flood event. It also has standby pumps to pump effluent in the event that the gravity discharge is submerged.

As noted by the City, details of the lines and connections of the Campus and the existing wastewater conveyance system have not yet been decided and will be worked out in service provision agreements. Possible alignments of the utility lines were analyzed in the LRDP Draft EIR. Additional details of lines and connections are not needed now because they would not affect impact analysis. The Final EIR (see Volume 2, Section 7) incorporates this clarification. One commenter suggests use of a pressurized wastewater collection linked to decentralized wastewater management systems. As explained in the Draft EIR, the method of conveying campus wastewater to the City's treatment plan may be modified in a future phase of campus development by the addition of an on-site or nearby recycled water treatment facility. Page 2-22 of the LRDP EIR Project Description explains that a recycled water treatment facility may be built in the future although the size, siting, and process design for this facility is still to be determined. As stated in the LRDP, the Campus would be designed to be environmentally sustainable, which includes a concern for energy efficiency. The Campus will consider the use

of a pressurized effluent wastewater collection system, as suggested by the commenter, if such a system can be combined with the on-campus recycled water treatment facility. See Volume 2, Section 7 of the Final EIR.

#### **4.19.B Electricity and Natural Gas**

This response addresses comments LA5-20 and O28-99, which provide information on the availability of MID facilities and discuss the possibility of renewable energy efforts.

MID is mentioned in Section 4.19 Utilities as a potential provider of electricity to the campus. The clarification of where the MID transmission lines are located has been incorporated into the Final EIR (see Volume 2, Section 7).

With regard to energy consumption, as stated in Section 4.19 of the Draft EIR, the first phase of campus development would use an estimated 3.5 megawatts of electricity by 2007/08. The Campus is estimated to use 18.3 megawatts per year at full development, based on projected population and built space on campus. Initially for the Phase 1 Campus, this power will be provided through the grid but would be phased out by obtaining power from the on-site hydroelectric plant and/or from an on-site natural gas-fired cogeneration plant. For subsequent phases, the Campus is exploring options to provide the incremental power using alternative technologies. One of the Project Objectives listed on page 2-5 of the Draft EIR is for the Campus to model environmental stewardship, which includes developing the Campus with an energy-efficient design. Section 4.19 states that all new buildings would incorporate standard energy conservation measures, including appropriate building design. The LRDP itself states that the University of California is utilizing the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) green building rating system as a way to prioritize the sustainable building planning and design strategies for the project.

As stated in the LRDP, opportunities to develop appropriate on-site renewable forms of power will be exploited and could include photovoltaic systems installed on campus buildings or other structures. Low-emission and high-efficiency gas-fired cogeneration systems including fuel cells will also be continuously evaluated for application on the Campus. Power consumption in each building will be monitored as a part of the extensive energy performance monitoring system. The long-term objective of the University is to produce all or most of the electricity it would need, and to the extent feasible from renewable energy sources.

#### **4.19.C Water Service Infrastructure**

This response addresses comments FA1-30, FA1-31, LA6-17, as well as other similar comments, which request further information on the supply of water for the Campus and resultant impacts.

Campus water demand at full development has been estimated to be 3,620 afy, as shown in tables included in Section 4.14 of the Draft EIR. The sentence on page 4.15-8 misstates that the Campus would require a total of 1,130 afy of water for irrigation and other landscaping. This typographical error is corrected in the final EIR: the correct figure is 1,310 afy for such outdoor water use. During Phase 1 the Campus will be supplied with potable water from the City's water distribution system or will be supplied by on-site wells. The City would be responsible for the environmental review of any drilling of additional water wells outside of the Campus.

In the event that well tests show that on-campus wells are not practical given localized hydrologic conditions, water will be supplied by the City. All environmental studies would be conducted, and regulations and permits would be cleared at that time (Tucker 2001). Refer to Section 4.12 of this Final EIR for response to comments regarding effects of using groundwater to supply the Campus. Refer to Sections 4.8.C and 4.12 regarding the absence of effects on the Merced River.

It is accurate that the details of the lines and connections of the Campus and the existing wastewater conveyance system have not yet been decided and will be worked out in service provision agreements. The Final EIR incorporates this clarification.

#### 4.19.D Solid Waste Disposal

This response addresses comments SA3-1, SA3-2, LA9-19, LA9-20, LA9-21, LA9-22, and LA9-23. These comments are concerned with the use of recycled materials in the construction of the Campus as well as plans for solid waste reduction and recycling programs. One commenter suggests the incorporation of the Model Ordinances of the Integrated Waste Management Board into the project. Another commenter requests information on how the University would meet the 50 percent waste reduction mandate for state facilities, and that information related to recycling or waste reduction plans be included in Volume 2 of the LRDP Draft EIR. Additional information on County solid waste recycling and disposal operations is also provided and is presented in Volume 2, Section 7.

As mentioned in Section 4.15, the University is exempt from AB 939 (California's Integrated Waste Management Act of 1989, which mandates a 50 percent reduction of solid waste by 2000). In addition, the University is also exempt from AB 75, which requires state agencies "to divert at least 25 percent of the solid waste generated by January 1, 2002, and at least 50 percent by January 1, 2004" (California Integrated Waste Management Board 2001a). The Regents of the University of California are only encouraged, not obligated, to implement this diversion (California Integrated Waste Management Board 2001b). The University is also not subject to local plans and policies, such as Source Reduction and Recycling Elements of the County or other regional Integrated Waste Management Plans. However, it is University policy to seek consistency with local plans and policies, where feasible. As stated in the LRDP, the Campus would be designed to be environmentally sustainable, so the Campus plans include measures for reduction and recycling of solid waste. The source reduction and recycling program mentioned on page 4.15-12 of Volume 1 of the LRDP Draft EIR would be phased in as the Campus is built and, thus, applies to Phase 1, which is analyzed in Volume 2. As stated in Chapter 5 of the LRDP, the University is committed to reducing solid waste and will establish a viable recycling and solid waste program.

One commenter asks that the University consider recycling and/or recycled materials in the construction of buildings and other structures at UC Merced. The Resource Conservation and Environmental Stewardship Element of the LRDP (Chapter 5, as revised) indicates that the University is using the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) green building rating system as a way to prioritize the sustainable building planning and design strategies for the project. Several elements of sustainable planning and design excerpted from the LEED™ V.2 green building rating system are being taken into

consideration in the long-term planning for UC Merced, including the following elements related to recycling and recycled building materials:

- Construction waste management: Divert construction, demolition, and land clearing debris from landfill disposal. Redirect recyclable material back to the manufacturing process.
- Resource reuse: Extend the life cycle of targeted building materials, reducing environmental impacts related to materials manufacturing and transport.
- Recycled content: Increase demand for building products that have incorporated recycled content material, reducing impacts resulting from the extraction of new material.
- Rapidly renewable materials: Reduce the use and depletion of finite raw and long cycle renewable materials by replacing them with rapidly renewable materials (planted and harvested in less than a 10-year cycle).
- Certified wood: Encourage environmentally responsible forest management.

In addition, LRDP Sustainable Planning and Design Policy SUST-3 states: “Model new, cost-effective ways to reduce consumption of water and energy, minimize resource consumption and pollution from transportation systems, and otherwise minimize waste of resources through careful use and reuse.”

Merced County requested that the EIR provide information on the number of daily waste tonnage trips to the landfill that would be added by the implementation of the LRDP so that the County could use that information to revise its Solid Waste Permit in the future.

The Draft EIR analyzes all vehicle trips on the regional roads due to project implementation but does not separately break out those related to conveyance of solid waste from the Campus to the landfill. The information requested by Merced County does not relate to traffic impacts of the proposed project, rather it relates to the tonnage of solid waste that would be delivered at the County’s landfill on a daily basis.

As described in the Draft EIR, Highway 59 Landfill serves eastern Merced County and would also serve the Campus. Solid waste generated at the Campus would be expected to increase proportionally as the on-campus population and workforce increases. Highway 59 Landfill currently is permitted to accept 900 tons of waste per day (on a monthly average) with a peak of 1,500 tons per day. The permit also limits the number of daily vehicle trips (counted at the landfill gate) to 312 vehicles trips each day and allows the County to increase this number to 544 vehicle trips by 2011 (Lawrie 2001). Based on 2001 data, the landfill has been receiving less than 500 tons per day. Therefore, the tonnage received daily and the number of daily vehicle trips to the landfill are substantially lower than the permit allows. Table 4.19-1 below provides the estimated daily tonnage and vehicle trips that would result from project implementation for selected years. The tonnage has been estimated using the same factors that were used to report the total volume of waste in the Draft EIR.

**Table 4.19-1  
University-Generated Truck Loads of Solid Waste**

<b>Year Interval</b>	<b>Tons/year</b>	<b>Tons/day</b>	<b>Annual Truck Loads<sup>1</sup></b>
2004/5	445	1.23	74
2010/11	1,670	4.61	278
2014/15	2,107	5.82	351
2024/25	3,469	9.58	578
Full development	7,544	20.84	1,257

<sup>1</sup> 6 tons/load is the average load of commercial and residential waste. (Andrews 2001).

The County can utilize this information to conduct the environmental review necessary for future revisions to the landfill's Solid Waste Permit. It is uncertain at this time exactly when a revision to the permit would be necessary because not only the Campus but other regional growth would also be expected to continue to increase the daily tonnage and vehicle trips to the landfill. The County would continue to monitor these increases and determine when it needs to apply to the California Integrated Waste Board for a permit revision and prepare an environmental document in support of the permit revision. It would be premature to prepare the environmental analysis at this time because great uncertainty exists with respect to the rates of regional growth and the growth of the Campus. Furthermore, it should be noted that the main component of this environmental review is an analysis of vehicle trips on the roads leading to the landfill. That analysis is provided in the Draft EIR, and to the extent that it is still valid at the time that the County applies for a permit revision, the County may use it for that purpose. As explained above, the permit revision would apply to the operational limits in the landfill's solid waste permit and would not involve an expansion of the landfill. As analyzed in the Draft EIR, the landfill has adequate permitted disposal capacity to serve the Campus and other regional growth.

### **References**

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- California Integrated Waste Management Board. 2001a. CIWMB 2000 Annual Report: State Agency Responsibility, October 22. [www.ciwmb.ca.gov/boardinfo/annualreport/2000/stateagency/default.htm#projectRecycle](http://www.ciwmb.ca.gov/boardinfo/annualreport/2000/stateagency/default.htm#projectRecycle).
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