

**CALIFORNIA ENERGY COMMISSION**1516 NINTH STREET  
SACRAMENTO, CA 95814-5512

**DATE:** May 12, 2003

**TO:** Interested Parties

**FROM:** Donna Stone, Compliance Project Manager

**SUBJECT: Gilroy City LM 6000 Project (01-EP-08C)  
AKA Gilroy Energy Center Phase I (GEC)  
Notice of Receipt and Staff Analysis of Project Modification  
To Construct a Zero Liquid Discharge System**

On November 7, 2002 the California Energy Commission (Commission) received a petition from Calpine Corporation to amend the May 21, 2001 Commission Decision for the Gilroy City LM 6000 Project a.k.a. Gilroy Energy Center Phase I (GEC). GEC is a 135 megawatt (MW) natural gas-fired simple-cycle peaking facility consisting of three 45 MW General Electric LM 6000 PC Sprint turbine generators and associated facilities on approximately seven acres adjacent to Calpine's existing co-generation plant at 1350 Pacheco Pass Highway, Gilroy, Santa Clara County, California.

The proposed modification will allow the installation of a Zero Liquid Discharge (ZLD) wastewater system (hereinafter the "ZLD Amendment") on a 2.046 acre parcel of land owned by the GEC Project. This parcel is located at 1400 Pacheco Pass Highway in the City of Gilroy, Santa Clara County. The ZLD Amendment requests approval to construct a water treatment system consisting of a brine-crystallizer (BC) and filter press wastewater treatment system (WWTS), as well as to install associated on-site linears required to operate the ZLD WWTS and convey process wastewater from, and distillate water to, the GEC Project.

Process wastewater from the GEC will be pumped, via an underground pipeline, to an above-ground storage tank sized to hold approximately 320,000 gallons and located adjacent to the ZLD treatment system. Process wastewater from the storage tank will be directed to a small mixing tank integral to the BC.

One 100-percent capacity BC will be used to concentrate the process waste. Distillate from the BC will be pumped back to the existing reverse osmosis (RO) product storage tank at GEC for reuse.

The BC blow down will be sent to the filter press, which will remove most of the remaining water in the blow down and direct the recovered water back to the BC for reprocessing. The remaining cake (85% solids by weight) will be sent to the Kirby Canyon Recycling and Disposal Facility for disposal.

## Summary Of Staff Analysis

Commission staff reviewed the proposed GEC ZLD amendment to assess potential impacts of the proposal on environmental quality, public health and safety, and consistency with laws, ordinances, regulations and standards. Existing conditions of certification for the GEC project will extend to this aspect of the project providing mitigation for construction and operation of the ZLD WWTS. Therefore, few new conditions of certification are required. Staff determined that the following technical or environmental areas will be affected by the proposed project change and have proposed new or revised conditions of certification (noted in parentheses) in order to assure compliance with LORS and to reduce potential environmental impacts to a level of insignificance:

- Biological Resources – To protect the western pond turtles utilizing Llagas Creek from activities associated with the construction of the ZLD facility, the project owner will install 450 feet of exclusionary fencing in the area between the GEC and Llagas Creek (**BIO-11**). The project owner will not begin construction of the ZLD facility until after the breeding/nesting season of the least Bell's vireo (**BIO-12**).
- Cultural Resources – Existing conditions from the GEC and amended natural gas pipeline will also apply to the ZLD project, and where necessary, language has been amended (**CUL-2, CUL-3, and CUL-4**) to include the ZLD project to ensure adequate processes are in place to avoid or minimize impacts to cultural resource finds in the vicinity of the ZLD system.
- Soil and Water Resources – To protect the environment from possible accelerated wind and water-induced erosion from earthmoving activities associated with the construction of the proposed project, staff is recommending revisions to the Storm Water Pollution Prevention Plans (SWPPP), and the Erosion and Sedimentation Control Plan (**S&W-1, S&W-2**), to reflect the final design, construction and operation of the ZLD system. New condition (**S&W-8**) requires that prior to operation of the ZLD system, the project owner is to have a contract or agreement in place with the appropriate approving agency for wastewater discharge during ZLD system upset or maintenance periods.
- Waste Management – Management of the wastes generated during construction and operation of the ZLD project will not result in any significant adverse impacts if waste management measures proposed in the amendment, existing conditions of certification for the GEC project and the proposed condition of certification (**Waste-4**) are implemented. Waste-4 requires the project owner test the ZLD filter cake to determine if it is hazardous. Test results must be reported to the Commission along with the planned disposal method.

## **Staff Conclusion And Recommendation**

Staff concludes that the following required findings mandated by Title 20, section 1769(a) (3) of the California Code of Regulations can be made and will recommend approval of the petition to the Energy Commission:

- A. There will be no new or additional unmitigated significant environmental impacts associated with the proposed changes.
- B. The facility will remain in compliance with all applicable laws, ordinances, regulations, and standards.
- C. The change will be beneficial to the public, applicant, or interveners. In this case, the amendment will be of benefit to both the project owner and the public by reducing fresh water usage for plant cooling and reducing the waste stream to the treatment center.
- D. The project modification was a post-certification business decision based on new information not available during the siting process.

The staff analysis is attached for your information and review along with an Information Request Form. Energy Commission staff intends to recommend approval of the petition at the May 28, 2003 Business Meeting of the California Energy Commission.

If you have comments on this proposed project change, please submit them to me at the address above prior to May 26, 2003. If you have any questions, please call me at (916) 654-4745 or e-mail me at [dstone@energy.state.ca.us](mailto:dstone@energy.state.ca.us).

Attachments



**Gilroy Energy Center (01-EP-8C)  
Amendment to Construct a  
Zero Liquid Discharge System (dated November 7, 2002)  
BIOLOGICAL RESOURCES  
Prepared by Stuart Itoga**

## **Setting**

Calpine submitted an amendment for proposed construction of a ZLD (zero liquid discharge) facility at the Gilroy City LM6000 Phase I Project (GEC). Staff's concern with construction of the ZLD unit are potential noise impacts to the least Bell's vireo (*Vireo belii pusillus*, federally endangered, state species of concern) and that construction activities could physically harm the western pond turtle (*Clemmys marmorata*, federal and state species of concern).

A search of the NDDDB conducted for the original project resulted in one documented (1997) occurrence of the vireo in the project area. Because noise levels in excess of 60 dB can interfere with the vireo's territorial behavior, Calpine was required to conduct surveys for presence/absence of the vireo before construction could begin. Results of the surveys were negative, however, after construction of the power plant was completed (with out ZLD) in 2001, a pair of vireos successfully nested in the Llagas Creek corridor. Furthermore, while conducting surveys for the GEC, Eric Htain (Designated Biologist) observed two, adult western pond turtles in Llagas Creek, approximately 1000 feet south of the GEC site.

## **Applicable Laws, Ordinances And Regulations And Standards (LORS)**

### **Laws, Ordinances, Regulation and Standards**

The applicant must abide by the following laws, ordinances, regulations, and standards during project construction and operation.

#### **FEDERAL**

- **Endangered Species Act of 1973**

Title 16, United States Code, section 1531 et seq., and Title 50, code of Federal Regulations, part 17.1 et seq., designate and provide for protection of threatened and endangered plant and animal species, and their critical habitat.

#### **STATE**

- **California Endangered Species Act of 1984**

Fish and Game Code sections 2050 et seq. protect California's rare, threatened, and endangered species.

## **Analysis**

Construction of the ZLD facility was proposed in November 2002, after the GEC was constructed, and after vireos successfully nested in the Llagas creek corridor. The fact that vireos nested in Llagas Creek after Calpine completed surveys seems to indicate

that the Llagas Creek corridor provides habitat suitable for the vireo and that vireos are sometimes present in the corridor. Staff is concerned that noise disturbance associated with construction of the proposed ZLD facility would adversely impact any vireos nesting, or attempting to nest, in the proposed project area.

While conducting sensitive species surveys for the GEC Phase I, Eric Htain observed two, adult western pond turtles in Llagas Creek, approximately 1000 feet south of the GEC site. Presence of the turtles reported by Eric Htain indicates that Llagas Creek, in the vicinity of the proposed project, does support the western pond turtle. Staff is concerned that western pond turtles utilizing habitat in Llagas Creek could be adversely impacted by activities associated with construction of the proposed ZLD unit.

For construction of the proposed ZLD unit, Calpine will abide by the same Biological Resource Conditions of Certification required for the Gilroy City LM6000 Project. Two additional Biological Resource Conditions of Certification, **BIO-11**, and **BIO-12** have been proposed in the Mitigation Measures and Conditions section below.

### **Conclusions And Recommendations**

Applicant indicated in a March 10, 2003 submittal that, to avoid potential impacts to the least Bell's vireo, construction of the ZLD facility would begin on August 1, 2003. It is staff's opinion that construction timing proposed by applicant would likely mitigate potential impacts to the vireo to levels less than significant.

To protect western pond turtles in Llagas Creek from construction related activities, Calpine proposed 450 feet of exclusionary fencing along Llagas Creek. Exclusionary fencing will be located on the eastern edge of a road that traverses the area between Llagas Creek and the GEC. In a March 18, 2003 email submittal, Eric Htain submitted the locations for the proposed exclusionary fencing along Llagas Creek. It is staff's opinion that the proposed exclusionary fencing would likely mitigate potential impacts to western pond turtles in the proposed project area to levels less than significant.

Staff concludes that because construction of the proposed ZLD would not begin until August 1, 2003, noise associated with construction activities proposed by Calpine are not likely to adversely impact the vireo during the breeding/nesting season (May-July). In addition, the location of the proposed exclusionary fencing would likely be sufficient to exclude western pond turtles in Llagas Creek from proposed ZLD construction areas. New Conditions of Certification (**BIO-11**, **BIO-12**) will insure protection of the western pond turtle and least Bell's vireo.

### **Mitigation Measures And Conditions**

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**BIO-11** To protect western pond turtles, utilizing Llagas Creek, from activities associated with construction of the proposed ZLD facility, the project owner shall install 450 feet of exclusionary fencing along the eastern edge of the road that traverses the area between the GEC and Llagas Creek, as proposed by Eric Htain in the March 18, 2003 email submittal.

**Verification** : At least 10 days prior to the start of ZLD construction, the project biologist shall submit to the CPM photo documentation that the exclusionary fencing has been installed.

**BIO-12** To avoid impacts to the least Bell's vireo, the project owner shall avoid construction of the ZLD facility during the breeding/nesting season (May-July).

**Verification** : At least 30 days prior to the start of ZLD construction, the project owner shall submit to the CPM the schedule (including the exact date for the start of ground disturbing activities) for construction of the ZLD facility.

**Gilroy Energy Center (01-EP-8C)**  
**Amendment to Construct a**  
**Zero Liquid Discharge System (dated November 7, 2002)**  
**CULTURAL RESOURCES**  
**Prepared by Dorothy Torres**

**Setting**

This request involves the cultural resources technical area because the construction of the proposed zero liquid discharge (ZLD) unit would occur in an area sensitive for archaeological and historical resources. The unit would be placed within the boundaries of the previously permitted Gilroy Energy Center (GEC) Phase I Project site.

**Applicable Laws, Ordinances And Regulations And Standards (LORS)**

California Code of Regulations, Title 14, section 4852 defines the term "cultural resource" to include buildings, sites, structures, objects, and historic districts.

- Public Resources Code, Section 5000 establishes a California Register of Historic Places; determines significance of and defines eligible resources. It identifies any unauthorized removal or destruction of historic resources on sites located on public land as a misdemeanor. It also prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn and establishes the penalty for possession of such artifacts with intent to sell or vandalize them as a felony. This section defines procedures for the notification of discovery of Native American artifacts or remains, and; states that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated.
- The California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.; Title 14, California Code of Regulations, section 15000 et seq.) requires analysis of potential environmental impacts of proposed projects and requires application of feasible mitigation measures.
- Public Resources Code section 21083.2 states that the lead agency determines whether a project may have a significant effect on "unique" archaeological resources; if so, an EIR shall address these resources. If a potential for damage to unique archaeological resources can be demonstrated, the lead agency may require reasonable steps to preserve the resource in place. Otherwise, mitigation measures shall be required as prescribed in this section. The section discusses excavation as mitigation; limits the Applicant's cost of mitigation; sets time frames for excavation; defines "unique and non-unique archaeological resources;" and provides for mitigation of unexpected resources.
- Public Resources Code section 21084.1 indicates that a project may have a significant effect on the environment if it causes a substantial adverse change in the significance of a historic resource; the section further defines a "historic resource" and describes what constitutes a "significant" historic resource.
- CEQA Guidelines, Title 14, California Code of Regulations, section 15126.4(b), prescribes the manner of maintenance, repair, stabilization, restoration,

conservation, or reconstruction as mitigation of a project's impact on a historical resource; discusses documentation as a mitigation measure; and discusses mitigation through avoidance of damaging effects on any historical resource of an archaeological nature, preferably by preservation in place, or by data recovery through excavation if avoidance or preservation in place is not feasible. Data recovery must be conducted in accordance with an adopted data recovery plan.

- CEQA Guidelines, section 15064.5 defines the term "historical resources," explains when a project may have a significant effect on historic resources, describes CEQA's applicability to archaeological sites, and specifies the relationship between "historical resources" and "unique archaeological resources."
- Penal Code, section 622 1/2 states that anyone who willfully damages an object or thing of archaeological or historic interest is guilty of a misdemeanor.

California Health and Safety Code, section 7050.5 states that if human remains are discovered during construction, the project owner is required to contact the county coroner.

## **Analysis**

The area proposed for the ZLD has been previously disturbed by agriculture, has served as a parking lot and has been subject to surface surveys that resulted in no cultural resources being identified (Amendment Doc p.3-3). However, during the excavation and trenching for GEC Phase I, a variety of cultural resources were identified.

Memos written July 11, 2001 and August 15, 2001, by Doug Davy, the Cultural Resources Specialist for the project, identified the following: historic-era domesticated animal bone; separate finds of the bones of three horses; and charcoal and reddish soil that may or may not be adobe brick. In addition, prehistoric artifacts or possible artifacts found at the site include a cylindrical pestle, 2 rounded cobbles and possible manos, and pieces of chert. Marine shells and a human tooth were also found. The memo dated July 11, 2001, states that the prehistoric finds may indicate that a concentrated prehistoric deposit is located in the vicinity or that the finds may be isolated artifacts deposited by Llagas Creek.

Although no cultural resources were observed on the surface of the project site, excavation for the ZLD may extend to 15 feet below the surface (Amendment Doc p. 3-50) and subsurface cultural resources may be encountered. Natural levees are frequently a preferred location for Native American habitation sites. The site is situated on natural levee deposits (Amendment Doc p. 3-49) and has been referenced in several memos by Dr. Davy as a historic farm site.

## **Conclusions And Recommendations**

Several different types of cultural material were unearthed during ground disturbance for GEC Phase I. From memos regarding these discoveries, it appears that it is not yet

possible to draw conclusions from the limited information obtained from project trenching and excavation.

Staff recommends that the proposed ZLD change to the Gilroy Energy Center Phase I project be approved with the following modifications to the previously adopted conditions of certification.

### **Mitigation Measures And Conditions**

Staff has received Department of Parks and Recreation (DPR 523) forms for previous cultural resources encountered during work for GEC Phase I. At present, the level of information is not sufficient for staff to either concur or disagree with the findings of the DPR 523. Staff has requested that the GEC CRS provide additional information be added to the form. As of May 5, 2003, no response has been received.

Because the information previously provided on the DPR 523 forms was not sufficient, staff was not able to make a determination of eligibility regarding the project site, including the proposed ZLD location. This being the case, staff recommends **Cul-4** which requires a treatment plan be developed and approved prior to the start of ground disturbance related to the construction of the ZLD unit (see amended condition below). In addition, due to the high potential for discovery of cultural resources associated with the ZLD unit and previous finds in the GEC site area, staff recommends condition **Cul-2** and **Cul-3** (see amended condition below) which requires specific monitoring to ensure cultural resources are properly accounted for and treated.

In addition to the above reference conditions, other cultural resources conditions of certification, adopted previously as part of the Commission Decision on the GEC Phase I project and a Gas Pipeline Amendment, also must be complied with for construction of the ZLD unit. These conditions are identified below as previously approved conditions.

### **Previously Approved Conditions Of Certification**

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**Cul-2** The project has been determined to have the potential to adversely affect significant cultural resources and the project owner shall ensure the completion of the following action/activities:

1. Provide a cultural specialist who will have access to the site and linear rights of way at any time prior to and during ground disturbance.
2. The cultural specialist will provide training to appropriate construction personnel at the site, will install avoidance measures (as necessary), and will be present during appropriate ground disturbing activities. The cultural specialist has the authority to halt construction at a location if a cultural resource is found or if a previously identified resource is affected in an unanticipated manner. If resources are discovered and the cultural specialist is not present, the project owner will halt construction at that location and will contact the specialist immediately. The cultural specialist will consult with the

CPM and a decision will be made by the CPM within 24-hours as to how to proceed.

3. The project owner shall allow time for the cultural specialist to recover significant resource finds, and pay all fees necessary to curate recovered significant resources.
4. The Cultural Resource Monitor(s) shall keep a log of daily monitoring activities and the daily logs shall be available for audit by the CPM.

**Cul-3** The project has been determined to have the potential to adversely affect significant cultural resources and the project owner shall ensure the completion of the following actions/activities:

1. Provide a qualified Native American monitor who will have access to the site and linear rights-of-way at any time prior to and during ground disturbance.
2. The Native American monitor has the authority to halt construction at a location if a significant cultural resource is found. ~~If resources are discovered and the Native American monitor is not present, the project owner will halt construction at that location and will contact the Native American monitor immediately.~~ The Native American monitor will consult with the CPM and a decision will be made by the CPM within 24-hours as to how to proceed.
3. The project owner shall allow time for the cultural specialist to recover significant resource finds, and pay all fees necessary to curate recovered significant resources.

**Verification:** Throughout construction, the project owner shall inform the CPM concerning any substantive activity related to items 1 through 3 above. Should curation be necessary, the project owner informs the CPM as to how and where the resources were curated, as appropriate.

**Cul-4**—~~Prior to ground disturbance for excavation of any aspect of the proposed gas line project, the project owner shall ensure that cultural resource specialist (CRS) prepares a treatment plan including a thorough statement of proposed mitigation for this potentially eligible site and a focused historic research design and testing plan relevant to the constituents already identified in the multiple loci of GEC site. The treatment plan shall provide recommendations for avoidance. In the event avoidance is not possible, t~~The treatment plan shall provide recommendations for mitigation of impacts to Native American burials, should they be discovered. ~~The test trench and a~~All ground disturbing activities shall be monitored, full time, by the CRS or the Cultural Resource Monitor(s) and Native American monitor(s).

**Verification:** At least 10 days prior to start of ground disturbance, ~~or as agreed by the CPM,~~ the project owner shall provide a treatment plan including a focused research design to the CPM for review and ~~written~~ approval.

**Gilroy Energy Center (01-EP-8C)  
Amendment to Construct a  
Zero Liquid Discharge System (dated November 7, 2002)  
SOIL & WATER RESOURCES  
Prepared by Mike Krolak**

**Setting and Proposed Modification**

The Gilroy Energy Center, LLC proposes to install a Zero Liquid Discharge (ZLD) system as a method of wastewater disposal for the Gilroy City LM6000 Phase 1 Project (GEC). The amendment calls for the construction of a brine crystallizer and filter press wastewater treatment system (WWTS), as well as associated on-site linears required to operate the ZLD system and convey process wastewater from, and distillate to, the GEC project.

The original disposal method licensed by the Energy Commission allowed process wastewater and sanitary waste to be discharged to the City of Gilroy sewer that connects to the nearby South County Regional Wastewater Authority (SCRWA) wastewater treatment facility. SCRWA issued a Property Improvement Agreement dated November 15, 2001, approximately six months after the GEC Phase 1 Project was licensed by the Energy Commission. This agreement "grant[ed] and allocat[ed] to GEC the right to discharge effluent wastewater from the Plant... for a period of exactly two (2) years following the date of such payment." A copy of this agreement was submitted to the Energy Commission as required by Condition of Certification SOIL & WATER-5.

The amendment will decrease the amount of fresh water pumped by GEC wells. The GEC was originally licensed to pump up to 462 gallons per minute (gpm) of fresh water from their wells; this amendment will reduce the required amount to approximately 319 gpm at peak and 179 gpm on an average annual basis. The GEC project is in the process of securing a supply of reclaimed water from SCRWA to be used for process needs, which will not be affected by this amendment.

The distillate reclaimed by the ZLD system will be sent to an existing demineralized water storage tank to be reused for all GEC needs except for cooling tower make-up. This includes uses such as NO<sub>x</sub> emission control.

Rainfall occurring within the bermed area would be routed to a lined concrete sump. This water would then be sent to the ZLD system for processing. In the event of a spill or other contamination hazard within the bermed area, the water would be analyzed in the sump to determine whether the water would be routed to the ZLD system or if the chemical composition requires transport off-site for disposal.

Construction of the ZLD system would eliminate the discharge of 70 gpm of process wastewater to the City of Gilroy sewer system. However, during upset or maintenance periods, the project would require a backup plan for wastewater disposal. The primary alternative would be to dispose of project wastewater via the previously licensed

method, to the City of Gilroy sewer system. The secondary alternative would be to direct wastewater to the storage tank until normal operations could be resumed.

Solid waste disposal resulting from the ZLD system would be disposed of at an appropriately licensed facility. For more information and requirements regarding solid wastes, please refer to the **Waste Management** section of this document.

## **Applicable Laws, Ordinances And Regulations And Standards (LORS)**

### **FEDERAL**

#### ***Clean Water Act***

The Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States.

The Clean Water Act requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. These discharges are regulated by the National Pollutant Discharge Elimination System (NPDES). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The local Regional Water Quality Control Board regulates NPDES permits for cooling water, construction and operational stormwater discharges, and other wastewater discharges for this project.

### **Analysis**

The ZLD amendment would reduce the amount of water required by the GEC project. The project was originally licensed requiring a maximum of 462 gpm of fresh water at peak operation; this amount would drop to approximately 319 gpm at peak, with the annual average water consumption around 179 gpm. Staff finds that the reduction of water use proposed by the amendment will not result in significant adverse impacts.

Disposal of process wastewater to SCRWA under upset or maintenance conditions would require approval by the SCRWA, since disposal of such waste streams could occur beyond the two-year period where GEC discharge to sewers is approved by SCRWA. Documentation verifying acceptance of waste streams must be obtained by the applicant prior to utilizing that method of discharge. This documentation will verify that discharge from the GEC would be incorporated under the NPDES permit for the SCRWA facility.

Secondary alternatives include directing wastewater to the storage tank until ZLD system function is restored. The storage tank is capable of storing approximately six days of wastewater during average operating conditions and approximately 3.6 days of wastewater during peak operation conditions. As stated above, staff would require proof of approval for wastewater disposal options prior to operation.

Accelerated wind and water-induced erosion may result from earthmoving activities associated with construction of the proposed project. Activities that expose and disturb

the soil leave soil particles vulnerable to detachment by wind and water, which can eventually become a threat to water quality.

NPDES Stormwater regulations require that a Storm Water Pollution Prevention Plan (SWPPP) be developed for all sites larger than five acres. While the ZLD treatment system proposed by this amendment is approximately two acres, it is part of a larger development that triggers the SWPPP requirements. The GEC project has already been required to develop a SWPPP and a Drainage, Erosion and Sedimentation Control Plan to address these concerns; however, the ZLD system was not included in the original plans. Staff recommends revisions to these plans to address the inclusion of the ZLD facility at the GEC site.

## **Conclusions and Recommendations**

The Storm Water Pollution Prevention Plans (SWPPP), and the Erosion and Sedimentation Control Plan should be revised to reflect the final design, construction and operation. Revised Conditions of Certification **SOIL & WATER-1 and 2** will address this issue by incorporating the ZLD system into the existing requirements for these plans.

The amendment states that GEC and SCRWA have agreed on the concept of SCRWA accepting wastewater discharge during upset or maintenance periods. However, staff requires written proof of this agreement to ensure that no laws, ordinances, regulations or standards are violated during operation of this facility. Revised New Condition of Certification **SOIL & WATER-8** addresses this issue.

Staff supports the proposed amendment and believes no significant unmitigated impacts will occur if the recommended revisions and Conditions of Certification are adopted.

## **Mitigation Measures And Conditions Of Certification**

### **Revised Conditions Of Certification**

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**SOIL&WATER-1:** Prior to ~~ground disturbance~~ beginning any site mobilization activities associated with the ZLD project modification, the project owner shall obtain CPM approval of a Storm Water Pollution Prevention Plans (SWPPP) as required under the NPDES General Storm Water Construction Activity Permit and the General Storm Water Industrial Activity Permit ~~for the project~~.

**Verification:** No later than 30 days prior to the start of site mobilization activities associated with the ZLD modification, and 30 days prior to operation of the ZLD system the project owner will shall submit a copy copies of the new or revised Storm Water Pollution Prevention Plans required under the General NPDES Permits for both construction and operation phases of the project to the CPM for review and approval. The SWPPPs shall include copies of any the revised plans as

accepted by the RWQCB. The SWPPPs shall be provided to Santa Clara County for review and comment. Approval of the SWPPP by the CPM for construction must be received prior to site mobilization for the ZLD modification, and approval of the SWPPP by the CPM must be received prior to operation of the ZLD system.

**SOIL&WATER-2:** No later than 30 days prior to the start of site mobilization activities associated with the ZLD modification ~~ground disturbance~~, the project owner shall obtain CPM approval of an for an Erosion Prevention and Sedimentation Control Plan that addresses all elements of the project.

**Verification:** No later than 30 days prior to the start of any site mobilization for the ZLD modification, the project owner shall submit an ~~The Erosion Control and Storm Water Management~~ Sedimentation Control Plan for the project that includes all the ZLD modification ~~shall be submitted~~ to the CPM for review and approval. This plan should include any revegetation efforts to be undertaken.

### **New Condition Of Certification**

**SOIL & WATER-8:** Prior to operation of the ZLD system, the project owner shall submit to the CPM a copy of a valid permit or agreement from the appropriate approving agency for wastewater discharge during ZLD system upset or maintenance periods. If this permit or agreement cannot be obtained, the project owner must provide a CPM approved backup plan for wastewater discharge during ZLD system upset or maintenance periods.

**Verification:** The CPM must receive a copy of the final permit or agreement for handling wastewater during ZLD periods of upset or maintenance, or approve a backup plan no later than thirty days prior to operation of the ZLD system. Without such an approved plan, the facility shall shut down during system upset or maintenance.

**Gilroy Energy Center (01-EP-8C)**  
**Amendment to Construct a**  
**Zero Liquid Discharge System (dated November 7, 2002)**  
**WASTE MANAGEMENT**  
**Prepared by Ramesh Sundareswaran**

## **Setting**

Gilroy Energy Center (GEC) LLC proposes to construct and operate a ( Zero Liquid Discharge ) ZLD wastewater system for the GEC project. The ZLD system, through reclamation, would enable GEC LLC to utilize generated wastewater as a beneficial resource thereby eliminating GEC's process wastewater stream entirely. Wastewater reclamation was not proposed or known during the certification proceedings and therefore constitutes a modification to the aforementioned project (GEC Project 2002a).

It is GEC LLC's contention that:

- The Amendment would not significantly restructure or subtend the conclusion arrived in the Commission's Decision for the GEC project regarding waste management.
- The management of the ZLD generated wastes will be in compliance with all applicable laws, ordinances, regulations, and standards (LORS). Compliance with LORS ensures that wastes generated during the construction and operation of the proposed ZLD project will be managed in an environmentally safe manner; and
- The disposal of ZLD wastes will not result in significant adverse impacts to existing offsite waste disposal facilities.
- A change or deletion of a prior waste management condition of certification is unwarranted.

The proposal to reclaim GEC's process wastewater was unknown during CEC's licensing proceedings for the GEC project. Hence, any waste issues related to the reclamation were not addressed during the certification process. All ZLD generated wastes constitute new potential issues and require technical analyses.

## **Project Description**

The ZLD project, as proposed, would be located on two acres at 1400 Pacheco Pass Highway in the City of Gilroy, Santa Clara County, California. The parcel is bounded by Highway 152 to the north, an access road and Llagas Creek to the east, Calpine Gilroy Co-Gen and the GEC project to the south and Gilroy Foods to the west. The project site is currently used for industrial purposes and is highly disturbed. Surrounding properties are primarily industrial, agricultural and open space.

According to GEC, the ZLD project is intended to reclaim the process wastewater from the GEC project and any precipitation that collects within the ZLD bermed area. Any spills or releases that occur within the ZLD bermed area will be selectively treated by the ZLD system only following appropriate chemical analysis. The wastewater from the GEC project is anticipated to consist of cooling tower blow down, reverse osmosis reject, or plant washdown water. The wastewater will initially be stored in a 320,000-gallon

capacity above ground tank located next to the ZLD system. A crystallizer will then be used to concentrate the wastewater. Two streams are anticipated from the crystallization process; the distillate and the blowdown. The distillate will be reused in the GEC project. The blowdown will be directed to a filter press where residual water will be recovered and forwarded to the crystallizer for reprocessing. The resulting filter cake (approximately 252 tons/yr.), consisting approximately of 85% solids and 15% moisture, will be collected for testing and offsite disposal.

## **Applicable Laws, Ordinances And Regulations And Standards (LORS)**

### **FEDERAL**

#### **Resource Conservation And Recovery Act (42 U.S.C. § 6922)**

RCRA establishes a "cradle-to-grave" system governing hazardous wastes from the point of generation to ultimate treatment or disposal. Section 6922 requires generators of hazardous waste to comply with requirements regarding:

- Record keeping practices which identify quantities of hazardous wastes generated and their disposition,
- Labeling practices and use of appropriate containers,
- Use of a manifest system for transportation, and
- Submission of periodic reports to the EPA or authorized state.

#### **Title 40, Code of Federal Regulations, part 260**

These sections contain regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

### **STATE**

#### **California Health and Safety Code §25100 et seq. (hazardous waste control act of 1972, as amended)**

This act creates the framework under which hazardous wastes must be managed in California. It mandates the State Department of Health Services (now the Department of Toxic Substances Control (DTSC) under the California Environmental Protection Agency, or Cal EPA) to develop and publish a list of hazardous and extremely hazardous wastes, and to develop and adopt criteria and guidelines for the identification of such wastes. It also requires hazardous waste generators to file notification statements with Cal EPA and creates a manifest system to be used when transporting such wastes.

#### **Title 14, California Code of Regulations, §17200 et seq. (Minimum Standards for Solid Waste Handling and Disposal)**

These regulations set forth minimum standards for solid waste handling and disposal, guidelines to ensure conformance of solid waste facilities with county solid waste management plans, as well as enforcement and administration provisions.

## **Title 22, California Code of Regulations, §66262.10 et seq. (Generator Standards)**

These sections establish requirements for generators of hazardous waste. Under these sections, waste generators must determine if their wastes are hazardous according to either specified characteristics or lists of wastes. As in the federal program, hazardous waste generators must obtain EPA identification numbers, prepare manifests before transporting the waste off-site, and use only permitted treatment, storage, and disposal facilities. Additionally, hazardous waste must only be handled by registered hazardous waste transporters. Generator requirements for record keeping, reporting, packaging, and labeling are also established.

## **Title 22, California Code of Regulations, §67100.1 et seq. (Hazardous Waste Source Reduction and Management Review)**

These sections establish reporting requirements for generators of certain hazardous and extremely hazardous wastes in excess of specified limits. The required reports must indicate the generator's waste management plans and performance over the reporting period.

### **LOCAL**

The City of Gilroy is designated as a Certified Unified Program Authority by the State of California to administer and enforce several state hazardous materials regulatory programs. The City's Hazardous Materials Ordinance Code 98-10 contains provisions for the designation and disclosure of hazardous materials including hazardous waste. The City also has the responsibility for administration and enforcement of the California Integrated Waste Management Act for non-hazardous solid waste at the proposed energy center.

## **Analysis**

### **Project-Specific Impacts**

#### **Construction**

Site preparation and construction of the proposed ZLD plant can be expected to generate both non-hazardous and hazardous wastes.

#### **Non-hazardous Wastes**

Typical non-hazardous solid wastes that can be anticipated to be generated during construction can consist of, but not limited to, excess concrete, lumber, scrap metal, insulation, packaging materials, empty non-hazardous chemical containers, paper, glass, plastics and some amount of vegetation debris from grading activities. Recyclable material will need to be segregated and recycled where practical. Non-recyclable wastes will be collected and integrated with GEC's solid waste stream and disposed of in a Class III landfill. In addition, any soils collected during the site excavating and grading process that prove to be unsuitable for backfill will need to be disposed of in a Class III landfill.

Non-hazardous liquid wastes can be anticipated to be generated during construction, and are discussed in the **Soils and Water Resources** section of this document. Storm water

runoff will be managed through the application of National Pollutant Discharge Elimination System (NPDES) construction permit requirements and applicable Best Management Practices.

### Hazardous Wastes

Hazardous wastes anticipated to be generated during construction may include diesel oil, spent welding materials, waste paint, spent lubricants and spent solvents. Small quantities of these materials can be expected to be generated given the size and scope of the ZLD project. All wastes will need to be properly manifested, transported and disposed off in accordance with all applicable LORS.

### Operation

The proposed ZLD system will generate both non-hazardous and hazardous wastes in solid and liquid forms under normal operating conditions.

### Non-hazardous Solid Wastes

Non-hazardous solid wastes anticipated to be generated during operation include maintenance wastes. These wastes will need to be recycled where practical. Non-recyclable wastes will be merged with GEC's non-recyclable wastes and regularly transported offsite to a Class III disposal facility.

### **ZERO LIQUID DISCHARGE SYSTEM**

Approximately 252 tons of solid waste (filter cake) from the Zero Liquid Discharge (ZLD) crystallizer will be generated annually (GEC Project 2002a).

GEC LLC anticipates that the cake would likely be a non-hazardous waste based on existing water quality data, ZLD System utilized materials and the Applicant's previous experience with such ZLD systems. To supplement the aforementioned observation, GEC has indicated that the filter cake will undergo chemical analyses to provide sufficient proof so as to adequately classify the cake (GEC Project 2002a and 2002b). Should the filter cake be deemed non-hazardous, it is highly likely that the cake could be characterized as a California designated waste due to its potentially high salt content. Solids, derived from the process wastewater and any collected precipitation, dried water conditioning and treatment chemicals and impurities will inherently contribute to the salt content of the cake. This category of designated waste includes non-hazardous waste that contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that could exceed applicable water quality objectives or affect the beneficial uses of water of the state (Cal. Code Regs., tit. 27, § 20210). Designated wastes are required to be disposed of at Class I or II disposal sites. Additionally, in other similar applications, it has been shown to be a saleable product. In order to ensure proper and adequate characterization and disposal of the salt cake, staff proposes new Condition of Certification **WASTE-4**.

Secondary materials (such as the effluent) that are reclaimed and returned in a closed system to the original process in which they were generated where they are reused (in this case, as plant process water) are exempt from management as hazardous wastes (Cal. Code Regs., tit. 22, § 66261.4(a)(5)(A)). Thus, because the effluent would be recycled in a closed system, it would not require hazardous waste testing nor would a permit be required from DTSC.

### Non-hazardous Liquid Wastes

Non-hazardous liquid wastes will be generated during facility operation, and are discussed in the **Soil and Water Resources** section of this document. A zero liquid discharge treatment system is proposed for this facility to treat and reuse all process wastewaters.

### Hazardous Wastes

Hazardous wastes anticipated to be generated during routine project operation include waste oil, oily rags, spill absorbents and used chemical cleaning solutions. These wastes will need to be accumulated by the Applicant and analyzed for hazardous characteristics, then appropriately disposed of by the Applicant.

Overall, given the size and scale of the ZLD system small quantities of hazardous waste can be expected.

## **Impact on Existing Waste Disposal Facilities**

### Non-hazardous Solid Wastes

The volume of solid non-hazardous waste from the ZLD project requiring off-site disposal would be a small fraction of the existing capacity of available Class III landfills, and would not significantly impact the capacity or remaining life of these facilities.

Similarly, any disposal of the ZLD filter cake at a Class I or II landfill would not have any significant impacts on these landfills, given their capacities and existing operational lives.

### Hazardous Wastes

Most of the hazardous waste generated by the ZLD project can be anticipated to be minimal in volume. All hazardous wastes generated would need to be transported offsite to a permitted TSD facility for appropriate disposition, preferably recycling. The volume of hazardous waste from the project requiring off-site disposal would be a very small fraction of the existing capacity of Class I landfills, and would not significantly impact the capacity or remaining life of these facilities.

## **Cumulative Impacts**

As proposed, the quantities of non-hazardous and hazardous wastes generated during construction and operation of the ZLD project will add to the total quantities of waste generated in the City of Gilroy and the State of California. Overall, because the wastes will be generated in minimal quantities, recycling efforts will be prioritized wherever practical, and capacity is available in a variety of treatment and disposal facilities, these added waste quantities generated by ZLD project will not result in significant cumulative waste management impacts.

## **Conclusions And Recommendations**

Energy Commission staff concludes that the ZLD project will be able to comply with all applicable LORS regulating the management of hazardous and non-hazardous wastes during ZLD system construction and operation. The applicant is required to dispose of hazardous and non-hazardous wastes at facilities approved by the various departments

within the California Environmental Protection Agency (CalEPA). GEC will be required to properly store, package and label waste, use only approved transporters, prepare hazardous waste manifests, keep detailed records, and appropriately train employees. Pursuant to California Code of Regulations, Title 22, section 67100.1 et seq., a hazardous waste Source Reduction and Evaluation Review and Plan must be prepared by GEC.

The ZLD project is merely a modification to the GEC project and as such, would not significantly alter the Commission's decision for the GEC project. Management of the wastes generated during construction and operation of the ZLD project will not result in any significant adverse impacts if the waste management measures proposed in the Amendment, existing conditions of certification for the GEC project and the proposed condition of certification (**Waste-4**) are implemented per the pertinent LORS.

### **Mitigation Measures And Conditions**

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**WASTE-4** The project owner shall determine if the ZLD filter cake is hazardous or non-hazardous pursuant to sections 66261.3 and 66262.11 of Title 22 of the California Code of Regulations (CCR). Testing of representative samples of the cake shall incorporate the methods set forth in Chapter 11, Division 4.5, Title 22 CCR. If deemed non-hazardous, then future sampling and testing is not required unless there is a substantial change in the wastewater treatment process or due to cross-contamination between materials and/or processes. The project owner shall manage the filter cake product appropriately as a designated waste if the cake is determined to be a non-hazardous waste, unless determined otherwise.

**Verification:** No later than 30 days after the initial generation of the filter cake, the project owner shall notify the CPM of the test results and the planned disposal method.

### **References**

GEC Project 2002a. Amendment to Gilroy City LM6000 Phase I project dated November 7, 2002

GEC Project 2002b. Response to staff's Data Request of November 26, 2002.