

THE BOARD OF SUPERVISORS OF THE COUNTY OF STANISLAUS  
ACTION AGENDA SUMMARY

DEPT: Department of Environmental Resources

BOARD AGENDA # \*B-6

Urgent

Routine

AGENDA DATE July 29, 2008

CEO Concurs with Recommendation YES  NO

(Information Attached)

4/5 Vote Required YES  NO

SUBJECT:

Approval to Apply for a U.S. Environmental Protection Agency Grant for Sustainability and Greenhouse Gas Management Projects for the Geer Road Landfill

STAFF RECOMMENDATIONS:

Authorize the Director of the Department of Environmental Resources, or her designee, to apply for a U.S. Environmental Protection Agency Grant for Sustainability and Greenhouse Gas Management Projects for the Geer Road Landfill.

FISCAL IMPACT:

This grant will provide one-time funding of up to \$90,000 to the Department of Environmental Resources' Landfill Enterprise Fund for expenses to incorporate a Net Environmental Benefit (NEB) evaluation into an Engineering Feasibility Study (EFS) to be conducted at the Geer Road Landfill. There is no local match requirement for this Federal grant.

BOARD ACTION AS FOLLOWS:

No. 2008-554

On motion of Supervisor Grover, Seconded by Supervisor DeMartini  
and approved by the following vote,

Ayes: Supervisors: O'Brien, Grover, Monteith, DeMartini and Chairman Mayfield

Noes: Supervisors: None

Excused or Absent: Supervisors: None

Abstaining: Supervisor: None

1) X Approved as recommended

2) \_\_\_\_\_ Denied

3) \_\_\_\_\_ Approved as amended

4) \_\_\_\_\_ Other:

MOTION:



ATTEST: CHRISTINE FERRARO TALLMAN, Clerk

File No.

Approval to Apply for a U.S. Environmental Protection Agency Grant for Sustainability and Greenhouse Gas Management Projects for the Geer Road Landfill

Page 2

DISCUSSION:

The U.S. Environmental Protection Agency (EPA) recently announced the availability of \$6 million in funds for advance energy efficiency and clean energy programming and policies, including greenhouse gas management. EPA anticipates awarding one to ten grants from this announcement, ranging in value of \$40,000 to \$90,000. It is possible that these can even be annual awards. Eligible projects are to address research, investigation, experiments, demonstrations, surveys, training, outreach and studies. Proposals should emphasize “learning” concepts rather than “fixing” environmental problems.

Grants will be made to assist states, local governments and international organizations among others that want to create lasting change in the market for energy efficient and clean generation products, services, and best practices in the following types of areas:

- Improving quantification and management of greenhouse gas emissions, reduction, and energy use across the lifecycle of products; and
- Providing information and technical support on greenhouse gas management in the public and private sectors.

The applicability of this grant opportunity to Stanislaus County is in reference to the Geer Road Landfill. In the application, the County will propose to evaluate both the groundwater and landfill gas controls and mitigation in terms of net environmental benefit, rather than focusing on only groundwater, as it has historically. The benefit of including landfill gas is that these two systems are linked because landfill gas can contribute to groundwater impacts. Given that the grants are intended for greenhouse gas management and that landfill gas is a high profile source of greenhouse gases, the application has a competitive chance at receiving funding.

Specifically, this application will propose to:

- Incorporate a unique Net Environmental Benefit (NEB) evaluation into an Engineering Feasibility Study (EFS) for the Geer Road Landfill. The EFS will consider all available technologies for mitigating volatile organic compounds in groundwater including landfill gas controls, physical groundwater barriers and controls, in-situ treatment, pump and treat alternatives, clean-closure, monitored natural attenuation, and will apply the NEB evaluation to all potential mitigation alternatives;
- Develop a model for the NEB approach that can be applied to other sites and mitigation projects; and
- Publish the NEB approach and model so it can be applied, as appropriate, industry-wide.

The secondary (indirect) objective of the proposal is to have the NEB model accepted by regulators and industry resulting in selection of environmental mitigation projects that are both effective for site specific mitigation needs and result in net benefit to the environment. A more thorough description of the Work Plan for this grant application is included as Attachment “A.”

Approval to Apply for a U.S. Environmental Protection Agency Grant for Sustainability and Greenhouse Gas Management Projects for the Geer Road Landfill

Page 3

Matching funds are not required in this grant and there are no specific project completion dates although a one-year project from March 2009 – February 2010 is being proposed. Throughout the project, quarterly reports would be required as well as a final report at project completion. EPA anticipates that notification to successful applicants will be made by October 1, 2008.

The grant application deadline is August 6, 2008. If the Geer Road Landfill grant application is selected for funding, the Department will return to the Board with the completed proposal and request Board approval to accept and administer the grant.

**POLICY ISSUE:**

The Board of Supervisors should determine if applying for the U.S. EPA Grant for Sustainability and Greenhouse Gas Management Projects for the Geer Road Landfill is consistent with the Board's priorities of a safe community, a healthy community, and the efficient delivery of public services. Such finding would position the County to be a leader in developing a net environmental benefit strategy for post-closure maintenance efforts at the Geer Road Landfill. If successful, this project may have far-reaching applications to other landfills state- and even nationwide.

**STAFFING IMPACT:**

There are no staffing impacts associated with this item at this time.

# WORK PLAN

## EVALUATION OF NET BENEFICIAL EFFECTS OF ENVIRONMENTAL MITIGATION PROJECTS

RFP No.: EPA-OAR-CPPD-08-04

### 1. ENVIRONMENTAL RESULTS

At thousands of sites throughout the United States, projects are underway to mitigate environmental impacts that have occurred through prior waste disposal practices, fuel losses, and accidental spills. In some cases these mitigation efforts are needed to control greenhouse gasses directly, such as landfill gas (LFG) collection and control systems. Other mitigation efforts target groundwater, surface water, or soils to remove contaminants. These projects typically focus on the contaminated site itself without consideration of the net environmental benefit, or detriment, of the mitigation measures.

Landfills have significant greenhouse gas potential and LFG control systems are in place at many closed and active landfills. Usually, LFG is flared to destroy methane - the primary greenhouse gas. However, LFG also has been shown to contribute to groundwater pollution through transference of volatile organic compounds (VOCs) to groundwater. For this reason, groundwater mitigation systems are also in place at many landfills. These mitigation systems are very long-term projects, commonly operating full-time for many decades.

The Geer Road Landfill in Stanislaus County, California is a closed landfill with both a LFG control/flare system, and a groundwater extraction and treatment system (GWETS) to remove VOCs from groundwater. A recent test of the GWETS showed that the system is not performing as intended – exerting minimal hydraulic control on the aquifer and removing relatively little VOCs. Approximately six grams of VOCs are being removed from groundwater per day, but in order to attain this removal, a significant amount of energy and resources are required. The net environmental benefit is negative – more greenhouse gas impacts are created through energy use than are VOCs removed from the environment through mitigation.

Stanislaus County will be initiating an Engineering Feasibility Study (EFS) to evaluate different groundwater mitigation alternatives, as required by the California EPA Regional Water Quality Control Board. Normally, a EFS does not consider net environmental benefit in evaluation of mitigation alternatives. Stanislaus County is proposing to include this analysis as part of the EFS and is requesting EPA grant funds to address this portion of the project, and to develop a model for evaluation of net environmental benefits of mitigation projects. This model will be applicable to other environmental mitigation sites across the U.S. The environmental results will be a more global approach to choosing environmental mitigation projects. Not only will technologies be chosen based on how well they may work on a particular site, but also the overall environmental benefits, such as controlling the greenhouse gases that may be produced through implementation of these long-term mitigation measures.

## **2. DESCRIPTION OF PROJECT**

### **A. OBJECTIVES**

The primary objectives of the project are to

- Incorporate a unique Net Environmental Benefit (NEB) evaluation into the Engineering Feasibility Study for the Geer Road Landfill. The EFS will consider all available technologies for mitigating VOCs in groundwater including LFG controls; physical groundwater barriers and controls; in-situ treatment; pump and treat alternatives; clean-closure; and monitored natural attenuation; and will apply the NEB evaluation to all potential mitigation alternatives.
- Develop a model for the NEB approach that can be applied to other sites and mitigation projects.
- Publish the NEB approach and model so it can be applied, as appropriate, industry-wide.

The secondary (indirect) objective is to have the NEB model accepted by regulators and industry resulting in selection of environmental mitigation projects that are both effective for site specific mitigation needs, and result in net benefit to the environment.

There are no relevant problems associated with this project other than the ability of the site owner, Stanislaus County, to fund the study. The County will be funding that portion of the EFS required by State regulations – namely evaluation and selection of best available technologies for LFG and groundwater mitigation at the site. The NEB portion of the project will present no special physical, social, or institutional problems. The project will not require Federal or State planning studies (EIS/EIR).

Although this NEB evaluation and resulting model may have wide application in the regulatory and environmental communities, there are no other concerned interests at the time of this application. Certainly, the California EPA will closely evaluate this approach so that inclusion of the NEB evaluation in future engineering feasibility studies will be accomplished in a manner that does not compromise selection of site mitigation technologies that protect the environment.

### **B. RESULTS OR BENEFITS EXPECTED**

The results expected from this project include a new model for selecting environmental mitigation technologies based, in part, on net benefit to the environment. If this approach becomes accepted and widely applied, local clean-up projects can still achieve their objectives while producing less environmental impacts through energy generation, transportation, and waste disposal. Given the large number of environmental mitigation projects either ongoing or future, the net benefit to the environment will be substantial.

The primary benefit to the environment is a new approach to selecting mitigation alternatives that both considers site-specific clean-up needs, but also the Net Environmental Benefit. By selecting alternatives that have a positive NEB, local site mitigations are not implemented at the expense of greater environmental impacts elsewhere. If this approach is applied to the thousands of current and future environmental mitigation projects across the country, there will be a significant environmental benefit, both locally and globally.

Stanislaus County will benefit from completion of this project in that a new groundwater mitigation approach will be selected that will have a better net benefit to the environment. Currently, the existing system of groundwater pumping and treatment has a negative net environmental benefit – greenhouse gas impacts are created elsewhere for the sake of removal of very small quantities of VOCs in groundwater. Additionally, Stanislaus County will benefit from demonstrating that the County is proactive in protecting the health of its residents, not only locally to the site, but on a larger environmental scale.

Through development of a NEB model, and future acceptance of this approach by the regulators and industry, the entire population of the U.S. may benefit from this new mitigation selection method. Selecting mitigation projects that reduce the total environmental impact, at thousands of sites, while reducing the greenhouse gas impacts of operating these projects, will have a positive effect on the environment and the health of the population.

## **C. APPROACH**

### **PROJECT PLAN**

The Net Environmental Benefit project will be accomplished as a portion of the engineering feasibility study to be completed at the Geer Road Landfill in Stanislaus County, California. The standard tasks associated with the EFS include:

- Compilation of site conditions including existing environmental impacts; physical setting such as aquifer properties and flow; identification of possible environmental receptors; and existing monitoring and control systems.
- Identification of all relevant mitigation technologies that could be applied to the project including LFG controls, physical groundwater barriers and controls; in-situ treatment; pump and treat alternatives; clean-closure; and monitored natural attenuation.
- Initial evaluation of all alternatives, including estimated costs, to determine if any have fatal-flaws that make application at the site impossible, impractical, or economically infeasible.
- For those alternatives that are found to have no fatal-flaws, complete an engineering and financial evaluation to include initial engineering design; assessment of system requirements including energy demands; estimated contaminant removal effectiveness;

waste disposal requirements; transportation requirements; capital costs; O&M costs; potential barriers to implementation; and overall technical effectiveness for the site application.

- Select and document the best available technology, or combination of technologies, that would control and mitigate VOC impacts to groundwater at this site.

These are the normal steps in a EFS and these will be completed and funded by Stanislaus County.

The Net Environmental Benefit portion of the EFS, and development of the NEB model, will be completed in parallel with the EFS steps outlined above. It will be designed to provide additional input to the EFS steps, which will include:

1. Develop criteria for application/limitation of the NEB process to any site. At some sites, the immediate need to protect local sensitive environments, drinking water or other resources, human health, safety, or other critical factors may override the need for evaluation of NEB. At these sites it is critical to implement an environmental mitigation even if it results in a net environmental impact elsewhere.
2. Develop initial fatal-flaw evaluation criteria for NEB. These criteria will be used to establish limits for negative NEB at projects and will be factored into the initial evaluation of all alternatives. Technologies that exceed the NEB limits will be eliminated as being fatally-flawed unless there are other over-riding reasons to maintain that technology in the evaluation.
3. For those technologies that pass the EFS/NEB tests, perform an NEB evaluation for each alternative. The NEB evaluation will use preliminary engineering design and operational estimates to determine the positive effects of the mitigation method on the local environment, plus the local and off-site negative impacts created by power generation, transportation, waste disposal, or other impacts related to each mitigation alternative. Use these NEB evaluations as input to the engineering assessment of potential technologies.
4. Provide NEB documentation in support of the selected technology, or combination of technologies, which would best control and mitigate VOC impacts to groundwater at this site.
5. Using the documented approach for the Geer Road Landfill as an example, develop a model for implementation of these steps at other sites. This will include documentation of the NEB application/limitation test and possible exceptions to this criterion; methods and considerations for fatal-flaw evaluation in terms of NEB assessment; methods and procedures for evaluating potential technologies in terms of NEB including procedures for quantifying off-site environmental impacts

associated with implementation of a mitigation project; and methods for selection of mitigation alternatives using both engineering and NEB evaluations.

6. Release the draft generic NEB Model for review and comment. This will be released to all interested parties including U.S. EPA plus state and local agencies.
7. After receiving comments on the generic draft NEB Model, revise the model, as appropriate, and prepare a final version for the NEB Model and accompanying documentation.
8. Release the Final NEB Model to U.S. EPA and all interested state agencies, and industry groups.

Implementation of the EFS/NEB project for the Geer Road Landfill is regulatory driven. The California EPA - Regional Water Quality Control Board is expected to issue an Order, or other stipulated requirement, to complete the EFS for the site. Although it is not known when this order will be issued, it is expected prior to September 30, 2008. If successful in this grant application, the County will coordinate with RWQCB to discuss this NEB approach and determine the best schedule for completion of the study. Development of the generic NEB model will be completed after the Geer Road Landfill EFS/NEB is completed.

There currently is no alternative approach to the proposed NEB evaluation other than the typical EFS procedure of selecting a mitigation method based only on an evaluation of technologies and how they may be applied to a site. The NEB approach is unique in that it uses a bigger look at the environment as a component of selecting clean-up alternatives.

## FACILITIES

The NEB study will be completed in the offices of Stanislaus County and our consultant's offices – SCS Engineers. SCS is the worldwide leader in providing services to reduce greenhouse gas emissions. Field data collection will be conducted at the Geer Road Landfill in Stanislaus County, California.

## NON-FEDERAL FUND SOURCES

Funds for the Engineering Feasibility Study portion of the project will be provided by Stanislaus County. Funds are set aside for this project as part of the existing Master Services Agreement with SCS Engineers. This MSA is funded through fiscal year 2009-2010. It is estimated that the EFS portion of the EFS/NEB project will be approximately \$90,000.

## SCHEDULE

The following table provides a chronological schedule for completion of the NEB project.



TASK/MILESTONE	DATE <sup>1</sup>
Project Start	March 2, 2009
Coordination with State Agency - RWQCB	March 13, 2009
Complete general approach to NEB model	March 31, 2009
Complete criteria development for NEB applicability or limitations	April 17, 2009
Complete fatal-flaw criteria development for NEB application	April 17, 2009
Complete NEB evaluation for site-specific alternatives	June 30, 2009
Provide NEB documentation support for site-specific mitigation measure selection	July 10, 2009
Draft of generic NEB Model and release for review and comment	August 31, 2009
90-day comment period on draft NEB Model	November 30, 2009
Release final NEB Model and documentation	February 26, 2010

1 – Based on an estimated start date of March 1, 2009

## RESPONSIBLE PARTIES

The Net Environmental Benefit project will be completed under the administration of the Stanislaus County Department of Environmental Resources. This agency is the owner of the Geer Road Landfill property and is responsible for the ongoing monitoring and compliance for the site.

The Engineering Feasibility Study will be completed by SCS Engineers. SCS is contracted to the County under a Master Services Agreement for regulatory compliance for the Geer Road Landfill, and other Stanislaus County facilities. SCS will also complete the NEB portion of the project, under the MSA, so as to coordinate the EFS and NEB portions.