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June 18, 2010

DOCKET
09-AFC-8
DATE JUN 18 2010
RECD. JUN 18 2010

California Energy Commission
Attn Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Re: Genesis Solar Energy Project; 09-AFC-8

Dear Docket Clerk:

Enclosed are an original and one copy of **TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON HAZARDOUS MATERIALS AND WASTE MANAGEMENT OF THE GENESIS SOLAR ENERGY PROJECT**. Please docket the original, conform the copy and return the copy in the envelope provided.

Thank you for your assistance.

Sincerely,

/S/

Rachael E. Koss

REK:bh
Enclosures

2364-075a

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON HAZARDOUS MATERIALS AND WASTE MANAGEMENT OF THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

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I. Introduction

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project" or "GSEP") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential environmental and health and safety impacts.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 25 years of working on environmental issues. A summary of my education and experience is attached to this testimony as Attachment 1.

II. Failure to Estimate Annual and Worst Case Spill Volume

The Project proposes to use parabolic mirror solar trough technology. The Revised Staff Assessment ("Revised SA") states that GSEP would circulate 2,000,000 gallons of Therminol VP-1 heat transfer fluid (HTF) through a piping system to generate high pressure steam.[1] This is the same technology and the same HTF used at the Luz Solar Energy Generating Stations (SEGS) III through IX facilities Kramer Junction, California.[2]

Past HTF spills at the SEGS facilities have generated significant quantities of contaminated soil and the generation of liquid waste. For example, a July 27, 2007 HTF spill of 30,000 gallons (more than the capacity of a backyard swimming pool) resulted in the offsite transport of 6,408 cubic yards of impacted soil for disposal (Attachment 2). Numerous other large spills have occurred at the SEGS facilities.

The Revised SA states:

> The Project will include a bioremediation LTU to treat soil impacted by incidental spills and leaks of HTF at various concentrations. The unit will be designed and permitted as a Class II LTU in accordance with CRRWQCB and CIWMB requirements.
>
> Based on available operation data from other sites, it is anticipated approximately 750 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.[3]

[1] Revised SA, p. C.4-8.
[2] http://en.wikipedia.org/wiki/Solar_Energy_Generating_Systems
[3] Revised SA, p. B.1-12.

The Revised SA provides no analysis to support the estimate that 750 cubic yards of HTF-contaminated soil would need to be treated per year in the LTU. Additionally, no attempt is made in the Revised SA or supporting documentation to quantify a worst-case spill and to identify measures that would be taken to respond to such a spill, including testing, transport, and disposal of the contaminated soil and of the spilled HTF in excess of the capacity of the LTU.

Failure to substantiate the annual estimate of HTF-contaminated soil and to identify a worst-case scenario is a significant shortcoming of the Revised SA. Large spills, on the order of tens of thousands of gallons as documented at SEGS, may also occur at GSEP and would overwhelm the 750 cubic yard per year capacity of the facility that is proposed in the Revised SA to treat contaminated soil. For example, two past spills at SEGS would greatly overwhelm the 750 cubic yard treatment facility proposed for GSEP: a May 1999 spill of 21,000 gallons which generated 2,000 cubic yards of HTF-contaminated soil and the July 2007 spill of 30,000 gallons which generated more than 6,500 cubic yards of HTF-contaminated soil (Attachment 2).

Spills of HTF are likely to generate significant amounts of hazardous waste at GSEP, well in excess of the capacity of the LTU, as evidenced by records of spills at the analogous SEGS facilities. The Revised SA makes no provisions for treatment or offsite disposal of contaminated soils that would exceed the LTU capacity. The Revised SA states only that 10 cubic yards of contaminated soil per year would require offsite disposal as hazardous waste.[4]

The Revised SA must substantiate the annual estimates of HTF-contaminated soil and identify worst case scenarios that would estimate maximum spill volumes of HTF and the amount of contaminated soil that would be generated by such spills.

III. Conditions of Certification are Inadequate to Mitigate Spills of Heat Transfer Fluid

Conditions of Certification in the Revised SA fail to ensure that impacts from HTF-spills will be reduced to less than significant. WASTE-11, the only condition of certification that addresses HTF spills, requires the following:

> The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements.[5]

Waste-11 provides for no specific provisions to properly manage and dispose of hazardous substances, materials or wastes and fails to consider worst case spill scenarios that may involve thousands of gallons of HTF.

[4] Revised SA, p. C.13-14.
[5] Revised SA, p. C.13-31.

Further, the Revised SA defers the establishment of a concentration for HTF-contaminated soils that would define whether the waste is hazardous or non-hazardous. The Revised SA states:

> Soil contaminated with HTF measured at concentrations >10,000 mg/Kg is anticipated to approved as Non-RCRA hazardous waste.[6]

Condition of Certification Waste-11 must establish specific measures to respond to spills of HTF and establish a concentration of HTF in soil that would be considered to be a hazardous waste. Without a hazardous waste criterion for HTF in soils, impacts cannot be adequately predicted, and response plans cannot be formulated to address spills.

IV. Plans for Field Response to HTF Spills are Inadequate

Inadequate provisions are made in the Revised SA and supporting documents to respond to spills of HTF in the field. The ROWD states:

> Spills of HTF will be cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material.[7]

At ambient temperatures, the HTF is of a liquid consistency at temperatures above 54 degrees Fahrenheit.[8] At the SEGS facilities, when spilled, the HTF forms wax-like piles of free standing liquids on the ground surface (Attachment 2). The piles are scooped up or are vacuumed in cleanup efforts documented at the SEGS facilities. The Revised SA makes no provisions for the management of the free standing liquids following a spill.

Additionally, the Revised SA makes no provisions for sampling HTF-contaminated soil at the point of the spill origin. The ROWD states only that spills will be "cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material."[9] Movement of contaminated soil without testing prior to placement in the LTU may result in placing hazardous waste in the land treatment unit, which is prohibited by state law, as discussed further in section VII below.

A corrective action plan for cleanup of spills of HTF-contaminated soils must be included as a requirement for certification. The corrective action plan should identify a numeric cleanup standard for HTF-contaminated soils to ensure the adequacy of cleanup in protecting human health and the environment at the point of spill origin.
The corrective action plan should include sampling procedures, cleanup goals, and methods for long term monitoring.

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[6] Revised SA, p. C.13-16.
[7] ROWD, p. 21.
[8] Revised SA, p. C.4-8.
[9] ROWD, p. 21.

V. The Presence of Benzene as an HTF Degradation Product in Vapor and Soil May Put Workers at Risk and Has Not Been Analyzed or Mitigated

Benzene is identified as a degradation product of Therminol VP-1 in the Revised SA[10] and at other solar thermal projects that utilize Therminol VP-1 as a heat transfer fluid.[11] For the purposes of modeling air emissions, the Revised SA states that thermal decomposition of Therminol VP-1 in fugitive emissions results in the formation of benzene and phenol at 89.9 percent and 9.8 percent, respectively.[12]

Therefore, when HTF is spilled on soil, workers who respond may be exposed to benzene in vapors that originate from the contaminated soil as the HTF degrades. Additionally, workers may be exposed to benzene through dermal contact with the HTF.

Benzene is a known human carcinogen.[13] Without proper precautions and protective equipment, including respirators and appropriate gloves and clothing, workers who respond to the spills may be exposed to benzene while breathing the vapor or when touching contaminated soil. Additionally, workers who tend to the HTF-impacted soil in the LTU may be at risk from inhalation of vapors and from dermal contact without precautions.

The Conditions of Certification Worker Safety-1 through Worker Safety-9 do not provide for adequate safeguards to protect workers who respond to spills and workers who tend to contaminated soils at the LTU. Worker Safety-2 does require a personal protective equipment program to be submitted to the CPM for review and comment; however, no provisions are made in the Revised SA to ensure specific protective measures for response personnel and LTU workers to prevent exposure to benzene, a known human carcinogen.

VI. Analytical Methodology for Testing HTF-Contaminated Soil is Inappropriate

The Revised SA identifies EPA Method 8015 as the test method to be used for analyzing HTF-contaminated soil.[14] However, in the review of the proposed Abengoa solar thermal facility, the Lahontan RWQCB staff determined that EPA Method 8015 was not appropriate as the sole analytical method for Therminol VP-1.[15] For soil testing at the LTU at Abengoa, the Lahonton RWQCB required analysis using EPA Method 1625B for HTF and Method 8260 for volatile degradation products of HTF such as benzene and toluene. Testing for known degradation products of HTF, including benzene, using EPA

---

[10] Revised SA, p. C.5-13.
[11] http://www.energy.ca.gov/sitingcases/solar_millennium_palen/documents/applicant/data_responses_set_1/Public%20Health/DR%20172-179%20Palen%20Public%20Health.pdf
[12] Revised SA, p. C.5-16.
[13] http://www.atsdr.cdc.gov/tfacts3.html
[14] Revised SA, p. C.13-30.
[15] http://www.energy.ca.gov/sitingcases/abengoa/documents/others/2010-02-25_HTF_Conditions_From_James_Brathovde_TN-55665.pdf

Method 1625B or other appropriate analytical methodology must be incorporated into the Revised SA as a condition of certification.

Additionally, soil should be tested for benzene as a condition of the baseline characterization and annual monitoring at the LTU. The ROWD states that prior to the discharge of any HTF impacted soil into the LTU, soil samples will be taken to establish background concentration in the soil. Subsequently, soil samples will be collected on an annual basis at a depth of one foot below the compacted soil base at the LTU. The background and annual soil samples are to be analyzed using modified EPA Method 8015 to verify that HTF is not migrating below the 5-foot treatment zone underlying the unit. If HTF concentrations above the laboratory detection limit are found below the 5-foot treatment zone, the facility will implement a corrective action plan and notify the CRBRWQCB to report evidence of a release.[16]

It is essential to monitor for benzene, a known degradation product of the Therminol VP-1 HTF to be used at the site. The main ingredients of Therminol VP-1, biphenyl and diphenyl oxide, are not considered to move readily through soil, whereas benzene is known to move rapidly through soil. Therefore, monitoring for the presence of benzene with EPA Method 8260 is critical to determine if a release has occurred from the LTU.

VII. The Presence of Benzene in Groundwater as a Degradation Product of HTF Must be Considered in Monitoring Well Design and LTU Design to Prevent Degradation of Water Resources

A groundwater monitoring network, consisting of three monitoring wells, is to be established to monitor groundwater for potential releases from the six proposed evaporation ponds and the LTU.[17] Groundwater samples are to be analyzed for biphenyl and diphenyl oxide, major components of Therminol VP-1, using EPA Method 8015; however, benzene is not included in the list of compounds to be analyzed in the groundwater monitoring program.[18] The Revised SA must include benzene as a groundwater monitoring constituent using an appropriate analytical methodology.

Unlike other components of HTF, benzene is highly mobile in soil and does not typically adsorb to soil.[19] Therefore, releases of benzene would potentially move to groundwater.

The water table is found at 70 to 90 feet below ground.[20] Groundwater provides the only available water resource in Chuckwalla Valley. Designated and potential beneficial uses of groundwater in the basin include domestic, municipal, agricultural and industrial use.[21] The Revised SA must address benzene as a groundwater contaminant that could impact the designated beneficial uses of groundwater.

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[16] ROWD, p. 8.
[17] ROWD, p. 5.
[18] ROWD, Table 1.
[19] See for example http://www.cluin.org/download/toolkit/petrefsn.pdf, p. 61.
[20] Revised SA, p. C.9-52.
[21] Revised SA, p. C.9-22.

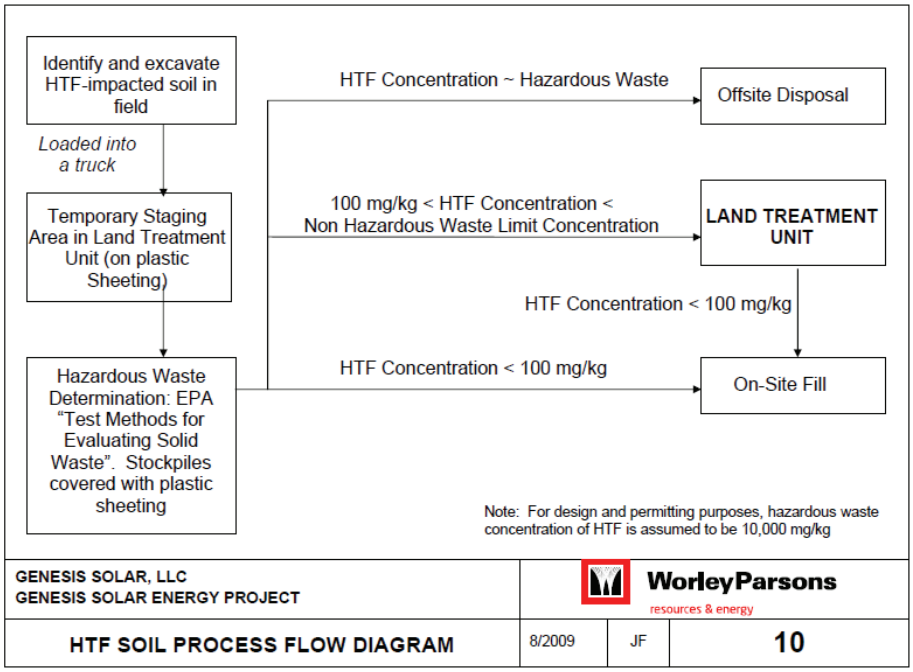
VIII. Plans for Staging HTF Spills may Violate the California Health and Safety Code

The LTU will be used for the staging of soil that is contaminated by HTF spills. The Revised SA states:

> The LTU will not incorporate a liner containment system or LCRS, but will be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land farming activities, and will serve to slow the rate of surface water infiltration in the treatment area.
>
> A staging area is allocated in the LTU for storage of HTF-impacted soils while they are being characterized. Soil characterized as hazardous will be removed from the site; therefore, no additional liner system is required in the LTU to cater for the hazardous waste.[22]

The Revised SA states that HTF-contaminated soil will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material.[23]

A flow diagram, as follows, is provided in the ROWD as Figure 10:



[22] Revised SA, Soil and Water Resources, Appendix B, Facts for Waste Discharge.
[23] Soil and Water Resources, Appendix B, Facts for Waste Discharge, p. 16.

The flow diagram shows that HTF-impacted soil will be placed in the staging area of the LTU without sampling. HTF-impacted soils will be identified (presumably by visual means) and then moved to the LTU prior to sampling.

Section 25203 of the California Health and Safety Code prohibits the disposal of hazardous waste except at a hazardous waste facility. "Disposal" means either of the following:

> (1) The discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste so that the waste or any constituent of the waste is or may be emitted into the air or discharged into or on any land or waters, including groundwaters, or may otherwise enter the environment.
> (2) The abandonment of any waste.[24]

If a leak occurs, section 25123.3 of the California Health and Safety Code sets forth the requirements for temporarily staging waste. Temporary waste staging is appropriate for hazardous waste only if, among other criteria:

- the hazardous waste being accumulated does not contain free liquids;
- the hazardous waste is accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation, among other requirements.

If any of the requirements are not met, then the Project must be regulated as a hazardous waste storage facility under Health and Safety Code Section 25200 et seq.

The staging area of the Project's LTU does not meet the requirements for a temporary staging area under Section 25123.3(a)(2) of the Health and Safety Code for two reasons. First, the hazardous waste being accumulated would likely contain free liquids. Spills of HTF will generate free liquids at temperatures above approximately 54 degrees Fahrenheit. The ROWD and the Revised SA make no mention of liquid wastes that will be generated when HTF is spilled. Second, contaminated soil would not be "accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation." The Revised SA states only that HTF-contaminated soil will be "placed on plastic sheeting" pending receipt of analytical results and characterization of the waste material.

The Revised SA must incorporate as conditions of certification all measures necessary for compliance with all cited sections of the California Health and Safety Code.

[24] Health and Safety Code §25113(a).

IX. A UXO Survey is Necessary Prior to Certification

A Phase I Environmental Site Assessment (ESA) was conducted in support of the AFC.[25] According to the Revised SA, the Phase I ESA found that the Project area:

> was within General Patton's World War II (WWII) Desert Training Center, California-Arizona Maneuver Area region (1942 to 1944). The region surrounding the Project Area was considered a suitable location for training troops that would be deployed in the North Africa Campaign. After 2 years in operation and the training of one million troops, the desert training camps were closed in 1944. Military trash scatter including ration containers, military-issue utensils, and one 50-caliber cartridge were identified during the Tetra Tech site visits.

The Revised SA concludes that there is potential for unexploded ordnance (UXO) at the Project site.[26]

The Phase I recommended a UXO survey, stating:

> Due to the use of the use of the Subject Property for military maneuvers, the potential exists for the presence of UXO. Prior to construction, it may be a prudent safety measure to conduct a stand-alone UXO screening of the Subject property.[27]

Condition of certification WASTE-5 requires the following:

> The project owner shall prepare a UXO Identification, Training and Reporting Plan to properly train all site workers in the recognition, avoidance and reporting of military waste debris and ordnance.[28]

Despite the Phase I recommendation, the Revised SA does not provide for a pre-construction UXO survey in WASTE-5 or in any other condition of certification. WASTE-5 provides for only a plan for a training program to identify UXO that relies upon construction personnel to identify UXO in the field during excavation and grading operations.

The need for a UXO survey prior to construction is heightened by the finding during the preparation of this testimony that the general vicinity of the Project area was in an area identified as a "gunnery range" on a map of the Desert Training Center/California Maneuver Area (see Attachment 3).

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[25] Phase I Environmental Site Assessment, Genesis Solar Energy Project, Ford Dry Lake Site, August 2009.
[26] Revised SA, p. C.13-11.
[27] Phase I ESA, p. 6.1.
[28] Revised SA, p. C.13-28.

Additional research has shown that several exercises were held in Chuckwalla Valley, in an area that the Army believed to best represent terrain found in Libya. Small unit training was emphasized in the Chuckwalla Valley. A WWII-era map of the CAMA shows a feature, labeled No. 29, to be located approximately eight miles west of the Project (see Attachment 4). The feature is identified as the Headquarters of the Army Ground Forces, 1943.[29]

During field maneuvers, divisions defended positions opposing forces by placing numerous obstructions, including minefields.[30] Palen Pass, located approximately two miles north of the Project site, was the site of the largest maneuvers during the period the CAMA was in use.[31] Fortifications were constructed throughout the area of Palen Pass and bomb craters and cartridge cases can still be found in the area.[32]

Given the intensity of the military maneuvers in the general vicinity of GSEP, the Revised SA should include a condition of certification that would require a UXO survey in the Project area. The UXO survey should be conducted by trained and credentialed UXO professionals and consistent with BLM and Army Corps of Engineers Guidance in the Project area and the transmission line right of way prior to commencement of construction. Without such a condition, construction worker safety will be potentially jeopardized by the presence of UXO.

[29] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 2, Historical and Archeological Contexts for the Arizona Desert. p.38, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).
[30] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 1, Historical and Archeological Contexts for the Arizona Desert. p.102, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).
[31] *Id.,* p. 103.
[32] *Id.,* p. 103.

DECLARATION

I, Matt Hagemann, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Newport Beach, California.

Dated: 6/18/09 Signed: _____

ATTACHMENT 1

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G.

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Regulatory Compliance
CEQA Review
Expert Witness

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certification:

California Professional Geologist, License Number 8571.

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);

- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a project to provide technical assistance to a comunity adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Lead analyst in the review of numerous environmental impact reports under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions and geologic hazards.
- Lead analyst in the review of environmental issues in applications before the California Energy Commission.
- Technical assistance and litigation support for vapor intrusion concerns.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.
- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of

wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the dischrge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.

- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

ATTACHMENT 2

kjc OPERATING COMPANY

41100 highway 395
boron, california 93516-2109

phone 760-762-5562
facsimile 760-762-5546
www.kjcsolar.com

June 4, 1999

Ms. Diane Ventura
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Re: Spill Report for 5/22/99 Incident

Dear Ms. Ventura:

Attached is a report of the spill, which occurred at SEGS III on May 22. If you have any questions, please contact me at your convenience.

Sincerely,

(FOR D.RIB)

David M. Rib
Manager of Regulatory Affairs

DR/pd
DR99-006

Attachment

cc: Joe Koutsky / LRWQCB
Steve Munro / CEC

SPILL REPORT

OWNER:	Kramer Junction Company
OPERATOR:	KJC Operating Company
PERMITS:	Board Order #6-97-58, WDID #6B364550002 (site and evaporation ponds) Board Order #6-95-102, WDID #6B368909005 (bioremediation)
DATE:	May 22, 1999
TIME:	11:30 a.m.
SITE ADDRESS:	41100 Highway 395
LOCATION:	SEGS III solar field, northwest quadrant
MATERIAL SPILLED:	Heat Transfer Fluid (HTF), Biphenyl-Diphenyl Oxide
APPROXIMATE VOLUME SPILLED:	Approximately 21,000 gallons where released, at least 10,000 spilled to soil
APPROXIMATE VOLUME OF CONTAMINATED SOIL:	Approximately 2000 cubic yards
CONTAMINATED SOIL DISPOSITION:	Soil was removed and staged in the on-site bioremediation facility. The volume of the contaminated soil is beyond the current permit capacity of the bioremediation facility, so the soil will be sent to the TPS Technologies thermal treatment facility in Adelanto.
LRWQCB CONTACT:	Diane Ventura at 12:55 on 5/24/99. Follow-up message left for Ms. Ventura on 6/1/99 at 12:50.

CIRCUMSTANCE OF SPILL:

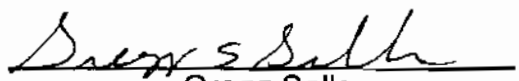
The spill was caused by the failure of a "flexhose," which is the flexible connection between segments of the "Solar Collection Assemblies" (SCA) that allows each SCA to individually track the sun angle. This particular flexhose was at the end of a row where the local isolation valve is located, so it took longer to stop the leak by isolating a larger section of the solar field. There was a strong flow of HTF spilling onto the ground for about 15 minutes. There was a loss of approximately 21,000 gallons of HTF from the system, approximately 1,500 gallons of which was recovered from standing puddles. The HTF-contaminated soil in the area to a depth ranging from a few inches to several feet deep.

There is an ongoing program to replace the flexhoses with "balljoint" connections. This conversion is approximately 40% complete throughout the SEGS III-VII site. The flexhoses are periodically inspected, and most failures can be detected as they usually leak for several days before failing completely. Some failures can occur much more rapidly, as is thought to have happened in this case.

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

Submitted by:

FPL Energy Operating Services, Inc. for
Luz Solar Partners III – VII Ltd.
SEGS III – VII Facilities
41100 Highway 395
Boron, CA 93516



Gregg Sellers
Agent For
Luz Solar Partners III – VII Ltd.

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

10 January 2008

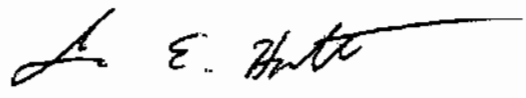
Prepared for:

Luz Solar Partners III – VII Ltd.
c/o FPL Energy Operating Services, Inc.
41100 Highway 395
Boron, CA 93516

Prepared by:

AMEC Earth & Environmental
221 – 18th Street SE
Calgary, Alberta
T2E 6J5

Project No. CE03501



Ian E. Hattie, M.Sc.
Associate

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1.0 INTRODUCTION

Luz Solar Partners III through VII Ltd. Solar Electric Generating Systems (SEGS) III through VII sites are located at 41100 Highway 395 in Boron, California (Kramer Junction). The SEGS III through VII sites are authorized to operate soil bioremediation cells and a landfarm the location of which are shown on Figure 1. The treatment facilities were designed and constructed in accordance with the requirements of Title 23, subchapter 15, of the California Code of Regulations. Under the terms of Revised Waste Discharge Requirements (WDRs) Board Order No. 6-95-102 issued by the California Regional Water Quality Control Board - Lahontan Region (RWQCB), the bioremediation treatment facility is referred to as the "Bioremediation Unit" and the landfarm is referred to as the "Landfarm". The combined facilities are simply referred to as the "Facility". The bioremediation facility receives soils impacted with heat transfer fluid (HTF) for treatment whereas the landfarm contains a combination of partially and fully-remediated soils or soils staged for treatment in the bioremediation cells as shown on Figure 2.

Soil treatment within the bioremediation facility involves manipulation of environmental controls such as moisture content, soil nutrients (nitrate fertilizer), and aeration of the soils through weekly to bi-weekly tilling to achieve the desired conditions for enhancing biodegradation of the constituents of concern. Soils treated to below 1,000 parts per million (ppm) HTF may be transferred to the Landfarm where passive treatment (natural attenuation) is allowed to occur.

Periodic testing of the soils undergoing treatment is conducted and analyzed by an independent laboratory to confirm the concentration of HTF. Once treatment has been completed and soil HTF concentrations are below 100-ppm (the permitted limit), remediated soils are available for reuse within the sites.

2.0 HTF RELEASES AND TREATMENT MONITORING

During the First Semester of 2007 approximately 125-130 cubic yards of HTF-impacted soils were generated. These HTF-affected soils were the result of remedial actions related to unanticipated releases that occurred on-site on 27 March and 27 February 2007. In both instances recovery of free-standing HTF product was implemented as soon as the release area was secured. The largest release occurred on 27 February 2007 which involved approximately 1,000 gallons of HTF in the SEGS VI solar field. Removal of HTF-impacted soil is typically initiated once free product is removed, however in the case of the 27 February 2007 event soil removal was temporarily suspended on 28 February due to high winds.

During the Second Semester of 2007 a release of approximately 30,000 gallons occurred on 16 July 2007 in the SEGS VII Power Block resulting in the generation of approximately 6,558 cubic yards of HTF-impacted soils. Recovery of free-standing HTF product was implemented as soon as the release area was secured.

Notification of releases was made to the California Regional Water Quality Control Board – Lahontan Region (RWQCB), National Response Center, California Office of Emergency Services, San Bernardino County Fire Department Hazardous Materials Division, and California Energy Commission on 01 March 2007, 30 March 2007, and 17 July 2007.

Soils affected with HTF as a result of the releases were promptly excavated and transported to the Landfarm facility for temporary storage. In the case of the 16 July 2007 release at the SEGS VII Power Block, approximately 6,408 cubic yards of HTF-affected soils were removed and transported offsite to an approved disposal facility and another 150 cubic yards was taken to the Bioremediation facility on site. Soil samples were subsequently collected from the excavations to determine if further soil removal was required. Soil sampling reports were prepared for each of the releases that summarized the methods employed for sample collection and laboratory analytical results. These reports have previously been submitted to the RWQCB.

Releases that occurred during 2007 are summarized in Table 1 below.

Table 1: Summary of 2007 HTF Releases

Release Date	Location	Volume of HTF Released
27 February 2007	SEGS VI SCA 39P	1,000 gallons
27 March 2007	SEGS V SCA 23P	35 gallons
16 July 2007	SEGS VII Power Block	30,000 gallons

3.0 Operation and Maintenance Reporting

FPL Energy Operating Services, Inc. has not experienced any technical issues since assuming operational control of the Facility. Visual observations indicate that the structure of the bioremediation Unit is in good working order and that no obvious defects or structural damage is evident.

The Bioremediation Unit is constructed with two rectangular cells and a row of concrete blocks dividing the facility into two portions, a north and south half: One half of the structure is typically used to store HTF-impacted material prior to treatment and the other half for active soil remediation.

Visual inspection of the primary concrete containment structure was last conducted in 2007 on 31 December. No structural damage or signs of weakening or failure were visible at the time of inspection.

The drainage sumps for the Bioremediation Unit are checked approximately once a week. No significant accumulation of water has been noted in the sumps, suggesting that no leakage is occurring.

4.0 Sampling Summary and Laboratory Analytical Results

On 08 March 2007 Northstar Environmental Remediation (Northstar) conducted a random sampling of soil from the Landfarm. Northstar also collected compliance soil samples from the Bioremediation Unit on 11 June 2007. The sampling was performed to determine the concentration of HTF in impacted soils undergoing treatment. The 08 March soil samples were collected from materials which were generated from the February HTF release at SEGS VI and which were subsequently stored on plastic sheeting in the Landfarm Remaining soil in the Landfarm represents materials generated from an accidental HTF release at SEGS III in October 2005 which was subsequently tested and found to be below the 1,000 mg/kg limit.

On 19 December 2007 Northstar collected the annual "unsaturated zone monitoring system" soil sample at a depth equal to approximately one foot below the native ground surface grade (approximately 5.5 feet below the top of the landfarm for HTF. Both HTF analytes were found to be non-detectable as shown on Table 2.

The results of the laboratory analytical analyses for the First Semester 2007 reporting period are summarized in Table 2. Laboratory reports for the First Semester sampling events were previously included in the First Semester 2007 report. Laboratory data sheets and chain-of-custody record for the annual landfarm "unsaturated zone monitoring" soil sampling event are included in Appendix A.

Soil samples were collected using a stainless-steel hand-auger, and stainless-steel drive sampler equipped with clean 2-inch diameter by six-inch long stainless-steel sample sleeves. Samples were first collected in the stainless steel sleeves and then immediately transferred into laboratory-supplied, certified clean glass jars and properly labeled. The samples were then placed into a cooler, chilled with ice in sealed Ziploc™ bags and transported under chain-of-custody to Del Mar Analytical Laboratories in Irvine, California for analysis of HTF component concentrations using EPA Method 8015 Modified for HTF. Soil was collected from four randomly selected locations in the Bioremediation Unit, composited in the field and submitted to the laboratory to be analyzed as one representative sample. The same procedure was followed for the Landfarm soil sample.

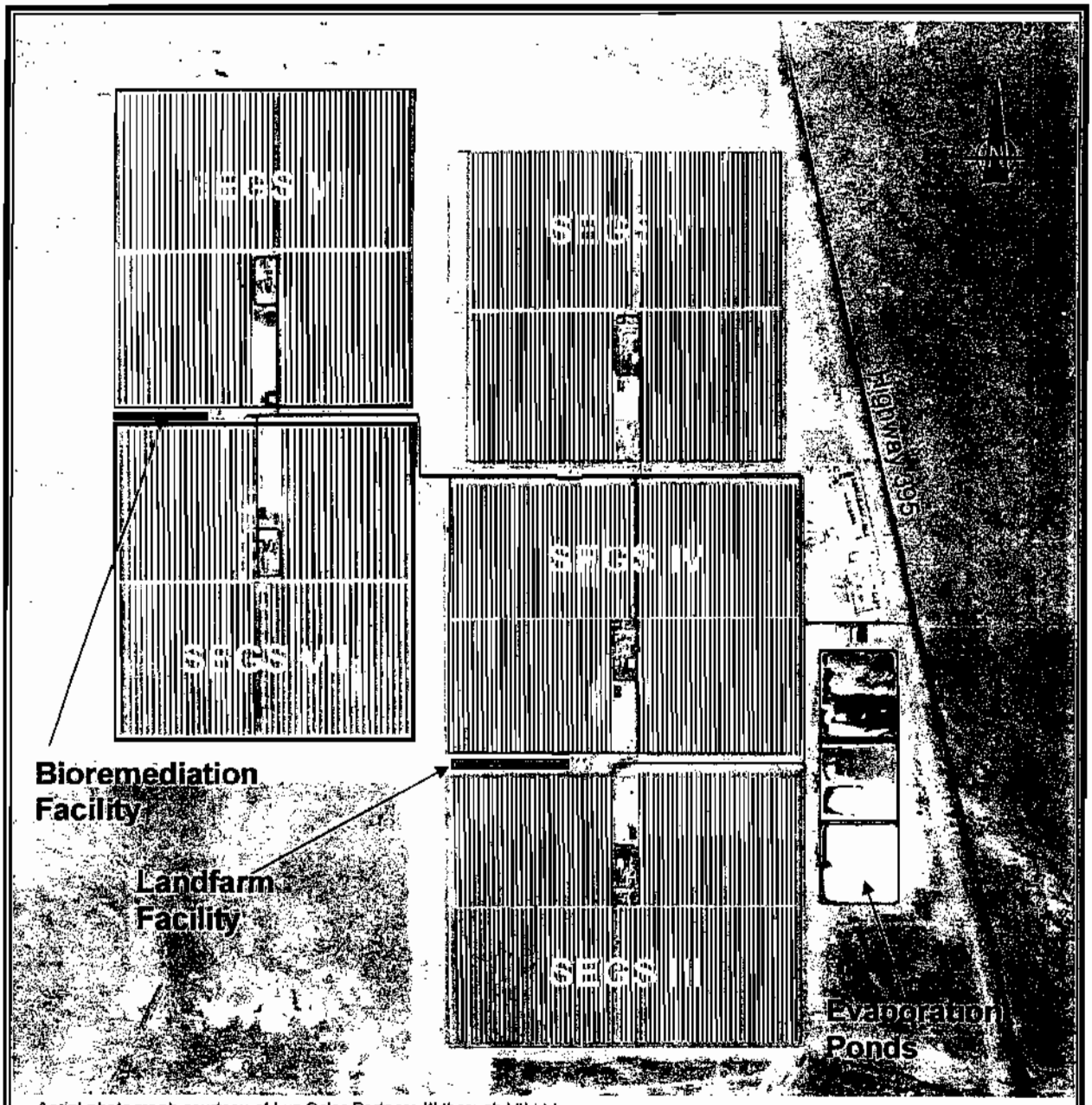
All equipment was cleaned using non-phosphate detergent and triple-rinsed with deionized water between sampling locations in order to prevent cross-contamination.

Table 2: Laboratory Analytical Results

Sample Identification	Date	1,1'-Biphenyl (mg/kg)	1,1'-Oxybisbenzene (mg/kg)
LF-1[1]	08 March 2007	7,900	8,200
LF-2[1]	08 March 2007	6,200	6,200
LF-3[1]	08 March 2007	1,700	1,800
BRN (EAST) 6-11-07[2]	11 June 2007	ND	2.1
BRN (WEST)6-11-07[2]	11 June 2007	ND	33
KJ-LF-5.5'-12-19-07	19 December 2007	ND	ND

Notes:

[1] sample collected from the Landfarm facility between SEGS III & IV
[2] sample collected from the Bioremediation facility between SEGS VI & VII
Samples analyzed by EPA Method 8015B Modified for HTF. The analytes 1, 1'-Biphenyl and 1, 1'-Oxybisbenzene ere components of the HTF used at the site. ND = Not Detectable



Aerial photograph courtesy of Luz Solar Partners III through VII Ltd.

No scale

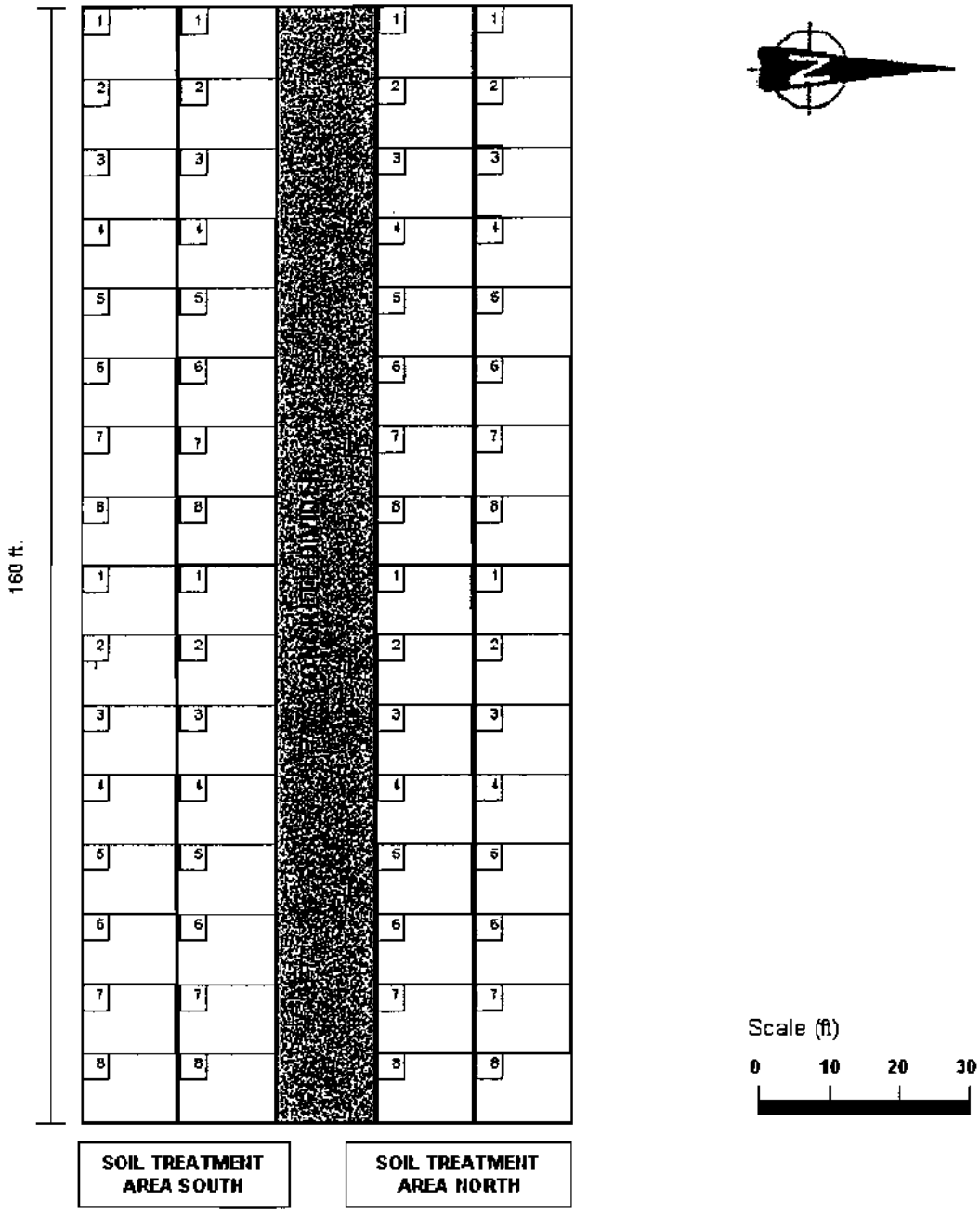
amec

Client: Luz Solar Partners III through VII Ltd.

Job No. CE03501 | Date: 26 June 2007

Figure I – Site Plan
SEGS III - VII
Boron, California

BIOREMEDIATION FACILITY



amec

Client: Luz Solar Partners III through VII Ltd.

Job No. CE03501 Date: 10 January 2008

Figure 2
Bioremediation Unit Layout
SEGS III - VII
Boron, California

Appendix A

Laboratory Data Sheets and Chain-of-Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

LABORATORY REPORT

Prepared For: FPL Energy Operating Systems
43880 Harper Lake Rd
Hinkley, CA 92347
Attention: Glen King

Project: FPL Kramer Junction

Sampled: 12/19/07
Received: 12/21/07
Issued: 01/03/08 11:40

NELAP #01108CA California ELAP#1197 CSDLAC #10256

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica The Chain of Custody, 1 page, is included and is an integral part of this report.
This entire report was reviewed and approved for release.

CASE NARRATIVE

SAMPLE RECEIPT: Samples were received intact, at 4°C, on ice and with chain of custody documentation.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: No significant observations were made.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

LABORATORY ID	CLIENT ID	MATRIX
IQL2412-01	KJ-LF@5.5'-12-19-07	Soil

Reviewed By:

TestAmerica Irvine

Patty Mata
Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems
43880 Harper Lake Rd
Hinkley, CA 92347
Attention: Glen King

Project ID: FPL Kramer Junction
Report Number: IQL2412

Sampled: 12/19/07
Received: 12/21/07

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQL2412-01 (KJ-LF@5.5'-12-19-07 - Soil)								
Reporting Units: mg/kg								
1,1'-Biphenyl	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	
1,1'-Oxybisbenzene	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	C
Surrogate: n-Octacosone (40-125%)				*79 %*				

TestAmerica Irvine

Patty Mata
Project Manager

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Sampled: 12/19/07
Received: 12/21/07

METHOD BLANK/QC DATA

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 7L21094 Extracted: 12/26/07										
Blank Analyzed: 12/26/2007 (7L21094-BLK1)										
1,1'-Biphenyl	ND	2.0	mg/kg							
1,1'-Oxybisbenzene	ND	2.0	mg/kg							
Surrogate: n-Octacosane	*6.00*		*mg/kg*	*6.67*		*90*	*40-125*			
LCS Analyzed: 12/26/2007 (7L21094-BS1)										
1,1'-Biphenyl	2.64	2.0	mg/kg	3.33		79	50-115			
1,1'-Oxybisbenzene	2.71	2.0	mg/kg	3.33		81	50-115			
Surrogate: n-Octacosane	*5.50*		*mg/kg*	*6.67*		*82*	*40-125*			
Matrix Spike Analyzed: 12/26/2007 (7L21094-MS1)					**Source: IQL2265-03**					
1,1'-Biphenyl	3.10	2.0	mg/kg	3.33	ND	93	35-120			
1,1'-Oxybisbenzene	3.17	2.0	mg/kg	3.33	ND	95	35-120			
Surrogate: n-Octacosane	*6.15*		*mg/kg*	*6.67*		*92*	*40-125*			
Matrix Spike Dup Analyzed: 12/26/2007 (7L21094-MSD1)					**Source: IQL2265-03**					
1,1'-Biphenyl	2.87	2.0	mg/kg	3.33	ND	86	35-120	8	30	
1,1'-Oxybisbenzene	2.95	2.0	mg/kg	3.33	ND	88	35-120	7	30	
Surrogate: n-Octacosane	*5.97*		*mg/kg*	*6.67*		*90*	*40-125*			

TestAmerica Irvine

Patty Mata
Project Manager

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Sampled: 12/19/07
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DATA QUALIFIERS AND DEFINITIONS

C Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

RPD Relative Percent Difference

TestAmerica Irvine

Patty Mata
Project Manager

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Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 8015 MOD.	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

TestAmerica Irvine

Patty Mata
Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

IQL2412

CHAIN OF CUSTODY FORM

17461 Derian Ave., #100 Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St Suite B-120 Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E Sunset Rd. #3, Las Vegas NV 89120 (702) 798-3620 FAX (702) 798-3621

IQL2412

IAL 0013(1007)

Client Name/Address: FPL-Kramer Junction, 41100 Highway 395, Boron, CA 93516

Project/PO Number: FPL-Kramer Junction

Project Manager: Glen Kohg

Phone Number: (760) 762-5562

Fax Number:

Sampler: Ralph DelaPena

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8015 mod. Ext for Thermal									Special Instructions
KJ-LF@5.5'-12-19-07	Oil	4oz Jar	1	12-19-07	1235	on Ice	X									
																AO 12/21/07 18:20

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	12-21-07 @1850		
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received in Lab By: [signature]	Date/Time: 12/21/07 18:50

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal X

Sample Integrity: (Check)
intact X on ice 5.5/4.4

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

ATTACHMENT 3

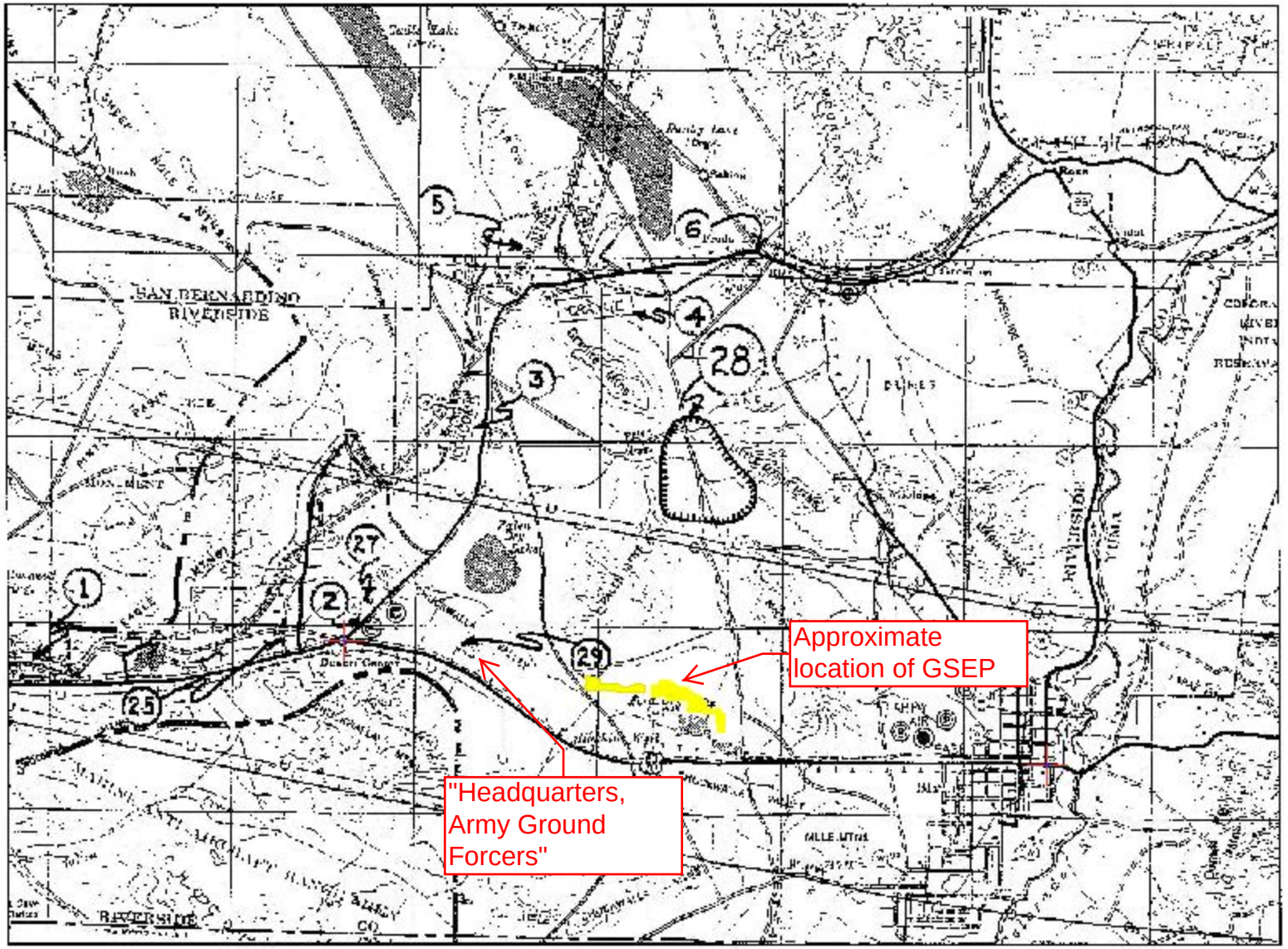
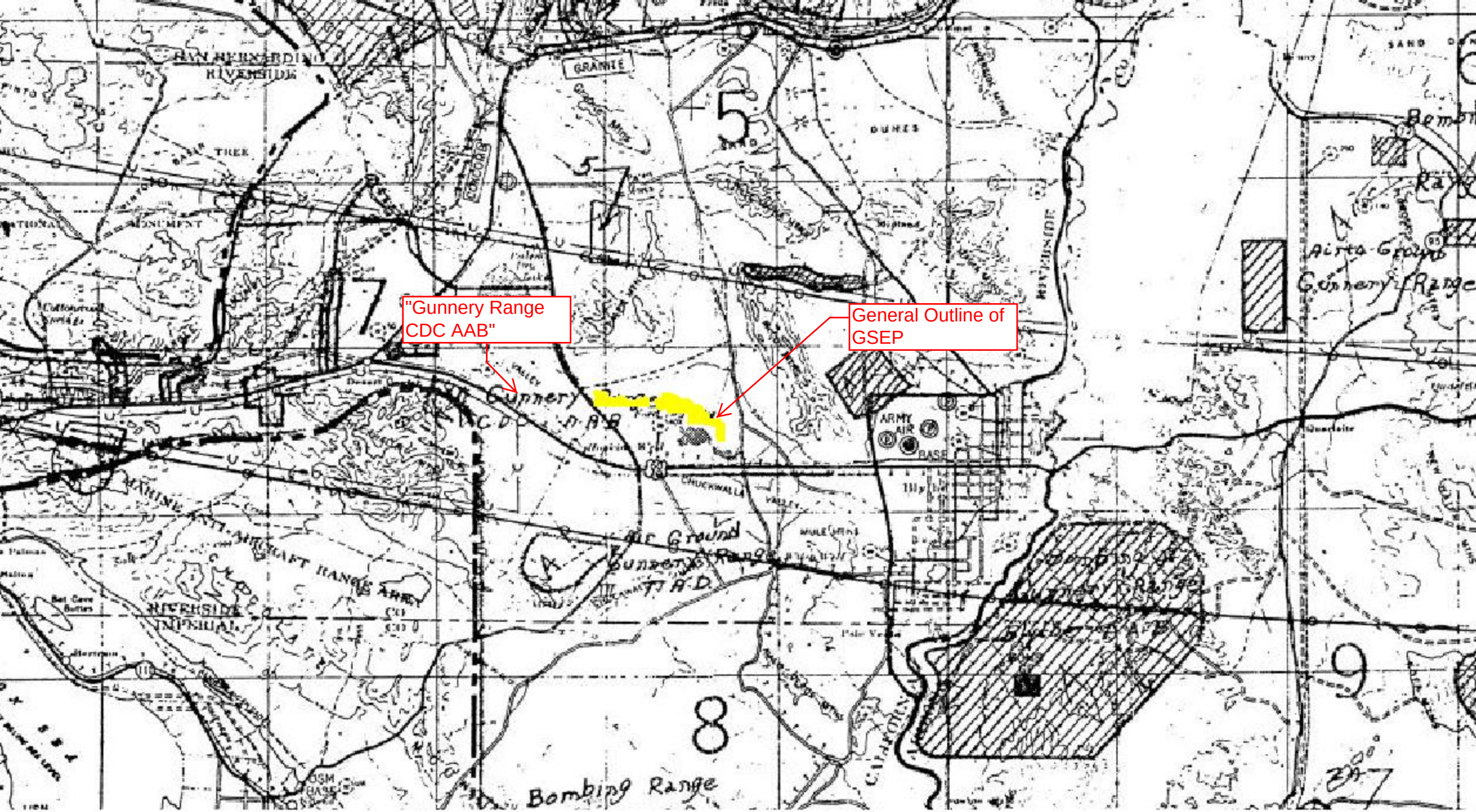


Figure 27. Map of a portion of the DTC/C-AMA, showing installations. The Palen Pass Defensive Area (a maneuver area) is marked 28. Other installations include the following: Camp Young, 1; Desert Center Observers Camp, 2; Camp Coxcomb, 3; Camp Granite, 4; Camp Iron Mountain, 5; Freda Railroad Siding, 6; Eagle Mountain Road Medical Installations, 25; Desert Center A.A.D., 27; and 18th Ordnance Battalion Camp near Desert Center, 1 and 29 (Headquarters Army Ground Forces 1943).

ATTACHMENT 4


"Gunnery Range CDC AAB"
General Outline of GSEP
Gunnery AAB
Air Ground Gunnery Range
TAD
ARMY AIR BASE
Bombing Range
RIVERSIDE
GRANITE
DUNES
SAND
Air to Ground Gunnery Range
Gunnery Range
5
7
8
9

PROOF OF SERVICE

I, Bonnie Heeley, declare that on June 18, 2010 I served and filed copies of the attached **TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON HAZARDOUS MATERIALS AND WASTE MANAGEMENT OF THE GENESIS SOLAR ENERGY PROJECT**. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at www.energy.ca.gov/sitingcases/genesis. The document has been sent to both the other parties in this proceeding as shown on the Proof of Service list and to the Commission's Docket Unit electronically to all email addresses on the Proof of Service list and by depositing in the U.S. Mail at South San Francisco, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." I also sent a copy via email and an original and one copy via U.S. mail to the California Energy Commission Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on June 18, 2010.

_____/s/_____
Bonnie Heeley

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