

**Proposal to  
El Dorado County**

**Proposal to Develop  
A Landfill Gas Utilization Project  
at the  
Union Mine Landfill**

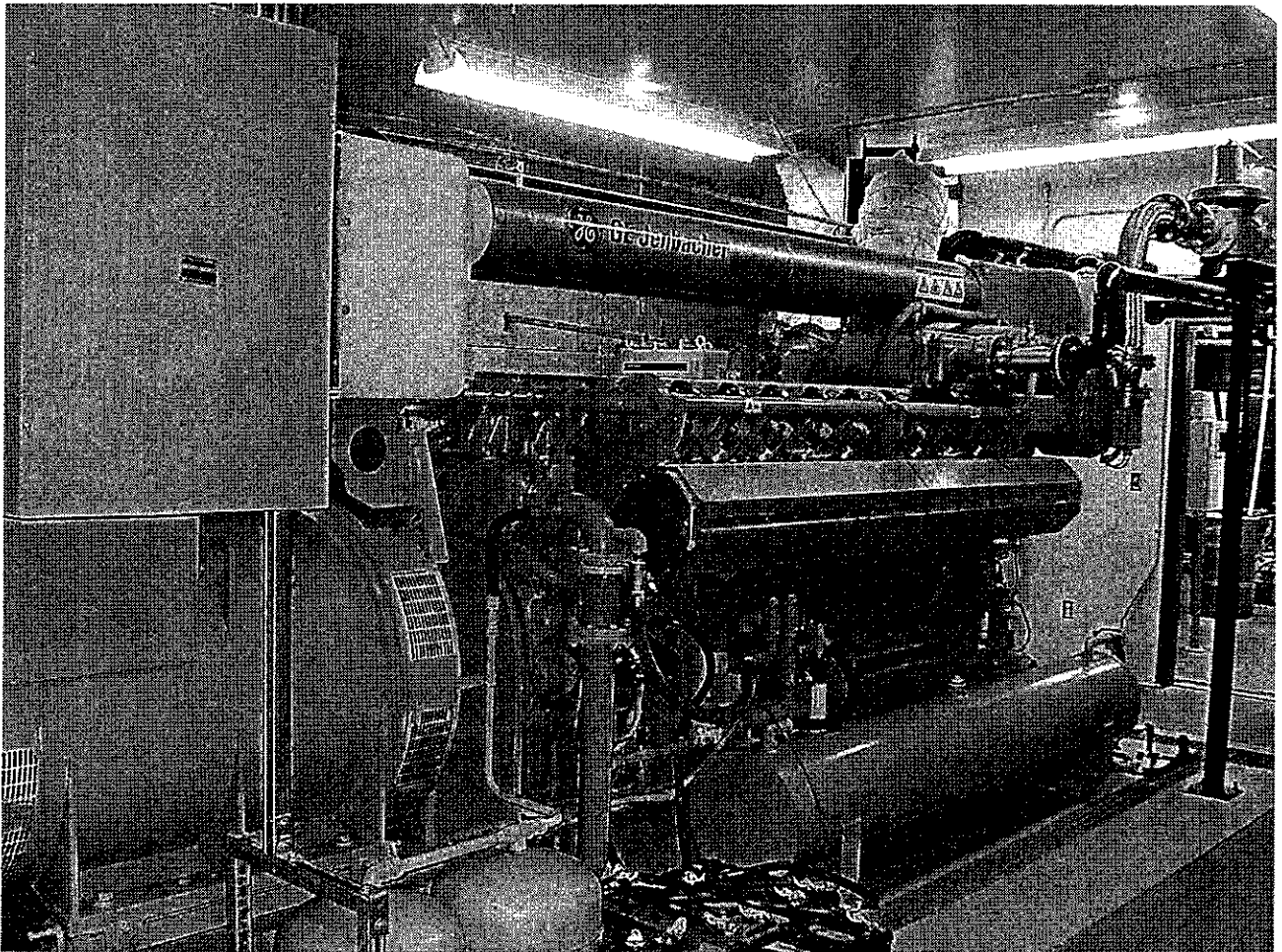


**Submitted by:**

**Janecek & Associates  
248 Hill Place  
Costa Mesa, CA 92627**

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Appendix A           Resume of Mr. Alan Janecek, P.E.

## **1. INTRODUCTION-SUMMARY**

Janecek & Associates (J&A), is pleased to present this proposal to El Dorado County (County). It is our understanding of the Scope of the Proposal that the County would like to derive both income and services from the sale or lease of LFG at the Landfill. The County of El Dorado Office of Procurement and Contracts, through its Environmental Management Department (also referred to as "County"), is requesting proposals from qualified firms for either 1) the landfill-gas development rights at the Union Mine Disposal Site or 2) the conversion of landfill-gas to electricity and/or bio-fuel or 3) both the landfill-gas development rights and the conversion of landfill-gas to electricity and/or bio-fuel.

J&A will propose a longer term Gas Purchase Agreement than indicated in the Request for Proposal (RFP). Alternatives or modifications to this proposal can be negotiated, while still maintain the general approach presented.

### **1.1 Insurance Requirements**

J&A has reviewed the insurance requirements of the County presented in the RFP and agrees to maintain the insurance required throughout the term of the agreement.

### **1.2 References**

Dennis Daniel  
Plant Operations Manager  
Marian Medical Center  
PH: 805-739-3000

J&A owns and operates LFG Power Plant at Marian providing 1 MW of electricity to facility since 2006

Dave Klinger  
VP-Facilities  
Presbyterian Intercommunity Hospital  
PH: 562-698-0811

J&A owns and operates LFG Power Plant at PIH providing 1 MW of electricity to facility since 2005

Jeff Clarin  
Solid Waste Engineer  
City of Santa Maria  
PH: 805-925-0951

J&A purchases LFG from Santa Maria for use at the Marian LFG Power Plant

## 2. PROJECT APPROACH

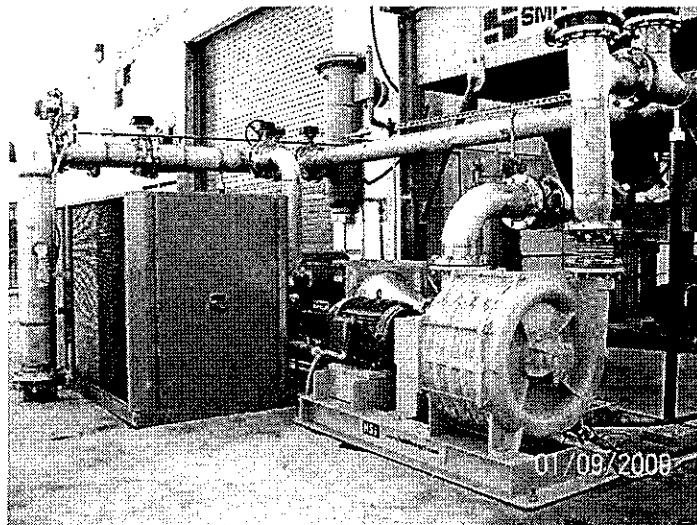
J&A proposes to purchase all of the available landfill gas (LFG) from the County under a long term Gas Purchase Agreement (GPA). Our preferred term of the GPA is approximately fifteen years. We propose to utilize the LFG to generate electricity onsite for sale to PG&E under their standard E-SRG Schedule. A portion of the electricity could be used to supplement electricity supplied to the wastewater treatment plant, depending on the overall demand of the facility. The electricity would be supplied at a rate similar the E-SRG schedule, which would likely provide a savings to the County over the PG&E utility rate.

In addition, we propose to utilize the waste heat available from the engine generator. Depending on the current utilization of digester gas, J&A proposes to evaluate the feasibility of using waste heat from the Power Plant to heat existing plant digesters and thus using supplemental digester gas at the Power Plant. J&A would conduct the evaluation and present it to the County at J&A's expense. As we currently have no information regarding the volume and flow of the wastewater treatment plant we understand that this phase is speculative at this time.

### 2.1 LFG Power Plant

The LFG Power Plant will consist of a Jenbacher JGS 320, 1060 kW engine generator, interconnection switchgear, plant process equipment and LFG treatment equipment. The engine will be operated only during peak electricity demand periods as the LFG flow does not support full load operation of the engine. Based on our experience with low-quality LFG at other facilities we intend to operate the engine between 40% and 50% of full daily capacity, declining over the life of the project as LFG generation declines.

Based on our experience with similar facilities, a rigorous LFG treatment system will be installed to maintain the integrity of the engine generator. J&A designs and constructs LFG treatment systems for our own facilities that include LFG chilling and silica gel dessicant system that removes siloxane levels to the low parts per billion (ppb) range.



LFG Treatment System at Whittier LFG Power Plant

## **2.2 Operation of County Facilities**

J&A proposes to operate and maintain the LFG collection system, flare station and microturbines as part of this project. J&A staff have over twenty years experience in the operation and maintenance of these types of facilities. Alan Janecek, the proposed Project Manager, is one of the principal authors of the Solid Waste Association of North America (SWANA) LFG Operations and Maintenance Manual of Practice. Mr. Janecek has managed LFG O&M projects throughout California for over twenty years.

We understand that the critical component of operating the LFG collection system and flare is maintaining migration and emissions control in compliance with all federal, state and AQMD regulations. J&A will agree to contractual conditions to maintain the facilities in accordance with these requirements.

J&A will be responsible for obtaining and complying with all AQMD permits required for the LFG Power Plant, LFG Treatment Equipment and any necessary modifications to existing County AQMD permits.

## **2.3 Renewable Energy Credits and Carbon Credits**

Renewable Energy Credits (RECs) are currently available for this type of project as a bundled product to be delivered along with the electricity to the purchaser. The E-SRG Schedule provided by PG&E includes delivery of the RECs bundled with the electricity. Market conditions are changing frequently, which may allow for sale of unbundled RECs. In the event these changes are implemented J&A proposes to share equally with the County any benefits from the sale of unbundled RECs, including RECs associated with any onsite generation.

Due to the changing market conditions, we are uncertain of the value of any eligible carbon credit revenue for this project. We propose to share equally with the County any carbon credit revenue that can be obtained as part of this project. J&A will be responsible for all costs associated with preparing applications and obtaining funding from the sale of carbon credits or renewable energy credits.

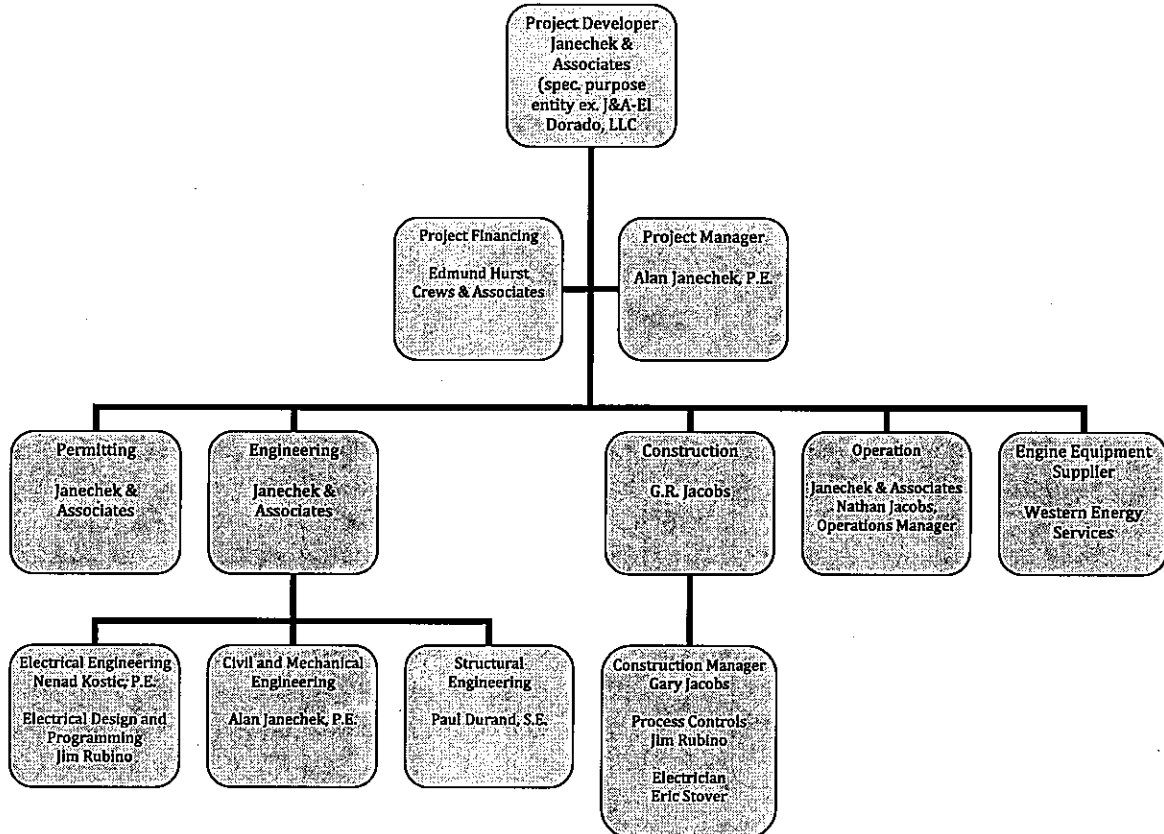
## **2.4 Summary of County Benefits**

A summary of the proposed benefits to the County are presented as follows:

1. J&A operation and maintenance of the LFG collection system and flare station through the term of the Agreement;
2. J&A operation of the County microturbines through the term of the Agreement;
3. J&A to provide supplemental electricity to the County wastewater treatment plant at a reduced rate;
4. County to receive 50-percent of any funds awarded through the sale of carbon credits or unbundled RECs;
5. County to receive benefits of waste heat utilization at the wastewater treatment plant to be determined.

### 3. ORGANIZATIONAL CHART

J&A proposes an organizational structure that has been successfully implemented to finance, design, permit, construct and operate 4.5 MW of LFG-to-energy facilities over the last four years. The proposed organization chart is provided below.



#### 4. PERSONNEL

The Project Manager for the development of this project will be Mr. Alan Janecek, P.E. Mr. Janecek is the owner of Janecek & Associates and will be the sole owner of this development. Mr. Janecek's resume is included in this proposal as Appendix A.

Brief resumes of key personnel that will be provided for this project are provided below.

##### **Nenad Kostic, P.E. - Electrical Engineer**

Mr. Kostic acts as the electrical engineer for all of J&A projects and brings over ten years of experience in the design of utility interconnections. Mr. Kostic has more than 12 years of experience in the various areas of electrical engineering technology such as:

- Commissioning, acceptance testing, operating and maintenance tasks on a variety of protection and control (P&C) systems,
- Project management related to P&C technology and associated equipment,
- Commissioning, acceptance testing, operating and maintenance tasks on a variety of electrical equipment,
- Protection scheme design,
- Power system studies, using SKM, ETAP&EDSA software
- Feasibility studies for the various energy sources (CCGT, Solar, Wind and Hydro)
- Protection relay scheme design
- Wireless power monitoring

##### **Jim Rubino - Electrical Designer, Process Controls**

Mr. Rubino has been involved in the landfill gas industry since it's inception in the 1970's. He has been responsible for the design of electrical control systems for over 70 landfill gas collection systems. Mr. Rubino provides electrical design services and process control programming for all of J&A's facilities.

##### **Gary Jacobs - Construction Manager**

Mr. Jacobs has more than ten years of experience in the construction of LFG recovery facilities, including acting as construction manager for all of J&A's active facilities. Mr. Jacobs has extensive experience in the construction of the LFG piping systems, including HDPE piping, process control equipment and all building components.

##### **Nathan Jacobs - Operations Manager**

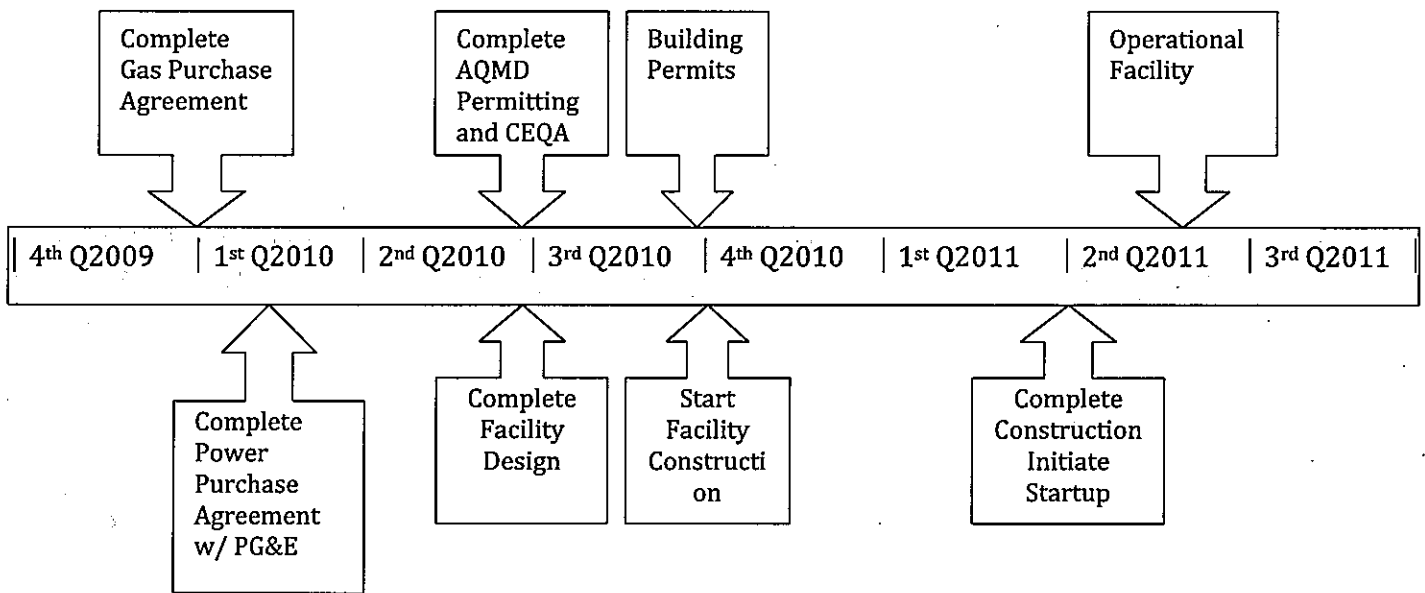
Mr. Jacobs has over twelve years of experience in the LFG recovery industry and acts as the Manager of all J&A engine generator facilities. Mr. Jacobs has extensive experience in the operation and maintenance of Jenbacher engines, with particular emphasis on JGS 320 engines. Mr. Jacobs is also well versed in the operation of LFG process and treatment equipment, including LFG chillers, compression blowers and filtration equipment. Mr. Jacobs also has extensive experience in the operation and maintenance of the LFG collection systems, particularly in the maintenance of HDPE piping system.



## 5. SCHEDULE AND WORK PLAN

The schedule for this project is not dependent on obtaining financing or a power purchase agreement (PPA). Mr. Edmond Hurst of Crews & Associates has provided financing for all of J&A's facilities and has agreed to the financing of this project under the parameters of this proposal. J&A has negotiated a PPA with PG&E under their E-SRG schedule for the Santa Maria II LFG Power Plant and completed the negotiations in less than two (2) months. The critical components of the schedule are provided below.

### PROJECT SCHEDULE



## 6. FINANCING

J&A has utilized the services of Crews & Associates to underwrite four (4) operational projects: Whittier LFG Power Plant, phase 1 and phase 2, Santa Maria LFG Power Plant and Santa Maria II LFG Power Plant. Crews & Associates is a full-service investment-banking firm that has been providing financial services since 1979. Mr. Edmund Hurst of Crews & Associates has reviewed the parameters of this proposal and agreed to provide financing for this project.

The *American Recovery and Reinvestment Act of 2009* (H.R. 1), enacted in February 2009, created a renewable energy grant program that will be administered by the U.S. Department of Treasury. This cash grant may be taken in lieu of the federal business energy investment tax credit (ITC). Grants are available to eligible property placed in service in 2009 or 2010, or placed in service by the specified credit termination date, if construction began in 2009 or 2010. J&A proposes to utilize the grant in lieu of the ITC. The grant will be reused to repay a portion of the long-term debt for the project.

J&A intends to offset a portion of the cost of the facility through funding provided by the California Energy Commission Energy Efficiency and Conservation Small County Competitive Grant program or similar federal funding programs. These funding programs would require that the grant be awarded to the County, with matching funds to be provided by J&A. J&A has previously applied for and received state grant funds through the Self-Generation Incentive Program administered by the California Public Utilities Commission. J&A's Whittier and Santa Maria power plants were both awarded and received \$1 million grants.

APPENDIX A

Resume-Alan Janecek, P.E.

# **Alan Janecek, P.E.**

# **Project Manager**

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**Education** B.S., Civil and Environmental Engineering, University of Madison - Wisconsin

**Registration** Registered Civil Engineer, California, #C 052397

**Professional Affiliations** National Groundwater Association  
Solid Waste Association of North America (SWANA)  
EPA Landfill Methane Outreach Program Industry Partner

## **Experience**

**Janecek & Associates**  
*President*

**Gas Control Engineering, Inc.**  
*Principal*

**GCE Technologies, Inc.**  
*Vice-President*

**Riverside County Waste Management**  
*Associate Engineer*

## **Professional Experience**

Mr. Janecek has extensive experience in the areas of landfill gas control and recovery. Landfill gas experience includes all aspects of design, operation & maintenance, and construction management. Mr. Janecek has designed over seventy LFG collection systems including electricity generation, mechanical process design, electrical design, control logic design (including programming of Programmable Logic Controllers (PLCs)) and wellfield design.

Mr. Janecek's experience with LFG recovery design includes all aspects of engine generator facility design, including civil, electrical and mechanical system design. He also has experience with design and construction of medium BTU facilities for the processing of LFG for combustion in boilers. Mr. Janecek is also the developer and owner of two landfill gas recovery facilities, including negotiation of the landfill gas purchase agreements and power purchase agreements. Mr. Janecek has also arranged for debt financing of these two facilities.

Mr. Janecek's construction management experience includes management of numerous LFG construction projects, many of them design/build type projects. He has also managed LFG system operation and maintenance projects and was one of the principal authors of the SWANA Landfill Gas O&M Manual of Practice. Operations experience also includes numerous system startup and troubleshooting projects including extensive experience in all aspects of system control equipment. Mr. Janecek has presented numerous training sessions for the design concepts employed in designing LFG recovery systems.

**Project Experience****Santa Maria Landfill****Landfill Gas to Electricity Design****Santa Maria, California**

Negotiated a gas purchase agreement with the City of Santa Maria and a power purchase agreement with a nearby hospital. Arranged debt financing and sought and was awarded a 30% rebate from the State of California for renewable power projects. Prepared design drawings, specifications and permit package for an engine generator facility to generate electricity for the Marian Hospital from landfill gas. Design includes all civil, mechanical and electrical design, including power distribution, gas processing design, pipeline design and building design. Facility is currently operational.

**Savage Canyon Landfill****Landfill Gas to Electricity Design****Whittier, California**

Negotiated a gas purchase agreement with the City of Whittier and a power purchase agreement with a nearby hospital. Arranged debt financing and sought and was awarded a 30% rebate from the State of California for renewable power projects. Prepared design drawings, specifications and permit package for an engine generator facility to generate electricity for the Presbyterian Hospital from landfill gas. Design includes all civil, mechanical and electrical design, including power distribution, gas processing design, pipeline design and building design. Facility is currently operational.

**Xing Feng Landfill****Landfill Gas Collection, Flare Station  
and Engine Generator Design****Guangzhou, China**

Designed landfill gas flare station, collection system and 2 MW engine generator facility for a 20 million ton landfill. Design includes all mechanical, structural, and electrical details and specifications necessary to submit a bid package for public works bidding. The engine generator facility was designed for supplying onsite power use, including living quarters and an onsite leachate treatment facility.

**City of Redlands****Engine Generator Facility Design****Redlands, California**

Prepared design drawings, specifications and permit package for an engine generator facility to generate electricity for the City of Redlands wastewater treatment plant. Design includes all civil, mechanical and electrical design, including power distribution, gas processing design and building design.

**Evron Landfill****Landfill Gas Recovery System Design  
Israel****Kibbutz Evron,**

Designed a landfill gas collection system and flare station for future use in conjunction with an energy recovery facility. The flare station was designed to allow for selected components to be purchased from the United States, while components available in Israel could be

## **Alan Janecek, P.E.**

## **Project Manager**

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additions of flares and expansion of the system controls. Prepared LFG generation model and landfill gas collection system Master Plan for incorporation into the site Joint Technical Document. Master Plan includes layout of perimeter migration control system, siting of the flare station, and interconnection with the existing LFG recovery plant. Pipe sizing and condensate generation calculations were also performed.

### **Allied Waste Industries**

#### **Ramona Landfill/Landfill Gas Collection System Evaluation**

**Ramona, California**

Prepared evaluation of existing LFG collection system and recommended enhancements to the system at the Ramona landfill. Evaluated groundwater corrective action procedures and evaluation monitoring program. Prepared feasibility analysis of using enhanced LFG extraction to control groundwater VOC concentrations.

### **Santa Maria Landfill**

#### **City of Santa Maria/IT Corporation**

#### **LFG Flare Station Design Build**

**Santa Maria, California**

Managed design and construction of LFG flare station as subcontractor. Mr. Janecek was responsible for all aspects of design and construction. Design drawings included civil, mechanical, and electrical. Provided programming of the flare station computer to allow remote access to the flare via modem. Design includes a unique condensate injection system which has proven highly reliable. Managed construction of the flare station facility including control panel construction, flare installation and process equipment installation.

### **Kern County Waste Management Department**

#### **Bakersfield Municipal (Bena) Landfill**

**Bakersfield, California**

Managed an Emissions Guidelines (EG) Tier 2 analysis for the Bena Landfill in Kern County. Prepared a workplan detailing sampling procedures, alternative sample points, and reporting outline. Assisted Kern County staff with sampling equipment setup. Prepared final report detailing the results of NMOC analysis. Prepared EPA LFG Emissions Model using the revised NMOC concentration derived from the Tier 2 analysis. Workplan was approved by San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). Approval of final report is pending. The results of the Tier 2 analysis resulted in a NMOC emissions rate below the EG cutoff for required LFG collection.

### **Biomass**

#### **Landfill Gas Compressor Station Design**

**Wichita, Kansas**

Assisted LFG Specialties with the design and fabrication of a LFG compressor station. The compressor station was constructed to deliver collected LFG to a pipeline for subsequent use in an energy recovery facility. Tasks included project management of the preparation of shop drawings and procurement of system equipment. Design work included blowers, air dryers, evaporative coolers, and gas compressors.

### **Biomass**

**Landfill Gas Compressor Station Design      Oklahoma City, Oklahoma**

Assisted LFG Specialties with the design and fabrication of a LFG compressor station. The compressor station was constructed to deliver collected LFG to a pipeline for subsequent use in an energy recovery facility. Tasks included project management of the preparation of shop drawings and procurement of system equipment. Design work included blowers, air dryers, evaporative coolers, and gas compressors.

**University of California - Davis****UC-Davis Landfill, LFG Recovery for Boiler Operation Davis, California**

Managed design and construction of a pipeline and modification to the flare station to deliver LFG to a boiler at the UC-Davis Primate Center. This project was unique in that a very small landfill (<70 cfm of LFG) was able to support LFG recovery with a three-year payback. This was achieved by maintaining a low cost for the process controls. Mr. Janechek designed and constructed a system to automatically switch between the flare and the boiler depending on the needs of the boiler. PLC logic was easily incorporated to operate this system.

**City of Mountain View Landfill****LFG Collection System****Mountain View, California**

Served as project manager for design and construction quality assurance of a LFG and leachate collection system at a 544 acre landfill. System was designed for incorporation into a site used for recreation including a golf course. The leachate collection system consisted of 104 combination LFG/leachate extraction wells installed along with an automatic pumping system.

**Publications and Presentations**

*Solid Waste Association of North America, Landfill Gas Operations and Maintenance Manual of Practice*; October 1996, Principal author.

*Landfill Gas and Groundwater Contamination*; presented at the Proceedings of the October 1995 American Society of Civil Engineers (ASCE) Convention. (co-author R. Prosser)

*Landfill Gas Collection and Groundwater Protection*; presented at the Eighteenth International Madison Waste Conference, September 1995, Department of Engineering Professional Development, University of Wisconsin-Madison. (co-author R. Prosser)

*Groundwater Impacts Associated with Landfill Gas Migration at Municipal Solid Waste Landfill Sites*; presented at the Proceedings of the February, 1998 American Society of Civil Engineers (ASCE) Convention. (co-authors B. Clister and Sherrie Hibbs)

***Experience Matrix of Landfill Gas Projects***

<b>Project</b>	<b>Landfill Gas System Operation &amp; Maintenance</b>	<b>Landfill Gas Control System Design</b>	<b>Landfill Gas System Construction</b>
Badlands Landfill Moreno Valley, CA		X	
California Street Landfill Redlands, CA	X	X	X
China Grade Landfill Bakersfield, CA		X	
Cold Canyon Landfill San Luis Obispo, CA			X
Corona Landfill Riverside, California	X		X
Dane County Landfill Madison, WI	X		
Delafield Landfill Phase I Delafield, WI	X	X	X
Delafield Landfill Phase II Delafield, WI		X	
Douglas County Landfill Omaha NE		X	
Elsinore Landfill Riverside, California	X	X	X
El Sobrante Landfill Riverside, California	X		
Evron Landfill Kibbutz Evron, Israel		X	
Frank R. Bowerman Landfill Irvine, CA		X	
Helena Landfill Helena, MT		X	
Hewitt Landfill Sun Valley, California		X	X
Hillsboro Landfill Hillsboro, Oregon		X	
Huntington Beach Huntington Beach, California	X		
Ironwood Landfill Arizona		X	



**Alan Janecek, P.E.****Project Manager**

Project	Landfill Gas System Operation & Maintenance	Landfill Gas Control System Design	Landfill Gas System Construction
Jolon Landfill Salinas, CA		X	
Lewis Road Landfill Salinas, CA		X	
Mead Valley Landfill Riverside, California		X	X
South Miramar Landfill San Diego, CA		X	X
North Miramar Landfill San Diego, CA	X		X
Nanjido Seoul, Korea		X	
Mountain View Landfill Mountain View, California		X	X
Old Bakersfield Landfill Bakersfield, CA	X	X	X
Oklahoma City Landfill Oklahoma City, OK		X	
Operating Industries Inc. Monterey Park, California		X	
Santa Maria Landfill Phase I Santa Maria, CA		X	X
Santa Maria Landfill Phase II Santa Maria, CA		X	X
San Marcos Landfill		X	
Savage Canyon Landfill Whittier, California		X	
Shoreline Amphitheatre Mountain View, California		X	X
University of California-Davis Landfill Phase I Davis, CA		X	X
University of California-Davis Landfill Phase II Davis, CA		X	X
West Riverside Landfill West Riverside, California	X	X	X

**Alan Janecek, P.E.**

**Project Manager**

<b>Project</b>	<b>Landfill Gas System Operation &amp; Maintenance</b>	<b>Landfill Gas Control System Design</b>	<b>Landfill Gas System Construction</b>
Yolo County Landfill		X	