

Education:

BS, Chemical Engineering,
California State
University, Northridge
(1981)

**Professional
Memberships:**

American Institute of
Chemical Engineers
Pacific Energy Association
Solid Waste Association
of North America
(SWANA)

Mr. Andraos, President of the BAS Landfill Gas Group, has more than 26 years of gas processing experience, including more than 23 years of experience in landfill gas engineering. He has directed the permitting, design, operation, and maintenance of more than 75 landfill gas systems throughout California and the Western United States. He has developed a computerized Management Information System for analyzing landfill gas monitoring data, as well as a Well Adjustment Manual that has been useful in keeping gas systems operating within desired parameters while maintaining regulatory compliance. His duties have included the preparation of permit applications with Air Quality & Local Enforcement agencies cost estimates for process equipment and hardware, and preparation of equipment specifications, instrumentation, and control specifications. He has selected and designed processing equipment; developed operations and maintenance manuals for landfill gas processing plants and gas collection systems, and conducted computer modeling to calculate pressure variation in gas lines. Mr. Andraos has calculated gas production based on tonnage of refuse in place, supervised stack emission source testing and plant startup, and prepared manuals for the prevention and mitigation of subsurface fires and well adjustment procedures. Mr. Andraos has been instrumental in the development of innovative design processes, which have become standards in the landfill gas industry.

Landfill Gas System Design Experience:

Flare Station Expansion, Newby Island Landfill, Manteca, California. Project Director of Design/Build contract for installation of John Zink Flare.

Flare Station Replacement, Ox Mountain Landfill, Half Moon Bay, California. Project Director of Design/Build Contract for removal of existing Callidus and John Zink Flare with two PEI flares.

Flare Station Expansion, Keller Canyon Landfill, Pittsburg, California. Project Director of Design/Build contract for installation of new 2,000 SCFM John Zink Flare System.

Landfill Gas System Design, Forward Landfill, Manteca, California. Project Director for the design of a landfill gas extraction and treatment system.

Landfill Gas System Design, Central Park Sports Complex in Huntington Beach, California. Project Director for the design of a landfill gas extraction system. Project involves design of system to mitigate landfill gas migration and surface emissions at a public recreational complex being developed by the City of Huntington Beach.

Landfill Gas System Upgrades, Valley Landfill Sites, San Bernardino County, California. Project Director for design of landfill gas extraction system improvements and expansion at the Milliken, Mid Valley, San Timoteo, Victorville, and Colton sanitary landfills.

Professional Experience:*1988 - Present*

President, Landfill Gas,
Bryan A. Stirrat
Associates,
Diamond Bar, California

1984 - 1988

Project Engineer,
Mandeville & Associates,
Industry, California

1981 - 1984

Associate Process
Engineer,
Kinetics Technology
International,
Santa Ana, California

Landfill Gas System Design/Build Project, Hesperia Sanitary Landfill, San Bernardino County, California. Project Director for design/build contract for upgrades to a landfill gas migration control system. This included review available information on site conditions concerning generation of landfill gas, LFG generation modeling, and design of the blower/treatment facility, landfill gas extraction and condensate management systems.

Landfill Gas Collection And Flaring System Design, 19th Avenue Landfill, Phoenix, Arizona. Project Director for design of landfill gas system upgrades. The site is on the National Priority Lists (NPL) and in the State Superfund, and the design was carried out to comply with applicable stringent regulations, and a decree of consent between the State of Arizona and City of Phoenix.

Landfill Gas System Improvements, Skunk Creek Landfill, Phoenix, Arizona. Project Director for design of gas extraction system improvements for Cells 3 – 6 at this municipal landfill operated by the City of Phoenix. Landfill gas system improvements received the 2000 Landfill Gas Control Excellence Silver Award from the Solid Waste Association of North America.

Perimeter Gas System And Flare Station Design, Crazy Horse Landfill, Salinas, California. Project Director for permitting and design of system to mitigate gas migration, while maintaining the quality of methane available to site energy production facilities.

Landfill Gas Control System Design, Bettencourt Park, Cerritos, California. Project Director for a design/build project involving installation of a landfill gas extraction and treatment system and condensate management system at municipal park located at the site of the former Curti Dump.

Landfill Gas System Design, San Diego County Landfills. Project Director for the design of gas extraction systems for the Encinitas, Gillespie, Jamacha, Poway, Ramona, and Valley Center landfills, San Diego, California.

Flare Station Expansion, Frank R. Bowerman Landfill, Orange County, California. Project Director preparation of design plans and specifications, coordination with gas-to-energy plans for the site, preparation of SCQAMD permits, technical support during construction, system testing and start-up, system certification, and source testing.

Preliminary Design of Landfill Gas System Upgrades, Vincent Mullins Landfill in Tucson, Arizona. Project Director for preliminary design of landfill gas system upgrades.

Landfill Gas System Design, Gardena Valley 1 and 2 Landfill Superfund Site, Gardena, California. Project Manager for design of gas collection system and flaring system.

Landfill Gas System Design, Forster Canyon Landfill, San Juan Capistrano, California. Project Manager for design of gas collection and flaring systems.

Landfill Gas System Upgrades, Operating Industries, Inc. Landfill USEPA Superfund Site, Monterey Park, California. Project Manager for design of upgrades to existing flare stations to meet current BACT standards.

Landfill Gas Control System Design, West Contra Costa, Richmond, California. Design/Project Engineer for landfill gas collection system, flare station, and processing facility of landfill gas for a medium Btu landfill gas power generation station.

Landfill Gas System Design, Lopez Canyon Landfill, Los Angeles, California. Project Manager for design of flare station and gas collection system. Duties included supervising preparation of a complete package of structural, electrical, mechanical, and process engineering drawings; permitting with the South Coast Air Quality Management District (SCAQMD); and preparation of bid specifications, construction supervision, and plant startup for all three phases of the project.

Landfill Gas System Design, Plaza Alicante Commercial Center, Garden Grove, California. Project Manager for design, construction, and startup of landfill gas treatment system using granular activated carbon (GAC). The system controls migration of gas from a closed landfill into a large commercial / hotel complex.

Landfill Gas System Design, BKK Landfill, West Covina, California. Project Manager for the design of the landfill gas and condensate management system at Class III Landfill

Landfill Gas Collection System Design, Bena Landfill, Bakersfield, California. Project Manager. Also Design Engineer for design of gas collection system and flare station at BKK Class I Landfill.

Gas Collection System Design and Energy Utilization Feasibility Study, Tajiguas Landfill, Santa Barbara, California.

Landfill Gas Collection Systems and Landfill Gas Flare Stations, Various Sites. Design/Project Engineer for design of landfill gas control systems at the following sites: West Riverside, Riverside County California; Desser Rubber and Tire Co., Wilmington, California; City of Tacoma, Washington; City of Spokane, Washington; Shoreline Amphitheater, City of Mountain View, California.

Landfill Gas Flare Station Design, Various Sites. Design/Project Engineer for the following locations: Cal Mat Pick Your Part, Sunland, California; and Watson Biogas, Wilmington, California. Duties included permitting with the SCAQMD and other concerned agencies, sizing and designing of gas collection pipes, sizing and selecting equipment/controls for a flare station, and preparing technical specifications and O&M manuals.

Landfill Gas Pilot Plant Project, Industry Hills Complex, Industry, California. Project Engineer for the design startup, operation, and maintenance of a pilot plant project using landfill gas to operate a fuel cell to generate electric power.

Landfill Gas Generation Modeling. Prepared numerous landfill gas generation estimates involving rigorous calculations required to estimate the expected landfill gas generation rates at a given time of the life of a landfill. Also conducted computer modeling to calculate pressure variations and flow rates in gas lines, predict gas production, and design gas collection systems.

Landfill Gas System Permitting. Prepared application documents for permits to construct and operate to various agencies, including South Coast Air Quality Management District, Bay Area Unified APCD, Maricopa County APCD, Regional Water Quality Control Board, and Los Angeles City Department of Building and Safety.

Landfill Gas System Specifications. Prepared process equipment specification, instrumentation, and control specifications.

Engineering Analysis. Conducted detailed engineering analysis of the proposed designs of chemical processes, flares/incinerators, mechanical process equipment and equipment related to landfill gas control systems to determine the extent and controllability of emissions, and if they will conform with applicable rules and regulations

Landfill Gas System OM&M Program, San Bernardino County, California. Project Director for operation and maintenance of landfill gas extraction and treatment systems for the Colton, Milliken, Mid-Valley, San Timoteo, Heaps Peak, Victorville, and Hesperia landfills for the County of San Bernardino.

Landfill Gas OM&M Program, Orange County Integrated Waste Management Department Central Region Landfills. Project Director for ongoing operation, maintenance, and monitoring services and SCAQMD 1150.1 monitoring services at the Frank R. Bowerman, Santiago Canyon, and Gothard Street landfills. This includes direction of repairs to system, and various non-routine maintenance activities.

Landfill Gas Support Services, Orange County Integrated Waste Management Department North Region Landfills. Project Director for landfill gas system upgrades and SCAQMD Rule 1150.1 monitoring activities at the Olinda Alpha, Villa Park, and Reeves Pit landfills.