

SANTARY LANDFILLS IN HAWAII

(with a case study of Puu Palailai)

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State Capitol
Honolulu, Hawaii 96813**

FOREWORD

This study on regulating landfills in Hawaii was prepared in response to Senate Resolution No. 168, S.D. 1, adopted during the 1987 legislative session.

For their cooperation and assistance at practically every stage of the study, the Bureau thanks Dr. Bruce S. Anderson, Deputy Director for Environmental Health, and the staffs of the state Department of Health's Pollution Investigation and Enforcement Branch and Environmental Permits Branch. And for promptly responding to requests for information, we wish to thank the directors of solid-waste management programs throughout the country.

In addition, for cooperation and assistance in various ways, we wish to thank the members of the Ewa Neighborhood Board and the residents of Makakilo who met with our researcher; the Grace Pacific Corporation; the Office of Environmental Quality Control; the Municipal Reference and Records Center, the Department of Land Utilization, and the Board of Water Supply of the City and County of Honolulu; the Land Use Commission; the Pacific Islands Contact Office of the United States Environmental Protection Agency; and the Environmental Center of the University of Hawaii.

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Chapter 1

INTRODUCTION

The disposal of solid waste is a complicated and vexing problem both nationally and in the State of Hawaii. The problem consists not only of devising methods and identifying locations for the disposal of solid waste but of regulating the various methods currently in operation. The most popular--or practicable--method currently in use is landfilling, which in the mid-1980s accounted for the disposal of nearly 85 per cent of the nation's solid waste.¹

The primary source of solid waste legislation at the federal level is the Resource Conservation and Recovery Act of 1976, P.L. 94-580, 42 U.S.D. 6901, et seq., amended by the Solid Waste Disposal Act Amendments of 1980, P.L. 96-463, 42 U.S.D. 6901, et seq. The laws authorized the Environmental Protection Agency (EPA) to prepare guidelines for the land disposal of solid waste. These guidelines are found in 40 Code of Federal Regulations, Parts 240 to 257. "Part 241 of EPA's regulations addresses all aspects of solid waste disposal, including site selection, facility design, water and air quality considerations, gas control, vector control, aesthetics, cover material, safety considerations, record keeping, and exclusion of specific solid wastes."² The guidelines found in Part 241 are mandatory for federal agencies and recommended to state and local government agencies.

A survey released in June 1987, comparing the solid waste programs of the various states, shows that 926,000 tons of solid waste are being generated annually in the State of Hawaii.³ Of that amount, three per cent was recycled, 13 per cent incinerated, and 84 per cent landfilled.⁴

Solid waste legislation in Hawaii is addressed in chapter 342, Hawaii Revised Statutes, entitled "Environmental Quality." It is this legislation that authorized the state Department of Health to adopt administrative rules (chapter 11-58, Hawaii Administrative Rules) on Solid Waste Management Control.

Senate Resolution No. 168, S.D. 1

Senate Resolution No. 168, S.D. 1 (see Appendix A), adopted during the 1987 Regular Session, requests the Legislative Reference Bureau to "review the Department of Health's administrative rules on solid wastes management control." The Resolution was adopted in large measure to address the complaints of residents who live near the Puu Palailai Sanitary Landfill in Makakilo, Oahu.

The residents' complaints include rubbish from the landfill being blown into their yards, underground fires, dust, rodents, insects, and the unsightliness of the landfill itself. Additional complaints refer to respiratory illnesses, eye irritations, headaches, chest pains, and insomnia--all asserted to be caused or aggravated by the operation of a nearby landfill.

Senate Resolution No. 168, S.D. 1, recognizes that Hawaii, as an island state, is heavily dependent on landfills for the disposal of refuse. It also

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recognizes the scarcity of land suitable for use as landfills and the occurrence of residential development near landfills. The problem of siting landfills is especially serious on Oahu, where less than 10 per cent of the land area is available for landfill operations.⁵

The Need for Landfills

Though problematical, landfill disposal is currently the only method available that is both practical and environmentally acceptable for the "ultimate disposal of solid waste."⁶ Other methods of solid waste disposal are available, but all things considered--cost, the state of present technology, environmental concerns--landfilling seems to be the most acceptable alternative:

While incineration may be enticing because of its energy-producing potential, while recycling can be appealing for its resource conservation capability, and while reduction in the volume of solid waste generated--by reforming our throwaway habits--are unquestionably rational needs, the realities of the social word--as it presently exists--brings solid waste thinking and action back down to earth.⁷

The Puu Palailai Sanitary Landfill

Senate Resolution No. 168, S.D. 1, singles out the Puu Palailai Sanitary Landfill in Makakilo, Oahu, as a problematical landfill. Many complaints have been made by residents who live near the landfill. However, according to Senate Resolution No. 168, S.D. 1, the Pollution Investigation and Enforcement Branch of the Department of Health has found the landfill to be operating in accordance with the Department's rules (chapter 11-58). The operators of the landfill, originally Pacific Concrete & Rock Company, Limited, and now Grace Pacific Corporation, have received all state and county permits and certificates of approval needed to operate a landfill on the island of Oahu.

The Scope of the Study

This study will discuss the state Department of Health's rules regarding landfills and compare them in terms of completeness with those of other states.

This study will also review the complaints received from residents who live near the Puu Palailai Sanitary Landfill. These complaints can be divided into three categories:

- (1) Complaints made directly over the years to the Department of Health's Pollution Investigation and Enforcement Branch;
- (2) Complaints presented in testimony at a public hearing on Senate Resolution No. 168; and
- (3) Complaints communicated to the researcher involved in this study.

INTRODUCTION

Finally, this study will address the feasibility and usefulness of buffer zones to alleviate the kinds of problems faced by residents who live near landfills.

Organization of the Report

This report consists of five chapters.

Chapter 1 introduces the study.

Chapter 2 discusses the regulation of solid waste management in Hawaii, focusing on the Department of Health's rules (chapter 11-58, Hawaii Administrative Rules) pertaining to the establishment and operation of landfills.

Chapter 3 presents a case study of landfill regulation, using the Puu Palailai Sanitary Landfill as the subject of the study.

Chapter 4 presents a comparison of the Department of Health's rules on landfilling with those of other states.

Chapter 5 presents the findings and recommendations of this study regarding the adequacy of the Department of Health's rules on landfilling and the need for buffer zones around sanitary landfills.

Chapter 2

SOLID WASTE MANAGEMENT IN HAWAII

The state Department of Health regulates landfills through a set of administrative agency rules identified as chapter 11-58, Hawaii Administrative Rules, on Solid Waste Management Control. These rules, originally adopted as chapter 46, Public Health Regulations, first became effective on July 30, 1974 and was revised in 1980.

The most significant regulations in chapter 46 were those that made it unlawful for anyone to establish, modify, or operate a solid waste disposal facility without a permit from the Director of Health. The types of facilities covered by the rules included, in addition to landfills, intermediate disposal facilities, transfer stations, incinerators, composting plants, and recycling or reclamation facilities.

Reaction to the Proposed Chapter 46

The Department of Health received testimony from a number of government agencies, companies, associations, and individuals when it held a series of public hearings on the final draft of its proposed rules in chapter 46. Hearings were held March 11 through March 14, 1974, on Kauai, Hawaii, Maui, and Oahu.

Testimony presented by Edward Y. Hirata, Director and Chief Engineer of the Department of Public Works, stated that the City and County of Honolulu "favors the adoption of these regulations to establish minimum standards governing solid waste disposal facilities and to enforce these regulations with a permit system."¹

Edward J. Lui, Director of Environmental Affairs for the Hawaiian Sugar Planters' Association, maintained that "the proposed regulations will indeed go a long way towards achievement of their stated purpose. Standards for the handling, treatment, and disposal of many solid waste materials are needed. We believe these proposals will fill that need." Later, he added: "There are no technical errors we have noticed."²

Testimony was also presented by Robert B. Robinson, President and General Manager of Pacific Concrete & Rock Company, Limited, which began operating the Puu Palailai Sanitary Landfill on January 2, 1974. In general, Robinson stated: "I find that your regulations are written from the latest practical mainland technologies and look to be quite good." He did, however, question four of the proposed rules.³

One questioned rule proposed the installation, maintenance, and operation of monitoring equipment to detect pollution or contamination in a solid waste disposal facility. Another proposed semi-annual reports itemizing the type and quantity of solid waste processed. Robinson stated that both proposed rules would increase the cost of operating his company's landfill.⁴

The third proposed rule required a minimum separation of five feet between deposited solid waste and the anticipated high ground water table. Robinson suggested that "This should state potable ground water table to provide flexibility to opening solid waste disposal sites in areas where the ground waters are not potable."⁵

Finally, Robinson questioned a requirement imposing an eight-foot height limit to each lift (defined by chapter 46 as "a compacted layer of solid waste and its overlying earth cover in a landfill") and a requirement calling for the application of no less than one foot of compacted, intermediate earth or other approved cover material between lifts. Robinson stated that these rules would increase his company's daily cover cost by \$.85 per ton. Also, he pointed out that the Los Angeles Sanitation District landfills are permitted lifts of 22 feet with six inches of intermediate cover.⁶

Revisions to the Chapter 46 Rules

Amendments to the chapter 46 rules became effective on July 21, 1980. Public hearings to consider the proposed changes were held on June 21, 25, 27, and 28.

The new chapter 46 rules did not contain two of the original rules pertaining to Standards for Landfill. One deleted rule, Section 3. B. 1.(a), read: "A minimum vertical separation of five (5) feet shall be maintained between the deposited solid waste and the anticipated high ground water table." The other deleted rule, part of Section 3. B. 7., read: "each completed lift shall be no greater than eight (8) feet in vertical depth."

Proposed Chapter 11-58 Rules

The Department of Health's new rules on Solid Waste Management Control, identified as chapter 58 of Title 11, Hawaii Administrative Rules on Solid Waste Management Control, became effective on November 27, 1981, replacing chapter 46 of the Public Health Regulations. Public hearings on the proposed chapter 11-58 were held October 5 through October 8, 1981. No formal or written testimony was received at any of the hearings. According to a memorandum of October 21, 1981, from George Yuen, Director of Health, to Governor George R. Ariyoshi, "This regulation was changed to conform with new Administrative Rules format. Other minor changes were also made to improve the clarity of various provisions."⁷

Definitions Used in Chapter 11-58

Chapter 11-58 provides definitions of "solid waste," "hazardous waste," "solid waste disposal facility," "solid waste disposal system," and "landfill."⁸

"Solid waste" means garbage, refuse, and other discarded solid materials, including solid waste materials resulting from industrial and commercial operations, and from community activities, but does not include solid or dissolved material in domestic sewage or other substances in water sources, such as silt, dissolved or suspended solids in industrial waste water effluents, dissolved materials in irrigation return flows or other common water

pollutants. This definition of solid waste includes liquid waste materials such as waste oil, pesticide, paints, solvents, and hazardous waste.

"Hazardous waste" means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are nondegradable or persistent in nature, or because they can be biologically magnified, or because they can be lethal, or because they may otherwise cause or tend to cause detrimental cumulative effects.

"Solid waste disposal facility" means an intermediate disposal facility, transfer station, landfill, incinerator, composting plant, recycling or reclamation facility, waste oil collector, or any site utilized for the reduction, consolidation, conversion, processing, or disposal of solid waste.

"Solid waste disposal system" means the entire process or part thereof of the storage, collection, transportation, processing and disposal of solid waste by any person engaging in such a process as a business or by any municipality, authority, county, or any combination thereof.

"Landfill" means a land area used for the disposal of solid waste.

It should be noted that section 342-51, Hawaii Revised Statutes, which in part authorized chapter 11-58, does not define "landfill." Instead, it makes a distinction between "open dump" and "sanitary landfill."

"Open dump" means an unregulated disposal site that is operating without required pollution control measures.

"Sanitary landfill" means a land site on which engineering principles are utilized to bury deposits of solid waste without creating a nuisance or hazard to public health or safety.

Purpose of Chapter 11-58

The purpose of chapter 11-58, Hawaii Administrative Rules, is to establish "minimum standards governing the design, construction, installation, operation, and maintenance of solid waste disposal systems." The minimum standards are intended to:

- (1) Prevent pollution of the drinking water supply or waters of the State;
- (2) Prevent air pollution;
- (3) Prevent the spread of disease and the creation of nuisances;
- (4) Protect the public health and safety;
- (5) Conserve natural resources; and
- (6) Preserve and enhance the beauty and quality of the environment.⁹

Section 342-52, Hawaii Revised Statutes, which authorized chapter 11-58, states that the Director of Health may "Establish by rule the criteria for siting, design, construction, financial responsibility, manifest, and operation of solid waste treatment, storage, transport, and disposal systems."

Organization of Chapter 11-58

In addition to a section on purpose and a section on definitions, chapter 11-58 contains seven sections:

- Section 11-53-3 Solid waste management permit system;
- Section 11-53-4 Standards for solid waste disposal facilities;
- Section 11-53-5 Standards for hazardous waste disposal;
- Section 11-53-6 Solid waste management responsibility;
- Section 11-53-7 Variances;
- Section 11-53-8 Penalties and remedies; and
- Section 11-53-9 Severability clause.

The sections most relevant to this study are 11-53-3, 11-53-4, and 11-53-5. There is no section dealing with the siting of landfills and other solid waste disposal facilities.

Solid Waste Management Permit System

Chapter 11-58 requires anyone who wishes to establish, modify, or operate a solid waste disposal facility--which by definition includes landfills--to obtain a permit from the Director of Health. The application for a solid waste management permit must be accompanied by:

- (A) Detailed plans and specifications for the facility.
- (B) Certification of compliance with local ordinances and zoning requirements.
- (C) An operations report [In Chapter 46 of the old Public Health Regulations, a "plan report" was specified] detailing the proposed method of operation, population, and area to be served, the characteristics, quantity, and source of material to be processed, the use and distribution of processed materials, method of processed residue disposal, emergency operating procedures, and the type and amount of equipment to be provided and the proposed ultimate use of land or ocean disposal sites.¹⁰

Other rules specify who is responsible for signing the application and set forth the procedure to be followed by the Director of Health in reviewing the application. Approval of the application is to be granted if the application and its supporting information "clearly show" that the issuance of

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the permit is in the public interest and that "the solid waste disposal facility is designed, built, and equipped in accordance with the best practicable technology so as to operate without causing a violation of applicable rules and regulations."¹¹

A permit may not be granted for a period longer than five years, although it may be renewed. Each renewal period, however, may not be longer than five years, and renewal will be granted "if such is in the public interest."¹²

A permit may be modified, suspended, or revoked by the Director of Health either "on his own motion or the application of any person." The director is required to give the applicant a hearing in accordance with chapter 91, Hawaii Revised Statutes. And if the Director determines:

- (1) That any condition of the permit, any rule or regulation of the department, or any provision of chapter 342, Hawaii Revised Statutes (the environmental quality law), has been violated, or
- (2) That it is in the public interest,

then the Director may modify, suspend, or revoke a permit.¹³

Other rules address the transfer of a permit; the termination of a permit; the posting of a permit; and the falsification of a permit. The filing fee for a permit is \$20.00, the fee that was required in 1974 under the original chapter 46 rules.

Standards for Solid Waste Disposal Facilities

These standards apply not only to landfills but also to transfer stations, incinerators, composting plants, and other disposal facilities. Five standards are mandatory, and an additional four standards may be required.

The five mandatory standards are:

- (A) Provide a permanent sign posted at the facility entrance identifying the facility, the hours and days of operation, the name and address of the operator, and other information pertinent to the operation of the facility.
- (B) Provide effective methods to control insects, birds, rodents, other disease vectors, and nuisance conditions at the facility.
- (C) Provide an all-weather access road negotiable by loaded collection vehicles from the public road to the entrance of the facility.
- (D) Provide adequate equipment and necessary measures to prevent and extinguish fires.
- (E) Provide for the adequate storage of all solid waste so as to prevent the attraction, harborage, or breeding of insects or

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rodents and to eliminate conditions harmful to public health or which create safety hazards, odors, unsightliness, and other public nuisances.¹⁴

The four other standards that may be required are:

- (A) Compact and cover all solid waste accumulated after each day's operation with earth or other approved material in an approved manner safeguarding the environmental quality of the surrounding area; except that solid waste processed by shredding, milling, baling, or other operations, specifically approved by the director, may not require daily cover.
- (B) Provide controlled access to the facility in the form of fences and gates that shall be kept locked when an attendant is not on duty.
- (C) Install, maintain, and operate monitoring equipment for the detection of pollution or contamination resulting or tending to result from the operation of the facility, in accordance with methods and procedures acceptable to the director, at specified locations and intervals and to provide the resulting data to the director.
- (D) Submit semi-annual reports itemizing the type and quantity of solid waste processed, the quantity of waste requiring final disposal, hours and days of facility operation and market value of any reclaimed material.¹⁵

Standards for Landfill

The following standards for landfill are mandatory:

- (1) The disposal of solid waste in areas subject to flooding or leachate generation shall be allowed only in conjunction with special procedures approved by the director.
 - (A) Adequate provisions shall be provided to manage surface water flow at the landfill site such that the flow of offsite drainage over a landfill will be minimized.
 - (B) Solid waste shall be deposited in a sanitary manner to prevent waste materials, leachate, or eroded soil particles from entering the waters of the State without receiving the best practicable treatment for control.
- (2) Salvaging or reclamation of materials shall be controlled at the facility to prevent interference with the prompt sanitary disposal of solid waste and the creation of health hazards. Scavenging is prohibited.
- (3) Live, domestic animals are prohibited within the landfill.

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- (4) The approach road from the entrance gate to a working face of a landfill shall be maintained to provide all-weather access and kept clean of solid waste.
- (5) The working face of a landfill shall be limited to as small an area as practicable and designed to confine wind blown solid waste, which shall be collected and returned to the working face.
- (6) The equipment provided for the operation of a landfill shall be adequate in number and performance capability to continuously conduct the landfill in a safe and sanitary manner.
- (7) Solid waste shall be spread in shallow layers not exceeding a depth of two feet prior to compaction; and at least one foot of compacted, intermediate earth, or other approved cover material shall be applied between lifts.
- (8) Solid waste shall be compacted and covered with a minimum of six inches of earth or other approved material at a frequency specified by permit requirements.
- (9) A completed landfill or a major portion thereof shall be covered with at least two feet of compacted earth material, compacted, graded with proper drainage to minimize erosion and sodded or planted immediately after the grading work has been completed.
- (10) Provisions shall be made to maintain the landfill site for at least one year after termination of operation to prevent health hazards or nuisances from occurring. Maintenance shall include, but not be limited to, repair of cracks or fissures, repair of areas where settling occurs and control of problems which result from leachate or odors. Compliance with these requirements shall be a basis for future recommendations by the department on land use.¹⁶

Hazardous Waste Disposal

The scope of this study does not permit a detailed discussion of hazardous waste disposal, which is a very special type of solid waste disposal. It should be noted that hazardous wastes may be disposed of in landfills operating under permits issued by the Director of Health. Prior to their final disposal, however, these hazardous wastes must first be rendered nonhazardous.¹⁷

Chapter 3

REGULATING THE PUU PALAILAI SANITARY LANDFILL: A CASE STUDY

The original owner and operator of what is now the landfill at Puu Palailai was Pacific Concrete & Rock Company, Limited, which for 22 years had operated a rock quarry at the site. The rock quarrying operation resulted in a 90-foot deep pit with a volume of 3.3 million cubic yards. Since December 13, 1984, the Puu Palailai Sanitary Landfill has been owned and operated by Grace Pacific Corporation. One recommendation that was made to Pacific Concrete & Rock Company by its consultants, Donald Wolbrink & Associates, was to use the 29-acre quarry site as a sanitary landfill.

In 1979, the landfill accounted for the disposal of 182,000 tons, or over 25 per cent, of Oahu's municipal solid waste.¹ More recently, the landfill has been accepting approximately 20,000 tons of solid waste a month.² The Puu Palailai Sanitary Landfill, which began operating in early 1974, is privately owned and operated, and it accepts solid wastes from government agencies, commercial refuse haulers, industries, and private citizens.

Part I. The Environmental Impact Statement Review Process

Pacific Concrete & Rock Company prepared a draft environmental impact statement (EIS), dated July 31, 1972, that describes in some detail a sanitary landfill operation at Puu Palailai, Ewa, Oahu. Reasons for using the former quarry site as a landfill included: (1) refuse could be used to fill the pit; (2) a landfill would serve a city-wide need; and (3) the completed landfill could be transformed into a site suitable for agricultural or recreational use. The company went to the trouble of preparing the EIS even though it was not required for obtaining a landfill permit: "Pacific Concrete developed [this statement] to assure that all pollution control measures were considered and that all operations would remain within present or foreseeable laws developed to safeguard the ecology of Oahu."³

The Puu Palailai Site

The draft EIS mentions that Puu Palailai was not recommended as a landfill site by an earlier major study, "Solid Waste Management Plan for City and County of Honolulu--Supplement to Hawaii State Solid Waste Management Plan." The July 1971 study, prepared by Metcalf & Eddy, Inc., Engineers, recommended a site in Nanakuli for the Ewa-Waianae area. That site, however, subsequently became unavailable. The draft EIS explains that Metcalf & Eddy did not recommend the Puu Palailai site because it was not aware that the rock quarry was within one and a half years of exhaustion.⁴

The Puu Palailai site is an area designated as Tax Map Key 9-1-16 and 9-2-03. Its owner is the Campbell Estate. (See copy of Map on next page.) According to the draft EIS, "Neither the entrance to the landfill nor the fill itself will be visible to Makakilo City residents."⁵

(WAIANAE)

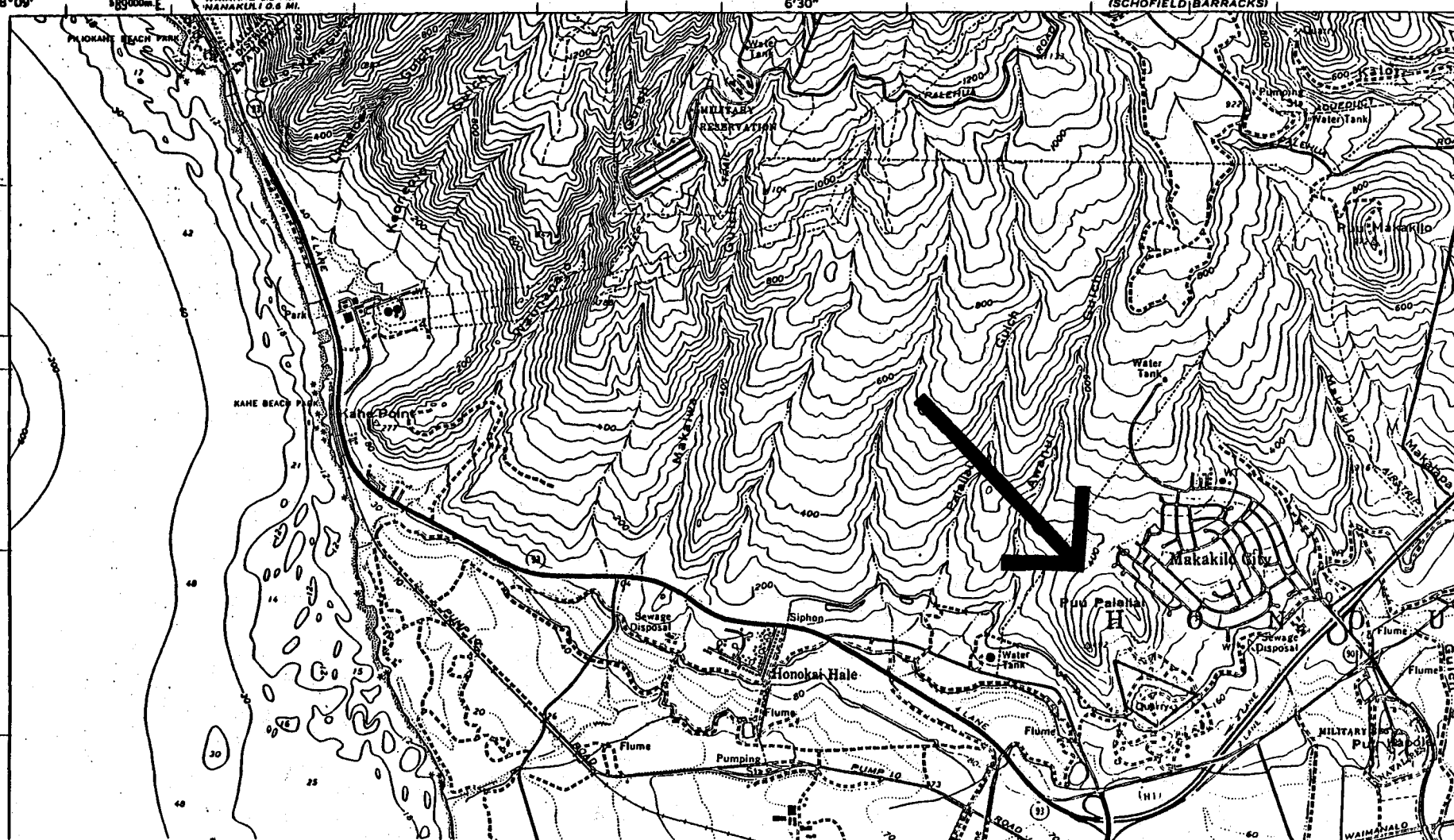
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THE PUU PALAILAI SANITARY LANDFILL

Operation of the Landfill

The draft EIS estimated that 500 to 600 tons of refuse would be brought daily (six days a week) to the landfill by 144 trucks of varying sizes. Access to the landfill would be via a single road "located at the farthest possible distance from Makakilo City." Wastes prohibited from the landfill included chemicals, radioactive wastes, and whole animal carcasses. Daily compacting and covering of refuse were specified:

One Cat. D-8 tractor will spread refuse into layers not more than 2 feet thick and compact the refuse by repeated passes on each layer as shown in Exhibit VII. At the end of each day's work, the working face will be covered with a minimum of 6 inches of cover material composed of dirt, cinder, and rocks no bigger than 2 inches in diameter. The top will be closed with a minimum of 6 inches of compacted cover material. The D-8 will continually run back and forth over refuse from 6:30 a.m. to 5:00 p.m. compacting it from an uncompacted density of 400 or 500 pounds per cubic yard to approximately 1,100 pounds per cubic yard. From 5:00 p.m. to 6:30 p.m. the D-8 will spread and compact the cover material, thus completely encasing all of that day's refuse in a dirt and rock shell. This dense shell excludes flies, insects, rats, and virtually eliminates odors and unsightliness.⁶

The dense shell created by the daily covering and compacting is also commonly known as a cell.

Dust would be controlled by having a water truck sprinkle water on areas traversed by refuse trucks. Blow-about of paper would be controlled by lath-mesh fences. These fences were to be installed as the landfill reached its final elevations.

The draft EIS states that "The operation will be fully supervised and will be periodically monitored by the City, the Campbell Estate, and the Department of Health." It provides, as Exhibit VIII, sections of the lease agreement between Campbell Estate and Pacific Concrete & Rock Company. (See Appendix B.)

Lease Agreement between Campbell Estate and Pacific Concrete & Rock Company, Limited

The lease agreement describes the method of compaction and cover in some detail. It also describes methods to be used to control dust and the blow-about of paper.

Equally important, the lease agreement contains provisions regarding Observance of Laws, Inspection, Supervision, Nuisance and Environmental Pollution, and Pollution.

Observance of Laws. "Lessee will at all times during said term keep premises in good order and a strictly sanitary condition and observe and perform all laws, ordinances, rules, and regulations now or hereafter made by any governmental authority for the time

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being applicable to said premises or any improvement thereon or use thereof, and will indemnify the Lessors against all actions, suits, damages and claims by whomsoever brought or made by reason of the nonobservance or nonperformance of said laws, ordinances, rules and regulations or of this covenant."

Inspection. "Lessee will permit the Lessors and their agents and representatives of all governmental authorities having jurisdiction at all reasonable times during said term to enter said premises and examine the condition thereof, and will repair and make good at its own expense all defects required by the provisions of this lease to be repaired and made good by the Lessee of which notice shall be given by the Lessors or their agents within thirty (30) days after the giving of such notice unless a shorter period shall be specified in some other provision of this lease with respect to a particular defect."

Supervision. "The Lessee shall be represented at all times during working hours by a fill superintendent possessing full authority from the Lessee over the sanitary landfill operation and instructed to put into immediate effect such lawful orders and recommendations as he may receive from the authorized representatives of any governmental authority having jurisdiction and such orders and recommendations as he may receive from representatives of the Lessors and as are consistent with the Plan and this lease."

Nuisance and Environmental Pollution. "The Lessee, through its superintendent, shall take immediate steps to effectively eliminate nuisance or environmental pollutants such as odor, dust, flies, rodents, blowing paper, fire, or noise which exceed applicable governmental limitations or create unpleasant conditions for the occupants of any of the Lessors' adjacent or surrounding lands, acting where possible in time to prevent occurrence and at the latest promptly as these nuisances and pollutants occur. In the event that it becomes necessary for government agencies or the representatives of the Lessor to issue a formal notice of correction, the operation shall begin corrective measures upon receipt of such notice and complete such measures within seven (7) days or such shorter time as may be stated in the notice, failing which the fill operation will be shut down until completion has been achieved."

Pollution. "The Lessee will at all times during said term keep said premises in good order and a strictly sanitary condition and observe and perform all laws, ordinances, rules and regulations now or hereafter made by any governmental authority for the time being applicable to said premises or any improvement thereon or use thereof, including without limitation to the generality of the foregoing all laws, ordinances, rules and regulations concerning air, ground, water and noise pollution...."

The provisions of the lease agreement between Campbell Estate and Pacific Concrete & Rock Company are the first of several sets of conditions,

laws, ordinances, rules, and regulations that are meant to govern the operation of the Puu Palailai Sanitary Landfill.

Environmental Impact of the Proposed Landfill

Among the "probable adverse environmental effects which cannot be avoided," the draft EIS includes dust, noise, insects and rodents, and leaching.

Dust. The draft EIS mentions that a landfill operation at Puu Palailai would result in the generation of "only about 25 percent as much dust as the present quarry operations."⁷ Fugitive dust would be carried toward Farrington Highway, the H-1, and into sugarcane fields by trade winds-- "which blow 70 percent of the time."⁸

Noise. The operation of a sanitary landfill would also produce less noise than a quarrying operation. "The estimated sanitary landfill noise levels," the draft EIS reports, "are shown to be essentially within levels permitted by the [City and County's Comprehensive Zoning Code] since the values calculated...are maximum values and will not normally exist for prolonged periods of time during the year."⁹ The draft EIS states that "Noise levels will be monitored semi-annually to assure compliance with the noise code of the [Comprehensive Zoning Code]."¹⁰

Insects and rodents. According to the draft EIS: "The Los Angeles County Sanitation Districts, in their sanitary landfills adjacent to high-value residential areas, have demonstrated that any problems of insects and rodents are negligible in their sanitary landfills....Inasmuch as the Los Angeles methods are to be used, the landfill will not cause any appreciable increase in fly or rodent populations over present levels. If necessary, an insect and rodent control program could be instituted."¹¹

Leaching. Exhibit XV of the draft EIS is a letter from George Yuen, Manager and Chief Engineer of the Board of Water Supply, City and County of Honolulu, to Robert B. Robinson, President of Pacific Concrete & Rock Company. Yuen's letter lists nine conditions that are to be met in order "to prevent leachates from the landfill operation from percolating into the underlying basal water body in the area." (See Appendix C.) The conditions include: (1) the installation of "a properly-engineered impervious layer of soil," (2) a means to drain and collect leachates, (3) the installation of a concrete sump and pump to withdraw leachates, (4) a requirement that the sump and pump be properly maintained during the operation of the landfill and for a further seven years after the termination of the landfill operation, and (5) the exclusion of animal carcasses, petroleum products, chemicals, and "other noxious materials and wastes."

Yuen's letter also states: "The Board of Water Supply reserves the right to stop the landfill operation at any time when any of the above conditions are violated."

The draft EIS mentions that the smell of leachates "may be detectable to the site operators and undetectable to humans at the buffer boundary due to

the dilution with water."¹²

Closure

The draft EIS indicates that the Puu Palailai quarry site would be used as a landfill for four to ten years. After the quarry pit was filled, it would be landscaped and turned into a park: "A 29-acre recreational site surrounded by residences could serve all of the people who live at Makakilo City (presently 1,500 homes)."¹³

Transforming a landfill site into a park would result in several benefits. "The creation of a large park-recreation area," the draft EIS states, "will result in increased property values for all lands surrounding the park. The largest increase in value will accrue to the closest property which is undeveloped. But, the houses presently located along the periphery of the undeveloped area may also experience some increase due to the elimination of the quarry site as an 'attractive nuisance' and creation of a usable recreation area."¹⁴

Pacific Concrete & Rock Company's lease agreement with Campbell Estate stipulates certain conditions for Completion and Acceptance, and Landscaping (see Appendix B):

Completion and Acceptance. "On or before the completion of the last lift of the sanitary land fill, Lessee will correct all deficiencies of cover or drainage caused by differential settlement of the several lifts and will install drainage channels or pipe drains as shown on the Plan so that the completed fill conforms in every respect to the lines and grades and provisions for drainage depicted after which the Lessee shall ask for inspection by the Lessors."

Landscaping. "...Lessee will plant all areas otherwise subject to erosion with grass and will thereafter maintain the same in good condition, replanting as may be necessary, all to the intent and purpose that erosion and uneven settlement will be avoided."

The Board of Water Supply, it should be remembered, also placed conditions on the manner in which the landfill operation is to be terminated.

Review of the Draft EIS

The state Office of Environmental Quality Control (OEQC) sent out copies of the draft EIS to various government and civic organizations for their review and comment. Responses received by the OEQC would be compiled and evaluated. Also, a "coordinated reply" to Pacific Concrete & Rock Company would be prepared.¹⁵

The two city and county agencies that reviewed and commented on the draft EIS were the Board of Water Supply and the Department of Public Works. The state agencies included the Department of Health, the Department of Accounting and General Services, the Department of

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Agriculture, and the Department of Land and Natural Resources. In addition, comments were received from the Fourteenth Naval District.

The OEQC's "coordinated reply" to Pacific Concrete & Rock Company requested that the draft EIS be expanded to further describe several aspects of the landfill operation:

FIRE FIGHTING CAPABILITY Since landfill operations are often fire hazards, the environmental impact statement should be addressed to the precautions that will be taken to reduce the possibility of fire.

COMPACTION It is stated in the environmental impact statement that one bulldozer will be used to compact the refuse into the landfill. The environmental impact statement should be addressed to the adequacy of just one bulldozer.

SECURITY Some positive security system may be necessary to prevent dumping of refuse along the entrance road. The environmental impact statement should describe the measures that will be taken to prevent misuse of the landfill.

ODORS The possibility of odors being carried by the wind to nearby populated areas should be described in the environmental impact statement.¹⁶

The Final EIS

In response to the OEQC's "coordinated reply," Pacific Concrete & Rock Company revised its EIS. The final EIS contains assurances regarding the OEQC's various concerns.

Firefighting capability. "The daily 6" dirt cover virtually precludes a fire in the fill itself. The large 4-5,000 ton per day County landfill operations in Los Angeles rarely experienced a fire in the covered landfill and only at the active face, according to Ron Schwegler, engineer for the L.A. County landfill districts. In the event one did occur, it would be dug out of its cell, spread on top of the ground, covered with dirt and left for several days.

"All landfill site equipment such as the D-8, supervisor's pick-up, oil-water truck, scale house, etc. will be equipped with the largest practical fire extinguishers. The scale house will also be equipped with a 50-foot firehose and nozzle."¹⁷

Compaction. "In the event that the Cat. D-8 bulldozer breaks down, the D-9 tractor in quarry use two miles away at Makakilo will be trucked to the landfill to insure that cover is in place at the end of the day. As soon as daily refuse quantities exceed approximately 600 tons per day, an additional tractor will be purchased."¹⁸

Security. "To preclude scattering of rubbish at the site entrance by homeowners on Sundays, the site will either be kept open and operated with a skeleton crew or a ramp will be constructed with several eight cubic yard

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portable refuse bins located at the end of the ramp. This elevation differential will allow homeowners to dump their refuse directly out of their pickup or car trunks down into the refuse bins. This ramp would be located adjacent to the fenced or gated site entrance. All other access to the site is precluded by high cliffs and steep hills."¹⁹

Odors. "While odors will be detectable immediately adjacent to the active filling operation during the day, experiences at true sanitary landfill operations on the mainland show no discernible odor beyond approximately 500 to 600 feet from the active face. After the fresh refuse is covered with 6" of daily cover material, odor cannot normally be discerned beyond approximately 200 to 300 feet. Virtually no odor is discernible around cells that are more than several days old.

"The trade winds, which blow 70 percent of the time, will carry odors in a direction opposite to the location of the nearest residences (800 foot distance)."²⁰

The final EIS was approved by Governor John A. Burns on January 13, 1973.

Part II. Land Use Permits

Pacific Concrete & Rock Company's proposed site for the sanitary landfill operation at Puu Palailai is situated in the State Land Use Agricultural District. The site was zoned as an AG-1 Restricted Agricultural District by the City and County of Honolulu. Sanitary landfill operations were permitted within AG-1 districts as conditional uses.²¹ Therefore, Pacific Concrete & Rock Company had to obtain two types of land use permits before its proposed sanitary landfill could begin accepting refuse.

The first type of permit was a state Special Use Permit, which required the approval of the Planning Commission of the City and County of Honolulu and the state Land Use Commission. The issuance of a Special Use Permit was governed by section 205-6, Hawaii Revised Statutes. The second type of permit was a Conditional Use Permit, which required the approval of the Council of the City and County of Honolulu.

Planning Commission Review

The Planning Commission of the City and County of Honolulu reviewed at the same time Pacific Concrete & Rock Company's requests for a Special Use Permit and a Conditional Use Permit. In his report to the Planning Commission, Robert R. Way, Planning Director, summarized the comments of several state and city and county agencies.²² The city and county's Comprehensive Zoning Code required the proposed landfill operation to be approved by the state Department of Health and Fire Marshall, and the city and county Board of Water Supply, Department of Public Works, and Fire Department.

The Fire Department had no objections to the landfill operation provided there would be compliance with the current Revised Ordinances of Honolulu.

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The Department of Public Works approved of the landfill, but stipulated conditions regarding (1) fire protection, (2) suitable cover material, (3) the availability of additional bulldozers in case of equipment breakdown, (4) wet weather operation, (5) directional signs, (6) the manner of spreading and compacting refuse, and (7) the types of refuse that would be accepted.

The Board of Water Supply did not object to the landfill proposal if certain conditions were met to prevent leachates from entering the underlying basal water body. Its nine conditions are the same as those listed by George Yuen in his letter of July 3, 1972, to Robert B. Robinson. (See Appendix C.)

The state Fire Marshall gave his approval to the proposed landfill operation.

The Department of Health had no objections, but required that all "provisions, process, and stipulations" contained in the application be implemented.

The conclusion reached by Way was: "that there is a need for the landfill operation and the proposed site is so situated as to be easily accessible from all directions and yet provides adequate visual buffers for the adjacent Makakilo residential development....and that the manner in which the landfill is proposed to be operated and the controls recommended by the Board of Water Supply, Department of Public Works, and the State Department of Health provide sufficient assurance as to minimize any potential problems with respect to dust, odor, noise, and water pollution."

Way recommended that the request for both a Special Use Permit and a Conditional Use Permit be approved. However, he specified 12 conditions.

The third condition granted the permits for an initial five-year period. The permits could be renewed for another five-year period provided that "the conditions of the permits have not been violated during the initial 5-year term or if the conditions in the area have not changed in such a manner as to justify refusal of the renewal."

The seventh condition read, in part: "The proposed use shall comply with the noise regulations of the Comprehensive Zoning Code and with any other more restrictive noise regulations as may be promulgated by the Department of Health."

The eighth condition stated: "After the issuance of the subject permit, the City Council may at any time, upon finding that any one of the conditions imposed herein is not being complied with by the applicant, authorize the Planning Director to suspend such operation until compliance with said conditions is obtained or to revoke the permit."

The tenth condition allowed the City Council to "impose additional conditions after the approval of the subject permits when it became apparent that a modification is necessary and appropriate."

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All 12 conditions are listed in Resolution No. 94 (1973), which was ultimately adopted by the Honolulu City Council. (See Appendix D.)

Public hearings on Pacific Concrete & Rock Company's requests for a Special Use Permit and a Conditional Use Permit were held on January 3 and 31, 1973. At its February 28, 1973 meeting, the Planning Commission voted to recommend approval of both requests.²³

Land Use Commission Review

The state Land Use Commission voted to approve a Special Use Permit to Pacific Concrete & Rock Company at its meeting on March 23, 1973.²⁴ The staff report recommending approval, with conditions proposed by the City Planning Commission, stated: "A review of the proposed sanitary landfill operation finds that adequate safeguards have been incorporated in the conditions imposed by the City agency [City Planning Commission] to protect the health, safety and welfare of the public and to minimize or eliminate any adverse effects on surrounding property. Based on information presented in the Final Environmental Impact Statement for the proposed landfill operation and upon the recommendations of the Office of Environmental Quality Control, the Environmental Impact Statement was approved by Governor Burns on January 13, 1973. Further, the petitioner's technical and professional consultants have addressed the project in sufficient detail to allow the establishment of preventive and corrective measures before initiation of the project."²⁵

At the March 23 meeting Robert B. Robinson, President of Pacific Concrete & Rock Company, stated that "the President of the Makakilo Community Association had endorsed the land fill operation and favored the site selection before the City Planning Commission."²⁶

City Council Review

On April 17, 1973, the Honolulu City Council approved a Conditional Use Permit to conduct sanitary landfill operations at the Puu Palailai quarry site by means of Resolution No. 94 (1973). The Resolution retained all 12 conditions recommended by Robert R. Way and the Planning Commission.

Part III. Department of Health Solid Waste Management Permit

The City Council approved a Conditional Use Permit for Pacific Concrete & Rock Company's sanitary landfill operation in 1973. At the time, the state Department of Health did not have a solid waste management permit system. It was not until July 30, 1974 that Chapter 46 of the Public Health Regulations became effective.

Pacific Concrete & Rock Company did not obtain a Solid Waste Management Permit until June 27, 1975. (See Appendix E.) The Permit lists both standard and special conditions. One of the standard conditions permitted the Department of Health to enter and inspect the landfill "for the purpose of investigating an actual or suspected source of water, air, noise, solid waste or other pollution and ascertaining compliance or noncompliance

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with any rule, regulation or standard promulgated by the department and to make reasonable tests in connection therewith."

Two of the four special conditions required the landfill to be operated in a certain manner:

- (1) Compact and cover all solid waste accumulated after each day's operation with earth or other approved material in the manner specified in Section 3.B.7. and Section 3.B.8., Chapter 46, State Public Health Regulations.
- (2) Each completed lift shall be no greater than twenty (20) feet in vertical depth as allowed by the variance order granted by the Director on May 15, 1975.

(An inspection report dated April 17, 1975 mentions that the height of the lift exceeded the eight-foot height requirement of the original chapter 46 regulations [Section 3.B.7.], which required that "each completed lift shall be no greater than eight [8] feet in vertical depth.")

The Solid Waste Management Permit specified an expiration date of April 17, 1978.

Part IV. Permit Renewals

Pacific Concrete & Rock Company and, later, Grace Pacific Corporation applied for and received renewals and extensions of both the Conditional Use Permit and the Solid Waste Management Permit. No application for a renewal or extension of the Special Use Permit seems to have been filed with the Land Use Commission.

Conditional Use Permit

The effective dates of the Conditional Use Permit are:

April 17, 1973--for five years;

April 5, 1978--for a temporary period of 90 days; and

June 28, 1978--for five years.

The original permit, its extension, and its renewal were approved by the City Council. The next extension was approved by the Director of Land Utilization:

April 16, 1983 to April 16, 1988.

In agreeing to grant the extension, Michael M. McElroy, Director of Land Utilization, City and County of Honolulu, listed the following provisions:

- (1) Recent site visits indicate full compliance with resolution conditions.

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- (2) All conditions of the resolution remain in full force and effect.
- (3) The landfill continues to meet health standards.²⁷

Another extension, from April 16, 1988 to April 16, 1989, was granted by John P. Whalen, Director of Land Utilization, on November 3, 1987. The provisions listed were:

- (1) All conditions of the resolution remain in full force and effect.
- (2) The landfill continues to meet health standards.
- (3) Notify the Department of Land Utilization of the closing date.

Whalen also stated that "because of continuing concerns by nearby residents, we expect you to meet all the conditions of Resolution 94 dated April 17, 1973."²⁸

Solid Waste Management Permit

The effective dates of the Solid Waste Management Permits are:

June 27, 1975 to April 17, 1978 (in accordance with Chapter 46, Public Health Regulations);

April 14, 1978 to April 14, 1983 (in accordance with Chapter 46, Public Health Regulations); and

May 2, 1983 to May 1, 1988 (in accordance with Chapter 11-58, Hawaii Administrative Rules). (See Appendices E, F, and G.)

When the Solid Waste Management Permit was renewed in 1978, the height of the lift was reduced from 20 feet to eight feet, and one foot of intermediate earth was required to be applied between lifts. Additional special conditions were specified regarding closure. The final Abandonment Plan was required to be submitted not later than one year prior to the closure of the landfill.

In its most recent renewal, the Department of Health added a special condition regarding hazardous waste: "Hazardous waste is not permitted for disposal at Puu Palailai landfill facility."

Part V. Complaints from Residents Who Live near the Puu Palailai Sanitary Landfill

The site of the Puu Palailai Sanitary Landfill is adjacent to a subdivision of Makakilo City known as Kapolei Neighborhood Unit 6. A number of residents who live in the subdivision have expressed concern over the siting and operation of the landfill.

Complaints Made to the Department of Health

Since 1978 the Pollution Investigation and Enforcement Branch of the Department of Health has received approximately 50 complaints about the landfill operation at Puu Palailai. With few exceptions most of the complaints were about odors of one kind or another: a burning odor, the smell of smoke, a "terrible" or "foul" odor, a garbage odor, a sulphur-like odor, a chemical odor, a diesel smell, and a burning rubber smell. Other complaints were about dust, a tanker disposing liquid waste, refuse disposal occurring too close to a residence, chemicals that cause a burning sensation in the eyes, and noise. (See Table 1.)

The complaints were investigated, for the most part, either on the day they were received or the next day. The investigators usually found the complaints to be justified. Inspection visits to the landfill resulted in the detection of underground fires, which produce visible smoke or a discernible burning odor. The objectionable garbage odor was often noticed on "Kona wind" days, when the wind blows from the ocean onto the land.

Complaints Presented in Testimony at a Public Hearing on Senate Resolution No. 168

A public hearing on Senate Resolution No. 168 was held on April 20, 1987. The brief testimony of one resident effectively summarizes a number of complaints:

Our complaints regarding the landfill are as follows: The landfill is unsightly and at various times, chemical odors have been emitted from the landfill and aggravated respiratory illness for some residents. Apparently, the problems can be traced to the chemicals which are being disposed of at the landfill and the unsatisfactory procedures in covering those chemicals. In addition, there have been problems with underground fires, rodents, dust and trash from the dump blowing into people's yards. The landfill is now operating less than two-thousand feet from our homes.²⁹

The Director of Health, Dr. John C. Lewin, also presented testimony on Senate Resolution No. 168. He stated that:

The Department of Health respects the concerns of the residents near the Puu Palailai Landfill. The resolution also points out that people living next to or in close proximity have numerous complaints about landfills. These types of problems will exist if land use decisions do not take into consideration the effects of certain types of operations such as landfills and sewage treatment plants.

In the case of the Makakilo development, timing in phasing increments near the landfill could have prevented the problems. The landfill operation began on January 2, 1974 and had a life expectancy of approximately 15 years. The owners of the homes that have voiced their concerns are approximately 1,000 feet from the landfill and these homes were built in the early 1980's. This group of homes should have been programmed to be built after the closing of the landfill.

Table 1

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COMPLAINTS RECEIVED BY THE POLLUTION INVESTIGATION AND
ENFORCEMENT BRANCH, DEPARTMENT OF HEALTH

Date of Complaint	Date of Inspection	Complaint	Finding
1. 1/9/78	1/10/78	Odor	No evidence of underground burning
2. 10/27/78	10/27/78	Dust	Water truck in use to minimize dust
3. 11/29/78	12/5/78	Odor	Underground fire vent observed and burning odor noticed
4. 12/4/78	12/5/78	Burning odor	Underground fire vent observed and burning odor noticed
5. 12/4/78	12/5/78	Burning odor	Underground fire vent observed and burning odor noticed
6. 12/29/78	1/2/79	Odor	Odor noticed emanating from ground cracks
7. 1/9/79	1/9/79	Odor	Faint refuse and underground burning odor noticed
8. 7/11/79	7/12/79	Burning odor	Steam and smoke vents observed and burning odor noticed
9. 10/11/79	10/12/79	Odor	Steam vents observed and odor noticed
10. 9/29/80	9/30/80	Burning odor	3 steam vents observed and faint burning odor noticed
11. 12/29/80	12/29/80	Odor	Smoke vent observed
12. 1/2/81	1/2/81	Odor and smoke	Smoke recognized as a problem
13. 9/9/81	9/10/81	Odor	Smoke from underground fire and steam vents noticed
14. 11/5/81	11/5/81	Sulphur-like odor	Sulphur-like odor noticed
15. 11/17/81	11/18/81	Not indicated	Smoke vents observed
16. 12/21/81	12/21/81	Odor	No odor noticed
17. 3/10/83	3/10/83	Terrible odor, especially on Kona wind days	No unusual odor noticed
18. 11/7/83	11/8/83	Terrible odor	No smoke or odor noticed
19. Follow-up of 11/7/83	11/21/83	Terrible odor	No underground fires noticed
20. 2/2/84	2/3/84	Odor from uncovered refuse	New cell not completely covered
21. 2/10/84	2/13/84	Tanker observed disposing liquid	Lime slurry was disposed on 2 days
23. 9/14/84	10/5/84	Burning odor	4 smoke vents observed
22. 9/14/84	9/17/84	Burning odor	2 vents noticed
24. 10/15/84	10/15/84	Not indicated	Burning odor noticed
25. 10/17/84	Not indicated	Garbage odor, dust	Odor from methane vent and smoke vents noticed
26. Not indicated	10/22/84	Burning odor	Smoke vent observed
27. 10/22/84	10/22/84	Chemical odor	No chemical odor noticed
28. 1/11/85	1/11/85	Refuse disposal too close to residence	Disposal occurring 100' from disposal boundary and 300' from landfill boundary
29. 2/19/86	2/19/86	Burning odor	No smoke vents noticed, but smoke, burning odor, and gaseous odor noticed near the leachate pipe
30. 5/14/86	5/14/86	Chemical odor that causes burning sensation in the eyes	Odor emanating from leachate pipe noticed
31. 5/15/86	5/15/86	Foul chemical odor	Seal removed from leachate pipe in preparation for treatment with dry ice
32. 7/25/86	7/28/86	Foul odor	Strong odor noticed 7/25 when it rained; no odor noticed on 7/28
33. 8/5/86	8/6/86	Foul odor and disposal too close to residence	Disposal occurring 500' from subdivision
34. 8/5/86	8/6/86	Foul odor	No strong garbage odor noticed
35. 9/29/86	9/30/86	Diesel smell	Diesel oil smell could have come from either refuse trucks, water truck, or tractor
36. 10/9/86	10/14/86	Noise, odor, and dust; also, disposal too close to residence	No odor or dust conditions noticed; disposal occurring in authorized area
37. 10/22/86	10/23/86	Garbage odor, dust	Dust problem taken care of
38. 2/9/87	2/11/87	Strong garbage odor	Kona winds prevailed; permit requirements met
39. 2/11/87	2/11/87	Garbage odor	Kona winds prevailed; permit requirements met
40. 2/11/87	2/11/87	Odor	Kona winds prevailed; permit requirements met
41. 2/17/87	2/17/87	Dust	Company stockpiling cover material near complainant's house
42. 3/2/87	3/3/87	Burning odor	No fires observed; Kona winds prevailed
43. 3/18/87	3/18/87	Dust	Minimum amount of dust generated by truck traffic
44. 3/30/87	4/7/87	Dust	No dust noticed
45. 6/23/87	6/23/87	Strong garbage odor	Faint garbage odor noticed
46. 7/16/87	7/17/87	Garbage odor	Fugitive dust violation
47. 8/24/87	8/24/87	Burning odor	No vents noticed
48. 8/31/87	8/31/87	Burning odor	Vent noticed
49. 8/31/87	8/31/87	Dust, odor of burning rubber and garbage	Vent noticed; Kona winds prevailed
50. 9/28/87	9/28/87	Not indicated	Several fissures noticed
51. 10/15/87	10/16/87	Burning odor	Burning odor noticed

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The landfill is scheduled to be closed in approximately one year, depending on the volume of refuse being brought in to the landfill. It could be a little earlier or later. Closure of the landfill will effectively relieve the problem.

A review of the Administrative Rules on Solid Waste Management or any practical amendments will not solve the types of problems the residents are experiencing. Odor problems have been the main cause of complaints. During Kona wind days, the residents will experience odor problems because of their close proximity to the landfill. Odors from trash will prevail while the trash is being dumped and compacted. Only a buffer zone can alleviate such problems.³⁰

Complaints Communicated to the Researcher

The researcher met with two groups of concerned residents from Ewa. The first meeting was with members of the Ewa Neighborhood Board, most of whom are residents of Honokai Hale and Makakilo. The second group of residents consisted of people who live near the Puu Palailai Sanitary Landfill.

The first group of residents complained about odors from the landfill and about underground burning. It was their belief that the landfill operator was not applying cover material daily and that landfill cells were not being properly constructed. They also stated that in the future landfills should be sited downwind from residences and that buffer zones of at least one mile should be established between landfills and residences.

The second group of residents, all of whom live in Kapolei Neighborhood Unit 6, complained about odor from the landfill. It was their belief that hazardous waste in the form of insecticides was being disposed of in the landfill. One resident claimed to have discovered cans of "JK1003" insecticide which had not been rinsed before disposal. Another resident said that one of her children suffered from "pleural thickening of the lungs," which she thought was linked to the proximity of their house to the landfill.

The residents who live near the landfill have contacted their political representatives at the county, state, and federal levels. In addition, they have contacted county, state, and federal agencies. None of the agencies has granted their request to close down the landfill. Meanwhile, they are documenting instances of nuisances and pollution that they have detected at the landfill.

One resident whose house is adjacent to the boundary of the landfill said that she and her family moved into their new house in May of 1978. When she and her husband bought the house from Finance Realty Company, they thought they would be living next to a park. Maps shown to them by the Finance Realty salesperson indicated that their property would be adjacent to a park. The maps did not indicate the presence of an operating landfill. When they first moved into their new house, they did not at first know that they had an operating landfill as a neighbor, for at the time the working face of the landfill was still located within the pit of the old rock quarry. The working face of the landfill is now approximately at the same level as their

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house. The oleander hedge that runs along the boundary of the landfill, they maintain, is not an adequate buffer.

When Kapolei Neighborhood Unit 6 was reviewed by the Department of Land Utilization, "final action to the proposed subdivision" was made subject to a review of:

- (1) Construction of improvements, utilities and drainage facilities in accordance with City standards;
- (2) Compliance with the Division of Engineering (drainage study) requirement; and
- (3) Filing of final survey maps.³¹

No mention was made of the proposed subdivision's proximity to the Puu Palailai Sanitary Landfill, which by August 1975 had been in operation for approximately one and a half years.

Part VI. Inspections

The Pollution Investigation and Enforcement Branch of the Department of Health has, since April 1975, conducted numerous inspections of the Puu Palailai Sanitary Landfill. Many of the inspections were made in response to complaints about the landfill operation, and many were made as routine inspections. Routine inspections, with few exceptions, were made unannounced.

Table 2 shows the number of inspection reports on file and summarizes the observations of the inspectors.

The operating irregularity most frequently noticed by Department of Health inspectors was the presence of underground fires. Underground fires have been observed at other landfills on Oahu, particularly at the Kawaihoa Sanitary Landfill and the Kapaa Quarry Sanitary Landfill. The Kawaihoa facility, which was operated by the City and County of Honolulu until it was closed in April 1987, had to be dug up completely and covered again. Moreover, before closure, three feet of final cover had to be added as a safeguard against future underground fires.³²

Part VII. Violations and Penalties

Since it began operating, the Puu Palailai Sanitary Landfill has been cited for violations on six occasions. On one occasion Pacific Concrete & Rock Company was ordered to pay a fine of \$1,000.

(1) A Department of Health inspection on November 20, 1975 revealed that refuse was not being compacted and covered daily. The notice of violation also stated that "there were several pockets of underground fires occurring near the rim of the disposal site." Pacific Concrete & Rock Company was informed that it was operating contrary to the special provisions of its Solid Waste Management Permit. (See Appendix H.)

Table 2

PUU PALAILAI SANITARY LANDFILL

SUMMARY OF INSPECTION REPORTS SUBMITTED BY POLLUTION
INVESTIGATION AND ENFORCEMENT BRANCH INSPECTORS

Year	Number of Inspection Reports on File	Lift Exceeds 8' Height Limit	Exposed Refuse	Blown Litter	Underground Fire/smoke	Dust	Bulldozer Breakdown	Scavenging	Operator Injury
1975	9	1	3	4	3				
1976	30		13	3	23	1	2		
1977	34		13	4	31	2	1		
1978	21		1		17				
1979	10				6	1			
1980	3								1
1981	7		4		2		1	1	
1982	3			1	1			1	
1983	4		1				1		
1984	3		1						
1985	1								
1986	2				1				
1987	5				1				
TOTALS	132	1	36	12	85	4	5	2	1

SANITARY LANDFILLS IN HAWAII

(2) Department of Health inspections on October 4, 5, and 6, 1976 revealed that cover material was not applied to refuse disposed at a certain portion of the working face. Pacific Concrete & Rock Company again was informed that it was operating contrary to the special provisions of its Solid Waste Management Permit. (See Appendices I and J.)

(3) A Department of Health inspection revealed that "refuse received at Puu Palailai Landfill on June 7, 1981 was left without compaction and cover. The Director of Health informed Pacific Concrete & Rock Company that it did not meet the requirement to "compact and cover all solid waste accumulated after each day's operation with earth or other approved material in the manner specified in Section 3.B.7. and 3.B.8., Chapter 46, Public Health Regulations." The Director of Health also ordered the company to pay a penalty of \$1,000. (See Appendix K.)

(4) A Department of Health inspection on September 8, 1977 revealed that solid waste had not been covered completely and that completed lifts were littered with windblown refuse. "Inspections conducted on October 14 and 17, 1977 showed the same conditions, scattered piles of uncovered refuse and wind litter dotting the completed lift." Also, a September 9 inspection revealed that "the natural barrier on the Makakilo subdivision side of the landfill no longer provides a means of controlled access. The deposition of solid waste along the quarry walls has reached the height of the quarry's rim, thereby eliminating the steep walls that had previously prevented entry to the landfill." Pacific Concrete & Rock Company was asked to reply within ten days on what action would be taken to correct the conditions cited. (See Appendix L.)

(5) The Puu Palailai Sanitary Landfill was found in violation of the following laws and regulations: Chapter 43, Section 5, and Chapter 342, Hawaii Revised Statutes. On November 17 and 20, 1978, the landfill was found to be "emitting foul odor caused by an apparent underground burning." (See Appendix M.)

(6) Grace Pacific Corporation was informed of an alleged violation of Chapter 342, Hawaii Revised Statutes, and the Department of Health's Administrative Rules, Chapter 11-60, Hawaii Administrative Rules, relating to Air Pollution Control. The notice stated: "On July 17, 1987, excessive amounts of fugitive dust were observed becoming airborne from the landfill's upper road and from the area adjacent to the working face. Insufficient precautions were being taken to prevent particulate matter from becoming airborne." (See Appendix N.)

Landfill Violations Statewide

Since 1975, the Puu Palailai Sanitary Landfill accounted for half of the notices of violation sent to operators of private landfills. The other private landfills are Nanakuli Resources, which is still operating, and Mililani Town Landfill, which is now closed. (See violations listed under "Private" in Table 3.)

Table 3

**LANDFILL VIOLATIONS
1974 TO PRESENT**

Year	C & C of Honolulu	County of Hawaii	County of Maui	County of Kauai	Private	Totals
1975	2				1	3
1976			3	4	2	9
1977	3	3	1		2	9
1978		1	1	5	1	8
1979	1	1	2	2		6
1980		2	1		1	4
1981		1	1	1		3
1982						
1983	2					2
1984			2			2
1985			4	2		6
1986		2	1	5	3	11
1987	1		5	1	2	9
Totals	9	10	21	20	12	72

Source: Compiled by the Pollution Investigation and Enforcement Branch,
Department of Health.

Part VIII. Other Problems

In addition to the six notices of violation that were sent to the operator of the Puu Palailai Sanitary Landfill, Department of Health files indicate other problems with the landfill.

Lift Exceeds Height Requirement

An inspection of the landfill on April 17, 1975 revealed that the lift exceeded the eight-foot height requirement stipulated by Chapter 46. On May 15 a variance was granted to allow Pacific Concrete & Rock Company to operate the landfill "in a manner giving a completed lift vertical depth of 20 feet for the period ending April 17, 1978." (See Appendix O.) When Pacific Concrete & Rock Company was issued its second permit, however, the company again was required to construct lifts no greater than eight feet in vertical depth. (See Appendix F.)

Bulldozer Operator Injured by Liquid Refuse

On September 9, 1980, a bulldozer operator punctured or crushed a 55-gallon drum. The liquid in the drum splattered on the bulldozer operator's left arm, causing burns. The inspection report continues: "[The operator's] doctor informed him that the burns were probably caused by an acid. The Navy was informed of the incident and a specialist came to investigate and to collect samples. The drum and the spilled area were covered. Mr. Sekiya [an employee of Pacific Concrete & Rock Company] stated that their contract with the Navy prohibits the disposal of hazardous wastes. Their nonacceptance of hazardous waste policy applies to all users of the landfill. They do not knowingly accept hazardous wastes for disposal." No violation of the permit conditions or the provisions of Chapter 46 was found. (See Appendix P.)

The operators of the landfill have made attempts to notify users of the landfill that certain types of refuse will not be accepted. (See Appendix Q.)

Plastic Foam Used for Cover Material

On August 6, 1982, Pacific Concrete & Rock Company received a variance to allow it to use plastic foam instead of earth as a cover material. (See Appendix R.)

On March 17, 1983, the company's request for another variance allowing it to use plastic foam in emergencies was denied. One of the findings of fact stated: "An investigation and inspection of the landfill was conducted by the Department of Health's Pollution Investigation and Enforcement Branch as a result of the variance application. The inspection showed no evidence that the plastic foam was being used as a cover material, and in fact a bulldozer operator stated that the use of the plastic foam was discontinued after only a month's trial because the foam was too light and was blown off the solid wastes." (See Appendix S.)

The Lack of a Complete Impervious Layer

When Pacific Concrete & Rock Company first applied for a Conditional Use Permit to operate a landfill at Puu Palailai, the Board of Water Supply expressed concern about the possibility of leachates percolating into the underlying basal water body. The Board, therefore, stipulated a number of conditions, including the construction of an impervious layer: "The entire landfill floor area shall be completely covered with a properly-engineered layer of soil." (See Appendix C.)

In 1983, as part of its concern about the closure plans for the landfill, the Environmental Permits Branch of the Department of Health prepared a status report. One of the report's findings stated: "About 1 1/2 to 2 years after the start of the landfill operation, the BWS because of their interest in the groundwater, made about two inspections of the Palailai Landfill site. They found that PC&R was not installing the impervious layer of soil along the perimeter of the vertical walls. After PC&R was so notified, PC&R did start to put in the impervious layer. There is no record in our files to show that PC&R continued to put in the impervious layer after BWS stopped their inspection. (A recent inspection by our staff on September 30, 1983 revealed that there is no visible evidence of any impervious layer alongside of the vertical walls.)" (See Appendix T.)

Part IX. Closure

When Pacific Concrete & Rock Company prepared its Environmental Impact Statement in 1972, it indicated that the Puu Palailai Sanitary Landfill would be operated for four to ten years.³³ The company's application for a Conditional Use Permit and a Special Use Permit indicated that the fill would be completed in approximately ten years.

When the Department of Health issued a Solid Waste Management Permit to Pacific Concrete & Rock Company on May 2, 1983, it included the following special condition: "The applicant shall submit a closure plan to the Director, Department of Health, at least one year prior to planned termination of the landfill operation." (See Appendix G.)

In his testimony on Senate Resolution No. 168, Dr. John C. Lewin, Director of Health, stated: "The landfill is scheduled to be closed in approximately one year, depending on the volume of refuse being brought in to the landfill. It could be a little earlier or later."³⁴

In a letter of May 7, 1987, E.W. McCurdy, Vice President and General Manager of Grace Pacific Corporation, notified the Pollution Investigation and Enforcement Branch that its Final Closure Plan would be completed prior to August 1987. He also stated that "Acceptance of refuse into Palailai Landfill will be completed by early August of 1988."³⁵

The Department of Health has since informed Grace Pacific Corporation that its review of the closure plan will focus on the following areas:

- (1) Methane gas migration and monitoring program;

- (2) The existing leachate collection sump and monitoring program;
- (3) Groundwater contamination and monitoring program; and
- (4) Closure improvements including but not limited to final cover, landscaping, drainage, and monitoring wells.³⁶

On November 3, 1987, the Department of Land Utilization of the City and County of Honolulu granted Grace Pacific Corporation an extension of its Conditional Use Permit from April 16, 1988 to April 16, 1989.³⁷ This extension, however, was later clarified by John P. Whalen, Director of Land Utilization, in a letter to E. W. McCurdy. "We would...like to clarify that the one-year extension to April 1989 was granted only for the close-out of the landfill operations," Whalen explained. "No additional refuse will be permitted during the extension period."³⁸

Part X. A Buffer Zone for the Puu Palailai Sanitary Landfill

In his testimony on Senate Resolution No. 168, Dr. John C. Lewin, Director of Health, asserted that "Only a buffer zone can alleviate [the types of problems experienced by residents who live near the Puu Palailai Sanitary Landfill]."³⁹

As a result of testimony received on Senate Resolution No. 168, State Senator Gerald T. Hagino wrote to John P. Whalen, Director of Land Utilization, regarding the establishment of buffer zones for sanitary landfills.

In his reply, Whalen assured Senator Hagino that the Department of Land Utilization "does review adjacent land uses, and the impacts of landfills on these existing uses." A landfill must, he pointed out, satisfy Section 4.30-A of the Land Use Ordinance: "The proposed use will not alter the character of the surrounding area in a manner substantially limiting, impairing, or precluding the use of surrounding properties for the principal uses permitted in the underlying zoning district." Under Section 4.30-D of the Land Use Ordinance, the Department of Land Utilization, Whalen explained, also reviews "the specific impacts including traffic flow, screening and buffering requirements, hours and manner of operation, noise, lights, odor, and fumes."

"As noted in your attachment of the State Department of Health's testimony," Whalen acknowledged, "it may have been prudent to have delayed the construction of the homes closest to the landfill [Kapolei Neighborhood Unit 6] until the closing of the landfill. However, varying wind patterns and topographical considerations make it very difficult to establish buffer zone standards to be applicable in all situations."

Finally, Whalen assured Senator Hagino that "we will be monitoring the operation, and if it is in violation of the conditions of approval, the permit can be re-evaluated."⁴⁰

Chapter 4

A COMPARISON OF HAWAII'S RULES ON LANDFILLING WITH THOSE OF OTHER STATES

A comparison of the state Department of Health's rules on landfilling with those of other states is presented in the chart on pages 54-57. Chapter 11-58, Hawaii Administrative Rules, on Solid Waste Management Control, was compared with the Environmental Protection Agency's Guidelines for the Land Disposal of Solid Wastes (Part 241, 40 Code of Federal Regulations) and with 44 sets of similar rules and regulations currently in use in, or recently proposed by, other states. (Rules governing landfilling were not available for the following six states: Illinois, Nebraska, New Jersey, New York, Texas, and Virginia.)

The comparison focused on the types of concerns that were expressed by residents who live near the Puu Palailai Sanitary Landfill. The residents' concerns most frequently referred to odors, other nuisances, and the occurrence of underground fires. The residents also expressed concern about the proximity of the landfill to their houses.

The comparison did not deal with the disposal of hazardous wastes or special wastes such as animal carcasses or automobile tires. Both types of waste are not accepted by the Puu Palailai Sanitary Landfill. The disposal of hazardous wastes is more strictly regulated than the disposal of typical municipal wastes. The Environmental Protection Agency is expected to release, by March of 1988, revised criteria for facilities receiving hazardous household wastes or hazardous wastes from "small quantity generators."

The chart was constructed using, as a model, Chapter 3 of Title 14 of the California Administrative Code entitled "Minimum Standards for Solid Waste Handling and Disposal." This set of rules is among the most complete of the 45 sets reviewed, and it provides an item-by-item listing of regulatory concerns. The chart, however, does not duplicate the concerns listed under Chapter 3. It was modified to take into consideration several other concerns--for example, wind direction/conditions, the daily collection of litter, and buffer zones.

The chart presents two categories of concerns: one, those that pertain to the location of landfills and two, those that pertain to the operation of landfills. In both cases, no attempt was made to provide an exhaustive comparison but rather one that would contribute to an understanding of the possible inadequacies of the Department of Health's rules in light of the concerns expressed by residents of Makikilo. The chart also shows which states require or recommend buffer zones between the disposal site of a landfill and nearby residences.

Locational Concerns

These concerns are a means of providing the permit-granting agency with sufficient information to effectively review proposals for new landfills. Knowledge of the exact boundaries of a proposed landfill, for example, is

very important, as is a good sense of existing adjacent land uses and the impact the landfill operation may have on its surrounding area. Another important siting concern is wind conditions and the direction of prevailing winds.

Financial responsibility for closure has in recent years become recognized as another important concern, for closure requires continuing, and possibly long-term, monitoring of a landfill site for leachate, gas migration, and water pollution. These activities, along with the application of final cover, are costly and occur after a landfill has ceased its operation and when it no longer is collecting disposal fees.

Operational Concerns

These concerns play an important role in regulating the day-to-day operation of a landfill. Most states recognize the importance of vector, odor, and fire control. Crucial to all of these activities is the daily application of an appropriate amount of suitable cover material. Indeed, the Environmental Protection Agency includes daily cover in its definition of "sanitary landfill":

a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day.¹

It should be noted that in addition to the daily application of cover material, several states require the daily collection of windblown litter.

While most states recognize the importance of preventing and controlling fires, only three states make specific mention in their rules or regulations of the problem of underground fires. California's procedure for handling underground fires is as follows:

Burning material, or any solid waste at a temperature likely to cause fire, shall not be deposited in the fill. Said material shall initially be deposited in a separate location a sufficient distance from the fill area to prevent fires from spreading to the normal fill area. It shall then be spread in a single layer not exceeding (1) foot in thickness and immediately covered with a sufficient amount of earth or sprayed with sufficient water to extinguish all combustion. Final disposition of the material shall not take place until the operator is certain that no further combustion will take place under any conditions.

Fires which originate with the fill shall be handled by removing all the burning material from the fill and extinguishing it as described above. Excavation of burning materials shall be undertaken in a planned and controlled manner; with sufficient fire fighting equipment present to control any "flare-ups" which may occur as outside air reaches the burning materials. The Enforcement Agency and the [Solid Waste Management Board] shall be immediately notified

COMPARISON OF HAWAII'S RULES ON LANDFILLING

of any fire which cannot be extinguished within 24 hours after it originated.²

California also has procedures for sampling ambient air to determine whether or not it is odorous. This somewhat involved procedure can be found in Title 14, California Administrative Code, Section 17683. (See Appendix U.)

Buffer Zones

A number of states recognize the need for a minimum buffer zone between the working face of a landfill and the nearest inhabited dwellings. Buffer zones vary in width. Alaska, for example, requires a 50-foot buffer zone between the working face of a landfill and the boundary of a landfill, whereas Kentucky requires a 250-foot minimum buffer zone between the fill area and existing residences. Greater buffer zones are required by North Carolina and Nevada: The former requires a 500-foot minimum buffer zone between private dwellings and disposal areas, and the latter requires the disposal site "not to be between one-fourth mile of the nearest inhabited dwelling."

Completeness of Hawaii's Chapter 11-58 Rules

The rules and regulations on landfilling currently in use in, or recently proposed by, the various states differ widely in terms of their completeness (i.e., coverage of a wide range of potential problem areas). The state Department of Health's rules in chapter 11-58, Hawaii Administrative Rules, are not among the most complete sets of rules and regulations, but neither are they among the least complete. The states with the most complete sets of rules and regulations include California, Connecticut, Florida, Indiana, Iowa, Kentucky, Minnesota, Ohio, Pennsylvania, and Wisconsin. The states with the least complete sets of rules and regulations include Alaska, Arizona, Georgia, New Mexico, and Utah.

The state Department of Health's chapter 11-58 rules are fairly complete in terms of the operational concerns they address. In comparison with the most complete sets of rules and regulations, their main omissions, in addition to those mentioned above under "Operational Concerns," are that they do not:

- (1) Specify the types of acceptable cover material;
- (2) Specify how long a portion of the landfill may remain inactive without receiving intermediate cover;
- (3) Require the application of final cover within a specific period of time following the completion of the final lift;
- (4) Limit the height/depth of lifts;
- (5) Require the presence of a supervisor during the operating hours of a landfill;
- (6) Require fences to control blowing litter;

SANITARY LANDFILLS IN HAWAII

- (7) Require provisions for disposal activities in adverse weather; and
- (8) Require the availability of standby equipment to meet the requirements of daily cover.

The state Department of Health's rules are inadequate in terms of the locational concerns they address. In comparison with the most complete sets of rules and regulations, their main omissions, in addition to those mentioned above under "Locational Concerns," are that they do not:

- (1) Require a professional engineer to prepare plans for the design, construction, and operation of a landfill site and transfer station;
- (2) Require the following types of information:
 - (A) Total acreage of a site;
 - (B) Estimated capacity (in either tons or cubic yards) of a site; and
 - (C) Projected life expectancy of a site;
- (3) Require maps (drawn to a specific scale) that show the location of a site and its legal boundaries, and the limits of the disposal areas;
- (4) Require an explanation of the relationship of a site to adjacent land uses (including zoning information and the distances to the nearest inhabited dwellings);
- (5) Require that the sequence of development of a site be specified;
- (6) Require topographical maps showing the existing and final contours of a site; and
- (7) Require information on the underlying soils, geology, and groundwater of a site.

Comparison of the State Department of Health's Rules on Landfilling with Those of Other States

LOCATIONAL CONCERNS:

Professional engineer to prepare plans for the design, construction, and operation of the site

Description of the manner of operation

Types, quantities, & sources of wastes to be received

Total acreage of the site

Estimated capacity (tons/cubic yards) of the site

Projected life expectancy of the site

Location of the site on a map

Specific scale size of the map(s)

Points of access to the site

Legal boundaries of the site on a plot plan

Limits of the disposal area(s)

Relationship of the site to adjacent land uses

Zoning information on all adjacent parcels

Distances to nearest structures

Names & addresses of adjoining landowners

Wind direction/conditions

E. P. A.	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii	Idaho	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nevada	New Hampshire	New Mexico	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Island	South Carolina	Tennessee	Utah	Vermont	Washington	West Virginia	Wisconsin	Wyoming	
	x			x		x		x			x			x	x	x	x	x	x	x	x	x		x			x			x					x										
	x	x			x	x	x		x		x	x	x			x	x		x		x		x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
			x	x	x	x					x		x		x						x																								
							x	x																																					
			x	x																																									

[illegible]

OPERATIONAL CONCERNS:

Types of acceptable cover

Minimum of at least
6" of cover

Frequency of cover
(at least daily)

Minimum of at least
12" of intermediate cover

**Period of inactivity
requiring intermediate cover**

Minimum of at least
2' of final cover

Application of final cover
within a certain period
following the completion
of the final lift

Additional final cover,
if necessary

**Maximum height/depth
of lifts**

**Working face confined to
smallest practical area**

Working face confined to
specific limits

**Supervised disposal
required**

Personnel training required

Prevention/control of vectors

Prevention/control of odors

Prevention/control of fires

[illegible]

Procedures for handling
underground fires .

Daily collection of
litter outside operating
area

Fences to control blowing
litter

Plantings/buffers to
screen the site from
nearby residences and
major roadways

Provisions for disposal
activities in adverse
weather

Standby equipment to
meet cover requirements

BUFFER ZONE:

E. P. A.	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia	Hawaii	Idaho	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nevada	New Hampshire	New Mexico	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Island	South Carolina	South Dakota	Tennessee	Utah	Vermont	Washington	West Virginia	Wisconsin	Wyoming	
																																											</			

Chapter 5

FINDINGS AND RECOMMENDATIONS

Senate Resolution No. 168, S.D. 1, requested the Legislative Reference Bureau to review the state Department of Health's administrative rules on Solid Waste Management Control and to determine if those rules are adequate or if they should be amended to alleviate the problems reported by residents who live near landfills. The Resolution also requested that the state Department of Health's rules on landfilling be compared with those used in other states. In addition, the Resolution requested input and information from residents who live near landfills and from various city, state, and federal agencies. Finally, the Resolution "urged" the City and County of Honolulu's Department of Land Utilization to "strongly consider establishing appropriate buffer zones around sanitary landfills to alleviate the problems expressed by those residents who live near landfills."

To address the concerns of Senate Resolution No. 168, S.D. 1, this study first reviewed chapter 11-58, Hawaii Administrative Rules, the state Department of Health's administrative rules on Solid Waste Management Control. The review included the predecessor rules, chapter 46, Public Health Regulations, which with little modification served as the basis for the current chapter 11-58.

Because Senate Resolution No. 168, S.D. 1, expressed concern about the complaints of residents who live near the Puu Palailai Sanitary Landfill, this study made particular effort to examine those complaints. It reviewed the many complaints made directly to the Department of Health's Pollution Investigation and Enforcement Branch and complaints expressed in public testimony at a hearing on Senate Resolution No. 168. The researcher also met on two occasions with residents who live near the Puu Palailai Sanitary Landfill. One group of residents consisted of members of the Ewa Neighborhood Board. The other group consisted of residents who live in Kapolei Neighborhood Unit 6. For the most part, the complaints made directly to the Pollution Investigation and Enforcement Branch were found, by Department of Health inspectors, to be justified.

Because Senate Resolution No. 168, S.D. 1, notes that the Puu Palailai Sanitary Landfill has been found by the Pollution Investigation and Enforcement Branch of the Department of Health to be "operating within the rules of the department," this study undertook a review of the inspection reports on the Puu Palailai Sanitary Landfill. In addition, this study examined the regulatory history of the landfill, reviewing the various City and County of Honolulu and State of Hawaii permits under which the landfill has operated. This examination, prepared as a case study, enabled the researcher to obtain input and information from various county, state, and federal agencies.

As it turns out, the Puu Palailai Sanitary Landfill, while operating properly under the permits it has received, did not always operate in accordance with chapter 11-58, the Department of Health's administrative rules on Solid Waste Management Control. In fact, the landfill operator, originally

Pacific Concrete & Rock Company, Limited, and, more recently, Grace Pacific Corporation were formally cited for violations on six occasions. One notice of violation required Pacific Concrete & Rock Company to pay a fine of \$1,000.

Although many of the complaints made about the Puu Palailai Sanitary Landfill were found to be justified; although the landfill, on numerous occasions, was found not to be operating in accordance with chapter 11-58; and although six formal notices of violation were issued, it would be incorrect to conclude that the landfill has been operated improperly. According to Department of Health inspectors, the landfill at Puu Palailai was operated no better and no worse than other private or county landfills throughout the State. Sanitary landfills happen to be complicated to operate. Many things can go wrong, creating nuisances of one kind or another. Equipment may break down to prevent the application of daily cover. The cover material itself may not contain the right mix of soils. The direction of the wind may change, carrying odors toward occupied dwellings instead of away from them. Many of the contingencies that affect the operation of landfills, however, are not addressed by the Department of Health's administrative rules on landfilling.

This study then compared chapter 11-58, the Department of Health's rules on landfilling with those used in other states. Comparisons were made with the Environmental Protection Agency's Part 241, Guidelines for the Land Disposal of Solid Wastes (Title 40 Code of Federal Regulations), and with 44 sets of similar rules and regulations currently in use in, or recently proposed by, other states. The comparison focused on aspects of landfill operations that have significant bearing on the types of complaints expressed by residents who live near the Puu Palailai Sanitary Landfill. These complaints can be divided into two types of concerns: locational and operational.

The chapter 11-58 rules were found to be neither among the most complete, nor among the least complete, of the rules and regulations reviewed. The rules addressing operational concerns, however, are more fully developed than those addressing locational concerns.

The most serious omissions are rules requiring daily cover and procedures for handling underground fires, both of which are operational concerns. Several important locational concerns are not addressed by chapter 11-58. Rules are needed that require:

- (1) The exact boundaries of proposed landfills;
- (2) Information on the probable impact a landfill operation will have on its surrounding area; and
- (3) Information on wind conditions and the direction of prevailing winds.

Financial responsibility for closure is another major concern that is not addressed by the chapter 11-58 rules.

Findings

The proper operation of a sanitary landfill is more easily described than accomplished. When Pacific Concrete & Rock Company prepared its final Environmental Impact Statement (EIS) in December of 1972, it claimed that it could operate a sanitary landfill at the site of the former rock quarry at Puu Palailai without creating nuisances of one kind or another that would affect the residents of Makakilo. A review of the state Department of Health's inspection reports on the Puu Palailai Sanitary Landfill, however, shows that even a reasonably well-run landfill can be highly problematical.

The nuisance mentioned most often in the inspection reports, as well as in complaints made by residents who live near the landfill, is odor: either the odor of exposed refuse or the odor of underground burning. The control of both types of odors are dependent upon a crucial aspect of landfill operations, the proper spreading, compacting, and daily covering of refuse. When this is not done properly, then not only is refuse exposed for longer periods than it should be, but an important fire prevention measure is rendered less effective. The inadequate application of daily cover and the improper construction of landfill cells could result in the failure to contain underground fires. In some cases, these underground fires--owing to the improper construction of cells--can prove to be extremely difficult to extinguish. Underground fires have been a common occurrence at the Puu Palailai Sanitary Landfill, as they have been at other landfills throughout the State of Hawaii.

The odor problem cannot be alleviated entirely from landfill operations. Odors often are present when refuse is unloaded, when it is spread on the working face, and while it is awaiting daily cover. Odors can be eliminated as a public nuisance only by siting landfills at a sufficient distance--preferably downwind--from occupied dwellings.

Other Findings

Section 342-52, Hawaii Revised Statutes, which authorized chapter 11-58, Hawaii Administrative Rules relating to Solid Waste Management Control, adopted by the Department of Health, states that the Director of Health may "Establish by rule the criteria for siting, design, construction, financial responsibility, manifest, and operation of solid waste...disposal systems." However, the rules make little or no mention of the siting, design, and construction of landfills. Financial responsibility is also a neglected concern.

The definition of landfill in section 11-58-2, Hawaii Administrative Rules, is not in coordination with the definition of sanitary landfill provided in section 342-51, Hawaii Revised Statutes.

The filing fee of \$20,00, required by section 11-58-3, Hawaii Administrative Rules, is the same amount as it was in 1974.

The requirement in section 11-58-4, Hawaii Administrative Rules, to "compact and cover all solid waste accumulated after each day's operation with earth or other approved material in an approved manner safeguarding the environmental quality of the surrounding area..." is optional.

Chapter 11-58 does not limit the height or depth of lifts, although chapter 46 of the old Public Health Regulations, did require that "each completed lift shall be no greater than eight [8] feet in vertical depth."

Section 11-58-4, Hawaii Administrative Rules, requires that "provisions shall be made to maintain the landfill site for at least one year after termination of operation to prevent health hazards or nuisances from occurring." However, the City and County Board of Water Supply required the operator of the Puu Palailai Sanitary Landfill to maintain a leachate-collection and removal system for seven years after the termination of the landfill operation.

Recommendations

Chapter 58 of Title 11, Solid Waste Management Control, clearly needs to be revised. The definition of landfill is inappropriate. It should instead provide a definition of sanitary landfill which, like the definition used by the Environmental Protection Agency, incorporates the requirement of daily cover. The antiquated nature of the chapter 11-58 rules is unmistakable in its \$20.00 filing fee. An appropriate filing fee should be required of applicants for a Solid Waste Management Permit. Since the drafting of the predecessor rules (upon which chapter 11-58 is based) in the early 1970s, much has been learned about operating and regulating sanitary landfills. This more recently acquired knowledge should not be overlooked. In its revision of chapter 11-58, the state Department of Health should examine similar rules currently in use, or recently proposed by, the states of California, Connecticut, Florida, Indiana, Iowa, Kentucky, Minnesota, Ohio, Pennsylvania, and Wisconsin.

The chapter 11-58 rules are especially inadequate regarding criteria and standards for the siting, design, and construction of sanitary landfills. These three concerns should be addressed by the Department of Health when it brings its current rules up to date.

One of the siting criteria should specify a buffer zone around sanitary landfills. A buffer zone of one-half mile around the landfill boundaries would help prevent the odors inherent in an operating landfill from becoming a public nuisance.¹

Other siting criteria should require a description of adjacent land uses, a description of wind conditions/direction, and the distances between the landfill boundary and the nearest occupied dwellings.

Rules regarding the operation of sanitary landfills should require daily cover with an appropriate amount of a suitable material and specify a maximum height or depth for completed lifts.

To help prevent and control underground fires, new rules should specify the procedure that is to be used as soon as an underground fire is detected. Another rule should require the operator of a landfill to notify the Department of Health within 24 hours of the occurrence of an underground fire.

FINDINGS AND RECOMMENDATIONS

To help contain windblown litter, a rule should require the use of portable litter fences around the working face. Also, landfill operators should be required daily to collect windblown litter and return it to the working face.

Once a landfill is closed, its former operator should be required to maintain it for a period of time longer than one year. The operator also should be required to monitor the landfill site for water pollution, leachate, and gas migration. A concern for long-term monitoring was expressed by the Board of Water Supply of the City and County of Honolulu in 1972 when the Puu Palailai Sanitary Landfill was first proposed.

To ensure that a landfill operator will have the financial resources to provide adequate maintenance and meet the monitoring requirements, new rules should address the financial responsibility of landfill operators after closure.

Finally, new rules will have to address the Environmental Protection Agency's new guidelines or standards, or both, regarding hazardous household wastes and hazardous wastes from "small quantity generators."

FOOTNOTES

Chapter 1

1. R. Steven Brown and Deborah Gona, Solid Waste Programs in the States (New York: The Council of State Governments in cooperation with New York State Legislative Commission on Solid Waste Management, 1987), p. 4. (Mimeographed).
2. Washington (State), Solid Waste Landfill Design Manual, prepared by Parametrix, Inc., June, 1987, p. 2-2.
3. Brown and Gona, p. 14.
4. Ibid.
5. Honolulu, Department of Public Works, Oahu Solid Waste Management Plan, prepared by GMP Associates, Inc., May, 1983, p. 9-5.
6. Ibid., p. 9-2.
7. Donald M. Crider and Robert C. Bealer, "Landfill Siting: How Big a Problem Is It?", Public Works, August, 1981, p. 57.

Chapter 2

1. Letter from Edward Y. Hirata, Director and Chief Engineer, Department of Public Works, City and County of Honolulu, to Dr. Walter B. Quisenberry, Director of Health, State of Hawaii, March 14, 1974, p. 1.
2. Letter from Edward J. Lui, Director of Environmental Affairs, Hawaiian Sugar Planters' Association, to Department of Health, State of Hawaii, March 14, 1974, p. 1.
3. Letter from Robert B. Robinson, President and General Manager, Pacific Concrete and Rock, Company, Limited, to Dr. Walter B. Quisenberry, Director, Department of Health, State of Hawaii, March 11, 1974, p. 1.
4. Ibid.
5. Ibid.
6. Ibid., p. 2.
7. Memorandum from George Yuen, Director of Health, Department of Health, State of Hawaii, to George R. Ariyoshi, Governor, State of Hawaii, October 21, 1981, p. 1.
8. Hawaii Administrative Rules, Section 11-58-2 (Department of Health).
9. Ibid., Section 11-58-1, (Department of Health).
10. Ibid., Section 11-58-3(c)(1), (Department of Health).
11. Ibid., Section 11-58-3(d)(4), (Department of Health).
12. Ibid., Section 11-58-3(e), (Department of Health).

13. Ibid., Section 11-58-3(f), (Department of Health).
14. Ibid., Section 11-58-4(a)(1), (Department of Health).
15. Ibid., Section 11-58-3(a)(2), (Department of Health).
16. Ibid., Section 11-58-4(b), (Department of Health).
17. Ibid., Section 11-58-5, (Department of Health).

Chapter 3

1. Honolulu, Department of Public Works, Oahu Solid Waste Management Plan, prepared by GMP Associates, Inc., May, 1983, pp. 3-3 and 3-49.
2. Interview with Ron Obrey, Vice President for Operations, Rock Division, Grace Pacific Corporation, December 9, 1987.
3. Pacific Concrete & Rock Company, Limited, Draft Environmental Impact Statement, Sanitary Landfill Operation, Puu Palailai, Ewa, Hawaii, prepared by Harry R. Cerny and Dr. P. H. McGahey, July, 1972, p. iii.
4. Ibid., p. 27.
5. Ibid., p. ii.
6. Ibid., pp. 20-21.
7. Ibid., p. 25.
8. Ibid., p. 22.
9. Ibid., p. 23.
10. Ibid., p. 26.
11. Ibid.
12. Ibid.
13. Ibid., p. 29.
14. Ibid., p. 32.
15. Memorandum from Dr. Marvin T. Miura, environmental scientist, Office of Environmental Quality Control, State of Hawaii, to various government and civic organizations, October 27, 1972, p. 1.
16. Letter from Richard E. Marland, Interim Director, Office of Environmental Quality Control, State of Hawaii, to Harry R. Cerny, Chief Engineer, Pacific Concrete & Rock, Company, Limited, December 6, 1972, pp. 1-2.
17. Pacific Concrete & Rock Company, Limited, Final Environmental Impact Statement, Sanitary Landfill Operation, Puu Palailai, Ewa, Hawaii, prepared by Harry R. Cerny and Dr. P. H. McGahey, July, 1972, p. 21a.
18. Ibid., p. 21.

19. Ibid., p. 24-24a.
20. Ibid., p. 27.
21. City and County of Honolulu, Comprehensive Zoning Code, Ordinance No. 3234, Revised January 15, 1970, sec. 21-401.
22. Memorandum from Robert R. Way, Director, Planning Department, City and County of Honolulu, to Planning Commission, City and County of Honolulu, December 20, 1972, pp. 4-6.
23. Letter from Robert R. Way, Director, Planning Department, City and County of Honolulu, to George M. Koga, Chairman, Honolulu City Council, April 5, 1973, p. 1.
24. Letter from Tatsuo Fujimoto, Executive Officer, Land Use Commission, Department of Planning and Economic Development, State of Hawaii, to Planning Commission, City and County of Honolulu, March 27, 1973, p. 1.
25. Hawaii, Department of Planning and Economic Development, Memorandum from the staff of the Land Use Commission to the Land Use Commission, March 23, 1973, p. 4.
26. Hawaii, Department of Planning and Economic Development, Minutes of the meeting of the Land Use Commission, March 23, 1973, p. 13.
27. Letter from Michael M. McElroy, Director, Department of Land Utilization, City and County of Honolulu, to Jack F. Burford, President, Pacific Concrete & Rock Company, Limited, October 21, 1982, p. 1.
28. Letter from John P. Whalen, Director, Department of Land Utilization, City and County of Honolulu, to E. W. McCurdy, Vice President and General Manager, Grace Pacific Corporation, November 3, 1987, p. 1.
29. Testimony presented by Lorna Lum to the Senate Committee on Planning and Environment on Senate Resolution No. 168, April 20, 1987, p. 1.
30. Testimony presented by Dr. John C. Lewin, Director, Department of Health, State of Hawaii, to the Senate Committee on Planning and Environment on Senate Resolution No. 168, April 20, 1987, pp. 1-2.
31. Letter from William E. Wanket, Deputy Director, Department of Land Utilization, City and County of Honolulu, to Sunn, Low, Tom, and Hara, Inc., August 1, 1975, p. 1.
32. Telephone conversation with Katherine Hendricks, Inspector, Pollution Investigation & Enforcement Branch, Department of Health, State of Hawaii, December 18, 1987.
33. Pacific Concrete & Rock Company, Limited, Final Environmental Impact Statement, p. 32.
34. Testimony presented by Dr. John C. Lewin, p. 1.
35. Letter from E.W. McCurdy, Vice President and General Manager, Grace Pacific Corporation, to

Katherine Hendricks, Department of Health, State of Hawaii, May 7, 1987, p. 1.

36. Letter from James K. Ikeda, Acting Chief, Environmental Protection and Health Services Division, Department of Health, State of Hawaii, to E. W. McCurdy, Vice President and General Manager, Grace Pacific Corporation, October 26, 1987, p. 1.
37. Letter from John P. Whalen, p. 1.
38. Letter from John P. Whalen, Director, Department of Land Utilization, City and County of Honolulu, to E.W. McCurdy, Vice President and General Manager, Grace Pacific Corporation, December 31, 1987, p. 1.
39. Testimony presented by Dr. John C. Lewin, p. 2.
40. Letter from John P. Whalen, Director, Department of Land Utilization, City and County of Honolulu, to Gerald T. Hagino, State Senator, State of Hawaii, May 7, 1987, p. 1.

Chapter 4

1. 40 Code of Federal Regulations, Section 241.101.
2. California, Title 14, California Administrative Code, Section 17683.

Chapter 5

1. Meeting with Paul Aki, Chief, Pollution Investigation & Enforcement Branch, Department of Health, State of Hawaii, January 26, 1988.

SENATE RESOLUTION

REQUESTING THE LEGISLATIVE REFERENCE BUREAU TO REVIEW THE
DEPARTMENT OF HEALTH'S ADMINISTRATIVE RULES ON SOLID
WASTES MANAGEMENT CONTROL.

1 WHEREAS, Hawaii, as an island State, must rely heavily on
landfills for the disposal of refuse; and

2 WHEREAS, due to the limited amount of open space
3 available, residential communities are sometimes developed near
landfills; and

4 WHEREAS, people living next to landfills or in close
5 proximity to them have numerous complaints about landfills,
including unsightliness, with rubbish from the landfills being
6 blown into their yards, and problems with underground fires,
dust, rodents, mice, lice, mites, and flies; and

7 WHEREAS, these residents also find that the chemicals used
8 at landfills may be the cause of various health problems such
as aggravated respiratory illnesses, eye irritations,
9 headaches, chest pains and insomnia; and

10 WHEREAS, the Puu Palailai Landfill in Makakilo is one such
example of a landfill which has generated many complaints from
11 nearby residents; and

12 WHEREAS, the Pollution, Investigation and Enforcement
Branch of the Department of Health has found that the Puu
13 Palailai Landfill has been operating within the rules of the
department; and

14 WHEREAS, some type of review is necessary since the
15 concerns voiced by the residents have affected the health and
welfare of the people in the community; now, therefore,

16 BE IT RESOLVED by the Senate of the Fourteenth Legislature
17 of the State of Hawaii, Regular Session of 1987, that the
Legislative Reference Bureau is requested to review the
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Department of Health's Administrative Rules on Solid Waste Management Control to determine if such rules are adequate or should be amended to alleviate the problems expressed by those residents who live near landfills; and

BE IT FURTHER RESOLVED that the review by the Legislative Reference Bureau also include a comparison of the rules and regulations of landfills from other states; information and input gathered from the the Environmental Protection Agency, the Department of Health, the Department of Land and Natural Resources, the Department of Land Utilization, the Office of Environmental Quality Control, the Department of Public Works, and the University of Hawaii; and input from residents who reside near landfills; and

BE IT FURTHER RESOLVED that for future land development projects, the Department of Land Utilization is urged to strongly consider establishing appropriate buffer zones around sanitary landfills to alleviate the problems expressed by those residents who live near landfills; and

BE IT FURTHER RESOLVED that the Legislative Reference Bureau report its findings and recommendations to the Legislature twenty days before the convening of the Regular Session of 1988; and

BE IT FURTHER RESOLVED that certified copies of this Resolution be transmitted to the Director of the Legislative Reference Bureau and the Director of the Department of Land Utilization, City and County of Honolulu.

LEASE NO. _____

THIS INDENTURE, made this _____ day of _____, 19____, by and between THE TRUSTEES UNDER THE WILL AND OF THE ESTATE OF JAMES CAMPBELL, DECEASED, whose place of business and post office address is 828 Fort Street, Honolulu, City and County of Honolulu, Hawaii, hereinafter called the "Lessors", of the first part, and PACIFIC CONCRETE & ROCK CO., LIMITED, a Hawaii corporation, whose place of business and post office address is 2344 Pahounui Drive, Honolulu aforesaid, hereinafter called the "Lessee", of the second part, --

WITNESSETH: That the Lessors in consideration of the rent to be paid and the covenants to be observed and performed by the Lessee as hereinafter provided, do hereby demise and lease unto the Lessee, and the Lessee does hereby accept and rent from the Lessors:

LOT 310, as shown on Map 47, filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1069, a portion of the lands described in Certificate of Title No. 15790, and

LOT 2211, as shown on Map 197, filed in said Office with said Land Court Application No. 1069, a portion of the lands described in Certificate of Title No. 122,960;

SUBJECT, HOWEVER, as to Lot 310, to all existing encumbrances shown on said Certificate of Title No. 15790 as affecting said Lot 310 and to all unrecorded encumbrances affecting said Lot 310, a list of which has been given to the Lessee by the Lessors;

SUBJECT, ALSO, as to Lot 2211, to all existing encumbrances shown on said Certificate of Title No. 122,960 as affecting said Lot 2211 and to all unrecorded encumbrances affecting said Lot 2211, a list of which has been given to the Lessee by the Lessors;

SUBJECT, FURTHER, to the following limitations on the Lessee's use and occupancy of said Lots 310 and 2211:

(a) The Lessee shall utilize that portion of Lot 310 which lies makai of Easement 96, as shown on said Map 47, and is colored in blue on map, marked Exhibit "I", and attached hereto and made a part hereof, solely for access in common with others entitled thereto;

(b) The Lessee shall use that portion of said Lot 310 situate northerly from Easement 96 and outlined in red on Exhibit "I" attached hereto solely for a sanitary land fill and it is this portion of said Lot 310, containing an area of 28.746 acres, to which all covenants of this lease regarding the "demised premises" and the sanitary land fill operation specifically apply; and

(c) The Lessee shall have the right and duty to excavate to the contours shown on said Exhibit "I" in those areas outlined in blue on said Exhibit "I" and designated as "Borrow Areas" for the purpose of developing cover material acquired for the sanitary land fill and restoring the Palailai Quarry Site, such Borrow Areas comprising approximately 22 acres within Lot 310 and approximately 30 acres within Lot 2211 and shall make no other use of such Borrow Areas.

EXCEPTING AND RESERVING as to all land affected:

(a) The right of the Lessors, their agents, employees and other tenants, at all reasonable times and in all reasonable ways, to use in common with Lessee the roads now or hereafter existing on the land; provided, however, that such rights shall be exercised in such manner as not to interfere unnecessarily with Lessee's operations on said premises.

(b) The right, to be in addition to the rights of withdrawal generally provided for herein, from time to time to withdraw from the premises such land and rights of way as the Lessors in their sole discretion may require for roads, trails, ditches, flumes, pipelines, pole and wire lines, well sites and pump sites or other service purposes for the benefit of any other lands of the Lessors, and the right to enter said premises for the installation, maintenance, repair and replacement of any such facilities; provided, however, that such rights shall be exercised in such manner as not to interfere unnecessarily with Lessee's operations on said premises.

(c) The right for all purposes for which the same shall be fitted to use and enjoy all

shall be payable at the time and in the manner above set forth, notwithstanding the expiration of this lease prior to payment.

4. REQUIRED IMPROVEMENTS. Lessee will at its own expense during the whole of said term make, build, maintain and repair all fences, sewers, drains, roads, curbs, sidewalks, parking areas and other improvements which may be required by law to be made, built, maintained and repaired upon or adjoining or in connection with or for the use of said premises or any part thereof.

5. OBSERVANCE OF LAWS. Lessee will at all times during said term keep said premises in good order and a strictly sanitary condition and observe and perform all laws, ordinances, rules and regulations now or hereafter made by any governmental authority for the time being applicable to said premises or any improvement thereon or use thereof, and will indemnify the Lessors against all actions, suits, damages and claims by whomsoever brought or made by reason of the nonobservance or non-performance of said laws, ordinances, rules and regulations or of this covenant. Lessee will support any efforts by the Lessors to secure, retain or enforce land use classification and zoning with respect to the demised premises and other lands of the Lessors at Ewa, provided only such efforts will not result in the Lessee's inability to continue to use the demised premises for the sanitary land fill purposes for which they are being leased.

6. INSPECTION. Lessee will permit the Lessors and their agents and representatives of all governmental authorities having jurisdiction at all reasonable times during said term to enter said premises and examine the condition thereof, and will repair and make good at its own expense all defects required by the provisions of this lease to be repaired and made good by the Lessee of which notice shall be given by the Lessors or their agents within thirty (30) days after the giving of such notice unless a shorter period shall be specified in some other provision of this lease with respect to a particular defect.

7. REPAIR AND MAINTENANCE. Lessee will at its own expense from time to time and at all times during said term well and substantially repair, maintain, amend and keep all buildings and other improvements now or hereafter built on the demised land with all necessary reparations and amendments whatsoever in good order and condition.

8. WASTE AND UNLAWFUL USE. Lessee will not make or suffer any unlawful, improper or offensive use of said premises, nor without the written consent of the Lessors, drill any wells or otherwise attempt to capture or utilize any waters underlying said premises. Lessee will not make or suffer any strip or waste, except such as may intrinsically be necessary in the sanitary land fill operation envisioned by this lease.

9. ASSIGNMENT AND SUBLETTING. Lessee will not without

the written consent of the Lessors assign or mortgage this lease, nor sublet or part with possession of the whole or any part of said premises; and, so long as there shall be any option area in the Lessors' Puu Makakilo lands concerning which there is any right to purchase and remove rock and other material under the terms of a sale contract of even date between the Lessors and the Lessee, hereinafter called the "Sale Contract", the rights under this lease may not be exercised by anyone other than the owner of such purchase and removal rights; provided, however, that nothing herein shall be deemed to restrict the Lessors' right to deal with others in the event the Lessee's rights hereunder are terminated by reason of the Lessee's default.

10. USE. It being understood that the sole purpose of this lease is to permit the demised premises to be used for a sanitary land fill operation in order to restore the Lessors' land in the manner provided in plan of Donald Wolbrink & Associates, Inc., referred to in the Sale Contract as the Wolbrink Palailai Plan 2 and being Exhibit "F" to such Sales Contract, which plan is not attached hereto, but is nevertheless by reference made a part hereof (hereinafter called the "Plan"), Lessee agrees that the Lessee's use of the demised premises will be strictly for that purpose and no other and in the use of said premises the Lessee will bind itself to the strict observance and performance of all of the terms, covenants and conditions set forth in this lease and in said Plan of Donald Wolbrink & Associates and on the part of the sanitary land fill operator to be observed and performed.

11. LIABILITY INSURANCE. Lessee will at its own expense effect and maintain during the whole of said term a policy or policies of comprehensive personal liability and property damage insurance with a single limit of not less than \$5,000,000, said policy or policies to name the Lessors as an additional assured, to be deposited with the Lessors, to cover the entire premises and improvements thereon and any easement areas in which Lessee has any rights hereunder, to provide that such policy or policies may not be terminated as to the interest of the Lessors thereunder without 30 days' written notice to the Lessors from the insurer(s), and to deposit all premiums for payment or certificates thereof with the Lessors. The Lessors may from time to time suggest increasing the limits specified hereunder and, provided that a prudent businessman in the City and County of Honolulu, State of Hawaii, would increase such limits, Lessee agrees to increase such limits as the same would be increased by such prudent businessman.

12. BOND AND FINANCIAL INFORMATION. Lessee will before commencing construction of any improvement on said premises, including the performance of any requisite screening and landscaping, deposit with the Lessors a bond or certificate thereof, in a penal sum not less than the cost of such construction and

in form and with surety satisfactory to the Lessors, guaranteeing the completion of such construction free and clear of all mechanics' and materialmen's liens, together with such information and evidence as the Lessors may reasonably require to assure that the Lessee is able to and will make all payments required by contract to be made as and when the Lessee is required to do so.

13. LESSORS' COSTS AND EXPENSES. Lessee will pay to the Lessors on demand all costs and expenses including reasonable attorneys' fees incurred by the Lessors in enforcing any of the covenants herein contained, in remedying any breach by the Lessee of its covenants, in recovering possession of said premises, in collecting any delinquent rent, taxes or other charges payable by the Lessee hereunder, or in connection with any litigation commenced by or against the Lessee (other than condemnation proceedings) to which the Lessors without any fault on their part shall be made parties.

14. INDEMNITY. Lessee will indemnify and hold the Lessors harmless from and against all claims and demands for loss or damage, including property damage, personal injury and wrongful death, arising out of or in connection with the use or occupancy of said premises by the Lessee or any other person claiming under it, or any accident, fire or nuisance on said premises or any adjacent sidewalk not caused solely by any facilities of others in the setback area or exercise of reserved rights therein, or any failure by the Lessee to keep said premises and sidewalks in a safe condition except for any facilities of others in the setback area, and will reimburse the Lessors for all their costs and expenses including reasonable attorneys' fees incurred in connection with the defense of any such claims, and will hold all goods, materials, furniture, fixtures, equipment, machinery and other property whatsoever on said premises at its sole risk and hold the Lessors harmless from and against any loss or damage thereto by any cause whatsoever.

15. LIENS. Lessee will not commit or suffer any act or neglect whereby said premises or any improvement thereon or the estate of the Lessee therein shall at any time during said term become subject to any attachment, judgment, lien, charge or encumbrance whatsoever, except as herein expressly provided, and will indemnify and hold the Lessors harmless against all loss, costs and expenses including reasonable attorneys' fees with respect thereto.

16. SUPERVISION. The Lessee shall be represented at all times during working hours by a fill superintendent possessing full authority from the Lessee over the sanitary land fill operation and instructed to put into immediate effect such lawful orders and recommendations as he may receive from the authorized representatives of any governmental authority having jurisdiction and such orders and recommendations as he may receive from representatives of the Lessors and as are consistent

with the Plan and this lease.

17. ORDER OF FILLING. The Lessee shall begin filling in the area designated as Lift I on the Plan and shall proceed in a systematic manner thereafter and in the numerical sequence designated on the Plan (i.e., Lift I, Lift II, Lift III and so on).

18. METHOD OF COMPACTION. The Lessee agrees that all dumped refuse will be compacted by tractors of a size equal to the Caterpillar D-8 or larger; that each machine will be equipped with cleated tracks and a hydraulically operated bulldozer blade; that the tractors shall push the refuse toward or against the rock face left as a result of earlier quarry operations conducted by the Lessee; and that the tractors shall thereafter work on the refuse, pushing up grade, until compaction is such that the tractor tracks are seen to ride on and not in the deposited refuse.

19. DAILY COVER. That, during the course of every working day, the Lessee will bring sufficient cover material to insure that the compacted refuse representing that day's deposit is completely covered and will cover the same to a depth of not less than six inches with tractor compacted earth and fragmented rock materials by the close of such working day, the standards of compaction to be that the tractor tracks are seen to ride on and not in the cover material. (The Lessors have agreed and do agree that the material obtained in the Borrow Areas designated on the Plan to cover the compacted refuse is to be obtained at no charge to the Lessee, provided it is so used. The material must, however, be removed by the Lessee to the elevations shown on the Plan. Lessee agrees that only one such Borrow Area shall be worked at one time and must be completed to the grade and elevations shown on the Plan before beginning at another designated area.)

20. LIFT COVER. On or before the completion of a lift, the Lessee shall bring from the Borrow Area or, at Lessee's option, provide from other sources sufficient cover material to insure that the entire surface of the lift not to be subsequently covered by the next succeeding lift is covered and will cover the same to a depth of not less than two feet with tractor compacted earth and fragmented rock materials, compacted as hereinabove provided and graded as shown on the Plan so as to insure proper surface drainage. The Lessee agrees, by refilling, re-compacting and re-grading, to make good any subsequent settlement of a lift or lifts which may occur and which causes or may cause ponding of rain water or interference with drainage slopes promptly as and when such deficiencies are observed; provided, however, that the Lessee's obligations to refill, recompact and regrade shall not continue beyond making good the settlement of a lift or lifts occurring within one year after the termination of the Lessee's rights under this lease.

21. CONTROL. Lessee shall control dust arising as a result of the operation by frequent sprinkling, supplemented by such other measures as the Lessee shall elect, provided that oiling will be permitted only in those areas of a lift which will be covered by a succeeding lift or on the slope of a refuse cell which will be covered in the course of the operation. Lessee shall control blowing paper by lath or mesh fences as required. Traffic into and out of the fill area shall be routed by the Lessee so as to minimize waiting time and no vehicle shall be permitted to remain at the fill area after its loaded refuse has been dumped.

22. NUISANCE AND ENVIRONMENTAL POLLUTION. The Lessee, through its superintendent, shall take immediate steps to effectively eliminate nuisance or environmental pollutants such as odor, dust, flies, rodents, blowing paper, fire, or noise which exceed applicable governmental limitations or create unpleasant conditions for the occupants of any of the Lessors' adjacent or surrounding lands, acting where possible in time to prevent occurrence and at the latest promptly as these nuisances and pollutants occur. In the event that it becomes necessary for government agencies or the representatives of the Lessor to issue a formal notice of correction, the operator shall begin corrective measures upon receipt of such notice and complete such measures within seven (7) days or such shorter time as may be stated in the notice, failing which the fill operation will be shut down until completion has been achieved.

23. SCAVENGING. Lessee will not permit or suffer any scavenging.

24. SALVAGE. Should the Lessee wish to engage in salvage of metal or other materials, such sorting or dismantling operations as are necessary thereto will be confined to a single area to be designated by the Lessors and, at the end of each working day, salvaged material will be removed from the fill area to the sorting area where it will be stored in neat piles or within an approved structure and from that point continuously hauled from the premises as truckload lots are accumulated.

25. SCALE HOUSE AT GATE. The Lessee will install and maintain a set or sets of platform scales equipped with a continuous print out device. Print out data shall include dates, gross, tare, and net weight of all refuse deposited in the land fill. A gate or gates will be made a part of the scale house layout and shall be so arranged as to prevent trucks bypassing the scales and shall be locked at the close of each working day to prevent unauthorized dumping of refuse. Tonnage of refuse deposited in the fill will be reported monthly to the Lessors and tonnage tape print out shall be made available to the Lessors on request. The scales will also be used to weigh in any cover material brought from Makakilo pursuant to the provisions

of the Sale Contract.

26. POLLUTION. The Lessee will at all times during said term keep said premises in good order and a strictly sanitary condition and observe and perform all laws, ordinances, rules and regulations now or hereafter made by any governmental authority for the time being applicable to said premises or any improvement thereon or use thereof, including without limitation to the generality of the foregoing all laws, ordinances, rules and regulations concerning air, ground, water and noise pollution, and the duty to remove all cars and other property which may be abandoned on the demised premises unless deposited for the purpose of providing sanitary land fill, in which case the provisions above set forth with respect to compacting and covering shall apply, and will indemnify the Lessors against all actions, suits, damages and claims by whomsoever brought or made by reason of the nonobservance or nonperformance of said laws, ordinances, rules and regulations or of this covenant.

27. COMPLETION AND ACCEPTANCE. On or before the completion of the last lift of the sanitary land fill, Lessee will correct all deficiencies of cover or drainage caused by differential settlement of the several lifts and will install drainage channels or pipe drains as shown on the Plan so that the completed fill conforms in every respect to the lines and grades and provisions for drainage depicted after which the Lessee shall ask for inspection by the Lessors. Any deficiencies discovered during final inspection shall be corrected by the Lessee forthwith and, upon such correction, the Lessors will formally signify their acceptance.

28. REMOVAL OF STRUCTURES. After completion of land fill, the Lessee shall remove any structures erected by the Lessee on the premises and leave the premises clean and possessed of such grade and elevation as is specified in the Plan.

29. SURRENDER. At the end of said term or other sooner determination of this lease and after completion and removal as specified in the preceding paragraphs 27 and 28, the Lessee will peaceably deliver up to the Lessors possession of the land hereby demised in good and clean order and condition and possessed of the grade and with the drainage hereinabove specified.

PROVIDED, HOWEVER, and this demise is upon the express condition, that (a) if the Lessee shall fail to pay said rent or any part thereof within thirty (30) days after the same becomes due and is billed to the Lessee, whether the same shall or shall not have been legally demanded, or (b) if the Lessee shall fail to observe or perform any of the other covenants herein contained and on the Lessee's part to be observed and performed, and such default shall continue for thirty (30) days after

context) all buildings and improvements now or at any time hereafter built on the land hereby demised. The term "Lessors" herein shall mean and include the Trustees of the Estate of James Campbell, only in their fiduciary and not in their individual capacities, their successors in trust and assigns. The term "Lessee" herein or any pronoun used in place thereof, shall mean and include the masculine or feminine, the singular or plural number, and jointly or severally individuals, firms or corporations, and their and each of their respective successors, executors, administrators and permitted assigns, according to the context hereof. The headings of paragraphs herein are inserted only for convenience and reference and shall in no way define, describe or limit the scope or intent of any provision of this lease.

(g) LANDSCAPING. As Lessee's sanitary land fill operations are completed in a given area of the demised premises and as Lessee completes borrow and excavation operations within a given area in the Borrow Areas, Lessee will plant all areas otherwise subject to erosion with grass and will thereafter maintain the same in good condition, replanting as may be necessary, all to the intent and purpose that erosion and uneven settlement will be avoided. The type of grass selected and the maintenance thereof shall be as approved for the area by the U. S. Soil Conservation Agency or other qualified and recognized soil conservation authority approved by the Lessors. The Lessee's obligations under this paragraph will expire one year after termination of this lease.

IN WITNESS WHEREOF, the parties hereto have executed these presents in quadruplicate the day and year first above written.

Trustees under the Will and of the
Estate of James Campbell, Deceased

(Lessors)

PACIFIC CONCRETE & ROCK CO., LIMITED

By _____

Its

Appendix C

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
POST OFFICE BOX 3410
HONOLULU, HAWAII 96801



RECEIVED

JUL 5 1972

Exhibit XV

Members
ROBERT H. KOTZ, Chairman
RICHARD H. COX, Vice Chairman
GEORGE APOUHAN, Secretary
HENRY H. GEORGE, JR.
FLUJO MATSUDA
STANLEY S. TAKAHASHI
ALBERT C. ZANE

GEORGE A. L. YUEN
Manager and Chief Engineer

July 3, 1972

Mr. Robert B. Robinson, President
Pacific Concrete and Rock Co., Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Dear Mr. Robinson:

We have studied your proposal to locate a sanitary landfill at the Palailai Quarry site and the Board of Water Supply will not object to the proposal from the standpoint of water resources if the following conditions are met to prevent leachates from the landfill operation from percolating into the underlying basal water body in the area:

1. The entire landfill floor area shall be completely covered with a properly-engineered impervious layer of soil.
2. The impervious layer of soil shall in turn be completely overlain with a suitable thickness of pervious gravel material to allow for drainage and collection of leachates from the sanitary landfill.
3. At the lowest elevation of the landfill area, there shall be installed an appropriate concrete sump and pump for withdrawal and proper discharge of liquids and a cased, gravel-packed well which will ultimately extend to finished fill surface. The owner shall properly maintain and operate the well and pump at his own expense for the duration plus 7 years after the termination of the landfill operation; thereafter, the ownership of the well and pump shall be turned over to the Board of Water Supply which shall have the option to continue or terminate the operation of the pump.
4. Surface drainage structures shall be provided to intercept and divert all surface runoff not originating in the landfill area.
5. Materials, plans and specifications for all above four items shall be subject to the approval of the Board of Water Supply.

Pure Water... man's greatest need - use it wisely




Mr. Robert B. Robinson, President

July 3, 1972
Page 2

6. The landfill shall be operated to accept general municipal refuse. However, animal carcasses, petroleum products, chemicals, and other noxious materials and wastes will not be acceptable. 11
7. The landfill shall be operated in a manner to preserve the integrity of the pervious and impervious fill layers and the dewatering well.
8. At the completion of the landfill operation, the fill area shall be finish-graded to promote surface runoff without ponding.
9. The Board of Water Supply reserves the right to stop the landfill operation at any time when any of the above conditions are violated. Resumption of operations will not be permitted until the violations cease and deficiencies are corrected to the satisfaction of the Board of Water Supply.

Thank you for referring this matter to us for review.

Very truly yours,


George Yuen
Manager and Chief Engineer

Appendix D

RESOLUTION

WHEREAS, the Planning Commission held public hearings on January 3 and 31, 1973, to consider the application of Pacific Concrete and Rock Company, Limited, hereinafter referred to as the "APPLICANT," for a Conditional Use Permit to conduct sanitary landfill operations at the existing quarry site situated in "Puu Palailai," Honouliuli, Ewa, Oahu, Hawaii, also identified as portion of Parcel 6 of Tax Map Key 9-1-16, and portion of Parcel 12 of Tax Map Key 9-2-03; and

WHEREAS, the APPLICANT proposes to fill said quarry, estimated to be 90 feet deep and covering 29 acres, with all refuse except chemicals, radioactive wastes, and whole animal carcasses from City, private, and commercial sources; and

WHEREAS, the APPLICANT further proposes to conduct the landfill operation using the "cell method" including lining the fill bottom with an impervious lining to preclude chance of ground water contamination; and

WHEREAS, on February 28, 1973, the Planning Commission, having duly considered all of the evidence and reports offered, recommended to the City Council an approval of the subject application for a Conditional Use Permit with certain conditions enumerated below; now, therefore,

BE IT RESOLVED by the Council of the City and County of Honolulu that a Conditional Use Permit be issued to the APPLICANT under the following conditions:

1. The provisions set forth in the submitted application marked Exhibit A shall be complied with except as may be altered by any of the conditions stated hereunder;
2. The applicant shall comply with all requirements which may be imposed by the State Department of Health, Board of Water Supply, State Fire Marshall, and the Department of Public Works;
3. The permits hereby granted shall expire at the end of 5 years from the date of issuance. The subject permits may upon their expiration be renewed for another 5-year period by the City Council provided the applicant applies for renewal of the Conditional Use and Special Use Permits and provided further that the conditions of the permits have not been violated during the initial 5-year term or if the conditions in the area have not changed in such a manner as to justify refusal of the renewal;
4. The source for the landfill cover material shall be subject to the approval of the Planning Director and other appropriate governmental agencies;

RESOLUTION

5. If for any reason, either the Conditional Use Permit or the Special Use Permit is denied, the other shall automatically be declared null and void;
6. Signs shall be provided in accordance with the regulations set forth under Section 21-404 of the Comprehensive Zoning Code;
7. The proposed use shall comply with the noise regulations of the Comprehensive Zoning Code and with any other more restrictive noise regulations as may be promulgated by the Department of Health. To determine whether or not noise regulations are being complied with, the applicant shall retain a qualified noise consultant to conduct a noise study within 6 months from the date of the use commences. Said study shall be conducted at a time and under conditions acceptable to the Planning Director. The results of the study shall be submitted to the Planning Director for his review and approval. If the study indicates that the use is not operating in compliance with the noise regulation, the applicant shall be required to take corrective actions in a manner acceptable to the Planning Director. Additional noise studies shall be conducted as may be determined necessary and appropriate by the Planning Director;
8. After the issuance of the subject permit, the City Council may at any time, upon finding that any one of the conditions imposed herein is not being complied with by the applicant, authorize the Planning Director to suspend such operation until compliance with said conditions is obtained or to revoke the permit;
9. Any modification to the conditions stated herein shall be subject to the approval of the City Council;
10. The City Council may impose additional conditions after the approval of the subject permits when it becomes apparent that a modification is necessary and appropriate;
11. The applicant shall file with the Bureau of Conveyances or the Assistant Registrar of the Land Court, a declaration of the restrictive conditions stated herein;
12. The applicant shall present to the Planning Department certified copies of the document issued by the Bureau of Conveyances or the Assistant Registrar as evidence of recordation.

RESOLUTION

BE IT FINALLY RESOLVED by the Council of the City and County of Honolulu that the Clerk be, and she is, hereby directed to transmit copies of this resolution to E.B. Connell, Chairman of the Planning Commission; Robert R. Way, Planning Director; Department of Public Works; Board of Water Supply; State Department of Health; State Fire Marshall; and Campbell Estate.

INTRODUCED BY:

George C. Kono

Rudy P. Pao

Daniel C. ...
Councilmen

DATE OF INTRODUCTION:

APR 17 1973

Honolulu, Hawaii

CITY COUNCIL

CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

I hereby certify that the foregoing RESOLUTION was adopted by the COUNCIL of the City and County of Honolulu, by the vote and on the date indicated on the right margin hereof.

ATTEST

SILEEN K. LOTA
CITY CLERK

GEORGE KOCA
Chairman & Presiding Officer

Dated APR 17 1973

ADOPTED				
Meeting Held				
APR 17 1973				
	AYE	NO	AB	AB
AKAHANE				
CHIKASUYE				
CLIFMENT				
GEORGE				
LOU				
HATSUNOTO				
PACAPHU				
SHIGEMURA				
KOGA				
	9	0		

Reference: B356
Report No. P&ZCR-462

Resolution No.

91

Appendix E

SOLID WASTE MANAGEMENT PERMIT

STATE OF HAWAII
DEPARTMENT OF HEALTH

SOLID WASTE MANAGEMENT PERMIT

IS HEREBY ISSUED TO
PACIFIC CONCRETE AND ROCK COMPANY, LTD.

(Corporation, company, government agency, firm, etc.)

AUTHORIZING OPERATION
PUU PALAILAI LANDFILL


WHICH IS LOCATED AT

TMK: 9-1-16 AND 9-2-03 PUU PALAILAI, EWA OAHU
(Number) (Street) (City) (Island)

and which is subject to the State of Hawaii Public Health Regulations, Chapter 46, Solid Waste Management Control, and to all of the following special conditions:

SEE PART I AND PART II OF PERMIT

Acceptance of this permit constitutes an acknowledgement and agreement that the holder will comply with all Rules, Regulations, and Orders of the Department and the conditions precedent to the granting of this permit.

PERMIT NO. SW-051007 DATE 6/27/75 BY  DIRECTOR OF HEALTH
APPLICATION NO. SW- 000007

FORM SW-P-2 6/8/74

Permit No.: SW-051007
Date of Effect: June 27, 1975
Date of Expiration: April 17, 1978

SOLID WASTE MANAGEMENT PERMIT

In accordance with Chapter 46, "Solid Waste Management Control," State Public Health Regulations, this Solid Waste Management Permit is hereby granted to Pacific Concrete and Rock Company, Ltd. to operate Puu Palailai Landfill located at Puu Palailai, Ewa, Oahu.

PART I. STANDARD CONDITIONS

This permit is subject to the following standard conditions:

1. This permit is non-transferable whether by operation of law or otherwise, either from one location to another; from one solid waste disposal operation to another or from one person to another without the written approval of the Director.
2. The planning, design, construction, operation and maintenance of the solid waste disposal facility covered by this permit shall be as specified in the permit application. There shall be no deviation unless additional or revised plans are submitted to and approved by the Department.
3. This permit, (a) shall not in any manner affect the title of the premises upon which the solid waste disposal facility is or will be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from or arising out of the design, installation, construction, operation and maintenance of the solid waste disposal facility, (c) does not release the permittee from compliance with other applicable statutes of the State of Hawaii, or with applicable local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from or arising out of the design, construction, operation and maintenance of the solid waste disposal facility.
4. The Director may, in accordance with Section 342-10, HRS, enter and inspect the facility for the purpose of investigating an actual or suspected source of water, air, noise, solid waste or other pollution and ascertaining compliance or noncompliance with any rule, regulation or standard promulgated by the department and to make reasonable tests in connection therewith.
5. The Director is to be notified in writing, within thirty (30) days, the permanent termination of a solid waste processing or disposal facility for which the permit has been issued. The permittee shall surrender the permit to the Director upon termination.
6. The permit certificate (Form SW-P-2) shall be posted in a conspicuous place at or near the operation site for which the permit is issued.

PART II. SPECIAL CONDITIONS

In addition to the standard conditions of granting the Solid Waste Management Permit this permit is subject to the following special conditions:

1. Compact and cover all solid waste accumulated after each day's operation with earth or other approved material in the manner specified in Section 3.B.7. and Section 3.B.8., Chapter 46, State Public Health Regulations.
2. Each completed lift shall be no greater than twenty (20) feet in vertical depth as allowed by the variance order granted by the Director on May 15, 1975.
- 3.. Provide controlled access to the facility in the form of fences and gates along the perimeter of the landfill where natural barriers do not provide a means of controlled access. When the natural barriers no longer prove to be an effective means of providing controlled access, then fences and gates shall be provided to meet the requirements of controlled access. All gates shall be kept locked when an attendant is not on duty.
4. The Department of Health reserves the right to require the permittee to monitor for the detection of pollution resulting from the operation of the facility, and to submit semi-annual reports itemizing the type and quantity of solid waste processed at any time and at the discretion of the Director in accordance with Section 3.A.2(c) and Section 3.A.2(d), Chapter 46, State Public Health Regulations.

Appendix F

SOLID WASTE MANAGEMENT PERMIT

STATE OF HAWAII
DEPARTMENT OF HEALTH

SOLID WASTE MANAGEMENT PERMIT

IS HEREBY ISSUED TO

PACIFIC CONCRETE AND ROCK COMPANY, LIMITED

(Corporation, company, government agency, firm, etc.)

AUTHORIZING OPERATION

PUU PALAILAI LANDFILL

WHICH IS LOCATED AT

91-402 Farrington Highway, Ewa, Oahu

(Number)

(Street)

(City)

(Island)

and which is subject to the State of Hawaii Public Health Regulations, Chapter 46, Solid Waste Management Control, and to all of the following special conditions:

(See Part I and Part II of Permit)

Acceptance of this permit constitutes an acknowledgement and agreement that the holder will comply with all Rules, Regulations, and Orders of the Department and the conditions precedent to the granting of this permit.

PERMIT NO. SW-085088

DATE 05/04/78

BY


DIRECTOR OF HEALTH

APPLICATION NO. SW-000088

FORM SW-P-2 6/8/74

Permit No.: SW-085088
Date of Effect: April 14, 1978
Date of Expiration: April 14, 1983

SOLID WASTE MANAGEMENT PERMIT

In accordance with Chapter 46, "Solid Waste Management Control," State Public Health Regulations, this Solid Waste Management Permit is hereby granted to Pacific Concrete and Rock Co., Ltd. to operate Puu Palailai Landfill located at Puu Palailai, Ewa, Oahu.

PART I. STANDARD CONDITIONS

This permit is subject to the following standard conditions:

1. This permit is non-transferable whether by operation of law or otherwise, either from one location to another, from one solid waste disposal operation to another or from one person to another without the written approval of the Director.
2. The planning, design, construction, operation and maintenance of the solid waste disposal facility covered by this permit shall be as specified in the permit application. There shall be no deviation unless additional or revised plans are submitted to and approved by the Department.
3. This permit, (a) shall not in any manner affect the title of the premises upon which the solid waste disposal facility is or will be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from or arising out of the design, installation, construction, operation and maintenance of the solid waste disposal facility, (c) does not release the permittee from compliance with other applicable statutes of the State of Hawaii, or with applicable local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from or arising out of the design, construction, operation and maintenance of the solid waste disposal facility.
4. The Director may, in accordance with Section 342-10, HRS, enter and inspect the facility for the purpose of investigating an actual or suspected source of water, air, noise, solid waste or other pollution and ascertaining compliance or noncompliance with any rule, regulation or standard promulgated by the department and to make reasonable tests in connection therewith.
5. The Director is to be notified in writing, within thirty (30) days, the permanent termination of a solid waste processing or disposal facility for which the permit has been issued. The permittee shall surrender the permit to the Director upon termination.
6. The permit certificate (Form SW-P-2) shall be posted in a conspicuous place at or near the operation site for which the permit is issued.

PART II. SPECIAL CONDITIONS

In addition to the standard conditions of granting the Solid Waste Management Permit this permit is subject to the following special conditions:

1. Compact and cover all solid waste accumulated after each day's operation with earth or other approved material in the manner specified in Section 3.B.7. and Section 3.B.8., Chapter 46, State Public Health Regulations.

Section 3.B.7. states that solid waste shall be spread in shallow layers not exceeding a depth of two (2) feet prior to compaction; each completed lift shall be no greater than eight (8) feet in vertical depth, and at least one (1) foot of compacted, intermediate earth or other approved cover material shall be applied between lifts.

Section 3.B.8. states that solid waste shall be compacted and covered with a minimum of six (6) inches of earth or other approved material at a frequency specified by permit requirements.

2. Provide controlled access to the facility in the form of fences and gates along the perimeter of the landfill where natural barriers do not provide a means of controlled access. When the natural barriers no longer prove to be an effective means of providing controlled access, then fences and gates shall be provided to meet the requirements of controlled access. All gates shall be kept locked when an attendant is not on duty.
3. The Department of Health reserves the right to require the permittee to monitor for the detection of pollution resulting from the operation of the facility, and to submit semi-annual reports itemizing the type and quantity of solid waste processed at any time and at the discretion of the Director in accordance with Section 3.A.2(c) and Section 3.A.2(d), Chapter 46, State Public Health Regulations.
4. Prior to closure, the solid waste disposal site shall be covered with at least two (2) feet of compacted earth material, compacted, graded with proper drainage to minimize soil erosion and sodded or planted immediately after the grading work has been completed.
5. An Abandonment Plan shall be submitted to the Department for incorporation with the Operation Plan Report describing the procedures for proper closure of the landfill and long term care requirements. The plan shall direct responsibility and describe methodology to be used in accomplishing the various phases of the landfill closure program.

The Abandonment Plan shall address the following subjects:

- a. Surface Water Runoff Drainage
- b. Final Grading
- c. Landscaping
- d. Vector Control
- e. Settlement
- f. Public Information

Part II. Special Conditions

-2-

The final Abandonment Plan shall be submitted not later than one (1) year prior to closure of the landfill, except if the closure date occurs after April 17, 1983. In the latter case, the final Abandonment Plan shall be submitted on or before April 17, 1982.

Appendix G

SOLID WASTE MANAGEMENT PERMIT

STATE OF HAWAII
DEPARTMENT OF HEALTH

SOLID WASTE MANAGEMENT PERMIT

IS HEREBY ISSUED TO

PACIFIC CONCRETE & ROCK COMPANY, LTD.
(Corporation, company, government agency, firm, etc.)

AUTHORIZING OPERATION

PUU PALAILAI LANDFILL

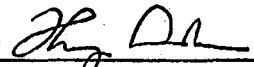
WHICH IS LOCATED AT

91-402	Farrington Highway,	Honolulu,	Oahu
(Number)	(Street)	(City)	(Island)

and which is subject to the State of Hawaii Adm. Rules, Title 11, Chapter 58, Solid Waste Management Control, and to all of the following special conditions:

See Part I and Part II of the permit

Acceptance of this permit constitutes an acknowledgement and agreement that the holder will comply with all Rules, Regulations, and Orders of the Department and the conditions precedent to the granting of this permit.

PERMIT NO. SW- 161163 DATE 5/2/83 BY 
APPLICATION NO. SW- 000163 For DIRECTOR OF HEALTH

Expiration Date: May 1, 1988

FORM SW-P-2 6/8/74

Permit No.: SW-161163
Date of Effect: May 2, 1983
Date of Expiration: May 1, 1988

SOLID WASTE MANAGEMENT PERMIT

In accordance with Administrative Rules, Title 11, Chapter 58, Solid Waste Management Control, this Solid Waste Management Permit is hereby granted to Pacific Concrete & Rock Company, Ltd. to operate Puu Palailai Landfill located at Ewa, Oahu.

PART I. STANDARD CONDITIONS

This permit is subject to the following standard conditions:

1. This permit is non-transferable whether by operation of law or otherwise, either from one location to another, from one solid waste disposal operation to another or from one person to another without the written approval of the Director.
2. The planning, design, construction, operation and maintenance of the solid waste disposal facility covered by this permit shall be as specified in the permit application. There shall be no deviation unless additional or revised plans are submitted to and approved by the Department.
3. This permit, (a) shall not in any manner affect the title of the premises upon which the solid waste disposal facility is or will be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from or arising out of the design, installation, construction, operation and maintenance of the solid waste disposal facility, (c) does not release the permittee from compliance with other applicable statutes of the State of Hawaii, or with applicable local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from or arising out of the design, construction operation and maintenance of the solid waste disposal facility.
4. The Director may, in accordance with Section 342-10, HRS, enter and inspect the facility for the purpose of investigating an actual or suspected source of water, air, noise, solid waste or other pollution and ascertaining compliance or noncompliance with any rule, regulation or standard promulgated by the department and to make reasonable tests in connection therewith.
5. The Director is to be notified in writing, within thirty (30) days, the permanent termination of a solid waste processing or disposal facility for which the permit has been issued. The permittee shall surrender the permit to the Director upon termination.
6. The permit certificate (Form SW-P-2) shall be posted in a conspicuous place at or near the operation site for which the permit is issued.

7. The permittee shall operate the landfill in accordance with the requirements under Administrative Rules, Title 11, Chapter 58, Solid Waste Management Control. In particular:
 - a. Section 11-58-4(a): General operating standards
 - b. Section 11-58-4(b): Standards for landfill
 - c. Section 11-58-6: Solid waste management responsibility

Permit No.: SW-161163

PART II. SPECIAL CONDITIONS

In addition to the standard conditions of granting the Solid Waste Management Permit, this permit is subject to the following special conditions:

1. Hazardous waste is not permitted for disposal at Puu Palailai Landfill facility.
2. The working face of the solid waste landfilling shall be compacted and covered with six (6) inches of earth or other approved material daily.
3. The applicant shall submit a closure plan to the Director, Department of Health, at least one year prior to planned termination of the landfill operation.
4. Within sixty (60) days of the permanent termination of the landfill operation, the permittee shall notify the Director in writing of the terminating action.

Appendix H

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801

November 20, 1975

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

Audrey W. Mertz, M.D., M.P.H.
Deputy Director of Health

James S. Kumagai, Ph.D., P.E.
Deputy Director of Health

Henry N. Thompson, M.A.
Deputy Director of Health

In reply, please refer to:
File EPHSD-PIE

Docket No. EO-SW-7

Mr. Al Suga, Vice President
Pacific Concrete & Rock Company, Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Dear Mr. Suga:

SUBJECT: NOTICE OF VIOLATION

On November 20, 1975, Mr. E. Kubota from our staff inspected the Puu Palailai Landfill operation at Makakilo, Oahu. The inspection revealed that the refuse is not being compacted and covered daily. Also, there were several pockets of underground fires occurring near the rim of the disposal site.

You are hereby notified that you are operating the Palailai Landfill contrary to the special provisions indicated on the Solid Waste Management Permit No. 051007, effective date June 27, 1975.

Please reply within 10 days the intended action to be taken by Pacific Concrete & Rock Company, Ltd., to comply with the permit requirements.

Yours truly,

PAUL F. AKI, Chief
Pollution Investigation and
Enforcement Branch

PFA:EK:nm

cc: PTR Branch

CERTIFIED MAIL - RETURN RECEIPT REQUESTED (#462681)

This is Recycled Paper

Appendix I

October 7, 1976

EPHSD-PIE

File #EO-SW-36

Mr. Al Suga, Vice President
Pacific Concrete & Rock Company, Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Dear Mr. Suga:

SUBJECT: NOTICE OF VIOLATION

On October 4, 5 and 6, 1976, Mr. Edwin Kubota from our staff inspected the Puu Palailai Landfill operation at Makakilo, Oahu. The inspection revealed that refuse disposal on the mauka side of the working area was not covered after the day's operation.

You are hereby notified that you are operating the Palailai Landfill contrary to the special provisions indicated on the Solid Waste Management Permit No. 051007, effective date June 27, 1975.

Please reply within 10 days the intended action to be taken by Pacific Concrete & Rock Company, Ltd., to comply with the permit requirement.

Very truly yours,

PAUL F. AKI, Chief
Pollution Investigation and
Enforcement Branch

PFA:EK:rm

CERTIFIED MAIL - RETURN RECEIPT REQUESTED (#462732)

Appendix J

PUU PALAILAI LANDFILL

On October 4, 5, and 6, 1976, this writer inspected Puu Palailai Landfill operation at Makakilo, Oahu. The inspections revealed that the refuse had not been covered after each day's operation. Consequently, on October 7, 1976, a notice of violation was issued to Pacific Concrete & Rock Company, Ltd., for operating Palailai Landfill contrary to the special provision of Solid Waste Management Permit No. 051007.

Conditions observed on follow-up inspections are as follows:

- 10/14/76 - Exposed refuse noted on previous inspection has been covered. Part of yesterday's refuse was not covered.
- 10/15/76 - Exposed refuse noted yesterday has been partially covered.
- 10/19/76 - Small area of exposed refuse has not been covered for several days.
- 11/1/76 - Previous day's refuse has not been completely covered. Underground fires occurring at two sections of the landfill.
- 11/3/76 - Underground fire at the canefield side of landfill has been controlled. The other section is still emitting smoke.

Met with Mr. A. Suga, Vice President of Operations, Pacific Concrete & Rock Company, Ltd., to discuss the problems concerning the operations of the landfill. (See attached memo dated November 3, 1976.)
- 11/8/76 - Large volume of smoke emitting from an underground fire. Bulldozer was down and did not go back into operation until 11:00 a.m.
- 11/9/76 - Underground fires were covered. Two sections of old refuse have not been covered.
- 11/16/76 - Good job of covering underground fires. Area is littered with paper scraps.
- 12/16/76 - Previous day's refuse has not been covered. Dozer operator stated that the time was spent in trying to control an underground fire.
- 12/22/76 - Operator unable to control the underground fire. Exposed refuse noted on previous inspection has not been covered.
- 12/27/76 - Refuse that has been exposed for several days has not been covered. Dirt has been applied to the underground fires but smoke is emitting from several areas.
- 1/4/77 - PIE staff met with Pacific Concrete & Rock Company, Ltd., officials to discuss the operation of Palailai Landfill. See attached memo.
- 1/8/77 - Smoke is visible from several underground fires.

- 1/10/77 - Underground fires at four different sections of landfill. Covering operation was interrupted by the breakdown of landfill equipment.
- 1/12/77 - Number of underground fires have been decreased by the covering operation. Because of the breakdown of PC&R dozer, the company rented three dozers for the landfill operation. Of those three dozers, two of them were out of commission. The refuse cannot be covered daily until the dozers are repaired.
- 1/13/77 - Bulldozer and a pay loader were compacting and covering the refuse.
- 1/17/77 - Working face area okay. Two small pockets of underground fire remaining. Operation has improved scattered accumulation of refuse.
- 1/18/77 - Noticed two small pockets of underground fire. Scattered accumulations of refuse still not covered.
- 1/24/77 - Same as above.
- 1/31/77 - Large area of exposed refuse. Refuse disposed during the weekend was not covered. Smoke is emanating from underground fires.
- 2/1/77 - Bulk of yesterday's exposed refuse has been covered. Smoke from underground fires are barely visible.
- 2/2/77 - The large volume of exposed refuse noted on previous inspections has been covered. Application of cover material has reduced the number of underground fires.
- 2/7/77 - 6:55 a.m. - Working face was covered satisfactory.
- 2/22/77 - Operation found satisfactory.
- 3/7/77 - Noticed several pockets of underground fire.
- 5/13/77 - Smoke emanating from the underground fires.
- 5/31/77 - Heavy dust condition caused by vehicles travelling on the access road. Smoke emanating from two underground fires.
- 6/7/77 - Underground fires observed on May 31, 1977 have been covered. Suspect refuse is not being covered at the end of the day.
- 6/8/77 - Large area of exposed refuse. Previous day's refuse was not covered. Bulldozer was not at the disposal site at the time of inspection (7:07 a.m.)
- 6/23/77 - Issued Notice and Finding of Violation and Order to Pacific Concrete & Rock Company, Ltd.

- 7/12/77 - Uncovered refuse observed on June 8, 1977 has been covered.
Observed puddles of oil adjacent to the access road. Mr. Furukawa
stated that the oil was disposed without their permission. He
intends to bar this company from the landfill.
- 7/19/77 - Except for the scattered accumulation of blown litter, the operation
was found satisfactory. Oil puddle observed on previous inspection
has been covered with dirt.

Edwin Y. Kubota
EDWIN Y. KUBOTA
Environmental Health Specialist IV

EYK:nm

Attachments

Appendix K

June 23, 1977

EPHSD-PIE

Mr. Alfred Suga
Vice President - Operations
Pacific Concrete & Rock Company, Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Dear Mr. Suga:

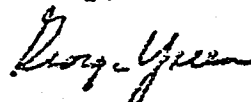
You are hereby notified of the enclosed Notice and Finding of Violation and Order relating to the landfill operations at Puu Palailai Landfill, 91-402 Farrington Highway, Ewa, Hawaii 96706.

Please direct all inquiries concerning this matter to:

Mr. Paul F. Aki, Chief
Pollution Investigation and Enforcement Branch
Hawaii State Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Telephone: 548-6355

Sincerely,



GEORGE YUEN
Director of Health

Encl. Order
Notice of Finding of Violation

cc: Deputy Attorney General

CERTIFIED MAIL - Return Receipt Requested (#462794)

DEPARTMENT OF HEALTH
STATE OF HAWAII

DEPARTMENT OF HEALTH,
STATE OF HAWAII,

Complainant,

vs.

PACIFIC CONCRETE & ROCK COMPANY, LTD.
2344 PAHOUNUI DRIVE
HONOLULU, HAWAII 96819

Respondent.

DOCKET NO. EO-SW-71

NOTICE AND FINDING
OF VIOLATION

NOTICE AND FINDING OF VIOLATION

The Department of Health, State of Hawaii, through
GEORGE YUEN, Director of Health, brings its action against the
above-named party under Hawaii Revised Statutes Chapter 342
and complains of PACIFIC CONCRETE & ROCK COMPANY, LTD., as
follows:

A. AUTHORITY

1. Hawaii Revised Statutes (hereinafter "H.R.S.")
Sections 342-2 and 342-52 authorize the Director of Health to
administer H.R.S. Chapter 342 and to prevent, control, and abate
solid waste pollution in the State.
2. H.R.S. Sections 342-3 and 342-52 authorize the
Director of Health to promulgate rules and regulations concerning
solid waste pollution.
3. H.R.S. Section 342-8 authorizes the Director of Health
to issue this Notice of Violation and attached Order.
4. Violators of H.R.S. Chapter 342 or rules and regulations
promulgated thereunder are subject to the remedies provided in
H.R.S. Sections 342-8, 342-11, and 342-12.

5. H.R.S. Section 342-53(b) provides that:

No person, including any public body, shall operate a solid waste disposal system without first securing approval in writing from the director. (L 1972, C 100, pt of § 1).

6. Public Health Regulations, Chapter 46, Section 8, provides that:

Any person who violates any provision of this Chapter shall be subject to the provisions for violations as provided in Chapter 342, Hawaii Revised Statutes.

7. Public Health Regulations, Chapter 46, Section 3, provides in part that:

Planning, design, construction, operation and maintenance of any solid waste disposal facility requiring a permit under Section 2 of this Chapter shall be in accordance with the rules and regulations of the Department and the provisions of any permit granted.

8. Public Health Regulations, Chapter 46, Section 3.B.7, provides in part that:

Solid waste shall be spread in shallow layers not exceeding a depth of two (2) feet prior to compaction; each completed lift shall be no greater than eight (8) feet in vertical depth; and at least one (1) foot of compacted, intermediate earth or other approved cover material shall be applied between lifts.

9. Public Health Regulations, Chapter 46, Section 3.B.8, provides in part that:

Solid waste shall be compacted and covered with a minimum of six (6) inches of earth or other approved material at a frequency specified by permit requirements.

10. The following provisions of law cover written authorizations for solid waste pollution: H.R.S., Sections 342-6 and 342-7, deal with permits and variances; Public Health Regulations, Chapter 46, Sections 2 and 7, deal specifically with permits and variances regarding solid waste pollution.

11. Solid Waste Management Permit No. SW-051007 was issued to PACIFIC CONCRETE & ROCK COMPANY, LTD., by the Department of Health effective June 27, 1975 through April 17, 1978, according to the provisions of Public Health Regulations, Chapter 46, and H.R.S., Chapter 342.

Said permit authorizes the operation of Puu Palailai Landfill at Puu Palailai, Ewa, Oahu, Hawaii, and requires the permittee to abide by certain general and specific conditions.

12. Variance No. 15 was issued to PACIFIC CONCRETE & ROCK COMPANY, LTD., by the Department of Health effective May 15, 1975 through April 17, 1978, according to the provisions of Public Health Regulations, Chapter 46, and Hawaii Revised Statutes, Chapters 91 and 342.

Said variance authorizes the completed lift height to be twenty (20) feet in vertical depth rather than the required eight (8) feet in Chapter 46, Public Health Regulations.

B. STATEMENTS OF FACT

1. As defined by H.R.S., Sections 342-1(6), PACIFIC CONCRETE & ROCK COMPANY, LTD., is now and was on June 8, 1977 a person in the State of Hawaii.

2. On June 8, 1977, PACIFIC CONCRETE & ROCK COMPANY, LTD., owned, operated, controlled, or managed Puu Palailai Landfill at Puu Palailai, Ewa, Oahu, Hawaii.

2.1. PACIFIC CONCRETE & ROCK COMPANY, LTD., owns, operates, controls, or manages Puu Palailai Landfill.

3. Solid Waste Management Permit No. SW-051007 authorizes PACIFIC CONCRETE & ROCK COMPANY, LTD., to operate Puu Palailai Landfill subject to certain general and specific requirements, including conditions that:

compact and cover all solid waste accumulated after each day's operation with earth or other approved material in the manner specified in Section 3.B.7. and 3.B.8, Chapter 46, Public Health Regulations.

4. Variance No. 15 authorizes PACIFIC CONCRETE & ROCK COMPANY, LTD., to operate Puu Palailai Landfill subject to certain general and specific requirements, including conditions that:

completed lift height to be twenty (20) feet in vertical depth rather than the required eight (8) feet in Chapter 46, Public Health Regulations.

5. On June 8, 1977, PACIFIC CONCRETE & ROCK COMPANY, LTD., lacked written authorization from the Director of Health to operate Puu Palailai Landfill without compaction and cover after the day's operation.

6. On June 7, 1977 and June 8, 1977, a Department of Health agent made observations which showed that:

refuse received at Puu Palailai Landfill on June 7, 1977 was left without compaction and cover.

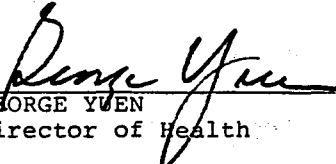
C. FINDING

On the basis of the provisions of Authority and Statements of Fact cited above, the Director hereby Finds and determines that:

1. On June 8, 1977, PACIFIC CONCRETE & ROCK COMPANY, LTD., violated Public Health Regulations, Chapter 46, Sections 3.B.7. and 3.B.8, and H.R.S., Chapter 342.

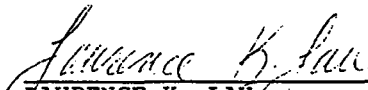
2. PACIFIC CONCRETE & ROCK COMPANY, LTD., is therefore subject to the provisions of H.R.S., Sections 342-8, 342-11, and 342-12, including penalties not to exceed \$10,000.00 for that day of violation.

Dated: Honolulu, Hawaii, June 30, 1977



GEORGE YUEN
Director of Health

APPROVED AS TO FORM:



LAURENCE K. LAU
Deputy Attorney General

Date: June 27, 1977

DEPARTMENT OF HEALTH

STATE OF HAWAII

DEPARTMENT OF HEALTH,)	DOCKET NO. EO-SW-71
STATE OF HAWAII,)	
)	
Complainant,)	
)	
vs.)	ORDER
)	
PACIFIC CONCRETE & ROCK COMPANY, LTD.)	
2344 PAHOUNUI DRIVE)	
HONOLULU, HAWAII 96819)	
)	
Respondent.)	
_____)	

ORDER

Pursuant to Hawaii Revised Statutes, Chapter 342, Public Health Regulations, Chapter 46, and the attached Notice and Finding of Violation, made in Docket No. EO-SW-71, PACIFIC CONCRETE & ROCK COMPANY, LTD., is hereby ordered to:

1. Cease and desist immediately from operating Puu Palailai Landfill without performing daily compaction and cover as required in Permit Special Condition No. 1, Permit No. SW-051007.
2. Report in writing within ten (10) days to the Director informing the Director what measures have been taken and will be taken to insure that no further violations of the permit's daily compaction and cover requirements occur.
3. Provide monthly reports to the Director for the months of July, August, and September, 1977, of the amount of solid waste and cover material delivered each day to Puu Palailai Landfill during those months, and similarly

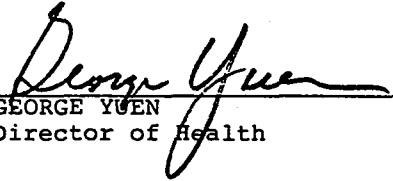
provide monthly reports for those months concerning the daily number and types of vehicles actually used at Puu Palailai Landfill for compaction and cover.

4. Pay a penalty of \$1,000.00 for the violation of June 8, 1977.

This Order is effective immediately on receipt and becomes final twenty (20) days after receipt, unless before the twenty (20) days expire PACIFIC CONCRETE & ROCK COMPANY, LTD., makes a request in writing to the Director for a hearing before the Director pursuant to H.R.S., Section 342-8(a)(2). If a hearing is requested, it will be held on a date and a place to be specified later. The hearing will be conducted in accordance with Chapter 91, Hawaii Revised Statutes, and the Rules of Practice and Procedure of the Department, and the hearing will address the issues raised by the Finding of Violation and Order in this case. Parties may present evidence and argument on all issues involved in this case. Parties may be represented by legal counsel at their own expense. After such hearing, this Order will be affirmed, modified, or rescinded by the Director.


Failure to comply with this Order may subject PACIFIC CONCRETE & ROCK COMPANY, LTD., to additional penalties and measures under H.R.S., Chapter 342.

Dated: Honolulu, Hawaii, June 30, 1977



GEORGE YUEN
Director of Health

APPROVED AS TO FORM:



LAURENCE K. LAU
Deputy Attorney General

Date: June 27, 1977

Appendix L

October 19, 1977

EPHSD-PIE

Mr. Alfred Suga, Vice President
Pacific Concrete & Rock Company, Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Dear Mr. Suga:

SUBJECT: PUU PALAILAI LANDFILL

On September 8, 1977, Mr. Edwin Kubota from our staff inspected the Puu Palailai Landfill operation at Makakilo, Oahu. The inspection revealed that solid waste had not been completely covered and the completed lifts were littered with windblown refuse. Inspections conducted on October 14 and 17, 1977, showed the same conditions, scattered piles of uncovered refuse and wind litter dotting the completed lifts.

It is our understanding that this section of the landfill will not be used for refuse disposal until the present disposal section reaches capacity. We, therefore, recommend that the entire area, except for the road, be covered with one foot of compacted earth and sodded.

The September 9 inspection also showed that the natural barrier on the Makakilo subdivision side of the landfill no longer provides a means of controlled access. The deposition of solid waste along the quarry walls has reached the height of the quarry's rim, thereby eliminating the steep walls that had previously prevented entry to the landfill.

Please inform this office in writing within ten (10) days the action to be implemented to correct these conditions.

Very truly yours,



PAUL F. AKI, Chief
Pollution Investigation and
Enforcement Branch

PFA:EK:nm

Appendix M

November 27, 1978

Mr. Alfred Suga, Vice President
Pacific Concrete & Rock Company, Ltd.
2344 Pahounui Drive
Honolulu, Hawaii 96819

Docket No. EO-A-143

Dear Mr. Suga:

SUBJECT: NOTICE OF VIOLATION

Your Puu Palailai Landfill located at Makakilo, Oahu, is found to be in violation of the following laws and regulations:

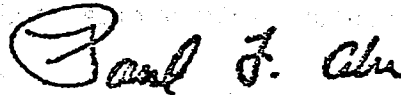
- 1) Chapter 43, Section 5; and
- 2) Chapter 342, Hawaii Revised Statutes.

On November 17 and 20, 1978, your landfill was found to be emitting foul odor caused by an apparent underground burning.

Please inform us within 20 days of the receipt of this notice of the corrective measures you will or intend to take to prevent any future violations.

If there are any questions regarding this matter, please contact this office at 548-6355.

Very truly yours,



PAUL F. AKI, Chief
Pollution Investigation and
Enforcement Branch

EK:nm

CERTIFIED MAIL - RETURN RECEIPT REQUESTED (#582540)

Appendix N

September 15, 1987

87-310

Mr. Richard D. Steele, President
Grace Pacific Corporation
P.O. Box 78
Honolulu, Hawaii 96810

Dear Mr. Steele:

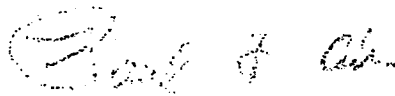
This is to inform you of an alleged violation of Hawaii Revised Statutes, Chapter 342, and the Department of Health Administrative Rules, Title 11, Chapter 60, Air Pollution Control, Section 11-60-5(a) regarding fugitive dust emissions noted at your Puu Palailai Landfill located at 91-402 Farrington Highway, Ewa Beach, Hawaii, 96707.

On July 17, 1987, excessive amounts of fugitive dust were observed becoming airborne from the landfill's upper road area and from the area adjacent to the working face. Insufficient precautions were being taken to prevent particulate matter from becoming airborne.

Continued violations of the above cited rules are subject to the remedies provided in Hawaii Revised Statutes, Sections 342-8, 342-11, 342-11.5, and 342-12, including penalties not to exceed \$10,000 for each day of violation.

Please contact this office at 548-6355 if you have any questions.

Very truly yours,



PAUL F. AKI, Chief
Pollution Investigation and
Enforcement Branch

KS:hvc

Appendix O

DEPARTMENT OF HEALTH STATE OF HAWAII

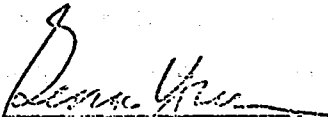
In the Matter of
VARIANCE for

Pacific Concrete & Rock Co., Ltd.
2344 Pahoumui Drive
Honolulu, Hawaii

ORDER

Pursuant to the public hearing held on May 8, 1975 in the Board Room, Department of Health, 1250 Punchbowl Street, Honolulu, Hawaii, and Chapters 91 and 342, Hawaii Revised Statutes, A Variance is hereby granted allowing the completed lift to be 20 feet in vertical depth rather than the required eight feet in Chapter 46, Public Health Regulations. The period of Variance shall terminate on April 17, 1978.

Dated this 15th May, 1975.


GEORGE YUEN
Director of Health

DEPARTMENT OF HEALTH
STATE OF HAWAII

VARIANCE Hearing Results for)
Pacific Concrete & Rock Co., Ltd.)
2344 Pahoumali Drive)
Honolulu, Hawaii)

A hearing was held on May 8, 1975 in the Board Room, Department of Health, 1250 Punchbowl Street, Honolulu, Hawaii, to consider the request of Pacific Concrete & Rock Co., Ltd., Honolulu, Hawaii, for a Variance from Public Health Regulations Chapter 46, Section 3, to allow the completed lift to be 20 feet in vertical depth rather than the required eight feet, and to allow the compacted intermediate cover between lifts to be six inches rather than the required one foot. The period for the Variance requested is for three years beyond April 17, 1975.

FINDINGS OF FACT:

1. Pacific Concrete & Rock Co., Ltd., is now operating the landfill in a way that provides a vertical lift of 20 feet but a completed fill thickness of about eight feet. As described in the hearing by Mr. Alfred Suga, Vice-President, the operation of the fill differs from the usual procedures for other landfills following the Los Angeles practice.
2. The staff testified that Pacific Concrete & Rock Co. has a manageable volume of solid waste and utilizes a D-9 Caterpillar tractor for compaction leading to a feasible practice of maintaining a clean and efficient operation.
3. Pacific Concrete & Rock Co. misunderstood the requirement for intermediate cover. Based on the description of the

operation, in the hearing, the staff concluded that the requested six inch compacted intermediate cover was in fact the daily cover allowed by Chapter 46.

4. The applicable standard is Section 3, Chapter 46, Public Health Regulations on Solid Waste Management Control.
5. The landfill operation of Pacific Concrete & Rock Co. can give a clean and efficient operation with a vertical depth of 20 feet following existing practice.
6. The granting of the Variance would not affect public health and welfare.

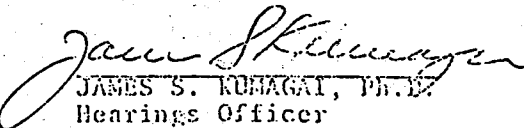
CONCLUSIONS OF LAW:

That to the extent the foregoing Findings of Fact may be conclusions of law, they are deemed to be such; and to the extent that these conclusions of law may be Findings of Fact, they are deemed to be such.

RECOMMENDATION:

It is recommended that the Variance be granted to allow Pacific Concrete & Rock Co. to operate the landfill in a manner giving a completed lift vertical depth of 20 feet for the period ending April 17, 1978. Pacific Concrete & Rock Co. shall comply with all other requirements of Chapter 46.

Dated this 12 May, 1975.


JAMES S. KUMAGAI, Ph.D.
Hearings Officer

Appendix P

INVESTIGATION REQUESTED BY:

Name: Mr. David Higa, Planner, Env. Plan. Office Date: 9/1/80 Time: 8:30am
 Address: 645 Hale Koa Dr. Telephone: Bus: 548-6767
Res:

ADDITIONAL INFORMATION: Mr. Higa informed this writer that a dozen operators at Pau Palala: Landfill sustained burns on his arm when a 55 gal. drum that was bulldozed exploded. He expressed concern of the injury to the workers and the hazardous waste that maybe disposed or are being disposed at the landfill.

COMPLAINT RECEIVED BY: E. Kubit Date: 9/1/80 Time: 8:30am
 INVESTIGATED BY: E. Kubit Date: 9/4/80 Time: 12:30pm

FIRM: Pau Palala: Landfill

STATE DEPARTMENT OF HEALTH
P I & E Branch

ADDRESS: 91-402 Farrington Hwy
Mr. R. Kaneko, dozen operator

TELEPHONE: _____

PERSON CONTACTED: Mr. F. Sekiya, Quality Control

DATE: 9/1/80 TIME: 12:30pm

FINDINGS: Mr. R. Kaneko, dozen operator, Palala: Landfill, stated that on 9/9/80 during the bulldozing operation at the landfill, a 55 gal. drum was punctured or crushed and the liquid content splattered onto his left arm, causing burns. His doctor informed him that the burns were probably caused by an acid. The Navy was informed of the incident, and a specialist came to investigate and to collect samples. The drum and the spilled area were covered. Mr. Sekiya stated that the contract with the Navy prohibits the disposal of hazardous waste. Their nonacceptance of hazardous waste policy applies to all users of the landfill. They do not knowingly accept hazardous wastes for disposal.

REGULATIONS: CHAPTER _____ SECTION _____

ACTION TAKEN: Investigation of this incident revealed ^{no} violation of the permit conditions and the provisions of Chapter 46.

Mr. Sekiya will submit a written statement explaining the incident and control measures to be implemented.

16

ROCK DIVISION

A SANITARY LANDFILL MEANS
A CLEANER COMMUNITY!

PUU PALAILAI SANITARY LANDFILL

WHERE Puu Palailai, 91-402 Farrington Hwy, Ewa, 682-4418

WHO Open to all private citizens, rubbish haulers, landscapers, government agencies, industries, etc.

WHAT Solid wastes, combustible and noncombustible rubbish, wrapped household garbage, paper, grass, tree & yard trimmings, lumber, cans, bottles, etc.

EXCEPTIONS No liquids, chemicals, radioactive wastes, whole animal carcasses or tires will be accepted.

HOW MUCH

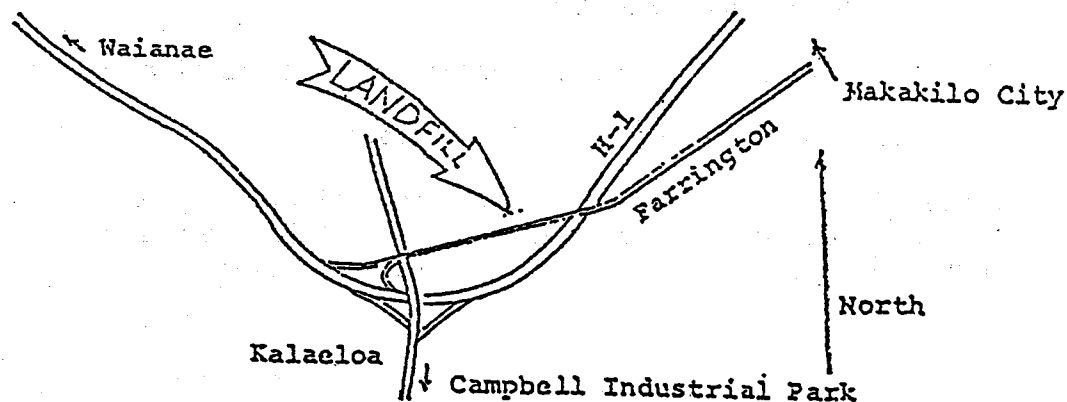
Refuse	\$17.25 per ton
Minimum Charge	\$17.25 per vehicle
Load pull-off	\$ 5.00 per pull
(plus applicable tax)	

WHEN 7:00 a.m. to 4:00 p.m. Monday thru Friday;
7:00 a.m. to 2:00 p.m. on Saturday and holidays
Closed on Sunday and the following holidays:
New Year's Day Christmas Day

CREDIT Contact Grace Pacific Corporation, Rock Division, P.O. Box 78, Honolulu, HI 96810, 672-3545

SANITATION Cover loads in accordance with City, County and State regulations.

LOCATION See map below. Dump only at spots designated by landfill personnel. Observe speed regulations on site.



FOR YOUR SAFETY AND THE SAFETY OF OTHERS
THE FOLLOWING RULES MUST BE OBSERVED
IN GRACEPACIFIC CORPORATION'S LANDFILL

1. No smoking while driving to and from and while in the dumping area.
2. Salvaging of dumped materials is prohibited.
3. Observe all posted speed limit and traffic warning signs. The speed limit on dirt roads and in areas that are not posted is 15 MPH. Use low gears driving down hills. Reduce speed to allow for road, weather, traffic, load, driver ability and mechanical condition of vehicle.
4. Dangerous practices, such as rapid backing of vehicle to dislodge loads or operating vehicle without doors secured are prohibited.
5. Children and those not engaged in unloading must remain in vehicle. All drivers and helpers must remain in immediate vicinity of vehicle.
6. Dump only in the dumping area as designated by landfill personnel.
7. Tools, tailgates, etc. must be kept on, in or under your vehicle.
8. Injury or damage to persons or equipment must be reported to landfill supervisory personnel prior to leaving the site. Do not move damaged vehicle prior to report.
9. Load pull-off is a service accepted at your risk and GracePacific is not responsible for vehicle damage or personal injury arising therefrom.
10. Littering within the site is prohibited. Loads containing loose material must be covered and covers on loads must not be removed before arrival at dumping area.
11. Flammable wastes such as solvents, thinners, gasolines or magnesium are not acceptable at the site.
12. Consumption of alcoholic beverages within the site is prohibited.
13. Loitering within the site is prohibited.

These rules are for your benefit. Any violation may result in loss of dumping privileges at GracePacific's landfill. Please insure that these regulations are followed by you and your employees.

Thank you,

GracePacific Corporation

February 23, 1982

To Our Landfill Customers:

At the direction of the landowner, we can no longer accept used rubber tires for disposal at the Puu Palailai Sanitary Landfill.

We thank you for your understanding.

A handwritten signature in black ink, appearing to read "Carl L. Thoene, Jr.", with a stylized, cursive script.

CARL L. THOENE, JR.
Vice President, Marketing

Appendix R

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application)
for Variance for:)

PACIFIC CONCRETE & ROCK COMPANY)
[Cover Material & Depth])

Docket No. 82-SS-VSW-1


DECISION AND ORDER

Pursuant to Chapter 342, Hawaii Revised Statutes, and Chapter 58, Title 11, Administrative Rules, and based upon the application and staff investigation the Variance Request from the provisions of Title 11, Chapter 58, Section 4(b)(8) is hereby GRANTED until April 17, 1983.

The variance is being granted under the following conditions:

1. Plastic foam shall not be used in any working face that will be inactive for two or more days. Soil, 6" thick minimum, shall be used instead.
2. Plastic foam shall be spread to a minimum thickness of one inch (1") over the working face to prevent harboring and breeding of flies and other disease vectors and to minimize possible odor. The thickness of the plastic foam shall be increased as necessary to achieve the above results.
3. The Director reserves the right to have the operator of the landfill monitor the effectiveness of the one inch cover in regards to flies and disease vectors concentration.

DATED: Honolulu, Hawaii, August 6, 1982


CHARLES G. CLARK
Director of Health

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application)
for Variance for:)
PACIFIC CONCRETE & ROCK COMPANY)
[Cover Material & Depth])
_____)

Docket No. 82-SS-VSW-1

FINDINGS OF FACT AND CONCLUSIONS OF LAW

The application of Pacific Concrete and Rock Co., 2344 Pahounui Drive, Honolulu, Hawaii, for a variance from Title 11, Administrative Rules, Chapter 58, Section 4(b)(8), Solid Waste Management Control was reviewed by the Department of Health staff and a public notice of the application was printed in the June 28, 1982 issue of the Honolulu Star-Bulletin. No public comments pertaining to the application were received during the 30 days following publication of the public notice.

Findings of Fact

1. Chapter 58, Section 4(b)(8) requires that solid waste shall be compacted and covered with a minimum of six inches of earth or other approved material at a frequency specified by permit requirements.
2. The applicant is the owner and operator of the Palailai Sanitary Landfill located at 91-402 Farrington Highway, Ewa, Oahu. Presently, the applicant is using six inches of soil to cover the daily compacted refuse. However, new technology now available enables some landfills on the mainland to more efficiently seal the daily refuse with only one (1) inch of a plastic foam material in lieu of the six (6) inches of soil.
3. The applicant would like to try this new plastic foam as a cover material in certain areas of the Palailai Landfill. It is supposed to be more efficient and economical and is supposed to extend the life of the landfill. The applicant intends to continue the use of six inches of soil as a cover material in the rest of the landfill.
4. However, use of the plastic foam material requires only one (1) inch depth and this would violate 11-58-4(6)(8), which requires six (6) inches of cover material. Hence, the reason for the variance.

5. The present method of covering refuse with six (6) inches of soil requires hauling approximately 36 truckloads or 400 tons of soil into the landfill daily. Therefore, there is a daily noise and dust pollution potential at the sites where 400 tons of material is loaded and unloaded daily by use of heavy-duty loaders and trucks. Also, this present practice requires approximately 36 roundtrips of heavy trucks into the Palailai site daily.
6. If this plastic foam proves to be acceptable as a cover material, it will eliminate much of the soil requirement and the potential environmental hazards just described. Also, traffic congestion between the Barbers Point Naval Air Station - Makakilo City intersection to the Palailai Landfill site - will be reduced.
7. Recently, much publicity has focused attention on the limited solid waste disposal sites on the island of Oahu. The granting of this variance could possibly extend the capacity and life of the Palailai Landfill which will benefit the community while reducing the potential for adverse effect on human health and safety.
8. The staff of the Environmental Permits Branch, Department of Health, had no objection to this "experimental" use of plastic foam as a cover material. However, they did recommend certain conditions.
9. The variance is requested for five years.

Conclusions of Law

Chapter 342, Hawaii Revised Statutes, Section 7 states that no variance shall be granted by the Department unless the application and supporting information clearly show that:

1. The continuation of the function or operation involved in the discharge of waste by the granting of the variance is in the public interest as defined in Chapter 342, Section 6.
2. The emission or discharge occurring or proposed to occur does not substantially endanger human health or safety; and
3. Compliance with the rules, regulations, or standards from which the variance is sought would produce serious hardship without equal or greater benefits to the public.

Based upon the foregoing findings of fact, it is concluded that these requirements have been met.

Recommendation

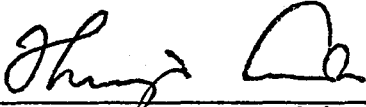
Based upon the foregoing, it is my recommendation that the

variance be granted until April 17, 1983, which is when the applicant's Solid Waste Management Permit (SW-085088) expires.

The variance should be granted under the following conditions:

1. Plastic foam shall not be used in any working face that will be inactive for two or more days. Soil, 6" thick minimum, shall be used instead.
2. Plastic foam shall be spread to a minimum thickness of one inch (1") over the working face to prevent harboring and breeding of flies and other disease vectors and to minimize possible odor. The thickness of the plastic foam shall be increased as necessary to achieve the above results.
3. The Director reserves the right to have the operator of the landfill monitor the effectiveness of the one inch cover in regards to flies and disease vectors concentration.

DATED: Honolulu, Hawaii, August 4, 1982.



SHINJI SONEDA, Chief
Environmental Protection &
Health Services Division

Appendix S

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application)
for Variance for:)

PACIFIC CONCRETE & ROCK CO.)
[Cover Material & Depth])

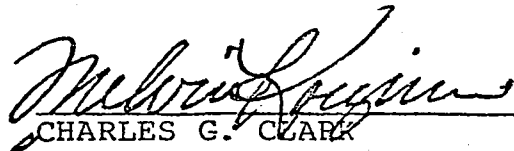
Docket No. 83-SS-VSW-1

DECISION AND ORDER

Pursuant to Chapter 342, Hawaii Revised Statutes, and Chapter 58 of Title 11, Administrative Rules, and based upon the application and staff investigation, the Variance Request from the provisions of Chapter 58, Section 4(b)(8) is hereby DENIED.

DATED: Honolulu, Hawaii, _____

MAR 17 1983



CHARLES G. CLARK
Director of Health

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application)
for Variance for;)

PACIFIC CONCRETE & ROCK CO.)
[Cover Material & Depth])

Docket No. 83-SS-VSW-1

FINDINGS OF FACT AND CONCLUSIONS OF LAW

The application of Pacific Concrete & Rock Co., 2344 Pahounui Drive, Honolulu, Hawaii for a variance from Administrative Rules, Chapter 58 of Title 11, Section 4(b)(8), Solid Waste Management Control was reviewed by the Department of Health staff and a public notice of the application was printed in the January 26, 1983 issue of the Honolulu Star-Bulletin. No public comments pertaining to the application were received during the 30 days following publication of the public notice.

Findings of Fact

1. Section 4(b)(8) requires that solid waste be compacted and covered with a minimum of six inches of earth or other approved material at a frequency specified by permit requirements.
2. The applicant is the owner and operator of the Palailai Sanitary Landfill located at 91-402 Farrington Highway, Ewa, Oahu. Presently, the applicant is using six inches of soil to cover the daily compacted refuse. However, new technology now available enables some landfills on the mainland to more efficiently seal the daily refuse with only one (1) inch of a plastic foam material in lieu of the six (6) inches of soil.
3. The applicant has used this new plastic foam as a cover material at the Palailai Landfill since August, 1982 to test its qualities, under a short-term Department of Health variance.
4. An investigation and inspection of the landfill was conducted by the Department of Health's Pollution Investigation & Enforcement Branch as a result of the variance application. The inspection showed no evidence that the plastic foam was being used as a cover material, and in fact a bulldozer operator stated that the use of the plastic foam was discontinued after only a month's trial because the foam was too light and was blown off the solid wastes.
5. A vice president of the company stated that the early tests showed that the foam was too expensive for their normal operations, but he would like to be able to use it in emergencies.

6. Since the original variance expires on April 17, 1983, the applicant is applying for another variance to cover emergency usage during the next five years.

Conclusions of Law

Chapter 342, Hawaii Revised Statutes, Section 7 states that no variance shall be granted by the Department unless the application and supporting information clearly show that:

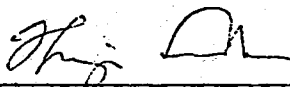
1. The continuation of the function or operation involved in the discharge of waste by the granting of the variance is in the public interest as defined in Chapter 342, Section 6.
2. The emission or discharge occurring or proposed to occur does not substantially endanger human health or safety.
3. Compliance with the rules, regulations or standards from which the variance is sought would produce serious hardship without equal or greater benefits to the public.

Based upon the foregoing findings of fact, it is concluded that requirements No. 1 and No. 3 have not been met.

Recommendation

Based upon the foregoing, it is my recommendation that the variance request be denied.

DATED: Honolulu, Hawaii, MAR 17 1983


SHINJI SONEDA, Chief
Environmental Protection &
Health Services Division

Appendix T

October 13, 1983

MEMORANDUM

To: Deputy Director for Environmental Health
Through: Chief, Environmental Protection & Health Services Division
From: Acting Chief, Environmental Permits Branch
Subject: Palailai Landfill

As requested, the following is a summary of conditions placed on Palailai Landfill as they relate to closure and their status to the best of our knowledge:

- A. In 1972, Pacific Concrete and Rock Company (PC&R) began applying for permission to operate a landfill at the Palailai quarry. The Board of Water Supply (Attachment I) had no objection subject to certain conditions that needed to be done to protect the groundwater:
 - (1) Install an impervious layer of soil on the floor of the quarry and up alongside of the walls.
 - (2) Construct a layer of gravel over the impervious layer for drainage and collection of leachates.
 - (3) Construct a concrete sump and pump and gravel pack well to extend to finished fill surface. Owner to maintain and operate well and pump for seven years after closure of landfill.
- B. In 1973, the City Council by resolution (Attachment 2) approved a conditional use permit for PC&R to operate a landfill subject to certain conditions as imposed by the various governmental agencies. (The conditional use permit has been renewed periodically by the City.)
- C. On January 2, 1974 PC&R began its landfill operation. The plan for the first phase of development, about three acres in size, was prepared by Construction Engineering Services, a subsidiary of Koga Engineering and Construction who was the contractor. According to Sam Callejo of CES, the impervious layer of soil and the concrete sump

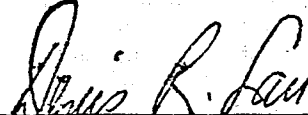
were constructed according to plan. However, even if this was, there is no record or any plans in our file for the improvements of the subsequent phases or remainder of the 26+ acres; or who was the contractor or soils engineer for any subsequent impervious blanket construction.

- D. On September 12, 1974, PC&R applied for a Solid Waste Management Permit.
- E. On June 27, 1975, PC&R was issued a Solid Waste Management Permit #SW-051007. The original permit did not address the "impervious layer of soil" nor the "concrete sump and pump" which were stipulated by the BWS. It did indicate, however, under Item #4 of the special conditions that the DOH reserved the right to require monitoring for detection of pollution.
- F. About 1 1/2 to 2 years after the start of landfill operation, the BWS because of their interest in the groundwater, made about two inspections of the Palailai Landfill site. They found that PC&R was not installing the impervious layer of soil along the perimeter of the vertical walls. After PC&R was so notified, PC&R did start to put in the impervious layer. There is no record in our file to show that PC&R continued to put in the impervious layer after BWS stopped their inspection. (A recent inspection by our staff on September 30, 1983 revealed that there is no visible evidence of any impervious layer alongside of the vertical walls.)
- G. On May 4, 1978, a renewed permit was issued to PC&R: SW-085088. One of the special conditions of this permit is that the owner shall submit one year before closure, an abandonment plan addressing the following: (a) surface water runoff drainage, (b) final grading, (c) landscaping, (d) vector control, (e) settlement, and (f) public information.
- H. On May 2, 1983, another renewed permit was issued to PC&R, SW-161163. Under the special conditions of this permit, the applicant shall submit a closure plan to the Director, DOH, at least one year prior to planned termination of the landfill operation. This permit will expire on May 1, 1988. Our solid waste management rule, Chapter 58, requires "at least one year" of maintenance after termination of operation to prevent health hazards or nuisances from occurring.
- I. Mr. Mel Tom of PC&R indicated during the aforementioned September 30, 1983 site inspection that several years ago, small diameter pipes were installed around the landfill for gas monitoring. These pipes have subsequently been abandoned and filled over with refuse. (Current permit has no requirement for gas monitoring.)

Moreover, Mr. Tom indicated the present estimate for the landfill closure is two years based on the current annual volume of refuse.

The concrete sump for the collection of leachate was constructed according to Sam Callejo, the design engineer for Construction Engineering Services. A 48" diameter RCP sits on top of the concrete sump with gravel on the exterior perimeter. Additional pipes are added on as the height of the refuse increases. Two years ago, PC&R pumped out the sump; approximately 25+ gallons were pumped according to Fred Sekiya, the environmental engineer for PC&R. However, no samples were taken for laboratory analysis because there is no requirement for testing. The depth of the sump from the present finished elevation is approximately 112 feet.

- J. According to BWS, Campbell Estate recently completed a well, "Makakilo," at the entrance to Campbell Industrial Park. This well will be dedicated to the Board of Water Supply and will be used for domestic purposes. The water from this well will be mixed with existing potable water to lower the saline concentration.


DENIS R. LAU

AD/jcn
Attachments
cc: PIE
Brian Choy

Appendix U

(b) Odor

(1) The operator shall not cause, let, permit, suffer, or allow the emission of any odorous substance which causes the ambient air at or beyond the facility's property boundary to be odorous and to remain odorous subsequent to its dilution with 4 parts of odor-free air (odor free air is ambient air which has been filtered through activated carbon). Samples of ambient air shall be collected and evaluated as prescribed below.

(2) Samples of ambient air shall be collected and evaluated whenever the enforcement agency and/or the board receive a total of five (5) or more complaints from separate individuals within a 90-day period alleging that the facility has generated odors perceived at or beyond the property boundary of the facility and deemed to be objectionable by the complainants in the normal course of their work, travel, or residence.

(3) Samples shall be collected in clean Tedlar bags in a manner which minimizes alteration of the sample either by contamination or by loss of odorous materials. Sampling techniques and performance are subject to approval by the Chief of the board's Enforcement and Technical Assistance Division.

(4) All samples collected shall be evaluated as soon after collection as possible utilizing an evaluation apparatus that consists of a dynamic olfactometer (variable dilution device) which accepts the sample from the Tedlar bag and dilutes it with treated air from the room. The train for treating room air prior to its combination with the field sample shall consist of a bed of Drierite or other drying agent followed by a bed of activated charcoal. The dynamic olfactometer shall expel treated room air, or field sample diluted with treated room air, to an inhalation mask at a flow rate of approximately 0.5 cfm.

(5) During the evaluation procedure, three subjects shall be seated out-of-sight of the evaluation apparatus and fitted with the inhalation mask. The subjects shall be selected in accordance with the procedure approved by the Chief of the board's Enforcement and Technical Assistance Division and which are designed to eliminate prospective subjects who have olfactory sensitivity deemed by the Chief of the board's Enforcement and Technical Assistance Division to be unduly sensitive or insensitive at the time of the test. A signal lamp and a signal switch shall be placed in front of each subject. The subjects shall be given twenty (20) presentations, each of 5 seconds duration and 10 seconds apart, for appraisal. Half the presentations (10) shall be diluted field sample, and half (10) shall consist only of dry, odor-free air. The presentations of sample and odor-free air shall be given in random order. At the time each presentation is made, each subject's response is solicited by lighting the subject's signal lamp. If the subject can detect any odor, (s)he shall respond by pressing his (her) signal switch. The operator shall record each subject's affirmative or negative response. If the presentation of a sample elicits an affirmative response in less than 5 seconds, odor-free air shall be substituted for the remainder of the 5 second presentation period. During the 10 second relaxation period between presentations, odor-free air shall be supplied to the mask.

(6) A diluted sample shall be deemed odorous, if during the evaluation as prescribed in part (5) above, two of the subjects gave negative responses to at least eight (8) of the ten (10) odor-free or "blank" presentations and affirmative responses to at least eight (8) of the ten (10) field sample presentations. Samples deemed to be odorous in accordance with the evaluation analysis described in this part shall be deemed to be a violation of the limits established in part (1) above.
