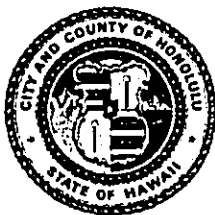


*PrimeCo Personal Communication at A.N.A. Kalakaua Center*

DEPARTMENT OF LAND UTILIZATION  
**CITY AND COUNTY OF HONOLULU**  
650 SOUTH KING STREET  
HONOLULU, HAWAII 96813 • (808) 523-4432

RECEIVED

JEREMY HARRIS  
MAYOR



'96 MAY 14 11:09

PATRICK T. ONISHI  
DIRECTOR

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL 96/ED-001(DT)  
96-02875

LORETTA K.C. CHEE  
DEPUTY DIRECTOR

May 13, 1996

The Honorable Gary Gill, Director  
Office of Environmental Quality Control  
220 South King Street, 4th Floor  
State of Hawaii  
Honolulu, Hawaii 96813

Dear Mr. Gill:

CHAPTER 343, HRS  
Environmental Assessment/Determination  
Negative Declaration

Recorded Owner : Barbara M. Poovey Trust  
Applicant : P.C.S. PrimeCo, L.P.  
Agent : Arthur Mori & Associates, Inc.  
Location : 2155 Kalakaua Avenue, Waikiki, Oahu  
Tax Map Keys : 2-6-03: 17, 18 and 20  
Request : Zoning Variance within the Waikiki  
Special District  
Proposal : Add eight (8) antennas, equipment  
enclosure, and cabling conduit atop the  
A.N.A. Kalakaua Center (formerly known as  
the Mitsukoshi Building)  
Determination : A Negative Declaration Is Issued

We have reviewed the Final Environmental Assessment (FEA) you prepared for the proposed project to satisfy the requirements of Chapter 343, Hawaii Revised Statutes (HRS). We have determined that an Environmental Impact Statement (EIS) is not required and will issue a Negative Declaration.

If you have any questions, please contact Dana Teramoto of our staff at 523-4648.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Patrick T. Onishi".  
PATRICK T. ONISHI  
Director of Land Utilization

PTO:am  
Enclosures

g:fea96ed1.djt

56

1996-05-23-0A- FEA- PrimeCo Personal Communication at ANA Kalakaua Center 96-02875

MAY 23 1996

**FILE COPY**

Final Environmental Assessment (EA)  
for  
PrimeCo Personal Communications, L.P. Telecommunication Site  
at  
ANA Kalakaua Center  
Honolulu, Oahu, Hawaii  
Tax Map Key: 2-6-03: 17, 18 & 20

1996 MAY - 8 PM 3: 45  
DEPT. OF LAND UTILIZATION  
CITY & COUNTY OF HONOLULU

**Applicant**

PrimeCo Personal Communications, L.P.  
1132 Bishop Street, Suite 1105  
Honolulu, Hawaii 96813

**Agent**

Jeffrey Mori  
1314 South King Street, Suite 955  
Honolulu, Hawaii 96814

May 1996

## TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION</b>	<b>1-3</b>
<b>A.</b>	<b>BASIC INFORMATION</b>	<b>1</b>
1.	Owner	1
2.	Applicant	1
3.	Approving Agency	1
4.	Agency Consulted	1
5.	Agency Contacted	1-2
6.	Location	2
7.	Tax Map Key	2
8.	Lot Area	2
9.	Zoning	2
10.	Development Plan	3
<b>II.</b>	<b>GENERAL DESCRIPTION OF THE PROPOSED ACTION</b>	<b>3-4</b>
<b>A.</b>	<b>TECHNICAL</b>	<b>3</b>
<b>B.</b>	<b>ECONOMIC</b>	<b>3</b>
<b>C.</b>	<b>SOCIAL</b>	<b>3-4</b>
<b>D.</b>	<b>ENVIRONMENTAL CHARACTERISTICS</b>	<b>4</b>
<b>III.</b>	<b>SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT</b>	<b>4-5</b>
<b>IV.</b>	<b>SUMMARY OF THE MAJOR IMPACTS</b>	<b>5</b>

Final Environmental Assessment (EA)  
for  
PrimeCo Personal Communications, L.P. Telecommunication Site  
at  
ANA Kalakaua Center  
Honolulu, Oahu, Hawaii  
Tax Map Key: 2-6-03: 17, 18 & 20

I. INTRODUCTION

A. BASIC INFORMATION

1. Owner: Barbara M. Poovey Trust  
c/o ANA Kalakaua Center  
2155 Kalakaua Avenue  
Honolulu, Hawaii 96815
2. Applicant: PrimeCo Personal  
Communications, L.P.  
Suite 1105  
1132 Bishop Street  
Honolulu, Hawaii 96813
3. Approving Agency: City and County of Honolulu  
Department of Land Utilization  
650 South King Street  
Honolulu, Hawaii 96813
4. Agency Consulted: City and County of Honolulu  
Department of Land Utilization  
650 South King Street  
Honolulu, Hawaii 96813
5. Agency Contacted: Waikiki Improvement Assn.  
Suite 703  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96815  
  
Waikiki Oahu Visitors Assn.  
Suite 477  
1001 Bishop Street  
Honolulu, Hawaii 96813

Hawaii Visitors Bureau  
Suite 801  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96813

Hawaii Hotel Association  
Suite 1103  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96813

Honolulu Police Department  
801 South Beretania Street  
Honolulu, Hawaii 96813

American Red Cross  
4155 Diamond Head Road  
Honolulu, Hawaii 96816

Oahu Civil Defense Agency  
650 South King Street  
Honolulu, Hawaii 96813

State Civil Defense Agency  
3949 Diamond Head Road  
Honolulu, Hawaii 96816

F.E.M.A.  
T112 Fort Shafter  
Honolulu, Hawaii 96819

Honolulu Fire Department  
3375 Koapaka Street  
Honolulu, Hawaii 96819

- |    |              |   |
|----|--------------|---|
| 6. | Location:    | The project site is located at 2155 Kalakaua Avenue. It is located at the intersection of Beachwalk and Kalakaua Avenue in Waikiki, Oahu. |
| 7. | Tax Map Key: | 2-6-03: 17, 18 & 20   |
| 8. | Lot Area:    | 40,256 square feet  |
| 9. | Zoning:      | Waikiki Special District  |

10. Development Plan:

Land Use Map:

Resort Commercial Precinct

Public Facilities:

No improvements planned  
within the project site.

**II GENERAL DESCRIPTION OF THE PROPOSED ACTION**

A. **TECHNICAL:** The applicant proposes the construction of a equipment enclosure and placement of eight (8) antennae (Appendix A-Antenna) and cabling conduit on the roof of the existing 9-story building. The equipment enclosure will be constructed within an existing stair penthouse enclosure and will therefore not be visible from the street level.

The eight antennae will be mounted on two locations of the roof (See Sheets A-1, A-2 & A-3). The cabling conduit will be encased in a steel tube conduit.

The steel tube conduit will be painted the same color as the existing building.

B. **ECONOMIC:** The project cost will be approximately \$75,000.00.

C. **SOCIAL:** The proposed installation of the eight antennae at this cell site is necessary in linking personal communications services with the rest of Oahu. It is believed that the entry of P.C.S. PrimeCo (PCS) in Hawaii will clearly benefit the City and County of Honolulu. A personal communication service will usher Hawaii into the 21st century offering consumers, businesses and government agencies a unique wireless alternative to existing communications services.

Personal communications services, or PCS, represents the new, digital generation of wireless telecommunications. The term is used to describe any wireless communications service - voice, data, and video - transmitted through a

small, hand-held phone and operating within the newly available 1.8 to 2.2 Gigahertz frequency band.

P.C.S. PrimeCo, L.P., a partnership between AirTouch, Bell Atlantic, NYNEX, and US West, was created to provide innovative, easy-to-use, nationally-branded wireless communications services. The consortium invested \$1.1 billion to obtain 11 personal communications services licenses granted in the recent Federal Communications Commissions' auction of PCS spectrum. PrimeCo's 11 PCS licenses cover a potential market of 57 million customers in 19 states. It is the goal of PrimeCo, headquartered in Dallas, Texas, to build out the PCS infrastructure and commence service to customers by the end of 1996.

D. ENVIRONMENTAL CHARACTERISTICS: P.C.S. PrimeCo is sensitive to visual impact. To be visually pleasing and blend with the existing building, the steel tube conduit will be painted the same color as the existing building.

### III. SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT

The site is a 40,256 square foot parcel on which a 9-story structure stands. The project building is referred to as the ANA Kalakaua Center (formerly known as the Mitsukoshi Building). It is situated on the corner of Beachwalk and Kalakaua Avenue (See Appendix B-Plot Plan).

In terms of location, the site selected is suitable for the proposed use, due to its height, physical posture overlooking the area, its location in a commercial area, and the fact that the proposed improvements will barely affect the appearance of the rooftop. The majority of the improvements will be done on the interior of the

existing stair penthouse enclosure, therefore the exterior view of the rooftop will largely remain the same.

The proposed rooftop antennae and telecommunication equipment facility will not impact public facilities, such as sewer and water and will have no impact on traffic, with preventive maintenance visits occurring approximately once a month. The roof access is restricted by a locked door.

The surrounding area is developed primarily for commercial and resort uses. There are a number of hotels and small commercial buildings surrounding the project. Other resort buildings nearby are the Bank of Hawaii Waikiki Building, Pleasant Holiday Isle, Edgewater Lanai, Waikiki Royal and the Hawaiiana Hotel, which would be the closest structures within view of the project site.

#### **IV. SUMMARY OF THE MAJOR IMPACTS**

The proposed project will not alter the character of nor will it impact the surrounding area, as the steel tube conduit will be painted to match the exterior wall surface.



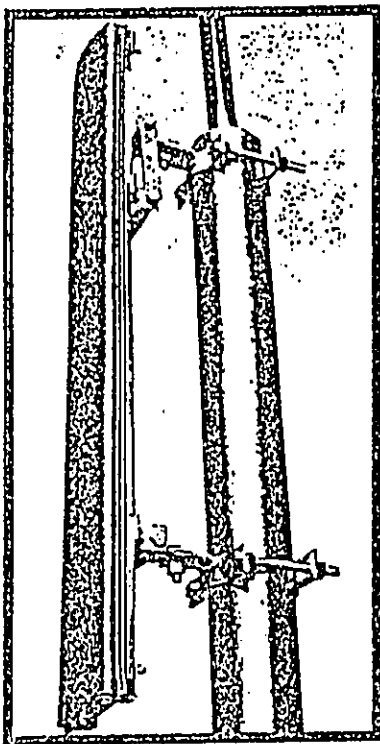
## NEW PCS/PCN Flat Panel Antennas

PFP-13A42 Series

1710-1990 MHz

Mark has developed a new line of flat panel antennas designed to cover the 1850-1990 MHz U.S. PCS band and the 1710-1880 MHz E.C. PCN band. At only 1.5 inches deep, these models provide an inconspicuous profile that can be easily mounted on a building or pipe. The antennas are available in 70, 83, 90, and 105 degree horizontal beamwidths and in lengths ranging from one foot to seven feet. Both 7/16 DIN Female and type N Female Connectors are available as standard product. Any model can be furnished with electrical downtilt of 2, 4, 6 or 8 degrees and a mechanical downtilt bracket is available as an option. The antenna is housed in extruded, highly weather resistant, acrylic-styrene-acrylonitrile (ASA) and smartly finished with aluminum end plates. Aesthetically, this antenna provides a sleek new look while maintaining its rugged dependability.

Frequency:	Model 70° Horizontal Beamwidth	Model 83° Horizontal Beamwidth	Model 90° Horizontal Beamwidth	Model 105° Horizontal Beamwidth
1710-1880 MHz	PFP-13A42L -3*-+	PFP-13A42L -1*-+	PFP-13A42L -4*-+	PFP-13A42L -2*-+
1850-1990 MHz	PFP-13A42H -3*-+	PFP-13A42H -1*-+	PFP-13A42H -4*-+	PFP-13A42H -2*-+



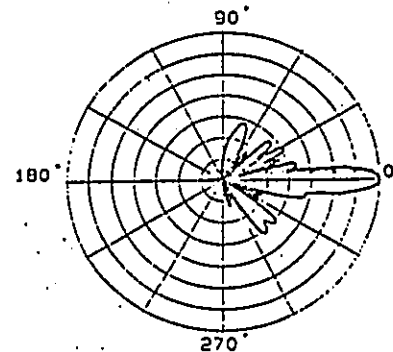
- (\*) Use the Letter N After the Model Number For Type N Female Connector
- (\*) Use the Letter G After the Model Number For Type 7/16 DIN Female Connector
- (+) Use the Letter D Plus 2, 4, 6 or 8 to Specify Electrical Downtilt

(Model Number Example PFP-13A42L-3N-D2)

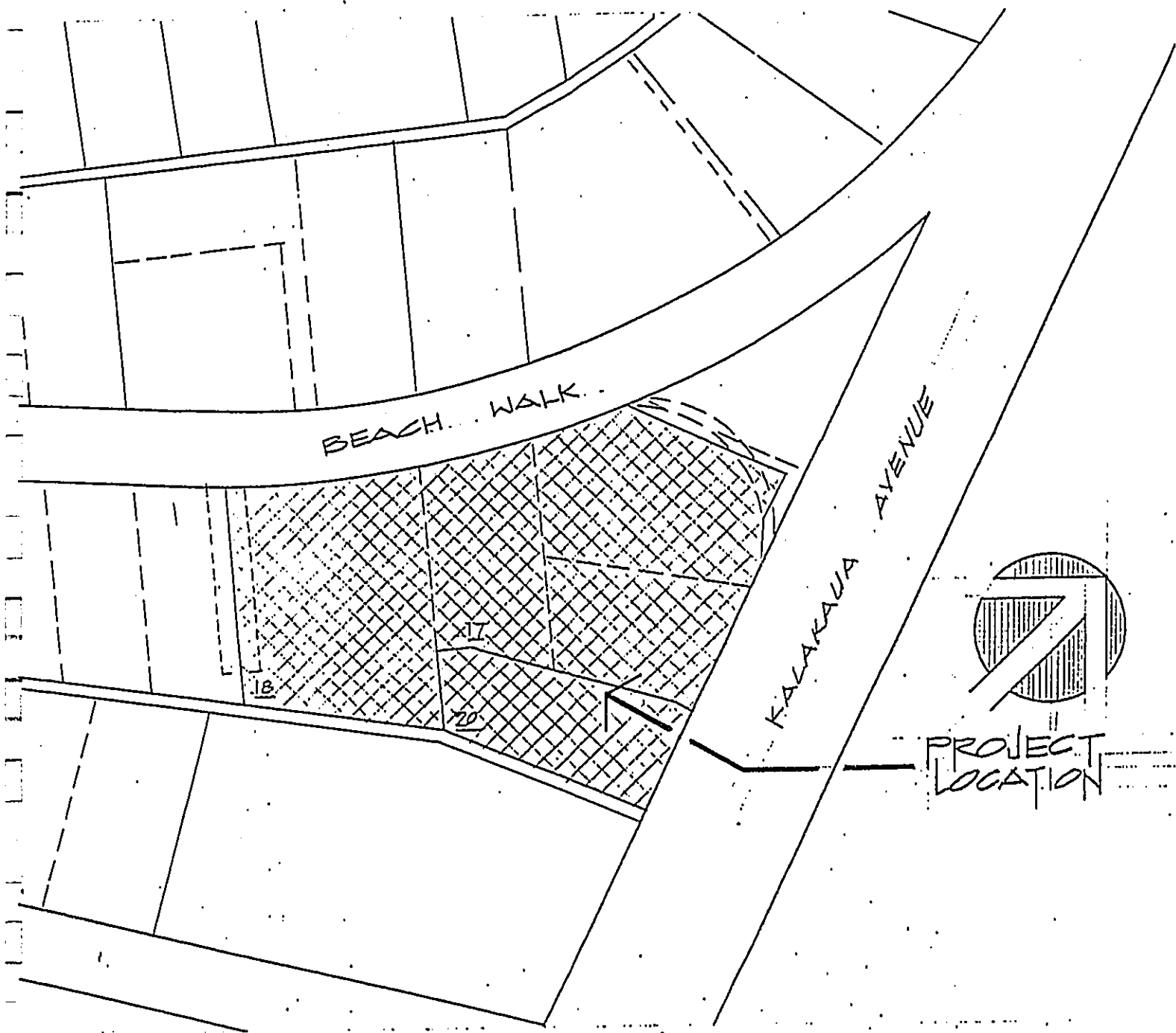
VSWR: 1.3:1 Typical, 1.5:1 Maximum  
 Polarization: Vertical  
 Gain: See page 12  
 Beamwidth: See page 12  
 Front To Back Ratio: See page 12  
 Power Input Rating: See page 12  
 Impedance: 50 ohms  
 Connector: 7/16 DIN Female or N Female  
 Lightning Protection: Direct connection to ground  
 Radiating Element Material: Tin plated printed circuit board  
 Radiating Element Housing: Weather resistant gray ASA  
 Intermodulation Products: All designs tested for absence of intermodulation generators.

### Mounting Interface:

- Wall mount standard (Optional azimuth adjust part number 521-467-9-002)
- Pipe mount optional for 1" to 4.5" O.D. (.025m to .114m)  
use part number 521-468-9-002
- Mechanical downtilt optional 0-12° use part number 521-473-9-003
- Wind Survival: 150 MPH (67.1m/s)
- Wind Loading @ 100 MPH (44.7m/s)
  - Frontal: 70 lbs (311.15 N)
  - Side: 14 lbs (62.23 N)
- Temperature: -40° to +160° F (-40° to +71.11° C)
- Humidity: 100%



Typical Vertical



P L O T P L A N

NOT TO SCALE

CERTIFICATE FOR TELECOMMUNICATIONS ANTENNA

This form is to be submitted along with building permit applications for telecommunication antennas. It shall be signed by the building permit applicant who shall be responsible for meeting the exclusion distance (setbacks) required by the Land Use Ordinance (LUO), and the veracity of information submitted herein.

Building permit plans shall include a delineation of the exclusion distance, and shall provide any additional information to demonstrate that fencing or other measures are being taken to restrict public access within this distance.

Please type or print legibly all required information.

Tax Map Key: 2-6-03: 17, 18 & 20

Applicant: PCS PRIME Co. L.P.  
(If company, list company name)

Brief Description of the Type of Antenna: LAND MOBILE  
(E.g. land-mobile, paging service; mast antenna, dish. If antenna is an independent operational fixed-point microwave or receiving-only antenna, that does not qualify as an accessory use, please note this here; no other additional information is required for these antennas.)

Effective Radiated Power (ERP) of Antenna(s): 100 watts  
(If more than one antenna is being proposed, or if an antenna is being added to a site where there are already other antennas, indicate combined ERP)

Computation of Exclusion Distance (ED) in feet:

$$\text{Exclusion Distance (in feet)} = .0325 \sqrt{796\text{ERP}}$$

Using the above formula, the Exclusion Distance is 9.17 feet

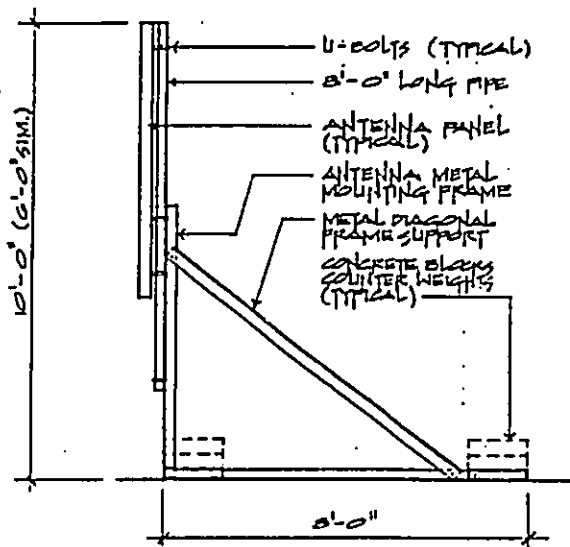
Samirias Pohan 1/5/95  
Applicant Date  
(If company, authorized signature)

# PCS PrimeCo,

## Cell Site

A N A Kalakaua Center  
2155 Kalakaua Avenue  
Honolulu, Hawaii

T.M.K.: 2 - 6 - 3 : 17, 18 & 20



**D** TYPICAL ANTENNA MOUNTING DETAIL

A-1 1/2" x 1'-0"

### LUO DATA

Tax Map key: 2-6-3-17, 18 & 20  
Address: 2155 Kalakaua Avenue  
Honolulu, Hawaii 96815  
Zoning: Waikiki Special District  
Resort/Commercial Precinct  
Principal Use: Office Building  
Lot Area: 40,256 Square Feet  
Building Hgt: 9 Stories @ 148'-0"

### PARKING

No Change

### LOADING

No Change

- All work to conform to 1991 edition of U and ordinances.
- All work is to be performed in accordance and project specifications.
- All wood in contact with concrete or m pressure-treated wood of any species or cedar or redwood, all marked by an app
- Contractor shall be responsible for verify conditions and dimensions in the field and new work with existing conditions.
- Contractor shall be responsible for repair existing work to remain. When existing are removed, match existing adjacent m provide contiguous smooth transitions from new finishes.
- All applied surface materials and finishes to Building Department flame spread re
- Notify Architect of any conflicts or changes drawings or specifications.

**C** BUILDING INFORMATION

A-2

**B** GENERAL

A-2

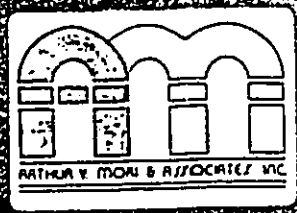
1996 MAY -8 PM 3:47

DEPT. OF LAND UTILIZATION  
CITY & COUNTY OF HONOLULU

Co, L.P.

te  
Center  
Avenue  
Hawaii

17, 18 & 20



ARCHITECTS/ AIA  
1514 SOUTH KING ST/ SUITE 055  
HONOLULU, HAWAII 96814

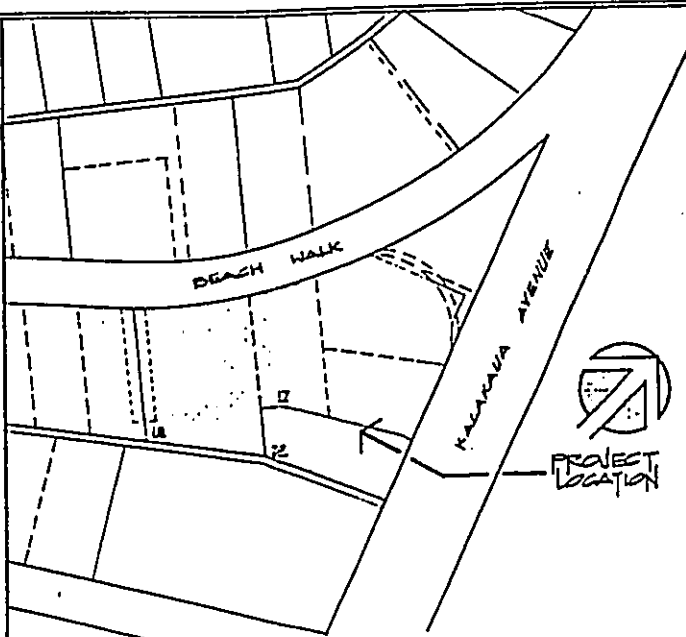
**PCS PrimeCo, L.P. - Cell Site**  
A N A Kalakaua Center  
2155 Kalakaua Avenue  
Honolulu, Hawaii  
T.M.K. #2 - 6 - 3 : 17, 18 & 20

Plot Plans, Technical Notes & Exhibits by Arthur Y. Mori & Associates, Inc.

SHEET TITLE

- All work to conform to 1991 edition of UBC and all codes and ordinances.
- All work is to be performed in accordance with these plans and project specifications.
- All wood in contact with concrete or masonry shall be pressure-treated wood of any species or foundation grade cedar or redwood, all marked by an approved testing agency.
- Contractor shall be responsible for verifying all existing conditions and dimensions in the field and coordinating all new work with existing conditions.
- Contractor shall be responsible for repairing damage to existing work to remain. When existing work and items are removed, match existing adjacent materials and provide contiguous smooth transitions from existing to new finishes.
- All applied surface materials and finishes shall conform to Building Department flame spread requirements.
- Notify Architect of any conflicts or changes to these drawings or specifications.

GENERAL NOTES



**A PLOT PLAN**  
A-1 1" = 20'-0"

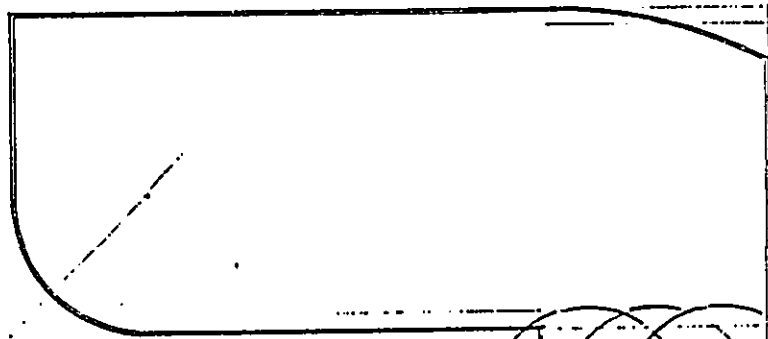


The work was prepared by me or under my supervision and execution of this project will be under my direct or indirect supervision as defined in Chapter 10-115 of the Hawaii Administrative Rules, Department of Commerce and Consumer Affairs, Office of Professional Engineers, Architects, Surveyors and Landscape Architects.

NOTE: Contractor to check and verify all dimensions of job before proceeding with work.

NO.	REVISION

SHEET **A-1** DATE 05.06.1995  
1 OF 1 SHEET



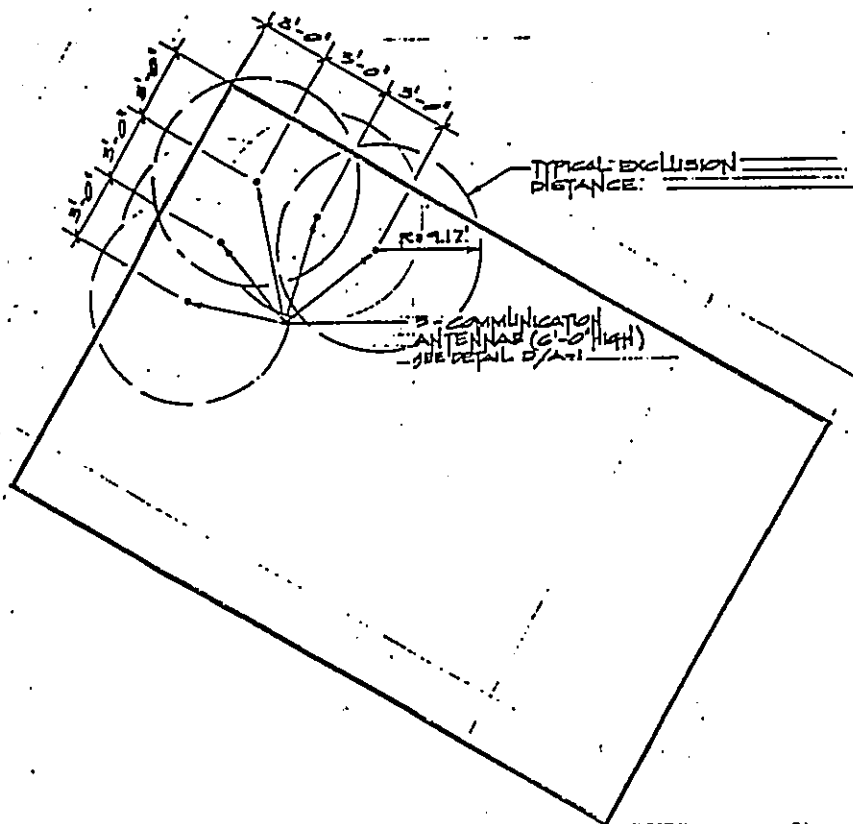
3 COMMUNICATION ANTENNAE (6'-0" HIGH)  
SEE DETAIL D/A-1

TYPICAL EXCLUSION DISTANCE

EXIST'G. HALL (T)

**C** EQUIPMENT ROOM ROOF PLAN  
A-2 1/4"=1'-0"

**B** EQU  
A-2 1/4"=1'-0"



TYPICAL EXCLUSION DISTANCE

R=7'-10"

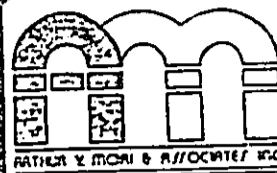
3 COMMUNICATION ANTENNAE (6'-0" HIGH)  
SEE DETAIL D/A-1

**D** ROOF PLAN  
A-2 1/4"=1'-0"

**A** ROO  
A-2 1/4"=1'-0"

1996 MAY -8 PM 3:47

DEPT. OF LAND UTILIZATION  
CITY & COUNTY OF HONOLULU



RATHER Y. MORI & ASSOCIATES, INC.

ARCHITECTS/ P.A.  
1314 SOUTH KING STREET, SUITE 455  
HONOLULU, HAWAII 96814

**PCS PrimeCo, L.P. - Cell Site**  
ANA Kalakaua Center  
2155 Kalakaua Avenue  
Honolulu, Hawaii  
T.M.K. #2 - 6 - 3 : 17, 18 & 20

SHEET TITLE  
Roof Level Floor Plan and Equipment Room Floor Plan

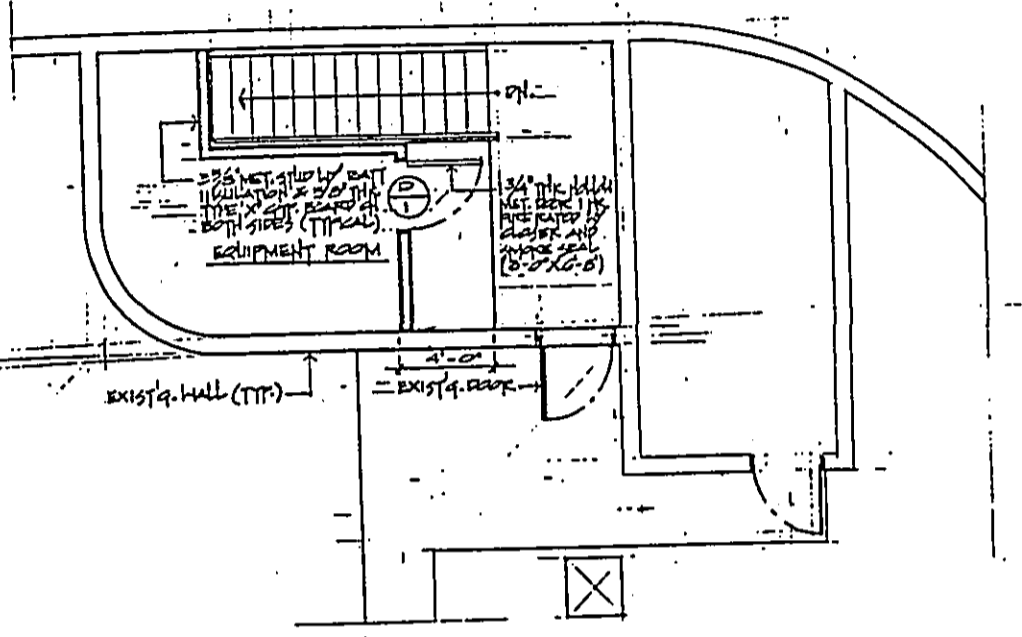


This work was prepared by me or under my supervision and completion of this project will be under my supervision. Enforcement of provisions of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii.

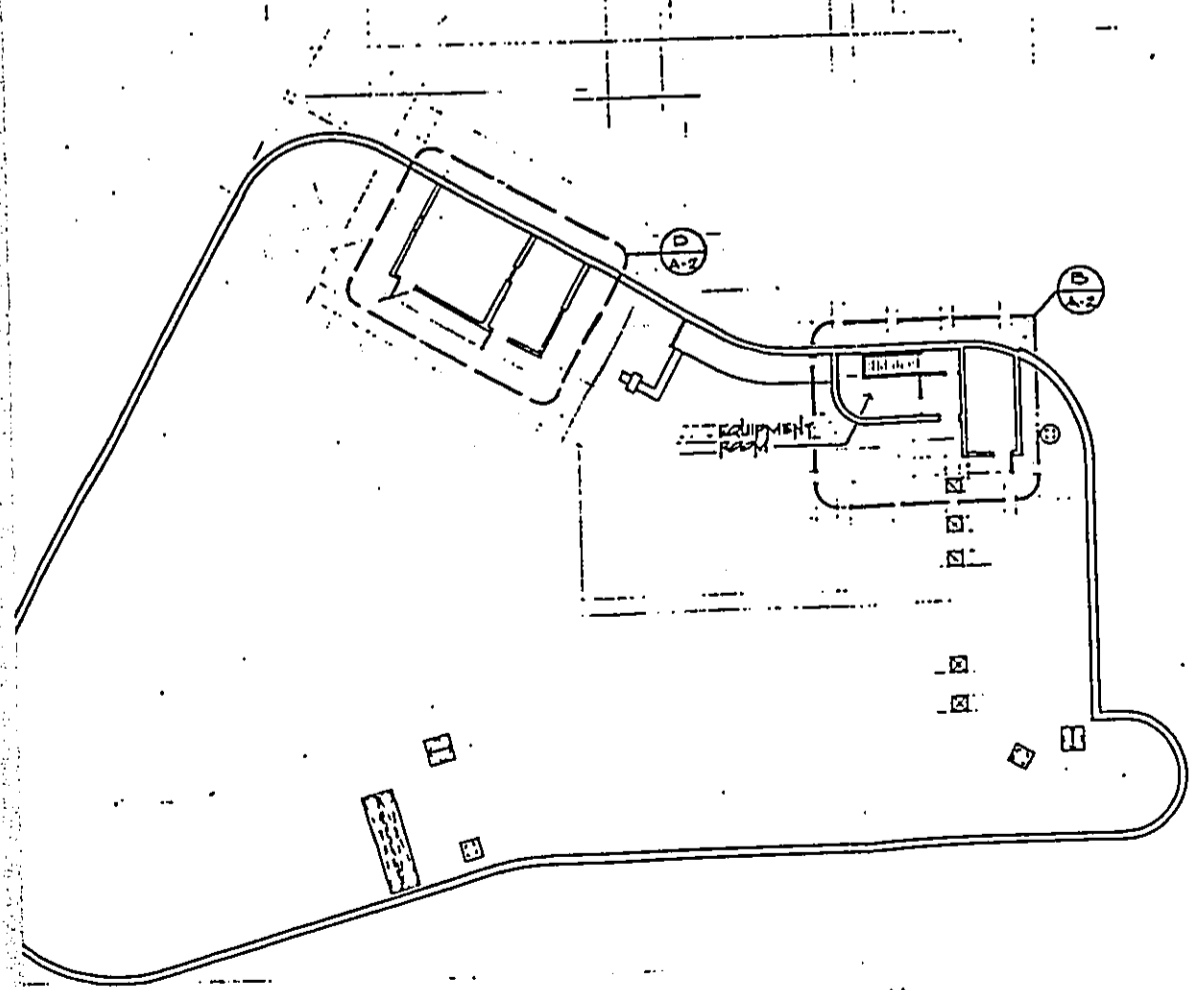
NOTE:  
Contractor to check and verify all dimensions on job before proceeding with work.

NO.	REVISION

SHEET  
**A-2**  
DATE: 11 Jan. '96  
2 OF 3 SHEETS



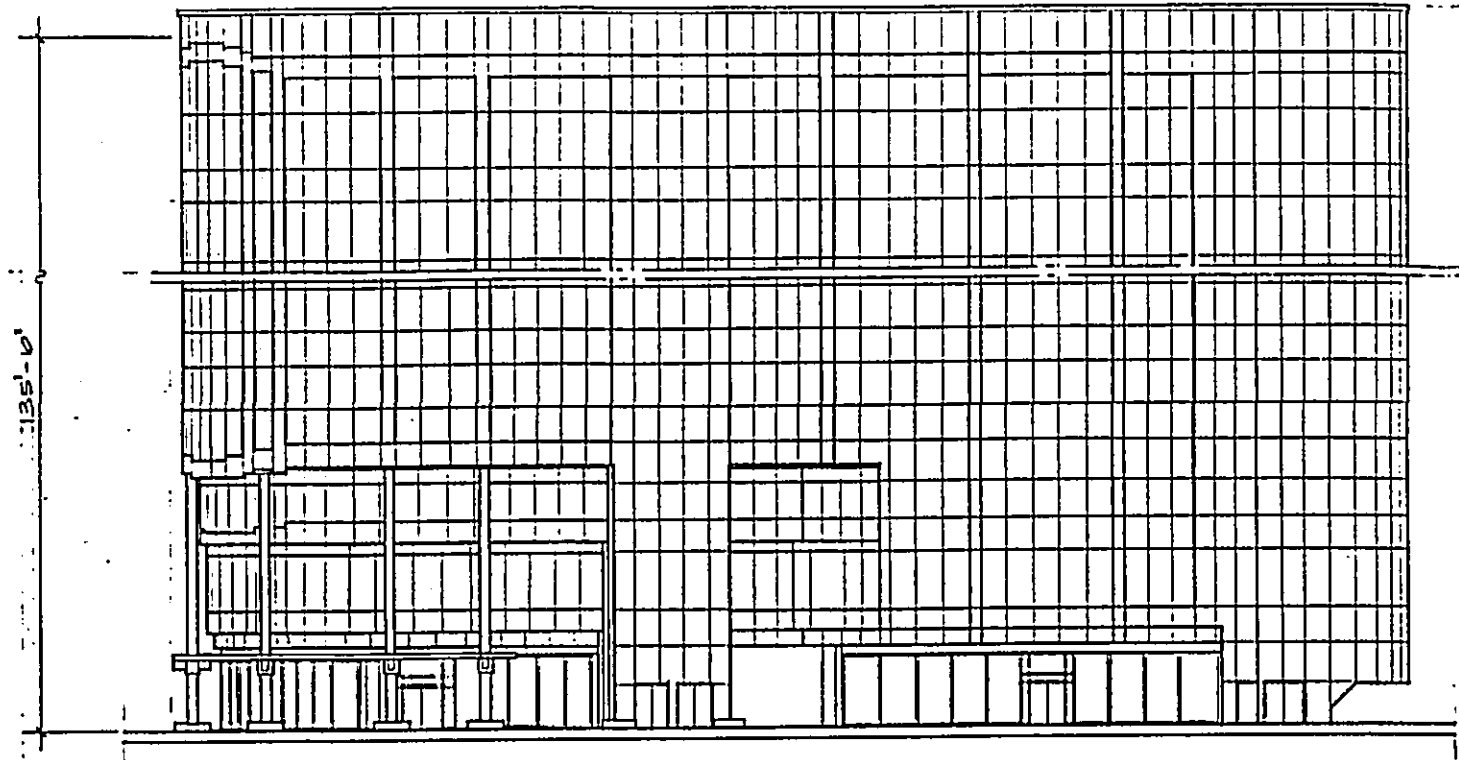
**B EQUIPMENT ROOM FLOOR PLAN**  
A-2 1/4" = 1'-0"



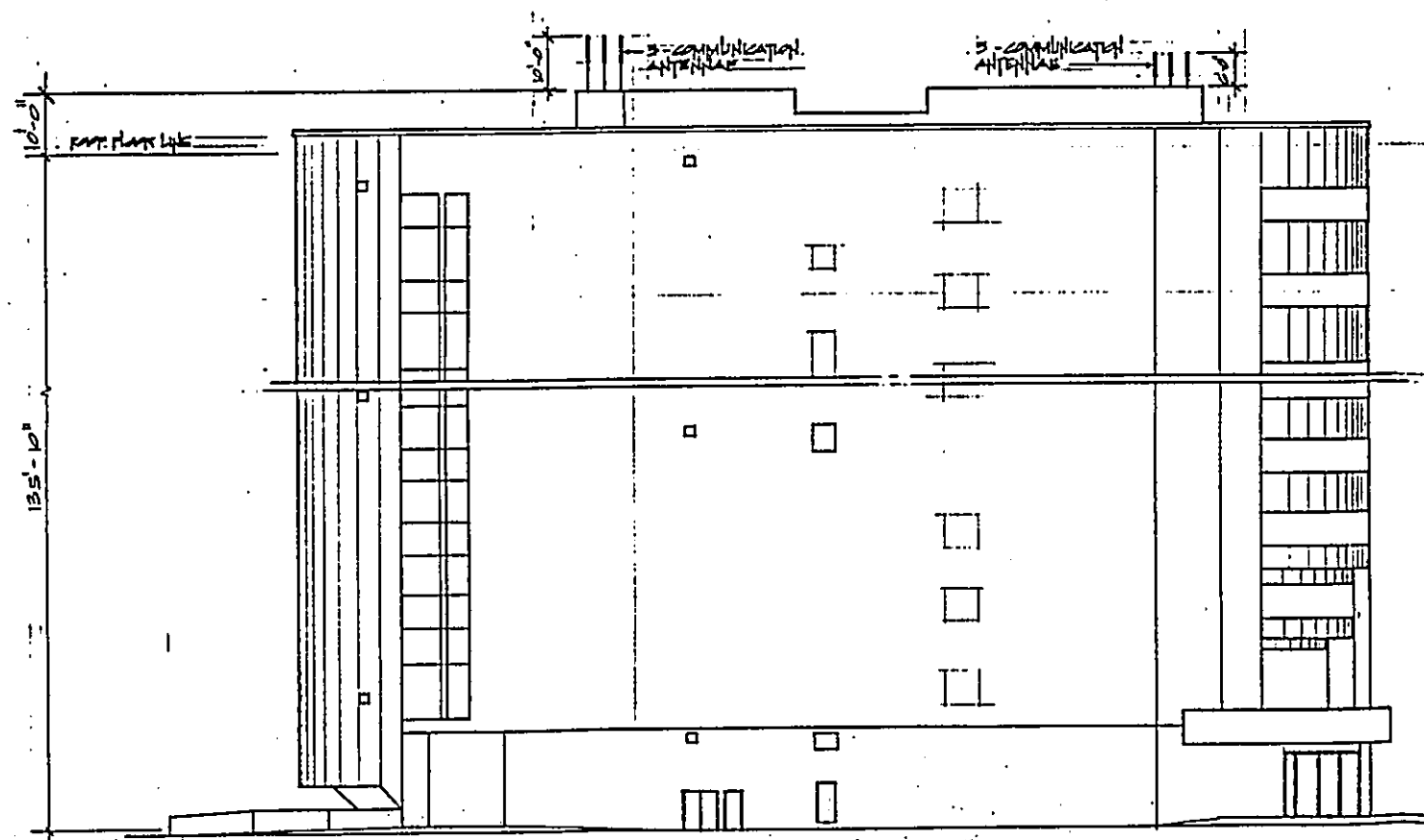
**A ROOF LEVEL FLOOR PLAN**  
A-2 1/8" = 1'-0"

1996 MAY -8

DEPT. OF LAND U  
CITY & COUNTY OF



D WEST SIDE ELEVATION (Beach Walk)  
A-B 1/16" = 1'-0"

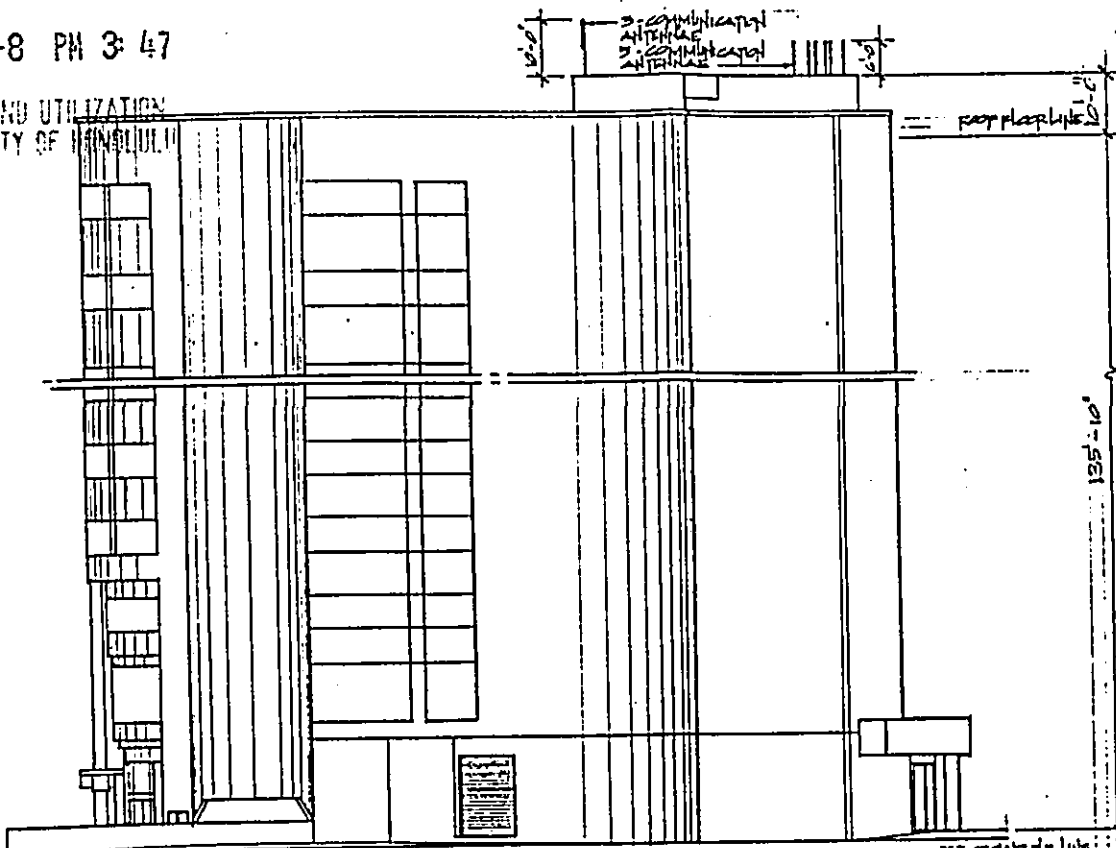


B EAST SIDE ELEVATION  
A-B 1/16" = 1'-0"

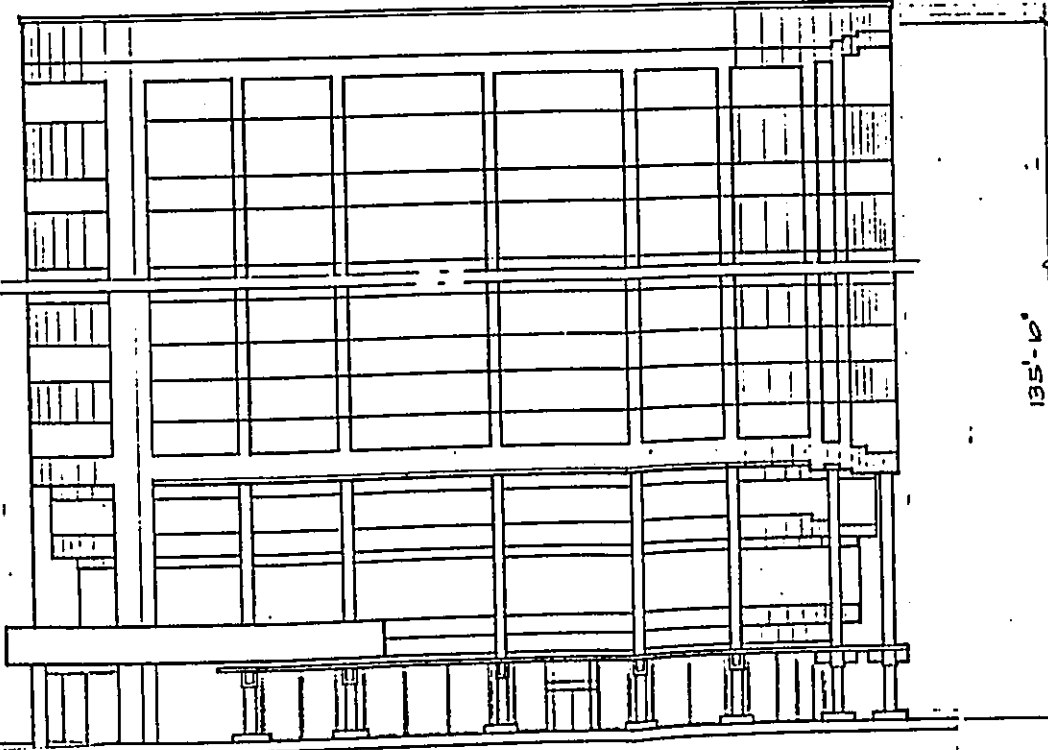


1996 MAY -8 PM 3:47

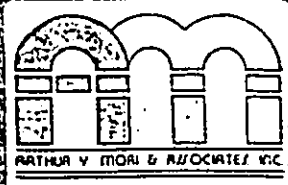
DEPT. OF LAND UTILIZATION  
CITY & COUNTY OF HONOLULU



(C) SOUTH SIDE ELEVATION  
A-3 1/16"=1'-0"



(A) NORTH SIDE ELEVATION (Kalakaua Avenue)  
A-3 1/16"=1'-0"



ARTHUR V. MORI & ASSOCIATES, INC.

ARCHITECTS/PA  
1314 SOUTH KING/ SUITE 955  
HONOLULU HAWAII 96814

**PCS PrimeCo, L.P. - Cell Site**  
A N A Kalakaua Center  
2155 Kalakaua Avenue  
Honolulu, Hawaii  
T.M.K. #2 - 6 - 3 : 17, 18 & 20

SHEET TITLE  
BUILDING ELEVATIONS



This work was prepared by me or under my supervision and construction of this project will be under my direct supervision. Supervision of construction is defined in Section 1-2.1 of the Rules and Regulations of the Board of Professional Engineers, Architects and Surveyors of the State of Hawaii.

NOTE  
Contractor to check and verify all dimensions of job before proceeding with work.

NO.	REVISION

SHEET  
**A-3**  
DATE 11 July '92  
3 OF 5 SHEETS

76-01366

BENJAMIN J. CAYETANO  
GOVERNOR



GARY GILL  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET  
FOURTH FLOOR  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 586-4185  
FACSIMILE (808) 586-4186

DEPT. OF LAND UTILIZATION  
CITY & COUNTY OF HONOLULU  
MAR 7 AM 10:22

March 5, 1996

Patrick K. Onishi, Director  
Department of Land Utilization  
650 South King Street  
Honolulu, Hawaii 96813

Attention: Dana Teramoto

Dear Mr. Onishi:

RE: Draft Environmental Assessment (EA) for Telecommunications Site at ANA  
Kalakaua Center, Waikiki; TMK 2-6-3: 17, 18 & 20

In the final EA please include the following:

1. A map of the island indicating the project location.
2. If the project is located in the Special Management Area or in the Shoreline Setback indicate the status of the permit(s).
3. Provide a list of agencies and any community groups contacted.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

GARY GILL  
Director

GG/nh

c: Jeffrey Mori

May 8, 1996

1314 SOUTH KING / SUITE 955  
HONOLULU, HAWAII 96814  
PHONE (808) 596-2421  
FAX (808) 591-2414

**ARTHUR MORI & ASSOCIATES, INC.**  
ARCHITECTS AIA

Office of Environmental Quality Control  
220 S. King Street, 4th Floor  
Honolulu, Hawaii 96813

Attention: Mr. Gary Gill  
Director

Subject: Final Environmental Assessment (EA)  
for  
Telecommunications Site at ANA Kalakaua Center, Waikiki  
TMK: 2-6-3: 17, 18 & 20

Gentlemen:

We are in receipt of copy of your letter addressed to the Department of Land Utilization dated 3/5/96. We offer the following responses to your comments:

- Comment #1: A map of the island indicating the project location is provided in the final Environmental Assessment.
- Comment #2: The project location is not located within the Special Management Area or Shoreline Setback.
- Comment #3: A list of agencies and community groups contacted regarding project is provided in the final Environmental Assessment.

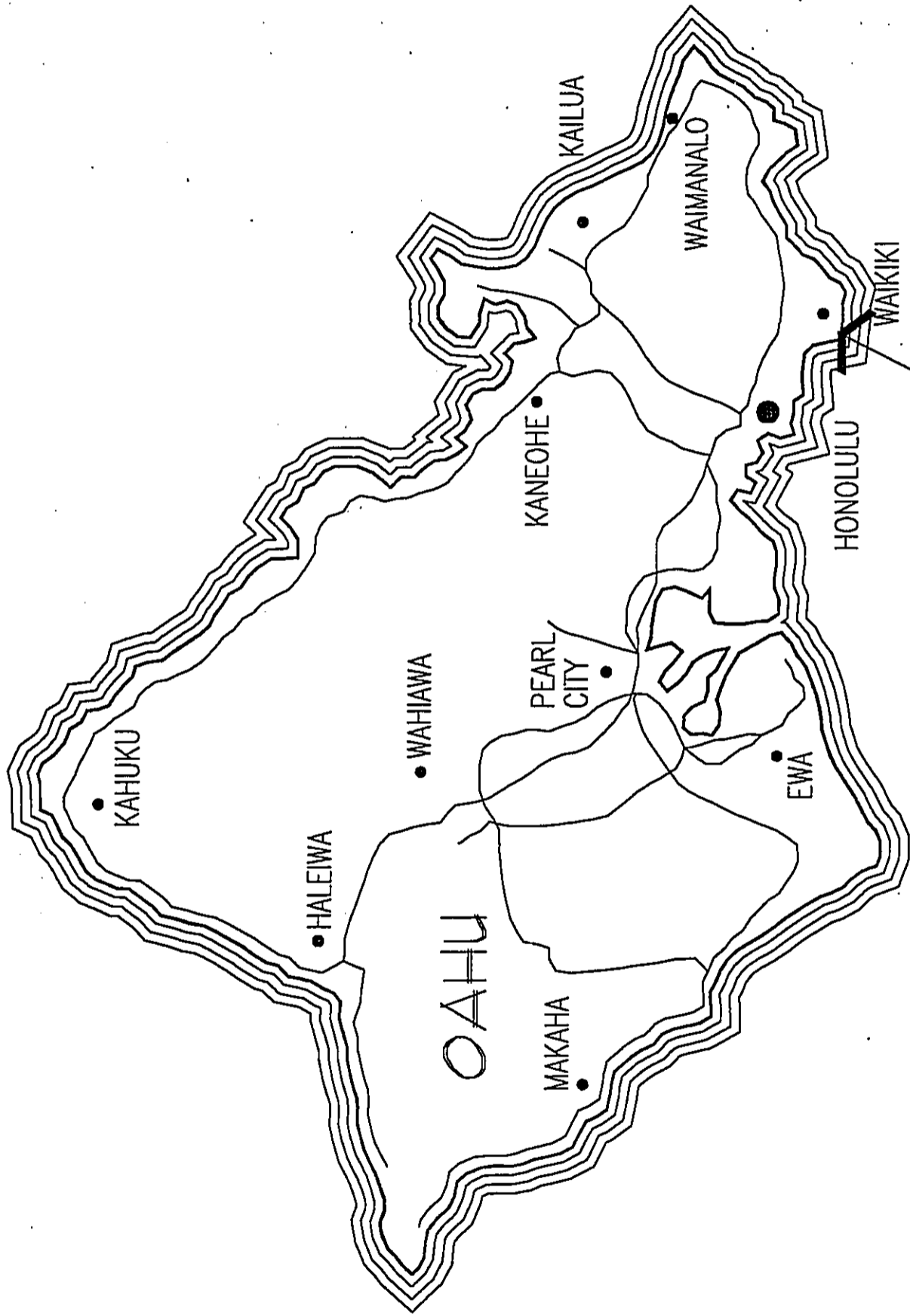
If you have any questions, please call.

Sincerely,

ARTHUR Y. MORI & ASSOCIATES, INC.

  
Jeffrey Y. Mori, A.I.A.

JYM:ljh



PROJECT LOCATION

List of Agency Contacted:

Waikiki Improvement Assn.  
Suite 703  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96815

Waikiki Oahu Visitors Assn.  
Suite 477  
1001 Bishop Street  
Honolulu, Hawaii 96815

Hawaii Visitors Bureau  
Suite 801  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96813

Hawaii Hotel Association  
Suite 1103  
2270 Kalakaua Avenue  
Honolulu, Hawaii 96813

Honolulu Police Department  
801 South Beretania Street  
Honolulu, Hawaii 96813

American Red Cross  
4155 Diamond Head Road  
Honolulu, Hawaii 96816

Oahu Civil Defense Agency  
650 South King Street  
Honolulu, Hawaii 96813

State Civil Defense Agency  
3949 Diamond Head Road  
Honolulu, Hawaii 96816

F.E.M.A.  
T112 Fort Shafter  
Honolulu, Hawaii 96819

Honolulu Fire Department  
3375 Koapaka Street  
Honolulu, Hawaii 96819

# LIFE OF THE LAND

HAWAII'S OWN ENVIRONMENTAL ACTION GROUP  
EDUCATION, RESEARCH, LOBBYING & LITIGATION  
PROTECTING HAWAII'S FRAGILE ENVIRONMENT

April 4, 1996

Dana Teramoto  
City & County of Honolulu  
Department of Land Utilization  
650 S King St, 7th floor  
Honolulu, HI 96813

Ted Tsagris  
PCS Prime Co, L.P.  
Pauahi Tower  
1001 Bishop Street, Suite 955  
Honolulu, Hawaii 96814

Jeffrey Mori  
1314 South King St, Suite 955  
Honolulu, HI 96814

## Draft Environmental Assessment (EA):

pg	1	Cover Sheet	pg	7	Major Impacts
	2-3	Table of Contents		8-11	Maps, Diagrams
	4	Company, Agent, TMK etc		12	Antenna Description
	5-6	Description		13	Certificate
	6-7	Summary			

Entire Environmental Description "...the fact that the proposed improvements will barely affect the appearance of the rooftop. The majority of the improvements will be done on the interior of the existing stair penthouse enclosure, therefore the exterior view of the rooftop will largely remain the same. The proposed rooftop antenna and telecommunication equipment will not impact public facilities, such as sewer and water and will have no impact on traffic... The roof access is restricted by a locked door. ... The proposed project will not alter the character of nor will it impact the surrounding area...100 watts, exclusion distance = 9.17 feet."

Actual Description This microwave booster station will be one of 60-80 stations throughout Oahu, hooked up to microwave antennae on the Koolau and Waianae Mountains. Cellular phones and pagers will hook into the booster stations via a non-microwave frequency. This will be one of 3-7 systems being installed by competing telecommunication companies. The major threat to the environment comes from two sources: (1) the health of people living in close proximity to booster stations; and (2) the combined effect of microwaves being generated from 400 units island-wide.

Health issues relating to microwaves have recently come under assault from a number of sources including police using radar guns.

San Jose and San Diego have imposed moratoriums on microwave installations. San Jose has asked the FCC and Pacific Bell to address health issues regarding microwaves. Honolulu Star-Bulletin. March 2, 1996. pages A1,6.

"The proposition that microwaves can have nonthermal effects is now widely accepted, even though it lacks a mechanical explanation. Until we understand how microwave radiation interacts with living systems the public will continue to be suspicious and the microwave problem will continue to be with us." Louis Slesin. Editor, Microwave News (a trade publication costing \$280/year for 6 issues).

"In Honolulu, the city already has approved some of the permit requests for VoiceStream to install its antennas, a Honolulu government spokeswoman said. But she admitted the city did not consider health issues in evaluating the requests - it looked at structural, technical and zoning matters - and was surprised to learn about the San Jose controversy. [significance added] Honolulu Star-Bulletin. March 2, 1996. pages A1,6. "Officials are continuing to process permits despite studies that have raised health concerns." Honolulu Star Bulletin. March 7, 1996. page C1.

The industry is growing by leaps and bounds. Microwave salesmen are racing to complete several Statewide networks of 60-80 booster sites each. The salesmen are hustling condominiums, stores, and private homeowners to install booster stations. Each site owner can make between \$0-\$2500/month. Roof and backyard antennas four feet tall affect residents in the immediate area.

No federal agency is charged with regulating the health effects of EMFs. Congress is assaulting the EPA's funding of researching the problem. No state agency is regulating the industry. The industry is pleased since everything is OK according to industry studies and industry standards.

Rooftop Cellular Antennas Pose Localized Health Risks. Richard Tell, in a report prepared for the FCC. the maximum keep-out distance is 18-20 feet for a cellular phone installation. Microwave News. November/December 1995. Opposition to Communication Towers on the Rise in the U.S. and Around the World. Microwave News November/December 1995 page 12.

The issue of microwave safety should have been addressed in the DEA. Since it was not, the public can not adequately understand what is being proposed, and what the risks are. Therefore Life of the Land requests an EIS to clear up this matter.

*Henry Q Curtis*

Henry Q Curtis  
Executive Director

**PRIMECO PERSONAL COMMUNICATIONS, L.P.**

First Hawaiian Tower  
1132 Bishop Street, Suite 1105  
Honolulu, Hawaii 96813  
Telephone (808)566-9400  
Fax (808) 566-9570

May 8, 1996

Mr. Patrick T. Onishi, Director  
Department of Land Utilization  
City and County of Honolulu  
650 S. King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Attention: Dana Teramoto

Re: Proposed PrimeCo Telecommunications Site at ANA Kalakaua Center  
TMK: 2-6-3:17, 18 & 20

Dear Mr. Onishi:

We are in receipt of Life of the Land's letter of April 4, 1996 and have reviewed their comments with great consideration. Without exception, Life of the Land's concern focuses on health related issues with respect to microwave antennae relative to the environment. Life of the Land states "The major threat to the environment comes from two sources: (1) the health of people living in close proximity to booster stations; and (2) the combined effect of microwaves...island-wide."

In this regard, it is the position of our company that the Federal Telecommunications Act of 1996 (which was signed into law by President Clinton on February 8<sup>th</sup> of this year) prohibits a State or local government from regulating "the placement, construction, and modification of personal wireless service facilities on the basis of environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications Commission's] regulations concerning such emissions."

Notwithstanding the federal prohibition of regulation in this area, however, we sought the expertise of Arthur Guy, Ph.D., Bioelectromagnetics Consulting and Emeritus Professor, of the University of Washington to specifically address the health and safety issues relative to our proposed telecommunications antennae installation at ANA Kalakaua Center. In addition to being a noted academician, Dr. Guy is highly regarded and recognized by telecommunications companies and governmental agencies throughout the country as a leading scientist in the area of radio frequency energy. A copy of Dr. Guy's report "Analysis of Potential Health Effects of Radio-Frequency Electromagnetic Radiation From The Proposed PrimeCo ANA Kalakaua Center Site, Waikiki, Hawaii " is attached for your review.



Mr. Patrick T. Onishi, Director  
Ms. Dana Teramoto, Planner  
Department of Land Utilization  
May 8, 1996  
Page -2-

Life of the Land also raised the issue that microwave safety was not addressed in the draft Environmental Assessment. Contrary to Life of the Land's statement that "No federal agency is charged with regulating the health effects of EMFs...No state agency is regulating the industry", we would like to point out the FCC requires that licensees and manufacturers ensure that their facilities and equipment comply with safety levels with respect to human exposure to radio frequency electromagnetic fields ranging from 3 kHz to 300 GHz. We have complied with FCC rule 47 C.F.R. 24.52(a) in that the equipment which we propose to install complies such FCC regulations. (Please see attached letter dated April 19, 1996 from the FCC Compliance and Information Bureau)

It is our view of course, that we anticipate the determination that a negative declaration will be issued since our proposal for a use variance to allow a utility installation (Type B) is similar to Case No. 95/VAR-46, which was approved January 12, 1996.

If you have any questions or comments, I am available at your convenience.

Very truly yours,



Ted D. Tsagris  
Property Administrator

cc: Mr. Henry Q. Curtis  
Executive Director  
Life of the Land  
1111 Bishop Street, Suite 511  
Honolulu, HI 96813

**Analysis of Potential Health Effects of Radio-Frequency Electromagnetic Radiation From The  
Proposed PrimeCo ANA Kalakaua Center PCS Site, Waikiki, HI**

by

**Arthur W. Guy, Ph.D.  
Bioelectromagnetics Consulting  
and Emeritus Professor  
University of Washington  
18122 60th PL NE  
Seattle, Washington 98155  
May 8,, 1996**

**Summary**

This is a report of the estimated radio frequency (RF) power densities and potential health effects to residents in the vicinity of the proposed PrimeCo ANA Kalakaua Center Personal Communications Service (PCS) antenna site after installation of 3 transmitting antennas and 5 receiving antenna on the the roof on the center at from 149.3 to 153.3 feet above ground level. The report was requested by Mr. Calvert Chun of P.C.S. PrimeCo, L.P., Pauahi Tower, 1001 Bishop Street, Suite 710 , Honolulu, HI 96813. The purpose of this report is to 1) quantify in detail the worst case radiation levels at 6 feet or above the roof of the highest building in the immediate vicinity of the site, and 2) compare the radiation levels with existing U.S. maximum permissible human exposure standards and the thresholds for biological effects based on the consensus of various standards setting groups after analysis of the peer reviewed scientific literature and the levels of the lowest reported biological effects. The description of the site and antenna characteristics are described in drawings and antenna characteristics sent to the author by Mr Chun. The proposed transmitting antennas consist of 3 Decibel Model DB980H65E-M directional panel antennas mounted on top of penthouses located on the roof of the building site.. The reference point for all calculations is the corner receiving antenna on the northeast corner of the penthouse on the easternmost corner of the ANA building shown in figure 1. The drawing provides a contour plot of the calculated radiation levels given in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The values were calculated at a height of 6 feet above the roof of the highest nearby building, the Holiday Isle Hotel so as to correctly indicate the maximum exposure that a standing person would experience on the roof of the building. The levels of radiation above the roof would represent the worst case public exposure. The levels would be significantly less at the roofs and floors of lower elevation buildings and the ground.

PrimeCo ANA Bldg PCS Analysis May 8, 1996

2

The detailed analysis has shown that the calculated worst case maximum possible public exposure will be  $0.70 \mu\text{W}/\text{cm}^2$  or less at 6 feet above the roof of the Holiday Isle Hotel. This value is only 0.054% of the allowed general population exposure standards of this country.

#### 1.0 Calculated Results

All calculated levels of radiation from the proposed PrimeCo site were found to be 1) below the thresholds of harmful biological effects as determined by a consensus of various scientists in this country after review in the peer reviewed published literature and 2) below all of the nation wide or local governmental maximum permitted human exposure standards for the general population of the country as well as of those of the rest of the world.

The calculations are based on worst case conditions which would never occur in practice. To meet these conditions it is assumed that the antenna is continually in operation, radiation levels at various directions outside the main antenna beams are derived from the maxima of the nearest side lobes of the antenna radiation patterns, that highest possible reflections from the ground and nearby objects add in phase to produce maximum constructive interference at each point where calculations are made. The analysis essentially ignores the presence of nulls in the radiation and reflection patterns. It should be kept in mind that with these assumptions the calculated values represent an upper limit that would be impossible to exceed and actual values would be from 10 to 100 times less depending on many conditions that are impossible to predict. Based on these worst case conditions the calculated levels of public exposure are well below the exposure standards and accepted threshold levels for biological effects as shown in bar graph in figure 2. The comparison of the radiation levels with the thresholds of biological effects and USA safety guidelines is shown in a logarithmic bar graph of figure 2. It should be kept in mind that the logarithmic graph is distorted to better show quantitatively how the extremely low radiation levels compare with safe exposure standards. The first 3 bars in figure 2 indicate the 1960 MHz exposure power densities that correspond to the specific absorption rate of energy (SAR) thresholds for harmful biological effects in humans as estimated by major national groups concerned about nonionizing radiation and human safety. They include the American National Standards Institute (ANSI) (1), National Council of Radiation Protection and Measurements (NCRP) (2) and the Institute of Electrical and Electronic Engineers (IEEE) (3) that estimate the thresholds for effects as  $65,333 \mu\text{W}/\text{cm}^2$  (2, 3); the National Institute of Occupational Safety and

PrimeCo ANA Bldg PCS Analysis May 8, 1996

3

Health (NIOSH) that estimates the threshold for harmful effects as  $32,666 \mu\text{W}/\text{cm}^2$  (4) and the Environmental Protection Agency (EPA) that estimates the threshold of effects (not necessarily classified as harmful) at  $16,333 \mu\text{W}/\text{cm}^2$  (5). Thus there is a four to one variation in the estimates of the thresholds of biological effects by various national organizations. The next three bars in the figure correspond to safe exposure levels set by various organizations for the general population or uncontrolled exposures. The NCRP (2), State of Massachusetts (7), IEEE/ANSI (3) and many local governments (6-8) including King County, WA, as well as other countries recommend a standard of  $1307 \mu\text{W}/\text{cm}^2$  which corresponds to a safety factor of 50. The EPA at one time proposed four possible options; 6.533, 1307, 653  $\mu\text{W}/\text{cm}^2$  or no standard at all (9). They have currently decided the latter. It is clear from these comparisons that the calculated values are well below even the most conservative standards of the United States.

In addition to the thresholds of biological effects that have been verified by a broad consensus of national and international scientific groups, there have been some reported low level effects that remain controversial in nature and not sufficiently acceptable for standards setting by the major scientific standard setting organizations of the world. Figure 3 illustrates how the thresholds of these low level effects compare with the accepted levels and the worst case calculated level of radiation power density at the proposed PrimeCo PCS site. The values, based on research on laboratory animals have been adjusted to correspond to the radiation levels that would produce the same specific absorption rate (SAR) of energy in man as measured or calculated for the exposed experimental animals. The first bar at the left of the figure denotes the threshold of harmful effects accepted as a basis for the major exposure standards of this country. The second bar denotes radiation levels for a class of reported low level effects on rat brain chemistry, reported (but not verified) increases in cancer and reported (but not verified) DNA strand breaks. The third bar denotes radiation levels where no long term effects were seen in workers of the old Soviet Union upon which the old Soviet and present Russian standard (the lowest allowed exposure level in the world) was based. The fourth bar denotes the human exposure level to special modulated waves corresponding to energy levels reported to cause increased calcium efflux from isolated chick brains. Finally the fifth bar denotes the human exposure level that corresponds to the lowest energy reported to cause biological effects which resulted from research in the old USSR. It can clearly be seen from the two bars at the right of the graph that the worst case calculated radiation levels at the proposed PrimeCo PCS site are 70 times below the thresholds of the controversial lowest level reported biological effects in the world and 151,500 times below what is considered

PrimeCo ANA Bldg PCS Analysis May 8, 1996

4

by the expert safety standards setting committees in this country as the threshold of potential harm from exposures to PCS frequencies.

Radiation from the proposed PCS site may be put into perspective by comparing it with the radiation from other common radio sources as shown in figure 4. The highest levels of exposure of large populations are associated with operation of citizen's band radio which results in intensities from 5 to 1,000 microwatts per square centimeter. Radiation of individuals near small boat radars are as high as 5 microwatts per square centimeter. Radiation from microwave ovens varies from as little as 1 microwatt per square centimeter at 10 feet to 10 microwatts per square centimeter at a distance of 5 feet. Radiation from television stations can vary from 1 microwatt per square centimeter in the suburbs, to as high a 100 microwatts per centimeter in downtown city buildings. Radiation from hand-held radios such as used by police, firemen, airport personnel, amateur radio operators, and others will emit 1 microwatt per square centimeter at a distance of 10 feet and 5 microwatts per square centimeter at a distance of 5 feet. In comparison, the calculated maximum worst case radiation from the proposed PrimeCo PCS installation is 0.70

The computer calculations were reduced to a contour plot of radiation levels at 136 feet above the ground or 6 feet above the roof of the Holiday Osle Hotel. The contours are plotted at levels of 0.05 microwatts per square centimeter apart on the graph in figure 1 with a scale of 1 inch equals 60 feet.

Table 1 tabulates the antenna characteristics that were used to calculate the power densities. The first column gives the antenna number, the second column gives the antenna length, the third column also identifies the antenna number, the fourth column identifies the type of antenna, the fifth column gives the frequency, the 6th column gives the azimuth of the antenna position with respect to the reference point, the 7th column is the horizontal distance between the antenna and the reference, the 8th column gives the antenna height above the reference, the 9th column gives the effective radiated power of the antenna, the 10th column gives the antenna gain, the 11th column gives the azimuth of the antenna main beam where applicable and the last column gives the elevation angle of the antenna main beam. A sample of the highest calculated values of power density in  $\mu\text{W}/\text{cm}^2$  used for plotting figure 1 are tabulated in Table 2. The first 3 rows of the table provide data for locations at 136 feet above the ground at the proposed PrimeCo PCS site. The remaining rows correspond to calculations made for locations 136.0 feet above the ground and 10 feet apart in a rectangular grid. Positions are given in terms of distances east and north of the

PrimeCo ANA Bldg PCS Analysis May 8, 1996

5

antenna mast. The first column of Table 2 gives the distance (in feet) from the reference at the northeast corner of the easternmost penthouse on the roof of the ANA Building and the point of calculated power density in the easterly direction denoted by positive values and westerly direction denoted by negative values, the second column gives the distance from the reference to the point of calculated power density in the northerly direction denoted by positive values and southerly direction denoted by negative values, the third column gives the azimuth, the fourth column gives the distance and the fifth column gives the elevation of each point from the reference at which power densities were calculated. The next 3 columns give the calculated power densities contributed by each of the 3 antennas. The next column gives the total accumulated power density contributed by all three antennas and the last two columns give the percentages of the total calculated power density to the allowed occupational exposure (%OCCUP) and the allowed general population exposure (%GENPOP). All of the calculations for the contour plot in figure 1 are not included in the table since the data would be too voluminous to include in this report.

## 2.0 Theoretical Analysis of Antenna Radiation

From standard antenna theory, the incident power density PD in the far zone field of any antenna is expressed as

$$PD = \frac{1.84P [F_v(\theta)F_h(\phi)]}{4\pi r^2} \quad (1)$$

where P is the total effective radiated power compared to a half wave dipole,  $F_v(\theta)$  is the relative vertical power pattern,  $F_h(\phi)$  is the relative horizontal power pattern,  $\theta$  is the vertical angle measured from the horizon,  $\phi$  is the zenith angle measured in a horizontal direction from the main antenna beam, and r is the distance from the antenna.

With the presence of the ground there can be reflections causing both destructive and constructive interference. Since the reflected waves may add in phase with the primary wave at some locations, the power density could reach a maximum of up to 4 times that of the incident

PrimeCo ANA Bldg PCS Analysis May 8, 1996

6

wave. Thus for purposes of safety evaluation it is prudent to include this reflection coefficient by modification of equation (1) to give

$$PD = \frac{1.64P [F_v(\theta)F_h(\phi)]}{\pi r^2} \quad (2)$$

REFERENCES:

1. ANSI, (1982), American National Standard - Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz, ANSI C95.1-1982, IEEE, New York, NY
2. NCRP, (1986) Report No. 86, Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields, NCRP Publications 7910 Woodmont Avenue, Suite 1016 Bethesda, Maryland 20814
3. Institute of Electrical and Electronics Engineers, (1992) "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", IEEE Standards Coordinating Committee SCC28 on Non-Ionizing Radiation Hazards, IEEE C95.1-1991, Approved September 26, 1991, IEEE Standards Board.
4. Lary, et al., (1985) Assessment of the Biological Effects of Radiofrequency Radiation, U.S Dept of Health and Human Services Public Health Services, Physical Agents Effects Branch, 4676 Columbia Parkway Cincinnati, Ohio 45226, 1985, Poster session paper J-60, The Bioelectromagnetics Society Seventh Annual Meeting.
5. Elder, J.A. D.F. Cahill, "Biological Effects of Radiofrequency Radiation", United States Environmental Protection Agency, EPA-600/8-83-026F, Final Report September 1984.
6. New Jersey State Commission on Radiation Protection (1984) Bureau of Radiation Protection Radio Frequency Radiation Adopted New Rule. N.J.A.C. 7:28-427.
7. Commonwealth of Massachusetts, (1983) 105 CMR 122.000: Regulations governing fixed facilities which generate electromagnetic fields in the frequency range of 300 KHz to 100 GHz and microwave ovens. Massachusetts Register Issue No. 379, Sept. 1983.
8. Multnomah County, Oregon (1982) An Ordinance amending the Zoning Ordinance regarding radio and television transmission Towers. Ordinance No. 3309.
9. Notice Concerning the Federal Radiation Protective Guidance; Proposed Alternatives for Controlling Public Exposure to Radio Frequency Radiation, Federal Register, Wednesday, July 30, 1986. Vol. 51, No 146.

TABLE 1. CHARACTERISTICS OF ANA KALAKAUA CENTER RCS SITE ANTENNAS USED IN POWER DENSITY CALCULATIONS  
(DATE 7-MAY-96, Azimuth and horizontal distances given with reference at corner antenna)

Ant No.	Length of Ant (feet)	Antenna	Antenna Type	Freq. (MHz)	Azimuth Res Ref (deg)	Dist. From R of Ant (feet)	Height of Ant (feet)	Eff Rad Power (kW)	Gain (dip) (db)	Azim of Beam (deg)	Elev of Beam (deg)
1	5.0	GROUP C	DECIBEL DB989H65E-M	1960.000	334.0	3.0	149.3	0.1000	16.50	45.0	-2.0
2	5.0	GROUP D	DECIBEL DB989H65E-M	1960.000	224.0	3.0	149.3	0.1000	16.50	125.0	-2.0
3	5.0	GROUP E	DECIBEL DB989H65E-M	1960.000	239.0	106.0	153.3	0.1000	16.50	305.0	-2.0



TABLE 2. CALCULATED POWER DENSITY AT VARIOUS LOCATIONS NEAR ANTENNAS OF ANA KALAKAUA CENTER PERSONAL COMMUNICATIONS SITE

(DATE 7-MAY-96, Azimuth and horizontal distances given with reference at corner antenna)

E (ft)	N (ft)	AZIM. (deg)	DIST. (ft)	ELEV.	POWER DENSITY (microwatts per square centimeter)					ALL	%OCCUP	%GENPOP
					GROUP A	GROUP B	GROUP C	GROUP D	GROUP E			
-350.0	110.0	287.4	366.9	136.0	0.00E+00	0.00E+00	5.70E-04	1.42E-05	5.02E-01	5.02E-01	0.00769	0.03845
-340.0	110.0	287.9	357.4	136.0	0.00E+00	0.00E+00	6.24E-04	1.70E-05	5.22E-01	5.22E-01	0.00799	0.03996
-330.0	110.0	288.4	347.9	136.0	0.00E+00	0.00E+00	6.95E-04	1.78E-05	5.37E-01	5.38E-01	0.00823	0.04117
-320.0	110.0	289.0	338.4	136.0	0.00E+00	0.00E+00	7.63E-04	1.11E-05	5.60E-01	5.61E-01	0.00858	0.04290
-310.0	110.0	289.5	328.9	136.0	0.00E+00	0.00E+00	7.26E-04	2.02E-05	5.75E-01	5.76E-01	0.00882	0.04410
-300.0	110.0	290.1	319.5	136.0	0.00E+00	0.00E+00	8.04E-04	1.60E-05	5.88E-01	5.88E-01	0.00901	0.04504
-290.0	110.0	290.8	310.2	136.0	0.00E+00	0.00E+00	8.10E-04	2.04E-05	6.02E-01	6.03E-01	0.00923	0.04615
-280.0	110.0	291.4	300.8	136.0	0.00E+00	0.00E+00	8.97E-04	3.49E-05	6.05E-01	6.06E-01	0.00928	0.04639
-270.0	110.0	292.2	291.5	136.0	0.00E+00	0.00E+00	1.02E-03	3.59E-05	6.12E-01	6.13E-01	0.00939	0.04693
-260.0	110.0	292.9	282.3	136.0	0.00E+00	0.00E+00	1.07E-03	3.35E-05	6.07E-01	6.08E-01	0.00931	0.04656
-250.0	110.0	293.7	273.1	136.0	0.00E+00	0.00E+00	1.15E-03	2.70E-05	6.00E-01	6.02E-01	0.00921	0.04604
-240.0	110.0	294.6	264.0	136.0	0.00E+00	0.00E+00	1.28E-03	3.30E-05	5.78E-01	5.79E-01	0.00886	0.04431
-230.0	110.0	295.6	255.0	136.0	0.00E+00	0.00E+00	1.36E-03	1.83E-05	5.53E-01	5.55E-01	0.00849	0.04246
-220.0	110.0	296.6	246.0	136.0	0.00E+00	0.00E+00	1.65E-03	2.66E-05	5.20E-01	5.21E-01	0.00798	0.03990
-210.0	110.0	297.6	237.1	136.0	0.00E+00	0.00E+00	1.81E-03	1.93E-05	4.71E-01	4.73E-01	0.00723	0.03617
-200.0	110.0	298.8	228.3	136.0	0.00E+00	0.00E+00	1.99E-03	2.97E-05	4.33E-01	4.35E-01	0.00666	0.03329
-190.0	110.0	300.1	219.5	136.0	0.00E+00	0.00E+00	2.09E-03	1.92E-05	3.84E-01	3.86E-01	0.00591	0.02956
-180.0	110.0	301.4	211.0	136.0	0.00E+00	0.00E+00	2.19E-03	2.48E-05	3.36E-01	3.38E-01	0.00517	0.02587
-170.0	110.0	302.9	202.5	136.0	0.00E+00	0.00E+00	2.43E-03	2.18E-05	2.86E-01	2.88E-01	0.00441	0.02205
-160.0	110.0	304.5	194.2	136.0	0.00E+00	0.00E+00	2.91E-03	2.96E-05	2.38E-01	2.41E-01	0.00369	0.01847
-150.0	110.0	306.3	186.0	136.0	0.00E+00	0.00E+00	2.94E-03	2.29E-05	1.96E-01	1.99E-01	0.00304	0.01519
-140.0	110.0	308.2	178.0	136.0	0.00E+00	0.00E+00	3.12E-03	2.47E-05	1.57E-01	1.60E-01	0.00246	0.01228
-130.0	110.0	310.2	170.3	136.0	0.00E+00	0.00E+00	3.57E-03	2.67E-05	1.23E-01	1.27E-01	0.00194	0.00971
-120.0	110.0	312.5	162.8	136.0	0.00E+00	0.00E+00	4.16E-03	1.58E-05	9.41E-02	9.83E-02	0.00150	0.00752
-110.0	110.0	315.0	155.6	136.0	0.00E+00	0.00E+00	4.64E-03	1.97E-05	7.06E-02	7.53E-02	0.00115	0.00576
-100.0	110.0	317.7	148.7	136.0	0.00E+00	0.00E+00	5.35E-03	1.12E-05	5.32E-02	5.86E-02	0.00090	0.00448
-90.0	110.0	320.7	142.1	136.0	0.00E+00	0.00E+00	5.98E-03	6.49E-06	3.97E-02	4.57E-02	0.00070	0.00350
-80.0	110.0	324.0	136.0	136.0	0.00E+00	0.00E+00	7.76E-03	1.61E-05	2.85E-02	3.63E-02	0.00055	0.00277
-70.0	110.0	327.5	130.4	136.0	0.00E+00	0.00E+00	9.53E-03	2.71E-05	2.23E-02	3.19E-02	0.00049	0.00244

TABLE 2. CALCULATED POWER DENSITY AT VARIOUS LOCATIONS NEAR ANTENNAS OF ANA KALAKAUA CENTER PERSONAL COMMUNICATIONS SITE (cont)

(DAVE 7-MAY-96, Azimuth and horizontal distances given with reference at corner antenna)

E (ft)	N (ft)	AZIM. (deg)	DIST. (ft)	ELEV. (ft)	POWER DENSITY (microwatts per square centimeter)					ALL	%OCCUP	%GENPOP
					GROUP A	GROUP 3	GROUP C	GROUP D	GROUP E			
-60.0	110.0	331.4	125.3	136.0	0.00E+00	0.00E+00	1.19E-02	4.96E-05	1.64E-02	2.84E-02	0.00043	0.00217
-50.0	110.0	335.6	120.8	136.0	0.00E+00	0.00E+00	1.60E-02	6.52E-05	1.21E-02	2.82E-02	0.00043	0.00216
-40.0	110.0	340.0	117.0	136.0	0.00E+00	0.00E+00	2.12E-02	1.15E-04	9.40E-03	3.07E-02	0.00047	0.00235
-30.0	110.0	344.7	114.0	136.0	0.00E+00	0.00E+00	2.90E-02	1.56E-04	7.18E-03	3.64E-02	0.00056	0.00278
-20.0	110.0	349.7	111.8	136.0	0.00E+00	0.00E+00	4.12E-02	1.78E-04	5.71E-03	4.71E-02	0.00072	0.00360
-10.0	110.0	354.8	110.5	136.0	0.00E+00	0.00E+00	5.92E-02	2.28E-04	4.21E-03	5.36E-02	0.00097	0.00487
0.0	110.0	0.0	110.0	136.0	0.00E+00	0.00E+00	8.48E-02	2.20E-04	3.60E-03	8.86E-02	0.00135	0.00678
10.0	110.0	5.2	110.5	136.0	0.00E+00	0.00E+00	1.29E-01	3.27E-04	2.94E-03	1.33E-01	0.00203	0.01015
20.0	110.0	10.3	111.8	136.0	0.00E+00	0.00E+00	1.93E-01	4.01E-04	2.35E-03	1.96E-01	0.00300	0.01498
30.0	110.0	15.3	114.0	136.0	0.00E+00	0.00E+00	2.80E-01	6.22E-04	1.72E-03	2.83E-01	0.00433	0.02164
40.0	110.0	20.0	117.0	136.0	0.00E+00	0.00E+00	3.89E-01	8.23E-04	1.72E-03	3.92E-01	0.00600	0.02999
50.0	110.0	24.4	120.8	136.0	0.00E+00	0.00E+00	5.19E-01	1.15E-03	1.53E-03	5.21E-01	0.00798	0.03990
60.0	110.0	28.6	125.3	136.0	0.00E+00	0.00E+00	6.64E-01	1.70E-03	1.42E-03	6.67E-01	0.01021	0.05105
70.0	110.0	32.5	130.4	136.0	0.00E+00	0.00E+00	8.00E-01	2.75E-03	1.16E-03	8.04E-01	0.01230	0.06152
80.0	110.0	36.0	136.0	136.0	0.00E+00	0.00E+00	9.20E-01	4.05E-03	1.04E-03	9.25E-01	0.01416	0.07081
90.0	110.0	39.3	142.1	136.0	0.00E+00	0.00E+00	1.01E+00	6.30E-03	8.66E-04	1.02E+00	0.01558	0.07788
100.0	110.0	42.3	148.7	136.0	0.00E+00	0.00E+00	1.08E+00	9.24E-03	7.07E-04	1.09E+00	0.01673	0.08363
110.0	110.0	45.0	155.6	136.0	0.00E+00	0.00E+00	1.11E+00	1.33E-02	6.94E-04	1.12E+00	0.01718	0.08589
120.0	110.0	47.5	162.8	136.0	0.00E+00	0.00E+00	1.12E+00	1.73E-02	7.49E-04	1.14E+00	0.01744	0.08720
130.0	110.0	49.8	170.3	136.0	0.00E+00	0.00E+00	1.10E+00	2.20E-02	6.41E-04	1.12E+00	0.01720	0.08602
140.0	110.0	51.8	178.0	136.0	0.00E+00	0.00E+00	1.06E+00	2.64E-02	5.52E-04	1.09E+00	0.01667	0.08336
150.0	110.0	53.7	186.0	136.0	0.00E+00	0.00E+00	1.01E+00	3.28E-02	4.89E-04	1.04E+00	0.01598	0.07988
160.0	110.0	55.5	194.2	136.0	0.00E+00	0.00E+00	9.49E-01	3.74E-02	5.03E-04	9.87E-01	0.01511	0.07553
170.0	110.0	57.1	202.5	136.0	0.00E+00	0.00E+00	8.76E-01	4.21E-02	4.04E-04	9.19E-01	0.01406	0.07031
180.0	110.0	58.6	211.0	136.0	0.00E+00	0.00E+00	8.19E-01	4.60E-02	4.34E-04	8.65E-01	0.01324	0.06621
190.0	110.0	59.9	219.5	136.0	0.00E+00	0.00E+00	7.58E-01	5.06E-02	3.25E-04	8.09E-01	0.01238	0.06191
200.0	110.0	61.2	228.3	136.0	0.00E+00	0.00E+00	7.08E-01	5.34E-02	3.73E-04	7.62E-01	0.01167	0.05833
-350.0	100.0	285.9	364.0	136.0	0.00E+00	0.00E+00	5.69E-04	1.94E-05	5.03E-01	5.03E-01	0.00770	0.03852
-340.0	100.0	286.4	354.4	136.0	0.00E+00	0.00E+00	5.66E-04	2.03E-05	5.27E-01	5.28E-01	0.00808	0.04041

TABLE 2. CALCULATED POWER DENSITY AT VARIOUS LOCATIONS NEAR ANTENNAS OF ANA KALAKAUA CENTER PERSONAL COMMUNICATIONS SITE (cont)

(DATE 7-MAY-96, Azimuth and horizontal distances given with reference at corner antenna)

E (ft)	N (ft)	AZIM. (deg)	DIST. (ft)	ELEV.	GROUP A	GROUP B	GROUP C	GROUP D	GROUP E	ALL	%OCCUP	%GENPOP
					POWER DENSITY (microwatts per square centimeter)							
-330.0	100.0	286.9	344.8	136.0	0.00E+00	0.00E+00	6.47E-04	1.57E-05	5.51E-01	5.52E-01	0.00845	0.04225
-320.0	100.0	287.4	335.3	136.0	0.00E+00	0.00E+00	6.06E-04	1.40E-05	5.71E-01	5.72E-01	0.00875	0.04374
-310.0	100.0	287.9	325.7	136.0	0.00E+00	0.00E+00	6.64E-04	1.77E-05	4.24E-01	4.25E-01	0.00651	0.03253
-300.0	100.0	288.4	316.2	136.0	0.00E+00	0.00E+00	7.41E-04	1.86E-05	6.04E-01	6.04E-01	0.00925	0.04625
-290.0	100.0	289.0	306.8	136.0	0.00E+00	0.00E+00	8.12E-04	9.55E-06	6.19E-01	6.20E-01	0.00948	0.04742
-280.0	100.0	289.7	297.3	136.0	0.00E+00	0.00E+00	7.98E-04	2.31E-05	6.31E-01	6.32E-01	0.00967	0.04834
-270.0	100.0	290.3	287.9	136.0	0.00E+00	0.00E+00	8.51E-04	1.61E-05	6.32E-01	6.33E-01	0.00969	0.04843
-260.0	100.0	291.0	278.6	136.0	0.00E+00	0.00E+00	8.80E-04	3.10E-05	6.31E-01	6.32E-01	0.00967	0.04836
-250.0	100.0	291.8	269.3	136.0	0.00E+00	0.00E+00	9.90E-04	3.62E-05	6.24E-01	6.25E-01	0.00956	0.04780
-240.0	100.0	292.6	260.0	136.0	0.00E+00	0.00E+00	1.11E-03	3.24E-05	6.08E-01	6.09E-01	0.00933	0.04663
-230.0	100.0	293.5	250.8	136.0	0.00E+00	0.00E+00	1.15E-03	2.31E-05	5.68E-01	5.69E-01	0.00872	0.04358
-220.0	100.0	294.4	241.7	136.0	0.00E+00	0.00E+00	1.30E-03	2.93E-05	5.41E-01	5.42E-01	0.00830	0.04150
-210.0	100.0	295.5	232.6	136.0	0.00E+00	0.00E+00	1.32E-03	1.72E-05	4.97E-01	4.98E-01	0.00763	0.03814
-200.0	100.0	296.6	223.6	136.0	0.00E+00	0.00E+00	1.66E-03	2.12E-05	4.44E-01	4.45E-01	0.00681	0.03407
-190.0	100.0	297.8	214.7	136.0	0.00E+00	0.00E+00	1.76E-03	1.58E-05	3.89E-01	3.91E-01	0.00598	0.02992
-180.0	100.0	299.1	205.9	136.0	0.00E+00	0.00E+00	1.86E-03	2.30E-05	3.38E-01	3.40E-01	0.00520	0.02599
-170.0	100.0	300.5	197.2	136.0	0.00E+00	0.00E+00	2.05E-03	1.81E-05	2.84E-01	2.87E-01	0.00439	0.02193
-160.0	100.0	302.0	188.7	136.0	0.00E+00	0.00E+00	2.18E-03	2.52E-05	2.34E-01	2.36E-01	0.00361	0.01807
-150.0	100.0	303.7	180.3	136.0	0.00E+00	0.00E+00	2.47E-03	2.06E-05	1.86E-01	1.88E-01	0.00289	0.01443
-140.0	100.0	305.5	172.0	136.0	0.00E+00	0.00E+00	2.52E-03	2.28E-05	1.47E-01	1.50E-01	0.00229	0.01144
-130.0	100.0	307.6	164.0	136.0	0.00E+00	0.00E+00	2.71E-03	2.36E-05	1.11E-01	1.13E-01	0.00174	0.00868
-120.0	100.0	309.8	156.2	136.0	0.00E+00	0.00E+00	2.75E-03	2.63E-05	8.28E-02	8.56E-02	0.00131	0.00655
-110.0	100.0	312.3	148.7	136.0	0.00E+00	0.00E+00	3.23E-03	1.84E-05	6.18E-02	6.51E-02	0.00100	0.00498
-100.0	100.0	315.0	141.4	136.0	0.00E+00	0.00E+00	3.58E-03	1.73E-05	4.49E-02	4.84E-02	0.00074	0.00371
-90.0	100.0	318.0	134.5	136.0	0.00E+00	0.00E+00	4.23E-03	1.50E-05	3.24E-02	3.67E-02	0.00055	0.00281
-80.0	100.0	321.3	128.1	136.0	0.00E+00	0.00E+00	5.05E-03	1.64E-05	2.29E-02	2.80E-02	0.00043	0.00214
-70.0	100.0	325.0	122.1	136.0	0.00E+00	0.00E+00	6.28E-03	2.03E-05	1.72E-02	2.35E-02	0.00036	0.00180
-60.0	100.0	329.0	116.6	136.0	0.00E+00	0.00E+00	7.61E-03	4.33E-05	1.23E-02	1.99E-02	0.00030	0.00152
-50.0	100.0	333.4	111.8	136.0	0.00E+00	0.00E+00	1.03E-02	7.55E-05	9.65E-03	2.00E-02	0.00031	0.00153

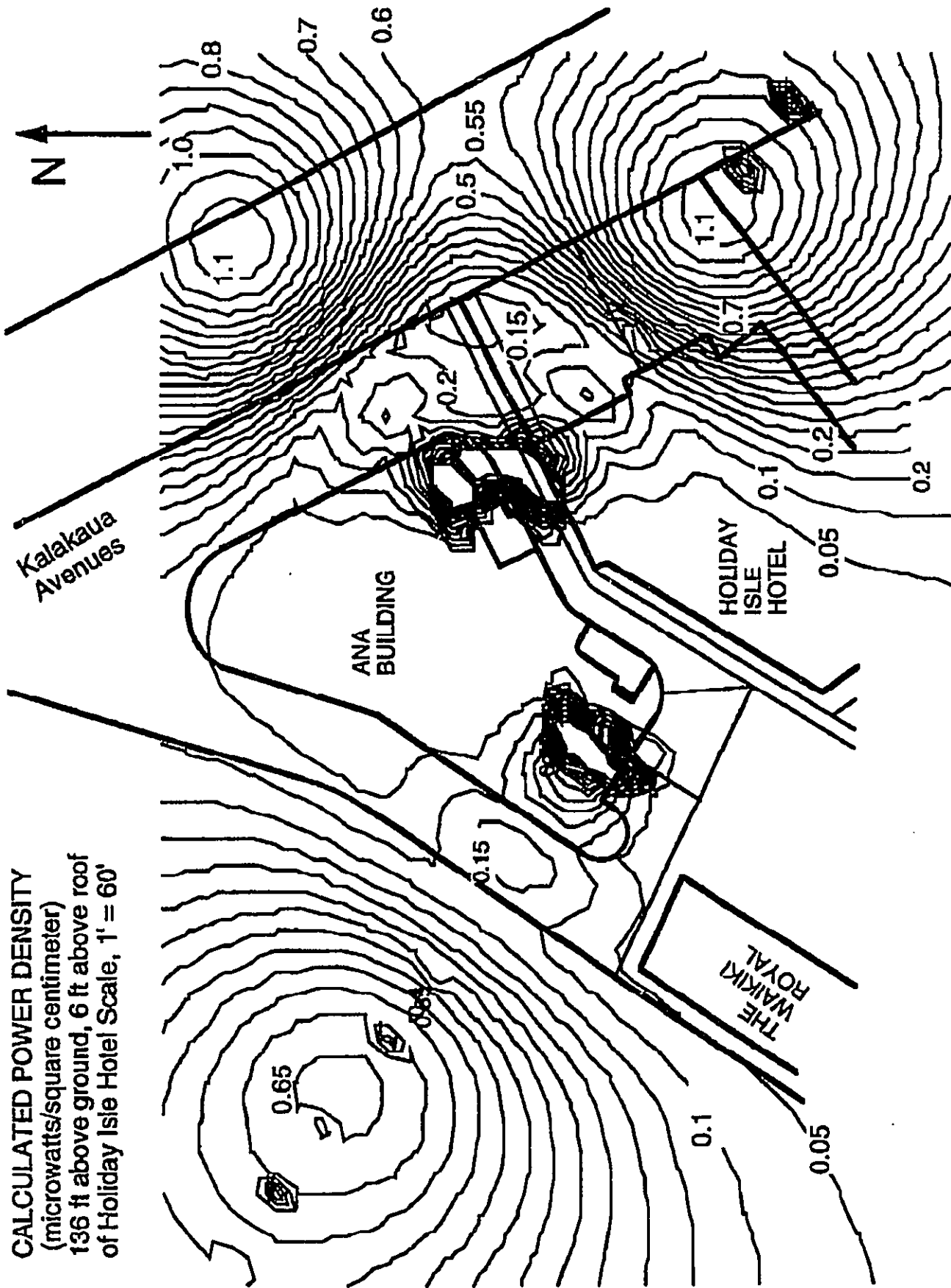


Figure 1. Contour Plot of worst case power density from PrimeCo ANA Kalakaua Center PCS Site.

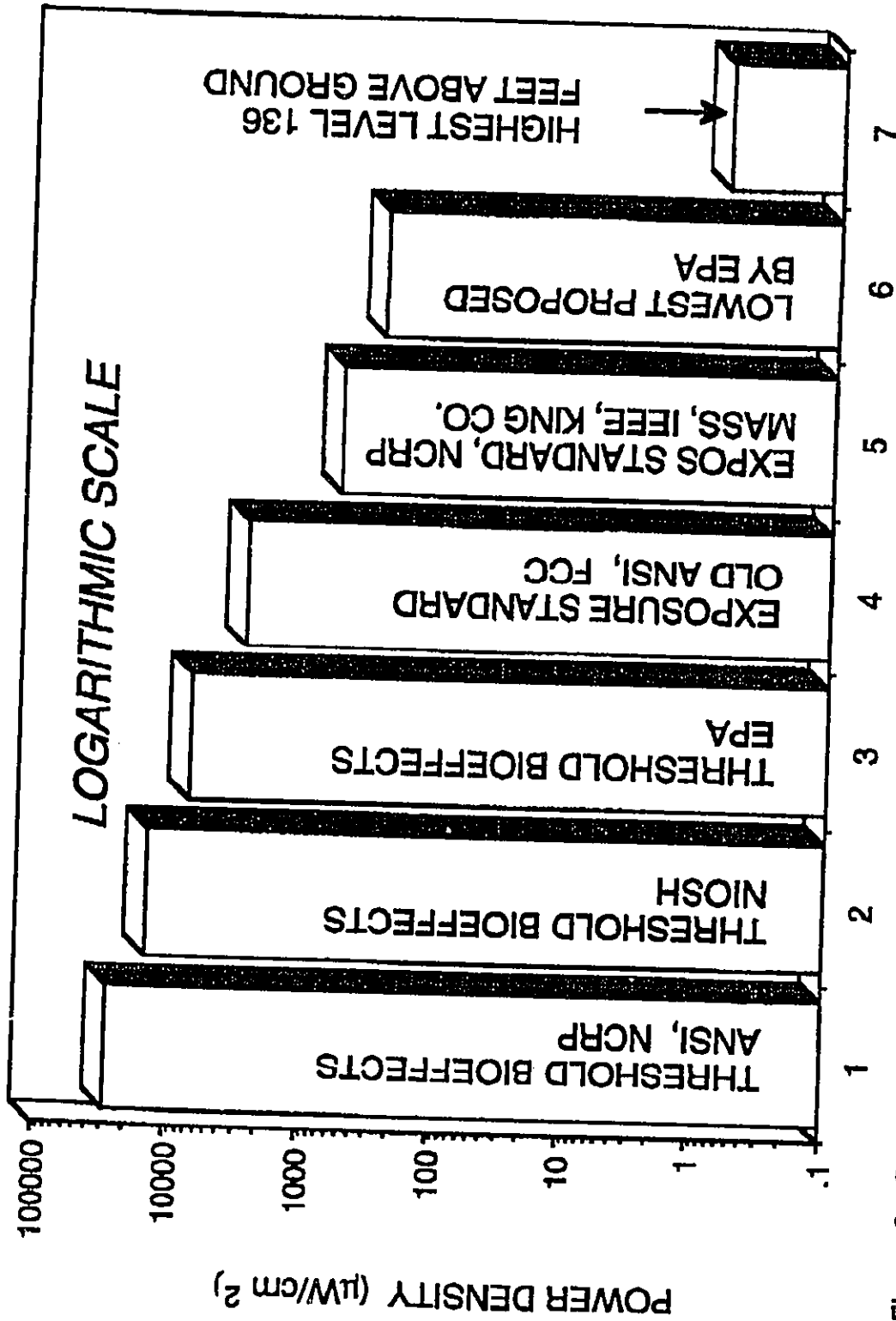


Figure 2. Comparison of maximum radiation levels in vicinity of PrimeCo ANA Kalakaua Center PCS site with thresholds of biological effects and recommended maximum exposure guides.

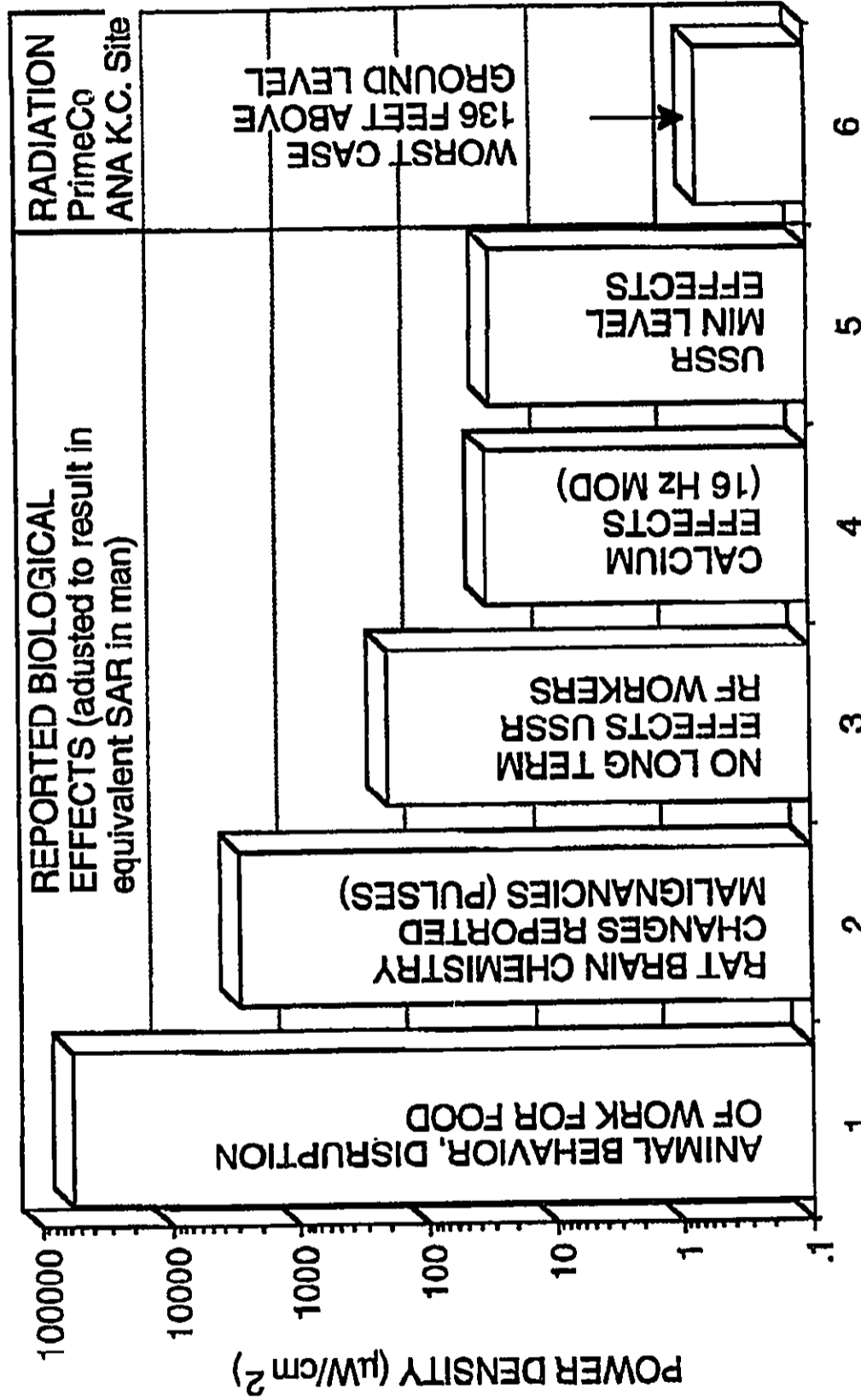


Figure 3. Comparison of maximum radiation levels from PrimeCo ANA Kalakaua Center site with various reported biological effects.

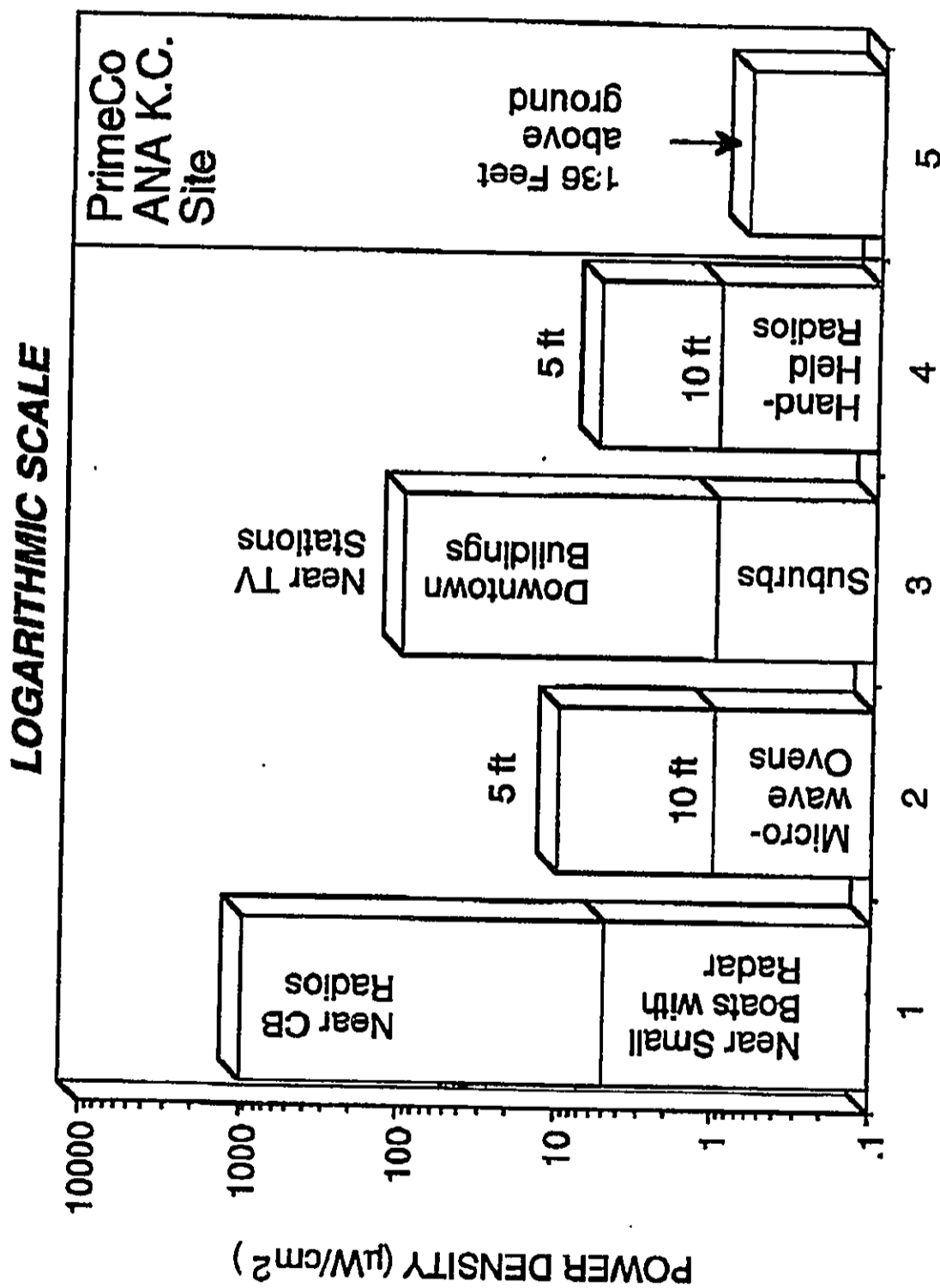


Figure 4. Radiation levels near various radio and microwave emitters.



**FEDERAL COMMUNICATIONS COMMISSION**  
**COMPLIANCE AND INFORMATION BUREAU**  
 HONOLULU OFFICE  
 P.O. BOX 1030  
 WAIPAHU, HAWAII 96797-1030  
 TELEPHONE: (808) 677-3318 FAX: (808) 671-3352

April 19, 1996

Miss Linnel Nishioka  
 Deputy Attorney General  
 Attorney General's Office  
 State of Hawaii  
 465 S. King St., Suite 300  
 Honolulu, HI 96813

Dear Miss Nishioka:

Mr. Pat Langeslay, of PCS Primeco, asked me to send you information regarding their transmitter. Our type acceptance database show the following:

FCC ID: IHET6WA1  
 Type Acceptance Granted: 4/9/96  
 Equipment Classification: Non-Broadcast Transmitter  
 Grantee: Motorola Inc.  
 Cellular Infrastructure Group  
 1501 W. Shure Drive, Room E140  
 Arlington Heights, IL  
 60004-1497 USA

Please call me at 677-3318 if you have any questions.

Sincerely,

Annette Platt  
 Public Affairs Specialist

cc: Pat Langeslay

OPTIONAL FORM 99 (7-80) 4/19/96		# of pages ▶ 1
<b>FAX TRANSMITTAL</b>		
To Pat Langeslay	From Annette Platt, FCC	
Dept./Agency PCS Primeco	Phone # 677-3318	
Fax # 566-9570	Fax #	
NSN 7540-01-317-7368	5099-101	GENERAL SERVICES ADMINISTRATION