

FORM NRC-313 I (1-79) 10 CFR 30		U.S. NUCLEAR REGULATORY COMMISSION		1. APPLICATION FOR: <i>(Check and/or complete as appropriate)</i> <div style="font-size: 1.5em; font-weight: bold; text-align: center;">30-19811</div>	
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL				X	a. NEW LICENSE
See attached instructions for details. Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.				b. AMENDMENT TO LICENSE NUMBER <div style="font-size: 1.5em; font-weight: bold; text-align: center;">03120</div>	
				c. RENEWAL OF LICENSE NUMBER <div style="font-size: 1.5em; font-weight: bold; text-align: center;">L&L R1122</div>	
2. APPLICANT'S NAME <i>(Institution, firm, person, etc.)</i> <div style="font-weight: bold;">HAWAIIAN BITUMULS & PAVING CO., LTD.</div> TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (808) 845-3991			3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Ronald Pickering TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (808) 845-3991 Ext. 252 or 251		
4. APPLICANT'S MAILING ADDRESS <i>(Include Zip Code)</i> HAWAIIAN BITUMULS & PAVING CO., LTD. P. O. Box 2240 Honolulu, Hawaii 96804			5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED <i>(Include Zip Code)</i> a) Primary gauge storage-248 Sand Is. Access Rd. Honolulu, HI 96819 b) Used at temporary job sites within the State of Hawaii.		
(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)					
6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL <i>(See Items 16 and 17 for required training and experience of each individual named below)</i>					
FULL NAME		RECEIVED BY NAME - TITLE			
a. (SEE ATTACHMENT LABELED ITEM 6)		Date: 7/22/82			
b.		Log: July 16/1 N.C.			
c.		By: Osom			
7. RADIATION PROTECTION OFFICER James Yamada		Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15. Action Compl 7/24/82			
8. LICENSED MATERIAL					
LINE NO.	ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	NAME OF MANUFACTURER AND MODEL NUMBER <i>(If Sealed Source)</i>	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME	
(1)	Cesium 137	Sealed Source	CPN-MC-2	4 source 8mCi (ea.)	
(2)	Americium 241	Sealed Source	CPN-MC-2	4 source 40mCi (ea.)	
(3)	<div style="font-size: 1.5em; font-weight: bold;">825615</div> <div style="font-size: 1.5em; font-weight: bold;">#110/BL</div>				
(4)	<div style="font-size: 1.5em; font-weight: bold;">APPLICATION</div> <div style="font-size: 1.5em; font-weight: bold;">7/22/82</div> <div style="font-size: 1.5em; font-weight: bold;">Osom</div>				
DESCRIBE USE OF LICENSED MATERIAL E					
(1) Sealed in 4 CPN model MC-2 surface gauges, which will be used to measure the					
(2) moisture and density of construction material at various job sites.					
(3)					
(4) 8601070514 851202 REGS LIC30 53-21122-01 PDR					

9. STORAGE OF SEALED SOURCES						
LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. <div style="text-align: center;">A.</div>	NAME OF MANUFACTURER <div style="text-align: center;">B.</div>	MODEL NUMBER <div style="text-align: center;">C.</div>			
(1)	Portable Moisture-Density Gauge	CPN	MC-2			
(2)	" " " "	"	"			
(3)	" " " "	"	"			
(4)	" " " "	"	"			

10. RADIATION DETECTION INSTRUMENTS						
LINE NO.	TYPE OF INSTRUMENT <div style="text-align: center;">A.</div>	MANUFACTURER'S NAME <div style="text-align: center;">B.</div>	MODEL NUMBER <div style="text-align: center;">C.</div>	NUMBER AVAILABLE <div style="text-align: center;">D.</div>	RADIATION DETECTED (alpha, beta, gamma, neutron) <div style="text-align: center;">E.</div>	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) <div style="text-align: center;">F.</div>
(1)	N.A.					
(2)						
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10	
<input type="checkbox"/> a. CALIBRATED BY SERVICE COMPANY NAME, ADDRESS, AND FREQUENCY N.A.	<input type="checkbox"/> b. CALIBRATED BY APPLICANT <i>Attach a separate sheet describing method, frequency and standards used for calibrating instruments.</i> N.A.

12. PERSONNEL MONITORING DEVICES		
TYPE (Check and/or complete as appropriate.) <div style="text-align: center;">A.</div>	SUPPLIER (Service Company) <div style="text-align: center;">B.</div>	EXCHANGE FREQUENCY <div style="text-align: center;">C.</div>
<input checked="" type="checkbox"/> (1) FILM BADGE <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): _____ 	R. S. Landauer Jr., & Co. 999 N. Sepulveda Blvd. El Segundo, CA 90245	<input checked="" type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)
<input type="checkbox"/> a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC. <input checked="" type="checkbox"/> b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC. <input type="checkbox"/> c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC. (SEE EXAMPLE SKETCH LABELED ITEM 13) <input type="checkbox"/> d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL
a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED Source will be returned to the manufacturer.
b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.

(SEE ATTACHMENT LABELED ITEM 15)

16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.

a. Principles and practices of radiation protection.

b. Radioactivity measurement standardization and monitoring techniques and instruments.

(SEE ATTACHMENT LABELED ITEM 16)

c. Mathematics and calculations basic to the use and measurement of radioactivity.

d. Biological effects of radiation.

17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

(SEE ATTACHMENT LABELED ITEM 17)

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

WARNING.—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

\$110.00

b. CERTIFYING OFFICIAL (Signature)

c. NAME (Type or print)

Ronald Pickering

d. TITLE

Quality Control Manager

e. DATE

July 14, 1982

(1) LICENSE FEE CATEGORY:

3-L

(2) LICENSE FEE ENCLOSED: \$

110.00

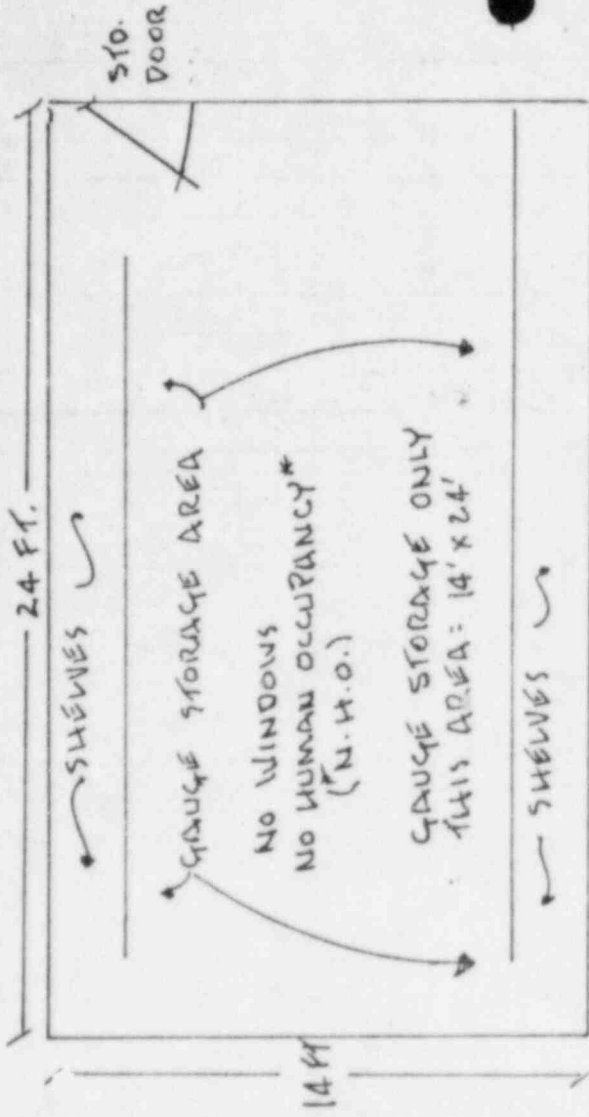
ITEM 6

INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE
THE USE OF LICENSED MATERIAL

<u>FULL NAME</u>	<u>TITLE</u>
a. Benjamin Oda	Asphalt Raker
b. Emmett Keao	Asphalt Raker
c. James Yamada	Scheduler
d. Robert Keao	Paving Superintendent
e. Ronald Pickering	Quality Control Engineer
f. Alexander Miller	Foreman
g. Benjamin Pamatigan	Paving Superintendent

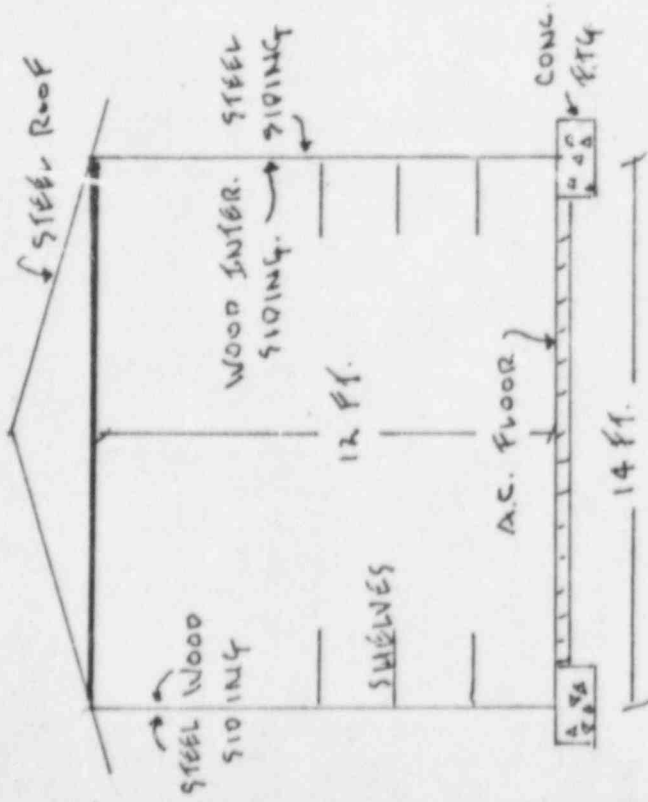
ITEM 13

FACILITIES AND EQUIPMENT



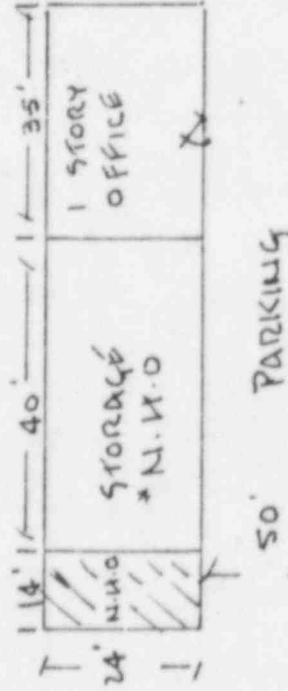
PLAN
NUCLEAR GAUGE STORAGE AREA
N.T.S.

SKETCH OF NUCLEAR GAUGE
STORAGE FACILITIES FOR:
HAWAIIAN BITUMULS & PAVING CO.
248 SAND ISLAND ACCESS RD.
HONOLULU, HAWAII



ELEV.
STORAGE AREA
N.T.S.

→ PARKING & YARD



LOCATION PLAN
N.T.S.

2 STORY OFFICE BLDG.

ENTRANCE
DRIVE

248 SAND ISLAND ACCESS RD.

ITEM 15

RADIATION SAFETY PROGRAM

FOR

HAWAIIAN BITUMULS & PAVING CO., LTD.
248 Sand Island Access Road
Honolulu, Hawaii 96819

The following nuclear safety procedures will be observed at all times, a copy of this procedure sheet will be maintained with the gauge in the shipping case as well as in the license file with the Radiation Protection Officer.

1. The Nuclear Gauge will be securely restrained in vehicles to prevent theft or loss while unattended or in an accident. Metal clamps, chains, or bars will be used.
2. The Nuclear Gauge and its shipping case will be hidden from view while in an unattended vehicle to minimize attractive nuisance value.
3. All users will wear film badges when using the Nuclear Gauge. Badges will be stored away from gauges when not in use and will be protected from external heat.
4. Radiation labels or placards will be removed from vehicles when not actually transporting the Nuclear Gauge to avoid confusion should an accident occur to the vehicle when it does not contain the Gauge.
5. Gauges will be securely locked in storage areas when not in use. Keys will be restricted to authorized users only.
6. The Nuclear Gauge will be used only by users specifically authorized in writing by the Radiation Protection Officer.
7. The Gauge will be leak tested annually using CPN Corp. test kit MC-2 or other approved kits. Results will be maintained for permanent record and inspection.
8. Disposal of the source or of the device will not be done by licensee directly.

8. (Continued)

In the event of emergency disposal, we shall contact the factory or other authorized disposal facility for instruction.

The unit will be transferred only to authorized licensees for this specific device and a record of transfer will be retained in our files, with proof of license authority by the recipient, in the event of sale, trade, loan, or other transfer.

9. In the event of emergency with possible damage to the radioactive source:

- * FREEZE SITE - STOP ANY INVOLVED VEHICLES.
- * RESTRICT ACCESS TO 10' FROM THE GAUGE, VEHICLES, OR TRACKS.
- * CALL FOR COMPETANT, TRAINED ASSISTANCE:

RPO: _____ 845-3991 _____

PUBLIC HEALTH OFFICE: _____ 548-6915 _____

CIVIL DEFENSE: _____ 523-4121 _____

CPN FACTORY: _____ (415) 687-6472 _____

OTHER: _____ . _____

ITEM 16

FORMAL TRAINING IN RADIATION SAFETY

Certificate of Completion

This is to certify that BEN ODA has completed the basic training

course on Radiation Safety and Use of Nuclear Soil Gauges, held

this 5TH day of MAY 19 82, held at City of HONOLULU

State of HAWAII given by Campbell Pacific Nuclear Corporation.

PATRICK CAMPBELL
INSTRUCTOR
PATRICK CAMPBELL
RADIATION SAFETY OFFICER

CONTENTS OF COURSE

PRINCIPLES AND PRACTICES OF RADIATION PROTECTION

Theory, terminology, and practical explanations of Radioactive Materials, License requirements, Storage, Transportation, and Emergency Procedures to be used with portable nuclear devices typical of "spill, agricultural, roof, and other construction gauges using small (not more than 300 millicurie) sources in sealed capsules.

RADIOACTIVITY MEASUREMENT STANDARDIZATION AND MONITORING TECHNIQUES AND INSTRUMENTS

Demonstration of radiation levels typical with use of small, portable devices using conventional survey meter. Concentration on Inverse Squares Law factors, effects of shielding, time, and distance in use of materials.

MATHEMATICS AND CALCULATIONS BASIC TO THE USE AND MEASUREMENT OF RADIOACTIVITY

Determination of typical radiation levels in MREMs within working distance of a typical portable "construction device", calculation of probable weekly radiation dose under a heavy work condition, and relation of that dose to the NRC maximum annual allowances for occupational use of radioactivity.

Establishment of relationship of this occupational dose to that obtained from normal life exposures of external radiation at sealevel and high elevations, jet plane travel, normal health XRAYS, etc.

BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate of Completion

This is to certify that EMETT KEAO has completed the basic training
course on Radiation Safety and Use of Nuclear Soil Gauges, held

this 5TH day of MAY 19 82, held at DEPT OF TRANS City of HONOLULU

State of HAWAII by Campbell Pacific Nuclear Corporation

PATRICK J. CAMPBELL
INSTRUCTOR
PATRICK J. CAMPBELL
RADIATION SAFETY OFFICER

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Demonstration of radiation levels typical with use of small, portable devices using conventional survey meter. Concentration on Inverse Squares Law factors, effects of shielding, time, and distance in use of materials.

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Establishment of relationship of this occupational dose to that obtained from normal life exposures of external radiation at sealevel and high elevations, jet plane travel, normal health XRAYs, etc.

BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate of Completion

This is to certify that ALEX MILLER has completed the basic training

course on Radiation Safety and Use of Nuclear Soil Gauges, held

this 5TH day of MAY 19 62, held at City of HONOLULU

State of HAWAII by Campbell Pacific Nuclear Corporation.

PAUL CAMPBELL
INSTRUCTOR
PAUL CAMPBELL
RADIATION SAFETY OFFICER

CONTENTS OF COURSE

PRINCIPLES AND PRACTICES OF RADIATION PROTECTION

Theory, terminology, and practical explanations of Radioactive Materials, License requirements, Storage, Transportation, and Emergency Procedures to be used with portable nuclear devices typical of "soil, agricultural, roof, and other construction gauges using small (not more than 300 millicurie) sources in sealed capsules.

RADIOACTIVITY MEASUREMENT STANDARDIZATION AND MONITORING TECHNIQUES AND INSTRUMENTS

Demonstration of radiation levels typical with use of small, portable devices using conventional survey meter. Concentration on Inverse Squares Law factors, effects of shielding, time, and distance in use of materials.

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Determination of typical radiation levels in MREMs within working distance of a typical portable "construction device", calculation of probable weekly radiation dose under a heavy work condition, and relation of that dose to the NRC maximum annual allowances for occupational use of radioactivity.

Establishment of relationship of this occupational dose to that obtained from normal life exposures of external radiation at sealevel and high elevations, jet plane travel, normal health XRAYs, etc.

BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate of Completion

This is to certify that BEN PAWATIGAN has completed the basic training
course on Radiation Safety and Use of Nuclear Soil Gauges held

this 5TH day of MAY 19 82, held at City of HONOLULU

State of HAWAII by Campbell Pacific Nuclear Corporation.

Patrick J. Campbell
PATRICK J. CAMPBELL
INSTRUCTOR
Patrick J. Campbell
PATRICK J. CAMPBELL
RADIATION SAFETY OFFICER

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Establishment of relationship of this occupational dose to that obtained from normal life exposures of external radiation at sealevel and high elevations, jet plane travel, normal health XRAYs, etc.

BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate of Completion

This is to certify that JAMES A YAMADA has completed the basic training
course on Radiation Safety and Use of Nuclear Soil Gauges, held

this 5TH day of MAY 19 82, held at City of HONOLULU
DEPT OF TRANS

State of HAWAII Issued by Campbell Pacific Nuclear Corporation.

NATRICK CAMPBELL

INSTRUCTOR

NATRICK CAMPBELL

RADIATION SAFETY OFFICER

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BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate of Completion

This is to certify that ROBERT KEAO has completed the basic training
course on Radiation Safety and Use of Nuclear Soil Gauges, held

this 5TH day of MAY, 1982, held at DEPT OF TRANS City of HONOLULU

State of HAWAII by Campbell Pacific Nuclear Corporation.

FRICKS J. CAMPBELL
INSTRUCTOR

FRICKS J. CAMPBELL
RADIATION SAFETY OFFICER

CONTENTS OF COURSE

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BIOLOGICAL EFFECTS OF RADIATION

General discussion of effects of low level radiation on the body with emphasis on the relationship of routine lifestyle exposure (environmental, routine medical, smoking, etc) to the added exposure from normal use of portable devices using small millicurie sources.

Certificate Of Completion

This is to certify that RON PICKERING has completed the basic training
course on *Radiation Safety and Use of Nuclear Soil Gauges*, held
this 5TH day of MAY 19 82, held at DEPT OF TRANS City of HONOLULU

State of HAWAII by Campbell Pacific Nuclear Corporation.

Patrick J. Campbell
PATRICK J. CAMPBELL

INSTRUCTOR

Patrick J. Campbell
PATRICK J. CAMPBELL

RADIATION SAFETY OFFICER

CONTENTS OF COURSE

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ITEM 17

EXPERIENCE

RESUME
FOR NUCLEAR GAUGES

Name: James Yamada

Title: Scheduler

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

Has served as Radiation Protection Officer since 1976.

RESUME
FOR NUCLEAR GAUGES

Name: Ronald Pickering Title: Quality Control Engineer

Work Experience:

1965-Present Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

RESUME
FOR NUCLEAR GAUGES

Name: Benjamin Pamatigan

Title: Paving Superintendent

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

RESUME
FOR NUCLEAR GAUGES

Name: Alexander Miller

Title: Foreman

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

RESUME
FOR NUCLEAR GAUGES

Name: Robert Keao

Title: Paving Superintendent

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

RESUME
FOR NUCLEAR GAUGES

Name: Emmett Keao

Title: Asphalt Raker

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).

RESUME
FOR NUCLEAR GAUGES

Name: Benjamin Oda

Title: Asphalt Raker

Work Experience:

1976-Present

Have used a Troxler model #2401 with principal radioactive content of Ra226:Be and an activity of 3mCi for testing in-place density of asphaltic concrete pavements on highways, taxiways, aprons and runways throughout the State of Hawaii.

Attended training seminar and obtained a Certificate of Completion. (See attached certificate for course outline).