

PUERTO RICO NUCLEAR CENTER GENERAL INFORMATION MARCH 1, 1976 ---Page Break---
 F TABLE OF CONTENTS. Organization Chart (Corporation Chart, March 1, 1976). Personnel
 Personnel Profile in Man Years, March 2, 1976... 6 and Buildings, Need 1 1976 Facility Investment,
 PY-1958 the FY1975 Budget Program Cost Summary, PY1975 = FY1976 Finance and
 Employment Summary, PY-1988- FYI. | Medical Program Cost Analysis, March 1, 1936; Program
 Operational Budget. Estimated Distribution, FY-1975: Program Operational Budget Estimated
 Distribution, PY-1976 Training and Education Students by Country, FY-1958 ~ PY-1970 Students
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 by Division of Section: Biology, January 1, 1974 — March 1, 1976. Microbiology, FAITE Huns.
 Ecology Biomedical Survey Volume, January 1, 1974 — March 1, 1976. Medical Physics, January
 1, 1974 ~ March 1, 1976 Health and Safety, FY-1976 Maternal Science Nuclear Science and
 Technology, January 1, 1974 ~ March 1, 1976, (Sciences), Jan. 1, 1976. Oncology, January 1,
 1971 = March 1, 1976 Nuclear Engineering, January 4, 1971 ~ March 1, 1976 Tropical
 Agro-Sciences, January 1, 1974 ~ March 1, 1976 Applied Physical Sciences, January 1971 June
 1975, Para List of Distinguished Alumni Fellowship Support Principal Sources of Financial Support,
 FY RDA Faculty Research Participation ERDA Laboratory Graduate Participation ERDA
 Undergraduate Research Training COR Preventions Office International Atomic Energy Agency
 Organization of American States Pan American Health Organization > Publications and
 Presentations (Research Output) Publications and Presentations, 1958-1975. Journal Publications,
 1958 — 1975, Environmental Impact Studies Reports, Aug 1974 ~ Dec FY.1976 1075 a 3 a 45 a 49
 ---Page Break--- ORGANIZATION CHART ---Page Break--- PUERTO RICO NUCLEAR CENTER
 LT 1 ---Page Break--- PERSONNEL, ---Page Break--- PUERTO RICO NUCLEAR CENTER
 PERSONNEL PROFILE

IN MAN-YEARS March 1, 1976 SE Research Programs Selenite Direct to Average Indirect. Report
 to Support, — Sat Serre Rate Support 1. Materials Science Division 0.60200 1:3.33, 2. Radiation
 Oncology 11288013491 3. Nuclear Medicine 180 62811249 4. Tropical Agro Sciences 234 700
 1:2.99 5. Human Ecology 6.00 10.00 1:1.66 1221 6. Nuclear Engineering 083 100 1:1.20 7. Medical
 Physics 1758305 1.74 8. Terrestrial Ecology 600 1000 1:2.00 9. Marine Ecology 12.00 2800 1:2.93
 10. Neutron Diffraction 153450 1:2.94 11. Physical Sciences 2000 Totals 3500 77.30 Support
 Activities 1. Director's Office 7.70 2. Administration and Services 23.15 3. Health and Safety 6.00 4.
 Technical Services 20.00 5. Training and Information 5.00 6. Electronic Services 3.00 7. Title X
 Account 30.92 Total 95.77 SI Includes "Palumbo" crew "+ Includes Reactor Division "Title X
 Account ---Page Break--- FACILITIES ---Page Break--- PUERTO RICO NUCLEAR CENTER LAND
 AND BUILDINGS: March 1, 1976 Tg 20 acres, Mavagies, Federal Agricultural Experiment Station
 20 acres, Mayopier, Comalia Will acre, Rio Pieras, Puerto Rico Medical Center 200 acres Laguito
 National Forest, Use Permit from the US, Forestry Service Total 247 acres 'A: Mayanina, Federal
 Agricultural Experiment Station Sundry Laboratory Space (sft) Administrative Space (sft) Other (sft)
 1. Min 30,000 10,000 2. Shop 5,000 5,000 3. Administration 5,800 4. Nuclear Engineering 20,005
 5. Agricultural Shed 1,388 6. Greenhouse tare 7. Marine Biology Lab. 1,300 8. Armon 2,400 9.
 Neutron Generator 2,500 10. Hetum Lucier 600 11. Ro Piedras, Puerto Rico Medical Center 1.
 Medical 30,000 10,000 2. Animal Shop 3,000 2,500 © Comets Hi, Mayonuee 1. Laboratory 2,500
 1,000 2. Aware 1,820 El Verde, Luquillo National Forest 1. Laboratory 000 oral 23,660 205 7,500
 Grand Total 16 Buildings-119,845 square feet 1. New Construction El Verde Bete Acquisition Lab,
 1,304 168 B- Conn Hit © Laboratory 108 00 on Total 5,060 '600 743 Grand Total: 2 Buildings 4,417
 square feet ---Page Break--- FACILITY INVESTMENT PUERTO RICO NUCLEAR CENTER FY
 1958 thru FY 1975 FUNDING

Facility Nuclear Center Laboratory and Reactor Gonter Modifications and Minor Additions
Conversion of PRNC Reactor 'Nuclear Engineering and Training Reactor Annex Marine Biology
Laboratory Administration Building 'Shop Building and Additions Agricultural Biosciences
Laboratory and Additions Shielded Facility for Neutron Generator Total Investment Mayagüez
Biomedical Building Biomedical Radiotherapy Linear Accelerator 'Modifications and Minor Additions
Animal Quarters and Vitus Laboratory Animal Experimental Facilities Maintenance Shop Facility
Total Investment Río Piedras Cornelia Hill Site Marine Biology Lab. and Site Acquisition
Modifications and Additions 'Aquarium Laboratory Waterfront Facilities for Research Vessel Total
Investment-Cornelia Hill Total investment - PRNC For Occupancy Apr. 1972 Jun. 1969 Jun. 1966
'Jan. 1967 Mar. 1967 May 1968 Sep. 1971, Feb. 1961 Sep. 1970 'Aug. 1973 Aug. 1965 Mar. 1975
Sep. 1974 'Aug. 1966 Oct. 1974 Cost \$2,960,811 725,907 385,000, 116,305 36,619 95,668
141,538 95,568 49,205 \$4,636,711 \$589,278 1,398,683 360,470 212,665 203,224 132,000 98,934
\$2,995,254 \$130,000 20,974 401,200 355,363 \$667,537 \$123,510 \$8,623,012 Construction not
Complete 4 ---Page Break--- Source ---Page Break--- PROGRAM COST SUMMARY PUERTO
RICO NUCLEAR CENTER. FY 1968 ~ FY 1976 Freight To pay ae Other tan Work for Others Total
Year Estimation Reams Pennsylvania American Fades FRWRA meson Program Remeron i Beene
Mine, base 1988 \$198,000 \$. s \$8 \$= 19300 1959376700 375,700 1960 50,300 '50300
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hotopes Orvelopment Program ~ radiation of Tropel Foose SAECRRO contribution to support of
PMMA Power Resse Secon + Estimate ---Page Break--- FINANCIAL AND EMPLOYMENT
SUMMARY PUERTO RICO NUCLEAR CENTER FY 1958 TO FY 1976 Operating Capital
Construction Average Employment Fiscal Program — Equipment Project ——— Year Costs Costs
Funding Regular Part Time 1958 \$ 119,100 \$40,600 2,960,811 26 1959 376,700 19,100 989,278
1960 450,300 222,600 84,732 89 1961 750,508 164,551 45,759 161 16 1962 1,268,970 169,501
95,576 162 16 1963 1,437,734 282,228 218,210 180 26 1964 1,777,657 303,980 90,298 233 35
1965 1,946,088 177,772 126,340 235 2 1966 2,088,190 161,167 198,489 240 66 1967 2,033,869
196,423 199,602 245 63 1968 2,161,008 163,741 1,848,603 241 7 1969 2,227,581 184,721
213,880 213 49 1970 223,809 178,628 119,982 214 4 1971 2,809,926 592,597 398,474 197 57
1972 2,508,632 244,690 448,902 192 63 1973 3,033,218 166,876 425,000 204 76 1974 3,397,646
141,631 425,000 220 79 1975 3,762,625 178,808 290,000 224 1976 2,686,000 120,000 95,000
178" gae © Includes procurement of Palumbo at cost of \$350,000 © ORO estimate (Includes
\$1,298,683 for Biomedical Building Addition and \$450,000 for GPP. * Includes 23 on Title X Job
Opportunity Funds, Includes 8 on Title X Job Opportunity Funds. TT ---Page Break--- PUERTO
RICO NUCLEAR CENTER MEDICAL PROGRAM COST ANALYSIS: 'as of March 1, 1976
Radiation 'Nuclear Oncology 'Salaries and Fringe Benefits 7,800 91,500 Annual Leave 3,000
Overhead 59,900 68,700 Travel 1,000 1,000 Electricity (2.09 sq ft) 11,847 9,405 'Space Allocation
5,573 sq. ft 22,300 4,500 sq. ft. 22,500 1,788 sq. ft. 8,940 'Materials and Supplies 4,000 12,000
Transportation & Communication 800 300 'Shop Charges 800 500 Electronic Charges

Reproduction Charges 900 600 Tuition Charges 1,000 Computer Charges Equipment Maintenance
 800 100 Equipment Depreciation 25,443

14,289 Miscellaneous 11,900 '300 Totals 208,200 225,694 ing (AI* YB Research ("15% Medical
 Servt'r)* 70% 100% 311398 15% 21,394 13% 146,502 72% \$209,290 100% \$225,698 100: 2,000
 300 200 300 200 1,700 '500 500, 2,461 100 718,438 23,088 46,175 46,175 \$115,438 164,600
 3,500 24,789 11,8659 41. 53,740 18,000 1,400 500 300 41,700 2,700 500 1,400 42,193 2,300
 '350,422 16% 89,236, 19% 106,909 65% 385,177 100% \$560,422 * As explained on attached
 sheet. ---Page Break--- 5 Radiation Oncology Division ~ The Division Head estimated that 20% of
 the funds available from ERDA are used directly for training, 30% for research, and 40% for
 medical services. However, both training and research are accomplished by offering medical
 services. Approximately 12% of the training effort (15%) and 1/2 of the research effort (50%) are
 required and must be added on to the 40% medical services. The Division effort includes 18%
 training, 18% research, and 70% medical services. Nuclear Medicine Division ~ The Division Head
 prepared a detailed analysis of costs involved in research and medical services. His yield was 80%
 for the 26% for research, and 44% for medical services. However, he estimated that the training
 effort (18%) and 1/2 the research effort (13%) entailed the medical services and therefore should
 be added to the medical service component (11%) for accounting purposes. The final estimate is
 18% for training, 13% for research, and 72% for medical services. Radiology Section — The
 Section Head analyzed the PY-1976 effort and determined that 20% goes for training, 40% for
 research, and 40% for medical service. To this note, the medical service is provided to the
 Radiation Oncology and Nuclear Medicine Divisions, including training, dosimetry, and instrument
 calibration. Medical service is not restricted for training or for all research, and therefore it was
 estimated that the training component increased 40% because the training component was
 decreased this year through the consideration of MS. The Degree Program in Radiologic Health
 Training now powers for Radiation Oncology and Nuclear.

Medicine Residents ---Page Break--- PUERTO RICO NUCLEAR CENTER Estimated Distribution
 Based on Study Made By Director in 1978 BASE PROGRAM BUDGET Observation of Education
 Officer* eee Training Research, Supportive Division Title Form (t89) __Budget (100%) Portion) _
 (ohms) See 1 Applied Phenomenon \$ 114,000 5 sng00.88) \$ 141,00165 2 Cle Again 0°
 Radionuclides 76.00, Shoso (aN) sADHDIAS!A Seasons Health and Safety 300 2430/30 600UR0'
 + 0.0. 4. Meet Pace 74300 session essai Bowe 5 Medical Sciences & Radiobiology 181,300 S878 8
 ong 1. Nace Engineering 7x00 9000130) 9.000130 1 Science Some 73800 Habits OTST ae 11,
 Review 148700 saaso___ 12, Tropical Apes 64000 50007) _ 98.409 (60% STRT100 100%) FAD
 (ase TEBE ---Page Break--- PUERTO RICO NUCLEAR CENTER BASE PROGRAM
 OPERATIONAL BUDGET First Year 1976 Estimated Distribution of Funds Mar 1.1936 Supporting
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 TRAINING AND EDUCATION ---Page Break--- "Tala sHomN« PENC BrUDRATS ny COUNTY Pro
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Education Series Division ---Page Break--- PRNC Students by Country — PY 1958-FY 1976 +6 (A
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FYE FY 1976 rquire are complete trough Febnunty 10,1908 Toul Rudents 207748 a 2 ---Page
Break--- eographical Distribution of PRNG Students ~ FY 1970 — FY 1976 Fiscal Years raphical
Area Seoaraphical as 1970 197119721973 to74 1975 1976" South America 2% 50 48 38 met tg
Central America and Mexico 7 2 3 © 0 8 7 Caribbean 8 6 6 8 7 3 3 Puerto Rico (USA) 141 110 155
168 297 189181 Continental U § A 5 5 2 5 13 2% 12 Europe, Asia, Africa 5 2 4 4 48 4 OD
—O___ * * ?° Total Students 190 185 228 225 265 249 192 * Tabulated February 20, 1976 oo 3
---Page Break--- PRNC Student Enrollment — FY 1974 'Taining Anny Student Month Thess
Research, PLD. Degee. toss 2 2280 'Ths Reseach MS. Orpen eles ' too Grants Reseach, Tere Peo
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Growth Rep oso 2 'Sorci Training in Mutation Beeding and Radabiolgy 982 i Grand Tota EY 0 ne
TS 4 ---Page Break--- eS ENC Student Enrollment ~ FY 1975, eS Ting tiny Meximum Doraion
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Repsttor, 6.09 3 5.00 'Special Training Plant Physiology 6.00 é 20.00 Gand Tow sine * One ERDA Undeadaate Resch Tanse°> One BRDA Pasi Hemaree Patepoar 16 ---Page Break--- 'Terrestrial Ecology - Training Activities January 1974 - June 1975 saece Rete completed for an additional Master of Science degree and one for Phy Dissertation, Name Tieot Tess Major otewor Carmen Hemandex Groep Dtribtion, nimi Vasant ae re Home Rang of Cerca carte Gatropee, Pr Imonso)in Porto Rew. Ms depec comptes F Lscaw Snouvernrcs of Deowodes esc alvin. Cmena Trypat Montane fen eres Pee MS cope completed E.Cuems (Suanersin Water Qty 5 Intuenced by Land Che Cemente Paterna 8 Depee Padgett Be Contebation of Aquatic Hyphomycettin the. Clements Dec onpostion of Submerged Lent Litter Phi eration Rolando Mosquera Moreno; Graduate (Master) Research. "Rejection Criteria tor Paits of Environmental Dose Values Intered trom Thermoluminescence Desimetsy = At, Pent Hratth Prog, Research work completed, May 1975, Sujervision by Dr A MeB, Block FatL Prado: Groduate (Master) Research. "A Computer Program tor Cileulation ah arid Bote Received by Thermoluminescence Dosimeters (TLD CALC in FORTRAS-G.)," Bi Publ: Health Prog. Research work completed, May 1175. Supenision hy Dr A wow cares peeron Pitre, Graduate (Master) Experimental Research, "Natural Radiation Exposure in Puerto Rico," M. Nut. Eng., Research work completed Apr! 1974, Degree 'warded June 1974. Supervision by Dr. A. MeB, Block und Dr. RG. Chanenee qronio Gonzilez. Graduate (Master) Experimental Research on TLDM. eerements of pilus Radiation Background in Puerto Rico, M. Nucl. Eng.. Research work completed 'May 1975, Supervision by Dr. A. MeB, Block and Dr. & G.

Clements Falgario Hernindes; Graduate (Master) Research, "Laboratory Investigation of Statistics Reentromoluminescence Dosimetry using CaF, Dosimeter." M. Publ. te sth Prog Research work completed, May' 1975. Supervision by Dr. A. Mel, Block Fees a2) (Environmental Radiosetsty) course offer for MS. Dear in Radhologieat Health wat tought by

Dr. A, MeB. Block, Spring semester, 1975. A total of B grade students completed the course.

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CR) Astrid A. Aponte, Inter American U., (FR) Special Training: Pascioliasis Nestor Cerdona (Px.D) UPR Mayagüez (FR) Wanda R. Ramos, Inter, An. ty (ER) F. Aquatic Biology studies Angel Laracuenta, PRIC employee & FR Junior College (ER) 8, Fosetl Fuel Contaminants Project from 1. Rodríguez Morales, Inter Am. U. (ER) H, Biology 260 - Research Gaddier de Jesus Zavala, Inter An. U. (ER) zy Tabulated March let., 1976 ---Page Break--- eee 'Training Activities of the Radiation Oncology Division January 1974 through June 1975 Kio Dates Present Potion 'A RADIATION ONCOLOGY RESIDENTS Dr. Hernan Castro Vite Jan 1973 - Jun 1974 404 Your Resident, New York Dr. Glona Avoyo 'aT 197ç- in 1978 Bnd Year Resident, UNC Dr. Rafael A. Sinehee Mariner Aug 1999 "May 13th Private Practice [A TRAINING COURSE FOR MEDICAL STUDENTS, UPR SCHOOL OF MEDICINE oie R Gonaaster dun - 31974 doe. Melonder Sun sl 199 las A. Almodovar Son a1 1974, sun - st 2975, Sara Cardona sion So 1974, Jun Dal 1973 Antonio 6. Sotomayor Shin 1 1934 nt 878 Nistor €: ro Shin ut 1074, Sun = 878 Noot Tout Sun Sul 1974! du ot 1875 Prono J. Visoronde Sun Su 1926, dan © l 1975, armen D. Zr Shin = Ja 1974, Jan =D 1978 h San dat 1978 'in Sut 1878 Son 3a 1978 Nesdn Pguence han dul t035 Baumdo © Cates en 1038 Guero Cotara dun T1370 ©. SHORT-TERM RADIOTHERAPY COURSE Dr. Gilberto £. Ocompo dan Returned to Colombia Dy Josefina Garin dn 197 Intern San Juan Cy Hoxp Dy Mara © Taree Bn adotherapi, ahi, Bees De. Charen i. Rent Mar 1973 © Ape 1978 NOL, Bethea D. RADIOLOGICAL PHYSICS Dr. Marin F. Tava Nov 1974 Dee 1874 Radiother pis, Bahia Brasil Geom Ramet 'ug 1974 Bob 1978 Medial Priest Colombin Roberto Curnce 'ue 1973 Ben t9% Dracir, Radin Teele Colom ---Page Break--- eee RADIATION ONCOLOGY DIVISION aE Fiscal Year 1976+ i tr A, Radiation Therapy Residency Program Gloria E. Arroyo Both (MD) Veteran's Adm, & FRNC (ER) B, Special Training: Radiation therapy Jorge A. Mosca Leva (MD) Hosp. Centre Guillermo Uuerra Porody (MD)

(Colombia) Arturo A. Yarach () UPR Medica) Seto. ©. Short Tom

Radistherauy Breiming Aercndutien (Fru) rR) Luis 4. Almodovar, UPR Med. Sci. Campus (FR) Marin M. Cardona, UPR Med. Sci. Campus (PR) Antonio G. Sotomayor, UPR Med. Sci. Campus (FR) Nestor C. Tirado, UPR Med. Sci. Campus (PR) Noel Totti, UPR Med. Sci. Campus (FR) Francisco J. Vizonrrondo, UPR Med. Sci. Campus (FR) Ivan E. Del'Tro, UPR Med. Sci. Campus (FR) Carmen D. Zorrilla, UPR Med. Sci. Campus (FR) Gilberto Collazo, UPR Med. Sci. Campus (FR) Eduardo C. Castro, UPR Med. Sci. Campus (FR) Nayde R. Figueroa, UPR Med. Sci. Campus (PR) Marie B.E. Vélez, UPR Med. Sci. Campus (PR) Sigireds Acosta Pérez, UPR Med. Sci. Campus (FR) Marceta de la Torre, J. Nac. de Buenos Aires (Argentina) ee 'Tebulated Marca Ist., 1976 2B ---Page Break--- Nuclear Medicine Division Training Activities January 1974 to June 1975, 1. Basic Nuclear Medicine Course Name Country Duration Sponsor Freer Wiring Guimarses Buus ul 29 Nov 1974 Pane Preys do Gomes Brac S34 be Nov tase PuNe Pie S3u- Bo Noe tare Rafael argues 9. PR FMar- 183601974 Lange Studion {ton Lopes St Pe My 1874 Lin Stun Gynt Cotta Campus June an sl Sitear Mcine dow Ao 3b Pr SM G0 AK 1 Nie Me" Radiology Fated tain, ab, Pee Sep 1974 Lange Sain Antonio Ronis, SL, he OM 1874 Noe' Neurology ene Pe Qe 1974 Noe Med. Radiology Pe Dee urd Nee Med. Radiology ee Noviarg Nie Nat Newly PR sreb-state ies Sti adtoee Pk Ars Sie Rte - Neurology PR f fed" Neuro a Fede Sis, 3, PR Oct-Nov 1978 Ghemen © sbaleo, MD PR Pepe sn tas Elementary Course in Nuclear Medicine for Technicians M.S. Degree Program in Radiological Health 4 Lectures and 9 demonstrations for students 26 Jun-26 Jun 1974 4 Lectures and 6 demonstrations for students 6. Oak Ridge Undergraduate Research Training 2 Student UPR School of Public Health Jun-19.4 Jun 1975 UPR Seto ofF Ble eat 7. Nuclear Medicine for Radiology Residents 12 Conference for 22 Residents 8. Nuclear Medicine Course for Endocrinology Fellows 2 conferences, 7 Demonstrations 9. Lectures for Medi 2 Lectures ---Page Break--- NUCLEAR MEDICINE DIVISION ose He cresco Carrucs (MD) U. de ice

Andes (Venezuela) Carlos 4. Svade (MD) Hospital San Roque (Argentina) Jaime 4. Yavura (MD) Hospital Viedna (Bolivia) Jose i. Motinari (0) Unkv. Hospital (FR) Eduardo Luisig Brune (MD) Hospital Porto Alegre (Brazil) Yolanda Veers Castro, Univ. del Valle (Colombia) BL Basie anet Techniques Course sotope Angel P. Avils Ramos, Univ. College Cayey (ER) Carmen C. Cubetterc (HD) Univ. tines. (FR) Elea Cora, UE Mel. Sci, Came (FR) for H. Cresp. Carrot (MD) U. de los Andes (Venezuela) Manuel 4. Marital Soane, UK Med. Sel. Campus (FA) Jorge Sanchez Rodriguez, UFR Med. Sci. Campus (FR) Freids Silva de Rolian (MD) Univ. fay. GR Carte: 8. Spada (MD) Hospital San Roque (Argentina) Ruben L. Vélez, UPR Med. Sci. Campus AR Jaime A. Yapura (MD) Hospital Viedna. (Bolivia) Antonia Benitez, Yeueren's Adm. (ER) Angels Saavedra, Hospital San Juan de Dios, (Bolivia) Savard Ludvis Brunci (MD) Hospital Porto Alegre (Brazil) Yolanda Otero Gastro, Univ. de Valle (Colombia) Marie C. Bellestero, UPR Med. Sci. Campus (PR) B. Yéira Cappes Bursos, FRNC employee (PR) Magali de Mari, (MD) auditor (UA) ©. Special Training: Clinical Application of Radiotracers Ian L. Morgan, Tenn, Technological Univ. (USA) Rus Queonland (MD) UIR Med. Sci. Campus (PR) Short Courses: Nuclear Medicine Luis A. de Jeals ve 6, UFR Med. Sci. Campus (FR) B. Orientation Course in Nuclear Medicine (for medical technologists) 59 students, UPR Med. Sci. Campus 'Tabulated March 1st, 1976 28 ---Page Break--- Medical Physics Training Activities, Jan 1974 — June 1975, AIN SERVICE TRAINING IN MEDICAL PHYSICS Me Mor M. Vazquez, Teacher, Mamacao High School Jan 1974—June 1974 Dr. Gloria Aroyo, Resident in Radiation Oncology July 1974—August 1974 Mr. German Rami, Coptrene 1 fA Fellow: Come August 1974—February 1978, Mr. Roberto Correa, Fajardo. #-A.H00. Fellow, Colera August 1974 to January 1978, Mr. Antonio G. Suimayor, Fourth Year Medical Student, UPR August 1978 Ms. Mart. Veer, Fourth Year Medical Student, UPR June 1975 Mr.

Sitredo Aces, Fourth Year Medical.

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DEGREE PROGRAM. ISRADIOLOGICAL HEALTH, UPR 1. Orientation i Medical Physics dun 10~
24 (Ch Pn Chaver LARA Fellow, Pens (Gernin Ramirez Contreras 1A FA, Fallow, Colombia
Roberto CuwneasFujrso' PAHO, Fellow. Colombe Rovalinds Gonzsee asl Mevto Rice USA)
Brenda Manich Moraes Pesto Rico (USAY aye Pires Katt Poero Rio (UBA} Cruz Mari Nasr Piero
Rio (USA) {ormen Zola Sntdonado. Fst Yor Media Student, UPR 2 Summer Trang i Medel Phyvies
May 27 Jun, 1978 ly Gibb P.A.L0. Fellow, Panama 'Azacens Carin Quiroz OAS Pellow Eetndor
Rolando Monguere Po Kari Prado PHS. Feiow, Puerto Rio (USA) Ian Ema Cabin PALS. Fellow,
Puerto Reo (USA) ard Herder PALS. Fallow, Puerta Rice USA} Armando Tones Roce Rie (USA 8.
PRC, Madation Dosimety Dee ET Rend 4:FRNO530, Radiation Protection Hnsatés DFT. Agard 5:
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LECTURES IN RADIOLOGICAL, PHYSICS ~ Offered in clabration with the Dept. of Radoagic!
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UNIVERSITY HOSPITAL NURSES — Offered withthe adstane ofthe Health and Saety Dron on
Sate Handing of Baten Lecturer "ow C. Pacheco, Pusttio Toledo May 15-21, 1974 'ote
€:Peheco;Stge Scenes 2 Sos CPichoco, Sttings Gomes ---Page Break--- eee MEDICAL FHYSICS
SECTION ag Fiscal Year 19/6" A, Special Treining: Medical Physics (usa) Janitie B. Pernell, Bishop
College, Dall Eagar'. ornender (72) Rolando vsequera Per!) eee 'Tabulated March Ist., 1976 2
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Health (Sumer 'rt Rolando Mosquera (Vr) Sagara oR) deurans 2 (Bouse) Kari. Prado (PR)
Ricalinds donzeler (FR) Cray a. GR) Coban (FR) ---Page Break--- [Nuclear Science and
Technolog, Section Training Aetivitie a 'Training Activities of the Nuclear Science and Technology
Section, January 1, 1974 — June

30, 1975 Nome County Advance Inclusive Dates A. Thesis Research, MS. Degree Phin Coromble
FA Gonzato Avg 1928 — Jun 1976 Poerio Rico A. Gonzalo Dul" 1874 Feb A9te Argentina 1973—
Jan 87 Victor Sango Puerto Rico. Paolo del Sento 1913 — 1978 Oendido Maton Puerto Rico RS.
Sings 1914 Dec 1974 ow Lape Seago Puerto Rico 1914 — 1978 B. Thesis Research MS, Degree,
Chemistry Héctor D. Colman Rolin Paraguay Ate Jan 1974 Feb 1975 Mars B. Coign de Ome -
Puerto Rico «RA Lee a 1915 owe Esti Pere Puerto Rico RA Lee en 98 la del Mar Garcia de
Romosdo Puerto Rico RA Lek a 1925, Mara Gare Puerto Rico LA Lee a 197 Victor Gonads Puerto
Rico MLA tee ey 198 Samuel Hernandez Puerto Rico Fs enroand Rate fall 1974 un 3978 ©.
Post-Graduate Research, Physics Genaro Coronet Paraguay 4.4. Gono and 3 ay Aut 1974 Jun
1975 Antal Camas Arent 4A. Gonzalo. Graduate Courses Course - Barolimens bem 587
Introduction to Solid State Physics Setadents Guem 80% Radiation Chemistry a Chem 673
Chemical Kinetics ue (Chem 521 Nason Chemistry e 'Ghee 631 Graduate Seminar - 'Bee Eng 625
Solid State Electronics - . Special Training in Nuclear Sciences Robert M. Purcell, ORAU
Undergraduate Research Trince fun 1975 ---Page Break--- MATERIALS SCIENCE DIVISION a EE
Ay Thesis Research - M, 8, Physics José R. Lopes Santiago, UFR Mayaguez (FR) Osvaldo Matos,
UFR Mayaguez (FR) Fernando J. Noriera, U. del Valle (Guatemala) Jorge L. Ortiz, UR Mayaguez
(FR) B. Thesis Research - M. 8, Chemistry Luc del Mar Garcia, UPR Mayaguez, (FR) Maria B.
Colón, UFR Mayaguez (PR) UPR Mayaguez (FR) Special Training in Nuclear Sciences Robert M.
Purcell, Slippery Rock State College (USA) De chen. 499) Cecilia R. Quiñones, UFR Mayaguez
(FR) Victor B. Tare, UPR Mayaguez (PR) Gloria O. Mérgier, UPR Mayaguez (ER) B. Biochemical
Raman Spectroscopy Project Mario Rojas, UPR Mayaguez (Colombia) Roberto Torres, UPR

Mayaguez (PR) René Vota, UPR Mayaguez (FR) 'Tabulated March 1st, 1976 ---Page Break---
'Nuclear Engineering - Training Activities, January 1974 ~ June 1975 Special Courses. 'Short courses varying in length from one week to

Three months covering 4 varieties of topics related to nuclear engineering are offered approximately once a year for scientists, engineers, and others who have an interest in or need for knowledge in the nuclear field. During the first week in June 1975, a Summer Workshop on "The Risks and Benefits of Electrical Power Generation in Puerto Rico" was offered for high school teachers. This one-week workshop was jointly sponsored by the United States Energy Research and Development Administration, the Puerto Rico Nuclear Center, the University of Puerto Rico, Mayagüez Campus, and the Puerto Rico Water Resources Authority. The purpose of the workshop was to provide secondary science teachers with sufficient background to enable them to guide their students and communities towards a more factual and less emotional consideration of the risks and the benefits of electrical power generation in Puerto Rico. Fifty-two participants from several cities and towns throughout Puerto Rico attended the workshop.

Summary of Student Progress in the Master of Science Degree Program in Nuclear Engineering from January 1, 1974, to June 30, 1975.

Name - Citizenship - Awarded MS Degree

Chattappan, B. - India

Labrom, S. - India

Salven, D. - Dominican Republic

Muniom, A. - Dominican Republic

Primarily, B. - Research

Andrews, C. - U.S.

Carter, D. - U.S.

Montaner, A. - U.S.

Poven, R. - U.S.

Reyes, B. - U.S.

Rivers, S. - U.S.

Soto, V. - U.S.

---Page Break---

Student Thesis Research Projects

Student Name - Thesis Title

Andres, C. - Determination of Argon-39 in Puerto Rico

Sameer, S. - Analysis of Contaminated Casting Systems

K.B. Pedersen - for Naval Power Plants

Reon, C. - Feasibility of Quantitative and Qualitative Analysis

O. Chattappan, B. - Statistical Analysis of Mo-99 and Cs-137 in Puerto Rico

K.B. Pedersen - Instrumental Neutron Activation Analysis

Argon Sources, Population, and Monitoring in Puerto Rico

Ora, L. - Natural Radiation Exposure in Puerto Rico

G. Chattappan, K. - Determination of the Concentration of...

Trace Klemens 'Wipes Sultan, Application of the Active Rats Facetongue for 1.8 Sameer Menon, +

Technique for Measuring Case Stopping Freeform 'Alpha Pals Utilization Twos Site Stine Deseo Maslem. 'Computation of Operating Mist and Cling Toe 8 Gilead Dependent' Psion radio verified usatites Peree. Moophoric Transport of Volatile and Gasnows Radlor Onin sci Eien Prom The PRN TIGA Neutor Reserve Accident rates for the Transportation of Wradted KB Paden Fuel From Nuclear Power Plant Love ia Pes Rice Stompin Courses Taught by Nuclear Engineering Faculty/Scientists Se Elements of Nuclear Engineering i. Pederson Mathematics of Modern Science ALE Gienth Resource Tory HPs Site Measurements & Instrumentation B.S. Souter [Advanced Restor Theory HPave Mathematics of Modern Science I A Gia Nuclear Restor Technology K. Peden Reactor Laboratory B.S. Souter Specific Problems AF Gents Thee (ites, Onin, Pederson, Pas, Sse Seminar Gilat. Pedersen, Pisa, Souter Risks and Benefits of Sieve Power 'Generation in Poe Rie One, Pederen, Pa, Sse SE ee 2 ---Page Break--- eee NUCLEAR ENGINEERING VISION eos Fiscal Year i776 M.S. in Nuclear Engineering 4, UPR Way Lute B, Basie Per Manuel B. Oyea, (DR Mayaguer (Ry Eonundo Martner, eR Mayaguer (FR) Mitton Ruben Soto, UPR Mayaguez: (ER) Oscar Pérer Arens?, UPR Mayac ice (FR) cr) B. Thesis Research - 4. 8. in joer Engineering Dick Carrero, UFR Mayaguez (PR Frank Ferrer' UPR Mayaguez (55 Angel Butts Rivera. UPR Mayaguez (FR) © Special Training: Nuclear Engineering Loraine M. Salazar, Yale Univ. (USA) Tabulated March 1st, 1976 33 ---Page Break--- 'Tropical Agro-Sciences - Training Activities, January 1974 — June 1978 _ Course First Semester, 1971.75, Aero S82 Radionuclides Techniques in Agriculture 1d eau tie Aero 6 Resource 1 RRS Kaw Hot G8 Nici Techniques in Astral Research 2 Fea chain GF Wis. Photophysics and tip Wondering A. Creation aldonade Bol 680 Special Studies ays TP Re Boot Gm Research 2 Aero Sediments yen 648 Chemical Research 1 SN Deshpande and Some Ams #99 Reach Few SR Hee be es Horio 4A Grade aldmad Specimen Thesis Tie Fedenca Caer Peee eon ReB} gas Mutagenic

vests of Horan FAN Row stoxyuridine relation soaking Mars Artal were oem, Vsrcomtaiine SS. Deshpande eine oc beled vt deviates 'Mice Onis (PRY ok Cytogenet tft alin 2.8 Fer Monge Covmen aencio (PRI. ok, fein Cadmumon the pts Cafe aldonado ee Rie Se oo Trainee Spomoniy ents S. Garcu Vilalabot Venezue Gran Maueal de Avacutho Felowahip(Wenesori' Ulin Deda Sartor Vanesa t Hector © Fore Menu Pera ors Mar Sep 1975 Jala. Radosesch Vege - Im addition, these unees engged in research trsining in the following topies Tas kevuch esis N Garct Voboe Protection uf cup pans agin SOs 1 yorum is Lula Datgco Saree Physiol effet her me 'Hector E. Flores Nevins Pont Tan cone Jia M. Radosevich Vrigoven Role ofendoges hurmones vn tortion 34 ---Page Break--- ee TROPICAL AGRO-SCIENCES uIVTStON OT Pisce Year 1976+ et Negro Thesis Research = M, 8. Biology Carmen Asencio, UM Mayaguez, (FR) Alice Ortiz de Carabsllo, UPR vayagues (FR) Blanca R. Riesco, UPR Mayagues (USA) B. Thesis Research — §. §. Agronoay Federic> Cuevas, UPR Nayague: (Dominican Rep.) a2 Training: Plant Pystology Ky Deluado, U. del Zutia (Veneructa) N. Garefa, U. uel gudia (Vene Héctor il. Flores, U. Mayor San Mart Sulla M, Radosevici., U. Mayor San Marco Hirove Ruter, Instivuto aes x Jorge Otivers, (Mexice) > fot nis Rivera, UPE ce) José A. Redricues. UIR Mayacue: (FR) Ruben Guadalupe Linn, URR Mayaguez (FR) Edwin Acevedo, UPR Kayaguer (eR) Bfren Pérez, UFR Mayaguer (ER) Ricardo Y. Leen, UIR Mayaguez, (5) Salvador) EB. Biol. 699 - Research (3 cendents) F. Hort. 668 - Growth Regulators Guadalupe Luna, UPR. Mayagues (FR) Bfren Pérez, UPR Mayaguez (ER) Héctor Flores, U. Hayor San Marcos (Peru) G. Biol. 618 ~ cytogenetics Jose 1. Lizarribar, UPR Mayaguez (FR) Yolanda Castro, UPR Mayagues (C-Loabsa) Deyanire Lemus, UZK Mayague: (Venesuela) 'Tebulated MG 'ch Tet, 1976 ---Page Break--- oe TROPICAL AGRO-SCTARCES DIVISION ring Pascal Your 1976" MI. Biol. 614 ~ mMuctear 'nntques in Biology Blanca R. Riesco, VER Mayagez (USA) Yolanda Cartro, UPR Hayacue (Colombia. T. Hort, 605 -

Molecular Techniques in Horticulture
Stren Pérez, UPR Cayey (PR)
Aleyda Juárez, UPR Mayagüez (Puerto Rico)

W15 = Spectral problems in crop (0. student)
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Summary of Training Activities of the Applied Physical Sciences Division
January 1974 — June 1975, January 1974 - June 1975

1. Thesis Research, PhD. Dept. Chemistry, UPR Río Piedras (1971)
 2. Thesis Research, MS. Dept. Chemistry, UPR Mayagüez (1974)
 3. Special Training in Gamma Radiation, ORAU Graduate Research Trainee, 1972
 4. Special Training in Organic Chemistry, Deborah's Nares, Hevuchump, SUBE Trainee, March 1974
 5. Madre ton?
- Page Break---

PUERTO RICO NUCLEAR CRITER
Partial List of Distinguished Alumni
March 1st, 1976

1. Dr. Juan J. Rigau, Director
2. César A. Goutier, M.D., Chief Office of Petroleum Affairs, Radiology Department, Commonwealth of Puerto Rico, Metropolitan Hospital, San Juan, Puerto Rico
3. Dr. Juan A. Bonnet, Head
4. Mr. Raul Mechin, Supervisor, Environmental Protection, Quality Assurance, and Nuclear Division, Department of Puerto Rico Water Resources Authority, San Juan, Puerto Rico
5. Jeanne Ubitias, M.D., Center Radiotherapy Service
6. Orlando Anglerd, Chief, Veterans Administration Hospital, Environmental Protection Division, Puerto Rico Water Resources Authority
7. Berrfóa, M.D., Chief, Radiotherapy Department
8. Sonadiez Martínez, Oncologic Hospital
9. Mr. Juan Alcaraz, Supervisor, Molecular Studies
10. José N. Correa, M.D.

Director Authority: Radiotherapy Department Oncologie Chinie U, Dr. Puavic Padovant, Assoc. Ponce, Puerto Rico Professor. Director, Entomology Laboratory, University of 6, Lillian Conde, M.D., Chief Puerto Rico - Mayaguez: Haslear Medicine Laboratory. San Juan Municipal Hospital
15. Mr. Jesds Parritia, Dean of San Juan, Puerto Rico Sciences, Catholic University President Nuclear Medicine of Puerto Rico, Ponce PR. Society of Puerto Rico 26, Mr. Peare Crus, Supervisor
7. Pedro J. Santiago, M.D., Director Meteorology and Dispersion Medical Education Office and Chief, Section, Puerto Rico Water Pediatric Oncologic Histology Section Resource: Authority University Hospital San Juan, Puerto Rico San Juan, Puerto Rico AT. Dry Kertberto Torres
8. José J. Corcine, M.D., Director Assistant Professor Medical Research Conver School of Public Health Puerto Rico Medical Center Medical Sciences Campus San Juan, Puerto Rico University of Puerto Rico
9. Juan B. Rizek, M.D, 28. Mr. Richard Brow, Assistant Secretary of Health Acting Associate Director Department of Health Puerto Rico Nuclear Center Commonwealth of Puerto Rico

Mayaguez, Puerto Rico Mend, Clinics, Teachers Association Hospital San Juan, Puerto Rico 38
---Page Break--- 19. 22, 25 Angel L. Rodríguez Rosado, M.D.; Director Nuclear Medicine
Laboratory Pavia Hospital San Juan, Puerto Rico Past-President, Nuclear Medicine Society of
Puerto Rico Martina Castells López, M.D., Chief Radiotherapy Department, Presbyterian Hospital
San Juan, Puerto Rico Bernardo J. Méquez, M.D., Chief Radiology Department 1, Gonzalez
Martinez, Oncologic Hospital San Juan, Puerto Rico Orga I. Maldonado, M.D., Medical Director,
San Juan Municipal Hospital San Juan, Puerto Rico Evelyn Cintrada Ruta, M.D., Director Nuclear
Medicine Laboratory "Hospital de Damas" and Police District Hospital, Ponce, Puerto Rico Valeth
Ranive: Ledesna, M.D., Chief Nuclear Medicine Laboratory Mayaguez Medical Center Mayaguez,
Puerto Rico Nestor Ruben Ortíz, Ph.D. Scientist Department of Natural Resources

Commonwealth of Puerto Rico

San Juan, Ps Heriberto Plaza, Ph.D.

Architectural Engineering Department, University of Puerto Rico Mayaguez, Puerto Rico

Secretary IT PRIC Carios Reynor, Dean of Studies Regional College System University of Puerto
Rico

Efigenio Rivera, Compliance Safety Officer U.S. Department of Labor Occupational Safety and
Health Act

San Juan, Puerto Rico

Dantel Torres, Medical Physicist, Radiotherapy Department Mayaguez Medical Center Mayaguez,
Puerto Rico

José C. Pacheco, Res. Assoc. IIT Medical Physics Section Puerto Rico Nuclear Center San Juan,
Puerto Rico

Jost R. Gonzalez, Professor UPR Arecibo Regional College Arecibo, Puerto Rico

Pedro del Valle, Radiation Protection Specialist Department of Health Commonwealth of Puerto
Rico San Juan, Puerto Rico

José Pérez, Radiochemist, Department of Health Commonwealth of Puerto Rico San Juan, Puerto
Rico

Félix Toledo, Professor Colegio Universitario del Turabo, Caguas, Puerto Rico

Research Associate IT (As Honorary) RNC

David Svidais, Director Radiologic Health Program Department of Health Commonwealth of Puerto
Rico San Juan, Puerto Rico

Mima Irizarry, Acting Head Health and Safety Division Puerto Rico Nuclear Center Mayaguez,
Puerto Rico

Brian Tonsilla, Professor Catholic University of Puerto Rico, Ponce, Puerto Rico

Marcelina Vélez de Santiago, Director, Chemistry Department, Catholic University of Puerto Rico,
Ponce, Puerto Rico

Milagros Santos, Chemist UPR Agricultural Experiment Station, Rio Piedras Puerto Rico

---Page Break---

Zlote Grancil, Assistant Professor Chemistry Department, UPR Mayaguez

Joss Rivers Rivera, Assistant Professor Puerto Rico Junior College San Juan, Puerto Rico

Maria L. McClin, Assistant Chemistry Department UPR Bayamón Regional College

Carmen Lecumberry, Assistant Chemistry Department UPR Mayaguez

Fernanda Rind, Chemist Puerto Rico Industrial Development Company, San Juan, Puerto Rico

Bate Rivera Oval, Assistant Commonwealth of Puerto Rico

Fernando Diaz, Assistant

Professor UTR Fence "epidemiology College Candida Rosa Jie Jenis, Instructor Chemistry

Department UPR Arecibo Regional College, win Mazario, Scientist Digital Bureau. For the purpose of San Juan, Puerto Rico. Ovalde Mate, Physics Department UPR = Fise Vicars 1. to the Director Dr. Manuel Garfouez Pern, Professor Department of Engineering UPR = Mayagüez. Nestor Asot2, Professor Department of Physics UPR ~ Mayagüez. Muilo: Ribadenetra. Director in Environmental Engineering Catholic University, Quito, Ecuador. General Secretary, Atami: Energy Commission of Ecuador. 5h 6 St. De 60. L. 6. Joos Pacetti, Director Physics Department, Science Institute Asuncion, Paraguay. Yates Gristin, Nuclear Engineer, Reactor Department, Venezuelan Institute Scientific Investigation Caracas, Venezuela. cues, Pa.D. Professor, Genetics Dept. Universidad Autónoma de Nuevo León. Peco Sotd, Plant Manager Cxera Food Products Manati, Puerto Rico. Fernando Lspe: Carrasco Nuclear Biophysicist Institute of Nuclear Energy Mexico. Vackirs Jvavatana Nuclear Energy Commission Bangkok, Thailand. Aoranar Shicalen, Professor Department of Physics Universidad Autónoma de Santo Domingo Dominican Republic. Augustis Mhtman, Scientist National Student Brercy: Commission, Campinas, Brazil. Baith Fobles de Inicarry Gani Research Laboratory San Germin, Puerto Rico. Santiago (Gomez, Senior Advisor Health and Safety Division FIC ~ lo Piedras. Heston Cotman Department of Chemistry Universidad de Paraguay. ---Page Break--- 6. or 68. 69. 10. nn. re. 7h, 1D. Oil Department "Universidad de Nicaragua." Bornabé Zuloaga Tobén, Program Chemistry Department, Universidad de Antioquia Bucaramanga, Colombia. Doe Ne Tomé, M.D, Assoc. Professor Radiotherapy ~ School of Medicine UPR = San Juan. Antonio Bocch, M.D., Radiotherapist. University of Wisconsin Hospital Madison, Wisconsin. Quan Reusche, 4.0. Senior Scientist, Radiation Oncology Division IC - Blo Predrae. Mario Yuksanovie, 4.D., Director Department of Radiation Therapy Cedars of Lebanon Hospital Miami, Florida. Juan 3, Retié, M.D, Radiotherapist.

Sniland Medical Center Hospital Boston, Massachusetts Aldo B. Lanaro, M.D., Head Nuclear Medicine Division, FRNC Past-President, Nuclear Medicine Society of Puerto Rico Oriel Alva, M.D., Chief Radiology and Nuclear Medicine Department British Hospital Buenos Aires, Argentina Teter Mberstadt, M.D., Radiologist-Chemist Atomic Energy Commission, Mexico Hector M. Foreher, M.D., Director Nuclear Medicine Laboratory Endocrinology and Metabolism Clinic Buenos Aires, Argentina Rafael Gonzalez, M.D., Director Institute of Nuclear Medicine Santo Domingo, Dominican Republic A. 85. Rivaro Cris, M.D., Consultant Department of Health San José, Costa Rica Antonio Quigano B., M.D. Ex-Director, Medical and Biological Uses of Radioisotopes, Atomic Energy Commission, Mexico Arturo Valencia Serna, M.D. Chief, Radiotherapy Service Cantón, Colombia Gastón I. Feraepin, M.D., Director, Nuclear Medicine Department, Central Military Hospital, Buenos Aires Argentina Eduardo P. Cloud, M.D. Director Nuclear Medicine Laboratory Clinica Hospital F. Barvagan, M.D., Head Nuclear Medicine Department Nuclear Energy Commission La Paz, Bolivia President, Latin American Association of Societies of Biology and Nuclear Medicine Joao Soares de Almeida, M.D. Chief, Nuclear Medicine Service Bahia, Brazil Arfoides II, Sarmiento, M.D. Senior Scientist Nuclear Medicine Division PRIC - Flo Fledras Rend C. Dietrich, M.D. Radiology Resident University Hospital Rio Piedras, Puerto Rico Roberto Cuenca, Director Radiation Technology Program Universidad del Valle Cali, Colombia ---Page Break--- FELLOWSHIP SUPPORT ---Page Break--- PUERTO RICO NUCLEAR CENTER PRINCIPAL SOURCES OF FINANCIAL SUPPORT FOR TRAINEES FY 1961 ~ FY 1976 Fellowship Program Number of Grants ERDA Faculty Research Participation 24 ERDA Laboratory Graduate Participation 2 ERDA Undergraduate Research Training 6 UPR President's Office Fellowship Support 3 International Atomic Energy Agency 36 Organization of American States 24 Pan American Health Organization 6 TOTAL 2ar SO

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