BNWL-1600
UC-2

TECHNICAL PUBLICATIONS
OF BATTELLE-NORTHWEST DURING 1970

March 1971

AEC RESEARCH &
DEVELOPMENT REPORT

BNWL-1600

BATTELLE

NORTHWEST

BATTELLE MEMORIAL INSTITUTE

PACIFIC NORTHWEST LABORATORIES

3000 STEVENS DRIVE, P. O. BOX 999, RICHLAND, WASHINGTON 99352

3 3679 00062 0940

BNWL-1600

UC-2, General,
Miscellaneous,
and Progress Reports

TECHNICAL PUBLICATIONS OF BATTELLE-NORTHWEST
DURING 1970

Compiled by

E. F. Smith

Technical Information Department

March 1971

BATTELLE MEMORIAL INSTITUTE
PACIFIC NORTHWEST LABORATORY
RICHLAND, WASHINGTON
99352

Printed in the United States of America
Available from
National Technical Information Services
U. S. Department of Commerce
Springfield, Virginia 22151

Price: Printed Copy \$3.00; Microfiche \$0.95

TABLE OF CONTENTS

BNWL-1600

INTRODUCTION	vii
SUBJECT CATEGORIES.	1
BIOLOGY AND MEDICINE	1
BIOCHEMISTRY	1
GENERAL.	1
PROGRESS REPORTS	2
RADIOBIOLOGY	2
CHEMISTRY.	3
ANALYTICAL	3
COOLANT CHEMISTRY	4
PROGRESS REPORTS	4
GENERAL.	5
INORGANIC AND PHYSICAL	5
WASTE PROCESSING	6
PROGRESS REPORTS	7
ENGINEERING	7
EQUIPMENT	7
HEAT TRANSFER AND FLUID FLOW	8
GENERAL AND MISCELLANEOUS.	8
GENERAL.	8
PROGRESS REPORTS	9

TABLE OF CONTENTS (cont.)

GEOPHYSICS	9
ATMOSPHERIC SCIENCES	9
EARTH SCIENCES	10
PROGRESS REPORTS	12
HEALTH AND SAFETY.	12
AEROSOLS	12
GENERAL.	13
PROGRESS REPORTS	14
RADIATION MONITORING	15
INSTRUMENTATION	15
GENERAL.	15
PROGRESS REPORTS	16
RADIATION DETECTION.	16
ISOTOPES	17
GENERAL.	17
PROGRESS REPORTS	17
MATHEMATICS AND COMPUTERS.	18
COMPUTER PROGRAMS	18
GENERAL.	19
METALS, CERAMICS, AND MATERIALS	20
CRYSTAL STRUCTURE	20

TABLE OF CONTENTS (cont.)

METALS, CERAMICS, AND MATERIALS (cont.)

DEVELOPMENT, FABRICATION, AND TESTING	22
GENERAL.	23
NONDESTRUCTIVE TESTING	23
PROGRESS REPORTS	25
PROPERTIES	25
RADIATION EFFECTS	27
PHYSICS	29
GENERAL.	29
NEUTRON PHYSICS.	30
NUCLEAR PROPERTIES AND REACTIONS	30
PARTICLES AND RADIATION.	31
REACTOR TECHNOLOGY	32
FAST FLUX TEST FACILITY.	32
COMPONENTS	32
DESIGN	33
FUELS.	34
PROGRESS REPORTS	35
REACTOR PHYSICS	35
SAFETY	36
GENERAL.	36

REACTOR TECHNOLOGY (cont.)

PROGRESS REPORTS	37
REACTOR FUELS	37
REACTOR PHYSICS.	39
PROGRESS REPORTS	40
ROCKET AND RAMJET PROPULSION	40
PROGRESS REPORTS	40
SAFEGUARDS AND MATERIALS HANDLING.	41
GENERAL.	41
AUTHOR INDEX	43
NUMBER INDEX	49
DISTRIBUTION	51

INTRODUCTION

This report is one of an annual series and announces formal research and development reports and technical articles published during 1970 by Battelle-Northwest.

The reports were issued in accordance with the AEC Standard Distribution Lists for Scientific and Technical Reports (AEC Documents TID-4500 and M-3679). The unclassified reports are generally available from the National Technical Information Services, U.S. Department of Commerce, Springfield, Virginia 22151. Classified reports are available with proper literature access, from the AEC's Division of Technical Information Extension (DTIE), P. O. Box 62, Oak Ridge, Tennessee 37830.

The reports and articles are grouped by broad subject categories and arranged alphabetically by author within each category, except Progress Reports, which are arranged chronologically. An author index and report number index are also included.

Other reports in this series are BNWL-218, BNWL-387, BNWL-700, BNWL-1000, and BNWL-1400.

BIOCHEMISTRY

ELECTROLYTE TRANSPORT AND VOLTAGE MEASUREMENTS WITH RAT INTESTINE IN VITRO.
J. R. McKenney, M. F. Sullivan. American Journal of Physiology,
Vol. 217, No. 6, December, 1969, p. 1728-1735. BNWL-SA-1906.

EFFECT OF 800 R THORACIC X-IRRADIATION ON LUNG BIOCHEMISTRY.
E. G. Tombropoulos, J. M. Thomas. Radiation Research, Vol. 44, No.
1, October, 1970, p. 76-86. BNWL-SA-2946.

INDUCTION OF KYNURENINASE IN NEUROSPORA.
J. R. Turner, W. A. Sorsoli, W. H. Matchett. Journal of Bacteriology, Vol. 103, No. 2, August, 1970, p. 364-369. BNWL-SA-2921.

TEMPORAL SEPARATION OF TRANSCRIPTION AND TRANSLATION IN NEUROSPORA.
J. R. Turner, K. Terry, W. H. Matchett. Journal of Bacteriology,
Vol. 103, No. 2, August, 1970, p. 370-374. BNWL-SA-2922.

METABOLITE TRANSPORT IN MICRO-ORGANISMS.
W. R. Wiley, R. P. Schneider. American Zoologist, Vol. 10, 1970,
p. 405-412. BNWL-SA-3271.

TRYPTOPHAN TRANSPORT IN NEUROSPORA CRASSA: III. A TRYPTOPHAN-BINDING PROTEIN
RELEASED BY COLD OSMOTIC SHOCK.
W. R. Wiley. Journal of Bacteriology, September, 1970, p. 656-
662. BNWL-SA-3242.

GENERAL

FEEDING BIONOMICS OF JUVENILE CHINOOK SALMON IN THE CENTRAL COLUMBIA RIVER.
C. D. Becker. Northwest Science, Vol. 44, No. 2, May, 1970, p. 75-
81. BNWL-SA-2820.

HAEMATOZOA OF FISHES, WITH EMPHASIS ON NORTH AMERICAN RECORDS.
C. D. Becker. "A Symposium on Diseases of Fishes and Shellfishes".
S. F. Snieszko, editor. American Fisheries Society, 1970, p. 82-100.
BNWL-SA-2516.

TEMPERATURE, REPRODUCTION AND BEHAVIOR.
C. C. Coutant. Journal of the Sanitary Engineering Division, Pro-
ceedings of the American Society of Civil Engineers, Vol. 96, No.
SA2, April, 1970, p. 353-364. BNWL-SA-2165.

BIOLOGY AND MEDICINE (cont'd)

BNWL-1600

GENERAL (cont'd)

EFFECTS OF X-RADIATION AND THE INSECTICIDE, DDT, ON MORTALITY AND REPRODUCTION OF FLOUR BEETLES, *TRIBOLIUM CONFUSUM* JACQUELIN DU VAL AN T. *CASTANEUM* HERBST/CLEOPETRA: TENEBRIONIDAE WITH A GENETIC INTERPRETATION FOR DDT RESISTANCE.

H. E. Erdman. Annals of American Entomological Society, Vol. 63, No. 1, January, 1970, p. 191-197. BNWL-SA-2807.

ELECTRON MICROSCOPIC DETERMINATION OF SPECIFIC LEAF SURFACE AREA.

J. J. Hsieh, J. M. Thomas. American Journal of Botany, Vol. 57, No. 6, 1970, p. 613-615. BNWL-SA-2395.

GROUND DWELLING BEETLES IN BURNED AND UNBURNED VEGETATION.

W. H. Rickard. Journal of Range Management, Vol. 23, No. 4, July, 1970, p. 293-294.

PRENATAL GROWTH OF THE RAT.

M. R. Sikov, J. M. Thomas. Growth, Vol. 34, 1970, p. 1-14. BNWL-SA-2806.

STUDIES ON THE BIOLOGICAL EFFECTS OF THERMAL DISCHARGES FROM NUCLEAR REACTORS TO THE COLUMBIA RIVER AT HANFORD.

W. L. Templeton, C. C. Coutant. August 3, 1970. 38 p. BNWL-SA-3465.

PROGRESS REPORTS

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1969 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME 1: LIFE SCIENCES PART 1. BIOLOGICAL SCIENCES.

August, 1970. 90 p. BNWL-1306 Pt. 1.

RADIOBIOLOGY

PLUTONIUM INHALATION STUDIES/A SERIES OF LECTURES GIVEN IN JAPAN IN 1969 AT THE INVITATION OF THE JAPANESE ATOMIC ENERGY COMMISSION.

W. J. Bair. March 27, 1970. 275 p. BNWL-1221.

COMPARATIVE MORPHOLOGICAL AND FUNCTIONAL STUDIES OF NEPTUNIUM-INDUCED FATTY LIVERS IN RATS.

J. D. Berlin, D. D. Mahlum. Laboratory Investigation, Vol. 22, No. 3, 1970, p. 252-259. BNWL-SA-2702.

REASONS FOR DIFFERENCES IN CALCULATED ESTIMATES OF THE "CLOUD DOSE".

M. M. Hendrickson, D. L. Streng. October, 1970. BNWL-SA-3424.

THE UPTAKE, DISTRIBUTION AND EXCRETION OF PROMETHIUM IN HUMANS AND THE EFFECT OF DTPA ON THESE PARAMETERS.

H. E. Palmer, G. H. Crook, I. C. Nelson. Health Physics, Vol. 18, 1970, p. 53-61. BNWL-SA-1915.

BIOLOGY AND MEDICINE (cont'd)

BNWL-1600

RADIOBIOLOGY (cont'd)

AUTORADIOGRAPHIC STUDIES OF Zn-65 ADSORPTION BY PERIPHYTON.

F. L. Rose, C. E. Cushing. Science, Vol. 168, May 1, 1970, p. 576-577. BNWL-SA-3047.

MAINTENANCE OF PHAGOCYTIC FUNCTION FOLLOWING $^{239}\text{PuO}_2$ PARTICLE ADMINISTRATION.

C. L. Sanders. Health Physics, Vol. 18, 1970, p. 82-85. BNWL-SA-2568.

ULTRASTRUCTURAL LOCALIZATION OF INHALED $^{239}\text{PuO}_2$ PARTICLES IN ALVEOLAR EPITHELIUM AND MACROPHAGES.

C. L. Sanders, R. R. Adee. Health Physics, Vol. 18, 1970, p. 293-295. BNWL-SA-2773.

CARCINOGENIC STUDIES IN PULMONARY CARCINOGENESIS.

B. O. Stuart, A. P. Wehner, J. V. Dilley. Undated. 33 p. BNWL-SA-3552.

BIOLOGICAL IMPLICATIONS OF A MARINE RELEASE OF ^{90}Sr .

B. E. Vaughan, J. A. Strand. Health Physics, Vol. 18, 1970, p. 25-41.

CHEMISTRY

ANALYTICAL

X-RAY AND BETA GAMMA COINCIDENCE SPECTROMETRY APPLIED TO RADIOCHEMICAL ANALYSIS OF ENVIRONMENTAL SAMPLES.

F. P. Brauer, J. H. Kaye, R. E. Connally. Advances in Chemistry Series 13, No. 93, 1970, p. 231-252. BNWL-SA-1381.

CHEMICAL ANALYSES OF SODIUM SYSTEMS, FINAL REPORT.

W. O. Greenhalgh, W. H. Yunker, F. A. Scott. June, 1970. 56 p. BNWL-1407.

DETERMINING THE DISSOLVED OXYGEN IN SMALL QUANTITIES OF WATER.

D. A. Jones. Corrosion, Vol. 26, No. 6, June, 1970, p. 151-154. BNWL-SA-2723.

THE DETERMINATION OF PLUTONIUM IN BIOLOGICAL MATERIALS BY EXTRACTION AND LIQUID SCINTILLATION COUNTING.

R. F. Keough, G. J. Powers. Analytical Chemistry, Vol. 42, No. 3, March, 1970, p. 419-421. BNWL-SA-2485.

TOTAL BURN SPECTROGRAPHIC ANALYSIS OF PLUTONIUM OXIDE.

R. Ko. September 11, 1969. 5 p. BNWL-SA-2546.

CHEMISTRY (cont'd)

BNWL-1600

ANALYTICAL (cont'd)

ACTIVATION FOIL SPECTROMETRY--ENERGIES LESS THAN 14 MeV.

W. N. McElroy. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 422-425.

COSMOGENIC AND PRIMORDIAL RADIONUCLIDE MEASUREMENTS IN APOLLO 11 SAMPLES BY NONDESTRUCTIVE GAMMA-RAY SPECTROMETRY.

R. W. Perkins, L. A. Rancitelli, J. A. Copper, J. H. Kaye, N. A. Wogman. Science, Vol. 167, January 30, 1970, p. 544-580.

THE NONDESTRUCTIVE MEASUREMENT OF RADIONUCLIDES IN APOLLO 11 SAMPLES.

R. W. Perkins, L. A. Rancitelli, J. A. Copper, J. H. Kaye. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 55-56.

RADIONUCLIDE COMPOSITION OF THE ALLENDE METEORITE FROM NONDESTRUCTIVE GAMMA-RAY SPECTROMETRIC ANALYSIS.

L. A. Rancitelli, R. W. Perkins, J. H. Kaye, J. A. Cooper, N. A. Wogman. Science, Vol. 166, December 5, 1969, p. 1269-1271. BNWL-SA-2613.

ANALYTICAL CHEMISTRY PROGRAM FOR LMFBR/FFTF FUELS.

F. M. Smith, B. R. Hayward. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 602-603.

COOLANT CHEMISTRY

CALCULATION OF REACTIVITY CHANGE FROM VOIDING THE HEAVY WATER COOLANT OF THE PLUTONIUM RECYCLE TEST REACTOR.

J. L. Maryott. June, 1970. 46 p. BNWL-1352.

ACTIVATION AND SHIELDING OF FTR SODIUM.

C. A. Mansius. April, 1970. 25 p. BNWL-1339.

LOW COST HEAVY-WATER PRODUCTION BY WATER DISTILLATION.

D. W. Bolme, J. R. Young. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 496-497. BNWL-SA-2939.

....PROGRESS REPORTS

SODIUM TECHNOLOGY QUARTERLY REPORT JANUARY, FEBRUARY, MARCH 1970.

April, 1970. 126 p. BNWL-1200-3.

SODIUM TECHNOLOGY QUARTERLY REPORT APRIL, MAY, JUNE 1970.

August, 1970. 120 p. BNWL-1200-4.

CHEMISTRY (cont'd)

BNWL-1600

GENERAL

CURRENT RECTIFICATION AND ACTION POTENTIALS ACROSS THIN LIPID MEMBRANES.

D. R. Kalkwarf, D. L. Frasco, W. H. Brattain. Physical Principles of Biological Membranes, Paper No. 8, January, 1970, p. 165-174. BNWL-SA-2222.

U.S. TRANSURANIUM REGISTRY.

C. E. Newton, Jr., N. D. Norwood. May 18, 1970. 8 p. BNWL-SA-3307.

FUTURE AVAILABILITY OF FISSION PRODUCT CESIUM AND STRONTIUM.

H. H. Van Tuyl. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 66-67. BNWL-SA-3122.

FLUORESCENCE OF LIQUID BENZENE UNDER PROTON AND ELECTRON IMPACT.

M. L. West, L. L. Nichols. Journal of Physical Chemistry, Vol. 74, 1970, p. 2404-2406. BNWL-SA-2495.

INORGANIC AND PHYSICAL

PHOSPHORUS REMOVAL FROM EFFLUENTS IN ALUMINA COLUMNS.

L. L. Ames, Jr., R. B. Dean. Journal of the Water Pollution Control Federation, Part 2, May, 1970, p. R161-R172. BNWL-SA-2525.

REACTIONS OF THE SESQUIOXIDES OF Pm, Nd, AND Sm WITH WATER.

H. T. Fullam, F. P. Roberts. June, 1970. 34 p. BNWL-1421.

THE DE-EXCITATION PROBABILITY OF A SURFACE.

K. M. Maloney. Journal of Physical Chemistry, Vol. 73, September, 1969, p. 3158-3160. BNWL-SA-2425.

AMMONIA REMOVAL FROM SECONDARY EFFLUENTS BY SELECTIVE ION EXCHANGE.

B. W. Mercer, L. L. Ames, C. J. Touhill, W. J. Van Slyke, R. B. Dean. Journal of the Water Pollution Control Federation, February, 1970, Part 2, p. R95-R107. BNWL-SA-2858.

CESIUM PURIFICATION BY ZEOLITE ION EXCHANGE.

B. W. Mercer, L. L. Ames, Jr., P. W. Smith. Nuclear Applications and Technology, Vol. 8, No. 1, January, 1970, p. 62-69. BNWL-SA-1702.

SOME OBSERVATIONS ON NOBLE GAS PARTITIONING IN DYNAMIC AIR-WATER SYSTEMS.

J. Mishima, L. C. Schwendiman. August 28, 1970. 14 p. BNWL-SA-3360.

PURIFICATION OF DI-(2-ETHYLHEXYL) PHOSPHORIC ACID BY PRECIPITATION OF COPPER (II) DI-(2-ETHYLHEXYL) PHOSPHATE.

J. A. Partridge, R. C. Jensen. Journal of Inorganic and Nuclear Chemistry, Vol. 31, 1969, p. 2587-2589. BNWL-SA-1502.

CHEMISTRY (cont'd)

BNWL-1600

INORGANIC AND PHYSICAL (cont'd)

INTERIM REPORT: THE METAL-WATER REACTIONS OF IRRADIATED N-REACTOR FUELS AT 1025 TO 1080 DEGREES C.

D. L. Reid, G. M. Hesson, J. E. Hammond. August, 1970. 43 p.
BNWL-1361. (Secret).

WASTE PROCESSING

PRESENT STATUS OF THE US PROGRAM ON THE SOLIDIFICATION OF HIGH-LEVEL RADIO-ACTIVE WASTES.

A. G. Blasewitz, K. J. Schneider. May 11, 1970. 17 p. BNWL-SA-3288.

WASTE SOLIDIFICATION PROGRAM VOLUME 6. SPRAY SOLIDIFICATION PERFORMANCE DURING FIRST RADIOACTIVE TESTS IN WASTE SOLIDIFICATION ENGINEERING PROTOTYPES.

W. R. Bond, J. N. Hartley, J. E. Mendel, J. L. McElroy, K. J. Schneider, M. R. Schwab. August, 1970. 200 p. BNWL-1391.

ANALYSIS OF HYDROLOGICAL FACTORS INFLUENCING THE OPERATION OF THE 100-N EMERGENCY WASTE DISPOSAL CRIB.

D. B. Clearlock, R. D. Mudd. November, 1970. 33 p. BNWL-1503.

HANFORD WASTE DISPOSAL SUMMARY - 1969.

R. B. Hall. September, 1970. 20 p. BNWL-1427 REV. (Secret).

WASTE SOLIDIFICATION PROGRAM VOLUME 5. PHOSPHATE GLASS SOLIDIFICATION PERFORMANCE DURING FIRST RADIOACTIVE TESTS IN WASTE SOLIDIFICATION ENGINEERING PROTOTYPES.

J. L. McElroy, J. N. Hartley, K. J. Schneider, R. F. Drager. February 3, 1970. 206 p. BNWL-1185.

ULTIMATE DISPOSAL OF WASTES TO SOIL.

R. C. Routson, R. E. Wildung. Chemical Engineering Progress Symposium Series, Vol. 65, No. 97, 1969, p. 19-25. BNWL-SA-2802.

DISPOSAL OF LIQUID WASTES TO COASTAL WATERS BY THE ATOMIC ENERGY INDUSTRY - A PREVIEW OF THE FUTURE OF POLLUTION CONTROL.

W. L. Templeton. Chemical Engineering Progress, Vol. 66, No. 2, February, 1970, p. 45-50. BNWL-SA-2575.

WASTE SOLIDIFICATION DEMONSTRATION PROGRAM: CHARACTERIZATION OF NONRADIO-ACTIVE SAMPLES OF SOLIDIFIED HIGH-LEVEL WASTE.

R. J. Thompson, J. E. Mendel, J. H. Kleinpeter. June, 1970. 42 p.
BNWL-1393.

CHEMISTRY (cont'd)

BNWL-1600

WASTE PROCESSING (cont'd)

WASTE SOLIDIFICATION DEMONSTRATION PROGRAM EXPERIMENTAL TECHNIQUES FOR CHARACTERIZATION OF HIGH-LEVEL RADIOACTIVE SOLIDIFIED WASTE.

R. J. Thompson, J. E. Mendel, C. Hampton, Jr., H. H. Irby, Sr., J. H. Kleinpeter. June, 1970. 60 p. BNWL-1425.

A PRELIMINARY SAFETY ANALYSIS OF NEAR SURFACE STORAGE OF RADIOACTIVE WASTE AS SALT CAKES.

C. M. Unruh. February 5, 1970. 52 p. BNWL-1194.

PROGRESS REPORTS

QUARTERLY PROGRESS REPORT RESEARCH AND DEVELOPMENT ACTIVITIES FIXATION OF RADIOACTIVE RESIDUES AUGUST, SEPTEMBER AND OCTOBER, 1969.

A. G. Blasewitz. December, 1969. 45 p. BNWL-1263.

QUARTERLY PROGRESS REPORT RESEARCH AND DEVELOPMENT ACTIVITIES FIXATION OF RADIOACTIVE RESIDUES NOVEMBER, DECEMBER, 1969 AND JANUARY, 1970.

A. G. Blasewitz. March 11, 1970. 45 p. BNWL-1311.

QUARTERLY PROGRESS REPORT RESEARCH AND DEVELOPMENT ACTIVITIES FIXATION OF RADIOACTIVE RESIDUES FEBRUARY, MARCH, AND APRIL, 1970.

A. G. Blasewitz. May, 1970. 57 p. BNWL-1401.

QUARTERLY PROGRESS REPORT RESEARCH AND DEVELOPMENT ACTIVITIES FIXATION OF RADIOACTIVE RESIDUES MAY, JUNE AND JULY, 1970.

A. G. Blasewitz. August, 1970. 24 p. BNWL-1494.

ENGINEERING

EQUIPMENT

PNL BASELINE DESIGN GOAL POSITION ON HOT CELL DESIGN CHOICE ITEMS.

D. E. Boyd. March 22, 1968. 4 p. BNWL-764.

FAIL SAFE INSTALLATION OF A VACUUM SYSTEM FOR SPUTTERING APPLICATIONS IN A GLOVE BOX.

W. J. Coleman. Instrument Society of America, No. 803-70, 1970, p. 803-1/803-6. BNWL-1287, BNWL-SA-2961 REV.

USE OF A SODIUM JACKET FOR TEMPERATURE EQUALIZATION.

L. E. Chulos. Journal of Scientific Instruments, Series 2, Vol. 2, 1969, p. 1118-1119. BNWL-SA-2658.

A CALORIMETER FOR ABSORBED DOSE MEASUREMENTS AT LOW DOSE RATES.

D. M. Fleming. Health Physics, Vol. 18, 1970, p. 135-139. BNWL-SA-2332.

ENGINEERING (cont'd)

BNWL-1600

EQUIPMENT (cont'd)

A MECHANISM FOR TURBULENT MIXING BETWEEN ROD BUNDLE SUBCHANNELS.

D. S. Rowe. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 805.

CONDUCTIVITY CELLS FOR FLOW INDUCED VIBRATION MEASUREMENTS.

G. R. Sawtelle. April 15, 1970. 46 p. BNWL-SA-3298.

CHEMICAL-MECHANICAL CLEANING OF SMALL-DIAMETER TUBING.

R. R. Studer. May, 1970. 10 p. BNWL-1376.

HEAT TRANSFER AND FLUID FLOW

COMPRESSIBLE FLUID FLOW (BNW PROGRAM GAS).

B. H. Duane. March 27, 1970. 75 p. BNWL-1317.

AEROSOL TRANSPORT IN A CONDENSING-STEAM BOUNDARY LAYER.

J. M. Hales, T. W. Horst, L. C. Schwendiman. June, 1970. 59 p. BNWL-1125.

TAP-LOOP: A STABLE THERMAL ANALYZER CODE FOR THERMAL ANALYSIS OF CLOSED HYDRAULIC SYSTEMS.

C. E. Leach, E. L. Kelley, Jr. January 23, 1970. 150 p. BNWL-1172.

MIXING MOCK-UP STUDY OF THE SODIUM CHEMICAL TECHNOLOGY FACILITY SODIUM RESERVOIR.

D. H. Lester, W. F. Smith. April 16, 1970. 40 p. BNWL-1269.

DYNAMIC DIGITAL COMPUTER SIMULATION OF THE FFTF DUMP HEAT EXCHANGER.

R. N. Madsen. April 29, 1970. 63 p. BNWL-1319.

INITIAL- AND BOUNDARY-VALUE FLOW SOLUTIONS DURING BOILING IN TWO INTERCONNECTED PARALLEL CHANNELS.

D. S. Rowe. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 834-835.

UNIPOLARLY CHARGED AEROSOLS (EFFECT ON DEPOSITION IN TUBES AND ON DROPLET SIZE).

A. P. Wehner, G. A. Sehmel, L. C. Schwendiman, J. G. Harter. Archives of Environmental Health, Vol. 20, January, 1970, p. 28-36.

GENERAL AND MISCELLANEOUS

GENERAL

TECHNOLOGICAL FORECASTING.

S. R. Fields. June, 1970. 64 p. BNWL-1466.

GENERAL AND MISCELLANEOUS (cont'd)

BNWL-1600

GENERAL (cont'd)

DISCUSSION - PAPER 70 - WA/ENER-12, "CHANGING EMPHASIS IN THE SITING OF STEAM ELECTRIC POWER PLANTS".

M. M. Yarosh of ORNL, R. T. Jaske. December 2, 1970. BNWL-SA-3633.

PROGRESS REPORTS

PACIFIC NORTHWEST LABORATORY MONTHLY ACTIVITIES REPORT. F. W. Albaugh, Director.

BNWL-1243	September, 1969	Unclassified
BNWL-1265	October, 1969	Secret
BNWL-1280	November, 1969	Secret
BNWL-1290	December, 1969	Secret
BNWL-1310	January, 1970	Secret
BNWL-1337	February, 1970	Secret
BNWL-1369	March, 1970	Secret
BNWL-1408	April, 1970	Secret
BNWL-1428	May, 1970	Secret
BNWL-1510	August, 1970	Secret
BNWL-1518	September, 1970	Secret

TECHNICAL PUBLICATIONS OF BATTELLE-NORTHWEST DURING 1969.

E. Foskett. May, 1970. 46 p. BNWL-1400.

GEOPHYSICS

ATMOSPHERIC SCIENCES

AURORAL ACTIVITY NEAR BANFF, ALBERTA.

R. J. Hoch, F. I. Carver, L. L. Smith, K. C. Clark. Geophysical Research, Space Physics, Vol. 75, No. 10, April 1, 1970, p. 1935-1936. BNWL-SA-2819.

RECENT OCCURENCES OF STABLE AURORAL RED ARCS.

R. J. Hoch, R. C. Clark. Journal of Geophysical Research, Space Physics, Vol. 75, No. 13, May 1, 1970, p. 2511-2515. BNWL-SA-2788.

DETAILED TIME-HISTORIES OF CONCENTRATIONS RESULTING FROM PUFF AND SHORT-PERIOD RELEASES OF AN INERT RADIOACTIVE GAS: A VOLUME OF ATMOSPHERIC DIFFUSION DATA.

P. W. Nickola, J. V. Ramsdell, J. D. Ludwick. March 31, 1970. 198 p. BNWL-1272.

AN INERT GAS TRACER SYSTEM FOR MONITORING THE REAL-TIME HISTORY OF A DIFFUSING PLUME OR PUFF.

P. W. Nickola, J. D. Ludwick, J. V. Ramsdell, Jr. Journal of Applied Meteorology, Vol. 9, No. 4, August, 1970, p. 621-626. BNWL-SA-2867.

GEOPHYSICS (cont'd)

BNWL-1600

ATMOSPHERIC SCIENCES (cont'd)

SOME NUCLEAR TECHNIQUES FOR ATMOSPHERIC DILUTION AND DISPERSION STUDIES.

J. M. Nielsen. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 486-487. BNWL-SA-2655.

THE APPLICATION OF SHORT-LIVED COSMOGENIC RADIONUCLIDES AS TRACERS OF IN-CLOUD SCAVENGING PROCESSES.

R. W. Perkins, C. W. Thomas, J. A. Young. Journal of Geophysical Research, Vol. 75, No. 15, May 20, 1970, p. 3076-3087. BNWL-2534.

TRACE ELEMENT CONCENTRATIONS IN THE TROPOSPHERE AND LOWER STRATOSPHERE.

L. A. Rancitelli, R. W. Perkins. Journal of Geophysical Research, Vol. 75, No. 15, May 20, 1970, p. 3055-3064. BNWL-SA-2542.

PARTICLE DEPOSITION FROM TURBULENT AIR FLOW.

G. A. Sehmel. Journal of Geophysical Research, Vol. 75, No. 9, March 20, 1970, p. 1766-1781. BNWL-SA-2501.

ANISOTROPIC BROWNIAN DIFFUSION AND PRECIPITATION SCAVENGING OF SUBMICRON PARTICLES.

W. G. N. Slinn, S. F. Shen. Journal of Geophysical Research, Vol. 75, No. 12, April 20, 1970, p. 2267-2270. BNWL-SA-2091.

A PHOTOMETRIC MAP OF THE MILKY WAY.

L. L. Smith, F. E. Roach, R. W. Owen. June, 1970. 30 p. BNWL-1419.

THE MEASUREMENT AND BEHAVIOR OF AIRBORNE RADIONUCLIDES SINCE 1962.

C. W. Thomas, J. A. Young, N. A. Wogman, R. W. Perkins. Advances in Chemistry Series 10, No. 93, 1970, p. 158-171. BNWL-SA-1739.

COSMOGENIC RADIONUCLIDE PRODUCTION RATES IN THE ATMOSPHERE.

J. A. Young, C. W. Thomas, N. A. Wogman, R. W. Perkins. Journal of Geophysical Research, Vol. 75, No. 12, April 20, 1970, p. 2385-2390. BNWL-SA-2535.

SHORT LIVED COSMIC RAY PRODUCED RADIONUCLIDES AS TRACERS OF ATMOSPHERIC PROCESSES.

J. A. Young, N. A. Wogman, C. W. Thomas, R. W. Perkins. Advances in Chemistry Series No. 28, No. 93, 1970, p. 506-521. BNWL-SA-1741.

EARTH SCIENCES

DDT IN A FRESHWATER MARSH--A SIMULATION STUDY.

L. L. Eberhardt, R. L. Meeks, T. J. Peterle. April 1, 1970. 58 p. BNWL-1297.

GEOPHYSICS (cont'd)

BNWL-1600

EARTH SCIENCES (cont'd)

AN IRREVERSIBLE THERMODYNAMIC APPROACH TO SIMULTANEOUS MOVEMENT OF WATER, HEAT AND SALT THROUGH UNSATURATED SOILS.

C. G. Enfield. August, 1970. 42 p. BNWL-1429.

DIGITAL SIMULATION SYSTEM FOR PREDICTION OF WATER QUALITY.

R. T. Jaske. "Proceedings of the 4th International Conference on Advances in Water Pollution Research." Pergamon Press, New York. 1969, p. 261-271. BNWL-SA-1483.

IMPROVED METHODS FOR PLANNING OF THERMAL DISCHARGES BEFORE SITE ACQUISITION.

R. T. Jaske. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 813-814. BNWL-SA-2737.

IMPROVED METHODS FOR PLANNING OF THERMAL DISCHARGES BEFORE SITE ACQUISITION WITH A SPECIFIC CASE EXAMPLE ON THE COLUMBIA RIVER.

R. T. Jaske, W. L. Templeton, J. R. Eliason, J. C. Sonnichsen. July 31, 1970. 43 p. BNWL-SA-3193.

THE NEED FOR ADVANCE PLANNING OF THERMAL DISCHARGES BEFORE SITE ACQUISITION.

R. T. Jaske. Proceedings of the American Power Conference, Vol. 31, 1969, 11 p. BNWL-SA-2487.

SIMULATION OF THE EFFECTS OF HANFORD AT THE WASHINGTON-OREGON BORDER.

R. T. Jaske, D. G. Daniels. July, 1970. 32 p. BNWL-1344.

COST ANALYSIS OF IMPROVED REGULATION OF THE COLUMBIA RIVER TO INCREASE MINIMUM FLOW IN THE HANFORD PLANT VICINITY.

R. W. Legan, R. T. Jaske. June, 1970. 79 p. BNWL-1343.

POTENTIAL THERMAL EFFECTS OF AN EXPANDING POWER INDUSTRY: OHIO RIVER BASIN 1.

D. E. Peterson, R. T. Jaske. February, 1970. 66 p. BNWL-1299.

POTENTIAL THERMAL EFFECTS OF AN EXPANDING POWER INDUSTRY: UPPER MISSISSIPPI RIVER BASIN.

D. E. Peterson, R. T. Jaske. June, 1970. BNWL-1405.

THE DISTRIBUTION OF GROUND-DWELLING BEETLES IN RELATION TO VEGETATION, SEASON, AND TOPOGRAPHY IN THE RATTLESNAKE HILLS, SOUTHEASTERN WASHINGTON.

W. H. Rickard. Northwest Science, Vol. 44, No. 2, 1970, p. 107-113. BNWL-SA-2872.

THE DISTRIBUTION OF COBALT IN OCEANIC WATER.

D. E. Robertson. Geochimica et Cosmochimica Acta, Vol. 34, 1970, p. 553-567. BNWL-SA-2796.

GEOPHYSICS (cont'd)

BNWL-1600

EARTH SCIENCES (cont'd)

EXAMINATION OF THE THERMOCLINE.

J. C. Sonnichsen Jr., C. A. Oster. Journal of Sanitary Engineering, No. 7219, April, 1970, p. 353-364. BNWL-SA-2839.

RADIOECOLOGICAL STUDIES ON THE COLUMBIA RIVER, PART 1.

D. G. Watson, C. E. Cushing, C. C. Coutant, W. L. Templeton. May, 1970. 46 p. BNWL-1377.

PROGRESS REPORTS

ANNUAL REPORT ON AERONOMY RESEARCH AT RICHLAND, WASHINGTON.

R. J. Hoch. August, 1970. 218 p. BNWL-1484.

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1969, TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME I: LIFE SCIENCES PART 2. ECOLOGICAL SCIENCES.

B. E. Vaughn. July, 1970. BNWL-1306 Pt. 2.

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1969, TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME II: PHYSICAL SCIENCES PART 2. RADIOLOGICAL SCIENCES.

J. M. Nielsen. March 19, 1970. 65 p. BNWL-1307 V. 2., Pt. 2.

RADIOLOGICAL STATUS OF THE GROUND WATER BENEATH THE HANFORD PROJECT JULY-DECEMBER, 1969.

D. H. Denham. May, 1970. 23 p. BNWL-1392.

HEALTH AND SAFETY

AEROSOLS

SCAVENGING IN PERSPECTIVE.

J. J. Fuquay. July 14, 1970. 10 p. BNWL-SA-3450.

REMOVAL OF IODINE AND PARTICLES FROM CONTAINMENT ATMOSPHERES BY SPRAYS--CONTAINMENT SYSTEMS EXPERIMENT INTERIM REPORT.

R. K. Hilliard, L. F. Coleman, C. E. Linderoth, J. D. McCormack, A. K. Postma. March 12, 1970. 212 p. BNWL-1244.

REMOVAL OF IODINE FORMS BY SPRAYS IN THE CSE CONTAINMENT VESSEL.

R. K. Hilliard, L. F. Coleman. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 210. BNWL-SA-3175.

PROPERTIES OF AIR-STEAM MIXTURES CONTAINING SMALL AMOUNTS OF IODINE.

B. M. Johnson. April, 1970. 79 p. BNWL-1326.

HEALTH AND SAFETY (cont'd)

BNWL-1600

AEROSOLS (cont'd)

THE IODINE COLLECTION EFFICIENCY OF ACTIVATED CHARCOAL FROM HANFORD REACTOR CONFINEMENT SYSTEMS.

J. D. Ludwick. Nuclear Applications and Technology, Vol. 8, March, 1970, p. 310-313 and Transactions of the American Nuclear Society, Vol. 12, No. 2, November, 1969, p. 26-27. BNWL-SA-2458.

THE IODINE COLLECTION EFFICIENCY OF ACTIVATED CHARCOAL FROM HANFORD REACTOR CONFINEMENT SYSTEMS: METHYL IODIDE RETENTION BY ACTIVATED CHARCOAL.

J. D. Ludwick. March 24, 1970. 28 p. BNWL-1046.

THE AIRBORNE RELEASE OF PLUTONIUM DURING OVERHEATING INCIDENTS.

J. Mishima, L. C. Schwendiman. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 445-446.

THE AMOUNT AND CHARACTERISTICS OF PLUTONIUM MADE AIRBORNE UNDER THERMAL STRESS.

J. Mishima, L. D. Schwendiman. October 20, 1970. 10 p. BNWL-SA-3379.

SODIUM VAPOR DIFFUSION DATA.

R. D. Peak. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 357-358.

ABSORPTION OF METHYL IODINE BY SODIUM THIOSULFATE SPRAYS.

A. K. Postma, R. K. Hilliard. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 898-899.

REMOVAL OF AEROSOL PARTICLES BY SPRAYS IN THE CSE CONTAINMENT VESSEL.

A. K. Postma, J. D. McCormack. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 211-212.

GENERAL

THE LEVEL OF DISCRETION.

J. J. Fuquay. May 21, 1970. 16 p. BNWL-SA-3296.

THE EVENTUAL WHOLE BODY EXPOSURE RATE FROM ⁸⁵Kr TO THE ATMOSPHERE.

M. M. Henderickson. July 13, 1970. 15 p. BNWL-SA-3233.

A NATIONAL ESTIMATE OF PUBLIC AND INDUSTRIAL HEAT REJECTION REQUIREMENTS BY DECADES THROUGH THE YEAR 2000 A.D.

R. T. Jaske, J. F. Fletcher, K. R. Wise. February 18, 1970. 23 p. BNWL-SA-3052.

CONTAINMENT SYSTEMS EXPERIMENT, PART 1. DESCRIPTION OF EXPERIMENTAL FACILITIES.

C. E. Linderoth. April 13, 1970. 115 p. BNWL-456.

HEALTH AND SAFETY (cont'd)

BNWL-1600

GENERAL (cont'd)

TOXICITY OF OZONE, OXYGEN AND RADIATION.

D. B. Menzel. Annual Review of Pharmacology, Vol. 10, 1970, p. 379-394. BNWL-SA-2782.

ACCUMULATION OF RADIONUCLIDES IN BED SEDIMENTS OF THE COLUMBIA RIVER BETWEEN HANFORD REACTORS AND MCNARY DAM.

J. L. Nelson, W. L. Haushild. Journal of Water Resources Research, Vol. 6, No. 1, February, 1970, p. 130-137. BNWL-SA-2571.

PROGRESS ON A STANDARD FOR FIRE PROTECTION OF LABORATORIES.

R. H. Scott. Journal of Chemical Education, Vol. 47, No. 5, May, 1970, p. A375-A382.

SODIUM FIRE ACCIDENTS IN REACTOR CONTAINMENT VOLUME: A SUMMARY OF PARAMETRIC STUDIES.

P. R. Shire. June, 1970. 38 p. BNWL-1338 FF-1.

FAST NEUTRON MEDICAL RESEARCH FACILITY-DOSIMETRY.

K. L. Swinth, L. A. Braby. October, 1967. BNWL-589.

THE ENVIRONMENTAL CHALLENGE AND THE RISK OF LIVING.

C. J. Touhill. June 1, 1970. 7 p. BNWL-SA-3314.

ENVIRONMENTAL POLICY FORMATION.

C. J. Touhill. July 20, 1970. 15 p. BNWL-SA-3438.

CSE PRESSURE VESSEL DEFECT STUDY.

V. B. Watwood, Jr., T. L. Anderson. June, 1970, 79 p. BNWL-1397.

PROGRESS REPORTS

NUCLEAR SAFETY QUARTERLY REPORT NOVEMBER, DECEMBER, 1969, JANUARY, 1970 FOR USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY.

BNWL-1315-1	March 19, 1970	150 p.
BNWL-1315-2	May, 1970	120 p.

QUARTERLY RESEARCH REPORT TO THE NASA MANNED SPACECRAFT CENTER, THE MEASUREMENT OF RADIATION EXPOSURE OF ASTRONAUTS BY RADIOCHEMICAL TECHNIQUES.

BNWL-1183-3	Oct. 6, 1969-Jan. 4, 1970	20 p.	R. L. Brodzinski L. A. Rancitelli W. A. Haller
BNWL-1183-4	Jan. 5-April 5, 1970	27 p.	R. L. Brodzinski L. A. Rancitelli W. A. Haller
BNWL-1183-5	April 6-July 5, 1970	26 p.	R. L. Brodzinski W. A. Haller

HEALTH AND SAFETY (cont'd)

BNWL-1600

RADIATION MONITORING

A SYSTEM FOR CONTINUOUS MONITORING OF POTENTIAL DOSE RATE TO THE G. I. TRACT FROM DRINKING WATER.

P. E. Bramson. Health Physics, Vol. 18, May, 1970, p. 523-527.
BNWL-SA-2429.

ENERGY DEPENDENCE AND APPLICATION OF TLD MATERIALS IN OPERATIONAL HEALTH PHYSICS.

G. W. R. Endres, R. L. Kathren, L. F. Kocher. Health Physics, Vol. 18, June, 1970, p. 665-672. BNWL-SA-1940.

QUANTITATIVE EVALUATION OF ENVIRONMENTAL FACTORS AFFECTING POPULATION EXPOSURE NEAR HANFORD.

J. F. Honstead. November, 1970. 17 p. BNWL-SA-3203.

THE MEASUREMENT OF AIRBORNE RADIONUCLIDES ASSOCIATED WITH PLOWSHARE TEST "PROJECT SCHOONER".

W. B. Silker, C. W. Thomas, H. G. Rieck. May 15, 1970. 16 p.
BNWL-1416. (Secret).

A PROJECTION CHEST PHANTOM FOR IN VIVO DOSIMETRY.

D. A. Waite, B. V. Andersen, P. E. Bramson. American Industrial Hygiene Association Journal, Vol. 21, May-June, 1970, p. 322-326.
BNWL-SA-2072.

INSTRUMENTATION

GENERAL

SENSITIVE, FAST RESPONSE REACTOR COOLANT IMPURITY MEASUREMENT INSTRUMENT.

T. R. Billeter, R. R. Schemmel. Nuclear Application and Technology, Vol. 7, October, 1969, p. 374-382. BNWL-SA-2467.

HIGH SPEED THERMAL TRANSDUCER FOR PRACTICAL NDT APPLICATIONS.

D. R. Green. Materials Evaluation, Vol. XXVIII, May, 1970, p. 97-102, 110. BNWL-SA-3031.

FIELD MODEL PELTIER PSYCHROMETER FOR MEASURING PLANT WATER POTENTIAL.

J. J. Hsieh, F. P. Hungate. Soil Science, Vol. 110, No. 4, 1970, p. 253-257. BNWL-SA-2462.

REMOTE POSITION MEASUREMENTS USING LASER OPTICS.

J. D. Jensen. May 28, 1970. 14 p. BNWL-SA-3335.

INSTRUMENTATION (cont'd)

BNWL-1600

GENERAL (cont'd)

- A ^{252}Cf NEUTRON SOURCE FOR LABORATORY AND POSSIBLE IN SITU MINERAL ANALYSIS.
R. W. Perkins, L. A. Rancitelli, J. A. Cooper, R. E. Brown. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 63-64.

PROGRESS REPORTS

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1969, TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE, VOLUME II: PHYSICAL SCIENCES, PART 3. INSTRUMENTATION.

B. P. Hildebrand. April 3, 1970. 16 p. BNWL-1307 V. 2, Pt. 3.

REACTOR ENGINEERING DEVELOPMENT, REACTOR ENVIRONMENTAL EFFECTS ON SIGNAL CABLES. QUARTERLY REPORT.

BNWL-1325	Oct.-Dec., 1969	25 p.	J. L. Stringer
BNWL-1325-2	Jan.-March, 1970	38 p.	J. L. Stringer R. L. Gordon

RADIATION DETECTION

IN VIVO COUNTING WITH Ge(Li).

B. V. Andersen, P. E. Bramson, F. L. Rising. May 27, 1970. 9 p.
BNWL-SA-3069.

TISSUE-EQUIVALENT PROPORTIONAL COUNTERS IN NEUTRON SHIELD EFFECTIVENESS STUDIES.

L. W. Brackenbush, G. W. R. Endres, L. G. Faust. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 418-419.

FOUR INPUT MULTIPLEXER FOR TWO-DIMENSIONAL GAMMA-RAY SPECTROMETRY.

R. E. Connally, W. A. Mitzlaff, F. P. Brauer. IEEE Transactions on Nuclear Science, Vol. NS-17, No. 3, June, 1970, p. 440-445. BNWL-SA-2739.

ANTICOINCIDENCE-SHIELDED DUAL Ge(Li) GAMMA-RAY SPECTROMETER FOR LOW-LEVEL COUNTING.

J. A. Cooper, R. W. Perkins, J. R. Kosorok. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 76-77.

EVALUATION OF Ge(Li) COMPTON SUPPRESSION SPECTROMETERS FOR NONDESTRUCTIVE RADIOCHEMICAL ANALYSIS.

J. A. Cooper. August, 1970. 19 p. BNWL-1285.

INSTRUMENTATION (cont'd)

BNWL-1600

RADIATION DETECTION (cont'd)

FACTORS DETERMINING THE ULTIMATE DETECTION SENSITIVITY OF Ge(Li) GAMMA-RAY SPECTROMETERS.

J. A. Cooper. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 75-76, and Nuclear Instruments and Methods, Vol. 82, May, 1970, p. 273-277. BNWL-SA-2940.

THE USE OF SOLID STATE DETECTORS FOR ORGAN COUNTING.

D. McConnon. July, 1970, 12 p. BNWL-1178.

A LIVE TIME CONTROLLED SCANNING RATE FOR A WHOLE BODY COUNTER.

M. E. Sveum, P. E. Bramson. Review of Scientific Instruments, Vol. 40, No. 12, December, 1969, p. 1616-1617. BNWL-SA-2046.

A DEVELOPMENTAL SCINTILLATION COUNTER FOR DETECTION OF PLUTONIUM IN VIVO.

K. L. Swinth, B. I. Griffin. Health Physics, Vol. 19, October, 1970, p. 543-550. BNWL-SA-2824.

AEC WORK SHOP ON PERSONNEL NEUTRON DOSIMETRY.

C. M. Unruh. April 8, 1970. 62 p. BNWL-1340.

LINEARITY OF TLD RESPONSE CURVES.

C. R. Watson. Health Physics, Vol. 18, No. 2, February, 1970, p. 168-169. BNWL-SA-2624.

AN ALL-SODIUM IODIDE ANTICOINCIDENCE SHIELDED MULTIDIMENSIONAL GAMMA-RAY SPECTROMETER FOR LOW-ACTIVITY SAMPLES.

N. A. Wogman, R. W. Perkins, J. H. Kaye. Nuclear Instruments and Methods, Vol. 74, 1969, p. 197-212. BNWL-SA-1460.

ISOTOPES

GENERAL

IN-PHANTOM DOSIMETRY OF PLUTONIUM-238 HEAT SOURCES IN RELATION TO CIRCULATORY SUPPORT SYSTEMS.

F. T. Cross, J. C. Sheppard. September, 1970. BNWL-1489.

PROMETHIUM ISOTOPIC POWER DATA SHEETS.

J. H. Jarrett, H. H. Van Tuyl. May, 1970. 52 p. BNWL-1309.

PROGRESS REPORTS

PACIFIC NORTHWEST LABORATORY DIVISION OF ISOTOPE DEVELOPMENT PROGRAMS QUARTERLY REPORT.

BNWL-1308-1	Nov., 1969-Jan., 1970	W. F. Sheely	41 p.
BNWL-1308-2	February-April, 1970	J. E. Hansen	66 p.
BNWL-1308-3	May-July, 1970	J. E. Hansen	47 p.

MATHEMATICS AND COMPUTERS

BNWL-1600

COMPUTER PROGRAMS

PECT-1 - A FORTRAN IV COMPUTER PROGRAM TO DETERMINE THE PLASTIC-ELASTIC CREEP AND THERMAL DEFORMATIONS IN THICK-WALLED CYLINDERS.

F. E. Bard, Jr. December, 1969. 79 p. BNWL-1171.

BRT-1: BATTELLE-REVISED-THERMOS.

C. L. Bennett, W. L. Purcell. June, 1970. 73 p. BNWL-1434.

BIPPY - A COMPUTER CODE FOR THE CORRELATION OF FUEL ELEMENT BURNUP AND CLADDING DAMAGE.

R. E. Dahl, Jr., R. D. Bourquin. December, 1969. 25 p. BNWL-1247.

GRAINS--A QUASI-DYNAMIC CODE FOR COMPUTER SIMULATION EXPERIMENTS OF POINT AND LINE DEFECTS IN METALS.

R. E. Dahl, J. R. Beeler, Jr., R. D. Bourquin. January 28, 1970. 51 p. BNWL-1248.

THE ESTUARINE VERSION OF THE COLHEAT DIGITAL SIMULATION MODEL.

D. G. Daniels, J. C. Sonnichsen, R. T. Jaske. June, 1970. 39 p. BNWL-1342.

ASPRIN - A COMPUTER CODE FOR PREDICTING REACTOR VESSEL RESPONSE TO HYPOTHETICAL MAXIMUM ACCIDENTS ON FAST REACTORS.

G. L. Fox. January 22, 1970. 74 p. BNWL-1166.

3DB, A THREE-DIMENSIONAL DIFFUSION THEORY BURNUP CODE.

R. W. Hardie, W. W. Little, Jr. March 26, 1970. 87 p. BNWL-1264.

PERT-V, A TWO-DIMENSIONAL PERTURBATION CODE FOR FAST REACTOR ANALYSIS.

R. W. Hardie, W. W. Little, Jr. Nuclear Science and Engineering, Vol. 38, No. 3, December, 1969, p. 273. BNWL-SA-2685.

USER'S MANUAL FOR THE 1DX-2DB-3DB-PERT-V CODE PACKAGE.

R. W. Hardie, W. W. Little, Jr. July, 1970. BNWL-1412.

A USER'S MANUAL FOR 2DBS, A DIFFUSION THEORY SHIELDING CODE.

D. R. Marr. February 5, 1970. 26 p. BNWL-1291.

SINTER - A PROGRAM FOR CALCULATING RADIAL TEMPERATURE DISTRIBUTIONS IN OXIDE FUEL PINS UNDERGOING SINTERING.

K. R. Merckx, G. L. Fox. January 14, 1970. 15 p. BNWL-1241.

PACTOLUS: A CODE FOR COMPUTING NUCLEAR POWER COSTS.

J. H. Nail, C. H. Bloomster, D. R. Haffner. February 11, 1970. 198 p. BNWL-1169.

MATHEMATICS AND COMPUTERS (cont'd)

BNWL-1600

COMPUTER PROGRAMS (cont'd)

COBRA-II: A DIGITAL COMPUTER PROGRAM FOR THERMAL-HYDRAULIC SUBCHANNEL ANALYSIS OF ROD BUNDLE NUCLEAR FUEL ELEMENTS.

D. S. Rowe. February 9, 1970. 82 p. BNWL-1229.

USER'S MANUAL FOR NOISY I - A PROGRAM FOR CALCULATION OF SPACE DEPENDENT SPECTRAL DENSITIES IN CUBICAL REACTORS.

J. R. Sheff. September, 1970. 70 p. BNWL-1260.

BMC-I: THE BATTELLE MONTE CARLO CODE.

D. H. Thomsen, T. M. Traver. June, 1970. 134 p. BNWL-1433.

COBRA-IIA - A PROGRAM FOR THERMAL-HYDRAULIC ANALYSIS IN VERY LARGE BUNDLES OF FUEL PINS.

C. L. Wheeler, G. C. Main, D. C. Kolesar. August, 1970. 117 p. BNWL-1422.

GENERAL

EVALUATION OF HYBRID COMPUTER PERFORMANCE ON A CROSS SECTION OF SCIENTIFIC PROBLEMS.

R. D. Benham. February 6, 1970. 87 p. BNWL-1278.

ERRORS AND ERROR COMPENSATION IN HYBRID COMPUTERS.

R. A. Burnett. May, 1970. 38 p. BNWL-1356.

DATA ACQUISITION FOR FUEL FABRICATION.

A. W. Demerschman. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 601-602. BNWL-SA-2686.

FFTF PROCESS DATA DISPLAY PROTOTYPE.

B. E. Dozer. April, 1970. 50 p. BNWL-1330.

CORRELATION, REGRESSION, AND DENSITY-DEPENDENCE.

L. L. Eberhardt. Ecology, Vol. 51, No. 2, Early Spring, 1970, p. 306-310. BNWL-SA-2172.

PROCESS CONTROL COMPUTER SYSTEM SPECIFICATION GUIDELINE.

M. D. Erickson, R. E. Mahan, T. A. Seim, R. A. Walker. June, 1970. 59 p. BNWL-1378.

A SUMMARY OF BATTELLE-NORTHWEST LABORATORY CONTRIBUTIONS TO MFC-12.

E. A. Eschbach, W. A. Reardon. September, 1970. BNWL-1423.

HYBRID SOFTWARE SYSTEM LIBRARY AND MACROS.

L. H. Gerhardstein. October 21, 1970. 100 p. BNWL-B-26.

MATHEMATICS AND COMPUTERS (cont'd)

BNWL-1600

GENERAL (cont'd)

HYBRID COMPUTER SIMULATION OF FUEL PIN PERFORMANCE.

R. D. Leggett, R. L. Fish, G. E. Culley. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 566-568. BNWL-SA-2731 REV.

DAMAGE FUNCTIONS AND DATA CORRELATION.

W. N. McElroy, R. E. Dahl, Jr., C. Z. Serpan, Jr. Nuclear Applications and Technology, Vol. 7, December, 1969, p. 561-571.

SIMULATION MODELING OF THERMAL EFFLUENT IN AN IRRIGATION SYSTEM.

D. E. Peterson, R. T. Jaske. January 30, 1970. 31 p. BNWL-1277.

PACIFIC NORTHWEST LABORATORY INFORMATION RETRIEVAL SYSTEM.

R. L. Reynolds, B. M. Cole. June, 1970. 24 p. BNWL-1478.

FAULT TREES FOR RELIABILITY ANALYSIS.

R. J. Schroder. August 25, 1969. 24 p. BNWL-SA-2522.

A DIRECT/STATISTICAL HOT CHANNEL FACTOR ANALYSIS METHOD.

E. G. Stevens, T. M. Beetle. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 798-799. BNWL-SA-2666.

ANALYTICAL STUDIES OF ONE AND TWO-DIMENSIONAL CELL REPRESENTATIONS FOR CLUSTER GEOMETRY FUELS.

D. H. Thomsen. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 634.

SOME NUMERICAL RESULTS UTILIZING A TEMPERATURE-DENSITY DEPENDENT EQUATION OF STATE.

A. E. Waltar, W. T. Sha. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 825-826.

METALS, CERAMICS, AND MATERIALS

CRYSTAL STRUCTURE

METALLURGICAL APPLICATIONS OF TRANSMISSION ELECTRON MICROSCOPY.

J. L. Brimhall, B. Mastel, H. R. Brager. American Society For Testing and Materials, Spec. Tech. Pub. No. 480, 1970, p. 97-125. BNWL-SA-2387.

OBSERVATIONS ON THE NUCLEATION AND GROWTH OF VOIDS IN NICKEL.

J. L. Brimhall, H. E. Kissinger, B. Mastel. May 18, 1970. 2 p. BNWL-SA-3300.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

CRYSTAL STRUCTURE (cont'd)

EQUILIBRIUM PHASES IN 304L STAINLESS STEEL OBTAINED BY SPUTTER DEPOSITION.

S. D. Dahlgren. Metallurgical Transactions, Vol. 1, November, 1970, p. 3095-3099. BNWL-SA-2606.

MICROSTRUCTURE OF SPUTTER-DEPOSITED 304 STAINLESS STEEL.

S. D. Dahlgren, E. D. McClanahan, J. W. Johnston, A. G. Graybeal. Vacuum Science and Technology, Vol. 7, No. 3, May-June, 1970, p. 398-402.

STUDY OF DEFECTS IN 347 STAINLESS STEEL STEAM GENERATOR TUBING.

J. L. Daniel. July, 1970. 55 p. BNWL-1490. (Confidential).

METALLOGRAPHIC OBSERVATIONS OF SWELLING IN U_3Si .

C. R. Hann, R. D. Leggett, B. Mastel. January 23, 1970. 25 p. BNWL-1195.

COMMENTS ON "IMPURITY-DISLOCATION AND REPEATED YIELDING IN A COMMERCIAL ALUMINUM ALLOY".

M. D. Merz, O. D. Sherby. Journal of Applied Physics, Vol. 41, No. 2, February, 1970, p. 827-828. BNWL-SA-2593.

RECRYSTALLIZATION OF ALPHA PLUTONIUM BY EXTRUSION.

M. D. Merz. Journal of Nuclear Materials, Vol. 34, No. 1, 1970, p. 108-110. BNWL-SA-2620.

COMPOSITE SOLIDIFICATION IN THE SYSTEMS Cr_2O_3 -Mo, Cr_2O_3 -Re, Cr_2O_3 -W, AND MgO-W.

R. P. Nelson, J. J. Rasmussen. Journal of the American Ceramic Society, Vol. 53, No. 9, September, 1970, p. 527. BNWL-SA-3325.

A STUDY OF ELEVATED TEMPERATURE TRANSFORMATIONS IN A Pu-1 wt% Ga ALLOY CONTAINING IRON.

J. W. Patten. September, 1970. 19 p. BNWL-1500. (Secret).

METALLOGRAPHY OF POLONIUM-210 CONTAINING MICROSPHERES.

K. R. Sump, R. H. Beauchamp. November 14, 1969. 18 p. BNWL-1151. (Confidential).

PHASE TRANSFORMATION BEHAVIOR IN DELTA PHASE Pu-Ga ALLOYS SUBJECTED TO HYDROSTATIC PRESSURE AND COLD WORKING.

J. M. Taylor. June, 1970. 26 p. BNWL-1296. (Secret).

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

DEVELOPMENT, FABRICATION, AND TESTING

1968-1969 USAEC/AECL COOPERATIVE PROGRAM ON U_3Si COEXTRUSION DEVELOPMENT AND BILLET PREPARATION.

P. A. Ard. February 24, 1970. 81 p. BNWL-1212.

INVESTIGATION OF MIXED OXIDE ($U_{.75}Pu_{.25}$) O_2 PROCESSING USING A NINE VARIABLE FRACTIONAL EXPERIMENT.

M. J. Barr, J. L. Jaech, A. G. Anderson. July, 1970. 73 p.
BNWL-1445.

FAST FLUX TEST FACILITY WELDING STANDARDS FOR THE DRIVER FUEL ASSEMBLY.

W. F. Brown, R. M. Crawford. November 11, 1969. 41 p. BNWL-1271.

SPUTTERED PLUTONIUM-GALLIUM ALLOYS.

R. A. Busch. July, 1970. 25 p. BNWL-1415. (Secret).

DOWNWARD VACUUM VAPOR DEPOSITION OF RARE EARTHS ONTO HOLLOW MICROSPHERES.

W. J. Coleman. March 30, 1970. 18 p. BNWL-1288.

MODIFICATIONS OF TRIODE SPUTTERING UNIT TO PROVIDE MAXIMUM FLEXIBILITY FOR USE IN A RADIOACTIVE GLOVE BOX ENVIRONMENT.

W. J. Coleman. October, 1970. 17 p. BNWL-SA-3609.

FORMATION OF CARBIDE AND NITRIDE FUEL MATERIALS IN A SPRAY REACTOR.

E. A. Coppinger, B. M. Johnson. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 437-438.

REDUCED NICKEL CONCENTRATION IN A STAINLESS STEEL DEPOSIT FROM BIAS SPUTTERING.

S. D. Dahlgren, A. G. Graybeal. Journal of Applied Physics, Vol. 41, No. 7, June, 1970, p. 3181-3182. BNWL-SA-2966.

SMOOTH DEPOSIT THICKNESS PROFILES OBTAINED FROM PARALLEL STRIP SOURCES.

S. D. Dahlgren. Journal of Applied Physics, Vol. 41, No. 12, November, 1970, p. 5004-5008. BNWL-SA-2965.

OPEN- AND CLOSED-LOOP TOP CLOSURE REMOTE CUTTING AND WELDING EVALUATION.

R. F. Gilmore. May, 1970. 110 p. BNWL-1303.

EFFECT OF FLOWING SODIUM ON 304 SS FUEL CLADDING.

M. K. Millhollen, R. L. Myers, T. J. Bennett, J. W. Thorton. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 610-611. BNWL-SA-2682.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

DEVELOPMENT, FABRICATION, AND TESTING (cont'd)

EVALUATION OF 3/32 IN. FILLET WIRE-END CAP WELD.

R. L. Myers. April 30, 1970. 24 p. BNWL-1332.

EVALUATION OF WELD JOINT DESIGNS BETWEEN WIRE WRAP AND END CAP.

R. L. Myers. April 22, 1970. 13 p. BNWL-1331.

THE FINITE ELEMENT METHOD FOR PREDICTION OF CRACK BEHAVIOR.

V. B. Watwood, Jr. Nuclear Engineering and Design, Vol. 11, April, 1969, p. 323-332. BNWL-SA-2383.

FABRICATION OF MARK II PROTOTYPIC FFTF FUEL SUBASSEMBLY.

R. L. Myers. June, 1970. 152 p. BNWL-1418.

GENERAL

FUNDAMENTAL MATERIALS PROBLEMS IN NUCLEAR REACTORS.

A. L. Bement. August 27, 1970. 28 p. BNWL-SA-3495.

STATUS OF MATERIALS FOR LMFBR VESSELS AND PIPING.

S. H. Bush. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 116.

SPECIAL PROBES FOR MEASURING CORROSION OF MATERIALS IN SEA WATER.

V. F. Fitzpatrick. Materials Protection, Vol. 9, No. 2, February, 1970, p. 27-30. BNWL-SA-1814.

PLUTONIUM RECYCLE FUEL EVALUATIONS AT PNL.

M. D. Freshley, D. G. Carter, T. B. Burley. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 31.

CORROSION AND FAILURE CHARACTERISTICS OF ZIRCONIUM ALLOYS IN HIGH-PRESSURE STEAM IN THE TEMPERATURE RANGE 400 TO 500 C.

A. B. Johnson, Jr. American Society for Testing and Materials, Special Technical Publication No. 458, 1970, p. 271-285. BNWL-SA-1929 Pt. 2 REV.

NONDESTRUCTIVE TESTING

NONDESTRUCTIVE EVALUATION OF CLADDING COLD WORK AND GRAIN SIZE.

F. L. Becker, R. L. Trantow. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 540. BNWL-SA-2697.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

NONDESTRUCTIVE TESTING (cont'd)

ULTRASONIC REFLECTION AND TRANSMISSION FACTORS FOR MATERIALS WITH ATTENUATION.
F. L. Becker, C. E. Fitch, R. L. Richardson. March 31, 1970. 76 p.
BNWL-1283.

NEUTRON RADIOGRAPHY - Cf^{252} .
J. L. Cason, C. B. Shaw. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 464-465.

THERMAL NEUTRON RADIOGRAPHY WITH THE PLUTONIUM RECYCLE CRITICAL FACILITY.
J. L. Cason, K. S. Maiwald, E. P. Lippincott. June, 1970. 29 p.
BNWL-1373.

THERMAL AND ULTRASONIC NONDESTRUCTIVE TESTING METHODS FOR CARBON-CARBON COMPOSITES.
D. R. Green, N. E. Dixon. February 18, 1970. 110 p. BNWL-SA-3054.

AUTORADIOGRAPHY OF IRRADIATED NUCLEAR CERAMIC FUELS.
W. J. Gruber. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 842-843. BNWL-SA-1900 REV.

THE APPLICATION OF IMAGE ENHANCEMENT TO FFTF FUEL TECHNOLOGY.
B. R. Hayward. May, 1970. 48 p. BNWL-1321.

ULTRASONIC NONDESTRUCTIVE MEASUREMENT OF IRRADIATION DAMAGE IN STEEL.
D. O. Hunter. Journal of Basic Engineering, Series D, Vol. 91, December, 1969, p. 593-597. BNWL-SA-2207.

THERMAL CONTOUR MAPPING OF RADIOACTIVE WASTE STORAGE TANKS USING INFRARED SCANNING TECHNIQUES.
J. D. Jensen. June, 1968. 61 p. BNWL-815.

THE USE OF ACOUSTIC EMISSION AS A WELD QUALITY MONITOR.
W. D. Jolly. August 22, 1969. 16 p. BNWL-SA-2727.

EDDY CURRENT MULTIPARAMETER TEST FOR TUBE FLAWS IN SUPPORT REGIONS.
H. L. Libby, C. R. Wandling. August, 1970. 23 p. BNWL-1468.

MOSSBAUER EFFECT USING BACKSCATTER GEOMETRY AS APPLIED TO NONDESTRUCTIVE TESTING.
R. N. Ord. January 20, 1970. 34 p. BNWL-1276.

A MOSSBAUER RESONANCE EFFECT STUDY USING A BACKSCATTER GEOMETRY.
R. N. Ord. Applied Physics Letters, Vol. 15, No. 9, November, 1969, p. 279-282. BNWL-SA-2699.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

NONDESTRUCTIVE TESTING (cont'd)

AN EDDY CURRENT TUBE TESTING TECHNIQUE USING A HYBRID COIL CONFIGURATION WITH SEQUENTIAL SAMPLING

J. Ryden, Jr. May, 1970. 15 p. BNWL-1335.

THE NONDESTRUCTIVE EXAMINATION OF G AND H LOTS FFTF FUEL CLADDING.

J. Ryden Jr., E. F. Perrizo. May, 1970. 15 p. BNWL-1359.

TECHNIQUE FOR ULTRASONIC VELOCITY MEASUREMENTS IN MOLTEN CERAMICS.

O. D. Slagle, R. P. Nelson. Scientific Instruments, Vol. 41, No. 11, November, 1970, p. 1676-1677. BNWL-3248.

EVALUATION OF THE SPERRY ULTRASONIC WHEEL INSPECTION UNIT.

R. W. Smith, N. L. Johnson. April 2, 1970. 59 p. BNWL-1302

ON-LINE ULTRASONIC TRANSMISSION MEASUREMENTS OF AIR ENTRAINMENT IN FFTF HYDRAULIC CORE MOCKUP.

J. Spalek. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 337-338.

PROGRESS REPORTS

REACTOR FUELS AND MATERIALS DEVELOPMENT PROGRAMS FOR FUELS AND MATERIALS BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY. QUARTERLY PROGRESS REPORT

BNWL-1279 October-December, 1969 W. F. Sheely 250 p.

BNWL-1349-1 January-March, 1970 W. F. Sheely 239 p.

BNWL-1349-2 April-June, 1970 W. F. Sheely 350 p.

PROPERTIES

CHARACTERIZATION OF SOME UO_2 AND PuO_2 POWDERS.

M. J. Barr, M. W. Urie, J. L. Daniel, S. J. Mayhan. July, 1970. 39 p. BNWL-1441.

HIGH-TEMPERATURE THERMAL CONDUCTIVITY OF "ROUND ROBIN" URANIUM DIOXIDE.

J. L. Bates. July, 1970. 56 p. BNWL-1431.

HOT HARDNESS, ENTHALPY, HEAT CAPACITY, THERMAL CONDUCTIVITY AND ELECTRICAL RESISTIVITY OF URANIUM OXYCARBIDE.

J. L. Bates. Journal of the American Ceramic Society, Vol. 53, No. 6, June 21, 1970, p. 335-339. BNWL-SA-2133.

MELTING POINT OF IRRADIATED URANIUM DIOXIDE.

J. L. Bates. Journal of Nuclear Materials, Vol. 36, August, 1970. p. 234-236. BNWL-SA-2945.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

PROPERTIES (cont'd)

BURST STRENGTH OF EBR-II IRRADIATED FUEL PINS SECTIONS.

R. L. Fish, H. R. Brager, J. J. Holmes, R. D. Leggett. Nuclear Applications and Technology, Vol. 9, No. 4, 1970, p. 528-535.
BNWL-SA-3091.

THE HIGH-TEMPERATURE COMPATIBILITY OF PROMETHIUM SESQUIOXIDE.

H. T. Fullam. June, 1970. 72 p. BNWL-1389.

CREEP OF ZIRCONIUM FROM 50 TO 850 C.

E. R. Gilbert. American Society for Testing and Materials, Special Publication No. 458, 1970, p. 210-225. BNWL-SA-1959.

A RELATIONSHIP FOR NON-CONSERVATIVE-VOLUME CREEP UNDER DIFFERENT STATES OF STRESS.

E. R. Gilbert, J. L. Straalsund. Nuclear Engineering and Design, Vol. 12, No. 3, June, 1970, p. 421-424. BNWL-SA-3070.

ENVIRONMENTALLY AGGRAVATED FATIGUE CRACKING OF ZIRCALOY-2.

L. A. James. Nuclear Applications and Technology, Vol. 9, August, 1970, p. 260-267. BNWL-SA-3088.

DAMAGE FUNCTIONS FOR 304 STAINLESS STEEL.

W. N. McElroy, R. L. Simons, L. D. Blackburn. Transactions of the American Nuclear Society, Vol. 13, No. 1, June 1970, p. 144-145.

HIGH TEMPERATURE ELECTRICAL RESISTIVITY OF REFRACTORY OXIDES - Al_2O_3 .

R. R. Schemmel, R. L. Gordon, J. L. Bates. June, 1970. 27 p.
BNWL-1458.

THE ADIABATIC COMPRESSIBILITY OF MOLTEN ALUMINA.

O. D. Slagel, R. P. Nelson. Journal of American Ceramics Society, Vol. 53, No. 11, November, 1970, p. 637-638. BNWL-SA-3073.

COMMENTS ON "CLIMB" OR GROWTH" FORCES EXERTED BY NON-CONSERVABLE EFFECTS.

J. L. Straalsund. Scripta Metallurgica, Vol. 4, 1970, p. 459-462.
BNWL-SA-3200.

PERFORMANCE OF STAINLESS STEEL CLAD, MIXED OXIDE FUEL PINS.

J. W. Weber, L. A. Pember, R. D. Leggett. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 604-605.
BNWL-SA-2687.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

RADIATION EFFECTS

PROPOSAL TO IRRADIATE UNENCAPSULATED PINS IN THE EBR-II SUBASSEMBLIES PNL-6, PNL-7, AND PNL-8.

E. O. Ballard, L. A. Pember. June, 1970. 133 p. BNWL-1103.

PROPOSAL TO IRRADIATE UNENCAPSULATED INSTRUMENTED FUEL PINS IN THE EBR-II SUBASSEMBLY PNL-17.

E. O. Ballard, M. K. Millhollen. June, 1970. 180 p. BNWL-1420.

MICROSTRUCTURAL ANALYSIS OF SWELLING IN EBR-II IRRADIATED STAINLESS STEEL.

H. R. Brager, J. F. Bates. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 146-147.

EXPERIMENT DESCRIPTION FOR PNL MIXED OXIDES (UO_2 - PuO_2) IRRADIATIONS IN THE GENERAL ELECTRIC TEST REACTOR.

T. B. Burley, J. E. Hanson. June, 1970. 41 p. BNWL-1382.

INTERNAL GAS PRESSURE BEHAVIOR IN MIXED OXIDE FUEL RODS DURING IRRADIATION-POSTIRRADIATION EXAMINATION.

T. B. Burley, M. D. Freshley, D. G. Carter. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 31-32.

INTERNAL GAS PRESSURE BEHAVIOR IN MIXED-OXIDE FUEL RODS DURING IRRADIATION-POSTIRRADIATION EXAMINATION.

T. B. Burley, M. D. Freshley, D. G. Carter. Nuclear Applications and Technology, Vol. 9, No. 2, August, 1970, p. 233-241. BNWL-SA-3159.

THE EFFECTS OF FAST FLUX IRRADIATION ON THE MECHANICAL PROPERTIES AND DIMENSIONAL STABILITY OF STAINLESS STEEL.

T. T. Claudson, R. W. Perkins. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 524.

IRRADIATION INDUCED SWELLING AND CREEP IN FAST REACTOR MATERIALS.

T. T. Claudson. May 21, 1970. 4 p. BNWL-SA-3283.

DESIGN FOR MATERIAL RADIATION DAMAGE IN THE FFTF.

L. M. Finch. December 4, 1969. 2 p. BNWL-SA-2954.

FFTF IRRADIATION TEST PROGRAM PRELIMINARY.

L. M. Finch. September, 1970. BNWL-1461.

IN-REACTOR CREEP OF STRUCTURAL MATERIALS FOR NUCLEAR APPLICATIONS.

E. R. Gilbert, N. E. Harding. Journal of the American Society for Testing and Materials, Special Technical Publications No. 457, 1969, p. 17-37. BNWL-SA-1458.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

RADIATION EFFECTS (cont'd)

IRRADIATION INDUCED CREEP IN AUSTENITIC STAINLESS STEELS.

E. R. Gilbert, N. E. Harding. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 143-144.

POSTIRRADIATION EXAMINATION OF CENTRIFUGALLY BONDED EBR-II DRIVER FUEL.

C. R. Hann, R. D. Leggett. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 555-556.

EFFECTS OF FAST NEUTRON IRRADIATION ON THE PERFORMANCE CHARACTERISTICS OF REACTOR-GRADE THERMOCOUPLES.

N. C. Hoitink, R. C. Weddle, D. C. Thompson. June, 1970. 32 p. BNWL-1365.

POSTIRRADIATION TENSILE BEHAVIOR OF 300 SERIES STAINLESS STEELS.

J. J. Holmes, R. E. Robbins, A. J. Lovell. Journal of the American Society for Testing and Materials, Special Technical Publication No. 457, 1969, p. 371-389. BNWL-SA-1455.

SOME EFFECTS OF COLD-WORKING, THERMAL AGING, AND REACTOR IRRADIATION ON ULTRASONIC WAVES VELOCITY AND ATTENUATION IN SOME AUSTENITIC STEEL TENSILE-CREEP SPECIMENS.

D. O. Hunter. May, 1970. 33 p. BNWL-1371.

METAL SWELLING EFFECTS ON FTR CORE COMPONENTS.

R. J. Jackson, C. L. Wheeler, G. R. Waymire, W. W. Little. April 9, 1970. 70 p. BNWL-1286.

CORROSION AND HYDRIDING RESPONSE AND OXIDE PROPERTIES OF SIX IRRADIATED ZIRCONIUM ALLOYS.

A. B. Johnson, Jr. Journal of the American Society for Testing and Materials, Special Technical Publication No. 458, 1970, p. 301-324. BNWL-SA-1719 REV.

ANNEALING OF DEFECTS IN NEUTRON IRRADIATED MOLYBDENUM - EFFECT OF EXTERNAL PRESSURES TO 70 KBARS.

G. L. Kulcinski, H. E. Kissinger, B. Mastel. International Atomic Energy Agency Symposium on "Radiation Damage in Reactor Materials," Vol. 1, Vienna, Austria, June 2-6, 1969. International Atomic Energy Agency, 1969, p. 33-46. BNWL-SA-2276.

FORMATION OF VOIDS IN IRON DURING HIGH TEMPERATURE NEUTRON IRRADIATION.

G. L. Kulcinski, B. Mastel, J. L. Brimhall. Radiation Effects, Vol. 2, 1969, p. 57-59. BNWL-SA-2444.

METALS, CERAMICS, AND MATERIALS (cont'd) BNWL-1600

RADIATION EFFECTS (cont'd)

IRRADIATION INDUCED VOIDS IN RHENIUM AND MOLYBDENUM.

G. L. Kulcinski, B. Mastel, J. L. Brimhall. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 162-163.

HEAVY ION BOMBARDMENT OF STAINLESS STEEL.

J. J. Laidler. June 1, 1970. 3 p. BNWL-SA-3328.

ACHIEVING HIGH EXPOSURE IN METALLIC URANIUM FUEL ELEMENTS.

R. D. Leggett, C. H. McGilton, R. K. Marshall, C. R. Hann. Nuclear Applications and Technology, Vol. 9, November, 1970, p. 673-681.
BNWL-SA-2582.

POSTIRRADIATION CREEP-RUPTURE PROPERTIES OF AISI TYPE-316 STAINLESS STEEL.

A. J. Lovell. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 585-586.

EFFECTS OF GAMMA RADIATION ON THE PIEZOELECTRIC PROPERTIES OF LITHIUM NIOBATE.

R. W. Smith. July, 1970. 14 p. BNWL-1436.

TENSILE PROPERTIES OF FAST REACTOR IRRADIATED AISI TYPE 316 STAINLESS STEEL.

A. L. Ward. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 584.

PHYSICS

GENERAL

COMMENTS ON "PERFORMANCE CHARACTERISTICS OF THERMOMAGNETIC DEVICES INVOLVING GRADED MASS AND GAP. I. GENERATORS".

G. L. Guthrie. Journal of Applied Physics, Vol. 41, No. 7, June, 1970, p. 3187-3188. BNWL-SA-2830.

EFFECT OF HIGH SCANNING VELOCITIES ON THE HOLOGRAPHIC IMAGE.

B. P. Hildebrand. Journal of the Optical Society of America, Vol. 60, No. 9, September, 1970, p. 1166-1168. BNWL-SA-3342.

A GENERAL THEORY OF HOLOGRAPHY.

B. P. Hildebrand. Journal of the Optical Society of America, Vol. 60, No. 11, November, 1970, p. 1511-1517. BNWL-SA-3344.

HOLOGRAM BANDWIDTH REDUCTION BY SPACE-TIME MULTIPLEXING.

B. P. Hildebrand. Journal of the Optical Society of America, Vol. 60, No. 2, February, 1970, p. 259-264. BNWL-SA-2857.

PHYSICS (cont'd)

BNWL-1600

GENERAL (cont'd)

EQUIVALENCE OF THE δ' AND THE HARD CORE POTENTIALS.

R. E. Schenter, H. S. Zwibel, R. L. Cassola. The American Journal of Physics, Vol. 37, No. 12, December, 1969, p. 1242-1245. BNWL-SA-2580.

NEUTRON PHYSICS

HRG3: A CODE FOR CALCULATING THE SLOWING-DOWN SPECTRUM IN THE P_1 OR B_1 APPROXIMATION.

J. L. Carter. June, 1970. 120 p. BNWL-1432.

GOZANI'S PULSED NEUTRON TECHNIQUE WITH REPEATED RECYCLING OF ANALYZER BETWEEN BURSTS.

R. H. Chow. Nuclear Science and Engineering, Vol. 41, No. 2, August, 1970, p. 298-299.

REVISION OF VALUES FOR THE 2200 m/s NEUTRON CONSTANTS FOR FOUR FISSILE NUCLIDES.

G. C. Hanna, C. H. Westcott, H. D. Lemmel, B. R. Leonard, Jr., J. S. Story, P. M. Attree. Atomic Energy Review, Vol. VII, No. 4, 1969, p. 1-92.

HIGH MOMENTUM NEUTRON-LIQUID HELIUM SCATTERING AND BOSE CONDENSATION.

O. K. Harling. Physical Review Letters, Vol. 24, No. 19, May, 1970, p. 1046-1048. BNWL-SA-2935.

EVALUATED REFERENCE CROSS SECTION LIBRARY.

R. L. Simons, W. N. McElroy. May, 1970. 97 p. BNWL-1312.

NUCLEAR PROPERTIES AND REACTIONS

CRITICAL EXPERIMENTS WITH HOMOGENEOUS PuO_2 .

S. R. Bierman, E. D. Clayton. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 379-380.

CRITICALITY OF TRANSURANIUM ACTINIDES - UNDERMODERATED SYSTEMS.

S. R. Bierman, E. D. Clayton. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 887-888. BNWL-SA-2805.

NEUTRON SPECTRA OF PLUTONIUM COMPOUNDS, PART 1: He-3 AND Li-6 SPECTROMETER MEASUREMENTS.

L. W. Brackenbush, L. G. Faust. February, 1970. 34 p. BNWL-1262.

HIGH-ENERGY PROTON SPALLATION OF ARGON.

R. L. Brodzinski, N. A. Wogman. Physical Review C, Vol. 1, No. 6, June, 1970, p. 1955-1959. BNWL-SA-2952.

PHYSICS (cont'd)

BNWL-1600

NUCLEAR PROPERTIES AND REACTIONS (cont'd)

CRITICAL PARAMETERS FOR 0-7% PuO₂-UO₂ RODS IN WATER.

C. L. Brown, D. R. Oden. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 873-875. BNWL-SA-2742.

CRITICALITY OF PuO₂-UO₂ AQUEOUS MIXTURES.

L. E. Hansen, S. R. Bierman, R. C. Lloyd, E. D. Clayton. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 869-870.

MEASUREMENT OF k OF ThO₂-²³³UO₂ HTGR LATTICE.

E. P. Lippincott. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 245-246.

ANALYSIS OF CRITICAL EXPERIMENTS USING VERSION II OF THE EVALUATED NUCLEAR DATA FILE (ENDF/B).

W. W. Little, R. B. Kidman, R. E. Schenter, L. D. O'Dell, R. W. Hardie, K. B. Stewart. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 304.

CRITICALITY OF Pu(NO₃)₄ SOLUTION SLABS HAVING HIGH Pu-240 CONTENT.

R. C. Lloyd, E. D. Clayton, L. E. Hansen. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 870-872. BNWL-SA-2743.

THE EFFECT OF Pu-241 DECAY ON THE ANALYSIS OF PLUTONIUM CRITICAL EXPERIMENTS.

V. O. Uotinen. Nuclear Science and Engineering, Vol. 42, No. 1, October, 1970, p. 107-109. BNWL-SA-3157.

ESTIMATION OF NEUTRON AND PHOTON YIELDS FROM ALPHA REACTIONS.

H. H. Van Tuyl. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 396-397. BNWL-SA-3121.

SURFACE MULTIPLICATION.

R. E. Wilson, R. J. Hall, E. D. Clayton. Nuclear Science and Engineering, Vol. 39, No. 1, January, 1970, p. 119-120. BNWL-SA-2650.

PARTICLES AND RADIATION

ENERGY DEPOSITION SPECTRA OF C-14 BETA RADIATION IN A UNIFORM MEDIUM.

L. A. Braby, W. A. Glass, W. C. Roesch. Radiation Research, Vol. 43, No. 3, September, 1970, p. 499-503. BNWL-SA-2256.

ENERGY DEPOSITION IN MICROSCOPIC VOLUMES.

W. A. Glass, W. C. Roesch, L. A. Braby. "Charged Particle Tracks In Solids and Liquids". The Institute of Physics, and the Physical Society, London, England. 1970. p 56-61. BNWL-SA-2306.

PHYSICS (cont'd)

BNWL-1600

PARTICLES AND RADIATION (cont'd)

HARD CORE POTENTIAL REPRESENTATION BY δ^4 IN VARIATION AND HARTREE CALCULATIONS.

R. E. Schenter, W. F. Ford. Physical Review C, Vol. 2, No. 5, November, 1970, p. 1590-1593. BNWL-SA-3273.

CALCULATION OF GAMMA DOSE RATES AT THE SURFACE OF PLUTONIUM OXIDE SOURCES.

H. H. Van Tuyl. February 2, 1970. 96 p. BNWL-1259.

CALCULATION OF SURFACE GAMMA RATES FROM PLUTONIUM OXIDE SOURCES.

H. H. Van Tuyl. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 95. BNWL-SA-3123.

GAMMA RAY BUILDUP FACTORS AT LOW ENERGIES.

H. H. Van Tuyl. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 407. BNWL-SA-3120.

REACTOR TECHNOLOGY

FAST FLUX TEST FACILITY

....COMPONENTS

STATE OF TECHNOLOGY STUDY--PUMPS EXPERIENCE WITH HIGH TEMPERATURE SODIUM PUMPS IN NUCLEAR REACTOR SERVICE AND THEIR APPLICATION TO FFTF.

W. Babcock. January 2, 1970. 93 p. BNWL-1049.

EXPERIENCE WITH CONTROL ROD SEALS USED ON SODIUM-COOLED REACTORS.

N. C. Gordon. June, 1970. 234 p. BNWL-1387.

PRELIMINARY ANALYSIS FOR FFTF HEAT TRANSPORT CONTROL SYSTEM.

R. A. Harvey, S. A. Hunt. September, 1970. 158 p. BNWL-1395.

FAST FLUX TEST FACILITY CONTAINMENT SYSTEM ALARM AND TRIP CRITERIA.

M. M. Hendrickson, V. W. Gustafson. October, 1970. 22 p. BNWL-1479.

METAL SWELLING AND IRRADIATION CREEP EFFECTS UPON THE FAST TEST REACTOR CORE COMPONENT PERFORMANCE.

R. J. Jackson, W. H. Sutherland, I. L. Metcalf. September, 1970. 49 p. BNWL-1430.

FFTF CLOSED LOOP TEST CHARACTERISTICS.

R. E. Keyes. June, 1970. 40 p. BNWL-1251.

DYNAMIC SIMULATION OF PRIMARY LOOP CHECK VALVES FOR THE FAST FLUX TEST FACILITY.

J. E. Krajicek. May, 1970. 16 p. BNWL-1347.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

....COMPONENTS (cont'd)

MODIFIED FERMI CONTROL ROD LATCH FOR THE FFTF--REPORT ON THE DEVELOPMENT AND TESTING PROGRAM.

J. R. McBride. April, 1970. 78 p. BNWL-1335.

STABILITY ANALYSIS OF THE FAST TEST REACTOR.

J. R. Sheff. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 279-280.

....DESIGN

FAST FLUX TEST FACILITY PROGRAM DATA REQUIREMENTS.

July 15, 1969. 10 p. BNWL-1157 DR 1.

NOTES ON THE USE OF THE "ENGINEERING MOCKUP" AS A NUCLEAR DESIGN TOOL.

R. A. Bennett, S. L. Engstrom, J. V. Nelson, P. L. Hofmann. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 353. BNWL-SA-3115.

ESTABLISHMENT OF THE FFTF VERTICAL CORE REFERENCE CONCEPT.

C. P. Cabell. September, 1970. 115 p. BNWL-1165.

INTERMEDIATE HEAT EXCHANGER MODELING FOR FFTF SIMULATION.

A. L. Gunby. May, 1970. 59 p. BNWL-1367.

INTERMEDIATE HEAT EXCHANGER MODELING FOR FFTF SIMULATION.

A. L. Gunby. September 26, 1969. 20 p. BNWL-SA-2818.

CONCEPTUAL SYSTEM DESIGN DESCRIPTION FOR THE COMMUNICATIONS SYSTEM NO. 15.

R. C. Hoffman. May, 1969. BNWL-500 V 15.

SWELLING AND CREEP EFFECTS UPON FAST REACTOR CORE STRUCTURAL DESIGN.

R. J. Jackson, W. H. Sutherland, I. L. Metcalf. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 112-113. BNWL-SA-4018.

SUGGESTED INTERIM STRUCTURAL DESIGN CRITERIA FOR THE FTR PRIMARY PIPING SYSTEM.

M. T. Jakub. December, 1969. 49 p. BNWL-1236.

THERMAL ASPECTS OF THE FFTF REACTOR REFUELING SYSTEM.

A. F. Lillie. January 13, 1970. 70 p. BNWL-1235.

DYNAMIC SIMULATION OF THE FFTF HEATING AND VENTILATION SYSTEM.

R. N. Madsen, S. H. Christensen. November, 1969. 127 p. BNWL-1218.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

....DESIGN (cont'd)

FFTF SODIUM-TO-AIR DUMP HEAT EXCHANGER DIGITAL SIMULATION.

R. N. Madsen. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 340-341. BNWL-SA-4001.

FAST FLUX TEST FACILITY CONCEPTUAL COMPONENT DESIGN DESCRIPTION FOR THE REACTOR NUCLEAR CONTROL COMPONENTS.

D. Marinos. October, 1969. BNWL-500 V 33.

FFTF PROJECT BREAKDOWN STRUCTURE.

W. B. McDonald. January 10, 1969. 1 p. BNWL-895.

CONFIGURATION MANAGEMENT PLAN.

C. N. Orsborn. April 25, 1968. 47 p. BNWL-720.

CONCEPTUAL FACILITY DESIGN DESCRIPTION FOR STRUCTURES NO. 21.

H. W. Stivers. April, 1969. 225 p. BNWL-500 V 21.

CONCEPTUAL SYSTEM DESIGN DESCRIPTION FOR THE LIGHTING SYSTEM NO. 16.

A. L. Vosmer. October 7, 1969. 48 p. BNWL-500 V 16.

CONCEPTUAL SYSTEM DESIGN DESCRIPTION FOR THE REACTOR CORE SYSTEM NO. 31.

G. R. Waymire. August, 1967. 179 p. BNWL-500 V 31.

CORE CLAMPING SYSTEM DESIGN FOR FAST REACTORS.

G. R. Waymire, C. L. Mohr. May, 1970. 47 p. BNWL-SA-2691.

....FUELS

FABRICATION REPORT FFTF PROTOTYPIC FUEL PELLETS FOR ANALYTICAL CHEMISTRY PROGRAM.

H. T. Blair. April, 1970. 46 p. BNWL-1214.

FFTF FUEL PIN AND SUBASSEMBLY FABRICATION DEMONSTRATION.

C. A. Burgess. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 600.

FAST REACTOR FUEL INTERACTIONS WITH CONCRETE AFTER A HYPOTHETICAL CORE MELTDOWN.

G. Jansen, D. D. Stepnewski, L. M. Finch. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 376. BNWL-SA-4005.

FUEL MANAGEMENT MODELS AND ANALYSIS FOR THE FAST TEST REACTOR (FTR).

W. W. Little, R. B. Kidman, R. W. Hardie. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 440-441.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

....FUELS (cont'd)

PREDICTION SYSTEM FOR FAST REACTOR FUEL PIN DEFORMATIONS.

K. R. Merckx. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 535-536. BNWL-SA-2874.

FUEL CYCLE PARAMETERS OF SODIUM COOLED FAST BREEDER.

E. Nunn, D. E. Deonigi. July, 1969. 150 p. BNWL-965.

FFTf FUEL PIN AND SUBASSEMBLY CONCEPTUAL DESIGN METHODS AND DATA.

E. G. Stevens, P. D. Cohn, R. J. Jackson, D. C. Kolesar, C. L. Mohr, A. Padilla, C. L. Wheeler. June, 1970. 91 p. BNWL-1064.

FAST REACTOR FUEL ASSEMBLY THERMAL HYDRAULIC DEVELOPMENT PROGRAM - SODIUM HEAT TRANSFER.

J. M. Yatabe, R. E. Collingham, V. R. Hill, T. I. McSweeney, W. L. Thorne. March 4, 1970. 73 p. BNWL-1136.

....PROGRESS REPORTS

FAST FLUX TEST FACILITY MONTHLY INFORMAL TECHNICAL PROGRESS REPORT.

C. P. Cabell. June, 1970. 60 p. BNWL-1300-6.

FAST FLUX TEST FACILITY PERIODIC TECHNICAL REPORT.

C. P. Cabell. August, 1970. 180 p. BNWL-1394.

FAST FLUX TEST FACILITY QUARTERLY TECHNICAL REPORT.

BNWL-1275 September-November, 1969 192 p. C. P. Cabell
BNWL-1328 December, 1969, January-February, 1970 180 p. C. P. Cabell

FAST FLUX TEST FACILITY SUMMARY TECHNICAL REPORT JANUARY-DECEMBER, 1966.

C. P. Cabell. June, 1970. 99 p. BNWL-325.

....REACTOR PHYSICS

STATISTICALLY SIGNIFICANT BIASES IN THE FTR NEUTRONICS MODEL.

R. A. Bennett, S. L. Engstrom, J. V. Nelson, W. R. Young. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 291.

CORE RADIAL CONSTRAINT THEORY AND APPLICATIONS TO THE FTR.

M. T. Jakub, W. H. Sutherland. December 31, 1969. 152 p. BNWL-1170.

NEUTRON DOSIMETRY STUDIES IN EBR-II. Part V. REACTION RATE MEASUREMENT AND ANALYSIS.

L. S. Kellogg, W. H. Zimmer. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 938-939.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

....REACTOR PHYSICS (cont'd)

PARAMETRIC REACTIVITY TRANSIENT ANALYSES FOR THE FFTF NUCLEAR PROOF TEST REACTOR.

A. R. Schade. January, 1970. 56 p. BNWL-1111 FF 1.

JUSTIFICATION AND SPECIFICATION FOR AN FTR OSCILLATOR.

J. R. Sheff. August, 1970. 33 p. BNWL-1314.

....SAFETY

FFTF SHIELDING PROGRAM.

W. L. Bunch. April, 1970. 40 p. BNWL-1333.

LECTURE SERIES - FAST REACTOR SAFETY TECHNOLOGY AND PRACTICES VOL. I.

P. L. Hofmann. March 27, 1970. 180 p. BNWL-SA-3093 V 1.

LECTURE SERIES - FAST REACTOR SAFETY TECHNOLOGY AND PRACTICES VOL. II.

P. L. Hofmann. March 27, 1970. 320 p. BNWL-SA-3093 V. 2.

FAST REACTOR PROTECTION WITH IN-CHANNEL INSTRUMENTATION.

J. J. Regimbal, R. E. Peterson. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 822.

A NEW COMPUTATIONAL SYSTEM FOR FAST REACTOR ACCIDENT INVESTIGATION.

A. E. Waltar, W. T. Sha. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 371.

NEUTRON DOSIMETRY FOR FAST-REACTOR IRRADIATION AND SURVEILLANCE TESTING.

H. H. Yoshikawa, W. N. McElroy. Journal of the American Society for Testing and Materials, Special Technical Publication No. 457, 1969, p. 342-351. BNWL-SA-1488.

GENERAL

DISSOLVED GAS INFLUENCES ON A PWR DESIGN BASIS DECOMPRESSION.

R. T. Allemann. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 883.

EXPERIMENTAL HIGH ENTHALPY WATER BLOWDOWN FROM A SIMPLE VESSEL THROUGH A BOTTOM OUTLET.

R. T. Allemann, A. J. McElfresh, A. S. Neuls, W. C. Townsend, N. P. Wilburn, M. E. Witherspoon. June, 1970. 150 p. BNWL-1411.

MEASURED AND PREDICTED LIQUID LEVELS DURING BLOWDOWN OF A PRESSURE VESSEL.

R. T. Allemann, A. S. Neuls, M. E. Witherspoon. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 883-884.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

GENERAL (cont'd)

HIGH-TEMPERATURE LATTICE TEST REACTOR OPERATION TO 1000 C.

R. G. Clark. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 230.

DESIGN BASIS ACCIDENT EFFECTS ON REACTOR VESSEL COVER DESIGN.

G. L. Fox. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 376-377.

HELIUM PRODUCTION CROSS SECTIONS FOR ELEMENTS IRRADIATED IN EBR-II.

W. N. McElroy, H. Farrar IV, C. H. Knox. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 314-315.

PNL-17, EBR-II INSTRUMENTED SUBASSEMBLY TEST INTERIM REPORT.

M. K. Millhollen, A. M. Sutey. June, 1970. 32 p. BNWL-1424.

NUCLEAR POWER PLANTS AND WATER QUALITY CRITERIA.

R. E. Nakatani. May 21, 1970. 21 p. BNWL-SA-3282.

BASES FOR REACTOR CORE DESIGN REQUIREMENTS.

G. R. Waymire. June 17, 1969. 52 p. BNWL-1132.

VOID FRACTION PROFILE IN A NUCLEAR REACTOR VESSEL DURING COOLANT BLOWDOWN.

N. P. Wilburn. April, 1970. 142 p. BNWL-1295.

PROGRESS REPORTS

PLUTONIUM UTILIZATION PROGRAM TECHNICAL ACTIVITIES QUARTERLY REPORT.

F. G. Dawson		
BNWL-1289	September-November, 1969	79 p.
BNWL-1358	December, 1969, January-February, 1970	78 p.
BNWL-1442	March-May, 1970	89 p.

TECHNICAL ACTIVITIES QUARTERLY REPORT AEC REACTOR DEVELOPMENT AND TECHNOLOGY PROGRAMS.

F. G. Dawson		
BNWL-1522-1	July-September, 1970	104 p.

REACTOR FUELS

CERAMIC FUELS FOR HEAVY WATER REACTORS.

R. J. Anicetti. June, 1970. 78 p. BNWL-1435.

CALCULATIONS OF BURNUP AND DAMAGE FOR FAST REACTOR FUELS.

R. E. Dahl, Jr. April 7, 1970. 28 p. BNWL-1324.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

REACTOR FUELS (cont'd)

FACTORS AFFECTING THE OPTIMUM FUEL CYCLE.

D. E. Deonigi. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 37.

HIGH TEMPERATURE THERMOCOUPLED FUEL ELEMENT TEST.

D. R. Doman. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 549-551. BNWL-SA-2708.

INTERIM BURST TEST RESULTS ON EBR-II IRRADIATED FUEL PIN SECTIONS.

R. L. Fish, J. J. Holmes, R. D. Leggett. May 7, 1970. 28 p. BNWL-1323.

AUTORADIOGRAPHY OF NUCLEAR CERAMIC FUELS.

W. J. Gruber. Proceedings of 17th Conference on Remote Systems Technology, 1969, p. 21-25. BNWL-SA-1900.

THE THERMAL AND HYDRAULIC ANALYSIS OF A PHOENIX FUEL IN THE MATERIALS TEST REACTOR.

R. M. Hiatt. June, 1970. 69 p. BNWL-1409.

THE EFFECTS OF XENON ON FUEL-TO-CLADDING GAP CONDUCTIVITY.

G. R. Horn. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 607-608. BNWL-SA-2713.

A PRELIMINARY DESIGN FOR A PHOENIX FUELED HFIR REACTOR.

U. P. Jenquin. September, 1970. 48 p. BNWL-1504.

MELTING HEAT RATING OF UO_2 25 wt% PuO_2 FUELS.

L. A. Lawrence, J. A. Christensen, G. R. Horn. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 562. BNWL-SA-2716.

BURNUP DATA FROM UO_2 -48 wt% PuO_2 FUEL.

R. P. Matsen. August, 1970. 73 p. BNWL-1488.

MARK I PROTOTYPIC FTR FUEL ELEMENT SUBASSEMBLY SODIUM FLOW TEST.

M. K. Millhollen, T. J. Bennett, R. L. Myers. April 1, 1970. 81 p. BNWL-1261.

TRANSIENT ANALYSIS OF FUEL-SODIUM INTERACTION.

A. Padilla, Jr. Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 375-376.

HANFORD Pm-146 BURNOUT EXPERIMENTS.

J. C. Sheppard, H. H. Van Tuyl. January, 1970. 22 p. BNWL-1270.

REACTOR PHYSICS

CENTRAL FUEL AND PERIPHERAL CONTROL RING REACTIVITY WORTHS IN THE FTR-2 CRITICAL

R. A. Bennett, J. V. Nelson, Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 322-323. BNWL-SA-3116.

ZPPR/FTR-2 SHIELD EXPERIMENTS: NEUTRON DISTRIBUTION.

E. T. Boulette, Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 399-400. BNWL-SA-3089.

TIMH--A COMPUTER PROGRAM FOR THE DETERMINATION OF FLUENCE WITH A TIME-VARYING FLUX

R. D. Bourquin, August, 1970. 27 p. BNWL-1492.

ZPPR/FTR-2 SHIELD EXPERIMENTS. GAMMA DISTRIBUTION

W. L. Bunch, E. T. Boulette, L. F. Kocher, Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 400-401. BNWL-SA-3077

INVERSE MULTIPLICATION MONITORING OF SUBCRITICAL REACTIVITY CHANGES IN FTR.

S. L. Engstrom, R. A. Bennett, V. O. Uotinen, Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 325-326. BNWL-SA-3114

MTR-PHOENIX FUEL CRITICAL EXPERIMENTS AND ANALYSIS.

J. W. Kutcher, E. C. Davis, C. M. Herb, Transactions of the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 245-246.

POWER TESTS WITH THE UO₂-2 wt% PuO₂ BATCH CORE IN THE PRTR.

J. W. Kutcher, R. I. Smith, May, 1970. 43 p. BNWL-1383.

COMPARISON OF MULTIPLE FOIL AND TIME-OF-FLIGHT NEUTRON FLUX-SPECTRA IN A BARE U-235 ASSEMBLY

W. N. McElroy, Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 757-759

EBR-11 DOSIMETRY TEST DATA ANALYSIS (REACTOR RUNS 31E AND 31F).

W. N. McElroy, J. L. Jackson, J. A. Ulseth, R. L. Simons, June, 1970. 78 p. BNWL-1402

DETERMINATION OF THE ABSOLUTE NEUTRON FLUX SPECTRUM IN THE PCTR FAST NEUTRON CAVITY FROM MULTIPLE FOIL ACTIVATION MEASUREMENTS

D. F. Newman, August, 1970. 134 p. BNWL-1487

NEUTRON FLUX SPECTRUM MEASUREMENTS IN THE PCTR FAST NEUTRON CAVITY.

D. F. Newman, L. C. Davenport, Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 714-715.

REACTOR TECHNOLOGY (cont'd)

BNWL-1600

REACTOR PHYSICS (cont'd)

ANALYTICAL CORRELATIONS OF: PROCF BATCH CORE FUELED EXPERIMENTS.

D. L. Prezbindowski. July, 1970. BNWL-1453.

THREE ENERGY GROUP SPACE DEPENDENT SPECTRAL DENSITIES.

J. R. Sheff. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 709-710. BNWL-SA-2772.

EXPERIMENTS AND CALCULATIONS FOR H₂O-MODERATED ASSEMBLIES CONTAINING UO₂-2 wt% PuO₂ FUEL RODS.

V. O. Uotinen, L. D. Williams. May 23, 1967. 36 p. BNWL-SA-1107.

MEASURED AND CALCULATED β /L FOR UNIFORM H₂O LATTICES OF Al-Pu, UO₂, AND UO₂-PuO₂ FUEL RODS.

V. O. Uotinen, J. H. Lauby, W. P. Stinson, S. R. Dwivedi. Transactions of the American Nuclear Society, Vol. 12, No. 2, 1969, p. 649-650. BNWL-SA-2688.

EXPERIMENTAL AND CALCULATED RESULTS FOR UO₂ AND UO₂-PuO₂ FUELED H₂O-MODERATED LOADINGS.

L. D. Williams, J. B. Edgar. August, 1970. 174 p. BNWL-1379.

ANALYSIS OF FTR PHASE B CRITICAL EXPERIMENTS PART-1 ZPR-III ASSEMBLY 51.

W. R. Young, R. A. Bennett. February 3, 1970. 79 p. BNWL-1138.

ANALYSIS OF FTR PHASE B CRITICAL EXPERIMENTS PART 2 ZPR-III ASSEMBLIES 52A, B, C, D, E, AND F.

W. R. Young, R. A. Bennett. March 5, 1970. 46 p. BNWL-1139.

....PROGRESS REPORTS

REACTOR PHYSICS QUARTERLY REPORT.

L. C. Schmid, E. D. Clayton, R. E. Heineman.

BNWL-1304 October-December, 1969 131 p.

BNWL-1381-1 January-March, 1970 120 p.

BNWL-1381-2 April-June, 1970 102 p.

ROCKET AND RAMJET PROPULSION

PROGRESS REPORTS

FINAL REPORT EXAMINATION OF ROVER EXPERIMENT 50 FUEL ELEMENTS.

May, 1970. 79 p. BNWL-1366. (Confidential)

ROCKET AND RAMJET PROPULSION (cont'd) BNWL-1600

PROGRESS REPORTS (cont'd)

QUARTERLY PROGRESS REPORT FUELED-GRAPHITE STUDIES. (CONFIDENTIAL).

BNWL-1293	October-December, 1969	18 p.
BNWL-1375	January-March, 1970	30 p.

SAFEGUARDS AND MATERIALS HANDLING

GENERAL

THE SAFEGUARDS VALUE OF CHEMICAL PLANT MEASUREMENTS RELATING TO BURNUP -
YANKEE CORE V AND IV.

D. E. Christensen, R. P. Matsen, R. A. Schneider, W. C. Wolkenhauer.
June, 1970. 124 p. BNWL-1473.

SIGNIFICANT PROPERTIES OF CHEMICAL REPROCESSING PLANT ACCOUNTABILITY DATA.

D. E. Christensen, R. P. Matsen, R. A. Schneider. Transactions of
the American Nuclear Society, Vol. 13, No. 1, June, 1970, p. 48-49.

A DESCRIPTION OF THE COMPUTER PROGRAM FOR THE SAFEGUARDS MATERIAL BALANCE
SIMULATOR.

J. W. Johnston, R. L. Engel. May, 1970. 110 p. BNWL-1357.

CAPABILITY OF A TYPICAL MATERIAL BALANCE ACCOUNTING SYSTEM FOR A CHEMICAL
PROCESSING PLANT.

R. A. Schneider, D. P. Granquist. May 12, 1970. 37 p. BNWL-1384.

URANIUM-235 DEPLETION AS A POTENTIAL INDEPENDENT CROSS-CHECK OF THE PLUTONIUM
CONTENT OF SPENT POWER REACTOR FUELS.

R. A. Schneider, D. E. Christensen, D. P. Granquist. March, 1970,
19 p. BNWL-SA-3304.

PROPERTIES OF THE Pu ESTIMATE BASED ON WEIGHTED Pu/U VALUES.

K. B. Stewart, R. A. Schneider. May 8, 1970. 31 p. BNWL-SA-3287.

THE ROLE OF STATISTICS IN SAFEGUARDS.

K. B. Stewart, J. L. Jaech. May 12, 1970. 34 p. BNWL-1385.

STATISTICAL TECHNIQUES FOR ENHANCING THE ROLE OF MATERIAL BALANCE ACCOUNTING
IN SAFEGUARDS.

K. B. Stewart. May, 1970. 62 p. BNWL-1386.

A DETAILED ANALYSIS OF THE SAFEGUARDS CAPABILITIES OF MATERIAL BALANCE AC-
COUNTING SYSTEMS IN THE LOW ENRICHED UO₂ CONVERSION AND FABRICATION SECTORS
OF THE COMMERCIAL FUEL CYCLE.

L. F. Wirfs. January, 1970. 160 p. BNWL-1336.

SAFEGUARDS AND MATERIALS HANDLING (cont'd) BNWL-1600

GENERAL (cont'd)

SAFEGUARDS CAPABILITIES OF THE MATERIAL BALANCE ACCOUNTING SYSTEMS OF THE PLUTONIUM PROCESSING AND SCRAP RECOVERY OPERATIONS AT HANFORD.

L. F. Wirfs. June, 1970. 118 p. BNWL-1399.

A TOTAL QUALITY CONTROL CONCEPT FOR MATERIAL BALANCE MEASUREMENTS.

L. F. Wirfs. June 1, 1970. 17 p. BNWL-SA-3336.

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>	<u>Author</u>	<u>Page</u>
Adee, R. R.....	3	Brimhall, J. L.....	20*, 28, 29
Albaugh, F. W.....	9*	Brodzinski, R. L.....	14*, 30
Allemann, R. T.....	36*	Brown, C. L.....	31
Ames, L. L., Jr.....	5*	Brown, R. E.....	16
Andersen, B. V.....	15, 16	Brown, W. F.....	22
Anderson, A. G.....	22	Bunch, W. L.....	36, 39
Anderson, T. L.....	14	Burgess, C. A.....	34
Anicetti, R. J.....	37	Burley, T. B.....	23, 27*
Ard, P. A.....	22	Burnett, R. A.....	19
Attree, P. M.....	30	Busch, R. A.....	22
		Bush, S. H.....	23
Babcock, W.....	32		
Bair, W. J.....	2	Cabell, C. P.....	33, 35*
Ballard, E. O.....	27*	Carter, D. G.....	23, 27*
Bard, F. E., Jr.....	18	Carter, J. L.....	30
Barr, M. J.....	22, 25	Carver, F. I.....	9
Bates, J. L.....	25*, 26, 27	Cason, J. L.....	24*
Beauchamp, R. H.....	21	Cassola, R. L.....	6, 30*
Becker, C. D.....	1*	Christensen, D. E.....	41*
Becker, F. L.....	23, 24	Christensen, J. A.....	38
Beeler, J. R., Jr.....	18	Christensen, S. H.....	33
Beetle, T. M.....	20	Chulos, L. E.....	7
Bement, A. L.....	23	Clark, K. C.....	9
Benham, R. D.....	19	Clark, R. C.....	9
Bennett, C. L.....	18	Clark, R. G.....	37
Bennett, R. A.....	33, 35, 39*, 40*	Claudson, T. T.....	27*
Bennett, T. J.....	22, 38	Clayton, E. D.....	30*, 31*, 40*
Berlin, J. D.....	2	Cohn, P. D.....	35
Bierman, S. R.....	30*, 31	Cole, B. M.....	20
Billeter, T. R.....	15	Coleman, L. F.....	12*
Blackburn, L. D.....	26	Coleman, W. J.....	7, 22*
Blair, H. T.....	34	Collingham, R. E.....	35
Blasewitz, A. G.....	6, 7*	Connally, R. E.....	3, 16
Bloomster, C. H.....	18	Cooper, J. A.....	4*, 16*, 17
Bolme, D. W.....	4	Coppinger, E. A.....	22
Bond, W. R.....	6	Coutant, C. C.....	1, 2, 12
Boulette, E. T.....	39*	Crawford, R. M.....	22
Bourquin, R. D.....	18*, 39	Crook, G. H.....	2
Boyd, D. E.....	7	Cross, F. T.....	17
Braby, L. A.....	31*	Culley, G. E.....	20
Brackenbush, L. W.....	16, 30	Cushing, C. E.....	3, 12
Brager, H. R.....	20, 26, 27		
Bramson, P. E.....	15*, 16, 17	Dahl, R. E., Jr.....	18*, 20, 37
Brattain, W. H.....	5	Dahlgren, S. D.....	21*, 22*
Brauer, F. P.....	3, 16	Daniel, J. L.....	21, 25

*More than one entry on page

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>	<u>Author</u>	<u>Page</u>
Daniels, D. G.....	11, 18	Gerhardstein, L. H.....	19
Davenport, L. C.....	39	Gilbert, E. R.....	26*, 27, 28
Davis, E. C.....	39	Gilmore, R. F.....	22
Dawson, F. G.....	37*	Glass, W. A.....	31*
Dean, R. B.....	5*	Gordon, N. C.....	32
Demerschman, A. W.....	19	Gordon, R. L.....	16, 26
Denham, D. H.....	12	Granquist, D. P.....	41*
Deonigi, D. E.....	35, 38	Graybeal, A. G.....	22
Dilley, J. V.....	4	Green, D. R.....	15, 24
Dixon, N. E.....	24	Greenhalgh, W. O.....	3
Doman, D. R.....	38	Griffin, B. I.....	17
Dozer, B. E.....	19	Gruber, W. J.....	24, 38
Drager, R. F.....	6	Gunby, A. L.....	33*
Duane, B. H.....	8	Gustafson, V. W.....	32
Dwivedi, S. R.....	40	Guthrie, G. L.....	29
Eberhardt, L. L.....	10, 19	Haffner, D. R.....	18
Edgar, J. B.....	40	Hales, J. M.....	8
Eliason, J. R.....	11	Hall, R. B.....	6
Endres, G. W. R.....	15, 16	Hall, R. J.....	31
Enfield, C. G.....	11	Haller, W. A.....	14*
Engel, R. L.....	41	Hammond, J. E.....	6
Engstrom, S. L.....	33, 35, 39	Hampton, C., Jr.....	7
Erdman, H. E.....	2	Hann, C. R.....	21, 28, 29
Erickson, M. D.....	19	Hanna, G. C.....	30
Eschbach, E. A.....	19	Hansen, J. E.....	17*
Farrar, H., IV.....	37	Hansen, L. E.....	31*
Faust, L. G.....	16, 30	Hanson, J. E.....	27
Fields, S. R.....	8	Hardie, R. W.....	18*, 31, 34
Finch, L. M.....	27*, 34	Harding, N.E.....	27, 28
Fish, R. L.....	20, 26, 38	Harling, O. K.....	30
Fitch, C. E.....	24	Harter, J. G.....	8
Fitzpatrick, V. F.....	23	Hartley, J. N.....	6*
Fleming, D. M.....	7	Harvey, R. A.....	32
Fletcher, J. F.....	13	Haushild, W. L.....	14
Ford, W. F.....	32	Hayward, B. R.....	4, 24
Foskett, E.....	9	Heineman, R. E.....	40*
Fox, G. L.....	18*, 37	Hendrickson, M. M.....	2, 13, 32
Frasco, D. L.....	5	Herb, C. M.....	39
Freshley, M. D.....	23, 27*	Hesson, G. M.....	6
Fullam, H. T.....	5, 26	Hiatt, R. M.....	38
Fuquay, J. J.....	12, 13	Hildebrand, B. P.....	16, 29*
		Hill, V. R.....	35

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>	<u>Author</u>	<u>Page</u>
Hilliard, R. K.....	12*, 13	Ko, R.....	3
Hoch, R. J.....	9*, 12	Kocher, L. F.....	15, 39
Hoffman, R. C.....	33	Kolesar, D. C.....	19, 35
Hofmann, F. L.....	33, 36*	Kosorok, J. R.....	16
Hoitink, N. C.....	28	Krajicek, J. E.....	32
Holmes, J. J.....	26, 28, 38	Kulcinski, G. L.....	28*, 29
Honstead, J. G.....	15	Kutcher, J. W.....	39*
Horn, G. R.....	38*		
Horst, T. W.....	8	Laidler, J. J.....	29
Hsieh, J. J.....	2, 15	Lauby, J. H.....	40
Hungate, F. P.....	15	Lawrence, L. A.....	38
Hunt, S. A.....	32	Leach, C. E.....	8
Hunter, D. O.....	24, 28	Legan, R. W.....	11
		Leggett, R. D.....	20, 21, 26*
Irby, H. H., Sr.....	7		28, 29, 38
		Lemmel, H. D.....	30
Jackson, J. L.....	39	Leonard, B. R., Jr.....	30
Jackson, R. J.....	28, 32, 33, 35	Lester, D. H.....	8
Jaech, J. L.....	22, 41	Libby, H. L.....	24
Jakub, M. T.....	33, 35	Lillie, A. F.....	33
James, L. A.....	26	Linderoth, C. E.....	12, 13
Jansen, G.....	34	Lippincott, E. P.....	24, 31
Jarrett, J. H.....	17	Little, W. W., Jr.....	18*, 28, 31, 34
Jaske, R. T.....	9, 11*, 13, 20	Lloyd, R. C.....	31*
Jenquin, U. P.....	38	Lovell, A. J.....	28, 29
Jensen, J. D.....	15, 24	Ludwick, J. D.....	9*, 13*
Jensen, R. C.....	5		
Johnson, A. B., Jr.....	23, 28	Madsen, R. N.....	8, 33, 34
Johnson, B. M.....	12, 22	Mahan, R. E.....	19
Johnson, N. L.....	25	Mahlum, D. D.....	2
Johnston, J. W.....	41	Main, G. C.....	19
Jolly, W. D.....	24	Maiwald, K. S.....	24
Jones, D. A.....	3	Maloney, K. M.....	5
		Mansius, C. A.....	4
Kalkwarf, D. R.....	5	Marinos, D.....	34
Kathren, R. L.....	15	Marr, D. R.....	18
Kaye, J. H.....	3, 4*, 17	Marshall, R. K.....	29
Kelley, E. L., Jr.....	8	Maryott, J. L.....	4
Kellogg, L. S.....	35	Mastel, B.....	20*, 21, 28*, 29
Keough, R. F.....	3	Matchett, W. H.....	1*
Keyes, R. E.....	32	Matsen, R. P.....	38, 41*
Kidman, R. B.....	31, 34	Mayhan, S. J.....	25
Kissinger, H. E.....	20, 28	McBride, J. R.....	33
Kleinpeter, J. H.....	6, 7	McClanahan, E. D.....	21
Knox, C. H.....	37	McConnon, D.....	17

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>	<u>Author</u>	<u>Page</u>
McCormack, J. D.....	12, 13	Padilla, A.....	35, 38
McDonald, W. B.....	34	Palmer, H. E.....	2
McElfresh, A. J.....	36	Partridge, J. A.....	5
McElroy, J. L.....	6*	Patten, J. W.....	21
McElroy, W. H.....	4, 20, 26, 30 36, 37, 39*	Peak, R. D.....	13
McGilton, C. H.....	29	Pember, L. A.....	26, 27
McKenney, J. R.....	1	Perkins, R. W.....	4*, 10*, 16*, 17
McSweeney, T. I.....	35	Perrizo, E. F.....	25
Meeks, R. L.....	10	Peterle, T. J.....	10
Mendel, J. E.....	6*, 7	Peterson, D. E.....	11*, 20
Menzel, D. B.....	14	Peterson, R. E.....	36
Mercer, B. W.....	5*	Postma, A. K.....	12, 13*
Merckx, K. R.....	18, 35	Powers, G. J.....	3
Merz, M. D.....	21*	Prezbindowski, D. L.....	40
Metcalfe, I. L.....	32, 33	Purcell, W. L.....	18
Millhollen, M. K.....	22, 27, 37, 38		
Mishima, J.....	5, 13*	Ramsdell, J. V., Jr.....	9*
Mitzlaff, W. A.....	16	Rancitelli, L. A.....	4*, 10, 14*, 16
Mohr, C. L.....	34, 35	Rasmussen, J. J.....	21
Mudd, R. D.....	6	Reardon, W. A.....	19
Myers, R. L.....	22, 23*, 24, 38	Regimbal, J. J.....	36
		Reid, D. L.....	6
Nail, J. H.....	18	Reynolds, R. L.....	20
Nakatani, R. E.....	37	Richardson, R. L.....	24
Nelson, I. C.....	2	Rickard, W. H.....	11, 12
Nelson, J. L.....	14	Rieck, H. G.....	15
Nelson, J. V.....	33, 35, 39	Rising, F. L.....	16
Nelson, R. P.....	21, 25, 26	Roach, F. E.....	10
Neuls, A. S.....	36*	Robbins, R. E.....	28
Newman, D. F.....	39*	Roberts, F. P.....	5
Newton, C. E., Jr.....	5	Robertson, D. E.....	11
Nichols, L. L.....	5	Roesch, W. C.....	31*
Nickola, P.W.....	9*	Rose, F. L.....	3
Nielsen, J. M.....	10, 12	Routson, R. C.....	6
Norwood, N. D.....	5	Rowe, D. S.....	8*, 19
Nunn, E.....	35	Ryden, J., Jr.....	25*
O'Dell, L. D.....	31	Sanders, C. L.....	3*
Oden, D. R.....	31	Sawtelle, G. R.....	8
Ord, R. N.....	24*	Schade, A. R.....	36
Orsborn, C. N.....	34	Schemmel, R. R.....	15, 26
Oster, C. A.....	12	Schenter, R. E.....	30, 31, 32
Owen, R.W.....	10	Schmid, L. C.....	40*

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>	<u>Author</u>	<u>Page</u>
Schneider, K. J.....	6*	Stuart, B. O.....	3
Schneider, R. A.....	41*	Studer, R. R.....	8
Schneider, R. P.....	1	Sullivan, M. F.....	1
Schroder, R. J.....	20	Sump, K. R.....	21
Schwalb, M. R.....	6	Sutey, A. M.....	37
Schwendiman, L. C.....	5, 8*, 13*	Sutherland, W. H.....	32, 33, 35
Scott, F. A.....	3	Sveum, M. E.....	17
Scott, R. H.....	14	Swinth, K. L.....	14, 17
Sehmel, G. A.....	8, 10		
Seim, T. A.....	19	Taylor, J. M.....	21
Serpan, C. Z., Jr.....	20	Templeton, W. L.....	2, 6, 11, 12
Sha, W. T.....	2, 36	Terry, K.....	1
Shaw, C. B.....	24	Thomas, C. W.....	10*, 15
Sheely, W. F.....	17, 25*	Thomas, J. M.....	1, 2*
Sheff, J. R.....	19, 33, 36, 40	Thompson, D. C.....	28
Shen, S. F.....	10	Thompson, R. J.....	6, 7
Sheppard, J. C.....	17, 38	Thomsen, D. H.....	19, 20
Sherby, O. D.....	21	Thorne, W. L.....	35
Shire, P. R.....	14	Thornton, J. W.....	22
Sikov, M. R.....	2	Tombropoulos, E. G.....	1
Silker, W. B.....	15	Touhill, C. J.....	5, 14*
Simons, R. L.....	26, 30, 39	Townsend, W. C.....	36
Slagle, O. D.....	25, 26	Trantow, R. L.....	23
Slinn, W. G. N.....	10	Traver, T. M.....	19
Smith, F. M.....	4	Turner, J. R.....	1*
Smith, L. L.....	9, 10		
Smith, P. W.....	5	Ulseth, J. A.....	39
Smith, R. I.....	39	Unruh, C. M.....	7, 17
Smith, R. W.....	25, 29	Uotinen, V. O.....	31, 39, 40*
Smith, W. F.....	8	Urie, M. W.....	25
Sonnichsen, J. C., Jr..	11, 12, 18		
Sorsoli, W. A.....	1	Van Slyke, W. J.....	5
Spalek, J.....	25	Van Tuyl, H. H.....	5, 17, 31
Stepnewski, D. D.....	34		32*, 38
Stevens, E. G.....	20, 35	Vaughan, B. E.....	3, 12
Stewart, Kent B.....	31	Vosmer, A. L.....	34
Stewart, Kirkland B....	41*		
Stinson, W. P.....	40	Waite, D. A.....	15
Stivers, H. W.....	34	Walker, R. A.....	19
Story, J. S.....	30	Waltar, A. E.....	20, 36
Straalsund, J. L.....	26*	Wandling, C. R.....	24
Strand, J. A.....	3	Ward, A. L.....	29
Streng, D. L.....	2	Watson, C. R.....	17
Stringer, J. L.....	16*	Watson, D. G.....	12

AUTHOR INDEX

BNWL-1600

<u>Author</u>	<u>Page</u>
Watwood, V. B.....	14, 24
Waymire, G. R.....	28, 34*, 37
Weber, J. W.....	26
Weddle, R. C.....	28
Wehner, A. P.....	3, 8
West, M. L.....	5
Westcott, C. H.....	30
Wheeler, C. L.....	19, 28, 35
Wilburn, N. P.....	36, 37
Wildung, R. E.....	6
Wiley, W. R.....	1*
Williams, L. D.....	40*
Wilson, R. E.....	31
Wirfs, L. F.....	42*
Wise, K. R.....	13

<u>Author</u>	<u>Page</u>
Witherspoon, M. E.....	36*
Wogman, H. A.....	4*, 10*, 17, 30
Wolkenhauer, W. C.....	41
Yarosh, M. M.....	9
Yatabe, J. M.....	35
Yoshikawa, H. H.....	36
Young, J. A.....	10*
Young, J. R.....	4
Young, W. R.....	35, 40*
Yunker, W. H.....	3
Zimmer, W. M.....	35
Zwibel, H. S.....	30

REPORT NUMBER INDEX

BNWL-1600

<u>BNWL</u>	<u>Page</u>	<u>BNWL</u>	<u>Page</u>	<u>BNWL</u>	<u>Page</u>
B-26	19	1235	33	1311	7
325	35	1236	33	1312	30
456	13	1241	18	1314	36
500 V15	33	1243	9	1315-1	14
500 V16	34	1244	12	1315-2	14
500 V21	34	1247	18	1317	8
500 V31	34	1248	18	1319	8
500 V33	34	1251	32	1321	24
589	14	1259	32	1323	38
720	34	1261	38	1324	37
764	7	1262	30	1325	16
815	24	1263	7	1325-2	16
895	34	1264	18	1326	12
965	35	1265	9	1328	35
1046	13	1269	8	1330	19
1049	32	1270	38	1331	23
1064	35	1275	35	1332	23
1103	27	1276	24	1333	36
1111 FF1	36	1277	20	1335	33
1125	8	1278	19	1336	42
1132	37	1279	25	1337	9
1136	35	1280	9	1338 FF-1	14
1138	40	1283	24	1339	4
1139	40	1285	16	1342	18
1151	21	1286	28	1343	11
1157 DR1	33	1288	22	1344	11
1165	33	1289	37	1347	32
1166	18	1290	9	1349-1	25
1169	18	1291	18	1349-2	25
1170	35	1293	41	1352	4
1171	18	1296	21	1355	25
1172	8	1297	10	1356	19
1178	17	1299	11	1357	41
1183-3	14	1300-6	35	1358	37
1183-4	14	1302	25	1359	25
1185	6	1303	22	1361	6
1194	7	1304	40	1365	28
1195	21	1306 PT2	12	1366	40
1200-3	4	1307 V2 PT2	12	1367	33
1200-4	4	1307 V2 PT3	16	1369	9
1212	22	1308-1	17	1371	28
1214	34	1308-2	17	1373	24
1218	33	1308-3	17	1375	41
1221	2	1309	17	1376	8
1229	19	1310	9	1377	12

REPORT NUMBER INDEX

BNWL-1600

<u>BNWL</u>	<u>Page</u>	<u>BNWL</u>	<u>Page</u>	<u>BNWL-SA</u>	<u>Page</u>
1378	19	1442	37	1107	40
1379	40	1445	22	2522	20
1382	27	1453	40	2546	3
1383	39	1458	26	2691	34
1384	41	1461	27	2727	24
1385	41	1466	8	2818	33
1386	41	1468	24	2954	27
1387	32	1473	41	3052	13
1389	26	1478	20	3054	24
1391	6	1479	32	3069	16
1393	6	1484	12	3093 V1	36
1394	35	1487	39	3093 V2	36
1395	32	1488	38	3193	11
1397	14	1489	17	3203	15
1399	42	1490	21	3233	13
1400	9	1492	39	3282	37
1401	7	1494	7	3283	27
1402	39	1500	21	3287	41
1405	11	1503	6	3288	6
1407	3	1504	38	3296	13
1408	9	1510	9	3298	8
1409	38	1518	9	3300	20
1411	36	1522-1	37	3304	41
1412	18			3307	5
1415	22			3314	14
1416	15			3328	29
1418	23			3335	15
1419	10			3336	42
1420	27			3360	5
1421	5			3379	13
1422	19			3424	2
1423	19			3438	14
1424	37			3450	12
1425	7			3465	2
1427 REV	6			3495	23
1428	9			3552	3
1429	11			3609	22
1430	32				
1431	25				
1432	30				
1433	19				
1434	18				
1435	37				
1436	29				
1441	25				

DISTRIBUTION

BNWL-1600

No. of
Copies

OFFFSITE

1	<u>AEC Chicago Patent Group</u> G. H. Lee
208	<u>AEC Division of Technical Information Extension</u>

ONSITE-HANFORD

1	<u>AEC Chicago Patent Group</u> R. M. Poteat
1	<u>AEC Richland Operations Office</u> M. R. Schneller
2	<u>RDT Assistant Director for Pacific Northwest Programs</u>
55	<u>Battelle-Northwest</u> E. L. Alpen S. H. Bush G. M. Dalen J. M. Davidson, III F. G. Dawson, Jr. S. J. Farmer H. A. Kornberg R. S. Paul J. E. Rasmussen W. D. Richmond W. Sale A. J. Scott E. F. Smith (2) W. A. Snyder R. W. Widrig Patent Section (2) Technical Information Files (35) Technical Publications (2)