Nuclear News



Volume 58, Number 3

2015 Nuclear News Reference Special Section

DEPARTMENTS

EDITORIAL	
Backscatter	108
Calendar	6
Calls for Papers	14
Late News	17
Nuclear Notes	4
People	105
Proceedings Available	15
Recently Published	15
ADVERTISING	
Direct Answer	94
Index to Advertisers	93
Employment Ads Begin	101

Coming up ...

April—Special Section on Outage Management May—Special Feature: U.S. Nuclear Power Plant Capacity Factors

Members: View Nuclear News online!

At <www.ans.org>, click on Member Center at the upper right of your screen. Log in with your user name (member ID#) and password (last name, all lowercase, or your selected password). Click on the heading for the current issue of Nuclear News.

REFERENCE SECTION	39
Notes on the 2015 World List of Nuclear Power Plants	40
World List of Nuclear Power Plants	41
Nuclear Power Plants No Longer in Service	60
Abbreviations Used in the World List	62
Power Reactors by Nation; Power Reactors by Type, Worldwide	63
Maps of Commercial Nuclear Power Plants Worldwide	64
U.S. Power Reactor License Renewal	7 I
New Power Reactor Projects in the United States;	
U.S. Power Reactor Ownership/Operator Changes	72
FEATURE ARTICLE	77

Baseload nuclear with variable electricity to the grid BY CHARLES FORSBERG, PER F. PETERSON, LIN-WEN HU, AND KUMAR SRIDHARAN

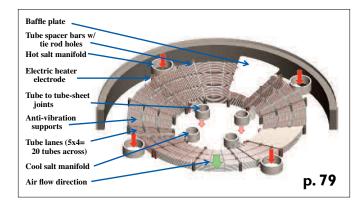
SPECIAL REPORT: FY 2016	
DOE AND NRC BUDGETS	82

QUOTING AT RANDOM

Sen. Lamar Alexander: The United States without nuclear power

POWER

Fermi-3: Loose ends after mandatory hearing? Focus on Finance. NRC staff proposes ITAAC hearing procedures, 10 CFR Part 50 update. NRC denies petition to shut down Mark 1 BWRs, receives new petition on the rule for continued storage of spent fuel. NRC staff asks commissioners to authorize Callaway license renewal. Three Fermi-2 contentions admitted; other license renewal developments. Maximizing the Assets: A status report on license renewal and power uprates. Fermi-2 returned to routine NRC oversight. Post-shutdown issues prompt special inspection at Pilgrim. Westinghouse and CB&I project 18-month delay in start of commercial operation of Vogtle-3 and -4. Advisory Committee on Reactor Safeguards assesses safety evaluation report for South Texas-3 and -4; other licensing developments.



INTERNATIONAL

Argentina's fifth reactor to be Chinese-designed Hualong 1 model. Canada's NRU reactor to produce radioisotopes until March 2018. Tentative pact in place to build Russian plant in Egypt. Ukraine's long-stalled spent fuel project relaunched. United Kingdom approves license renewal for Sizewell B; Dungeness B license renewal planned. Nuclear damage compensation convention to enter into force in April following ratification by Japan. Chinese companies sign new agreements with EDF and Areva. Key sub-suppliers for Finland's Hanhikivi-1 named.

SECURITY

Former LANL scientist sentenced for espionage. NRC to establish working group to evaluate force-on-force inspections. Historically black colleges and universities receive grants for cybersecurity education.

FUEL

88

American Centrifuge agreement between Centrus and ORNL extended by another six months. ASLB dismisses Lance/Ross project contentions. Preliminary economic assessments issued for uranium projects in South Dakota and Wyoming. Fuel fabrication plants submit event reports to NRC.

WASTE MANAGEMENT

96

Waste Control Specialists plans interim spent fuel storage facility in Texas. NRC releases last two volumes of safety evaluation report for DOE's Yucca Mountain license application. Partial ceiling collapse found in restricted area at WIPP. Completion of Savannah River Site cleanup program extended to 2065.

INDUSTRY

Rolls-Royce, KOEL to supply generators for Indian nuclear plants; other business developments. Global Nuclear Fuels to supply fuel to Cooper plant; other contracts. CB&I submits reports to NRC on pipe support coating, quality assurance breakdown; other 10 CFR Part 21 reports.

ISOTOPES & RADIATION

NRC: More data needed for Northwest Medical Isotopes' construction permit application. NRC proposes \$3,500 fine to engineering firm. DOE cites Fluor B&W Portsmouth for violation, proposes fine.

STANDARDS & DOCUMENTATION

Standards project initiated, comments requested. NRC issues one regulatory guide; other actions.

Editorial Staff

EDITOR & PUBLISHER

Betsy Tompkins

INTERNATIONAL EDITOR

Dick Kovan

SENIOR EDITOR

E. Michael Blake

SENIOR ASSOCIATE EDITOR

Phyllis Ruzicka

ASSOCIATE EDITORS Michael McQueen

Tim Gregoire

PRODUCTION EDITOR

Patricia A. Matas

DESKTOP EDITOR Chris Salvato

EDITORIAL ASSISTANT

Susan Gallier

CONTRIBUTING COLUMNISTS Linda C. Byus Bill Minkler

Advertising & Circulation Staff

SALES MANAGER Jeff Mosses

ADVERTISING/PRODUCTION ASSISTANT MANAGER Erica McGowan

ADVERTISING SALES ASSISTANT Jessica Vazquez

Editorial Advisory Committee

Jess C. Gehin, John C. Gilligan, and Kevan D. Weaver

ANS Officers

PRESIDENT Michaele C. Brady Raap

VICE PRESIDENT/ PRESIDENT-ELECT Eugene S. Grecheck

TREASURER Margaret E. Harding

CHAIRMAN, ANS PUBLICATIONS STEERING COMMITTEE Martin L. Grossbeck

Administrative

EXECUTIVE DIRECTOR Robert C. Fine

ANS Headquarters

GENERAL NUMBER 708/352-6611 Fax 708/352-0499

www.ans.org

NUCLEAR NEWS ADVERTISING 708/579-8226 800/NUC-NEWS

Fax 708/352-6464 www.ans.org/advertising advertising@ans.org

NUCLEAR NEWS EDITORIAL 708/579-8245

> Fax 708/579-8204 nucnews@ans.org

INTERNATIONAL EDITOR (DICK KOVAN) 902/455-3575 dkovan@ans.org

Nuclear News (ISSN: 0029-5574), Volume 58, Number 3. Published monthly (except during the month of Nuclear News (ISSN: 0029-5574), Volume 58, Number 3. Published monthly (except during the month of April when issued twice monthly) by the American Nuclear Society, Incorporated, with business, executive, and editorial offices at 555 N. Kensington Ave., La Grange Park, Illinois 60526; telephone 708/352-6611. Subscription rate for 2015 is \$580, which includes complimentary electronic access, 2008 to current issue; for subscriptions outside North America, add \$70 for shipping and handling, Alternatively, subscription rate is \$510 for postage and handling if being shipped to address outside North America. Single copy price for annual mid-April Buyers Guide is \$110; add \$15 for postage and handling if being shipped to address outside North America. Individual ANS members receive Nuclear News a part of membership. Replacement copies may be obtained at the single copy price, as long as copies are available. Inquiries about the distribution and delivery of Nuclear News and requests for changes of address should be directed to the American Nuclear Society, Allow six weeks for a change to become effective. POSTMASTER: Send change of address orders to Nuclear News, American Nuclear News is printed in New Richmond, Wis. 54017, by \$t. Croix Press, Inc. Nonprofit periodicals postage paid at La Grange, Illinois, and at additional mailing offices. Copyright © 2015 by the American Nuc

postage paid at La Grange, Illinois, and at additional mailing offices. Copyright © 2015 by the American Nuclear Society, Inc. Trademark registered in USA and Canada.

Opinions expressed in this publication by the authors are their own and do not necessarily reflect the opin-

ions of the editors, the American Nuclear Society, or the organizations with which the authors are affiliated, nor should publication of author viewpoints or identification of materials or products be construed as endorsement by this publication or by the Society.

Texts of most Nuclear News articles are available on the LexisNexis database, from Mead Data Corporation.



