

KFKI-1983-81

H. ILLY

RECENT BIBLIOGRAPHY ON ANALYTICAL  
AND SAMPLING PROBLEMS OF  
A PWR PRIMARY COOLANT

SUPPLEMENT II

*Hungarian Academy of Sciences*

**CENTRAL  
RESEARCH  
INSTITUTE FOR  
PHYSICS**

**BUDAPEST**





KFKI-1983-81

RECENT BIBLIOGRAPHY ON ANALYTICAL  
AND SAMPLING PROBLEMS OF  
A PWR PRIMARY COOLANT

SUPPLEMENT II

H. ILLY

Central Research Institute for Physics  
H-1525 Budapest 114, P.O.B. 49, Hungary

HU ISSN 0368 5330  
ISBN 963 372 123 7

C O N T E N T S

Introduction .....	3
List of symbols .....	4
Bibliography .....	5



## INTRODUCTION

The first two bibliographies on Analytical and Sampling Problems of a PWR Primary Coolant (KFKI Report-1980-48 and KFKI Report-1981-97) were published in 1980 and 1981, and covered the literature published in the previous 8-10 years.

The present Supplement II reviews the subsequent literature up till June 1983. It also includes some references overlooked in the first two volumes. The serial numbers are continued from the first two bibliographies. Cross-referencing was not intended.

This bibliographical Supplement II is arranged in alphabetical order; within each topic the references are listed alphabetically according to the name of the first author of each work.

Works are in English unless otherwise marked.

Notification of any errors and references which have been overlooked will be gratefully received.



LIST OF SYMBOLS

		page
B	boric acid	5
Cl	chloride, chlorine	7
G	general	7
GA	gas analysis	9
H	hydrogen isotopes: hydrogen, deuterium, tritium	10
I	iodine, iodide	11
NG	noble gases and radium	12
NH <sub>3</sub>	ammonia, ammonium	13
O	oxygen	13
OE	other elements	14
RM	radiation monitoring	15
RS	reactor safety	17
S	sampling	18
WCh	water chemistry	19

Cz	in Czech
F	in French
G	in German
H	in Hungarian
J	in Japanese
R	in Russian

HTR	high temperature reactor
LWR	light water reactor
NPP	nuclear power plant
PHT	primary heat transport
PWR	pressurized water reactor
TMI	Three Mile Island

IAEA-SM-264 International Symposium on Water Chemistry and Corrosion Problems of Nuclear Reactor Systems and Components, Vienna, Austria, 22-26 Nov 1982.

IAEA-SM-Leningrad, 1983 IAEA Specialists' Meeting on the "Influence of water chemistry on fuel element cladding behaviour in water cooled power reactors", Leningrad, USSR, 6-10 June, 1983.

Juel-Conf-43 Seminar of the KTG-expert group "chemistry and nuclear waste disposal" and the KFA Jülich, Germany, F.R. 5 Nov 1981.

W.Ch. II, BNES, London, 1981 Proc. of International Conference on Water Chemistry of Nuclear Reactor Systems and Components, Vienna, Austria, 22-26 Nov 1982.



BIBLIOGRAPHY

BORIC ACID

**B**

29. Brown W.W. et al.: Device for regulating light water nuclear reactors by changing the boric acid concentration in the cooling water circuit /G/  
German /F.R./ patent document 2064321/B/. Int. Cl. G 21 C 7/22.  
31 Jan 1980. 4 p.
30. Eyser H. et al.: Reversible storage of boron acid /G/  
BMFT-FB-K-79-01, Mar 1979. 65 p. Dep. NTIS /US Sales Only/,  
PC AO4/MF A01.
31. Grant P.J. et al.: Power plant water purification chemical recovery, and waste treatment: a novel technique with multiple in-plant applications.  
Proc. Am. Power Conf. 40, Chicago, 24-26 Apr 1978, p. 976-985
32. Henninger R.J. et al.: Unmitigated boron dilution events in a PWR LA-UR-82-1716. Conf-830103-11. Mar 1982. 31 p.  
[2. international topical meeting on nuclear reactor thermal hydraulics, Santa Barbara, USA, 11-13 Jan 1982]
33. Hozumi M.: Control system of boric acid concentration in coolants or moderators /J/  
Japanese patent document 56-18792/A/. Int. Cl. G21C7/22.  
21 Feb 1981. 5 p.
34. Johannsen K.H. et al.: Investigations on the recovery of boric acid from radioactive wastewaters in nuclear power plants by reversed osmosis /G/  
Acta Hydrochim. Hydrobiol. 9 /5/, 535-544 /1981/
35. Kubik R.N. et al.: The effects of high radiation levels on boron analysis equipment and pH probes  
Trans. Am. Nucl. Soc. 39, 842-843 /1981/ /summary/



36. Kudera D.E.: Activation product behaviour on borated mixed-bed ion change resin  
CONF-8108106. Trans. Am. Nucl. Soc., Suppl. 38, 3-4 /1981/  
/summary/  
[ANS topical meeting, Cleveland, USA, 16-19 Aug 1981]
37. Lee T.I.: Presentation of Ko-Ri Unit 1 water chemistry.  
IAEA-SM-264/6, Abstr. p. 14-15. 1982
38. Moldaschl H.: Analysis of loss-of-coolant accidents in PWRs. Quantification of the influence of leak size, control assembly worth, boron concentration and... /G/  
Atomkernenerg. Kerntech. 40 /2/, 91-97 /1982/
39. Roofthoofit R.L.A.: Development of crud during injection of hot boric acid and high-spread filtration /F/  
IAEA-SM-264/9, Abstr. p. 20-21. 1982.
40. Stiefel M.: Procedure and equipment for continuous manufacture of solutions /G/  
German /F.R./ patent document 2740437/B/. Int. Cl. G21C 15/00.  
12 Jul 1979. 4 p.
41. Stiefel M.: Method and device to deborate the primary coolant of a water-cooled nuclear reactor plant /G/  
German /F.R./ patent document 2855529/A/. Int. Cl. G21C 19/30;  
7/22. 26 Jun 1980. 6 p.
42. Suchanek M. et al.: Study of boric acid equilibria on strongly basic anion exchangers  
Sb. Vy. Sk. Chem.-Technol. Praze, Rada H. Analyticka Chemie. no. 14.  
p. 79-84 /1979/
43. Szabó J. et al.: Control of the boric acid concentration in the primary circuit by ion-exchanger Varion AT-660 /H/  
Energ. Atomtech. /Hungary/ 35 /9/, 423-425 /1982/
44. Takami I. et al.: Aqueous boric acid injection control device in NPPs /J/.  
Japanese patent document 55-151293/A/. Int. Cl. G21C7/22. 25 Nov 1980. 4 p.
45. Wunsch J.: Cleaning and treatment of water used in primary cycles of nuclear power plants with PWR reactors /Cz/  
Energetika /Czechoslovakia/ 31 /3/, 124-127 /1981/



CHLORIDE, CHLORINE

CI

15. Białas J.W.: Experience in water technology and corrosion protection in cooling systems of nuclear reactors in Poland  
IAEA-SM-264/33, Abstr. p. 68-69. 1982.
16. Comley G.C.W.: Experience with powdered resin purification at SGHWR.  
W.Ch. II, BNES 1980, Paper 21, p. 161-170.
17. "Radelkis Instruments": Portable ion-meter, type OP-261  
Exported Metrimpex, Hungarian Trading Co. for Instruments, 1391  
Budapest 62, P.O.B. 202, Hungary
18. "Varian Instruments": Ion chromatography system  
Varian Instruments, Steinhauserstr., 6300 Zug, Switzerland

GENERAL

G

35. Allen J.W. et al.: Acoustic monitoring of power plant valves  
Proc. of the 32nd meeting of the mechanical failures prevention  
group, Santa Monica, 7-9 Oct 1980, p. 11-30.
36. Anon.: The PWR-type reactor /G/  
Available from Fachinformationszentrum Physik, Mathematik, Energie,  
Karlsruhe, Germany F.R., Aug 1981. 47 p.
37. Anon.: The world's reactors no. 80: French 600 MWe nuclear island  
Nucl. Eng. 26 /318/, p. 37 /Sep 1981/
38. Anon.: PWR - problems will occur  
SCRAM Energy Bull. no. 28., 8-9 /Feb-Mar 1982/
39. Bajusz J. et al.: Breakdown in the TMI nuclear power plant /H/  
Energ. Atomtech. /Hungary/ 32 /5-6/, 279-280 /1979/
40. Benedek S. et al.: Simulation of the main control loop of a PWR on a  
hybrid computer /H/  
Mérés Autom. /Hungary/ 30 /11/, 407-410 /1982/
41. Bland W.M.: TMI rare event? Lessons to be learned.  
1982 Proc. ann. reliability and maintainability symposium,  
Los Angeles, 26-28 Jan 1982, p. 17-20.



42. Bruza J.M. et al.: Instrumentation and control system of a PWR nuclear power plant /in Portuguese/  
INIS-mf-7475 /v.A./. 1981. p. 227-236.  
[2. Brazilian Congress of energy, Rio de Janeiro, Brazil. 6-10 Apr 1981]
43. Controy C.: Why Britain does not need a PWR  
New Sci. /London/ 95 /1319/, 491-494 /1982/
44. Giot M.: The accident of TMI nuclear power station /F/  
J. Ing. /Belgium/ 29 /3/, 6-11 /1980/
45. Goddard S.: Why Britain needs a PWR  
New Sci. /London/ 94 /1310/, 765-767 /1982/
46. Godet J.: Optimal control of primary coolant temperature in a nuclear plant  
Automatica /GB/ 18 /4/, 373-385 /1982/
47. Horváth G.L. et al.: Computer simulation of radioactivity transport in PWR systems  
WCh II, BNES, 1980, Paper 34, p. 235-240.
48. Izumi F. et al.: Data list of nuclear power plants of PWR type in Japan. 1980 edition /J/  
JAERI-M-9629. Aug 1981, 278 p.
49. Mandler J.W. et al.: In-plant source term measurements at four PWR's. Topical report.  
NUREG/CR-1992. Aug 1981. 223 p.
50. Nishiyama T.: Anomaly diagnosis at LWR power station /J/  
Denryoku Chuo Kenkyusho Hokoku. no. 280004, 1-73 /1980/
51. "Nuclear Safety Commission, Tokyo": Report of symposium on "Problems presented by accident in TMI Nuclear Power Station in USA" /J/  
Printing Bureau, Tokyo, Japan. Ministry of Finance. Jul 1980. 195 p.
52. Nyerges P.: Consequences of the breakdown in the American nuclear power plant TMI-2 /H/  
Energ. Atomtech. /Hungary/ 32 /5-6/, 279-280 /1979/
53. Povolny M.: Development of nuclear power /Cz/  
Energetika /Czechoslovakia/ 30 /1/, 20-21 /1980/



54. Scott R.L. et al.: Summary and bibliography of safety-related events at pressurized-water nuclear power plants as reported in 1978  
ORNL/NUREG/NSIC-165. Sep 1979. 34 p.
55. Tanaka M.: Radioactivity release pathways of TMI-2 accident /J/  
Nippon Genshiryoku Gakkai-Shi 23 /1/, 49-57 /1981/
56. Umetani Y. et al.: Robot technology in nuclear power plant /J/  
J. Soc. Instrum. & Control Eng. /Japan/ 20 /11/, 1061-1065 /1981/

#### GAS ANALYSIS

#### GA

38. Gagliardi P. et al.: A multidetector GC system for high resolution head-space analysis  
Am. Lab. /USA/ 13 /5/, 82-92 /1981/
39. Gorshkov A.I. et al.: Chromatographic analysis of gases and hydrogen peroxide in aqueous coolant  
Teploenergetika /USSR/ 27 /10/, 25-26 /1980/  
/English translation in: Therm. Eng. /GB/ 27 /10/, 557-558 /1980/
40. Huber L.: Automatic on-line determination of impurities in gases with alarm level monitoring  
Internatl. Laboratory p. 56-59 /March 1983/
41. Lechnick W. et al.: Determination of total dissolved gas concentration in the primary coolant during normal or accident conditions  
CONF-811103. Trans. Am. Nucl. Soc. 39, 843-845 /1981/ /summary/  
[ANS winter meeting. San Francisco, USA, 29 Nov- 4 Dec 1981]
42. McMaster R.C.: Nondestructive testing handbook. Vol. 1. -Leak testing  
/2nd edition/  
American Society for Metals. 1982. 856 p.
43. Stang W.: Ultrasound - a new method for bubble detection and level measurement in the main coolant circuits of PWRs /G/.  
Jahrestagung Kerntechnik '81, Düsseldorf, Germany, 24-26 Mar 1981,  
p. 569-572.



HYDROGEN ISOTOPES

H

36. Baranaev Yu.D. et al.: Calculational analysis of the tritium buildup in the coolant of a water cooled and moderated reactor /R/  
Egorov Yu.A. /ed./: Radiation safety and radiation protection of nuclear power plants, Moscow, Atomizdat, 1981. p. 86-93.
37. Berman M. et al.: LWR hydrogen-safety research in the United States SAND-82-2379C. CONF-821084+1. 26 Oct 1982. 25 p.  
[Nuclear safety project annual colloquium, Karlsruhe /Germany F.R./, 26 Oct 1982.]
38. Boyle R.F. et al.: Tritium removal and retention device  
U.S. patent document 4,279,700/A/. Int. Cl. G21C 3/02. 21 Jul 1981.
39. Cassette Ph.: Hydrogen production and behaviour in a PWR in accident conditions /F/  
CEA-R-5175. Jul 1982. 203 p.
40. Celeri J. et al.: Treatment and containment of radioactive effluents and radioactive wastes from French PWR power plants /F/  
CEA-CONF-6053. Oct 1981. 3 p.
41. D'Annucchi F. et al.: A tritium analysis of an irradiated poisonous component /G/  
Jahrestagung Kerntechnik '81, Düsseldorf, GFR, 24-26 Mar 1981, p. 393-396.
42. Grant P.J. et al.: Tritium follow program at Oconee I nuclear station  
Trans. Am. Nucl. Soc. 32, 146-148 /1979/
43. Iacovino J.M.: Tritium in PWRs: a rational perspective  
Trans. Am. Nucl. Soc. 32, 144-146 /1979/
44. Nozaki T. et al.: Comparison of tritium concentration in reactor water between the Musashi and the Rikkyo reactors /J/  
Bulletin of Atomic Energy Res. Lab., Musashi Inst. of Technol., 3, 50-54 /1981/
45. Roellig K.: Tritium-balance in the HTR-type reactor /G/  
Juel-Conf-43. Nov 1981. 131 p.
46. Wilson C.R.: Hydrogen evolution monitoring as a measure of steam generator corrosion and feedwater hydrogen concentration. Final report.  
EPRI-NP-2650. Nov 1982. 58 p.



IODINE, IODIDE

24. Bell J.T. et al.: Predicted rates of formation of iodine hydrolysis species at pH levels concentrations, and temperatures anticipated in LWR accidents  
NUREG/CR-2900. ORNL-5876. Oct 1982. 66 p.
25. Bendick B.: Iodine as fission product during a PWR accident /G/  
Juel-Spez-153. May 1982. 30 p.
26. Campbell D.O. et al.: Chemical behaviour of fission product iodine in LWR accidents  
Nucl. Technol. 53 /2/, 111-119 /1981/
27. Deuber H.: The physico-chemical radioiodine species in the exhaust air of a PWR /PWR 2/. /G/  
KFK-3206. Dec 1981. 58 p.
28. Deuber H.: The physico-chemical radioiodine species in the exhaust air of a PWR /PWR 3/. /G/  
KFK-3207. Nov 1981. 118 p.
29. Ishiwatari N. et al.: Data sheets of fission product release experiments for light water reactor fuel /3/. /J/  
JAERS-M-9792. Nov 1981. 37 p.
30. Koide H.: Detection of fuel break /J/  
KURRI-TR-197. Mar 1980. p. 87-96.  
[Study meeting on fuel failure in Mihama Unit 1 nuclear power plant. Kumatori, Osaka, Japan. 29 Nov 1978.]
31. Malinauskas A.P. et al.: Chemistry of fission product iodine in light-water reactors.  
CONF-810964-1. 1981. 11 p.  
[Seminar of iodine removal from gaseous effluents in the nuclear industry, Mol, Belgium, 21-24 Sep, 1981.]
32. Malinauskas A.P.: Radioiodine source term and its potential impact on the use of potassium iodide  
CONF-821077-2. 1982. 14 p.  
[Atomic Industrial Forum conference on radiation issues for the nuclear industry, New Orleans, USA, 3-6 Oct 1982]



33. Osborne M.F. et al.: Iodine sorption on low-chromium alloy steel  
ORNL/TM-7755. Jan 1982. 193 p.
34. Yoshikawa H. et al.: Proposal about minimization of radioactive noble gas and iodine released from PWR /J/  
Nippon Kikai Gakkai Ronbunshu, B Hen. 47 /415/, 493-501 /1981/

NOBLE GASES AND RADIUM

**NG**

19. Busigin C.J. et al.: Continuous monitoring of <sup>226</sup>Ra in water  
2nd Annual Conf. of the Canadian Nucl. Soc., Ottawa, 10 June 1981,  
p. 62-65.
20. Horiuchi K. et al.: A new procedure for the determination of radium in water by extraction of radon and application of integral counting with a liquid scintillation counter  
Int. J. Appl. Radiat. & Isot. /GB/ 32 /5/, 291-294 /1981/
21. Lim T.P. et al.: A rapid method of Ra-226 analysis in water samples using an alpha spectroscopic technique  
CIM Bull. /Canada/ 74 /833/, 97-105 /1981/
22. Nieder R.: Basic aspects of HTR chemistry /G/  
Juel-Conf-43. Nov 1981. 131 p.
23. Reif M.: Helium impurities in a NPP-primary coolant circuit /G/  
Juel-Conf-43. Nov 1981. 131 p.
24. Tzafestas S.G.: Control of nuclear power plants  
Autom. Control Theory & Appl. /Canada/ 8 /2/, 37-50 /1980/
25. Ungr F.: Requirements for leakage and testing of WWER 440 parts and assemblies /Cz/  
Material and technological aspects of WWER reactors, IV. Zelezna Ruda, Czechoslovakia, 30 Oct- 1 Nov 1978, p. 781-795.
26. Walford G.V.: Radiological analysis of primary coolant and containment atmosphere  
CONF-811103. Trans. Am. Nucl. Soc. 39, 840-841 /1981/ /summary/  
[ANS winter meeting. San Francisco, USA, 29 Nov- 4 Dec 1981]



27. Ziegelheim C.J. et al.: Development of a continuous monitor for  $^{226}\text{Ra}$  in water  
Health Phys. 42 /3/, 317-327 /1982/

AMMONIA, AMMONIUM

**NH<sub>3</sub>**

7. Bellwied U. et al.: Ammonium determination as a waste water end control with the aid of an automatic analysis apparatus /G/.  
Galvanotechnik 72 /8/, 823-826 /1981/
8. Brede O. et al.: Prevention of nitrate formation in aqueous primary coolant circuits of nuclear power plants  
Radiochem. Radioanal. Lett. 50 /1/, 45-54 /1981/
9. "MOM Works": "Liquofot" - a portable water analyser  
MOM Works, 1525 Budapest, P.O.B. 52, Hungary

OXYGEN

**O**

13. "Hanna Instruments": Meter for O<sub>2</sub>.  
Hanna Instruments, Via Montà 287, 35136 Padova, Italy
14. Mikajiri M. et al.: Control device for dissolved oxygen concentration in condensate and feedwater systems in nuclear power plants /J/  
Japanese patent document 56-77798/A/. Int. Cl. G21D3/08. 26 Jun 1981. 3 p.
15. "Radelkis Instruments": Dissolved oxygen meter type OH-503, and oxygen meter type OH-703  
Exported by Metrimpex, Hungarian Trading Co. for Instruments, 1391 Budapest 62., P.O.B. 202, Hungary
16. Saito H. et al.: An automatic analyser for dissolved oxygen in water /J/  
Trans. Soc. Instrum. & Control Eng. /Japan/ 15 /5/, 672-677 /1979/
17. Takadera K.: Non-membrane-galvanic cell type of continuous dissolved oxygen meter /J/  
Shimadzu Rev. /Japan/ 37 /2-3/, 91-96 /1980/



18. "TBT Mécanalyse": Oxygen analyser W.O.M. licence E.D.F.  
TBT Division Analyseurs, 78-Les Loges en Josas, BP 158, 78350 Jouy  
en Josas, France
19. Theus G.J. et al.: Reference electrodes and measuring systems for  
determining the amount of dissolved oxygen in a liquid  
UK patent document 1593908/A/. Int. Cl. G01n27/30. 22 Jul 1981. 6 p.

OTHER ELEMENTS

OE

15. Berge Ph. et al.: French experience in water chemistry tests and the  
monitoring of corrosion products in PWRs /F/  
IAEA-SM-264/7, p.1-14. /Abstract p.16-18/, 1982.
16. Bergmann C.A.: Evaluation of cobalt sources in Westinghouse-designed  
three- and four-loop plants. Final report.  
EPRI-NP-2681. Oct 1982. 135 p.
17. Blesa M.A. et al.: Behaviour of cobalt /II/ in aqueous suspensions of  
magnetite  
Colloids Surf. 5 /3/, 197-207 /1982/
18. Croney S.T. et al.: Radiocesium behaviour on mixed-bed demineralizers  
used in PWRs  
CONF-801107. Trans. Am. Nucl. Soc. 35, 521-522 /1980/ /summary/  
[ANS internatl. conf., Washington, USA, 17-21 Nov 1980]
19. Gall' V.B. et al.: Corrosion product migration in the primary coolant  
circuit of the WWER type reactor during transients /R/  
Egorov Yu. A. /ed./: Radiation safety and radiation protection of  
nuclear power plants. Moscow. Atomizdat, 1981.
20. James S.Y. et al.: Automatic analysis of dissolved metal pollutants in  
water  
Internatl. Laboratory p. 44-56 /Jul-Aug 1982/
21. Järnström R.T.: Corrosion product behaviour in Loviisa NPP primary  
coolant and measures taken to lower the radiation levels by  
modified start-up and shut-down procedures  
IAEA-SM-264/8, p. 1-8. /Abstract p.19./, 1982.



22. Matijevic E.: Properties of colloidal corrosion products and their effects on nuclear plants. Vol. 1. Executive summary. Final report. NP-2606-Vol. 1. Oct 1982. 48 p.
23. Narbutt J. et al.: Studies on radiocesium removal from primary coolant of some PWR-type reactors  
IAEA-SM-264/31 /Abstract p. 63-65/, 1982.
24. Ohsum K. et al.: Deposits of soluble cobalt on pipe walls in high-temperature water  
Trans. Am. Nucl. Soc. 39, 426-427 /1981/ /summary/  
[ANS winter meeting, San Francisco, USA, 29 Nov- 4 Dec 1981]
25. Ohtou Y. et al.: Radiochemical management on reactor cooling system, /13/. /J/  
Denryoku Chuo Kenkyusho Hokoku. no. 280025, 1-22 /1980/
26. Rosner G.: Measurement of actinide elements in the primary coolant of Gundremmingen nuclear power plant /G/  
GSF-S-596, Jul 1979. 32 p.

RADIATION MONITORING

**RM**

33. Bodizs D. et al.: Automatic gamma spectrometer measuring system for the investigation of primary coolant /H/  
Energ. Atomtech. /Hungary/ 35 /6/, 248-251 /1982/
34. Bogáncs J. et al.: Primary coolant circuit characterization related to starting of the WWER-440 block  
IAEA-SM-Leningrad, 1983. Paper 26. p. 1-25.
35. Dollé L. et al.: Radionuclides transport phenomena in a pressurized water in-pile loop  
WCh II, BNES, 1980. Paper 38, p. 257-262.
36. Freeman A.N.: The monitoring of oil in reactor coolant and in breathing air by photoionization detection  
GEGB Tech. Disclosure Bull. /GB/ no. 345, 1-4 /1980/
37. Harvill J.P. et al.: Portable monitor for the determination of reactor coolant surface radionuclide activities  
EPRI-NP-2523. Jul 1982. 59 p.



38. Higashi A.: On-line computer application to radiological protection programme of Tokai-II nuclear power station  
Radiation protection in nuclear power plants and the fuel cycle, Pt. I., Bristol, England, 27 Nov- 1 Dec 1978. p. 243-247.
39. Kapisovsky V. et al.: Gamma-ray spectrometry in nuclear power production. Monitoring of the primary coolant  
INIS-mf-7500 [nd]. 44 p. Abstract. [Czechoslovak spectroscopic conference. Nitra, Czechoslovakia, 1-5 Sep 1980.]
40. Lawrence D.A. et al.: Radionuclide transport, deposition and decontamination in water cooled nuclear power reactors - Indian experience  
IAEA-SM-264/36 p. 1-15. /Abstract p. 76-78./, 1982.
41. Llorens Castillo M.A.: The use of microprocessors in radiation monitoring installations in nuclear generating stations /in Spanish/  
An. Mec. & Electr. /Spain/ 56 /5/, 44-50 /1979/
42. Malinowski J.: The behaviour of fission- and activation products in the cooling circuit /G/  
Juel-Conf-43. Nov. 1981. 131 p.
43. Mandler J.W.: On-line reactor coolant monitoring  
EGG-M-05981. CONF-811103-76. 1981. 4 p.  
[ANS winter meeting. San Francisco, USA. 29 Nov- 4 Dec 1981.]
44. Pallagi D. et al.: Measurement of the primary flow-rate applying contactless sensing at the Paks power station /H/  
Mérés Autom. /Hungary/ 30 /9/, 329-333 /1982/
45. Rajman I. et al.: Radionuclide composition of primary circuit water and its impact on V-1 nuclear power plant environment /in Slovakian/  
INIS-mf-6897. 47 p.  
[2. National conf. on the Disposal of radioactive wastes from nuclear power plants. Tale, Czechoslovakia, 15-17 Apr 1980.]
46. Solomon Y. et al.: Radiation control in PWR primary systems  
Decontamination and decommissioning of nuclear facilities, N.Y. Plenum Press. 1980, p. 609-622.
47. Warlop R. et al.: Fission gases and halogens release out of failed fuel rods  
CEA-CONF-5813. Aug 1981. 12 p.



REACTOR SAFETY

RS

39. Aleite W.: Method of safeguarding the cooling of a nuclear reactor and establishment /G/  
German /F.R./ patent document 2814050/A/. Int. Cl. G21C 15/00.  
11 Oct 1979. 11 p.
40. Deason V.A.: Some applications of holography at the Idaho National Engineering Laboratory  
EGG-M-14982. CONF-820822-13. 1982. 8 p.  
[ 26. technical symposium and exhibition of the International Soc. for Optical Eng., San Diego, USA, 21-27 Aug 1982 ]
41. Dio W.H. Surveillance systems for LWR primary systems /G/  
Auxiliary installations for power plants 1980. Papers.  
Kraftwerk-Hilfseinrichtungen 1980. p. 127-133.
42. Fischer H.D.: Reactor control systems  
INIS-mf-8011. 1982. 31 p.  
[ IAEA interregional training course on instrumentation and control of nuclear power plants, Karlsruhe, /Germany F.R./, 11 Oct- 17 Nov 1982 ]
43. Gonnet B. et al.: Safety and performance of structures affected by the phenomenon of sub-coating defects /F/  
Rev. Gen. Nucl. no. 4. 330-336 /1981/
44. Kaisler L.: Quality control systems /Cz/  
Material and technological aspects of WWER reactors, IV. Zelezna Ruda, Czechoslovakia. 30 Oct- 1 Nov, 1978, p. 746-761.
45. Karoosakis P.M.: Safety systems in light water reactors /in Greek/  
DEMO-80/5G. Sep 1980. 35 p.
46. Markóczy G. et al.: Light water reactor safety research project  
EIR-371. Jun 1979. 70 p.
47. Markóczy G. et al.: Light water reactor safety research project  
EIR-398. Jul 1980. 67 p.
48. Puyal C. et al.: Mechanical surveillance of French PWRs  
CEA-CONF-5955, Aug 1981. 13 p.  
[ 6. Internatl. Conf. on Structural mechanics in reactor technol. (6.SMIRT), Paris, 17-21 Aug 1981. ]



49. Rosztoczy Z.R.: Current developments in water reactor safety  
Trans. Am. Nucl. Soc. 32, 89-90 /1979/
50. Schulz H.: Overall primary system design  
INIS-mf-8115. 1980. 16 p.  
[ IAEA interregional training course on "safety analysis",  
Karlsruhe /Germany F.R./, 3 Sep- 15 Oct 1980]
51. Smidt D.: Reactor safety after TMI  
INIS-BR-05 1, 152-161 /1980/  
[ Brazilian-German Symposium on Nuclear Reactor Safety, Rio de  
Janeiro /Brazil/, 16-20 Jun 1980]
52. Zebroski E.L. et al.: World progress LWR safety  
Trans. Am. Nucl. Soc. 37, 8. 84. /1981/ /summary/  
[ ANS internatl. conf., Washington, DC /USA/, 17-21 Nov 1980]
53. Zebroski E.L.: Review of world progress in LWR safety  
CONF-801107. Trans. Am. Nucl. Soc. 35, p. 6 /1980/ /summary/

SAMPLING

**S**

19. Bakos L. et al.: Automatic water chemical control system at Loviisa  
Nuclear Power Plant /H/  
Energ. Atomtech. /Hungary/ 34 /12/, 555-561 /1981/
20. Barber D.: The CANDU-600 heat transport sampling system  
IAEA-SM- Leningrad, 1983. Paper 24, p. 1-10.
21. Burton D.A. et al.: Nuclear station post-accident liquid-sampling  
system: developed by Duke Power Company  
EPRI-NSAC-23. Jan 1981. 55 p.
22. Comley G.C.W. et al.: Experience of continuous isokinetic sampling on  
the Winfrith reactor  
IAEA-SM-Leningrad, 1983. Paper 22. p. 1-12.
23. Divine J.R. et al.: A standardized sampling system for reactor coolants  
IAEA-SM-264/28. Abstr. p. 57-58, 1982.
24. Kristoff L.M. et al.: New water sampler  
Health Phys. 41 /2/, 381-383 /1981/



25. Noevik S.I. et al.: An automatic device for sampling of thin assays of short-lived radio-nuclides in a liquid flow  
Nucl. Instrum. Methods Phys. Res. 185 /1-3/, 175-180 /1981/

WATER CHEMISTRY

WCh

39. Austine I.D. et al.: Dilute chemical program review  
Osterhout M.M. /ed./: Decontamination and decommissioning of nuclear facilities. New York. Plenum Press. 1980. p. 305-315.
40. Austine L.D.: Dilute chemical decontamination program. Final report.  
DOE/ET/34203-43. NEDC-12705-7. Aug 1981. 104 p.
41. Austine L.D. et al.: Coolant system decontamination  
UK patent document 2077482/A/. Int. Cl. G21f9/28; B01j45/00.  
16 Dec 1981, 8 p.
42. Bar J. et al.: Equipment for deactivation and concentration of liquid radioactive wastes /Cz/  
Czechoslovak patent document 192334/B/. Int. Cl. G21F9/00.  
1 Jul 1981. 5 p.
43. Beslu P. et al.: Effect of cooling and oxidation at the time of shut-down in PWRs /F/  
IAEA-SM-264/5, p. 1-15. /Abstract p. 12-13./, 1982.
44. Betes L.: Special surface coating equipment and instruments applied for the construction of Paks NPP /H/  
Magy. Építőipar /Hungary/ 11, 646-651 /1982/
45. Bibliashvili Yu. K. et al.: Some aspects of the effect of coolant water chemistry on the reliability of WWER and RBMK reactor fuel  
IAEA-SM-Leningrad, 1983. Paper 7, p. 1-23.
46. Brabant R. et al.: Study of the corrosion products in the primary system of PWR plants as the source of radiation fields build-up  
BLG-552. Jan 1982. 185 p. 60 refs; 78 figs.
47. Buczyłko A. et al.: Autonomous system for water quality inspection /in Polish/  
Pomiary Autom. Kontrola /Poland/ 25 /11/, 404-406 /1979/



48. Crotzer M.E. et al.: Apparent influence of PWR coolant pH on radiation field buildup  
Trans. Am. Nucl. Soc. 32, 757-759 /1979/
49. Cunnane J.C. et al.: Coolant chemistry control during PWR shutdown-cooldown  
Decontamination and decommissioning of nuclear facilities, N.Y., Plenum Press. 1980. p. 623-631
50. Darras R.: Corrosion products in PWR cooling circuits /F/  
CEA-CONF-6183. Dec 1981. 8 p.  
[Workshop on nuclear corrosion, Erlangen, Germany F.R., 10-11 Dec 1981]
51. Dollé L. et al.: Magnetic and electromagnetic filters in the electro-nuclear industry  
CEA-CONF-6532. Sep 1982. 10 p.  
[Filtech Conference, London /UK/. 15-17 Sep 1982]
52. Gardner H. et al.: Evaluation of nonchemical decontamination techniques for use on reactor coolant systems  
EPRI-NP-2690. Oct 1982. 204 p.
53. Gloor R. et al.: Exclusion chromatography with carbon detection. A tool for further characterization of dissolved organic carbon  
Water Res. 15 /4/, 475-482 /1981/
54. Goncharov V.V. et al.: Water regime and core state in WWER reactors  
IAEA-SM-Leningrad, 1983. Paper 15. p. 1-11.
55. Gubel P.: Decontamination of the primary loop of the BR3 nuclear power plant.  
IAEA-TECDOC-248. Jun 1981. p. 43-59.  
[Technical committee meeting on the procedures for decontamination of operating nuclear power plants and handling of decontamination wastes. Mol, Belgium, 23-27 Apr 1979]
56. Järnström R.T.: Experience of primary circuits water chemistry in Loviisa 1 NPP.  
W.Ch. II, BNES, London, 1981. p. 285-288.
57. Kysela J. et al.: High pressure reactor water loop for the experimental studies in the field of water chemistry and corrosion  
IAEA-SM-Leningrad, 1983. Paper 17. p. 1-19.



58. Lueck D.E. et al.: Total oxygen demand - recent advances in the automatic oxygen demand analysis technique  
ISA Trans. /USA/ 20 /2/, 67-76 /1981/
59. Matijevic E.: Properties of colloidal corrosion products and their effects on nuclear plants. Final report.  
EPRI-NP-2606-Vol.2. Sep 1982. 223 p.
60. Melhuish K.R. et al.: The water chemistry problems of the prototype fast reactor during periods of high organic material in the feed water  
W.Ch. II, BNES, 1980, Paper 20, p. 151-160.
61. Mishima Y.: Study on the influence of water chemistry on fuel cladding behaviour of LWR in Japan  
IAEA-SM-Leningrad, 1983, Paper 2, p. 1-36.
62. Morita Y. et al.: Shimadzu Organic Pollution Monitor mode UVM-401 /J/  
Shimadzu Rev. /Japan/ 37 /4/, 15-20 /1980/
63. Parsons J.W. et al.: The chemistry of the soluble organic material in the Dounreay water supply from Loch Shurrey  
W.Ch. II, BNES, 1980, Paper 19, p. 145-150.
64. "Radelkis Instruments": Analogue pH-meters and portable universal ion-meter  
Exported by Metrimpex, Hungarian Trading Co. for Instruments, 1391 Budapest 62., P.O.B. 202, Hungary
65. Reinhard S.: Methods of radioactive waste water treatment /H/  
Energ. Atomtech. /Hungary/ 32 /4/, 169-170 /1979/
66. Resch G. et al.: Ion chromatography - an analytical method for the study of water and effluent /G/  
VGB Kraftwerkstech. 62 /2/, 127-132 /1982/
67. Riess R.: Water systems  
INIS-mf-8120. 1980. 53 p.  
[IAE interregional training course on "safety analysis".  
Karlsruhe /Germany F.R./, 3 Sep - 15 Oct 1980]
68. Sadler M.A. et al.: Application of a Triobed condensate polishing plant at Fawley Power Station, including operation in the ammonium form /G/  
VGB Kraftwerkstech. 61 /3/, 221-233 /1981/

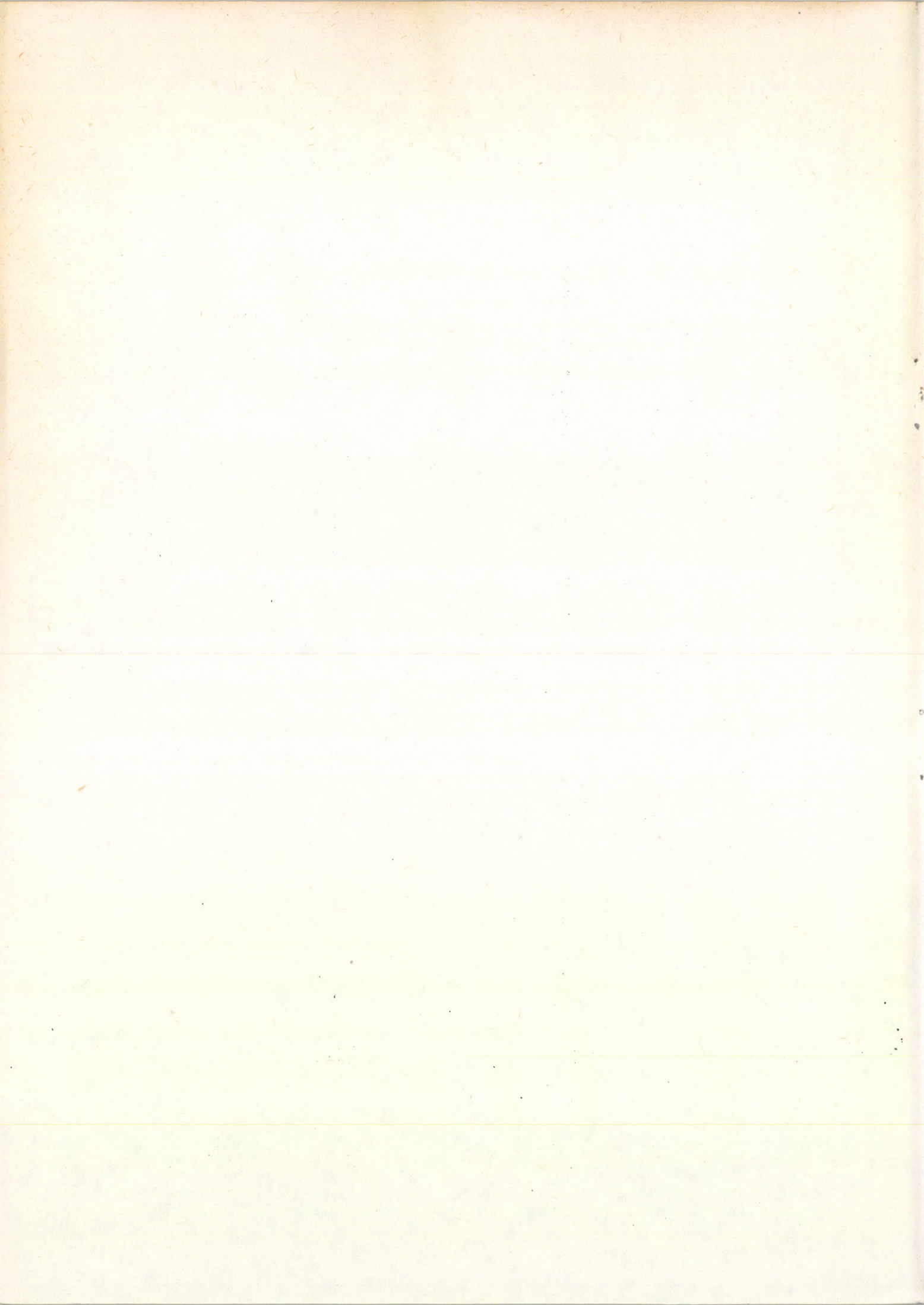


69. Saito M.: Coolant clean-up system in the primary coolant circuit for nuclear reactor /J/  
Japanese patent document 56-31694/A/. Int.  
Cl. G21C19/30; G21F9/06. 31 Mar 1981. 2 p.
70. Sturla P.: Tasks and results of international cooperation in the field of power plant chemistry /G/  
VGB Kraftwerkstech. 61 /3/, 241-246 /Mar 1981/
71. Swant T. et al.: Chemical decontamination of water-reactor circuits: the development of LOMI reagents  
CEGB /Cent. Electr. Generating Board/ Res. 13, 3-14 /1982/
72. Thompson H. et al.: On-line sensors in industrial water analysis  
Philos. Trans. R. Soc. London A, 302 /1468/, 327-338 /1981/
73. Torok J.: Nuclear reactor decontamination  
U.S. patent document 4,287,002/A/.  
Int. Cl. B08B 7/04. 1 Sep 1981.
74. Uematsu M. et al.: New sensors for monitoring water and wastewater  
Hitachi Rev. /Japan/ 29 /5/, 249-254 /Oct 1980/
75. "Varian" Instrument Group: Use of ion-chromatography for quality control of water  
Varian/Instrument group, Steinerhauserstr., 6300 Zug, Switzerland
76. Wobking H.: Water control through application of capacitance and resistance measurements /G/  
Oesterr. Ing.-Z. 24 /10/, 361-366 /1981/
77. Wunsch J.: Water treatment for nuclear power plants  
Czech. Heavy Ind. no.1., 37-46 /1981/















6J.410



Kiadja a Központi Fizikai Kutató Intézet  
Felelős kiadó: Gyimesi Zoltán  
Szakmai lektor: Bakos László  
Nyelvi lektor: Pázsit Mária  
Gépelte: Végvári Istvánné  
Példányszám: 345 Törzsszám: 83-479  
Készült a KFKI sokszorosító üzemében  
Felelős vezető: Nagy Károly  
Budapest, 1983. július hó