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APPENDICES FOR THE 21ST ACNW MEETING JUNE 28-29, 1990

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implemented during the current Cycle 4 refueling outage for Unit 1.

The specific TSs which were revised are the following (1) add Definition 1.6.c and an ancronym for Rated Tuermal Power: (2) revise or add parameters in Tebles 2.2.1, 3.3-1, 3.3-2, 3.3-3, 3.3-4, 3.3-5. 4.3-1. and 4.3-2: (3) add footnotes or action statements in Tables 3.3-1, 3.3-3, and 3 3-5; and (4) delete outdated footnotes and unused action statements in Tables 3.3-3, 3.3-4, 4.3-1 and 4.3-2. These changes reflect rack drift allowables for the Eagle-21 digital process protection system: the incorporation of the environmental allowance modifier, the trip time delay feature, and the median signal selector. the removal of the resistance temperature detector bypass manifolds; the addition of a new steamline break protection logic: the implementation of engineered safety features actuation system enhancements; and the deletion of out-of-date footnotes and unused action statements.

The applications also proposed changes to the Unit 2 TSs. These changes will be issued during the upcoming Unit 2 Cycle 4 refueling outage scheduled to begin in October 1990. The modifications to Unit 2 will incorporate the above upgrades and enhancements during this outage. The Safety Evaluation for Unit 1 also applies to Unit 2.

Date of issuance: May 18, 1990 Effective date: May 18, 1990 Amendment No.: 141

Facility Operating License No. DPR-77 Amendment revised the Unit 1 Technical Specifications.

Date of initial notice in Federal Register. February 21, 1990 (55 FR 6119) The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated May 16, 1990.

No significant hazards consideration comments received: No

Local Public Document Room location: Chattanooga-Hamilton County Library, 1001 Broad Street, Chattanooga, Tennessee 37402.

Washington Public Power Supply System, Docket No. 50-397, Nuclear Project No. 2 Benton County, Washington

Date of application for amendment. March 2, 1990 as supplemented on April 5, 1990.

Brief description of amendment: This amendment revises Technical Specification Section 3/4.8.2, "Electrical Power Systems, D.C. Sources." by replacing the battery load profile specified in surveillance requirement 4.8.2.1.d.2.

Date of issuance: May 22, 1990

Effective date: May 22, 1990 Amendment No.: 83

Facility Operating License No. NPF-21: Amendment changed the Technical Specifications.

Date of initial notice in Federal Register: April 4, 1990 (54 FR 12605) The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated May 22, 1990

No significant hazards consideration comments received: No.

Local Public Document Room location: Richland City Library, Swift and Northgate Streets, Richland, Washington 99352.

Dated at Rockville. Maryland, this 6th day of May 1990.

For the Nuclear Regulatory Commission Steven A. Varga,

Director, Division of Reactor Projects-I/IL Office of Nuclear Reactor Regulation [Doc. 90-13528 Filed 6-12-90; 8:45 sm]

BILLING CODE 7580-01-0

Advisory Committee on Nuclear Waste; Meeting

The Advisory Committee on Nuclear Waste (ACNW) will hold its 21st meeting on June 28 and 29, 1990 room P-110, 7920 Norfolk Avenue, Bethesda, MD, 8:30 a.m. until 5 p.m. each day. The entire meeting will be open to the public.

The purpose of the meeting will be to review and discuss the following topics:

A. The Committee will discuss past ACNW accomplishments and the future direction of the Committee such as procedures for setting priorities for review topics and Committee interaction with the NRC staff and other organizations.

B. Briefing on the technology involved in the use of tunnel boring machines, drill and blast excavation techniques.

C. Briefing on the findings of the recent BEIR V report, "Health Effects of

Exposure to Low Levels of Ionizing Rediation."

D. Briefing on a methodology for predicting the I-129 source term for low level waste sites.

E. Briefing on transportation and storage of spent nuclear fuel experience at Morris, Illinois offsite spent fuel storage facility.

F. The Committees will discuss and prepare proposed reports to the NRC as appropriate.

G. The Committee will discuss anticipated and proposed Committee activities, future meeting agenda. a. 1 organizational matters, as appropriate

Procedures for the conduct of and participation in ACNW meetings were published in the Federal Register on June 6, 1968 (53 FR 20699). In accordance with these procedures, oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, It consultants, and staff. The office of the ACRS is providing staff support for the ACNW. Persons desiring to make oral statements should notify the Executive Director for the office of the ACRS as far in advance as practical so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture, and television cameras during this meeting may be limited to selected portions of the meeting as determined by the ACNW Chairman. Information regarding the time to be set aside for this purpose may be obtained by a prepaid telephone call to the Executive Director of the office of the ACRS. Mr. Reymond F. Fraley (telephone 301/492-4516), prior to the meeting. In view of the possibility that the schedule for ACNW meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director or call the recording (301/492-4600) for the current schedule if such reacheduling would result in major inconvience.

Dated June 7. 1990.

John C. Hoyle,

Adviso: y Committee Management Officer. [FR Doc. 90-13657 Filed 6-12-90; 8:45 am] BILING CODE 7590-01-00

[Docket No. 50-458]

Guil States Utilities Co., River Bend Station, Unit No. 1; Consideration of Issuance of Amendment to Facility Operating License and Opportunity for Hearing

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-47, issued to Gulf States Utilities Company (the licensee), for operation of the River Bend Station, Unit No. 1, located in West Feliciana Parish, Louisiana.

The propose d amendment would raise the 95' F Limiting condition for Operation (LCO) on suppression pool temperature to 100' F. Technical Specification 3.6.3.1 provides an LCO againing plant shutdown in the event the suppression pool temperature exceeds 95' F greater than 24 hours.

REVISED JUNE 19. 1990

SCHEDULE AND OUTLINE FOR DISCUSSION 21ST ACNW MEETING JUNE 28-29, 1990

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Thur	sday, June 28, 1990, land	Room P-110, 7920 Norfolk Avenue, Bethenda.
1)	8:30 - 8:45 a.m.	Opening Remarks by ACNW Chairman (Open) 1.1) Conduct of Meeting (DWM/RKM) 1.2) Items of current interest (DWM/RKM)
2)	8:45 - 12:00	Discussion by Members of Past Accomplishments and Future Direction of ACNW (Open) 2.1) Past Accomplishments 2.2) Future Direction-Long range plan objectives 2.3) Priorities for reviews 2.4) Methods for reviews e.g. working groups to focus attention on
	30 10:18 a.m.	priority issues
		 2.5) Division of responsibility among Committee members 2.6) Building a pool of consultants 2.7) Interacting with the NRC staff i.e. Memorandum of Understanding (MOU) for review procedures 2.8) Interaction with other organizations 2.9) Others
	12:00 - 1:00 p.m.	**** LUNCH ****
3)	1:00 - 2:35 p.m.	Preparation of ACNW Reports
		3.1 Discuss whether ACNW should send a joint letter (with NAS, NWTRB) to EPA Administrator W. K. Reilly
4)	1:15 - 3: 00 P.M.	Briefing and Video Presentation of the Technology Involved in Excavation Techniques (Open) (WJH/CEA) 4.1) Tunnel Boring Machines 4.2) Drill and Blast Excavation
	3:00 p.m.	***** BREAK @***

5) 3:15 - 3:45 P.M.

3:45 - 5:00 p.m.

6)

Briefing and Video on the Transportation and Storage of Spent Nuclear Fuel (EEV/HJL)

- 5.1) E. Voiland will give a short talk on experience at the Morris, IL Off-site Spent Fuel Storage Facility
- 5.2) General Discussion

Anticipated ACNW Activities (Open) (DWM/RKM)

- 6.1) The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate including:
- 6.2) A discussion of how involved ACNW should be in decommissioning activities other than Part 50 (power plant) licenses
- 6.3) MOU between staff and ACNW
- 6.4) Division of review responsibility on decommissioning nuclear power plants between ACNW and ACRS
- 6.5) Discussion of ACNW Charter
- 6.6) Sharing a joint ACNW/ACRS Staff

Preparation of ACNW Reports (Open) 7.1) Discuss proposed ACNW reports as

- considered appropriate
 - 7.1-1) Comments on a proposed MOU between ACNW and NRC staff
 - 7.1-2) Division of Responsibility between ACNW and ACRS on Decommissioning Reviews of Nuclear Power Plants
 - 7.1-3) ACNW Annual Report

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7) 5:00 - 6:00 p.m.

6:00 p.m.

Frid	day, June 29, 1990,	Room P-110, 7920 Norfolk Avenue.
DELI	DESUGI DEL JIGIN	
B)	8:30 - 10:15 a.m.	Briefing by EFRI/NUMARC on I-129 Source Term for Low-Level Waste Sites (Open) (DWM/HJL) 8.1) P. Hobinson, EPRT J. Vance, Vance Assoc. L. Fairobent, NUMARC 8.2) General Discussion
	10:15 a.m.	***** BREAK *****
9)	10:30 - 12:00	Briefing on BEIR V. "Health Effects of Exposure to Low Levels of Ionizing Radiation" (DWM/HJL) 9.1) A. Upton, Chairman, Committee On The Biological Effects of Ionizing Radiations 9.1-1) Background & development 9.1-2) Comparison to BEIR III Report and current regulations 9.1-3) Relationship to latest ICRP and UNSCEAR reports 9.1-4) Recommendations for incorporation of results into U.S. radiation protection regulatory scheme
		9.2) General Discussion

12:00 NOON

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Issued: July 30, 1990

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MINUTES OF THE 21ST MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE JUNE 28-29 1990 BETHESDA, MARYLAND

The 21st meetin: of the Advisory Committee on Nuclear Waste was convened by Chairman Dade W. Moeller at 8:30 a.m., on Thursday, June 28, 1990, at 7920 Norfolk Avenue, Bethesda, Maryland.

[Note: For a list of attendees, see Appendix I. ACNW members, Drs. William J. Hinze, Dade W. Moeller and Martin J. Steindler were present. ACNW consultants, Mr. Eugene Voiland, Drs. David Okrent, Donald Orth and Paul Pomeroy were also present.]

The Chairman said that the agenda of the meeting had been published in the Federal Register. He stated that the meeting was being held in conformance with the Federal Advisory Committee Act and the Government in the Sunshine Act, Public Laws 92-463 and 94-409, respectively. He also noted that a transcript of some of the public portions of the meeting was being made, and would be available in the NRC Public Document Room at the Gelman Building, 2120 L Street, N.W., Washington, D.C.

[Note: Copies of the transcript taken at this meeting are also available from the Ann Riley & Associates, Ltd., 1612 K Street, N.W., Washington, D.C. 20006.]

1. CHAIRMAN'S REPORT (Open)

[Note: Mr. Richard K. Major was the Designated Federal Officer for this portion of the meeting.]

Dr. Moeller announced that the U.S. General Accounting Office (GAO), in a recent report, recommended that the U.S. Department of Energy (DOE) should increase the fee charged utilities to finance the Nuclear Waste Fund. GAO stated that DOE still needs to improve its methods for estimating program costs and determining the adequacy of civilian waste disposal fees.

Dr. Moeller announced that the NRC policy statement on Below Regulatory Concern (BRC) was released on June 27, 1990. This policy describes the criteria that the Commission plans to use in approving BRC petitions.

Dr. Moeller noted that President Bush will nominate Mr. David H. Leroy, former Idaho Lieutenant Governor, to the position of Nuclear Waste Negotiator. The position was created by the Nuclear Waste Policy Amendments Act of 1987. The negotiator will work with governors, Indian tribal leaders and others in an effort to find

a willing host for a high-level radioactive waste Monitored Retrievable Storage (MRS) facility, and possibly for the repository itself.

Dr. Moeller noted that, on June 15, 1990, DOE began contract renegotiations with TRW, Inc. for the future management and supervision of the proposed high-level waste repository program.

Dr. Moeller introduced Mr. Thomas Chuang, Ms. Mary Ryan, and Mr. Douglas Viner, three summer interns who will be assisting the ACRS and ACNW members and staff.

11. PAST ACCOMPLISHMENTS AND FUTURE DIRECTION OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE (Open)

[NOTE: Mr. Richard Major was the Designated Federal Officer for this session.]

This session was a discussion among the members and consultants about the future course that the ACNW should pursue. Specific topics on which the Committee should focus its review efforts were discussed.

Dr. Moeller reviewed the results of his meetings with Chairman Carr and Commissioner Curtiss. As a result of these meetings the Committee was asked to review the following areas:

- The Committee was asked to review National Emission Standards for Hazardous Air Pollutants (NESHAP) and to determine what impact these EPA standards would have on nuclear waste management and disposal.
- 2. The Committee was asked to explore the difficulties associated with the dual regulation of mixed radioartive and hazardous waste by both the NRC and EPA. Could the regulations of one agency be modified so that the intent and goal of both agencies is satisfied? It was suggested that a working group format could be used to help the ACNW develop indepth technical advice. Meeting with the NRC staff and various other organizations who have studied this matter would be appropriate.
- 3. The Committee was asked to look at NRC's 10 CFR Part 60 subsystem requirements for a high level waste repository and compare them to the EPA 40 CFR Part 191 High-Level Radioactive Waste Standards. The Committee should focus on the question of whether meeting the Part 60 subsystem requirements assures that the EPA standards are being met. Can the ACNW determine the relative importance of each of the subsystem requirements in meeting compliance with the EPA standards?

It was again suggested that a workshop approach to this task may be useful. Several topics (e.g. use of expert opinion, role of performance assessment, predicting changes in climate) might form the basis of a multiple day meeting. Such an academic conference would provide input into constructing a viable set of regulations capable of protecting the public and licensing a high-level waste geologic repository.

It was suggested that such a mechanism might lead involved organizations to reconsider their existing position. It was mentioned that the NRC staff's position on the EPA standards was altered through interactions with the ACNW.

The Committee considered a range of other topics where they might contribute to the Commission's mission by providing useful advice. Comments on several of these follow.

Actinide burning was proposed as a subject for the Committee to investigate. The transmutation of elements with atomic numbers higher than 89 to elements with lower atomic numbers and shorter half lifes in a fast reactor is receiving increased attention from the DOE. The process would radically alter the form of high-level waste.

It was suggested the Committee could help in the validation of expert opinion. ACNW might provide a perspective on the advantages and disadvantages of its use. The gualification of existing data is a subtopic under this item.

The Committee discussed the development of methods for assessing the performance of the high-level waste repository. The Chairman regarded the Committee's advice on this topic as important. Subtopics include the evaluation of human intrusion and evaluation of the mechanisms for carbon-14 releases.

The Committee believes they should participate in the review of selected DOE study plans. The Committee's selection of study plans to be reviewed would be guided by the possibility of discovering a feature that would disqualify the proposed Yucca Mountain site. The Committee remains concerned over how well the study plans will be integrated so that all potential fatal flaws receive the attention that they deserve. An example of a potential disqualifying feature is resolving concerns associated with volcanicity. A further topic needing resolution is the amount of protection provided by engineered versus geologic barriers.

It was noted that the Committee should be involved with certain rulemakings, regulatory guides, and staff positions appropriate to waste management and disposal.

The Committee expects to be involved in certain aspects of decommissioning related to waste management and disposal. The Committee would also review standards applicable to decommissioning from a nuclear waste perspective.

The Committee expects to review selected research programs and projects that deal with various aspects of nuclear waste disposal and management.

The Committee will review efforts to ensure that quality assurance programs are adequate for the development of a high-level radioactive waste geologic repository and other nuclear waste related programs.

There was a philosophical discussion of the nature of the regulations needed to protect the public when designing and constructing a geologic repository for high-level wastes. It was mentioned that only one or two such facilities will ever be built. Are the regulations more restrictive and inflexible than necessary? Can a more <u>ad hoc</u> approach to regulations produce better results? Can U.S. engineers and regulators gain insight into repository design and licensing from the experience in foreign countries?

III. EXCAVATION TECHNIQUES (Open)

[NOTE: Ms. Charlotte Abrams was the Designated Federal Officer for this portion of the meeting.]

The Committee was shown a video that demonstrated the tunnel boring machine (TBM) excavation method. This was introduced by Mr. John Peshel, Division of High-Level Waste Management (HLWM). Mr. Roger Isley, Engineering Geologist currently working on the construction of the Milwaukee Pollution Abatement Tunnelling Project, briefed the Committee on excavation techniques and data gathering.

Dr. Hinze introduced the two speakers and noted that the issue of what method of excavation was the most efficient for the proposed HLW repository had been raised by the Nuclear Waste Technical Review Board. The method of smooth-wall blasting proposed by the DOE in the Site Characterization Plan (SCP) may not be the most efficient excavation technique, but, most importantly, whatever tunneling procedure decided upon should allow maximum acquisition of necessary geological data.

Mr. Peshel introduced the video that was produced by the Robbins Company. The video demonstrated the use of a Robbins Company manufactured tunnel boring machine during excavation for the Chicago Tunnel and Reservoir Plan. After the video was shown, Mr. Peshel answered several questions and described the project and TBM. The machine shown was used for construction in dolomite of

50 miles of tunnels approximately 35 feet in diameter. A 1000 foot starter tunnel and shaft were excavated by an alternative method and then the TBM was assembled underground. Mr. Peshel stated that the machine shown on the video was designed for horizontal boring, but there are other types of JBMs for the boring of vertical shafts.

Mr. Ilsley gave an overview of the Milwaukee project. He discussed the two types of excavation techniques, TBM and drill and blast, and the advantages and disadvantages of each. Although he has never worked in a tuff host rock, he has had the responsibility of gathering geotechnical data from both types of excavations in volcanic, metamorphic, and sedimentary rocks. He showed slides and described the Milwaukee tunneling project. The slides included tunnel sections and discontinuities that were mapped for the Milwaukee project. He stressed that the type of mapping that was required for that project was different from that required for a site characterization effort. He categorized the two mapping efforts as "subjective" mapping for the Milwaukee project and "objective" mapping for a project such as the repository where it is necessary to collect a wide range of data.

Advantages and disadvantages of each type of excavation method were discussed by Mr. Ilsley. These are:

For the tunnel boring machine method -

- Mapping can be conducted behind the TBM while the TBM is in operation allowing easy access to the tunnel wall for the mapper.
- There is little disturbance to the rock.
- The rock may be smeared with rock dust, requiring water to be sprayed on the tunnel walls to remove the dust prior to mapping.
- Discontinuities are usually only visible in two dimensions (Some features may be visible in the third dimension due to stress release of the rock.).
- The method is safer for workers and mappers.
- The TBM method is faster than the drill and blast method.
- With a TBM excavation it is difficult to determine orientation of small scale fractures.
- It is easier to fix a plane in space on a circular, TBM surface than it is on an irregular, blasted surface.

For the drill and blast method (smooth-wall blasting) -

- During the mapping phase, excavation must be discontinued for safety reasons.
- Discontinuities are visible in three dimensions.
- The method provides work areas that are not as safe as TBM excavations.

- Water must be injected into the rock walls during drilling of holes for placement of dynamite, but the amount of water introduced may be the same whichever method is used.
- Blasting may induce new fractures or cause extensions of existing fractures.

Mr. Ilsley stated that in a subjective mapping survey, only the major discontinuities are mapped and described. In an objective mapping survey, mapping is random, but mapping of rock characteristics and discontinuities should be at a consistent scale for a consistent level-of-detail throughout the excavated area. Initial work of the objective type, in an excavation that displays features readily apparent in the third dimension, may be desirable to establish information on structural domains. After those structural domains are established it may be adequate to use a more subjective method of mapping to gather two dimensional data.

This briefing was for information only. No Committee action was taken.

IV. TRANSPORTATION AND STORAGE OF SPENT NUCLEAR FUEL (Open)

[NOTE: Mr. Howard J. Larson was the Designated Federal Officer for this portion of the meeting.]

The Committee viewed a videotape, prepared by General Electric, on the Morris Illinois spent fuel storage facility. Mr. Eugene Voiland, ACNW Consultant, introduced the videotape on the C.E. Morris experience by noting that spent fuel storage is, in reality, a form of "warehousing." He also provided the following statistical data:

- Morris began receiving spent fuel in January 1972, and stopped receiving fuel in January 1989.
- Morris facility handled 685 spent fuel shipments representing some 749 MTHM.
- Morris workers never dropped a cask, although they handled some 583 truck cask shipments and 160 rail car cask shipments (one cask did, however, tip over)
- There are ~ 500 billion truck shipments per year in the U.S.
 Of these, 100 million are estimated to involve hazardous materials, and of this number less than 1 percent are associated with nuclear power generation.

Mr. Voiland described the GE IF-300 rail car cask and noted that it had a capacity of 7 PWR or 18 BWR spent fuel elements. Mr.

Voiland also observed that while rail casks are bulkier and heavier than truck casks, their increased capacity enables more efficient use of handling facilities. He specifically noted that GE Morris had handled 533 MTHM via 102 rail shipments but only 216 MTHM via 383 truck shipments.

The video described the Morris facility and its niche in the overall nuclear reactor fuel cycle. It also showed an on-site cask arrival and its subsequent unloading, the underwater storage of the spent fuel elements, and the decontamination of the casks and their subsequent off-site transport.

The Committee requested elaboration on the depth of detail required in the facility Environmental Impact Statement, additional information on the extent of groundwater monitoring performed (continuous or periodic) and inquired as to the external cask temperatures when the casks are loaded with recently discharged fuel.

In closing, Mr. Voiland noted that cask decontamination prior to shipment was the most troublesome of the transportation-related activities. He also indicated that radioactive "crud" is a real problem that, although often overlooked, must be dealt with.

This briefing was for information only. No Committee action was taken.

V. IODINE-129 SOURCE TERM FOR LOW-LEVEL WASTE SITES (Open)

[NOTE: Mr. Howard J. Larson was the Designated Federal Officer for this portion of the meeting.]

Ms. Lynne Fairobent, Senior Project Manager, Nuclear Management and Resources Council (NUMARC), provided the introductory remarks. Also participating was Ms. Carol Hornibrook, the current Electric Power Research Institute (EPRI) Project Manager and Ms. Pat Robinson, the former EPRI Study Project Manager. [Ms. Robinson is currently on a 2-year leave of absence from EPRI. Although attending the University of California at Berkeley, she still supports those projects upon which she worked prior to her sabbatical.]

Ms. Hornibrook stated that waste form is relevant to this presentation because the mobile anions of C-14 and I-129 contribute essentially all of the groundwater doses (which are controlled by the release rate of the nuclides).

In response to a question by Dr. Steindler relative to the validation of the IMPACTS code, Ms. Hornibrook stated that a comparison of the results of the IMPACTS, PRESTO (EPA) and COSMOS

(AECL) codes yielded the same relative concentrations. It was noted, however, that due to the long half-lives of C-14 and I-129, the performance assessment models have not been completely validated by measurements.

The dominating features contributing to low-level waste disposal site stability are package void volume, waste emplacement, type and nature of backfilling, waste compaction and site trench cover design. Although waste form stability may enhance site stability by decreasing the organic content per unit of volume, insofar as long-lived I-129 and C-14 are concerned, waste stability will have no practical impact on retarding migration. Based upon the results of the scenarios run, deeper burial (5 meters or greater) is significantly more effective in reducing intruder doses than waste form stability.

Ms. Robinson outlined the broad scope of the study, noting that per the results of the performance assessments, I-129 contributes greater than 90 percent of the total dose to the maximum individual. It is therefore extremely important that the radionuclide inventory for the long-lived nuclides be defined as accurately as possible. Based upon its studies thus far, EPRI estimates the I-129 inventory currently in use is conservative by a factor of 100 to 10,000, depending on the waste stream and the waste form.

Scaling factors were presented and defined. An example for fission products would be the ratios between a radionuclide that can be measured fairly easily at a nuclear power plant, i.e., cesium-137, and one that is currently extremely difficult to measure, i.e., iodine-129. For activation products the scaling factor would perhaps be a correlation between cobalt-60 and carbon-14.

Dr. Moeller questioned whether there were any other easily measurable radionuclides that could be used as scaling factors. Although other isotopes were considered, no others were found with an acceptable half-life, thus far.

Ms. Robinson explained that the best available commercial detection technology (BAT) for I-129 is liquid scintillation which has a detection limit of 10^{-6} mCi/cc. Since I-129 is so very diluted in the waste stream, it is estimated that, if its concentration is assumed as being at the lower limit of detection (LLD), that value (and the resultant scaling factor) will be not only conservative, but may be high by a factor of 1,000.

Dr. Moeller questioned whether these scaling factors were imposed on the industry and whether, at the time of their development, was there a recognition of their significance. The answer to both questions was "no." The scaling factors resulted from the

utilities' desire to use BAT that limited their ability to measure accurately. Furthermore, their initial focus when Part 61 came out was on waste classification. Since I-129 did not control waste classification and since accurate source measurements for that radionuclide were necessarily off-site and expensive, it was believed that use of the conservative LLD value was not constraining (which it was not, insofar as the classification issue).

Dr. Steindler questioned the reason for reporting anything less than 1 percent of the total inventory. It was explained that the requirement was inferentially imposed by the states because of their need to do a site closure performance assessment. The disposal site operator also needs the value for the same purpose. Even though the concentration is below the LLD value, it is a requirement that the shipper insert some value. There are a few facilities in the United States where, through the use of mass spectrometry, values as low as 10^{-13} uCi/gm can be determined (as opposed to 10^{-6} for an on-site scintillation detector).

Mr. John Greeves, Office of Nuclear Material Safety and Safeguards (NMSS), addressed the regulatory requirement indicating that "Part 61 requires you to report I-129, period." He noted that putting a zero on the shipping manifest for I-129 is wrong while the insertion of LLD permits the preparer to be in compliance. Although the shipping manifests were not designed to be used for source term qualification for siting new disposal facilities, as it is the only legal record, the states are using the data for that purpose.

The preceding presents the problem addressed by the EPRI study. Ms. Robinson noted several key points. First, after analyzing approximately 3,000 samples from the industry data base over the past three years, only 70 measured values are above the I-129 LLD. Secondly, it should be noted that 80 percent of the I-129 is on the primary resins. Thirdly, even though the I-129 is concentrated on the resins, the concentration is still extremely low even though the radiation doses from these resins is relatively high (20 to 400 R/hr). The practical meaning of this is that the sample must be small (unless in a hot cell) and, therefore, the representativeness of the sample is questionable.

In order to circumvent some of the difficulties in performing I-129 analyses, I-131 was used as a surrogate. Through the use of fuel release parameters it was possible to obtain the I-129 to I-131 relationship or ratio. Once established, multiplying the release rate ratio times the measured I-131 concentration can be used to estimate the I-129 release rate.

While the site inventory can be obtained in a variety of ways, EPRI has chosen to use the data from the last three reactor fuel cycles

(~ 5 years) as being representative of the range of fuel conditions. The iodine release rate profiles will vary by plant and cycle, depending upon fuel experience (power level, if and how many fuel pin cladding failures exist, location of the defect, etc.). The experience is plotted and integrated to determine the inventory. The unit used is microcurie/Mwd. One example given which demonstrated how widely the dominant I-129 release mechanisms varied compared three pressurized water reactors (PWR) - Arkansas Nuclear One, Unit 2; Surry 2 and San Onofre, Unit 3. From the knockout release mechanism only, the first facility had a 78.5 percent release, while Surry was significantly lower at - 2.8 percent and San Onofre at - 9.2 percent. It was noted that while PWRs generally operate with 1 or 2 defects (and in rare instances perhaps 10), boiling water reactors (BWR) have experienced really excellent fuel performance over the last 5 to 10 years.

Dr. Moeller questioned how "tramp" uranium was deposited on a fuel rod. In reply, Ms. Robinson stated that a more accurate phrase than "tramp" would have been fuel which is exposed, either through a clad or manufacturing failure.

Ms. Robinson presented the results obtained at three compact LLW disposal sites when comparing shipping manifest data versus data obtained from the proprietary computer code under development (appreviated name: 3R-STAT). The data are shown below:

Compact	<pre>*Inventory(Ci)</pre>	** <u>Corrected</u> (Ci)
1	7.8	
2	1.2	물을 물러 걸려 가슴다 힘들어 먹을
3	3.0/6.0	0.0005/0.001

*Derived from manifest data **Derived from EPRI/NUMARC code

These dramatic differences are in the process of being validated by EPRI through an in-plant testing program. The sampling methods were discussed with the differences between BWR and PWR tests described. Testing has been completed at nine nuclear power plants with testing at four more planned. An example of the results:

- <u>Cs-137</u> Predicted = 317 uCi Measured = 293 uCi
- I-129 Predicted = 2.4 E-05 uCi Measured = 1.32 E-05 uCi

These excellent correlations were described as "fantastic." Some detail was provided as to how the sampling is actually performed, noting that originally it was thought by EPRI that a 30-day run on the test columns was proper. However, the activity levels

collected made the analysis extremely difficult due to the high dose levels. Now the columns are run for only two days, which has been found to be sufficient.

It is believed that the 3R-STAT code, with perhaps another \$100,000 expended on further development, could have the capability to predict all fission products of interest including strontium-90 and the transurances.

Dr. Steindler and Dr. Orth asked about the source of 3R-STAT code input data. Inputs included reactor coolant volume; iodine carryover fraction in the steam; original fuel composition; the reacto: water cleanup flow rate; and for BWRs, the steam carryover.

Mr. Joiland and Dr. Moeller asked about iodine homogeneity assumptions, iodine migration to the gap and the impact of scrams. After some discussion it was noted that the iodine is assumed to migrate to the gap and that scrams may have a major impact on the release rates from fuels with defects.

Dr. Moeller questioned the status of NRC acceptance. Ms. Fairobent noted that several information exchange meetings were held with the NRC staff. A potential difficulty is the proprietary nature of the 3R-STAT code, which is owned by Vance and Associates. EPRI is working to get the code released for utility usage. Ms. Fairobent noted that, although this problem is principally related to the acceptability of state compact disposal sites, since the utilities are generating these radionuclides, the utilities feel obligated to become involved in the solution of the problem.

The frequency of utility report of predicted inventories to the compacts and the revalidation time frame were discussed. These are questions that require resolution with the NRC staff.

Dr. Steindler asked why the NRC is involved at all in this problem if the problem is one derived from local and state regulations. Mr. John Greeves, NMSS, responded that the NRC was involved because of its responsibilities in the manifest process and, also, because there are some non-agreement states involved which could in the future place the NRC "right in the middle of this issue." In addition, the NRC has an advisory responsibility to the Agreement State regulators on the more difficult issues.

Dr. Steindler also questioned why EPRI believed that the scaling factors (except for technetium and iodine) are reasonable. EPRI's confidence is based on the commercial laboratories' demonstrated analytical sensitivity for the other radionuclides.

Dr. Hinze questioned whether the model would be used to modify past manifest documents. Mr. Greeves discussed at length the problem with correcting old records, noting that this issue had not been

resolved and that, if a particular state elected to do this, the NRC would be pleased to consult with them.

Dr. Hinze asked whether there were any technical problems that might stand in the way of the prediction of past events and whether the historical input parameters have been measured in the same way. Ms. Robinson responded by stating that the past data were obtained by the best available technology at the time and furthermore, the code was capable of making the predictions if desired.

Mr. Greeves noted that the NRC was waiting for a formal report to review and could not wait for a state disposal site application to determine the compliance acceptability of this approach. The completed validation report is scheduled to be submitted to the NRC by the end of the year.

In response to a question from Dr. Steindler about the size of the code, it was stated that it would take about seven hours to run one batch of coolant data on a personal computer model 386-25.

A discussion ensued on the regulated performance requirements. Mr. Greeves pointed out the value is 25 mrem/yr. From that value a site could "back out." an iodine limit but there is none explicitly stated in 10 CFR 61.

Mr. Voiland stated that he had been doing some calculations and found that he could not conceive how a site could have an amount of failed fuel that would result in 3 Ci of I-129. Ms. Robinson concurred but pointed out that the use of LLD limits for reporting I-129 on the manifest caused this current problem. A discussion followed on the reality of major failure releases, including realistic assumptions and conservatisms. An example of the difficulty in predicting fuel pin defects was cited in which the Yankee Rowe Nuclear Power Plant used "the strongest tool that the industry has today, the CIRON code" for predicting pin defects. The code predicted 20 defects. However, after shutdown more than 400 pin hole defects were found. This further confirmed the difficulty inherent in current analytic tools.

This briefing was for information only. No Committee action was taken.

VI. BEIR V REPORT (Open)

[NOTE: Mr. Howard J. Larson was the Designated Federal Officer for this portion of the meeting.]

Dr. Arthur C. Upton, Chairman, National Research Council Committee on the Biological Effects of Ionizing Radiation (BFIR) and Chairman, Institute of Environmental Medicine, New fork University, was the presenter.

Dr. Upton noted that his committee undertook the fifth study, under the auspices of the National Academy of Sciences (NAS), charged to look into the effects of ionizing radiation. The specific charge to his committee was to update the 1980 report of the BEIR III Committee. The BEIR III Committee had looked broadly at ionizing radiation from all sources, particularly insofar as the effects on populations from exposure at low levels.

The change in the atom bomb dosimetry was one of the main reasons that the BEIR V reassessment was performed. This resulted in the neutron dosimetry component being decreased and the gamma ray dosimetry component being increased. Although it was realized this would cause the risk estimates to go up, the amount of the increase was not clear.

Also, the excess of cancer in each cohort has grown with attained age. At the time of the BEIR III report, it was not clear as to how to model this excess (with the exception of leukemia). It appears now that the relative risk model fits the data better than the absolute risk model. This model predicts substantially more cancers.

Although other irradiated populations were reexamined, the A-bomb survivors still provide the largest source of information. In order to reduce any biases and to formulate their own conclusions, the members of the BEIR V Committee requested the original data from the investigators.

Dr. Upton discussed some of the problems with the leukemia data noting that it appears that, in reality, there are a family of diseases to be dealt with. For example, the latent period for acute leukemia among those irradiated in middle age is different than is the case of chronic granulocytic leukemia, which peaks much Several types of leukemia were discussed, some that later. predominantly have a higher risk to children while conversely, for example, chronic myelocytic leukemia is predominantly a risk for the elderly. It is estimated that - 40 percent of the leukemia in the bomb survivors population are attributable to radiation. Although 350 of the survivors' cancers can be "plausibly" attributed to irradiation (<6 percent), current epidemiological models are not sensitive enough to detect this 6 percent increase. Therefore, if society had not been aware of the bomb, it would not have detected these excess cancers as abnormal. (However, it is believed that the excess due to leukemia probably would have stood out.) While the quadratic function fits best for leukemia data, the linear model best fits the data insofar as solid tumors.

Dr. Upton discussed breast cancer, noting that even years ago it was emphasized that there was a similarity between women exposed to the atomic bomb and women treated with x-rays. A linear model also applies to the relative risk of lung and digestive tract cancer as well as other tumors. Dr. Upton precisely pointed out, however, that these proclamations of risk are not stated "because we know its right" but rather because the data fit is better at this time.

Although the BEIR V Committee wanted to look at the cancer risk for specific organs, by the time the data were broken down the numbers in each group became so small that modeling became hopeless. Two interesting statistics were provided: 1) One-half of the A-bomb survivors alive in 1950 are still alive, and 2) One half of all the cancers, both in this country and Japan, appear in people over 65.

Laboratory experiments with animals suggest that if the dose is spread out, over time, fewer tumors are found. This is not true, however, for breast cancer. Irradiated mice studies indicate that spreading the dose out in time greatly reduces tumor generation, mutation rates and other kinds of biologic effects. An effort by the BEIR V Committee to estimate a specific confidence number for cancer induction was unsuccessful. The Committee concluded that low dose rate irradiation would be less effective in cancer induction than a high dose rate exposure by a factor of two or more.

The Committee model for an additional 1 rad/year exposure results in a ~ 14 percent increase above the normal rate of excess cancers, with the leukemia excess close to 30 percent at the 1 rad/year level. BEIR I, III and V, at the 90 percent confidence levels, each sequentially yielded substantially higher numbers.

At one time there was a concern that mutations would be a dominating effect of ionizing radiation. Both BEIR III and V essentially agreed that it takes - 100 rem to double the mutation rate. Insofar as genetically related diseases attributed to new mutations, both the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and BEIR V stated that they could not make confident estimates, so the numbers have not changed much during the past 20 years. However, a reexamination of the A-bomb survivors indicates a steep rise in the frequency of severe mental retardation among those unborn children irradiated in the last part of their first trimester. This is believed to be due to the fact that this is the period, during intrauterine development, when one would expect the brain to be most sensitive. Based upon accurate Japanese school records the data equate to a loss of ~ 30 I.Q. points/Gray. (Note: 1 Gray = 100 rad.) What is not known is whether there is an effect at the one or two rad level.

Dr. Hinze asked whether data from the Soviet Union events at Chernobyl or in the Urals would help in the reduction of uncertainty. Dr. Upton indicated continued study of the A-bomb survivors should reduce uncertainties but he did not know precisely what could be learned from studies of either the Chernobyl or the Urals accident. He then discussed a dichotomy in Russia - on one hand the government and the local people want to know and share data but on the other hand the Russian nuclear society hierarchy has crumbled (both in physical presence as well as repute) since Chernobyl. This lack of support for this knowledgeable group may impact upon Russian ability to mobilize the data and necessary interpretative expertise. Dr. Upton pointed out that Chernobyl did give rise to massive radioiodine contamination which resulted in many cases of protracted thyroid exposure. Since there cv.rently is very little good information about protracted exposures co these dose levels, the Russian information could be very valviole.

Dr. Hinze asked about decreasing uncertainty through animal r. ated studies. In responding, Dr. Upton pointed out that there are large uncertainties in extrapolating from one species to another. Some of these difficulties were discussed. However, Dr. Upton also believes that with the use of new molecular biology techniques additional insights into carcinogenesis should be forthcoming. He stated his belief that current models are too simplistic since cancer is a family of diseases that do not all behave in the same manner. The BEIR V models are not biological, they are mathematical and therefore are not optimal. Epidemiological studies also need to be further pursued.

Dr. Hinze asked about the report from Great Britain indicating leukemia has shown up in children of nuclear power plant workers. This "Gardner" report has the whole radiobiological and public health community "agog" reported Dr. Upton. Although the data does not look genetically plausible it would be wrong to reject it. Similarly, it would be wrong to accept it without question. A similar study is now being conducted at Richland, Wishington, although the capacity to trace childhood cancers is more difficult to do in the U.S. than in Great Britain due to differences in the accuracy of birth records.

Dr. Orth stated that the Department of Energy is turning over some 200,000 records to the Three Mile Island Health Fund and wondered whether someone besides that group was going to look at these records. Dr. Upton agreed that additional review would be beneficial and pointed out that a NAS Committee is advising the Secretary of Energy on the meaning of the data. Whether the NAS Committee will have results before the end of the year is an item of concern.

Dr. Steindler posed the theoretical situation that if in 200 years from now there is no cancer, what happens to the current data

interpretation? Dr. Upton noted that while the National Cancer Institutes' Surveillance, Epidemiology and End Result (SEER) system covers about 10 percent of the population for incidence, at this point in time most of our reliable information comes from mortality data. The significance of the mortality data must be carefully evaluated before translation into national social policy.

Dr. Steindler questioned how cancer "cures" will impact future BEIR report results. In reply, it was stated that each BEIR Committee is new and that it was hoped that the basis for inter-comparisons of data would be contained in their reports.

Dr. Steindler then asked whether there were inadequacies in research or support, per Dr. Upton's view of the "world of research." Dr. Upton stated the need for trained people was critical. He believes that unless we change our way of addressing these problems, with the old cohort dying out, there will not be a new one to take its place. Without more money and more career opportunities radiation research is in jeopardy, he believes.

Mr. Harold Peterson, Office of Nuclear Reactor Regulation (NRR), noted that there is a cooperative agreement between the U.S. and the USSR. Information has been exchanged on Chernobyl as well as on the Urals disaster, although the quality of the statistics has not been validated. He also pointed out that the new Part 20 requires additional detailing of information. That will make the information more useful for epidemiological studies. Those types of changes were in response to needs expressed by the National Cancer Institute. In response to a guestion from Dr. Steindler, it was stated that the total NRC research budget in this area is about \$2 million per year.

Dr. Upton, in elaborating upon a related question from Mr. Voiland, discussed the need for fundamental research in DNA repair, including the capacity of cells to recognize foreign substances, immunological reactions and age-dependency impacts.

The session concluded with a comment from Dr. Moeller noting two of Dr. Upton's former prestigious positions: Director of the National Cancer Institute and Assistant Surgeon General in the U.S. Public Health Service.

VII. PROPOSED JOINT LETTER TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) ADMINISTRATOR, MR. W. K. REILLY (Open)

[NOTE: Mr. Howard J. Larson was the Designated Federal Officer for this portion of the meeting.]

Dr. Moeller reviewed previous discussions with Dr. Peter Myers, National Academy of Sciences, regarding a June 6, 1990, draft joint

letter to EPA from the Board on Radioactive Waste Management, Nuclear Waste Technical Review Board, and the Advisory Committee on Nuclear Waste. Dr. Moeller had pointed out to Dr. Myers earlier that, prior to signing the letter, he would need: (a) approval from Chairman Carr (in light of the current high level NRC/EPA interfacing) and (b) approval by the Committee. He also noted that the proposed letter was potentially divisible into two parts, viz: (1) a joint letter that presented a few of the higher priority technical comments on 40 CFR 191 and (2) an invitation to EPA Administrator Reilly to present the keynote speech at the September NAS symposium. Dr. Moeller had also suggested that the invitation to Mr. Reilly to be the keynote speaker should come directly from the National Academy of Sciences.

Dr. Moeller related his most recent discussion with Chairman Carr, when it was suggested that Dr. Frank Parker, Chairman of the Board on Radioactive Waste Management, should be the only person to sign the letter. That invitation letter could also ask Mr. Reilly to comment on the comments of the three organizations. Dr. Hinze agreed that the ACNW should not be a signatory.

Dr. Myers noted that, after further review, the NAS Board concurred with Dr. Moeller's suggestion that the letter should come directly from the Board Chairman. The Board also believed that by quoting relevant excerpts from published reports by the Committees, the concern of the scientific community insofar as the implementability of EPA's HLW standards would be clearly shown. Dr. Myers also noted that the NAS position paper is expected to be released in July and will serve as a "backgrounder" for the September meeting.

A discussion then ensued between Dr. Myers and the Committee members and its consultants on a multiplicity of subjects, such as: the invitee list to the symposium; the desirability of formulating questions prior to the symposium and subsequently transmitting them to the speakers; the anticipated format of the final report; and the nature of foreign participation.

The Committee was pleased with the current and intended efforts as described by Dr. Myers. The Committee indicated their intention to participate in the symposium. The members will brief the attendees on advice previously given to the Commission.

VIII. EXECUTIVE SESSION (Open)

- A. Reports, Letters and Memoranda
 - Joint ACNW/ACRS Letter on Decommissioning Responsibilities

The Committee discussed the latest revisions to a

> proposed joint ACNW/ACRS letter to the Commission on decommissioning responsibilities. The purpose of this letter is to delineate the responsibilities of the two Committees consistent with guidance received from the Commission. The Committee approved the joint letter to Commissioner Carr. (A Joint ACNW/ACRS letter was sent to Chairman Carr on July 11, 1990.)

2. Memorandum of Understanding

The Committee prepared and submitted suggested revisions to the draft Memorandum of Understanding (MOU) between the ACNW and the NRC staff. Suggestions were made to delineate the Committee's role in decommissioning, certain prelicensing activities associated with the high-level waste repository and health effects associated with low-level waste streams. The MOU is being sent to the staff for a second iteration of comments.

B. ACNW Future Activities

1. Human Intrusion and Carbon-14 Migration Issues

The Committee discussed the feasibility of having working group meetings on human intrusion and concerns with EPA release limits for carbon-14 at the proposed high-level waste repository.

The first working group will examine how human intrusion at a high-level waste repository will be dealt with under 10 CFR Part 60 considerations and guidance from 40 CFR 191 Appendix B. This will include discussion of the WIPP experience and will be designed to explore the range of current thinking from various groups. The second working group will be briefed on the potential problems that could arise at a high-level repository as a result of carbon-14 releases and migration. The ACNW staff was asked to schedule the working group meetings.

2. Meeting with the Commissioners

Dr. Moeller requested that the ACNW staff schedule meetings for him, following the July ACNW Committee meeting, with Commissioners Carr, Remick and/or Rogers to discuss items of mutual interest and concern.

3. Ladioactive Waste Research Program

Eased on further guidance from Chairman Carr during a meeting with Dr. Moeller, the Committee is planning to review selected NRC research programs related to nuclear waste management and disposal.

4. NESHAP EPA Proposal

At his meeting with Dr. Moeller, Chairman Carr requested that ACNW review EPA's proposal for National Emission Standards for Hazardous Air Pollutarts (NESHAP) with respect to their possible impacts on nuclear waste management and disposal. The Committee plans to review the EPA proposal.

5. September Meeting Date

The Committee agreed to reschedule the 24th ACNW Committee meeting to September 19-20, 1990, so that the meeting will follow the National Academy of Sciences' Symposium on EPA's High-Level Waste Standards and Radioactive Waste Repository Licensing to be held on September 17-18, 1990.

C. Future Agenda

Appendix II summarizes the tentative agenda items that were proposed for future meetings of the Committee. This list includes items proposed by the NRC staff as well as the ACNW members.

The 21st ACNW meeting was adjourned at 11:55 a.m. on June 29, 1990.

APPENDIX I: MEETING ATTENDEES

21ST ACNW MEETING JUNE 28-29, 1990

ACNW MEMBERS	1st Day	2nd Day
Dr. William J. Hinze	<u> </u>	<u> </u>
Dr. Dade W. Moeller	<u> </u>	<u> </u>
Dr. Martin J. Steindler	<u> </u>	<u> </u>
CONSULTANTS		
Mr. Eugene Voiland	<u>x</u>	<u> </u>

Dr.	David Okrent	<u> </u>	
Dr.	Donald Orth	<u> </u>	<u> </u>
Dr.	Paul Pomeroy	<u>X</u>	<u> </u>

FULL TEXT ASCII SCAN

Appendix I 21st ACNw Meeting

NRC STAFF

Abraham A. Eiss Mark Thaggard Phillip R. Reed John D. Buchanan Joseph C. Y. Wang Stephen McGuire Jack M. Bell James C. Maralo Michael F. Weber Cecelia E. Johnson Jona L. Souder Teresa D. Linton John J. Peshel Mysore S. Nataraja James F. Schneider

CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES (CNWRA)

G. Stirewalt Ruth Weiner

U.S. DEPARTMENT OF ENERGY

Edward Regnier Raymond H. Wallace, Jr.

OTHER AGENCIES AND PUBLIC

Lynne Fairobent Carol Hornibrook Patricia Robinson George Gaydos Brent Sadauskos Bob Howard Raphael Daniels Ellen Z. Coombs W. McCaughey Dermot Winters Gudorm Scott Arthur C. Upton Lynn Connor Mary Yates Elaine Hiruo Paul Krishna Peter B. Myers James Montgomery Vic Montenyohl W. F. Haslebacher Phillip Wicklein

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NUMARC EPRI EPRI SERCH/Licensing Bechtel SERCH/Licensing Bechtel Westinghouse SAIC SAIC R. F. Weston DNF Safety Board Self (reporter) New York University The NRC Calendar Nuclear Regulatory Reports McGraw-Hill Battelle - Washington Office National Academy of Sciences R. F. Weston/Jacobs R. F. Weston/Williams Brothers R. F. Weston/EER R. F. Weston

APPENDIX II. FUTURE AGENDA

July 30-31, 1990 (Tentative Agenda)

Pathfinder Atomic Power Plant Dismantlement (Open) - The Committee will be briefed on the NRC staff's findings in their Safety Evaluation Report. ACNW comments are requested.

<u>Status of Proactive Work</u> (Open) - The Committee will be briefed by the NRC staff on the status of proactive work (technical positions and rules) in the Division of HLWM and on NRC programmatic response to changes in the DOE program. (SECY 90-207 is now available.) In addition, the Committee will be briefed on the recent progress on QA activities associated with the HLW repository.

<u>Trip Report</u> (Open) - Dr. Linda Lehman, Lehman and Associates, will brief the Committee on her recent visits to the Soviet Union to review radioactive waste management activities.

<u>Uncertainties in EPA Standards Implementation</u> (Open) - The Committee will be briefed by the NRC staff on their approach for dealing with uncertainties in implementing the EPA HLW standards. ACNW comments are requested.

Below Regulatory Concern (BRC) Policy (Open) - The Committee will be briefed on the final BRC Commission policy statement (issued on June 27, 1990)

<u>Committee Activities</u> (Open/Closed) - The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate.

August 29-31, 1990 (Tentative Agenda)

<u>EPA Standards</u> (Open) - The Committee will continue discussion on the EPA standards for high-level radioactive waste disposal in a geologic repository (per memorandum from Galpin, EPA, to Moeller, ACNW). Working draft #3 of the standard is expected to be issued prior to this meeting.

<u>Technical Position on Waste Forms (Revision 1)</u> (Open) - The Committee will be briefed by the NRC staff on modifications to the Technical Position on LLW Stabilization/Waste Forms.

<u>Committee Activities</u> (Open) - The Committee will continue discussions on mixed waste, impact of NESHAP, subsystem requirements, and related items. The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate. Appendix II 21st ACNW Meeting

Tentative Working Group Meetings (Dates to be determined)

Migration of Carbon-14 (Open) - An ACNW Working Group will be briefed on the potential problems that could arise at a high-level repository as a result of carbon-14 release and migration. A report to the full Committee will follow. This will include a discussion of EPA release limits for this radionuclide.

<u>Human Intrusion</u> (Open) - An ACNW Working Group will examine how human intrusion at a high-level waste repository will be dealt with under 10 CFR Part 60 considerations and guidance from 40 CFR 191 Appendix B. This will include discussion of the WIPP experience and will be designed to explore the range of current thinking from various groups. A report to the full Committee will follow.

<u>DOE/USGS White Paper</u> (Open) - An ACNW Working Group will have discussions with the NRC staff on the review of and comments on the DOE/USGS white paper on integration of the geophysical aspects of the repository SCP. This report is important as it relates to a major central theme of the SCA comments on integration.

APPENDIX III. DOCUMENTS RECEIVED

A. Documents Received from Presenters and ACNW Staff

DOCUMENTS

AGENDA ITEM NO.

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- Accomplishments of the Advisory Committee on Nuclear Waste (1988-1990), dated June 22, 1990
- Draft Proposed Scope of Activities of the Advisory Committee on Nuclear Waste, dated June 27, 1990, by Dade Moeller
- Draft Topics of Potential Long-Term Interest to the ACNW, dated June 25, 1990
- Memorandum for Richard Major from Dade Moeller, dated June 16, 1990, re Proposed Memorandum of Understanding
- Future Activities of the Advisory Committee on Nuclear Waste, dated June 28, 1990
- Spent Nuclear Fuel Transportation and Storage: Experience at GE Morris Operation, dated June 27, 1990, by Eugene Voiland [Viewgraphs]
 - 7. Memorandum for ACNW Members from Charlotte Alrams, dated June 27, 1990, re "Phase 1 Demonstration of the Nuclear Regulatory Commission's Capability to Conduct a Performance Assessment for a HLW Repository, with attachments
 - Letter for Eric Beckjord from Neil Todreas, dated May 18, 1990, re Report of the Waste Management Review Committee, with attachment
 - 9. Review of Technical Bases for 10 CFR Part 61 Waste Form Stability Requirements, dated June 29, 1990, by Carol Hornibrook [Viewgraphs]
 - 10. LLW Disposal Facility I-129 and Tc-99 Inventory Development, dated June 1990, by Patricia Robinson
 - Draft Evaluation of thel Technical lBases for the Waste Form Stability Requirements in 10 CFR Part 61, undated, Prepared by J. N. Vance, VANCE & Associates

Appendix III 21st ACNW Meeting

B. Meeting Notebook Contents Listed by Tab Number

CONTENTS

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- Introductory Statement by ACNW Chairman for June 28-29, 1990
 - Items of Current Interest, undated
- 3. Status Report on Past Accomplishments and Future Direction of the ACNW, undated
- First Compilation of ACNW Reports, June 1988 June 1990
- 5. Memorandum for ACNW Members from Howard Larson, dated May 23, 1990, re Nuclear Plant Journal Article on the Advisory Committee on Nuclear Waste, with attachment
- Memorandum for Dade Moeller from Kenneth Carr, dated May 11, 1990, re Approval of a Revised Charter for the Advisory Committee on Nuclear Waste, with attachment
- 7. List of Low-Level Waste Topics, undated
- 8. Memorandum for Forrest Remick and Dade Moeller from Kenneth Carr, dated November 6, 1989, re Division of Responsibilities Between the ACRS and ACNW, with attachment
- 9. Memorandum for ACNW Members from Howard Larson, dated May 16, 1990, re MOU Between the ACNW and the Executive Director for Operations, with attachment
- Memorandum for Dade Moeller from Robert Bernero, dated May 1, 1990, re Proposed MOU Between the ACNW and the Executive Direcor for Operations, with attachment
- Memorandum for Robert Browning from Dade Moeller, dated February 26, 1990, re Review of DOE Study Plans
- Memorandum for Dade Moeller from Raymond Fraley, dated December 18, 1989, re Conduct of ACNW Activities
- Memorandum for Chairman Kenneth Carr from Raymond Fraley, dated February 23, 1990, re Division of Responsibilities Between ACRS and ACNW, with attachment
- Memorandum for Dade Moeller from Raymond Fraley, dated December 6, 1989, re ACNW Assignments, with attachment
- Memorandum for ACNW Members from Charlotte Abrams, dated June 19, 1990, re Consultants, with attachments

Appendix III 21st ACNW Meeting

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- Status Report on Joint Letter to EPA Administrator, 16. undated
- Memorandum for ACNW Members from Howard Larson, 17. dated June 13, 1990, re Draft Letter to EPA Administrator, W. K. Reilly; Background Discussion of, with attachment
- Tentative Agenda, undated 18.
- 19.
- Table of Contents, June 28, 1990 Status Report on Tunnel Boring Machine and Drill 20. and Blast, with attachments
- Memorandum for ACNW Members from Charlotte Abrams, 21. dated March 7, 1990, re Attendance at the NWTRB Meeting on ESF Alternatives and Prioritization of Tests, and Visit to the Colorado School of Mines tunnel Boring Test Facility and Bureau of Reclamation Prototype Tests Facility, with attachment
- Status Report on Transportation and Storage of Spent 22. Nuclear Fuel - Experience at Morris, Illinois Spent Fuel Storage Facility
- Future Schedules 23.
- Memorandum for ACNW Members from Richard Major, 24. dated June 12, 1990, re ACNW/ACRS Division of Responsibilities, with attachments
- Sharing a Joint Staff with the ACRS, with attachment 25.
- Status Report on I-129 Source Term for Siting of 26. New Low-Level Waste Sites, with attachment
- Status Report on Briefing on BEIR V Report, undated 27. Editorial on the Impact and Misuse of BEIR V by 28. Richard Vetter, Health Physics, May 1990, Volume 58, Number 5