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## **Radioactive Exchange**<sup>•</sup>

To promote the exchange of views and information on radioactive waste management

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#### WHITHER THE MRS? -- A LOOK AT POSSIBILITIES

With DOE prohibited by a Court Order from submitting a proposal to construct a Monitored Retrievable Storage (MRS) facility to Congress, the first scheduled file of briefs not scheduled until May, there is considerable doubt whether Congress will be able to give the proposal any further consideration during this session.

A worst-case scenario would have the Appeals Court not issuing an opinion for, say, sixty days following the initial filing of briefs in May. This means an order would be issued in late July or early August. Congress, however, would have adjourned and would be unlikely to spend much more time in session because of upcoming elections. So, even if the Court decides in favor of DOE instead of Tennessee, who in the Administration is going to be willing to push for action on the siting of a nuclear facility facing upcoming elections? IF the Court decides in favor of Tennessee, then what? (See Whither MRS? in the HLW Focus)

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March 18, 1986

#### USERS OF RICHLAND LLRW SITE REOUIRED TO GIVE PRIOR NOTIFICATION

On March 10, 1986, the Washington State Department of Ecology announced that as of April 10 all users of the Richland LLRW disposal site must give three days notice prior to shipment of the waste to the A detailed set of instructions facility. has been issued, along with pre-notification forms which must be filled out by generators regardless of whether waste is sent directly to the disposal site or to a broker who may end up using the Richland site. The surcharge for out-of-region waste, \$10.00 per cu. ft., is in effect for all waste accepted for disposal after or on March 1, 1986. DISPOSAL SITE USE (See NOTIFICATION). \*\*

#### APPLICATIONS TO USE BEATTY FACILITY ACCOUNT FOR 50% OF CAP

Over the past couple of weeks, Len Slosky, the Executive Director of the Rocky Mountain Compact, reports that he has processed applications requesting permission for disposal of over 100,000 cu. ft. of LLRW at the regional Beatty facility. If this pace continues Beatty should have sufficient applications to reach its annual volume cap before summer and could "close" its doors \*\*

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#### NC, AL, VA EXPECTED TO BE TOP-RANKED FOR SOUTHEAST LLRW FACILITY

According to a "technical ranking" compiled by consultant-contractor, Dames and Moore, North Carolina has received the highest score, based on technical criteria, over all other SE compact states in the "competition" to determine the next state to host a Southeast Regional LLRW disposal facility. Alabama received the next highest "technical" scores.

More importantly, from what the EXCHANGE has learned, the final ranking, which will incorporate the technical ranking in each of ten criteria along with weighting factors determined by ballot of the Southeast Commissioners, should again put North Carolina at the top of the list, followed by Alabama and Virginia.

The Southeast Commission meets on April 3-4 to further discuss the host state selection process and the final results of the balloting process to determine the weighting factors for the ten technical criteria. \*\*

#### CALIFORNIA-DAKOTA COMPACT ADOPTED BY SOUTH DAKOTA

Within the past weeks the South Dakota legislature approved a two-state South Dakota-California LLRW Regional Compact providing that California will host, and bear all the liability for the regional LLRW disposal facility. Though there was some apprehension that Governor Janklow might not ratify the compact (even though he was initially a strong supporter), because of ongoing discussions with Arizona officials to form a two-state compact, he did sign the legislation into law on Saturday, March 15, 1986.

#### No Referendum Required

According to South Dakota state officials, the newly ratified two-state compact with California is not required to be approved by a statewide referendum as was the proposed two-state Dakotas compact. Under state law, and a state Supreme Court opinion, the referendum-adopted requirement, that a compact involving South Dakota be submitted to a statewide ballot, was only applicable to activities of that particular legislative session. A statewide ballot on this new regional agreement would only be required if both Houses of the legislature adopted a resolution calling for such action.

#### Best Available Disposal Technology

An interesting aspect of the California-Dakota compact, which was introduced with almost the identical language into the California Assembly by Assemblyman Steve Peace, is language stipulating that in the development of regional disposal plans provisions are to be made to include the use of the "best available disposal" technology.

This requirement, depending on just how it is worded, could have some impact on the activities already underway by US Ecology, the California LLRW disposal site licensedesignee. US Ecology was chosen licensedesignee last December when its proposal to develop a shallow-land disposal facility was accepted by the California Health Department (See EXCHANGE, Vol. 4, No.20).

#### VA TO HAVE COMPREHENSIVE WASTE DEPT. WITHIN NEW NATURAL RESOURCES AGENCY

During their just-completed legislative session, the Virginia Legislature approved a bill supported by Governor Baliles that provides for the establishment of a Cabinetlevel National Resources Agency which is to include a comprehensive Department of Waste Management. The legislation also includes provisions that ban the use of open dumps and provides further restrictions on the siting of hazardous waste facilities.

The newly created post of Secretary of Natural Resources will have jurisdiction over the activities of the Department of Conservation and Historic Resources; Marine Resources; the State Water and Pollution Control Boards; the Commission on Game and Inland Fisheries; and the newly created Department of Waste Management.

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#### Radioactive & Non-radioactive Combined

The newly created Department of Waste Management is to be headed by an Executive Director to be appointed by the Governor and confirmed by the General Assembly. It is to have jurisdiction over all waste management activities -- solid waste, hazardous waste, and low- and high-level radioactive waste.

The legislation specifically directs that the Department of Health transfer all authority over solid and hazardous waste to the new "Waste" department. This means that the Department of Health's Division of Solid and Hazardous Waste Management will now be part of the new department.

The Solid Waste Commission and the Hazardous Waste Facility Siting Council are dissolved and their respective functions are assumed by the new department. The advisory roles of these bodies will be taken over, for the most part, by a newly created seven-member Virginia Waste Management Board. The members of this Board are to be citizens of the State appointed by the Governor for four-year terms. The initial appointments to the Board are, however, to be made for varying terms -- one to 4 years -- in order to provide some independence from changing gubernatorial administrations. \*\*

#### NRC PROCEEDING TOWARD DEVELOPING "POLICY" ON DEMINIMUS LLRW

According to public statements made by various NRC staff and information obtained by the EXCHANGE, the NRC Waste Management Division is developing a proposed Commission policy statement on a deminimus waste designation process with the full intent of having it become effective by mid-July. Under the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA), NRC is required to issue by July 15, 1986, "standards and procedures...and develop the technical capability for considering and acting upon petitions to exempt specific radioactive waste streams from regulation." Because of the short time frame within which the Agency was required to act, the Commission staff determined that it was impossible to go through a generic rulemaking and has thus decided to proceed to propose a Commission policy statement. This proposed statement would outline the type of information that would be required of petitioners seeking a deminimus designation for a specific waste stream and the type of candidate waste streams that could be handled by the NRC expeditiously. It would be incorporated into CFR Part 20.306.

#### Burden of Proof on Petitioner

Under the petitioning process as currently envisioned by the NRC staff, the burden of proof will be on the petitioner. Each petition for a deminimus designation for a specific waste stream would be treated as an individual rulemaking. The intent is to have the proposed Commission policy statement lay out the procedures for the consideration of a petition, with the expectation that an expedited rulemaking process can possibly be developed.

As envisioned by the staff the policy statement will not provide a generic basis for deminimus designation. It will be limited soley to determining what waste may not be required to be sent to a Part 61 licensed burial facility and sent, instead, to a hazardous waste or sanitary landfill site.

#### Coordination with the EPA

NRC staff is expected to coordinate their proposed deminimus policy development with EPA, probably providing the environmental agency's Office of Radiation Programs (ORP) the opportunity to comment on early drafts. And, though the ORP staff is planning on releasing a proposed LLRW standard including a "Below Regulatory Concern" provision, by December 1986, NRC is not required to wait until EPA's release, or specifically required to coordinate their actions with ORP.

Though no one at NRC would provide any comment as to the substance of the policy statement, the EXCHANGE has learned that the staff is making extensive use of the United Kingdom's generic deminimus guidance and the Canadian proposed guidelines for below regulatory concern waste issued in August of 1985. \*\*

#### RESOLVING THE MIXED WASTE PROBLEM: BAN ITS DISPOSAL AT LLRW SITES?

According to sources in and out of the NRC and Congress, the solution to the mixed waste jurisdictional conflict between EPA and NRC may be to have NRC proceed through a formal rulemaking prohibiting the disposal of mixed waste at low-level radioactive waste (LLRW) facilities, and putting in place regulations allowing mixed-waste disposal at EPA-RCRA regulated disposal sites. After meetings with officials from both agencies on Capitol Hill last week, this solution is finding some support among key Congressional staffers and NRC staff.

#### RCRA Siting Guidelines in 1988?

The reason behind such proposals is that, at a March 12 meeting on Capitol Hill, EPA staff informed those in attendance that it is currently proceeding under the 1984 RCRA mandate to develop siting guidelines for facilities accepting hazardous waste, which would include mixed waste. These regulations, however, will not be issued until 1988.

Even if the environmental agency could meet this deadline, the 1988 date could significantly impair non-sited states from proceeding toward preparing a license application for new LLRW disposal facilities, and thus affect compliance with the mandated disposal site development milestones stipulated in the LLRW Policy Amendments Act of 1985.

In lieu of legislation that could resolve the jurisdictional conflict, serious thought is now being given to having NRC proceed with a rulemaking prohibiting disposal of mixed waste at LLRW facilities and giving EPA jurisdiction over such waste by, either having NRC setting radioactive criteria that would remove the waste from their jurisdiction, or executing an agreement with EPA that would allow the environmental agency to enforce NRC regulations. There seems to be some definite support for this approach. As one influential individual remarked to the EXCHANGE, the initial concern over the disposal of mixed waste was what would happen to scintillation vials. Now, however, according to to information from the medical community, most of this waste is being shipped and dealt with by the Ouadrex facility in Florida. The remainder is not a significant volume.

#### House Hearings in April

The expected joint hearing on the mixed waste issue before Congressman Markey's Subcommittee on Energy Conservation and Power and Florio's Subcommittee חס Commerce and Tourism is now scheduled for April 10. House Interior is planning a hearing on April 24. There is no indication at this time that either House Committee is leaning toward giving EPA the site responsibility to regulate the disposal of mixed waste.

#### Effect of Kerr-McGee on Mixed Waste

On another front, but one that could have direct bearing on regulation of mixed waste, is the ongoing Congressional investigations into the incident that occurred at Kerr-McGee. As NRC officials and others have maintained, the severity of the Kerr-McGee accident was due more to the mishandling of hazardous chemicals, not under NRC jurisdiction, than by the presence of radioactive materials. What has been uncovered in the course of the Congressional inquiry is another gaping hole in scheme current regulatory over the materials that are hazardous, and radioactive, and in use at a NRC licensed facility. This has definitely heightened the awareness of the jurisdictional conflict between EPA, NRC and even OSHA. Possible regulatory initiatives to deal with the "use" of mixed materials will definitely affect the current mixed waste jurisdictional conflict.

On March 20, NRC Chairman Palladino and EPA Administrator Lee Thomas are scheduled to hold what could be best described as a "summit" meeting to begin to move toward resolution of the regulatory voids that some view as responsible for the occurrence of the Kerr-McGee incident. \*\*

#### PART 61 OK FOR ALTERNATIVE DISPOSAL TECHNOLOGIES, STANDARDIZATION URGED

In the recently released draft "Branch Technical Position Statement on Licensing of Alternative Methods of Disposal for LLRW," NRC's Waste Management Division concludes that alternative disposal technologies can be licensed under current NRC regulation 10 CFR Part 61, and "strongly encourages industry and the States to pursue standardization in developing alternative waste disposal methods." The draft position was issued in the March 6 Federal Register (Vol. 51, No. 44, pp. 7806-11). Division Director Browning had announced that the issuance was forthcoming at the recent EXCHANGE Workshop in Washington, D.C., and Waste Management '86 in Tucson. Written comments on the draft and responses a series of staff questions are to requested. The comment period expires May 5, 1986.

The primary purpose behind the issuance of this draft is to address the "question of whether disposal methods employing engineered structures and barriers can be licensed under existing requirements in 10 CFR part 61. The plain and simple answer of this draft position is "yes".

#### Position Based on Army Study

The NRC staff position is based on the already published work of the U.S. Army Corps. of Engineers' Waterways Experiment Station, which studied, under contract to the NRC, five alternative disposal methods: below-ground vaults, above-ground vaults, earth-mounded concrete bunkers, shaft disposal and mined cavities. [Editor's note: As of this date (March 18, 1986) the report on mined-cavities has yet to be released. The reports on the other four technologies are included in NUREG documents NUREG-CR 3774, Vol. 2-5, See EXCHANGE Vol. 4, No. 19; Nov. 14, 1985.]

#### General Guidance Provided

The draft branch technical position paper encourages the submission of detailed technical information on alternative disposal technology prior to license application, suggesting that this may "reduce considerably the time needed for license application review." It suggests that proposed designs for alternatives reflect the benefits of "significant" R&D activities and "experience gained from waste disposal operators in the U.S. and other countries."

Accordingly, the draft position explains that NRC waste management staff will encourage design innovations which "are supported by a proven technology" or "can be demonstrated by a satisfactory technology development program."

#### Standardization of Designs Urged

A very strong argument is made for the development of "standardized approaches" alternative disposal technologies. of According to the proposed draft, standardization would concentrate the resources of waste engineers and vendors on particular approaches, stimulate standardized programs of construction practices and quality assurance, and "facilitate more effective licensing and inspection processes." It is the stated intent of the NRC staff to give greater priority, and focus more resources, on approaches which would be of greatest interest to the states. Reflecting this very strong inclination toward standardization, the staff strongly encourages a cooperative effort between the states and industry, and the "earliest possible interaction between potential license applicants, the waste disposal service industry, states, other governmental agencies and the NRC."

#### Guidance on Alternative Designs, Siting

The draft technical position paper cites the U.S. Army Corps. of Engineers NUREG reports as references for specific guidance on the already studied disposal alternatives. It cautions against developing designs that would rely on any one component, supporting concepts where all components would "interact" to achieve performance objectives.

On the matter of siting, the draft position clearly states that "Engineered structures and barriers should not be viewed as a planned substitute for a suitable site." Instead "engineered features", incorporated in alternative designs, should offer the public enhanced confidence in proposed disposal plans.

Since waste retrievability from disposal structures has been voiced in various regions, the draft expresses caution that "retrievability should not compromise or otherwise lessen the ability of the technology to meet Part 61 performance objectives."

#### Variations On Waste Classification

Though the draft position recognizes that an "alternative waste classification system may be proposed by a license applicant," as long as it is compatible with the performance objectives of Part 61, it cautions against such action commenting that "alternative waste classes have the potential to confuse waste generators." In lieu of reclassification the NRC staff urges states to consider "more restrictive waste forms or packaging or alternative emplacement methods."

#### Institutional Control Requirements

Because alternative disposal concepts now being considered include uncovered aboveground facilities, the proposed technical position statement calls attention to the possible need for "additional controls and a more comprehensive program to exclude the public from the site during the active period." It institutional control is pointed out that though Part 61 provides "institutional controls cannot be that relied upon for more than 100 years" longer periods of control are not prohibited. However, any proposed longer control periods should not be necessary to assure long term performance of an alternative disposal technology

#### Responses Requested

In addition to requesting comments on the proposed "guidance" contained in the draft branch technical position, the NRC staff is requesting responses to a series of four questions:

- Are there disposal concepts being considered other than earth-mounded concrete bunkers, below-and aboveground vaults and shafts?
- 2. Are additional specific regulatory guidance documents needed beyond the already issued NUREG documents?
- 3. Should NRC actively solicit and review a reference design concept? What aspects of a disposal facility are amenable to standardization?
- 4. Should NRC licensing procedures for an alternative disposal approach include a pre-application review of site suitability issues, prior to consideration of a license to construct and operate such a facility? \*\*

#### BARNWELL ACCEPTANCE OF BITUMEN LLRW HELD UP BY STATE, "AZTEC" LLRW OK

One of the "hot" out-in-the-hall discussion topics among waste processing vendors and utility representatives at Waste Management '86 is the current prohibition on disposal of bitumen-solidified LLRW at Chem Nuclear's Barnwell disposal facility. Several individuals were overheard to comment that the prohibition was intended more to advance the use of Chem Nuclear's concrete containerization techniques than any regulatory restrictions. to meet However, officials from the South Carolina Bureau of Radiological Health contacted by the EXCHANGE this past week explained that Chem Nuclear was acting under state regulations that were currently in effect.

According to Virgil Autry, of the Radiological Health Division, bitumen containerized LLRW cannot be accepted under current state regulations until NRC has completed evaluation of the topical report regarding the waste form. He added that the state had met with industry representatives in the past week (March 10-15) and explained what information was needed. He reported that the primary concern of the state is over the "creep rate of the bitumen under burial conditions in the trench."

One of the problems will be NRC approval of the topical report. According the Waste Management Division staff there is a backup of about 18 topical reports on waste forms awaiting approval.

#### Chem Nuclear Perspective

Chem Nuclear officials contacted by the EXCHANGE reiterated the necessity for vendors to supply creep data for "bitumenized waste" under burial conditions. They also emphasized that within the past week a company memo had been issued directing all relevant company managers to work with the vendors and utilities using bitumen technology and the State of South Carolina toward the acceptance of bitumen LLRW at the Barnwell facility.

In response to the criticism that Chem Nuclear was not accepting bitumen waste in order to promote its own concrete containerization process, the officials emphasized that this was definitely not the case. It was not in Chem Nuclear's interest to do so, since the profit margin on accepting bitumen waste for disposal would be greater than selling their own concrete processing technique.

The state radiological agency and Chem Nuclear both implied that once NRC approves the topical report on bitumenized waste forms, and acceptable data was provided on creep, under trench conditions, bitumen waste would be accepted at the facility. It was also noted that there exists the possibility of accepting bitumen waste if it was containerized to retain its shape while relying on the bitumen to maintain the necessary leaching properties.

#### AZTEC Waste Not Affected

When asked if the prohibition on bitumen waste was also in effect for waste that had

been solidified by the **AZTEC** process, Chem Nuclear and the State emphasized the direct opposite. Mr. Autry reported that for all practical purposes "the AZTEC solidified waste was approved for acceptance at Barnwell pending issuance of a license amendment to Chem Nuclear." He explained that the AZTEC process resulted in a waste form that exhibited no creep and which had a high compressive strength. \*\*

#### ATI ACQUIRED BY US ECOLOGY, AWARDED "SIGNIFICANT" NEW CONTRACTS

American Ecology Company, the parent company of US Ecology and National Ecology, has acquired Associated Technologies, Inc., the Charlotte, North Carolina waste technology firm. ATI's Chief Executive Officer, Ed Day, called the move "a very welcome event." Mr. Day explained that the American Ecology-ATI acquisition will benefit both firms, with ATI obtaining needed financial resources and Ecology gaining sound engineering expertise on LLRW processing technologies.

ATI is to function as a sister company to US Ecology, operating as a wholly owned subsidiary of American Ecology. ATI officers will report to the American Ecology headquarters in California. The terms of the purchase agreement have not been disclosed and probably will not be.

#### New Contract Awards

Within days of completing final negotiations on the acquisition, ATI was awarded a contract by Rockwell International of Hanford, Washington, to design, fabricate and install a Transportable Grout Equipment System at the Hanford site. The system will be capable of feeding, blending and pumping grout slurry comprised of proprietary materials and Rockwell "medium" level nuclear waste (HLW and truwaste) currently stored in underground tanks to prepared long term storage sites. The technology for the system was developed by the Department of Energy. The grout mixture is a product of Oak Ridge National Laboratory R&D.

SGN of France is a subcontractor to ATI on

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this project. The French firm's long experience in remote handling of radioactive materials made it a significant contributor to the ATI competitive proposal. The project is expected to be completed in 14 months, with the contract valued in excess of \$5 million. \*\*

#### REPORTS OF NOTE (LLW)

Modified Sulfur Cement Solidification of Low-Level Wastes, Topical Report; (BNL 51923); Brookhaven National Laboratories, Nuclear Waste Research Group, prepared for the U.S. Department of Energy National Low-Level Waste Management Program. This topical report decribes the results of an investigation on the solidification of low-level radioactive wastes in modified sulfur cement. The work was performed as part of the Waste Form Evaluation Program, sponsored by the U.S. DOE's Low-Level Waste Management Program. Processing of waste and binder was accomplished by means of both a single-screw extruder and a dual-action mixing vessel. Waste types selected for this study included those resulting from advanced volume reduction technologies (dry evaporator concentrate salts and incincerator ash) and those which remain problematic for solidification using contemporary agents (ion exchange resins).

Process development studies were conducted to ascertain optimal process control parameters for successful solidification. Maximum waste loadings were determined for each waste type and method of processing. Property evaluation testing was carried out on laboratory scale specimens in order to compare with waste from performance for other potential matrix materials. Waste form property testing included compressive strength, water immersion, themal cycling and radionuclide leachability.

Recommended waste loading of 40 wt% sodium sulfate and boric acid salts and 43 wt% incinerator ash, which are based on processing and performance considerations, are reported. Solidification efficiencies for these waste types represent significant improvements over those of hydraulic cements. Due to poor waste performance, incorporation of ion exchange resin waste in modified sulfur cement is not recommended.

Management of Radioactive Mixed Wastes in Commercial Low-Level Wastes [Draft Report for Comment]; (NUREG/CR-4450; BNL-NUREG-51944); C.R.Kempf, D.R. MacKenzie, B.S. Bowerman, Brookhaven National Laboratory, Upton, N.Y. 11973; Prepared for Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 NRC FIN A3173. Management options for three generic categories of radioactive mixed waste in commercial low-level wastes (LLW) have been identified and evaluated. These wastes were characterized as part of a Brookhaven National Laboratory study in which LLW generators were surveyed for information on potential chemical hazards in their wastes. The general management targets adopted for mixed wastes are destruction, immobilization, and reclamation. Solidification, absorption, incineration, acid digestion, wet-air oxidation, distillation, liquid-liquid solvent extraction, specific chemical destruction techniques, and substitution have been considered for organic liquid wastes. Containment, segregation, decontamination, and solidification or containment of residues, have been considered for lead metal wastes which have themselves been contaminated and are not used for purposes of waste disposal shielding, packaging, or containment. For chromiumcontaining wastes, solidification, incineration, wet-air oxidation, acid digestion, containment and substitution have been considered. For each of these wastes, the management option evaluation has included an assessment of testing appropriate to determine the effect of the option on both the radiological and potential chemical hazards present. This report was mailed to state officials and licensees within the past three weeks. Comments are requested. If you have not received a copy write: Dr. Paul L. Piciulo, Low-Level Waste Technical Assistance Group, Department of Nuclear Energy, Brookhaven National Laboratory, Building 830, Upton, N.Y. 11973.

#### WASTE MANAGEMENT '86....OBSERVATIONS....LLRW PAPERS, DISCUSSIONS, ETC...

#### Overview

Low-level radioactive waste management played a more prominent role in this conference than perhaps in any other. A very much improved exhibition of vendor wares was primarily devoted to LLRW processing technologies and techniques. Again, the mix of vendors, state and federal agency officials, utility managers and consultants was very good, providing an excellent opportunity for interaction. The problem is that with the multiplicity of concurrent sessions, informal discussions usually had to be undertaken at the expense of not attending a panel session.

A noteworthy luncheon speech by NRC Commissioner Bernthal touched on several LLRW issues now under consideration at the NRC. Panel sessions on the Low-Level Waste Policy Act and state LLRW disposal site developments attracted standing room only crowds. The treatment and regulation of mixed waste was the focus of several papers.

All in all the extent to which this particular conference covered LLRW is enough to warrant the purchase of a set of proceedings if you happen not to have attended, or if you attended and found yourself out in the corridor more than inside meeting rooms listening to papers. What follows is our perception of interesting points or issues raised in conversations or in papers.

**Commissioner Bernthal Remarks** The remarks of Commissioner Bernthal on LLRW issues are notable for a couple of reasons. It isn't often that a Commissioner pays attention to LLRW, and he reinforced some staff proposals now appearing in print and in the Federal Register.

He noted orphan wastes as a continuing NRC concern and urged the Congress to settle the question of mixed waste regulation. He remarked that the Nuclear Waste Policy Act and the recent Low-Level Radioactive Waste Policy Amendments Act resolved a number of orphan waste problems, and that NRC must now get on with the job of defining the full range of wastes involved.

Addressing the subject of low-level waste disposal alternatives, the Commissioner indicated that the agency is going to provide early views on alternative technologies. He then urged the states to avoid customizing, and to "learn the joys of standardization in pursuing specific technologies." This supports NRC Waste Management Division's staff recently published position on standardization (See related story in this issue).

**DOE Waste Disposal** The fact that the future of LLRW disposal lies in the application of alternative technologies and engineered structures was again demonstrated by a DOE paper outlining their new approach to waste disposal. In this presentation, DOE relates how cost recovery, in so far as waste disposal is concerned, has now given way to the new philosophy of a "systems approach to waste management," wherein "near-term and long-term costs versus performance must be evaluated on a systems basis." DOE explained that the implementation of this approach will include: consensus building with regulatory agencies on performance requirements; the development of engineered barriers; regulation by performance evaluation; and other techniques not employed by DOE in the past.

**LLWPAA** and State Siting The two panel sessions on the regional compacts and the consent legislation drew standing room only crowds and resulted in extra long Q&A sessions. A difference in approach between compacts trying to determine where new disposal sited would be located vividly demonstrated that not all compact regions are approaching solutions to this problem in the same manner.

Some attendees, who were generators or brokers found out that the sited-states are in

complete control of site access. Officials from sited-states found out that there are a lot of "special circumstances" to deal with and that getting a uniform approach on disposal site operation and access is a definite necessity. Utility officials seeking access under their allocation were told that they must "request" use of a disposal site from the respective sited-states.

A Penn State paper on the public perception of LLRW disposal, which identified local control of disposal facilities as a prime requirement (exerpts of this study were published in the EXCHANGE, Vol. 4, No. 17), evoked much discussion.

**Deminimus Waste** Several interesting papers were given on mixed and deminimus waste. Of the group, a paper by Duke Power's Changfuh Lan gave a detailed description of how Duke successfully petitioned NRC for deminimus waste stream designations and ended up saving the utility a significant amount of money by avoiding disposal costs at a commercial facility.

A paper on **mixed waste** given by John Lehman of EPA pointed again to the necessity of passing legislation to resolve the EPA-NRC jurisdictional conflict. This legislation would have to amend RCRA to allow EPA to delegate their RCRA authority to NRC and also to allow Agreement States the authority to issue RCRA permits to their licensees.

**Volume Reduction** The papers provided on volume reduction (VR) were, as is usually the case, too numerous. There was one given at a panel session on the compacts by David Zigelman of Westinghouse that did evoke comments, at least, in the corridors afterwards. In his paper he related how supercompaction of dry active waste and the use of supercompaction along with other techniques could save millions of dollar in disposal costs (cumulative burial costs, surcharges, etc.). In fact his analysis of one nuclear facility (Plant X) demonstrated that by volume reduction this particular facility could achieve a cost savings of \$20 million.

#### Outside the Sessions

Among the many issues discussed in and around the conference area and at Jim Testa's office, there are a couple worth mentioning. First, Aerojet was notably missing from the exhibit area and it was also hard to find anyone representing their company. The rumors of a possible sale of the California-LLRW incinerator builder were running rampant and several top-level executives from waste technology and processing firms avoided answering when asked if they were looking into purchasing the company.

Second, utilities and vendors utilizing the **bitumen solidification** process were voicing their displeasure over the prohibition against accepting bitumenized waste at Barnwell (See related story this issue). A user vendor group met with Chem Nuclear executives to discuss the ban.

**LLRW Awards** At Waste '86 the ASME Radwaste System Committee of the Nuclear Engineering Division gave its "OZKAR" award for 1985 to **Alan Moghessi** and **Herschel Godbee.** The Committee also announced that the 1986 recipient will be none other than **James Testa** of Commonwealth Edison.

The "OZKAR" Award is named after the founder of the Committee, Mr. M. Sacid (Sarge) OZKAR and is given in recognition of "outstanding achievements in the commercialization of nuclear energy with specific emphasis on radwaste management."

Wrap-Up (LLRW)

#### IN THE MIDWEST

At their scheduled March 19 session, the Midwest Commission is expected to act on a proposed host state incentives package and a timetable specifying a schedule for development of a regional disposal facility.

#### IN THE CENTRAL MIDWEST

According to Illinois' Department of Nuclear Safety staff, the International Conference on Alternative Disposal Technologies attracted close to two hundred attendees, with an enthusiastic contingent from several foreign countries, and officials from about thirty states. Representatives from state environmental groups voiced strong support for aboveground disposal facilities. Several attendees contacted by the EXCHANGE commented that the most striking aspect of the conference was the markedly different attitudes toward waste processing technologies, such as incineration, expressed by speakers from foreign countries, as opposed to those from the U.S. The view provided by the non-U.S. speakers was that their respective governments were directly involved in developing waste processing and disposal programs and they were taking an integrated systems approach rather than separately dealing with processing and disposal options. One Illinois DNS staffer commented that the array of approaches already in use in foreign countries "was impressive" and could be viewed as "defining the universe of proven ap-plications that could meet the needs of LLRW management in the U.S."

#### IN THE DOE

The Department of Energy announced in late February that it was beginning a **special safety review of its nuclear facilities.** Individual technical and safety appraisals are to be conducted at more than 50 sites in 11 states over the next three years. The appraisals at each facility will last at least two weeks. As part of this initiative, Secretary Herrington has centralized and strengthened the environment, safety and health functions in headquarters under Ms. Mary Walker, the Assistant Secretary for Environment, Safety and Health, and has directed the undertaking of a one time baseline environmental survey of all of the department's sites.

The nuclear facility selected to be appraised first was the Fast Flux Test Facility near Richland, Washington, where the appraisal team began work on February 24. The appraisals will be conducted by a team of experts under the direction of a DOE headquarters technical manager, and will include both DOE personnel and independent consultants who have expertise in subjects ranging from reactor safety to industrial hygiene.

The environmental survey of DOE facilities is designed to identify current problems and set priorities on all air, water and hazardous waste issues. With this survey information, the department will develop long-range plans to correct environmental problems and reduce areas of potential risk.

The environmental survey will cover all media (air, water and soil) and all areas of environmental regulation. About 40 DOE sites at which there are an estimated 600 inactive waste areas, 300 hazardous waste management areas, 1800 air emission stacks, and 400 water discharge pipes are included. It will begin in June, 1986 at the Feed Materials Production Center, Fernald, Ohio, and be completed by late 1988. NUS Corporation, a contractor, will provide five to 10 technical specialists for each team.

Over the past two months Envirosphere has been under contract to the DOE-EG&G Low-level Radioactive Waste National Program on scoping out the "greater than Class C" LLRW problem. As part of this effort the firm is also responsible for constructing a partial legislative history of the Low-Level Radioactive Waste Policy Amendments Act (LLWPAA) to identify Congressional attitudes toward greater than Class C disposal. Thus far, from what the EXCHANGE has learned, the effort has ascertained that the volume of greater than Class C waste is very small. With regard to its disposal, it also appears that one viable option is to encapsulate it in "a single cask" and put it in the HLW repository. A

Federal Register notice on the findings of the study and recommendations on disposal of greater than Class C waste is expected to be issued in early April.

#### IN THE INDUSTRY

Koch Process Systems, Inc. has received an order for their Radwaste Incineration System (VR-System 200<sup>TM</sup>) from Exxon Nuclear Co., Richland, Washington. The system is based on technology developed by laboratory Alamos National Los and commercialized by Koch while under a prior DOE contract. It will be used to reduce the volume of Exxon's contaminated dry waste produced during the manufacture of nuclear fuel. The system consists of a controlled air incinerator, wet scrubbing equipment including a quench column, high energy venturi, packed column and scrub solution processing equipment, HEPL filtration module and an induced draft blower. A programmable controller-based control system allows for automatic, unattended operation.

The Department of Energy (DOE) has selected Morrison-Knudsen Company, Inc., to manage remedial actions at a former uranium processing complex in Weldon Spring, Missouri. Morrison-Knudsen was one of seven firms which submitted bids for the contract in response to a request for proposals issued by DOE in July 1985. As the project management contractor, Morrison-Knudsen will be responsible for general site management; environmental, safety and health programs; maintenance; and surveillance and security operations.

#### ON THE MOVE

Leo Higginbotham, Branch Chief of NRC's LLRW and Uranium Recovery Projects is retiring from the Agency effective March 28, 1986. Dr. Malcolm Knapp, currently Chief of the Geotechnical Branch of the Waste Division will move over to take over Leo's responsibilities. Phil Justus of the Geotechnical Branch will then assume, in an acting capacity, the post of Chief of the Geotechnical Branch.

Steve Romano, a well-known and wellrespected member of the Waste Management Division staff is also leaving the NRC. He was heavily involved in formulating Waste Management Division positions on the Compact Consent Bill. Steve has accepted the position of Assistant Project Manager for US Ecology's California LLRW site development activities. His responsibilities at NRC will terminate on March 27, 1986. Rob MacDougall is expected to take over many of Steve's responsibilities.

#### ! BULLETIN !

**Congressman Ed Markey** has accepted our invitation to speak at the opening session of the Second Decisionmakers' Forum on Wednesday, May 21, and **VEPCO President William Berry** has accepted an invitation to address attendees at a restructured closing Plenary session on Friday morning, May 23.

Registrations are starting to come in at a quickening pace, so reserve your place as soon as possible. You will not want to miss this event!

> Edward L. Helminski Publisher The Radioactive Exchange

#### NOTIFICATION

March 10, 1986

The Washington State Department of Ecology is hereby requiring all generators and brokers who ship commercial low-level radioactive waste to the commercial low-level radioactive waste disposal facility located near Richland, Washington, to complete a Pre-notification Form for each waste shipment. This action is pursuant to PL 99-240, the Low-Level Radioactive Waste Policy Amendments Act of 1985, and Chapter 43.200 Revised Code of Washington.

The Pre-notification Forms required by this action, described below, must be received by the Department of Ecology at least three (3) working days prior to the date that the waste is shipped to the disposal facility (not the date waste arrives at the Richland, Washington facility). The surcharge payments, calculated on the forms when applicable, must accompany the completed forms when submitted to the Department. As specified in Executive Order 86-01, which is enclosed, the surcharge assessed by the state of Washington on low-level radioactive waste generated outside of the Northwest Compact Region as of March 1, 1986, is \$10.00 per cubic foot of waste disposed of at the facility.

Prior notification to the Department is only required on shipments being sent from a broker or a generator on or after April 10, 1986. For example, the pre-notification of a shipment occurring on April 10 must arrive at our office by April 7, 1986.

A Pre-notification Form and surcharge payment for each waste shipment received at the Richland, Washington facility between March 1 and April 9, inclusive, must be submitted to the Department of Ecology by May 10, 1986.

A Pre-notification form <u>only</u> (no surcharge payment is required) for each waste shipment occurring between January 1, 1986 and February 28, 1986, inclusive, must be submitted to the Department of Ecology by May 10, 1986.

Pre-Notification Forms and instructions can be obtained by contacting the Washington State Department of Ecology at (206) 459-6670.

- All generators shipping directly to the disposal facility must complete an entire A-1 Pre-notification Form. This form and surcharge payments must be received by the Department of Ecology at the address listed in the instructions at least three (3) working days prior to the date of the shipment of the waste from the generator's facility.
- All generators shipping to brokers and/or other agents must also complete an A-1 Pre-notification Form, except for section (3). The completed form must accompany the waste shipment to the broker and/or other agent.
- All brokers and/or subsequent agents shipping wastermust complete a B-1 Prenotification Form as specified in the accompanying instructions, unless the waste is being shipped directly to a commercial low-level radioactive waste disposal facility other than the facility located near Richland, Washington. Brokers who ship directly to the disposal facility must submit a completed B-1 form, all pertinent A-1 generator forms, any other B-1 broker forms, and applicable surcharge payments to the Department of Ecology at least three (3) working days prior to the date of shipment from the broker's facility. Surcharge payments are based upon the actual waste volume disposed of at the facility. Thus, it is the responsibility of a broker and/or other agent to ensure that the total surcharge payment submitted to the Department for a given shipment is calculated appropriately (i.e. the total surcharge represents the sum of applicable surcharges based on the region of the waste's origin and the proportion of the respective waste in the shipment).

If a shipment of waste for which no Pre-notification Form and/or surcharge payment has been submitted to the Department of Ecology arrives at the disposal facility, it will be denied access to the facility. If, after the Pre-notification Form is submitted, it is determined by the generator or broker that the shipment will be other than that described on the form, the Department must be contacted. If upon its review, the Department discovers any problems with a Pre-notification Form and/or surcharge payment, the appropriate generator or broker will be contacted immediately.

SAMPLE FORMS (reduced from actual size)

Shipment Prenotification Form for Generators (A-1)

"Pre	-notification"
Cast	ier
Fisc	al Office
Depa	rtment of Ecology
St.	Martin's Campus
Mail	Stop PV-11
01 yı	pia, WA 98504
(206	459-6228

nipment:
Cu, ft.
shipment:
arrival:
-

(4) Does this shipment contain any commercial nuclear power reactor wasts? Yes\_\_\_\_\_ No\_\_\_\_. If yes, what is the volume of commercial nuclear power waste? \_\_\_\_\_ cu. ft.

(5) Was the waste in this shipment generated outside of the Morthwest Compact Region? Yes\_\_\_\_\_ No\_\_\_\_. If yes, complete the following table.

COMPUTATION OF SURCHARGE DUE					For WDOK Use Only		
Total Volume of Shipment (cy. ft.)	Applicable Surcharge (per cu. ft.)	Total Amount Due (Volume X per cu. ft. Surcharge)	Total Payment Enclosed*		Penalty Milestones Surcharge Access Met? Due Denied		
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		e a a com					

(6) Has the generator been granted emergency access by the US NRC for the disposal of any of the waste in this shipment? If yes, for what volume? \_\_\_\_\_\_cu. ft.

I certify that the information contained in this form is true and correct, to the best of my knowledge.

#### - -Authorized Signature

Contact

User Permit #\_\_\_\_ Shipment # (if used) \_\_\_\_

Manifest #\_\_\_\_

Phone

\* Checks should be made payable to the State of Washington.

\_\_\_Zip Code\_\_\_\_

(1) Broker Number

Broker Name

Address

City

State

Shipment Prenotification Form for Brokers (B-1)

Title

Date

March 10, 1986

(2) Total Volume of shipment: \_\_\_\_cu. ft.

(3) Estimated date of shipment:

Estimated date of arrival:

(4) In the following table, list all waste contained in this shipment (by generator) and compute surcharge due. Continue on other side, if necessary.

Compact Region\_\_\_\_\_

Ι	COMPUTATION OF SURCHARGE DUE						For WDOE Use Only			
		Locat	ion_of_Generator	Volume	Applicable Surcharge Including Penalty	Surcharge Due (Volume X	Milestones	Penalty Surcharge	Access	
l	Name of Generator	State	Compact Region	(cu. ft.)	(per_cu. ft.)	surcharge)	Het?	Due	Denied	
	• •	на страна 1970 г. – С		Subtotal Subtotal Subtotal from a TOTAL	from this side from other side dditional forms TOTAL ANOUNT DUE PATMENT ENCLOSED	*				

Authorized Signature

(

**Exchange** Publications

Date

Title

March 10, 1986

## <sup>the</sup> HLW Focus

of the Radioactive Exchange •

#### (Whither MRS? from pg. 1)

In any case under given Court timetables it would seem that the earliest DOE would be allowed to submit the proposal to Congress and hope for action is following the elections, in a "lame duck" session, or wait for the next Congress to convene next year.

A more optimistic scenario is, however, plausible. The Court order, though preventing DOE from submitting an MRS proposal, does not in any way hinder Congress from acting to approve an MRS in Tennessee or elsewhere in the U.S. This, however, requires a certain dedicated commitment to the MRS by key Congressional leaders. Again, in light of upcoming elections, where is this strong support going to come from? \*\*

#### HOUSE MEMBER CRITICAL OF HLW BUDGET SENATE APPROPRIATIONS NEUTRAL

While the Senate Appropriations' Subcommittee on Energy and Water's hearing on DOE's HLW budget request held on March 10 was almost entirely uneventful, that was not the case at an earlier House Appropriations Subcommittee hearing held on March 3. At the House hearing, Appropriations member Rep. Bill Boner (Tenn.) voiced strong objections to DOE's request for \$46 million for the proposed Monitored Retrievable Storage facility (MRS). After stating his outright opposition "to place an MRS in Tennessee or...anywhere else," he charged the Department of trying "end run the Court and Congress' own authorization procedures" in submitting the MRS appropriation request. DOE is currently prohibited from submitting the MRS proposal to Congress under an injunction issued by Judge Wisemann of the Federal District Court for the Tennessee

#### Middle District (EXCHANGE, Vol. 5, No. 2).

In his prepared statement he vowed "to fight to have any and all funds earmarked for MRS removed from the Appropriations bill," and to work toward having DOE complete "the permanent waste repository in time without the distraction of an MRS."

However, despite his vocal and strongly worded opposition, there appears to be no overwhelming support for withholding all of DOE's budget request to support MRS activities.

#### Senate Appropriations Neutral

The only criticism DOE heard at the respective Senate Appropriations Subcommittee hearing was from Senator Kasten of Wisconsin who objected to the fact that DOE's advertisement placed in Wisconsin papers announcing public hearings on the proposed second repository, made. **no** mention of nuclear waste disposal. No objection was raised regarding the requested funds for MRS activities. Neither Senator from Tennessee, Senator Sasser nor Senator Gore, attended the Subcommittee session. Senator Sasser is a member of the subcommittee. \*\*

#### P-A MOVES IN CONGRESS, EVANS SUPPORTS LIMITED LIABILITY FOR HLW ACTIVITIES

House and Senate Committees are moving on reauthorization of the Price-Anderson Act. The Senate Energy and Natural Resources Committee is to convene a second markup session on the McClure-Simpson bill, S 1225, on Wednesday, March 19 at 10:00 a.m. A full House Interior markup is tentatively scheduled for shortly after Congress' return from Easter Recess, and a Senate Environment and Public Works Committee Hearing is expected to be scheduled in early to mid-April.

The most significant development regarding the liability coverage of incidents related to HLW activities is a package of amendments put together by Senator Evans' staff that would provide Price-Anderson coverage for waste activities under the liability limits imposed for all nuclear reactor incidents. This is a distinct departure from his early support for language that would have provided unlimited liability coverage for waste-related incidents.

In lieu of pushing for unlimited liability provisions, the Senator is proposing an expedited process for Congressional consideration of claims for compensation for damages above the liability limits and also pressing to reduce the number of years Price-Anderson would be extended, in order to allow the states another opportunity to press the liability issue prior to the operation of the first repository.

#### New House Legislation

On the House side, Congressmen Swift and Morrison have introduced legislation proposing to establish a separate liability program for HLW activities. The bill introduced on March 12 as HR 4394, and developed after lengthy discussions with DOE and Washington State officials, does not refer to "unlimited liability" responsibility of the federal government, but instead requires "full compensation." This "full compensation" terminology is in line with current DOE thinking (See Wrap-Up in this issue).

One key element of this proposal is most assuredly going to be the most controversial. As proposed, the bill authorizes the Secretary of Energy to float bonds or to borrow the necessary funds to cover compensation claims for damages in excess of \$5 billion, prior to Congressional approval of funds to cover the loans. Compensation of claims of up to \$5 billion is proposed to be covered by the Nuclear Waste Trust Fund. Giving the Secretary such loan authority is similar to provisions in the Nuclear Waste Policy which allow the Secretary to borrow money to support HL. program activities if funds in the Nuclear Trust Fund fail to meet expenditures. The loans made under this authority are to be repaid by additional fee collections from the generators. However, the Nuclear limit Waste Act language does the obligations that can be incurred by the Secretary to amounts provided "in appropiations Acts" . The Swift-Morrison borrowing auythority includes no such language. \*\*

#### NEW SURVEY IN WASHINGTON STATE REVEALS OPPOSITION TO HLW REPOSITORY

According to a recent statewide survey of public attitudes undertaken by a Seattle newspaper, 69% of those surveyed oppose the location of a national nuclear waste repository at Hanford, Washington. While it has been presumed that there is more support for such a facility in the eastern part of the State, the survey showed little regional difference. Seventy percent of the respondents to the survey residing *i* western Washington opposed a repository, while only 18% supported it. In eastern Washington the percentage in favor was 19% and opposing was 67%.

Over two-thirds of the respondents indicated that they did not believe that highlevel nuclear waste can be safely stored using existing technology. In a related question, 54% were not confident that the existing wastes being stored at Hanford were being cared for in a safe manner. Fifty-five percent of those contacted felt that a nuclear repository would help the 16% state's economy. However, only agreed that rock formations at Hanford make it a safe site for a repository, while 50% felt that the rock would be unsafe. Transportation and waste leaks were listed as major problems by 72%, with earthquakes major concern by 63%. Thirty-nine а percent had a major concern that the wastes could be dug up and 35% felt that explosion was an important issue. \*\*

#### WASHINGTON ENVIRONMENTAL LEADER CRITICIZES WASTE OPPOSITION

Ruth Weiner, a long-time critic of the Department of Energy and its waste management program criticized some opponents of the repository program as those who simply wish to stop the use of nuclear energy and refuse to face up to a severe national problem. She indicated in her speech at Waste Management '86 that a number of anti-nuclear organizations had taken positions that no site could be supported for the permanent disposal of high-level wastes and spent fuel. The problem, she indicated, is that the environmental community has offered little in the way of alternatives.

Dr. Weiner, a professor of Environmental Studies at Western Washington University, has long been active in issues concerning nuclear waste. She was the author of Initiative 383, adopted by voters in the fall of 1980, to prohibit importation of nuclear wastes into the state. (The initiative was later overturned in court.) She is currently chairman of the Cascade Chapter of the Sierra Club's Energy Committee. She indicated that the obstructionist strategy made sense at the time federal officials and others were ignoring the concerns of the states and the public, but the Nuclear Waste Policy Act requires involvement and provides opportunities that were missing in the past. \*\*

#### ENVIRONMENTAL COALITION FILES SUIT AGAINST DEPARTMENT OF ENERGY

The Northwest Inland Waters Coalition, a group of anti-nuclear organizations, have sued the Department of Energy (DOE) in an attempt to block shipment of spent fuel from Taiwan through Washington state waters. In an earlier plan, DOE had proposed making shipments to Seattle, offloading, and then sending the spent fuel by truck to South Carolina. Current plans call for the material to go to Long Beach, California for offloading for continuing over-land shipment.

The problem, as those filing suit see it, is that the ships would stop in the Seattle port for discharge of other cargo before continuing on. The suit charges that DOE failed to prepare an environmental impact statement exploring new risks inherent in the shipping proposal. \*\*

#### **REPORTS OF NOTE (HLW)**

**Overview of Decision-Aiding Methodology;** The Department of Energy, Office of Civilian Radioactive Waste Management (OCRWM) has compiled a non-technical overview of Multiple Attribute Utility Analysis. As noted in the introduction, it does not cover "all the detailed methodology as applied to the siting problem, especially with regard to post-closure analysis. It is instead intended to be a brief procedural guide." (Eleven pages, Available from OCRWM, call (202) 257-2835.)

Annual Report (FY 84-85) on Battelle's Office of Nuclear Waste Isolation and Salt Repository Program, Available from the Program Review Committee; Battelle Project Management Division, 505 King Avenue, Columbus, OH 43201-2693.

**Evaluation of Regulatory Guides Potentially Useful to Geological Repository Development;** (BMI/ONWI-588); Wallace Y. Chang, Ebasco; prepared for Office of Nuclear Waste Isolation, Battelle Memorial Institute, 505 King Avenue, Columbus, OH 43201-2693; This information report provides a summary screening of NRC regulatory guides published as of September 1983 and provides an initial assessment of the potential usefulness of these regulatory guides to repository design and operation activities.

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#### WASTE MANAGEMENT '86.....OBSERVATIONS....HLW PAPERS, DISCUSSIONS, ETC...

#### Overview

Though the discussions on high level nuclear waste issues at Waste Management '86 were not as intense as they would have been if Office of Civilian Radioactive Waste Management (OCRWM). Director Ben Rusche and his Associate directors had participated as planned, there were a sufficient number of significant issues raised in the formal sessions, and in the corridors to make this year's annual Tucson event another beneficial "get together" among all parties interested, involved and concerned about the national high-level waste program.

First of all, this year's session attracted a healthy mix of utility personnel, key state officials, congressional staff and enough senior DOE program and regional operations managers, in addition to the usual contingent of consultants and national laboratory staff, to allow a healthy interaction on a number of key programmatic issues. The scheduling of some of the HLW sessions concurrently, did cause concern among several participants, but the out-in-the corridor discussions on the MRS, defense HLW waste fee contributions, DOE management of the program and the continual informal interactions among contractors and state officials and DOE operations level staff seemed to offset the inability to be in two or three places at one time.

Congressman Morris Udall's keynote address was a highlight, not so much because he raised any new issues, but because of his expressed intent and continued support of the program and his neutral to non-opposition remarks on the MRS.

DOE's Roger Gale's comments that states are involved (litigation, opposition, etc.) in the HLW program but not as participants perked up the state officials in attendance. In their view the statement reinforced their own prevailing perception that DOE did not want to treat the state' as participants in the program, as the Nuclear Waste Policy Act (NWPA) intended. Other panels- and discussions throughout the first two days of this year's session evoked interesting discussions. Our perceptions of some of the interesting presentations and discussions follows.

#### Congressman Udall's Remarks

In his remarks opening Waste Management '86, Representative Mo Udall affirmed his support for the high level waste site selection process, and urged the Congress to resist any proposals to exempt any individual states from consideration. He deplored the recent spate of "not in my backyard" reactions from Congressmen representing second tier crystalline repository states. While noting that a second repository was not yet authorized, he pointed out the basic unfairness of disposing all waste in the West while the East generates 90% of it. Emphasizing that an MRS facility was still an open question, Mr. Udall explained that the recent action to strike \$46 million for MRS from the 1987 budget was based on budget -- not MRS -considerations. He added that DOE still needs to make the case for the MRS as a transportation hub for an integrated HLW system.

The Interior Chairman closed his remarks cautioning that the fight to renew **Price-Anderson** may not be able to bear the burden of additional provisions to establish liability coverage for the high level waste repository program. He left open the possibility of considering a more comprehensive strict liability scheme in the future.

#### General HLW Issues

**State/DOE Relationship** Senate Energy and Natural Resource Staff, K. P. Lao, speaking c behalf of Senator Pete Domenici, expressed disappointment with the status of the consultation

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agreements between DOE and the states on high-level waste repository siting. Openly wondering if it was niave to involve states as full partners in a "decision of this magnitude," Lao noted that with the exception of Washington and two Tribes, other parties appeared to be leaving unresolved questions to the Courts. Lao indicated that Congress will be taking a close look at the status of state participation in the future, and urged all involved parties to "get on with the repository in good faith."

In response to Mr. Lao's remarks, **Terry Husseman**, Director of the **State of Washington's** HLW program, recommended a series of actions to reduce "serious disagreements" between DOE and the states regarding the repository siting process. HLW Program Director Husseman called for greater commitment by DOE and its contractors to "quality and patience." He specifically recommended that DOE:

- Set realistic siting schedules that would allow thorough scientific analysis, and recognize that there is no compelling reason to meet the 1998 date;
- o Ensure that three viable sites remain at the end of the site characterization phase, even if this requires partially characterizing and later dropping another site;
- o Identify meaningful site selection criteria and provide for adequate participation in gathering and evaluating characterization data;
- o Solicit an independent third-party review of the site ranking methodology; and,
- o Work with the states and tribes to reduce liability issues.

Husseman indicated liability should extend to full compensation for injuries, and that states and Indian Tribes should be held harmless from all HLW incidents.

**General Critiques** Edwyna G. Anderson, a Commissioner on the Michigan Public Service Commission and Chair of the National Association of Regulatory Utility Commissioners' (NARUC) Nuclear Waste Subcommittee, expressed concern over the expenditures of funds from the Nuclear Waste Trust Fund for outside consultants, including monies provided to states. She emphasized that the ratepayers are the source of money to support the HLW program **not** the utilities, and that the states' utility commissioners must "assure ratepayers within [their] regulatory jurisdictions that their funds are being utilized wisely." She expressed concern over several critical issues:

- o DOE's current use of the Energy Information Agency's (EIA) "mid-case" estimate for the production of electricity by nuclear power plants, in order to project the revenues that would be accrued in the Nuclear Trust Fund over time. The EIA estimate projects a substantial increase in the nuclear growth curve, while in a no-new order scenario NARUC foresees a possible fee shortfall of several billion dollars.
- If nuclear power generation does proceed at a much lower rate than projected by EIA and extended fuel burnup practices grow, the spent fuel inventory could be as low as 80-85,000 MTU, and thus preclude the need to build a second repository.
- o The continued inability of DOE to meet program milestones. She pointed out that predicted date for submission of HLW site recommendations to Congress has been slipped nine months over the last 14 calendar months.

She also expressed dismay over the closed negotiations between DOE Defense programs and DOE-OCRWM regarding Defense's contribution to the HLW fund. She was strongly supported on this point by James R. Tomonto, a senior consultant at Florida Power and Light.

On the subject of **defense waste** at the commercial repository, Mr. Tomonto reemphasized the concerns of the utilities expressed in previous forums. He remarked that according to the analysis carried out for the utilities, "defense waste should bear about one-third the cost of the geologic repository program." An option that should be considered, in his view, "is the dedicated use of the first repository for civilian spent fuel and dedicated use of the second for defense and civilian waste (if necessary)."

One of the more interesting, not so tongue-in-cheek proposals, to clarify current ambiguities regarding Congressional intent on HLW siting policy (namely the timing of the preliminary determination of suitability) came from Tom Cotton, formerly with the Congressional Office of Technology Assessment, and now with J. K. Associates. He pointed out that if DOE's stated policy to make the preliminary determination of suitability prior to site characterization is challenged in Court following the completion of site characterization, with one or more of the initially recommended sites being found unsuitable, and DOE's policy is not upheld, then delays of several years could result, depending on how the court renders its opinion. To avoid facing the possibility of this costly delay in the future, Mr. Cotton commented, only half facetiously, "that lacking Congressional interest in resolving the issue" DOE "should sue itself to force a judicial interpretation" on this policy issue.

There were a couple of other presentations dealing with the **litigative aspects of the HLW program.** In one, Mr. Manning Muntzing of Doub and Muntzing, presented options that should be considered to minimize possible litigation. In his remarks he cites the current litigation in the Ninth Circuit Court of Appeals over the HLW siting guidelines as perhaps the most critical challenge to DOE's program. If DOE's action is not upheld by the Court in this case he foresees DOE possibly being "forced to rewrite the guidelines and re-analyze all potentially acceptable sites." If, however, DOE's position is upheld, the resulting Court decision could establish "that judicial review of [DOE's] decisions should be limited to the nomination and recommendation steps... where judicial review is specifically limited by the Nuclear Waste Policy Act to the adequacy of the environmental assessment or the environmental impact-statement." This would significantly limit future litigation.

He pointed out that the execution of "consultation and cooperation" agreements with the states and tribes could limit possible litigation and mentioned the possibility of using arbitration, a DOE appeal process, or an independent panel of experts to resolve disputes as other means of avoiding law suits. Another way to limit litigation, he said, was "not to permit the use of money from the waste fund for the financing of legal expenses."

There was some corridor discussion and at least one presentation on the definition of HLW. (Look for further discussion of this in upcoming issues of THE EXCHANGE.) What is apparent, is that the technical community and research groups are not in agreement on any one approach.

On the issue of **regional equity** on the location of HLW facilities, one foreign speaker criticized the U.S. program for allowing politics to play a role in what should be a technical decisionmaking process to find the most suitable sites.

Though there was most assuredly a lot of out-in-the corridor discussion critiquing the DOE-HLW effort from various vantage points, one of the more critical discussions occurred at an **American Nuclear Society** subcommittee session where a proposed ANS **policy position** critical of DOE's management of the HLW program was debated. The proposed position, as discussed, faults DOE for overall system management; urges that DOE step back and consider each program component in light of the total back end fuel cycle including: at-reactor fuel management, transportation, interim storage or processing, and repository surge storage, operation, emplacement, retrieval and/or closure; and that each data collection activity be weighed against the licensing need for those data.

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On the last recommendation the proposed position cautions that every corporation, researcher, lab, and university performing NWPA program activities has a financial vested interest in maximizing their own activities.

**On the MRS** Tom Cotton, who had to switch between concurrent sessions, presented previously stated views on possible benefits and disadvantages of the the MRS. He is of the opinion that consideration of the MRS by Congress, and the manner in which the first decision is made, could be useful in clarifying several aspects of the HLW effort.

Officials from the State of Tennessee restated their findings that lead to their opposition to the MRS. They explained that their analysis found that:

- DOE's waste projections were too high, its projections of supplementary storage capacity at reactor sites were too low, and their expectations about extended burnup, transshipment and in-pool consolidation to be far too pessimistic.
- All of the transportation benefits claimed for an MRS -- e.g., fewer shipments, shorter trips, fewer shipment-miles, cask-miles and less radiological risk -- could be provided by improving transportation equipment and logistics -- with or without an MRS.
- o An MRS is not cheap. The state concluded that DOE had underestimated costs and overstated benefits. The state calculated that the net cost of adding an MRS to the waste system would be \$2.2 to \$2.8 billion -- about \$1 billion higher than DOE estimates. The calculated benefit:cost ration is 1:4.

A paper given by M.B. Triplett of Battelle's Pacific Northwest laboratory (BNL), touting the **"need and feasibility of the MRS"**, spelled out potential cost savings that could be accrued by utilities if the MRS is constructed. According to the BNL study, the MRS could reduce utility spent fuel storage costs by \$150-\$450 million with an assumed start-up of 1998. The analysis found that the incremental cost of spent fuel storage at the MRS facility would be \$35 to \$40 per kilogram while "utilities' unit cost...beyond the capacity they can attain with maximum reracking of existing storage pools could range from \$40 to \$100 per kilogram."

#### **REPORTS OF NOTE (HLW)**

Schmatic Designs for Penetration Seals for a Repository in the Permian Basin (BMI/ONWI-564) Office of Nuclear Waste Isolation, Battelle Memorial Institute, 505 King Avenue, Columbus, OH 43201-2693. The isolation of radioactive wastes in geologic repositories requires that human-made penetrations such as shafts, tunnels, or boreholes are adequately sealed. This report describes schematic seal designs for a repository in bedded salt referenced to the stratigraphy of the Permian Basin. The designs are presented for extensive peer review and will be updated as conceptual designs if the Permian Basin is selected as a candidate repository site. Available from NTIS, US Department of Commerce, 5285 Port Royal Road, Springfield, VA, 22161.

**Near-Term Public Information Products Program FY 86-87;** (DOE/RW-0052) U.S. Department of Energy, Office of Civilian Radioactive Waste Management (OCRWM), Washington, D.C. 20585. A report of the Near-Term Public Information Products Program developed by OCRWM's Outreach Products Committee. This document contains a comprehensive listing of 65 OCRWM public information printed products and instructions for implementing a near-term, 18 month program. The program as explained in the report includes near-term information product requirements, a methodology for timely product development and distribution, and a means to measure arogress. These will provide a framework for development of future products.

#### IN THE OCRWM

HLW Financial Assistance Guidelines. Civilian Office of Radioactive Waste Management staff reports that proposed revisions to financial assistance guidelines to govern grants provided to states and Indian Tribes will be released very soon. The expectation is the issuance will be in the form of a formal rulemaking with proposed guidelines "being released for comment and review" for limited period of time.

The revised proposal will differ significantly from the interim guidance memo forwarded earlier to DOE Operations offices under OCRWM Director Rusche's signature. It is expected to provide specific details on the grant decisionmaking process; outline a specific process to appeal DOE decisions; and, provide a proposed policy regarding the standing of states or Indian Tribes seeking financial assistance to study the impacts of the transport of HLW.

On a directly related matter, Nevada's refiling in the US Court of Appeals of the Ninth Circuit (EXCHANGE, Vol. 5, No.2) requesting that DOE act to comply with that Court's earlier ruling directing DOE to provide the requested financial assistance for Nevada's proposed activities was turned down. In rejecting Nevada's request to have DOE release the funds as per the earlier Court Order, the Court upheld the DOE interpretation of the earlier Order, not Nevada's, but also directed DOE to provide a much broader interpretation of financial assistance in the revised guidelines. Though, in the refiling Nevada had requested that DOE also provide funds to support Nevada's litigation efforts regarding the proposed HLW repository in the state, the Court took no action on this issue.

Following the Court ruling the DOE Nevada Operations Office and Nevada State officials reached a preliminary agreement for providing funds to support most of the state's HLW oversight activities that were the subject of the litigation. DOE headquarters, however, is still reviewing the preliminary agreement and is negotiating directly with state officials.

HLW Liability The research report that OCRWM Director Rusche committed to into provide Congress order with some quantitative data on the possible liability that could be associated with an accident at a HLW repository (EXCHANGE, Vol. 4, No. 20) will not be completed until the end of the year. OCRWM staff reported that the objective of the effort will not be to come up with a recommended cap on liability for a HLW repository, but to identify and quantify risk assessments that have already been completed, and come up with a probabilistic approach regarding the type of accidents that could occur and related possible Brookhaven National Labconsequences. oratory is principally responsible for the work.

OCRWM staff emphasized that DOE's position on HLW liability is to include coverage the Price-Anderson scheme as within proposed by McClure-Simpson. In lieu of unlimited liability, DOE-OCRWM supports "full compensation" for damages up to a ceiling of somewhere between \$2-\$3 billion, which would then trigger a Congressional decisionmaking process to authorize furthercoverage. As currently envisioned by DOE, the Congressional approval process would be structured to make it very difficult for Congress to reject a request for additional funds, over the ceiling, in order to cover documented damages incurred because of a HLW incident.

**Project Decision Timetable:** The HLW program project decision timetable is going through the final round of concurrences within OCRWM management. It is scheduled for release by March 31.

**Defense HLW Fee:** The Office of Management and Budget (OMB) has again requested more information from OCRWM regarding the recommended Defense Programs' contribution to the Nuclear Waste Trust Fund.

#### IN THE INDUSTRY

Two new-design rail shipping casks will soon be moving the Three Mile Island Unit 2 research and cleanup project another st

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closer to completion. Idaho National Engineering Laboratory representatives accepted the first of the new casks in Seattle in December, marking a key project milestone for the Department of Energy. In January the first cask arrived at the INEL for a dry run of cask handling operations.

The casks, designed and fabricated by **Nuclear Packaging, Inc.,** are the only double-containment spent fuel shipping casks in the industry. They were specifically designed to transport the TMI-2 core rubble, contained in fuel canisters, from TMI to the INEL. The casks can hold seven canisters each and will be delivered on special, heavy-duty railcars. Between 34 and 40 cask shipments are expected to be required.

The licensing process with the NRC is currently underway. Early reviews with the NRC led to entering into extensive test programs to qualify design features of the cask and defueling canisters. A program of 1/4 scale cask drop tests was performed at the Transportation Technology Center at Sandia National Laboratory. Canister testing was accomplished at Oak Ridge National Laboratory, the Hanford facility, the INEL and other laboratories.

Fuel shipments from TMI are scheduled to begin in June and will continue for about two years. Through its TMI Accident Evaluation Program, the INEL will gather and analyze data on core debris and components to provide a complete understanding of the TMI-2 accident sequence and a better understanding of nuclear fuel behavior during severe reactor accidents.

Spain has signed an agreement with Battelle's Pacific Northwest Laboratories to evaluate their options for temporarily storing used nuclear fuels. The comparative study is the result of a contract signed between Battelle and the Empresa Nacional de Residuos Radioactivos, S.A. (ENRESA). ENRESA is the government organization responsible for Spain's radioactive waste management programs. The study will analyze used fuel storage options available to Spain, provide an estimate of the costs associated with each option, evaluate other considerations such as licensing and transportation, and present recommendations for a prefered storage system. The Spanish government is currently working with utilities to create additional temporary spent fuel storage facilities until a permanent repository is completed. The Spanish Government is planning to have a final disposal site for spent fuel available by the year 2013. However, several utilities will exhaust their existing storage space by 1993.

E.R. Johnson Associates, Inc., of Washington, D.C., is providing technical support to Battelle on a subcontract basis.

#### SHORT COURSE

A short course on the safety of high-level waste repositories will be presented by Disposal Safety Incorporated on October 27 to 29, 1986. This is the fourth annual presentation of this course, which provides an overview of the factors which can affect repository safety, the methods used to evaluate them, and the legal framework in which decisions about repository safety are Topics to be covered include to be made. scenarios for waste release, assessment of the magnitude and consequences of possible releases, and the legal and regulatory framework for making decisions about repository safety. The course will include "hands-on" training in simplified methods of performance assessment using pocket calculators.

The course faculty includes Benjamin Ross of Disposal Safety Incorporated, Michael Bauser of Newman & Holtzinger, and Charles Faust of GeoTrans, Inc. In addition, Norman Eisenberg of the U.S. Department of Energy will explain the department's plans for using performance assessment in developing a repository. It will be taught at the Hyatt Regency Bethesda hotel in suburban Washington.

Bethesda hotel in suburban Washington, D.C., October 27 to 29. A fee of \$575 will be charged. For more information contact Disposal Safety Incorporated, 1211 Connecticut Ave., N.W., Suite 610, Washington, D.C. 20036, or call (202) 293-3993.

#### A RESPECTED RADWASTE ENGINEER....

On January 14, 1986, Dr. Arthur Stock, founder of the Stock Equipment Company passed away. He had retired from the company in 1980 when it was sold to General Signal Corporation. Dr. Stock had graduated from the University of Michigan with a BS degree in Mechanical Engineering and attended the Graduate School of Business at Harvard. After several years of consulting on problems of machine design he formed his own firm, Stock Engineering Company in October of 1929. In 1950 it was renamed Stock Equipment Company.

His work as a consultant brought him into contact with the electrical utilities where he discovered the need for a valve which could be closed through a standing column of coal. It was then that he designed and built the valve which has become the standard of that industry. During the 1930's Mr. Stock was foresaw the necessity of closely controlling the delivery of coal to achieve maximum boiler efficiency. He built an automatic coal scale and later a coal feeder for highly accurate continuous weighing. These machines are still used today by more utilities than any other.

Mr. Stock anticipated the arrival of nuclear power generation and problems associated with handling radioactive waste materials. His contribution to this technology was a radwaste system which stabilized low-level radioactive waste disposal with zero operator exposure. Dr. Stock held 40 U.S. patents and 33 foreign patents for Stock Equipment Company. He was a registered professional mechanical and electrical engineer, a life member of the Cleveland Engineering Society, and a Fellow at the American Society of Mechanical Engineers.

#### A FRIEND AND COLLEAGUE...

The nuclear waste community suffered a tragic personal and professional loss with the untimely death of Ludwig Anselmini on February 14, 1986.

Lud was a Senior Staff Biologist with the Regulatory Affairs Organization of the Public Service Electric and Gas Company in New Jersey.

Lud had been involved in industry low-level waste efforts since the earliest days of compacting efforts. He served on the New Jersey Nuclear Waste Advisory Committee, the New Jersey Business and Industry Subcommittee on Nuclear Waste, the EEI Low-Level Waste Subcommittee and NELRAD. But any such list of affiliations cannot begin to describe what Lud contributed to our community through his wisdom, wit, perserverance, and, most of all, his friendship. He was always the person pushing to move forward on issues which were difficult, at best, to resolve. His passing leaves an empty space in the lives of all who knew him.

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