

Approved _____

Date

3/3/87

MINUTES OF THE SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES

The meeting was called to order by Senator Merrill Werts at _____
Chairperson

8:00 a.m. ~~XXX~~ on February 26, 1987 in room 123-S of the Capitol.

All members were present except:
Senator Eric Yost
Senator Dan Thiessen

Committee staff present:
Ramon Powers - Research
Don Hayward - Revisor
Nancy Jones - Secretary

Conferees appearing before the committee:
Senator Phil Martin
Senator Paul Feleciano
Laura Menhusen, President, North Central Kansas Citizens
Marsha Marshall, Kansas Natural Resource Council
Greg Hattan, City Commission, Concordia, KS.
Dr. Robin Hood, Concordia, KS
Shaun McGrath, Sierra Club
John McClure, Glen Elder, KS
Bob Eye, Attorney, Nuclear Awareness Network
Robert Clack, Manhattan, KS
David Ebbert, Quinter, KS
O.B. Smith, (Jim Nelson), Beloit, KS.

SB 114 - Concerning low level radioactive waste

Chairman Werts briefly explained the issues which are being considered and those that are not addressed in this legislation.

Senator Martin, principal sponsor of SB 114, considers this one of the most important pieces of legislation this session and believes an independent course on nuclear waste disposal should be taken by withdrawing from the compact. A primary concern is the possibility of Kansas becoming a national dump for high level nuclear waste. Senator Martin requested that discussion be held on a plan proposed by Robert Clack regarding pursuit of a high level waste repository for Kansas along with a Super Collider. (Attachment A)

Senator Feleciano, co-sponsor of SB 114, voiced the importance of indepth discussion by committee members on the legislation. Senator Feleciano stated he has visited with the Assistant Attorney General numerous times regarding legal and fiscal ramifications of this legislation and possible alternatives. Colleagues are concerned that all information is not made available to discuss this issue intelligently. There is a potential of an adverse impact on one-half of the state as 15 to 20 counties are being considered as designated dump areas under Compact. Contacts made by Senator Feleciano indicate North Dakota and South Dakota would be willing to discuss nuclear waste disposal plans as an alternative to the present Compact. It is felt the Kansas Governor needs to take the lead in determining continued membership in the Compact.

Shaun McGrath discussed the history of other states withdrawing from compact agreements. Remaining in the Compact almost assures Kansas will be the host site and better alternatives can be found. (Attachment B)

Marsha Marshall stated although the Natural Resource Council supported membership in the Compact in 1982, withdrawal is now urged. Inconsistencies and irregularities exist regarding authority exercised by developers. State liability and lack of state control are two dangerous consequences of remaining in the compact. (Attachment C)

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES,
room 123-S, Statehouse, at 8:00 a.m./^{XX}p.m. on February 26, 1987

Laura Menhusen questioned the fairness of Oklahoma, the largest producer of low level radioactive waste in the Compact, having no designated dump site and also that contractors would be making their own site selections. It is felt a Kansas owned, operated, licensed and monitored facility is the best protection of our environmental future. (Attachment D).

Bob Eye addressed the legal ramification of withdrawal from the Compact and the state's responsibility thereafter for disposal of radioactive waste. The federal act does not directly address the constitutional question of whether a state can embargo out-of-state waste for disposal; however, brief legislative histories support this right if Kansas should pursue a single state option. (Attachment E).

Robert Clack testified that he is fundamentally opposed to trench type burial or landfill type disposals. Any errors and failure which develop in a landfill type facility are essentially uncorrectable. He further stated if the Compact does not authorize above-ground accountable storage, he would strongly oppose membership in the Compact. (Attachment F)

Greg Hattan testified as representing the City of Concordia and addressed three specific concerns: Questionable economic development opportunities, criteria for the host state selection and lack of public input. He further stated job opportunities will be minimal, cheap technology might be a primary consideration over safety and the public continues to be uninformed. (Attachment G)

Robin Hood stated his biggest concern is the loss of property value due to water contamination. This is an issue not addressed in site selection by contractors. (Attachment H).

John McClure urged withdrawal from the Compact to give Kansas control over site selection technology as developers interest is divided between safety concerns and providing a profit. By remaining in the Compact the state runs the risk of future health problems and huge cleanup costs. (Attachment I)

David Ebbert stated there has been no demonstration of permanent safe containment of radioactive waste. Kansas should retain the power to choose disposal and protection methods. Rational management of disposal can be accomplished by the state along with development of alternatives.

O.B. Smith (Jim Nelson) stated a concern in being able to market food, fiber and livestock produced in the vicinity of a disposal site. Mr. Smith also sees the possibility of a land scandal similar to occurrences in other states.

Meeting adjourned. The next meeting will be February 27, 1987.

Sierra Energy 2-25-87
Guest List

~~Ed Clark~~ ~~Paul Stace~~

Gregory J. Hattan
John D. McClure

City of Concordia
Glen Elder

Faye Campbell

Beloit

Bly de Nelson
R.P. Hood

Beloit

Concordia, Food Development
KS

Ed Reinert

KS League Women Voters

James Power

KDHE

Shelley Sutton

Ks. Eng. Society

Rick Fisher

Rhul Martins Office

Maribel Clark

LEAC

JERRY Coors

KGE

Charity F. Jordan

Beloit, KS

Ken Hobbs

Beloit/KS

Laura & Paul

Jewell KS

Louise Park

Mankato, KS

Brona Emyert

Mankato, KS

Mark McInnis

Beloit

Harold L. Spiker

KDHE

Mary E. Thompson

KDHE

O B Smith

Dispatch

Cliff Campbell

Seq.

Rex Buchanan

Ks. Geological Survey

Roy G. Johnson

KUMC

Michael O'Keefe

KUMC

Hispeth Byer

KNRC

Shaun McGrath

Sierra Club

STATE OF KANSAS



TOPEKA

SENATE CHAMBER

PHIL MARTIN
SENATOR, THIRTEENTH DISTRICT
CRAWFORD AND CHEROKEE COUNTIES
TOPEKA OFFICE
ROOM 504-N
STATE CAPITOL BUILDING
TOPEKA, KANSAS 66612-1565
(913) 296-7370

COMMITTEE ASSIGNMENTS
MEMBER: ENERGY AND NATURAL RESOURCES
ELECTIONS
FEDERAL AND STATE AFFAIRS
TRANSPORTATION AND UTILITIES

STATEMENT ON SB114 BY SEN. PHIL MARTIN
SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES
THURSDAY, FEBRUARY 26, 1987

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, I APPRECIATE THIS OPPORTUNITY TO TESTIFY ON SENATE BILL 114---WHICH ADDRESSES ONE OF THE MOST CRITICAL ISSUES FACED BY THE 1987 LEGISLATURE.

I CONSIDER SENATE BILL 114 TO BE ONE OF THE MOST IMPORTANT PIECES OF LEGISLATION INTRODUCED THIS YEAR. AS YOU ALL KNOW, THE BILL SIMPLY WITHDRAWS KANSAS FROM THE INTERSTATE COMPACT ON NUCLEAR WASTE.

NO DECISION MADE BY THE 1987 LEGISLATURE WILL HAVE MORE CONSEQUENCES FOR OUR STATE---AND THE GENERATIONS OF KANSANS YET TO COME---THAN WHAT WE DECIDE THIS YEAR ON SENATE BILL 114. AND, MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, DECIDE THIS YEAR WE MUST.

AS YOU'RE AWARE, THIS IS THE LAST YEAR ALLOWED UNDER FEDERAL GUIDELINES FOR WITHDRAWAL FROM THE COMPACT. WHEN WE INTRODUCED THE BILL, THE BASIC QUESTION FACED BY KANSAS WAS WHETHER WE WANTED TO STAY IN THE COMPACT AND TAKE NUCLEAR WASTE FROM FOUR OTHER STATES--OR PULL OUT AND JUST TAKE CARE OF OUR OWN.

FRANKLY, MANY PEOPLE IN KANSAS BELIEVE--AND I AGREE--THAT TAKING AN INDEPENDENT COURSE ON NUCLEAR WASTE DISPOSAL---TAKING CARE OF OUR OWN PROBLEMS--IS THE BEST WAY TO GO.

BUT THE REAL QUESTION FACED BY THIS COMMITTEE--AND THE LEGISLATURE --ISN'T WHETHER KANSAS ENDS UP TAKING LOW-LEVEL NUCLEAR WASTE FROM FOUR OTHER STATES. THE REAL QUESTION IS WHETHER WE END UP BEING USED AS THE HIGH-LEVEL NUCLEAR DUMP FOR 49 OTHER STATES.

I SAY THIS FOR ONE REASON. ALTHOUGH THE ORIGINAL DECISION TO JOIN THE COMPACT MIGHT HAVE SEEMED REASONABLE IN 1982, IT'S NOW BECOMING ABSOLUTELY CLEAR THAT KEEPING KANSAS IN THE LOW-LEVEL COMPACT IS JUST A BACKDOOR METHOD FOR THE NUCLEAR INDUSTRY TO BRING THE NATIONAL HIGH-LEVEL WASTE DUMP TO KANSAS.

A
Energy
2-25-87

MR. CHAIRMAN, MEMBERS OF COMMITTEE, I HAVE HANDED OUT A RECENT ARTICLE BY MR. LEW FERGUSON CONCERNING A PROPOSAL BY A FORMER KANSAS STATE UNIVERSITY PROFESSOR FOR KANSAS TO ACCEPT 49 OTHER STATES' HIGH-LEVEL NUCLEAR WASTE IN EXCHANGE FOR THE PROPOSED SUPER-COLLIDER.

PROFESSOR ROBERT W. CLACK, A FORMER PROFESSOR OF NUCLEAR ENGINEERING, HAS PROPOSED A FIVE-STEP PLAN TO GET THE SUPER-COLLIDER. STEP FIVE IS LOCATING THE SUPER-COLLIDER IN OUR STATE. STEPS ONE THROUGH FOUR CONSIST OF BUILDING LARGER AND LARGER DUMPS FOR BOTH LOW- AND HIGH-LEVEL RADIOACTIVE WASTE. HE SAYS THESE DUMPS WOULD BE "A HIGHLY-LUCRATIVE TRADEOFF" FOR KANSAS.

PROFESSOR CLACK DOESN'T SAY JUST WHERE IN KANSAS HE PROPOSES TO BUILD THESE NUCLEAR DUMPS. NOR DOES HE SAY HOW MUCH PUBLIC MONEY WILL BE NEEDED. I DON'T KNOW IF PROFESSOR CLACK IS SERIOUS---BUT I THINK HE IS.

PROFESSOR CLACK OBVIOUSLY KNOWS A LOT ABOUT BOTH THE LOW-LEVEL COMPACT AND THE FEDERAL GOVERNMENT'S SEARCH FOR A NATIONAL DUMPSITE FOR HIGH-LEVEL NUCLEAR WASTES. MR. CHAIRMAN, BEFORE WE TAKE ACTION ON SENATE BILL 114, I REQUEST THAT YOU INVITE PROFESSOR CLACK TO COME AND EXPLAIN THE ADVANTAGES--IN HIS OPINION--OF BUILDING THE COUNTRY'S LARGEST HIGH-LEVEL DUMP IN KANSAS.

I THINK HIS INPUT IS NEEDED BEFORE THIS COMMITTEE---AND THE FULL SENATE---TAKE FINAL ACTION ON SENATE BILL 114. IF STAYING IN THE LOW-LEVEL COMPACT MEANS KANSAS BECOMES A HIGH-LEVEL DUMP, THEN WE ALL SHOULD BE CLEAR ON JUST WHAT OUR DECISION ON THIS BILL MEANS FOR KANSAS. THANK YOU VERY MUCH.

Kansas' plan ties Super Collider to nuclear waste storage

By LEW FERGUSON
Associated Press Writer

TOPEKA — Government and business officials are intrigued by the prospect of the state landing the nation's Superconducting Super Collider, and a former Kansas State University nuclear engineering professor has a plan for luring the economic bonanza to Kansas.

Gov. Mike Hayden hopes to develop a state strategy for winning the battle for the SSC, as it is called in government jargon, when he meets with members of the Kansas congressional delegation Tuesday in Washington.

The governor got an earful on what that strategy should be when Robert W. Clack came calling a week ago.

Clack taught nuclear engineering at KSU from 1955 to 1976, when he retired to his ranch three miles west of Manhattan. He ran for governor in 1974, finishing last in a four-man primary field seeking the Republican nomination.

In the decade since his unsuccessful bid for public office, Clack has not lost his interest in politics or public affairs.

That is why he began publishing in January a monthly essay paper called, "The Kansas Intelligencer." He uses it as an outlet for his conservative political views and to stimulate discussion on public issues.

Clack also has developed a plan he hopes Kansas will use to attract the SSC to this state — a plan he believes could win for Kansas what he

regards as the biggest economic development prize of the 20th century.

He envisions Kansas becoming home to the nation's major radioactive waste repository, in return for being awarded the SSC. Clack sees it as a fair and highly-lucrative tradeoff for Kansas.

The SSC is a proposed scientific project for the study of fundamental physics. The federal government announced in late January it plans to proceed with the project, and about 40 states are expected to bid for it.

As scientists envision it, the instrument would consist of a buried tunnel, approximately 17 miles in diameter. Inside it, two proton beams would be made to collide, thus the term "Super

Collider." The collision of the two beams, scientists say, would produce matter which could be studied to achieve a much deeper understanding of the fundamental laws of matter.

As planned by federal scientists, the project would cost \$4 billion to build and would employ 2,500 permanent workers — a significant economic infusion for any state.

Kansas has done the preliminary research to position itself to bid for the project, according to Commerce Secretary Harland Priddle. Hayden hopes to enlist the support of the state's congressional delegation to enhance Kansas' chances of being invited to submit a plan to the federal Department of Energy.

Continued on page 14

GOOD MORNING! SUNDAY'S FORECAST: PARTLY SUNNY WITH A HIGH IN THE MID TO UPPER 40s

A
2-26-87

Nuclear plan

Continued from page 1.

That's where Clack comes in.

The former nuclear engineer thinks Kansas can improve its chances of winning the SSC if it is willing to become host to the nation's high-level nuclear waste repository.

He admits it will take a big, big selling job, because of a public perception that such a waste dump cannot possibly be made safe for Kansans.

Not only would the repository be safe, but it could double the economic impact of the Superconducting Super Collider, Clack argues.

"We would insure that it was strictly above-ground storage — no burial of wastes — and that the project was reversible and the waste was retrievable if anything happened."

Here is Clack's plan:

— Have Kansas establish a demonstration facility for long term storage of low-level radioactive wastes, and operate it for about two years to prove its reliability. It would be an above-ground, reversible facility with retrievability.

— Next, establish a demonstration storage facility for civilian power reactor fuel elements, also above-ground.

Both demonstration facilities could be developed and operated by the KSU nuclear engineering department, Clack says.

— After about three years of successful operation of the low-level waste demonstration facility, establish an industrial-sized low-level waste storage facility to accept either Kansas wastes or those from all five states in the Central Interstate Low-Level Radioactive Waste Compact. This could produce significant tax revenues to the state and local units of government where it is located.

— After three years of successful operation of the high-level waste repository, establish a full-scale storage facility for spent reactor fuel elements.

— As an incentive to accept the national spent fuel repository, Kansas could reasonably be expected to receive the SSC.



SIERRA CLUB

Kansas Chapter

February 26, 1987

To: Senate Energy and Natural Resources Committee
From: Shaun McGrath
Re: Support for SB114

The Sierra Club is a non-profit organization concerned with the preservation and protection of the environment. Our Kansas Chapter membership is over 1500.

The issue of low-level radioactive waste storage forces the citizens of this state, and nation, to have a level of foresight incomprehensible to most of us - foresight of up to 10,000 years into the future. The importance and immediacy of finding a safe method of storing this waste has obviously not been lost on this legislature as is apparent by the four bills introduced this year including SB114 before us today.

The decision for Kansas to withdrawl or remain in the Central Interstate Compact will most likely be based on the certainty and uncertainty each alternative affords. Staying in the Compact allows the greatest degree of certainty - we know what a lot of these consequences would be. I am going to let other conferees testify on these matters, however, and concentrate my testimony on the cerain consequences of withdrawl.

I wish to do this by informing you of what other states and compacts are doing. The point I will make is, whereas there is no real certainty of what the consequences of withdrawl will be, there is great certainty that we are not alone in this struggle, and that better alternatives (to remaining in this compact) exist.

Many states in the northeast including Maine, New Hampshire, Vermont, Rhode Island, New York, and Massachusetts have failed to meet the first milestone, as set up in the 1985 Amendments Act, to join a compact or indicate they will go-it-alone. A former staff director of the National Governor' Association commented that Maine, New Hampshire, Vermont and Rhode Island are "playing charades." The governors have simply written letters to the NRC saying they are working towards compliance, when in fact they are just waiting for either New York or Massachusetts to ask them to join a compact. New York and Massachusetts are presently working independently. They have indicated that their aim is to first develop the siting plan for a facility within their borders, and then form a compact with their neighbor states.

In Maine, Senator Helen Ginder, chairperson of the state advisory committee on LLRW, said they are in addition working on stipulating permanent storage at the site of the nuclear reactor (also outlined as an alternative in the KDHE 'White Paper'). She told me, "Decommissioning the plant alone would produce 500,000 cubic feet of waste - more than would be generated by the plant during its useful life. It makes much more sense to mothball the plant along with the LLRW."

B
McGrath
2-27-87

The Western States Compact currently includes Arizona and South Dakota, neither of which has volunteered for a site. In fact, they are waiting on California, who has a bill in their legislature to join the Western Compact and host the site.

Maryland and Delaware both withdrew from the Northeast Compact, where there was equal possibilities for selection of a site among all member states, and joined with Pennsylvania and West Virginia. Pennsylvania produces 10% of all LLRW produced in the U.S. and has already agreed to host the site.

Texas is the only state to indicate that it intends to go-it-alone. They have complied with the milestones through 1988. There is rumor, however, that they are discussing a compact with Arkansas, a member of our compact.

North Carolina has a bill in its legislature to withdraw from its compact.

Arkansas and Nebraska, members of our compact, have bills to withdraw from the compact.

North Dakota, which had ratified a compact agreement with South Dakota, but with a provision that North Dakota would not host the site, is now independent after South Dakota refused the provision. North Dakota is looking into joining the Rocky Mountain Compact or contracting with the Northwest Compact to take its waste. North Dakota does not have a nuclear reactor and they produce a small amount of LLRW. In fact, the last time they exported waste was four years ago. There is interest within the North Dakota Legislature to talk with Kansas about forming a compact with the stipulation that Kansas host the facility. This would allow both states the ability to exclude waste from other states or compacts, and would allow Kansas to develop its own waste facility in which virtually only waste produced in our state would be stored.

As can be seen, many states are still struggling with this issue. Some states decided their original compact agreements were not in their best interest, and pulled out. Many others are pondering it. A few are proceeding independently. Others hope to jump into an already established compact with little risk of hosting the site. And Maine is considering on-site storage.

In conclusion, by withdrawing from the Central Interstate Compact, Kansas will find that there are better alternatives available to us than remaining in this compact. If we stay in the compact, there are two certain consequences:

1. Kansas will most likely be selected to store the waste of the seven nuclear reactors and a fuel reprocessing plant within our compact, and
2. these alternatives for storing our waste will no longer be available to us.

B
Gulley
2-25-87

Kansas Natural Resource Council

Testimony before the
Senate Energy and Natural Resources Committee
Concerning SB 114, withdrawing from the
Central Interstate Low Level Radioactive Waste Compact
February 26, 1987

Presented by Marsha Marshall

Discussions about creating the Central Interstate LLRW compact began during the first year of KNRC's existence. I recall monitoring early meetings in this area.

KNRC endorsed joining the compact in 1982. Kansas was vulnerable at that time, having battled a national high level radioactive waste site proposal at Lyons during the previous decade, and commercial interests were looking at Lyons as a possible low level site. Further, we had no reason to question the authority or the accountability of a compact.

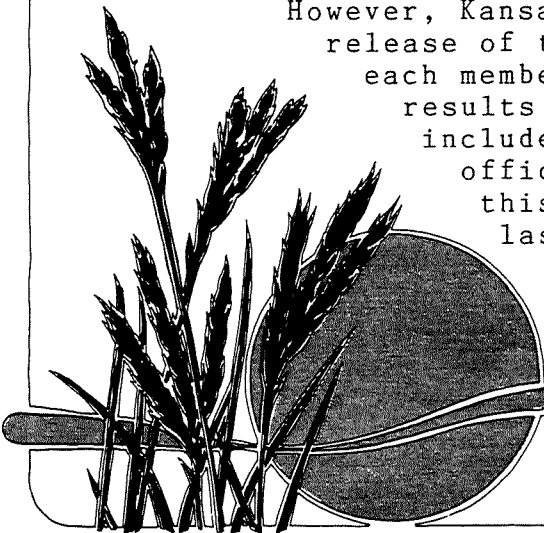
I stand before you today, five years later, urging you to withdraw from the compact. Withdrawing will allow Kansas a variety of options and a measure of control over an issue that will affect Kansans for hundreds of years.

Withdrawing during this session would not be an act of bad faith. In fact is the only state action expressly provided for in the compact law, which states "any party state may withdraw from this compact by enacting a statute repealing the same."

The compact, on the other hand has not served the interests of Kansas. Inconsistencies and irregularities which have served to compromise Kansas interests include the following

* If Kansas were a member of any other compact in the country, we would almost certainly be excluded as the first host state because it is such a low volume producing state. However, when the commission turned over its siting authority to developers, volume was lost as a criteria.

* Geology is the basis for the Dames and Moore exclusionary study. However, Kansas officials and citizens were told after the release of the Phase I study that two candidate areas in each member state would be finally be chosen. However, results of the Phase II exclude all of Oklahoma and include only one small siting area in Louisiana. No official in Kansas knows why or by whose authority this crucial change was made. Mr. Peery responded last week that it was a "political decision."



* At a November compact meeting I attended in Little Rock, Arkansas, a developer stated that this compact had "the worst public participation program of any compact in the country." He expressed concern that developers needed some form of community support, and that public participation was essential for the success of the site.

* The public's value in the process is demonstrated by the discovery by citizens of a reporting irregularity by Oklahoma. (See appendix.) The governor of Nebraska has called for an investigation by the compact.

Two factors make staying in the compact extremely dangerous for Kansas: state liability and lack of state control. The state is liable for leaks that occur after a site is closed. Further, no economic incentives will be forthcoming for taking this enormous risk. While other compacts offer financial incentives, you will recall that Mr. Peery noted that low volumes may force this compact to subsidize the private developer eventually selected to build and run the dump.

Although Mr. Peery assured Kansans that "any state which is the horse state will have the muscle to...lay down the ground rules and get it in writing that the others will not drop out in the future." However, North Carolina has been unable to get any assurances from the Southeast commission that other states be required to take their turn when the time comes. In fact, the commission argues that they cannot bind future legislatures.

I strongly urge this legislature to act, to reestablish its authority as decisionmakers in this state by favorably considering this bill.

SITE 5 [some] 11/15/36

TABLE 4

RADIOLOGICAL SOLID WASTE SUMMARY

<u>Type of Waste</u>	<u>Inventory (cubic feet)</u>	<u>Annual Generation (cubic feet)</u>	<u>Disposal Method</u>
Raffinate Sludge	2,000,000	120,000	Process for U recovery at mill
Fluoride Sludge	360,000	39,000	Process for U recovery at mill
Non-Combustible Waste*	16,900	4,100	Decontaminate and releasable material sold as scrap. Disposal at LLW Site for non-releasable material.
Combustible Waste	16,850	4,100	Incinerate or compact, dispose at LLW site.
Damaged Drums	-	50 drums/yr	Quivira Mining Company Mill Tailings Pile

Ta
sb
La/nd

* Equipment, soil, rubble, laboratory materials, etc.

Testimony on SB114

Low Level Waste Compact

Presented before Senate Subcommittee
on Energy & Natural Resources

By Laura Menhusen
Jewell, KS
February 26, 1987

I'M SURE YOU HAVE ALL SEEN A COPY OF THE SENATE BILL #114. BUT,
HAVE YOU REALLY LOOKED AT IT? SUCH A SMALL PIECE OF PAPER - WITH SO FEW
WORDS - OR IS IT?

HOW CAN THIS - BE SO IMPORTANT TO THE FUTURE OF KANSAS AND ALL ITS PEOPLE?
THIS WILL BE THE MOST IMPORTANT ISSUE YOU WILL EVER FACE IN YOUR
LIFETIME.

I AM NOT GOING TO TALK ABOUT THE LEGAL ASPECTS, THE ECONOMIC ISSUES OR THE
POLITICS OF THIS COMPACT.

I WANT TO ADDRESS THIS ISSUE FROM THE POINT OF VIEW OF FAIRNESS AND
COMMON SENSE.

IS IT FAIR THAT THE LARGEST PRODUCER OF LOW LEVEL RADIOACTIVE WASTE
IN OUR COMPACT - OKLAHOMA - DOES NOT HAVE ONE SQUARE MILE BEING CONSIDERED
FOR A POSSIBLE DUMPSITE?

IS IT FAIR THAT THE SMALLEST PRODUCER OF LOW LEVEL RADIOACTIVE WASTE
KANSAS - HAS 860 SQUARE MILES BEING CONSIDERED FOR A POSSIBLE DUMPSITE?

IS IT FAIR THAT THE COMPACT HAS TURNED THE SITE SELECTION AND THE
STATE SELECTION OVER TO THE CONTRACTOR?

POSSIBLY THE SAME CONTRACTOR THAT WAS IN CHARGE OF THE CONSTRUCTION,
OPERATION AND MONITORING OF THE SITES AT SHEFFIELD, ILLINOIS, MAXY FLATS,
KENTUCKY OR WEST VALLEY, NEW YORK - WHICH ARE ALL DOCUMENTED TO BE MISER-
ABLE FAILURES - - A CONTRACTOR WHOSE FIRST CONCERN IS MONEY.

WHO ARE YOU GOING TO TRUST?

DO YOU TRUST RAYMOND PEERY?

D
4/26/87
2-26-87

CAN YOU LOOK RAYMOND PEERY STRAIGHT IN THE EYE AND SAY

I BELIEVE IN YOU:

I BELIEVE THAT KANSAS' FUTURE IS SAFE IN YOUR HANDS.

OVER THE PAST TWO WEEKS I HAVE SPENT MANY HOURS LISTENING TO THE SINCERE CONCERNS OF THE PEOPLE OF OUR STATE.

MOST OFTEN THEIR FIRST QUESTION IS "HOW DID WE GET INTO THIS COMPACT IN THE FIRST PLACE?"

THE EXPECTED PLUSES OF THE COMPACT HAVE TURNED INTO MINUSES.

WE FEEL THAT IT IS IN THE BEST INTEREST OF KANSAS TO WITHDRAW FROM THE COMPACT.

WE REALIZE THAT THE STATE OF KANSAS WILL HAVE TO ESTABLISH ITS OWN LOW LEVEL RADIOACTIVE WASTE FACILITY UPON WITHDRAWAL FROM THE COMPACT.

BUT, WE FEEL THAT A KANSAS OWNED, OPERATED, LICENSED AND, MOST IMPORTANTLY, MONITORED FACILITY WOULD PROVIDE THE BEST PROTECTION FOR OUR STATE'S ENVIRONMENTAL FUTURE.

WHO WOULD DO A BETTER JOB OF PROTECTING OUR CITIZENS, OUR WATER, OUR SOIL AND OUR AIR - THE PEOPLE OF KANSAS OR A CONTRACTOR FROM KENTUCKY WHO WILL BE RESPONSIBLE FOR THE SITE FOR ONLY FIVE YEARS AFTER ITS CLOSING?

I AM HERE TO SPEAK FOR THE PEOPLE OF KANSAS. YOU ARE HERE TO REPRESENT THE PEOPLE OF KANSAS.

WE, THE PEOPLE OF KANSAS WANT OUT OF THE CENTRAL INTERSTATE LOW LEVEL RADIOACTIVE WASTE COMPACT.

PLEASE LOOK AT THIS ISSUE THROUGH THE EYES OF COMMON SENSE AND FAIRNESS. OUR STATE'S FUTURE IS IN YOUR HANDS.

FACTS ABOUT LOW-LEVEL RADIOACTIVE WASTE

WHAT'S HAPPENED SO FAR?

Congress passed a law in 1980 which gave each state the responsibility to take care of the low-level radioactive waste it generates, and encourages states to form regional compacts.

Here, then, is what Congress has in effect told the states to accomplish by 1986.

- . Set up nuclear dumps, where some lethal radioactive materials will be buried, in communities across the country.

- . Put some of the dumps in unsuitable areas, where rainfall may carry off radioactive particles to contaminate adjoining land.

- . Take steps that will drastically cut back the volume of waste that can be buried in two of the three existing dumps, at a time when more burial capacity is needed.

- . Permit politics rather than science and safety to determine the locations of future burial grounds.

- . Follow a plan that could lead to the proliferation of state dumps, thus increasing development costs and imposing on future generations a greater obligation to watch over the radioactive burial grounds.

- . Carry out a law so vague and poorly worded that states are not certain of what powers it gives them.

- . Add another layer of nuclear bureaucracy - interstate compact commissions - to the already bewildering maze of agencies that have responsibility for regulating nuclear waste. - Information reprinted from Philadelphia Inquirer, Nov. 13, 1983.

The low-level radioactive waste policy act of 1980 - which could lead to the indiscriminate opening of nuclear garbage dumps across the U.S. - was rushed through Congress with little debate and not much more thought.

The legislation was sought by only three states - South Carolina, Nevada and Washington, which had operating commercial burial grounds - and was drafted without much advice from the other 47 states.

The law's basic aim - to turn low-level radioactive waste over to the states to handle - was contrary to the recommendations of federal task forces, which had suggested that the federal government assume full responsibility for managing this waste. - Reprinted from Philadelphia Inquirer

WHERE IS THE WASTE GOING NOW?

There are three sites in the United States still open. The governors in those three states (South Carolina, Nevada and Washington) have announced they're not willing to remain the nation's only commercial low-level nuclear dumping grounds. Governor Dixie Lee Ray of Washington, summed up the situation in all three states . . . "increasingly over the years we have been receiving more and more shipments that were improperly packaged, improperly handled en the way, arriving split open, spilled out, and various things of that sort."

WHAT ARE THE POSSIBILITIES OF WATER AND LAND CONTAMINATION?

At three of the six commercial dumps, radioactive materials have drained off the sites and contaminated neighboring properties. Much of the waste is stored in 55 gallon drums which began leaking while the material is still dangerously radioactive.

In Sheffield, Illinois, the waste was buried in trenches 25 ft. deep, in 55 gallon drums which began leaking while the material is still dangerously radioactive.

In West Valley, New York, so much water had infiltrated the trenches that they began to overflow, resulting in the discharge of radioactively contaminated water into nearby streams which flow into Lake Erie.

In Maxey Flats, Kentucky, nuclear waste moved hundreds of feet in less than 10 years, contaminating neighboring properties and stream beds.

HOW MUCH RADIOACTIVE WASTE IS THERE?

No one knows how much of it there is. No one knows all the places it is stored. That information was printed in a book entitled "Forevermore: Nuclear Waste in America" written by two investigative reporters.

"You can't see radiation. You can't smell it. You can't taste it. But it's there, and it's spreading across America."

WHO IS LOOKING FOR A LOW-LEVEL RADIOACTIVE WASTE SITE?

Kansas has joined four other states (Nebraska, Oklahoma, Arkansas and Louisiana) in forming the Central Interstate Low-Level Radioactive Waste Compact Commission.

WHERE WILL THEY DISPOSE OF THE LOW-LEVEL RADIOACTIVE WASTE?

A study done by Dames & Moore, a consulting firm, selected candidate areas for dump sites in our compact area. Eighteen counties in Kansas have "preferred" siting areas; 10 in Nebraska; 2 counties in Arkansas; 1 county in Louisiana; and none in Oklahoma.

The Kansas counties include: Wallace, Logan, Gove, Graham, Phillips, Rooks, Smith, Osborne, Jewell, Mitchell, Lincoln, Republic, Marshall, Nemah, Brown, Doniphan, Atchison and Jackson. Kansas has 860 square miles; Nebraska 271 square miles; Arkansas has 15.5 square miles; Louisiana, 2; Oklahoma, none.

WHO IS RESPONSIBLE FOR LOW-LEVEL RADIOACTIVE WASTE?

. Raymond Perry, director of the Compact Commission to which Kansas belongs, estimates that 90% of the LLRW will come from the 7 nuclear power plants in the 5-state region.

. The remaining 10% is produced by hospitals, universities, and industry.

. Most of the waste produced by hospitals has a hazardous life of 60 days.

. The LLRW site planned for our compact will be responsible for waste disposal for 30 years. Then, another site will be chosen - for the next 30 years.

- (Information from Kansas Natural Resource Council)

WHO WILL DECIDE ON THE LOCATION?

Rather than have the compact commissioners decide which state would play host to nuclear waste as other compacts have done, this compact will chose a developer. The developer, who will profit from running the site, then will choose the state and ultimately the host community.

The Arkansas Democrat, a newspaper based in Little Rock, quoted two state legislators as saying they were assured by a compact commission member that the dump would be in Kansas or Nebraska. Nebraska environmental groups claim they were assured by that state's environmental director that the site would be in Kansas. "It does not mean you are being considered," Raymond Perry, the compact's director, tells residents in the areas included in those maps. "It just means you have not been excluded yet." - Wichita Eagle-Beacon, Feb. 8, 1987.

THE STAKES ARE HIGH FOR THE LOSING STATE

Being host of a dump could leave a state 5 million cubic feet of nuclear waste to watch and worry over for an eternity - and the liability if anything goes wrong. Three of the nation's six existing nuclear dumps have been closed after radiation was detected in groundwater, forcing states to spend millions of dollars on cleanup. Critics also contend that the states are betting the economy and the health of the people, most of whom didn't realize or care that the game was being played until told the waste dump may be in their backyards. - Wichita Eagle-Beacon, Feb. 8, 1987.

WHAT WILL BE BURIED AT THE DISPOSAL SITE?

MYTH: They're only going to bury wastes from medical facilities, and rags and clothing from nuclear plants.

FACT: According to the U.S. Nuclear Regulatory Commission, only the irradiated uranium fuel rods at nuclear power plants and reprocessing facilities are considered high-level wastes. EVERYTHING ELSE MUST BE CALLED "LOW-LEVEL." - Kansas Natural Resource Council.

KANSAS LOW-LEVEL WASTE GENERATED
(Approximate radioactivity and volume per year)

	# of Curies	Cubic Feet
Medical Institutions	1	3,000
Universities	5	2,000
Industry	5	3,000
Wolf Creek Nuclear Power Plant		
Resins, filters, sludges -	2,994	
Rags, clothing, air vent filters		
& other dry active wastes -	21	18,000

WILL THESE RADIATION LEVELS BE SAFE?

- . One curie emits 37 billion radioactive particles per second.
- . If a physician at a medical complex works with even 1/2 of 1/1000th of a curie of radioactive iodine in laboratory experiments - using a ventilation hood - he or she is expected to have periodic thyroid scans.

- . If a sealed cesium or cobalt machine used to treat cancer patients is leaking five billionths of 1 curie, it is immediately shut down for repairs.
- . Exposure to any radiation can increase a person's risk of cancer, and the risk of genetic defects in future generations
- (Information from Kansas Natural Resource Council)

WHAT THE EXPERTS SAY

A National Academy of Sciences report to the A.E.C. in the mid 1960's warned that burying low-level waste above water tables posed "unacceptable long-term risks."

June 1976 - the House Committee on Government Operations, following an extended investigation of nuclear-waste practices said: "We may have to face the realization, even after determined and conscientious effort, that it just may not be possible to guarantee the containment of radioactive wastes over the ages until they are harmless to mankind and the environment."

the

"If this is case, the implications of such a realization must then be considered in all gravity."

Dr. John W. Gofman, associate director of the Lawrence Livermore Laboratory in 1969 said: "If the average exposure of the U.S. population were to reach the allowable (level of radiation annually) there would, in time, be an excess of 32,000 cases of fatal cancer plus leukemia per year, and this would occur year after year."

Nov. 2, 1977 Nuclear Regulatory Commission memo: Low-level waste dumps routinely handle waste with a radioactivity of 10,000 rems per hr. Anyone exposed to 10,000 rems for three minutes would be dead in three weeks or less.

James L. Harvey, president of Southwest Nuclear Company, one of the nations largest low-level radioactive waste handlers, believes shallow land burial of low-level waste in an area with high rainfall and water tables is not feasible. "There is no way to keep the water out . . . water is a vehicle for migration and once you get on the eastern half of the U.S. you got lots of water everywhere."

(Information from Philadelphia Inquirer and Kansas Natural Resource Council)

IS SHALLOWLAND BURIAL AN APPROPRIATE DISPOSAL OPTION?

Of the six low-level radioactive waste sites in the U.S., three have been shut down after radioactive materials seeped out of their trenches.

. Sheffield, Il, 1967-1976: Closed because water was seeping into closed trenches and carrying off radioactive tritium. Tritium migrated at least 700 ft. from the site.

. Maxey Flats, Ky. 1963-1977: Closed because water from heavy rains overran the trenches. Cost to the state will be \$35 million to contain the problem. Plutonium seeped off the burial ground in the first year after being dumped in the trenches.

. West Valley, NY, 1963-1975: Shut down due to heavy rains flooding the trenches resulting in the discharge of radioactively contaminated water into nearby streams which flow into Lake Erie, a source of drinking water for thousands of people.

. Hanford, Wash.: In the late 1950's, the government withheld information about leaks of highly radioactive liquids at its nuclear installation. In one year alone - 1973 - 115,000 gallons of high-level waste drained into the ground from one tank.

(Information from Philadelphia Inquirer and Kansas Natural Resource C.)

QUESTION OF LIABILITY

The question of liability in the case of an accident is still unanswered. There is an exclusion to personal property insurance policies for radioactive exposure. Also, the insurance industry refuses to insure waste industries.
- Kansas Natural Resources Council

SHOULD LOW-LEVEL RADIOACTIVE WASTE BE REDEFINED?

LLRW is presently defined by what it is not: high-level radioactive waste, spent fuel rods; most transuranic elements (isotopes heavier than naturally-occurring uranium); and reprocessing liquids.

Consequently, LLRW includes such elements as iodine 129 (hazardous life - several million years), cesium 137 (hazardous life - 300 years); strontium 90 (hazardous life - 280 years). A material's hazardous life is determined by multiplying its half-life by 10. - Kansas Natural Resources Council

WHAT ABOUT TRANSPORTATION ACCIDENTS?

A recent Department of Energy study of nuclear transportation safety from 1971 through the end of 1981 found 344 accidents, leaks and mishandling incidents involving low-level radioactive waste.

In 1979, two of the three operating waste sites were temporarily closed because of leaking waste shipments and other violations of Department of Transportation shipping regulations.

Trucks transporting wastes to North Central Kansas would be using existing highways in the area, and traveling the same roads as the school buses, farm vehicles and tractors.

WHAT ABOUT PROMISED ECONOMIC BENEFITS?

Promoters of the dump sites emphasize the economic benefits (jobs, property taxes, population) of nuclear waste to counteract fears about radioactive materials in their backyard. However, the promised economic benefits never materialize.

. West Valley, New York: Less than one million dollars was paid in property taxes to local governing units, who now face clean-up costs estimated to be one billion dollars.

. Maxey Flats, Kentucky: Although promoters stated that related industries would move to the site, not a single industry located there. Instead of an economic boom, state officials are facing a multi-million dollar clean-up of contaminated water.

If the economic benefits of operating a dump out weigh the health risks, why do the three dumpsites currently in operation want to shut down?

WHERE SHOULD THE LOW-LEVEL WASTE BE STORED?

Radioactive waste should be stored at the site or near the site of the nuclear reactors producing it. That would have the following advantages:

1. Transportation: On or near site storage would eliminate the health risks involved with transporting radioactive materials to distant sites. In addition to the health benefits, a significant cost saving could be realized.

2. Monitoring: Monitoring systems are already in place to check for

leaks and contamination in the areas surrounding nuclear reactors. Since radioactive waste must be monitored for hundreds of years, why not store it at a site that already requires monitoring and reduce the number of contaminated areas.

SHOULD KANSAS LEAVE THE COMPACT?

Marsha Marshall, program director for the Kansas Natural Resource Council, has stated that two major mistakes have undermined the commission's good intentions.

1. They passed the buck by turning over their siting responsibility to developers.

2. In other compacts, the highest waste producing state generally hosts the first site. Waste volume isn't even a major determining factor in this compact. Kansas is the lowest producer of low-level radioactive waste.

KNRC and North Central Kansas Citizens proposes that Kansas withdraw from the compact and develop a state-owned facility near the major waste generator - Wolf Creek.

KANSAS WOULD BE LIABLE

According to Marshall, if Kansas is chosen as the host state, it must take title to the site and could be liable for environmental damage caused by any leaks that occur in the future.

SILENT THREAT

The great fear in radioactive waste is not a cataclysmic explosion, according to James B. Steel, Pulitzer prize winning writer and author of a book dealing with nuclear waste entitled "Forevermore: Nuclear Waste in America." Instead it's a "quiet danger - something placed in the ground that will infiltrate the water supply and no one will know it. The effect could be catastrophic."

"For the most serious threat of nuclear waste is not that people will receive radiation doses from it directly, but that it will work its way into the food chain and water supplies and expose large segments of the population indirectly." - Philadelphia Inquirer.

"If that happens, citizens unknowingly would consume contaminated food and water. The radioactive particles, depending upon the type of waste that escapes, would settle in specific organs or run through the body."

"Strontium, for example, behaves like calcium and is absorbed in the bones. Radioactive iodine concentrates in the thyroid gland. Radon gas clings to particles that lodge in the lungs, as does plutonium. Radioactive sodium spreads through the body."

"Over time, the microscopic particles - some of which are difficult to detect in medical examinations - emit radiation, damaging vital organs and tissue and eventually causing cancer and other diseases, birth defects and death."

(From Philadelphia Inquirer)



February 26, 1987

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My name is Robert Eye and I am the Associate Director and Counsel for the Nuclear Awareness Network. This testimony is intended to address various issues related to the withdrawal of Kansas from the Central Interstate Low-level Radioactive Waste Compact.

I have been involved in the review and litigation of legal issues concerning nuclear power for approximately 5 years. My most recent involvement was as a special attorney for then Secretary Barbara Sabol. In that capacity I reviewed, among other things, the legality of withdrawal; whether penalties may be imposed upon withdrawal; whether Kansas could restrict the use of a state owned facility to generators of low level radioactive waste located in Kansas and; the general scope of state legal responsibilities related to low level radioactive waste. In my current capacity I have been requested to revisit these issues.

I. Is withdrawal from the Compact legally authorized?

Article VII(d.) of the Compact provides as follows:

" d. Any party state may withdraw from this compact by enacting a statute repealing the same. Unless permitted earlier by unanimous approval of the Commission, such withdrawal shall take effect five years after the Governor of the withdrawing state has given notice in writing of such withdrawal to each Governor of the party states. No withdrawal shall affect any liability

already incurred by or chargeable to a party state prior to the time of such withdrawal."

The KDHE paper "Low-level Radioactive Waste Management" (February, 1987) correctly concludes at p.24 that the Compact Commission would be precluded from requiring Kansas to pay more than the annual \$25,000 commitment for five years to cover our state's share of Compact Commission overhead. Additionally, as the KDHE paper notes, withdrawal in this calendar year will be clear notice to the other Compact states that Kansas will not be available for a regional disposal facility.

NAN does not counsel a rush to judgment as to whether to withdraw from the Compact. However, if withdrawal is not invoked in this calendar year and Kansas is designated by the Commission's developer as a host state, it is likely that withdrawal in the future will carry the potential for the imposition of monetary penalties by the Commission.

Further, NAN contends that withdrawal from the Compact should be accompanied by a definite policy direction for the management of low level radioactive waste generated in Kansas. Kansas citizens are concerned about the low level radioactive waste management policy our state will adopt.

Certainly, a policy commitment which has as its touchstone the responsible management of low level radioactive waste and protection of the public and environment cannot be objected to by any party. Alternatives to traditional land burial are currently being utilized by various generators. (Attached to this testimony is a fact sheet prepared by the Sierra Club

Radioactive Waste Campaign which discusses alternatives to land burial and problems related to land burial of low level radioactive waste.)

II. If Kansas opts to withdraw from the Compact what legal responsibilities does the State assume?

Section 3(a)(1) of the Low-level Radioactive Waste Policy Act Amendments of 1985 (hereinafter referred to as the Act) provides as follows:

"State Responsibilities - Each state shall be responsible for providing, either by itself, or in cooperation with other states, for the disposal of -

(A.) low-level radioactive waste generated within the State (other than by the Federal Government) that consists of or contains class A, B or C radioactive waste as defined by 61.55 of Title 10, Code of Federal Regulations. . . "

This statutory mandate for disposal raises an interesting and perplexing issue. In Section 2(7) of the Act "Disposal" is defined as follows:

"(7) DISPOSAL.-The term 'disposal' means the permanent isolation of low-level radioactive waste pursuant to the requirements established by the Nuclear Regulatory Commission under applicable laws, or by an agreement State if such isolation occurs in such agreement State." (Emphasis added.)

NAN submits that "permanent isolation" of radioactive waste is precisely the goal that should be realized. This position is substantiated by the NRC's 1975 Reactor Safety Study which stated

"Exposure to even low levels of radiation, in addition to the natural background of radiation that exists, is generally believed to increase the likelihood of certain diseases and increase certain genetic defects."

The radiation exposure finding by the NRC places a significant burden on our state to prevent any needless exposure to radiation. Indeed, the statutory definition of "disposal" seems to legally require that a low level radioactive waste facility not emit radiation.

Unfortunately, no technology for disposal exists which meets the statutory definition. "Permanent isolation" assumes that disposal will be effective for the duration of the hazardous life of the radioactive waste. Consider this requirement in light of the fact that ion exchange resins from nuclear power plants contain the isotope cesium-137 which remains hazardous for at least 300 years and wastes from decommissioning include niobium-94 with a half-life of 20,000 years. It is imprudent for this body to embark on an expensive and controversial "disposal" plan when no technology is available to satisfy the statutory requirement.

The current Compact plan assumes that a regional disposal facility will be built utilizing techniques consistent with the NRC standards codified at 10 CFR part 61. Indeed, the Compact Commission has even gone so far as to announce that any proposal submitted by a prospective developer must meet the 10 CFR part 61 standards. (The same standards are being proposed for adoption by the Secretary of KDHE.) Given the NRC's finding regarding the harmful effects of exposure to "even low levels of radiation" one would expect that disposal facilities would be precluded from allowing any emissions of radiation into the environment. Unfortunately, such is not the case. The NRC's own regulations

do not meet the statutory definition of "disposal". The following NRC regulation sets the standards for legalized contamination of the environment by a low level radioactive waste disposal facility.

Sec.61.41 Protection of the general population from releases of radioactivity.

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

The inherent contradiction between the NRC's 1975 finding regarding radiation exposure and the above-cited regulation is most disturbing. Moreover, the regulation is a blatant violation of the statutory mandate of "permanent isolation" as required by the Act. The legislature should be most skeptical of any representation that current "disposal" modes will meet the statutory requirement of "permanent isolation". (Indeed, if the 10 CFR part 61 standards are utilized then the definition of "disposal" should be amended to read temporary partial isolation".)

Some may contend that compliance with the statutory definition of "disposal" may be met by meeting the radiation release limit regulation quoted above. This contention must reconcile, by some means, the inherent contradiction between "permanent isolation" and the radiation release limits allowed by the regulation. The wording of the regulation appears to allow

the NRC (or KDHE) to raise the allowable limits for radiation releases and still consider such to be consistent with permanent isolation". We have no assurance that the allowable radiation exposure limits will not be increased by NRC/KDHE regulations in the future and further erode the "permanent isolation" standard in order to accomodate developer/operator shortcomings. This contradiction between the statutory definition of disposal and the regulations is fertile ground for a potential legal challenge to the Act.

The Congressional mandate of permanent isolation is a worthy goal. But this legislature must be realistic and responsible and acknowledge that, at this time, "permanent isolation" is simply not possible.

However, this need not be an impediment to responsible low level radioactive waste management policy. The above-ground monitored retrievable storage concept (described in the attachment) provides a safety valve that acknowledges our current inability to "permanently isolate" low level radioactive waste but provides a safe and responsible means to manage low level radioactive waste on an interim basis.

NAN proposes and advocates that low level radioactive waste be stored in above-ground monitored, retrievable facilities at or near the Wolf Creek Generating Station (W.C.G.S.). It is unfortunate that the Compact Commission is not actively considering this alternative, particularly in light of specific statutory authority to do so. Article VI(a)(3) states:

- "a. Nothing in this compact shall be construed to:
"3. prohibit or otherwise restrict the management of waste on the site where it is generated if such is otherwise lawful;

Additionally we must pose a challenge to the tremendous reservoir of talent in our state to devise a means to actually "permanently isolate" low level radioactive waste from our environment or better yet de-toxify it. We should "tap" this expertise and provide adequate resources to do the theoretical and applied research to find a solution to this serious problem. I have hope that this man-made problem will eventually yield to a man-made solution. Unless adequate resources are devoted to this problem it will persist and pose continued and increasing hazards.

There are certain aspects of the Act that remain unclear as to the Congressional intent. However, there is no doubt that Congress intended that low level radioactive waste be managed in a way to protect human health and natural resources. NAN contends that the current plan of regional disposal does neither and will result in the expenditure of vast sums of money in a futile attempt to do so. NAN's proposal (which is virtually identical to KNRC's and the House resolution) meets the state's responsibility to safely manage low level radioactive waste while satisfying the Congressional intent.

Adoption of the proposal set forth above also allows the generators of low level radioactive waste in Kansas to avoid the surcharges for disposal at the three existing disposal sites. The surcharges are imposed pursuant to Section 5(d)(1) for normal disposal of low level radioactive waste and Section 5(e)(2) for a state's failure to comply with certain milestones. The surcharges

are keyed to Kansas generators continued use of the three existing sites at Barnwell, S.C., Beatty, Nevada and Hanford, Washington. The surcharges can be avoided by utilizing an interim storage facility located in Kansas. A state storage facility would allow generators to forego use of the three current disposal sites altogether and the penalty provisions could not, therefore, be imposed.

Such a proposal is also consistent with the deadline specified at Section 5(e)(1)(c)(ii) of the Act which states that by January 1, 1990:

(ii) the Governor (or, for any State without a Governor, the chief executive officer) of any State that is not a member of a compact region in compliance with clause (i), or has not complied with such clause by its own actions, shall provide a written certification to the Nuclear Regulatory Commission, that such State will be capable of providing for, and will provide for, the storage, disposal or management of any low-level radioactive waste generated within such State and requiring disposal after December 31, 1992, and include a description of the actions that will be taken to ensure that such capacity exists. (Emphasis added)

This deadline allows the option of certifying that either storage or disposal capacity will be available by 1993.

The foregoing analysis indicates much more flexibility in low level radioactive waste management policy than has generally been thought to be available. It accomplishes the Congressional intent and satisfies the state's responsibility and avoids imposition of penalties and surcharges.

III. If Kansas withdraws from the Compact may the state prohibit the use of our management facilities by out-of-state generators?

This is perhaps one of the most vexing questions regarding low level radioactive waste policy confronting not only this legislature but your counterparts in numerous other states considering the single-state option. Obviously, if the policy to pursue the single-state option results in Kansas becoming the dumping ground for generators across the country, the whole effort to avoid a proliferation of radioactive contamination in Kansas would be counterproductive.

The threshold question to be resolved is whether the Act directly addresses this issue. Unfortunately, the Act does not. The Act explicitly allows a Compact to restrict use of a regional disposal facility to generators in member states. Hence, the Act must be scrutinized to determine whether Congress has by inference or implication preempted the right to restrict use of a facility to only generators within the state.

The analysis must consider two U.S. Constitutional provisions. First, the supremacy clause at Article VI, clause 2 makes federal law the "supreme law of the land". Pursuant to this clause some state action may be preempted if Congress has expressed an intent to do so; where Congress has enacted a comprehensive framework of regulation so extensive that a fair inference may be drawn that no room is left for state action; where compliance with both federal and state requirements is a

physical impossibility; or when a state law serves to frustrate the execution of valid Congressional objectives.

It is unfortunate that the Act does not allow a direct answer as to preemption. At best "mixed signals" are present when the Act is reviewed. For example, the Act makes each state responsible for providing disposal capacity of low level radioactive waste generated within the state. The Act then encourages (but does not require) states to form regional compacts for the purpose of operating regional disposal facilities. Congress then explicitly recognizes a Compact's right to prohibit non-compact state generators from use of a regional disposal site. The Act is silent as to an individual state's right to embargo out-of-state low level radioactive waste. The scant legislative history on this issue does seem to indicate that the Congress intended individual states to have this right.

During exchanges in the U.S. Senate on December 13, 1980, the day the Act was passed, Senator Proxmire inquired whether an individual state "would have the opportunity to deny another State in another part of the country from putting its waste within that State. . . ." Senator McClure, who was the manager of the bill on the Senate floor, answered Senator Proxmire's question by stating ". . . the Senator is correct. I shall rephrase it in a little more positive terms rather than negative terms. . . Let me indicate that the State would have to positively affirm." Senator Proxmire followed up by asking "The State would have to affirm before it [low level radioactive

waste] could come in?" To which Senator McClure responded "yes". 126 Cong. Record 33, 965 (1980). This colloquy is indicative that the Senate certainly intended that the single-state option included a right to exclude out-of-state waste.

In the U.S. House of Representatives a similar intent is present as expressed by Representative Dingell when he stated:

Under the terms of this bill, each State becomes responsible for the disposal of all nondefense and all non-federal research and development low level radioactive waste generated within the State. . . . States can meet this responsibility by either establishing their own low-level waste disposal facility [sic] or by entering into an interstate compact with another State. . . . 126 Cong. Rec. 34, 130 (1980)

Hence, the legislative history, scant as it is, supports the exclusionary policy under the single-state option.

It is difficult to conclude that the Act infers that a state going-it-alone could not exclude out of state low level radioactive waste. First, the Act specifically provides that each state shall provide disposal capacity, either by itself or in a Compact. Second, a state only site would not create a physical impossibility in complying with both state and federal law. Third, no serious argument can be made that a state-owned site for state generator use only is contrary to Congressional policy. The Congress made management of low level radioactive waste a state problem and a state decision to deal only with its own waste (rather than its waste and other states' as well) actually furthers the Congressional policy of safe management of low level radioactive waste. One law journal

commentator has analyzed the record on this issue and concluded as follows:

Congress's emphasis on the states' responsibility for low-level waste is difficult to reconcile with the conclusion that the single-state option is prohibited by the Low-Level Act. If states with disposal sites cannot exclude other states' waste, then the Low-Level Act effectively allows any state to seize upon a non-compact state with a disposal site and force that state to accept the low-level radioactive waste. For example, if Pennsylvania developed a disposal site, but did not join a compact, it would presumably be powerless to prevent other states from dumping their wastes in its site. Forcing states to accept waste, however, mocks the Act's statement that states should be responsible for the disposal of their own waste. It also conflicts with Congress's assurances that states with disposal sites would be protected from those without sites. Glowing their own Way: State Embargoes and Exclusive Waste Disposal Sites Under the Low-Level Radioactive Waste Policy Act of 1980, 53 Geo. Washington Law Review 654 at 669.

Hence, it is reasonable to conclude that the Supremacy clause does not preclude a state facility being available only to state generators.

The Commerce Clause, Article I, Section 8, Clause 3 empowers Congress to regulate commerce among the individual states. Generally, a state policy which unreasonably burdens interstate commerce is prohibited under the Commerce Clause. A major exception to the Commerce Clause is applicable when a state enters a market as a participant rather than a regulator. In Hughes v. Alexandria Scrap, Inc. 426 U.S. 794 at 810 (1976) the U.S. Supreme Court held that

"Nothing in the purposes animating the Commerce Clause prohibits a state, in the absence of Congressional action, from participating in the market and exercising the right to favor its own citizens over others."

Therefore, once a state decides to become a market participant it may, like other market participants, choose with whom it will contract and do business. The state may freely limit its transactions to businesses within the state. For example, in Reeves v. Stake, 447 U.S. 429(1980) the Supreme Court upheld a South Dakota law which restricted sales from a state owned cement production facility to South Dakota residents. A state could not ban transport of waste into its borders but could legally restrict access to the low level radioactive waste facility to waste generated in the state. Due to the market participant exception, the Commerce Clause probably does not prohibit this option.

Finally, NAN invites careful consideration of the following argument. Assuming that the proposal for interim storage of Kansas low level radioactive waste in secure above-ground facilities at or near Wolf Creek were adopted, the issue of whether other states would have access to the facility would be rendered moot. The state could establish a low level radioactive waste Authority (similar to the Kansas Turnpike Authority and modeled along the lines of the Texas Low-Level Radioactive Waste Authority) and the Authority would be required to seek licensure from KDHE for a storage facility. The capacity of a storage facility could be limited to low level radioactive waste generated in Kansas. This would physically preclude non-Kansas low level radioactive waste from being stored at the facility.

Justification of this would be based on the economic rationale of not providing more capacity than needed to serve Kansas generators.

Moreover, the Act is silent as to any intent to restrict this state policy option. The emphasis in the Act is on disposal but, as discussed above, a policy decision which results in safe interim storage pending development of a technology for permanent isolation should be viewed as a responsible and legal alternative to a futile attempt at permanent disposal. (Obviously, a Congressional amendment to the Act explicitly setting this out would resolve all doubts.)

In conclusion, NAN views the current dialogue regarding Kansas' participation in the Compact as a means to explore possibilities as to what is the best low level radioactive waste policy for Kansas. Under the Compact structure our state policy is essentially being controlled by the Compact Commission and a yet-to-be-chosen private developer. These out of state interests may be more apt to compromise and sacrifice our environment and the safety of our fellow citizens.

Kansas should take control of its low level radioactive waste destiny and send a strong and clear message that we will be responsible for our wastes but not those of other states. Virtually every person I have spoken with regarding this issue expresses the view that it is inequitable to sacrifice Kansas resources to dispose of low level radioactive waste from which Kansans have not derived any benefit.

There are alternatives that are both legal and responsible. NAN urges close consideration of these alternatives before an

irrevocable commitment to the Compact is made. NAN therefore supports legislation withdrawing Kansas from the Compact.

Thank you for this opportunity and I shall attempt to respond to any questions.



“Low-Level” Nuclear Waste: Options for Storage

With passage of Federal legislation (Low-Level Radioactive Waste Act and Amendments), legislators, policy makers and citizens are desperately looking for regional solutions to the “low-level” nuclear waste problem. In their haste, decision makers may opt for the quick fix, disposing of all “low-level” waste in burial grounds, as has been done, disastrously, in the past.

Burial grounds differ little from garbage-type landfills. Waste generators believe landfills can somehow be made to work. But they are not a viable option. In moist areas, water runoff and underground migration inevitably bring water into a landfill and carry out poisonous chemical and radioactive substances.

Waste generators and the Nuclear Regulatory Com-

mission (NRC) consider all “low-level” waste the same. But it is not. Some is extremely radioactive and long-lived, requiring monitoring and maintenance for thousands of years; other waste is slightly contaminated and short-lived. These “low-level” waste streams should not be “disposed of” in the same place, using the same basic technology-shallow landfills.

A sound “low-level” waste management policy calls for segregating radioactive waste at the point of generation and storing it above-ground. While the waste is stored above-ground, we can be assured of no leakage into our groundwater. The waste can be easily monitored and protected. Short-lived waste will decay to non-toxic levels.

Waste Stream Must Be Segregated at the Point of Generation

Each of the different types of “low-level” waste have specific characteristics and require specific storage techniques.

Reactor waste, which accounts for 24% of the radioactivity of “low-level” waste sent to burial grounds,¹ falls into two radically different categories. Wet waste, which consists of ion exchange resins and sludges, and dry waste, which consists of clothing, rags and tools. By volume, power reactors account for about 54% of the waste stream.

Wet Waste Resins and irradiated components, such as control rods, make up over 95% of the radioactivity in reactor “low-level” waste.¹ The nuclear industry tends to talk only in terms of volume when discussing “low-level” waste. This is misleading. The radioactivity, longevity and chemical composition of the material must be an integral part of a sound waste management policy.

Resins are a media with the consistency of caviar. They are used to purify the water that circulates around the fuel in the reactor. Of particular concern is cesium-137, which is water soluble, and therefore, readily migrates out of the nuclear fuel into the surrounding cooling water. Because of this solubility, the substance will also readily migrate out of a burial ground. An average reactor produces 500 curies* of cesium-137 per year.² With 80 operating nuclear power plants in the U.S., about 40,000 curies of cesium-137 are shipped to burial grounds each year.

Besides cesium-137, another dominant component of reactor wet waste is cobalt-60. These two isotopes have half-lives,* respectively, of 30 and 5 years and must be sequestered from the environment for at least 300 and 50 years, respectively. These wet wastes, because of their toxicity, longevity and mobility in the case of the cesium-137, should not be dumped in landfills. They should be temporarily stored in bunkers, preferably above-ground, carefully monitored and subsequently isolated in a high-level waste repository, if and when one is available.

Dry Wastes These are generally only slightly contaminated materials that can be compacted: Some of these materials conceivably could be incinerated because the radioactivity could be trapped on filters as is done in Canada (see page 5). The difficulty with incinerating the dry wastes of the nuclear reactor “low-level” waste stream is that, if an incinerator were operating, nuclear utilities would press to also have the resins and sludges incinerated. This would pose an unacceptable health hazard to surrounding communities because of the large amounts of cesium and other isotopes going up the stack, material which could not be entirely trapped on stack filters.

If not incinerated, the dry wastes of a reactor should be compacted and stored in bunkers.

* see glossary

Is it feasible? Can the wet waste stream be separated from the dry waste stream at the reactor? Yes, it is already being divided prior to transport. Because of high radiation levels of resins, these materials are currently transported in shipping containers separate from the steel drums and wooden crates used for dry wastes. Current practice is that, in these separate shipping containers the wet and dry wastes are sent to the same burial grounds, and buried together. This segregation, initiated at the reactor for transport purposes, should be used for storage purposes as well, as is done in Canada.³

Industrial Waste These account for 73% of the radioactivity of the "low-level" waste going to burial sites.¹ In this category fall two large producers of isotopes for medical and research purposes: New England Nuclear (MA) and Union Carbide (NY) which, respectively, account for 24% and 15% of the total radioactivity of the nation's "low-level" waste. New England Nuclear's waste is primarily tritium, producing 120,000 curies per year. Since tritium behaves exactly like water, it cannot be isolated in a landfill. This waste should be stored in above-ground storage bunkers, temporarily (20-50 years) and then moved to a high-level waste repository. By volume, industrial waste accounts for about 11% of the total stream.

Landfills Leak

An erroneous assumption dominating current "low-level" waste planning is that landfills can be prevented from leaking. The history of both radioactive and chemical landfills in humid climates does not substantiate this claim.

The unlined dump, and even the double liner approach, using a leachate* collection system, have failed in areas of average rainfall (30-40 inches per year). Experts, such as Dr. Peter Montague at Princeton University Center for Energy and Environmental Studies have stated:

"We found that four state-of-the-art landfills in New Jersey developed leaks within one year. I think the whole idea of secure landfills is really a figment of optimistic imaginations."

The track record of radioactive landfills in humid areas has similarly been poor. Of six commercial sites which have operated in the United States, three are now closed because of problems: Maxey Flats, Kentucky; West Valley, New York; and Sheffield, Illinois. All three

Institutional Waste, which accounts for about one-third of the volume of waste presently going to commercial burial grounds, consists of materials both from hospitals and research institutions. These two waste streams are significantly different from one another, with medical waste dominated by short-lived materials such as technetium-99m with a half-life of six hours and the research waste stream consisting of long-lived materials such as carbon-14 and tritium with half-lives, respectively, of 5,000 and 12 years. Other shorter-lived materials are also included in institutional waste. The medical waste, with less than one percent of the radioactivity in "low-level" waste, lends itself to being stored in above-ground facilities for about three years until it has decayed to levels low enough to be disposed of as regular trash. Dartmouth College has a program (described in detail on page 5) which offers considerable promise for other similar institutions. Hospitals in cities should follow Dartmouth's example by using a centralized storage location for isotopes for the necessary decay period.

have had water infiltration into trenches, slumpage of trench covers and erosion. At each site, radioactivity has migrated and expensive remedial actions are continuing. The major operating radioactive landfill for the country, Barnwell, South Carolina, is located in a high rainfall area. It has not had buildup of radioactive leachate because of the porous, sandy trench bottom which allows radioactive water to drain out into the environment. Tritium has been detected 45 feet from the burial trenches at Barnwell. The other operating sites, in Beatty, Nevada and Richland, Washington, both located in semi-arid regions, have apparently not had the same problems as at other sites.

Leaking radioactive landfills are not acceptable to the general public. The definition of a "safe" level of radiation has changed drastically over time as we have learned more about radiation and human health. Most physicians agree now that it is the accumulation of low-level radiation doses which is hazardous. We still do not know the exact dose which causes cancer, though we do know that there is a direct correlation between the amount of radiation received by humans and the incidence of cancer.⁴

Above-Ground Storage is Preferable

Above-ground storage avoids the health hazard of leaky burial grounds and avoids the high cost associated with remedial action that, inevitably, will be required at failed burial grounds. Above-ground structures permit storage in a facility that can be easily repaired. While, over time, concrete may deteriorate, cracks may develop, or operational error may cause leakage, problems can be quickly detected and remedied. Above-ground structures can be designed in such a way as to provide a double barrier which can be used to isolate leakage and prevent it from moving into ground water.

The nuclear industry and its boosters have fabricated a number of disadvantages to above-ground storage: cost, nonpermanence, reliance on institutional controls, sabotage, even plane crashes. Many of these arguments, discussed in box 1, are simply red herrings. The industry, in advocating radioactive landfills, is promoting an "out-of-sight, out-of-mind" solution. But as the operating record at three closed sites has made one point abundantly clear: **residents and taxpayers always pay in the end for leaky landfills.**

* see glossary

ABOVE-GROUND STORAGE IN ENGINEERED STRUCTURES ADVANTAGES AND DISADVANTAGES

Advantages

- Avoids shallow land burial, which, in areas of high precipitation, inevitably results in off-site migration of radioactive materials.
- Can be easily monitored.
- Can be relatively easily repaired.
- Radioactive waste can be transferred to a permanent disposal site without high radiation exposure to workers, particularly if the same concrete or steel module in which the material is stored is also used to transport the waste to the permanent location.
- Reduces expenses for long-term remedial action or exhumation at leaking shallow burial sites.
- Site selection criteria can be less rigorous because geologic and hydrologic factors are less important with above-ground engineered structures.
- May make interim site selection less time consuming and contentious.
- Reduces exposure of the public to radioactive materials.

Disadvantages

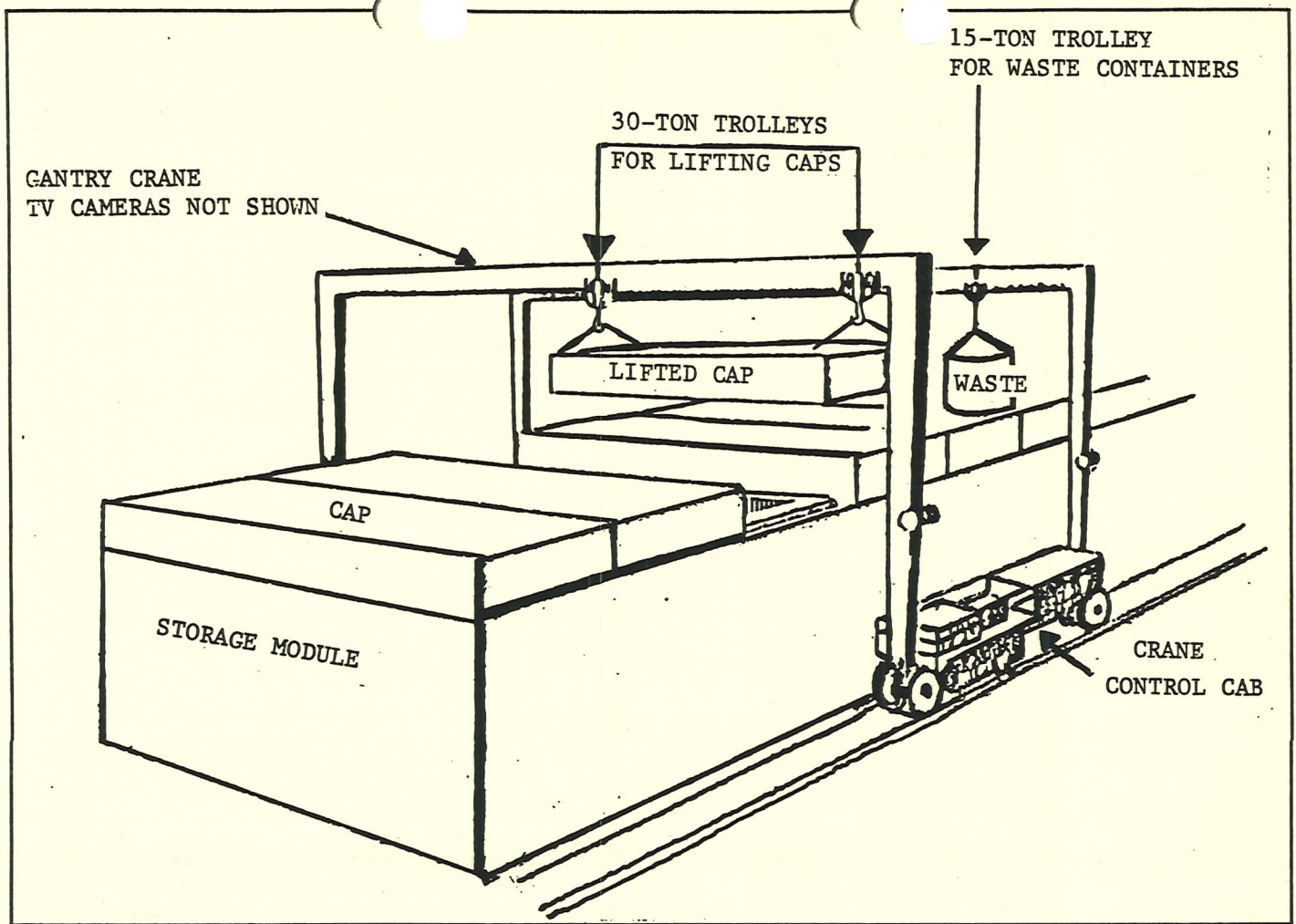
- Cost. In the short term, above-ground bunkers will be more expensive than a large regional burial ground. Comment: These short term savings will be insignificant compared to the very high long-term remedial action costs necessitated by shallow land burial.
- It is not a "permanent" solution. Comment: Although land burial is often touted as a "permanent" solution, it is not. A leaking burial ground that must be monitored and repaired for 300 years, and perhaps exhumed, is not a permanent solution. It gives the current crop of officials the out-of-sight, out-of-mind illusion that they have "solved" a problem.
- Concrete could degrade because of acid rain. Comment: Yes, acid rain is of concern, but above-ground concrete structures have lasted for centuries, and this storage is envisioned as temporary.
- Relies on institutional control to prevent intrusion after site is closed. Comment: True, but, as with radioactive landfills, erosion, water infiltration and monitoring will also require institutional control.
- Storage facilities will be subject to sabotage. Comment: This is a red herring. Sabotage is a remote possibility.
- Storage facilities might be subject to a plane crash. Comment: Clearly, other facilities accepted in our society, such as oil storage tanks, chemical plants and stadium-packed sports events, pose a much greater hazard. Another red herring.
- The NRC currently will not license above-ground storage for more than five years. Comment: True. This time frame needs to be extended.

Box 1

Above-Ground Storage is Practical and Feasible

Above-ground structures are being used by utilities operating power reactors in the United States and Canada,³ and by medical and research institutions. The Tennessee Valley Authority (TVA) has built above-ground storage modules at the Sequoyah Nuclear Plant near Chattanooga, Tennessee.² Several utilities in the Northeast are designing and building on-site, above-ground

storage facilities. Vermont Yankee in Vermont, Pilgrim I in Massachusetts and Susquehanna in Pennsylvania are all moving in this direction. In addition, Westinghouse is marketing a top-notch container, SUREPAK, which can be stored above-ground. Also to be discussed is the French experience at the Centre de La Manche.



Box 2 Radioactive waste storage modules at the Sequoyah Nuclear Plant. The storage module cap is lifted with 30-ton trolleys on the mobile gantry crane, operated from the crane control cab. The crane then moves forward on rubber tires along the concrete runway. The rear 15-ton trolley lifts the cask from the transport vehicle and places it in the storage module. Television cameras and remote manipulating equipment enable operators to perform all work remotely at Sequoyah.

TVA Above-Ground Storage

Presently, the TVA ships "low-level" waste to the Barnwell, South Carolina landfill. Because of the near-term uncertainty of space at Barnwell, the NRC approved and TVA has partially constructed an above-ground storage facility at the two Sequoyah nuclear reactors located on the Tennessee River, 18 miles northeast of Chattanooga. The TVA above-ground storage facilities are not much more complicated than a large concrete box, called a module, with special features to collect radioactive leakage and to shield workers.

The storage modules are constructed, as needed, of reinforced concrete with an inner decontaminable coating. The modules are large, rectangular boxes, 34' wide, 195' long and 19 1/2' high. The thickness of the concrete floor slab is 39 1/2", while that of the caps and walls is 24". Modules for the storage of resins are almost twice as thick-42". According to TVA plans, eight resin storage modules and five trash modules will be located on a 20-acre area. There are four compartments in each module. Each compartment contains a liquid drainage system and sampling valves. Any radioactive liquids can be collected and repackaged, or taken to the nuclear plant for processing. Filters and booties that are

less radioactive are stored in 18-gauge steel drums or boxes. The more radioactive exchange resins are stored in more rugged carbon steel cylinders coated with epoxy.

A giant mobile crane straddles the entire concrete module, running along curbed concrete sidewalks on each side of the module. Module loading/unloading steps, through use of the rubber-tired, diesel-powered gantry crane, are shown in box 2. The highest radiation doses are received by crane operators, though the concrete shielding reduces the levels. Since the storage facility is located about 200' from the site boundary, the doses to the public were expected to exceed the NRC hourly radiation limits while the cover is off the storage module. Above-ground storage units can be located so that public exposure is not necessary.

The above-ground storage facility is of substantial construction and is expected to remain functional for several decades. The NRC will, however, only license above-ground storage facilities for a five-year period. This limit will need to be extended for the above-ground storage to be implemented. The NRC has no technical justifications for this limit.

Dartmouth College

Dartmouth College in Hanover, New Hampshire produces "low-level" radioactive waste in medical and scientific research and at the College hospital.⁵ In the past, this waste was shipped to commercial radioactive landfills in Richland, Wash., and Barnwell, S.C. While the volume produced between 1977 and 1982 remained stable (120 to 150 55-gallon drums a year), the cost of disposal increased by a factor of seven in this five-year period.

Like most radioactive waste at medical and research institutions, Dartmouth's can be placed into five categories: liquid, solid, liquid scintillation vials (LSV), animal carcasses and other. For liquids containing less than 100 microcuries per liter of radioactivity, this waste, containing tritium and iodine-125, is disposed of into the sewer. Liquids containing more than 100 microcuries per liter are stored in one-gallon containers within a lined 30-gallon drum. This waste is primarily iodine-125 (half-life: 60 days) and phosphorus-32 (half-life: 14.3 days), and is stored for ten half-lives.

Solid waste, consisting of disposable and plastic and glass items, and contaminated paper, is placed in a lined 55-gallon steel drum and compacted to reduce the volume. A drum typically contains a few millicuries of tritium, sulfur-35, chromium-51, and iodine-125, and is stored for at least ten half-lives, or approximately 2.4 years. After this storage period, 55-gallon drums containing less than a millicurie of tritium will be disposed of as regular trash.

Glass and plastic liquid scintillation vials are put into a lined 55-gallon drum for temporary storage. A shredder-crusher is used to separate the liquid, containing tritium, carbon-14, phosphorus-32, sulfur-35 and iodine-125, from the plastic and glass. Vials containing shorter-lived radionuclides are separated from those

with tritium and carbon-14, and are stored for ten half-lives. The vials containing tritium and carbon-14 below minimum NRC levels and are disposed of as regular trash.

Carcasses, mainly rats, are first stored in a cooler. If the carcasses contain iodine-125, they are placed in a freezer for sufficient decay (5 to 10 half-lives). Carcasses containing minute amounts of tritium and carbon-14 are incinerated.

Other waste from special experiments may contain up to one to three curies of tritium. This waste, managed on a case-by-case basis, is packed separately and shipped to a commercial burial site.

Based on the production rate of radioactive waste and the management methods mentioned above, Dartmouth College built a storage building capable of holding 240 drums, with expansion space for future needs. The storage building is a reinforced concrete structure 24' wide, 98' long and about 11' high. The walls are one foot thick, insulated and faced with a brick veneer. To collect leakage, the floor slopes toward the center where a collection pit is located. With the doors set four inches above floor level, the room will hold about 800 gallons of fire water. A telephone and fire alarm pull station provide added safety and the building is equipped with heat detectors.

The cost of the whole building, 2/5 of which is used for waste storage, was \$125,000. Dartmouth estimated that the yearly cost of the storage facility, including operating and equipment costs, is less than the disposal costs at a radioactive landfill.

As a result of this waste storage program and the short-lived nature of medical and research wastes, almost no radioactive waste is shipped to a radioactive landfill.

Ontario Hydro Experience

Ontario Hydro operates eight nuclear reactors with a total capacity of 5,100 MW(e), with an additional eight reactors under construction.³ The Canadian reactors, called CANDU reactors, are different than U.S. reactors which must be shut down for refueling every 12 to 18 months. The CANDU reactors are fueled while the reactor is operating. Defective fuel leaks radioactivity into the cooling water. In the CANDU reactors, this fuel can be promptly replaced. This means the CANDU generates about one-half of the "low-level" waste that U.S. reactors produce for the same electrical output.

In the Ontario Hydro system, there are four reactors at each site. A central storage area, the Waste Operations Site, located at the Bruce plant near Tiverton, Ontario, will service all 16 Ontario Hydro reactors.

At each reactor site, the resins are slurried into large (three cubic feet) carbon steel cylinders. These sit upright in shipping containers and are sent to Bruce for storage. These resins, along with water purification filters, are stored either in tile holes or Quadricells.

The tile holes are located underground; they are cylindrical, concrete storage containers, each of which holds two ion exchange resins. After loading, the containers are backfilled with concrete. A leachate collection system and monitoring system are utilized at the bottom of the tile holes. As part of Ontario Hydro's waste management plan, when the resins and filters have cooled to the point where radiation levels are less than one rem per hour, the cylindrical container and concrete backfill will be lifted in one piece and transported to an above-ground storage building (see photo page 6).

Resins are also stored in Quadricells, heavy concrete vessels, which are placed in an above-ground concrete room 8' by 8' at its base, and 18' high, similar to a cemetery mausoleum. The roof is sloped to aid water runoff. The walls and floors are 2' thick, and, with the inner concrete cylinders, sufficient to shield workers and to withstand impacts from airplane crash, or tornado-borne utility poles. Fifteen Quadricells are placed in an area about 20' wide by 272' in length. The minimum design life is 50 years.

The Ontario Hydro system for storing resins is clearly far superior to the U.S. system in which these radioactive, water soluble materials are dumped into leaky landfills.

Also in use by Ontario Hydro are above-ground concrete trenches. These are for dry waste which is compacted and non-combustible and for radioactive ash that is generated by incineration of slightly contaminated materials such as clothing and papers. These concrete trenches are 10' wide, 10' deep and 125' long. The concrete lid is one foot thick; the trench walls are somewhat thicker. The trench slopes to a sump and standpipe which allows for water detection and removal.

The above-ground storage building in the Ontario Hydro system is for wastes with radiation levels of less than one rem per hour. Both resins and lower-level wastes in the concrete trenches will eventually be stored here. This building is a prefabricated concrete warehouse with walls 1 1/4' thick and a concrete roof 1 1/2' thick. The building dimensions are 164' long by 98' wide by 26' high. The building has smoke detection equipment, carbon dioxide fire extinguishers and an internal drainage system.

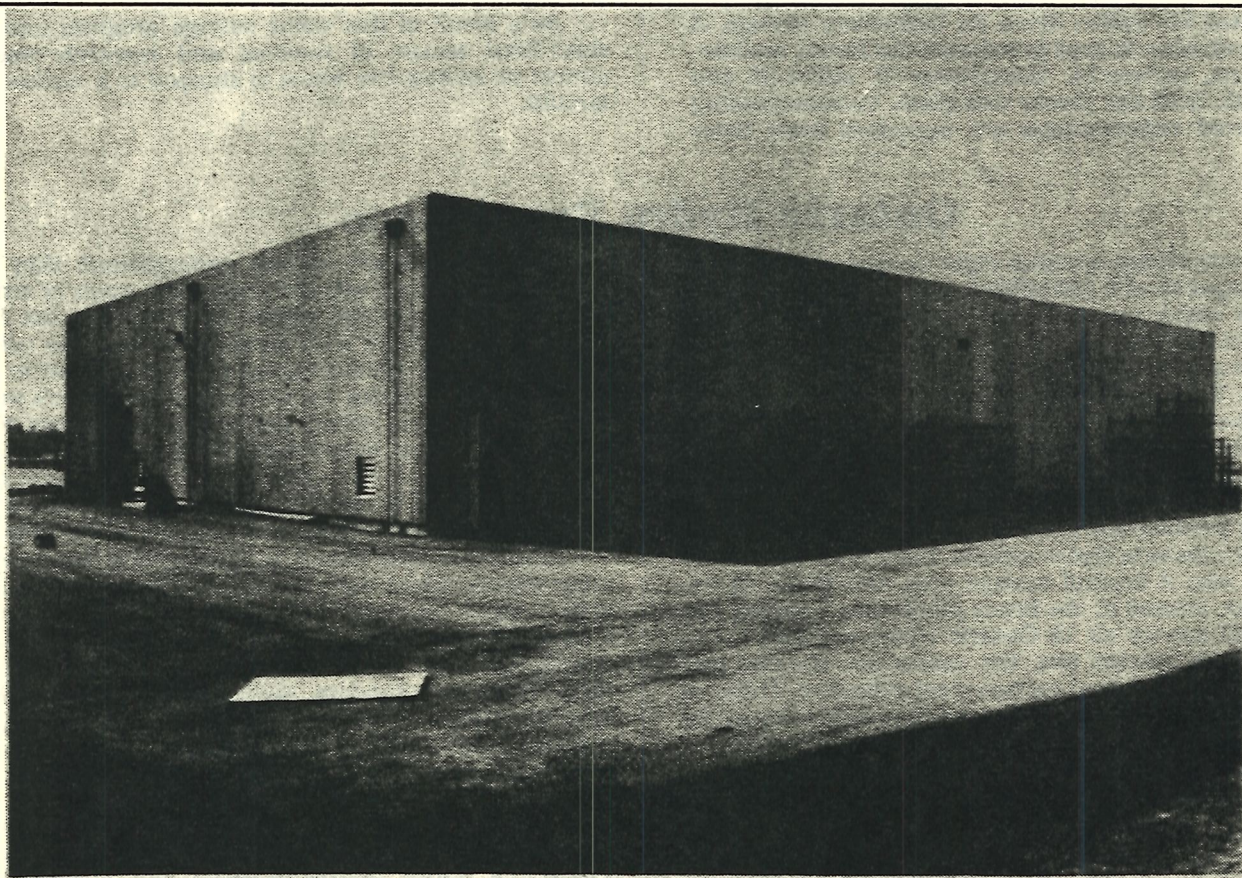
Westinghouse's SUREPAK

Westinghouse's Waste Technology Services Division has designed a container which can be used for both interim and permanent storage of low-level radioactive waste. The system has many good features as well as some poor ones. Several states throughout the country are considering the Westinghouse SUREPAK approach which means that citizens need to understand it thoroughly.

SUREPAK, an acronym for Subsurface Recoverable Packaging System, consists of a four-part plan: 1) a waste packaging building 2) a waste compactor 3) seven-foot high by seven-foot diameter hexagonal concrete containers, and 4) engineered trenches with a leakage monitoring system and elaborately designed trench caps.⁶

Wastes would be packaged in 55-gallon caustic soda drums and compacted in the packaging building using a 1000-ton press. These flattened drums would be stacked into a 55-gallon steel drum which in turn would be loaded into a SUREPAK module. Seven 55-gallon steel drums containing compacted waste can fit into one hexagonal SUREPAK concrete container.

Void spaces in the SUREPAK would be filled with grout and the lid of the modules would be grout sealed. This system, which includes burial of SUREPAKs, is proposed by Westinghouse for "low activity" wastes, which emit less than 100 roentgens per hour of radioactivity. "High activity" wastes, like control rods from inside the core of a reactor, would be buried in the trenches along with "low activity" materials, but in modules three times the standard SUREPAK length.



An above-ground storage building in the Ontario Hydro system. Both resins and lower-level wastes will eventually be stored here.

SUREPAK trenches are envisioned as 30 feet deep, 120 feet wide and 500 feet long. Each of these giant unlined trenches would have a series of open can-like containers installed in the bottom with sampling tubes running to each. The trench bottoms will be covered with gravel and SUREPAK modules would be stacked three high. Since the modules are hexagonal, they would completely fill the trench space much like the cells in a beehive. As trenches are filled, they will be closed with an elaborately multi-layered cap. While trench caps may vary depending on the local rainfall, a typical cap will contain up to two feet of clay, six inches of sand, one foot of gravel, two feet of cobble, six inches of gravel, six inches of sand, 2'6" of native soil and finally, a vegetative cover.

Since SUREPAKs are solid and completely fill the trench, it is expected that past problems with trench cap subsidence will be less severe. However, since the trenches are unlined and the cover will be permeable, water will inevitably enter. Since concrete is permeable, water will eventually contact the waste. The concrete modules are an improvement over past burial methods in that they inhibit, but do not stop, waste migration. Above-ground SUREPAKs would avoid this water problem.

The Centre de La Manche

The Centre de La Manche is located at the tip of the Cherbourg Peninsula in France, 15 miles west of Cherbourg. The site covers 32 acres in which short-lived wastes are buried beneath the surface in monoliths or built up on the surface to form small hills called tumuli.⁷ Treatment at La Manche is similar to that of Westinghouse. Either wastes come in already compacted or they are smashed at the site and then stacked into a concrete container which is then grouted.

Low-level wastes in France are those with half-lives of 30 years or less. This category is further divided with the higher activity wastes being disposed of in monoliths and the rest in tumuli. Monoliths begin with huge concrete vaults which are reinforced with steel rods and then filled with large concrete packages containing several grouted, compacted drums. These packages are lowered into the vaults by crane and placed in successive layers. Concrete is then poured in and the packages are completely embedded in concrete. Reinforced steel is placed on the last layer of packages. The compartment is now a monolith. Monoliths are stacked in pairs, with a six-foot void. This void is used for the disposal of wastes which require additional shielding. When the void is full, another concrete monolith is poured in between the two larger ones.

Tumuli disposal is carried out on top of the monoliths. The monoliths form a huge concrete platform that is covered with asphalt. Then, some of the

In many ways the SUREPAK system is inappropriate for the wastes it may or may not contain. For example, much of the medical and other dry active wastes need only be stored a few months in order for them to lose their radioactivity. To use SUREPAKs and burial of these wastes is not an efficient use of space or money. The same holds true for extremely radioactive wastes, like sludges, resins, filters and radioactive components from nuclear reactors. Some of these wastes will be hazardous for thousands of years and will clearly outlive concrete modules. Although the compaction and actual concrete SUREPAK modules have merit, Westinghouse takes it a step too far by treating all wastes the same. Waste containerization and storage must fit the waste form and hazard. One method will not work for all wastes. SUREPAK containers seem appropriate for much of the extremely radioactive and long-lived "low-level" waste. These containers could be stored above-ground until they can be moved to a high-level repository, if and when one is available. In the meantime, SUREPAKs are easily monitored and retrievable.

Most of the medical and other dry active wastes from reactors should be compacted and stored in 55-gallon drums also in an above-ground structure. However, for these materials, the SUREPAK containers are not necessary. In addition, SUREPAK has not yet been approved for shipping nor licensed for use.

large concrete packages not used in the monoliths, weighing three to five tons each are placed on the asphalt by the crane. These packages which are round and stacked to a maximum of four levels, or about 18 feet are used around the perimeter of the asphalt pad, forming the framework for a valley of 55-gallon drums, which are the lower activity wastes. When the disposal is complete, backfill is poured over the entire stack of drums and concrete packages, to fill in gaps. Then the site is covered with that infamous thick layer of "impermeable" clay. Clay is covered with topsoil and vegetation to retard erosion. Ditches are dug around the tumuli to catch runoff from the mound. When this French dump is closed, it will be monitored for 200-300 years.

Although the French have taken a much more serious approach to low-level radioactive waste disposal than the U.S., there is still the "out-of-sight, out-of-mind" policy. Fifty-five gallon drums in the tumuli will either rust or be exposed by erosion of the soil, which ever comes first. Trench covers will then subside and water will enter the trenches. For this problem, the Westinghouse hexagonal shape is preferred since it will form a tighter matrix and be less likely to subside. The French have attempted to match the facility to the hazardous life of the waste. But what will happen to long-lived "low-level" waste in France? Unfortunately, the French have no solution in sight.

Conclusions

These examples of above-ground storage show that the technology is available. Above-ground storage will be resisted by utilities because of higher initial costs and because it will require the utility to maintain long-term responsibility for the wastes, rather than thrusting it off on an unsuspecting state and its taxpayers.

Some of the questions that need to be resolved are how many above-ground storage sites should be developed? Should these be at the reactor sites? What

should be the design life of these facilities? Should above-ground storage operate in tandem with an incineration facility strictly limited to reactor dry wastes? It is clear that further research needs to be done on these questions. It is also clear that utilities and state governments must break off their love affair with out-of-sight, out-of-mind shallow landfill "solutions." It is time to re-think the "low-level" waste problem.

Footnotes

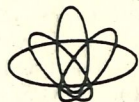
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- ² Nuclear Regulatory Commission, Environmental Impact Appraisal and Safety Evaluation Report of Low-Level Radioactive Waste Storage at Tennessee Valley Authority, Sequoyah Nuclear Plant, Docket No. 30-19101, Washington, D.C., September, 1982.
- ³ Carter, T.J., "Radioactive Waste Management Practices at a Large Canadian Electric Utility," In Seminar in Management of Radioactive Waste From Nuclear Power Plants, Karlsruhe, West Germany, 5-9 October, 1981, International Atomic Energy Agency, Vienna, Austria, 1982.
- ⁴ National Academy of Sciences, BEIR Report, Washington, D.C.
- ⁵ Schori, E., "Disposal of Low-Level Radioactive Waste," Presented at League of Women Voters Conference on Low-Level Radioactive Waste, Boston, Massachusetts, November, 1983.
- ⁶ Westinghouse Waste Technology Services Division, "The Westinghouse Approach to Low-Level Radioactive Waste Storage and Disposal," Madison, Pennsylvania, September, 1985.
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Glossary

Leachate - The soluble components from waste which leak from a landfill when rain percolates through the trenches. This polluted liquid is called leachate.

Curies - A unit which measures radioactivity equivalent to 37 billion disintegrations per second.

Half-Life - A period of time required for the disintegration of half of the atoms in a radioactive material.



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February 26, 1987

REMARKS BY R. W. CLACK IN CONDITIONAL OPPOSITION TO CONTINUED
MEMBERSHIP OF THE STATE OF KANSAS IN THE CENTRAL INTERSTATE LOW-
WASTE COMPACT COMMISSION

My name is Robert W. Clack. I am a resident of Riley County--about three miles west of the City of Manhattan. I am retired from the Department of Nuclear Engineering at Kansas State University where I was the Director of the Nuclear Reactor Facility. I am certificated by the American Board of Health Physics, a professional standards board in the discipline of radiation protection.

It is not, primarily, my professional credentials on which I would trade in making these remarks. My recommendations in this matter are primarily of a political nature--a field in which I have demonstrated only the most slender credentials. Nevertheless, I feel strongly about the issue and, accordingly, appreciate the opportunity to offer these recommendations.

I am here because I support nuclear medicine, I support nuclear power and I support nuclear research. If nuclear endeavors are to be sustained, an acceptable way to manage nuclear wastes must be found. The Central Interstate Low-Level Radioactive Waste Disposal Compact Commission (CILLRWCC), which Compact includes Kansas, is moving toward a landfill type disposal of low-level radioactive wastes (LLRW). I believe that landfill type disposal of such wastes is a mistake.

Failure or error in a landfill type LLRW disposal facility cannot, as a practical matter, be corrected. Failure of the Compact's proposed facility would likely mean a cessation of all nuclear endeavor within the five-state compact. By contrast, a failure or error in a controlled storage warehouse (and I envision near-surface concrete bunkers for such storage) would be quickly detected and corrected with relative ease.

For this reason, unless CILLRWCC makes a clear commitment favoring retrievable warehouse storage and as against trench-type burial, I have to oppose Kansas' continued membership in the Compact.

The State is being forced to address the issue of management of LLRW. Whatever solution the State embraces, it should, I believe, avoid coercion to the maximum practicable extent. I believe that an alternative to trench-disposal exists that is economic, less prone to failure, easier to correct if failure occurs and which can be made politically acceptable --even to its neighbors. If you would like details on such an alternative, I would be pleased to provide them.

City of
concordia

135 E. 6TH ST. - P.O. BOX 603 - CONCORDIA, KANSAS 66901

February 25, 1987

Since joining the Central States Compact in 1982, a wide variety of information has become available to the Legislature and the people of Kansas. Senate Bill 114 allows us to reconsider our membership in the Compact on the basis of this information.

I would like to address three specific concerns about our membership in the Central Compact: 1) Economic Development Opportunities, 2) Criteria for Host State Selection, and 3) Lack of Public Input.

ECONOMIC DEVELOPMENT OPPORTUNITIES

There are those who speculate that hosting a radioactive dump-site would be a tremendous economic development opportunity for Kansas. However, if Kansas views radioactive waste disposal as an economic development activity, we are in the wrong compact.

Waste Volume

According to Raymond Peery, the Central Compact is expected to produce approximately 80,000 cu. ft. of low-level waste per year.

A private developer, Chem-Nuclear, wanted to locate a low-level waste site in Edgemont, South Dakota in 1982. "To be economically viable, Chem-Nuclear said, Edgemont would have to bury up to one million cubic feet of waste a year." This is 12.5 times the amount the Central Compact produces.

A representative of the technical division of the Nuclear Regulatory Commission stated that developers have indicated that 250,000 cu. ft. is the minimum amount of waste to develop a private site. On any volume less than that, they would enter into a contractor relationship with a State or Compact and require a subsidy from them. (Phone conversation February 24, 1987)

Article III part "d" of the Central Compact states that if "revenue is insufficient, all party States shall share the costs...".

In contrast, the Southeast Compact is expected to generate over one-million cu. ft. of waste per year, and be a profitable venture.

G
Energy
2-25-87

Economic Incentives

As you will note on the attached article, the Midwest Compact is offering yearly cash incentives of \$800,000 to the host community and \$500,000 to the host State.

It is extremely doubtful that this size of incentive would be economically feasible in the Central Compact. It already appears that States will have to subsidize the operation. In addition, there would have to be an additional charge of approximately \$122 per barrel of waste just to cover the incentives (one 55-gallon barrel holds 7.5 cu. ft. of waste).

Job Opportunities

Using data provided by the Department of Energy's National Low-Level Waste Management Program's economic model, the State of Maine constructed an economic model of a low-level waste site receiving up to 150,000 cu. ft. per year.

Their findings are as follows: 1) Due to the small volume of waste, the facility would receive waste only two months of the year. 2) A staff of twelve is anticipated during the operating season.

12 employees for 2 months a year.

Satellite Industries ?

In Maxey Flats, KY, promoters stated that related industries would move to the site. Not a single industry located there. 99% of the waste came from out-of-state.

If the economic benefits of operating a dump-site are so great, why did the 3 existing dump-sites want to shut down?

Economy vs Safety

The Articles of the Central Compact make it clear that they are looking for the developer with the cheapest technology, not the safest.

"Article V. "c. The Commission shall review and consider each applicant's proposal based on the following criteria: "2. The economic efficiency of each proposed regional facility, including the total estimated disposal and treatment costs per cubic feet of waste."

As a result, it is highly doubtful that superior technologies, such as that employed at Centre de la Manche in France, will be utilized in the Central Compact.

HOST STATE SELECTION CRITERIA

If Kansas were a member of any other existing Compact in the United States, it would not be under consideration as a host State.

Each of these Compacts considers volume and type of waste as selection criteria. As an example, Gregg Larson, Executive Director of the Midwest Compact states "In picking the four potential States for sites, the Midwest States based their decision on the amount of wastes generated in each State and the level of radioactivity in that waste". KC Star February 18, 1987, (copy attached).

North Carolina vs Kansas

North Carolina was recently selected as the host State for the Southeast Compact. In a February 13, 1987 news conference, Governor Mike Hayden commented, "Once North Carolina was picked in its Compact there was a big furor, as you'd expect, about whether they ought to get out or stay in. They decided in North Carolina to stay in, because they thought the down side of getting out was greater than the down side of staying in".

Why should Kansas be any different than North Carolina? With the exception of South Carolina, which already has a low-level dump site, North Carolina is the largest producer of low-level waste in their Compact, and the sixth largest producer in the nation.

North Carolina has produced 326,054 cu. ft. of low-level waste in one year. (Department of Energy Records) Kansas produces 10,000-18,000 cu. ft., and is the smallest producer in the Compact.

LACK OF PUBLIC INPUT

The Compact Commission selected the firm of Dames and Moore to begin the site exclusionary studies approximately three years ago. It has been nearly two years since the results of Phase I were announced.

During this time, neither the Executive Director nor any member of the Compact Commission has appeared in any of the non-excluded Kansas counties to answer questions or to provide information about low-level radioactive waste disposal or the site-selection process.

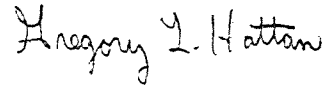
Is it any wonder that the people in these areas are scared half-to-death about the prospect of receiving a radioactive waste dump?

Had the general public been involved and informed at the inception of these studies, I believe that their attitude would be much different than it is today.

Page 4

As legislators, you must ask yourselves if you believe that a representative of the Compact Commission could go into a proposed area, where fear, suspicion and mistrust have been allowed to build for two years, and receive a favorable reception.

Sincerely,

A handwritten signature in cursive script that reads "Gregory L. Hattan".

Gregory L. Hattan
Commissioner

GLH:scb

in Missouri not likely

Regional group to start narrowing choices next week

By Barbara Musfeldt

The Star's energy/environment writer

While Kansas officials are worrying that the Sunflower State will end up with a regional radioactive waste site, Missouri may be able to avoid being host to a similar site.

In 1983 Missouri joined six other states—Michigan, Ohio, Minnesota, Wisconsin, Indiana and Iowa—to form the Midwest Interstate Low-Level Radioactive Waste Compact. Kansas joined Nebraska, Oklahoma, Louisiana and Arkansas in 1982 to form the Central Interstate Low-Level Radioactive Waste Compact.

Each compact is mandated by federal law to find a disposal site within its region by Jan. 1, 1988, for wastes generated in those states.

Members of the Midwest group will meet next week in Ohio to begin narrowing the choice for a site selection.

"We have proposed a resolution that is being circulated to commission members that designates Michigan, Minnesota, Ohio and Wisconsin as host states (for a site)," Gregg Larson, the group's executive director, said Tuesday. That action would exclude Missouri, Iowa and Indiana as potential states for a site.

The final choice for the Midwest group's site will be picked in early June, compact officials say. It would be up to that state to locate a site within its borders.

Missouri still could end up with a site if the selected state and alternate picked by the commission reject that decision, even though those states could face substantial monetary penalties.

"I don't think this means Missouri is home free," said Kay Drey, a member of the Missouri Coalition for the Environment, a group that believes the radioactive waste should be stored at nuclear power plants where most of it is generated.

It's also possible Missouri could end up with the site if the state would volunteer to have it, Larson said.

The Midwest group has put together an incentive package that includes an \$800,000 yearly payment to the community and \$500,000 to the state that is host to the site. The community would also get an initial payment of \$300,000 and reimbursements for lost property taxes and public works expenses.

"We have gotten a great number of phone calls from communities that are interested in this," Larson said.

But Missouri officials report they've received only a few calls, and none of

Waste continued from pg. 1A

them serious. "I don't think you'll see anyone volunteering for it," said Ron Kucera, deputy director of the Missouri Department of Natural Resources.

Similar incentives might also be offered to a state having the site in the Central compact, said Raymond Peery, the group's executive director, but those incentives would be offered by a private developer building the waste site.

Kansas officials have grown increasingly concerned the Central waste site will be in their state. Bills have been introduced in the Kansas Legislature that call for the state to withdraw from the compact or make it difficult for a site to be located there.

The Midwest and Central groups differ in their process of selecting a final site.

In picking the four potential states for the sites, the Midwest states based their decision on the amount of wastes generated in each state and the level of radioactivity in that waste, Larson said.

Missouri is expected to be eliminated because it ranks fifth among the seven states in the amount of low-level waste it generates each year, said Tom Lang, a planner with the Missouri Department of Natural Resources. It ranks sixth in the level of radioactivity in the waste.

A developer will propose the final location for a waste site in the Central states, Peery said. Two studies commissioned by the group point out which areas in the five states are suitable for such a site. Kansas remains a front-runner in the amount of suitable land, followed by Nebraska.

I represent HOOD DEVELOPMENT CO., located in Concordia, KS. Members of the Development Co. own 11 properties in Concordia and Belleville, KS. Hood Development Co. supports S.B. _____, which would withdraw Kansas from the Central Interstate Compact for several reasons. The Dames and Moore study is seriously flawed, which casts doubt on its validity. The Dames and Moore study allows burial of low-level radioactive waste directly into the water supply in most areas of North Central Kansas. We base this conclusion on the following:

1. Dames & Moore's study was meant to conform to NRC's 10CFR, Part 61 which allows for the burial of low-level waste with the technology of enhanced shallow land burial, permits burial within the first 30 meters of the soil. This would allow burial to a depth of 98½ feet.
2. One specified burial site located by the Dames and Moore Study is on the Thayne Larson farm, between Scandia and Belleville, KS. Please allow me to read Mr. Larson's statement.
3. Evidence supplied by the three leading water-well drilling companies in North Central Kansas clearly brings forth the fact that while water tables vary, water may be found less than 50 feet deep in most areas of North Central Kansas. Please allow me to paraphrase these three letters.

Allowing the Central Interstate Compact to bury 300,000+ barrels of radioactive waste (80,000 cu.ft./7.5 cu.ft. per barrel X 30 years) in North Central Kansas is inviting disaster. This volume of waste (which does not include decommissioned plant parts) contains significant amounts of filtrates and sludges which are laced with long-lived radionuclides and dangerous for hundreds of years. Contamination of the water supply will result in loss of property value for all residents, including Hood Development Co. We also foresee agricultural product contamination with an increased further deterioration of the economic base in North Central Kansas.

We are convinced the hydrology of North Central Kansas is wrong for the technique of enhanced shallow land burial and that the methodology of enhanced shallow land burial is often a ruse, we further state the technology of enhanced shallow land burial extremely dangerous and antiquated.

It is possible that within the next 30 years science will discover a way to render radioactive waste innocuous. If this waste is confined in monitored, retrievable, near surface, concrete structures (as is done in France and Canada) the waste could be retrieved in total and neutralized. If we allow burial in any form contamination will result.

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We are alarmed that an outside developer will pick the dump site with the profit motive first and the safety aspect last. We would much prefer the State of Kansas to operate this disposal facility as opposed to people associated with the likes of Fred Beierle or James Harvey.

We are angry to learn that Dames and Moore carries only \$1 million in liability insurance and that they may not be liable for this flawed, inaccurate, siting study which may cause millions of dollars in loss-due to radioactive contamination of water supplies. If one of the sites in North Central Kansas is chosen and if the technique is enhanced shallow land burial, we are convinced that litigation against the State of Kansas, the owner of this proposed dump, by counties, cities, agriculture, and industry for water contamination, property damage, personal injury and suffering will be many times more expensive than the construction of a State owned facility.

We respectfully urge Kansas be withdrawn from the Central Interstate Compact and that Kansas take the moral and ethical responsibility for the waste it produces and nothing more. We suggest Kansas take action similar in nature to that taken by Texas or alternatively Kansas form a new compact with a low-volume, low-level radioactive waste producer such as North Dakota. Kansas could accept all the waste generated from North Dakota and store it in Kansas, along with our waste.

Concordia, Kansas, February 23, 1987

Dr. Robin P. Hood, 1122 Broadway, Concordia, KS 66901

—In Account With—

CARL THOMAN & SON

Well Drilling
PUMPS and WINDMILLS
IRRIGATION SUPPLIES

333 East Sixteenth Street

P.O. Box 10

Phone 243 - 2465

Robin:

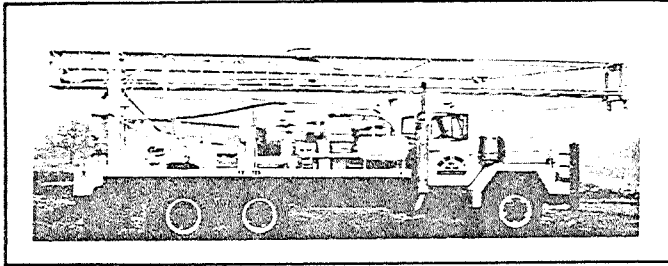
In answer to your questions: My family has been in the water-well drilling business for about 54 years. We have drilled thousands of wells all over north-central Kansas.

As we have drilled the majority of these wells in Cloud, Republic, Jewell, and Mitchell counties, I can definitely assure you that in almost all places potable water can be reached short of 50 feet. In certain localities, water wells must be drilled considerably deeper to provide adequate water reserves in dry years. This greater depth may not be necessary in very wet years. But, in answer to your question, almost always we hit water before we drill 50 feet.

Sincerely,



A FINANCE CHARGE is made at a "Periodic Rate" of 1% per month which is an ANNUAL PERCENTAGE RATE OF 12% applied to the previous balance remaining unpaid on the last day of each month.



DARYL COX & SONS, INC.
WELL DRILLERS

T-L CENTER PIVOTS

CLIFTON, KANSAS 66937

February 23, 1987

Robin Hood
 1122 Broadway
 Concordia, Kansas 66901

Dear Robin:

This letter is in regard to our recent telephone conversation about the water supply in Republic, Mitchell, and Jewell Counties.

I have drilled numerous wells & test wells in these Counties over the 40+ years of drilling experience.

I have yet to drill what you would call a dry hole. There is no place that I know of in this area where you don't get some water. It might not be the best quality, or the quantity might not be what you'd look for in a well, but there is always some water. I have left a dry hole open overnight. In the morning there is always some water in the hole. In these holes the water is sometimes found very shallow, and in some it is quite deep. Usually by the depth of 200 ft. you have some water.

Since July 1, 1975 the State has on record any well drilled in the State of Kansas by a licensed Driller. Although some tests are not recorded, the wells are recorded and the information is available through the State Department. Their address is:

Kansas Department of Health & Environment
 Division of Environment
 Environmental Geology Section
 Topeka, Kansas 66620

There is also a publication available from the Geological Survey of Kansas from Kansas University that might be of interest to you. It is titled: "Ground Water in the Republican River Area, Cloud, Jewell, and Republic Counties" It is:

Geological Survey of Kansas
 Bulletin 138
 by, Stuart Fader

I hope this information will be of help to you.

Yours truly,

Daryl Cox
 Daryl Cox



G. KENT LARSON

913 - 527-2195

BESTIFOR FARMS

Rural Route 1
Scandia, Kansas 66966

THAYNE A. LARSON

913 - 335-2895

Feb. 22, 1987

Dr. Robin P. Hood, HOOD DEVELOPMENT CO.
1122 Broadway
Concordia, KS 66901

Robin:

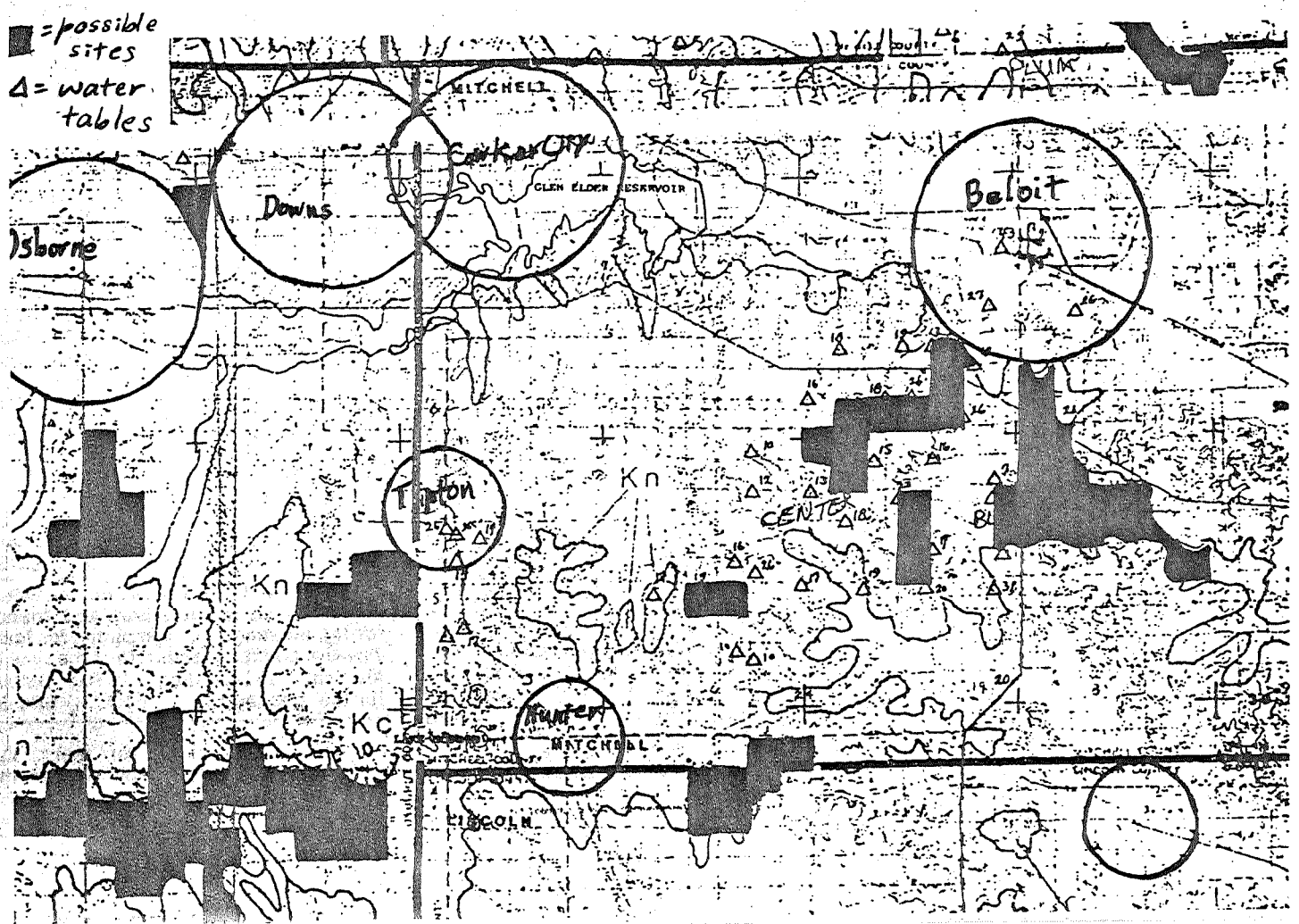
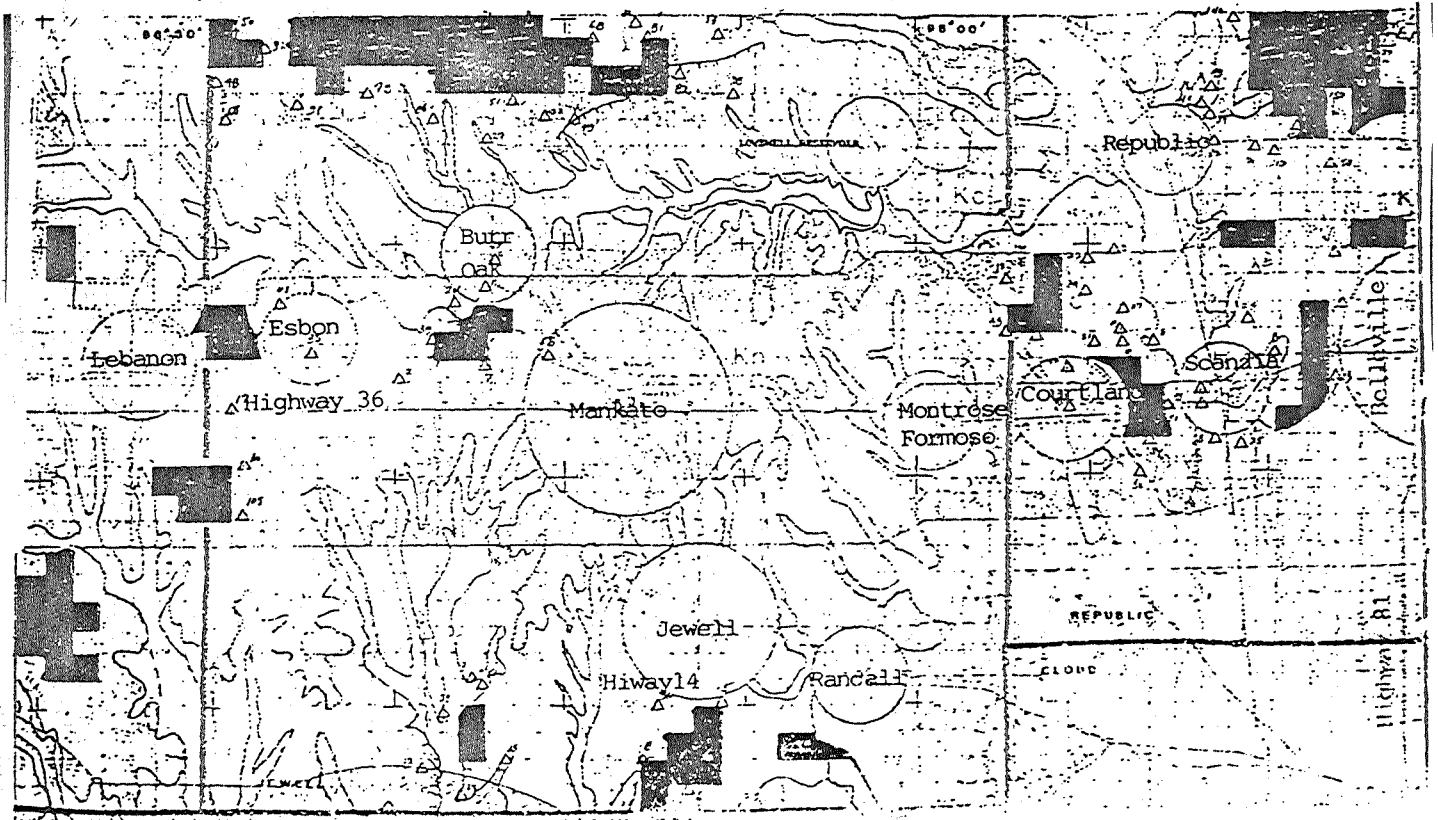
Our farm is located in Republic County (NW $\frac{1}{4}$ of 7-3-3) and has been specifically sited by Dames and Moore as a property ideally suited for the burial of low-level radioactive waste.

This must be a mistake, but after seeing the other sites published in the Belleville Telescope all within this county, I have come to the conclusion that the only criterion used in determining the placement of this dump is low population. The water table on our farm is approximately four feet (4'). Anyone burring radioactive or any other waste in this region will find the hole they dig filled with water to within four feet of the surface. This can only result in water contamination for the surrounding area.

Most people around here think this Dames and Moore study is a phony. No one in their right mind would bury radioactive waste here!

Thayne Larson, B.S.

Waste Dump In Area



John McClure

Box 72

Glen Elder, KS 67446

I am here today to ask you to support Senate Bill 114, withdrawing Kansas from the Central Interstate Low Level Radioactive Waste Compact. If Kansas withdraws from the Compact, we would only have to manage the low-level radioactive waste produced in this state and more importantly, we, the state of Kansas, would have control over site selection and the technology for our own waste facility.

If Kansas remains in the Compact and is selected as the host state, how much control would we have over these important decisions?

I am afraid not much! The rules of the Central Interstate Compact leave responsibility for the siting, operating and day to day monitoring of the waste dump up to the developer selected by the Compact Commission. Inevitably the developer's interests will be divided between meeting the safety concerns of the host state and providing a profit to his company's stockholders. Although the developer must have an operating license from the host state, the state's authority to withhold a license is limited. The Compact Commission may by a two thirds vote, determine that a member state has acted in an arbitrary or capricious manner in refusing an authorized developer a license and revoke the membership of this state in the Compact. This leaves little option for the host state other than to license any contractor approved by the Commission.

In summary; Our alternatives in regards to the Central Interstate Compact are this: Remain in the Compact and run the risk

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Wierman
2/26/87

of becoming a regional dumpsite that may or may not be operated in a responsible manner. Leaving our door open to future health problems and huge cleanup costs.

Or withdraw from the Compact and develop our own low-level radioactive waste facility, operated for Kansas by Kansans, in a way that we and future generations can live with.

Thank you.