

Approved 4-10-87
Date

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 March 30, 1987 in room 123-S of the Capitol.

All members were present except:
Senator Eric Yost
Senator Norma Daniels

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

Conferees appearing before the committee:
Don Steeples, Kansas Geological Survey
Ray Peery, Executive Director, Interstate Compact

Motion to approve minutes of the March 20 and 24, 1987 meetings was made by Senator Gordon, seconded by Senator Kerr. Motion carried.

SB 406 - Relating to creation of a low level radioactive waste disposal Authority

Chairman Werts stated one reason for introduction of SB 406 was because of questions raised by members of the Committee regarding the quality of the siting studies executed by the Central Interstate Compact consultant, Dames and Moore.

Don Steeples summarized a critique prepared by KGS of the Dames & Moore Phase II siting study. The Phase II report does not include all published information about geological features in the K-4 area of Western Kansas. KGS has had reservations about the glacial area for a site and this was not addressed by Dames & Moore. It is felt a major geological study and investigation may be required to characterize areas suitable as a facility site. The KGS believes the K-3 area was included prematurely and also questions the Dames & Moore report regarding the areas of salty loess deposits as being favorable conditons. Dames & Moore has identified 833 sq. miles in Kansas as suitable for a LLRW storage facility and it seems highly improbable that Oklahoma has no suitable areas. Arkansas has 5 sq. miles and Louisiana 2 sq. miles according to Dames & Moore. The exclusionary process employed by Dames & Moore was far too arbitrary. Mr. Steeples stated that a site selection survey by KGS might be possible within nine months. Characteristics and location of shale types help to identify the most desirable site locations and consideration must be given to location and depth of aquifers. Mr. Steeples further stated that shallow burial or storage at the surface is preferred. (Attachment A)

Ray Peery testified that the Phase II study is not final. Each member state of the Compact has been requested to appoint one representative each with expertise in geology and radiology to the Technical Advisory Committee. Concern with the study has been expressed by other member states of the Compact. Final adoption of the Dames & Moore study will have to be carefully considered by the Compact Commission. It may be more desirable for the developer to deal directly with state geologists of the host state rather than to rely on the Commission's consultant. Proposals from Westinghouse Corporation and U.S. Ecology as developers will be submitted to the Compact soon, but the selection may not be made by June, 1987. The Commission does not discourage the enactment of SB 406.

Unless specifically noted, the individual remarks recorded herein have not been transcribed verbatim. Individual remarks as reported herein have not been submitted to the individuals appearing before the committee for editing or corrections.

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES,
room 123-S, Statehouse, at 8:00 a.m./~~p.m.~~ on March 30, 1987

Action needs to be taken to allow the state to license a facility should the state get the license application of a developer. The Compact Commission does have the option to negotiate with other regions now or in the future to accept waste from our compact. Each member state of the Compact has a veto vote on the acceptance of waste from other states. Rejection of the Phase II Study will alter the timetable of requirements under federal regulation, but selection of a developer is critical. Kansas would make the choice of operators if a state authority is created and a facility is to be developed in our state. The Commission would interfere only if Kansas does not act in good faith to meet the timetable set by federal regulation. Should the legislature deem interim study is necessary, the time table would be disrupted but it would provide evidence of good faith on the part of our state. Kansas does not have to accept the two developers presenting proposals to the Commission at this time. The critical requirement of the January, 1988 deadline is completion of a siting plan.

Criteria for selection of a developer and types of disposal technology acceptable to the Compact were discussed. Mr. Peery stated the Commission does not envision necessarily endorsing the least expensive means of storage. Withdrawal of Kansas from the Compact could have an unfortunate rippling effect across the country in the opinion of Mr. Peery. It was also noted that Wolf Creek is not favored as a site location for a facility due to the potential for environmental damage.

Meeting adjourned.

The next meeting will be March 31, 1987.

Senate Energy - Guest list
3-30-87

Jardene Stearns	Topeka	BCCN
John D. McClure	Alan Elder	NCK Citizens
David Ebbert	Quinter	
Don Steeples	Lawrence	Kansas Geological Survey
Frank W. Wilson	✓	✓
Gale Simmons	Manhattan	Kansas State Univ
B. Bartel	Ucheto	Eagle Beacon
S. George	Topeka	Sen. Johnson, Jr.
Marsha Marshall	Topeka	KNRC ✓

Testimony from the Kansas Geological Survey

Concerning Senate Bill 406

March 30, 1987

My name is Don Steeples and I am here this morning as Deputy Director of the Kansas Geological Survey (KGS) a Research Division of the University of Kansas. The KGS is charged by statute, and I quote, "to make as far as possible a complete geological survey of the State of Kansas." End quote.

Rather than commenting for or against SB 406, I intend to simply provide additional background information for this committee. Specifically, Mr. Chairman, you asked that I comment on the KGS' critique of the Dames and Moore Phase II siting study draft report. One of our Senior geologists, Howard O'Connor, has provided written commentary to Dames and Moore in a letter of January 12, 1987, and copies are attached to this testimony.

Briefly, O'Connor pointed out that the Phase II report does not include all that has been published about faults, sinkholes and collapse features in the K-4 area of western Kansas. I agree with all of O'Connor's comments. I also

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Steeples
3-30-87

agree with all of Frank Wilson's comments, concerning the Phase I Dames and Moore Study, which were included in a letter to Barbara Sabol on June 14, 1985. I am sure the committee already has a copy of Mr. Wilson's memo.

With respect to the Phase II study, the KGS still has reservations about the general suitability of the glacial till area, and these reservations are not addressed by Dames and Moore. Their perception of the so-called Kansan and Nebraskan advances of the continental glaciers into Kansas represents a lack of knowledge of glacial geology in the Midcontinent. In fact, there were more than two advances of the glacier into Kansas, and their respective till layers are often separated by fresh-water gravel aquifers. As a result major geologic investigation may be required to properly characterize the till's suitability for a radioactive waste storage facility.

They excluded the so-called K-3 area in central Kansas because of oil production and population density. In fact the K-3 area is no more populated than the K-1 area in northeastern Kansas. Substantial parts of K-2 have nearly the same density of oil production as the excluded K-3 area. The excluded K-3 area has substantial areas where there is no oil production and low population density. In other words, we believe the K-3 area was prematurely excluded.

We believe the Phase II report is overly optimistic with respect to the suitability of loess deposits, that is thick deposits of wind-blown silt. I quote from the first paragraph of page 22 of the Phase II report

"Where substantial thickness of silty loess deposits occur (greater than 20 feet) overlying the favorable host units such as glacial till or Cretaceous shale units, potentially very favorable conditions occur." End quote.

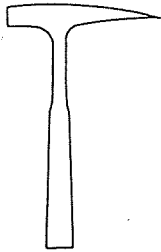
I emphasize the word potentially because our scientists have found that prehistoric root canals in loess deposits near Burrton in central Kansas have allowed salt water to migrate downward into an irrigation aquifer from shallow oil-field brine evaporation ponds. In other words, while loess is sometimes a good storage medium, it is not always as impermeable as suggested in many textbooks.

We continue to believe that suitable sites may exist in areas of thick shales in the eastern part of Kansas generally south of I-70 highway. We believe the exclusionary process used was somewhat arbitrary.

In summary, we believe there may well be at least 633

square miles in Kansas and 265 square miles in Nebraska that are suitable for a low-level radioactive waste storage facility. As a result of our beliefs about the arbitrary nature of the exclusionary process in Kansas, it taxes our collective professional imagination that Oklahoma has no suitable area and Arkansas has only 5 square miles and Louisiana 2 square miles. The exclusionary process used was far too arbitrary to provide such precise numbers of square miles accurately.

Thank you for your attention, and I would be happy to try to answer any questions.



KANSAS GEOLOGICAL SURVEY

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Gerhard

*HOWARD: Good Review!
L*

January 12, 1987

Dr. Thomas F. McKinney
Associate Geologist
Dames and Moore
One Blue Hill Plaza
Box 16680 Suite 530
Pearl River, New York 10965-8668

Dear Dr. McKinney:

This letter provides written comments which I transmitted to you by phone earlier today regarding my review of the Phase II Siting Study Draft, Central Interstate Low-Level Radioactive Waste Compact Region, November, 1986.

Comments

Page 28 - Line 2 and line 15. The word Nebraska is used in each of these lines and I believe the word should be Nemaha.

Page 30 - The draft for PSA areas in K-4 discusses the numerous surface faults exposed in the Niobrara and Pierre in Logan County. Note also is made of the depression features in this area. Carlton R. Johnson was the only geologist mapping in the K-4 area that made a real effort to map these surficial faults. These faults also occur in adjacent counties. I recall discussions with Kenneth Walters (1956) at the time he was working in Rawlins County regarding linear features in both the Cretaceous rocks and also the Pleistocene loess deposits. No discussion of the origin of these features is mentioned or described in Walters report. The lineaments are too long and too straight to be "trails" and they either reflect through or show movement through the loess deposits. My feeling is that these features are faults or fractures that show in both the Cretaceous and Pleistocene deposits.

Not all of the significant sink holes or collapse features are shown on the K-4-A maps. For example, the Smoky Basin Cave-In about 5 miles east of Sharon Springs (Wallace County) in Sec. 33 & 34, T.13S, R.39W, is not shown. It evolved suddenly in March 1926 forming a hole about 250 X 350 feet in diameter and + 300 feet deep (Merriam, 1963, p. 286). At the time this sink hole was considered to be the result of collapse into a Niobrara cavity caused by solution of chalk, or the result of structural deformation, or associated

Dr. Thomas F. McKinney
January 12, 1987
Page 2

with solution along a fault. None of the theories considered the possibility of salt solution or flowage in the underlying Permian Cimarron salt or Blaine salt. Bayne (1972) in discussing Supplemental Areas for Storage of Radioactive Wastes in Kansas shows a large thickness of Blaine salt underlying this area and mentions drillers in adjacent Cheyenne County Colorado as sometimes losing circulation at about 600 feet (Cretaceous rocks) and continuing through the underlying Permian evaporites.

In any event should any vendor choose the K-4 area for a radioactive waste site much more detailed information on faulting and solution subsidence features would have to be obtained.

*this was
done in Feb-87
version*

For use of the public I would suggest that Dames and Moore prepare some simplified maps showing the suitable areas in the K-1, K2 and K-4 areas that are much less cluttered with exclusion data.

The references cited above are given below:

Walters, K.L., 1956, Geology and Ground-Water Resources of Rawlins County, Kansas: Kansas Geological Survey Bulletin 117, 100p.

Merriam, D.F., 1963, The Geologic History of Kansas: Kansas Geological Survey Bulletin 162, 317p.

Bayne, C.K., 1972, Supplemental Areas for Storage of Radioactive Wastes in Kansas: Kansas Geological Survey Special Distributed Publication No.60, 20p.

Other aspects of the draft manuscript look good.

Sincerely yours,



Howard G. O'Connor
Senior Geologist

cc: Raymond J. Perry
Harold Spiker
Dr. Jack Walker
Lee Gerhard ✓