Approved: 3-5-96
Date

MINUTES OF THE SENATE COMMITTEE ON ENERGY & NATURAL RESOURCES.

The meeting was called to order by Chairperson Don Sallee at 3:30 p.m. on February 20a, 1996 in Room 521-S- of the Capitol.

All members were present except:
Senator Vancrum, Excused
Senator Emert, Excused
Senator Hardenburger, Excused
Senator Lawrence, Excused
Senator Morris, Excused

Committee staff present:
Dennis Hodgins, Legislative Research Department
Ardan Ensley, Revisor of Statutes
Clarene Wilms, Committee Secretary

Conferees appearing before the committee:
Mark Campbell, Vice-President, Development, Seaboard Farms, Inc.
William Craven, Sierra Club, KS Natural Resources Council

Others attending: See attached list

Chairman Sallee called the meeting to order at 3:35 p.m. The meeting was called to provide equal time to opponents of **SB 604.**

SB 604--concerning water pollution control; relating to swine confined feeding facilities

Mark Campbell, Vice-President, Development, Seaboard Farms, Inc.,introduced John George of the Agriculture Engineering & Associates and Jerry Frazell from Seaboard Corporation. Mr. Campbell appeared and presented written testimony in opposition to **SB 604** (Attachment 1). Mr. Campbell told the committee that Seaboard was supportive of the intentions of this bill while suggesting alternative considerations for subsection (k) as outlined on page 1 of Attachment 1.

Attachment 1 also contained responses to several issues raised by those opposing the Seaboard operation and were reviewed by Mr. Campbell. The response outlines regulation by state authorities and the number of facilities with waste retention structures. Mr. Campbell called attention to prescribed development of the lagoonsnoting the final "in-place" certifications performed for lagoon permeability were filed with KDHE by an independent, state certified engineer.

Mr. Campbell also addressed erosion, water usage, abandoned wells and water quality.

A member questioned what type of liners were used and whether they were familiar with synthetic liners. Mr. Campbell stated the areas he was aware of that used synthetic liners were in places where there were very high water tables. He noted that in the southwest area of the state the water tables were much lower, around 150 to 200 feet.

A member asked about the size of the lagoons. Mr. Campbell stated the lagoons vary in size, from 20 acre feet of volume up to 60 acre feet of volume and some facilities share lagoons.

William Craven, Sierra Club, Kansas Natural Resource Council, presented testimony, (Attachment 2) calling attention to a letter from Spectrum Technologists. Mr. Craven told the Committee the issue in southwest Kansas deals with concern with contamination of the aquifer.

Mr. Craven stated support of **SB 604** with several amendments. He noted no opposition to increasing the animal units to a higher number thus avoiding additional regulatory burden on smaller producers. Secondly, Mr. Craven

suggested that lysimeters be installed providing early warnings of trouble as recommended by Craig Volland, Spectrum Technologists.

A member questioned whether Seaboard had considered using lysimeters. Mr. Campbell stated they are continually evaluating cost effective measures for prevention of pollution noting that Seaboard is a large entity that has gone beyond the requirements of KDHE. He also noted they had instigated a policy to monitor their water wells twice each year as well as irrigation wells since both animals and humans needed protection.

Mr. Campbell reminded members he had referenced a two year study of cattle and swine operations by Steve Frost, Southwest Kansas Groundwater Management District, doing water testing to determine whether there are really problems. Seaboard is participating in that study which will eventually provide more objective information.

The meeting adjourned at 4 p.m.

The next meeting is scheduled for February 21, 1996.

SENATE ENERGY & NATURAL RESOURCES COMMITTEE GUEST LIST

DATE: February 20 - Meeting 2

NAME	REPRESENTING
Mark Campbell	Seaboard Farms
John George	Agriculture Engineering Assoc.
Jerome L Fewell	Seaboard Corporation
Rich McKee	KLA
Donald R. Carlson	KDHE
Jim Allen	Seaboard
Bill Craven	KCMC/Sierra
Mike Jensen	Ks Pork Council

SIERRA CLUB

Kansas Chapter

Testimony of Bill Craven
Kansas Natural Resource Council and
Kansas Sierra Club
February 14, 1996
S.B. 604

Thank you for the opportunity to express our support for this bill. The committee is undoubtedly aware of the disasters caused by spills from large mega-swine lagoons in the past several months in North Carolina and Missouri. Millions of gallons of waste were released into rivers and streams because of waste lagoons which were breached, by various causes. In those states, the result was contamination of surface water.

In western Kansas, the risk is not to surface water, but to groundwater. The committee doesn't need a lot of testimony on the fact that protection of groundwater quality and quantity is the key to the very survival of western Kansas.

Kansas has no standards which protect groundwater from pollution. The only tools we have are the standards which govern wastewater lagoon controls. This bill is attempts to correct deficiencies in our current approach. The folks who testify from southwest Kansas will detail the specific problems which have arisen in that part of the state.

We support all of the provisions of S.B. 604, but we would respectfully request consideration of two amendments. On page 6, line 7, we would not oppose increasing the animal units to a higher number. That way, no additional regulatory burden would fall on smaller producers.

Second, as described in the attached letter from Craig Volland, an engineer who has looked into this issue, it seems prudent also to require the installation of lysimeters at these lagoon facilities. These are devices which sense increases in soil moisture and can provide early warnings of trouble much before groundwater monitoring wells would do so.

Craig Volland's letter makes the following additional points: (1) Various factors, including extremes in weather, cause these lagoons to leak. In the type of soil found in southwestern Kansas, if the required clay liner fails, the escaping waste will encounter conditions of medium to high permeability. In other words, there isn't much to stop this waste from percolating down into groundwater. KDHE standards anticipate a certain amount of leakage. The letter states that the KDHE standard for infiltration is 1/4 inch per day. For the size of the lagoons common in southwest Kansas, that works out to 2.5 million gallons per year per acre of lagoon area, year after year.

We regard this legislation as creating prudent requirements necessary to protect the vital groundwater supplies of western Kansas. Thank you for the opportunity to testify.

Senate Energy & Natural Res.
February 20a, 1996
Attachment 2

SPECTRUM *Technologists*

609 N. 72nd St.
Kansas City, KS 66112
(913) 334-0556

2-13-96

Bill Craven
Sierra Club
935 1/2 S. Kansas Av.
Topeka, Ks. 66612

Subj: Comments on Ks. Senate Bill 604

Dear Mr. Craven,

This is response to your request for comments on Kansas Senate Bill no. 604 which seeks to improve mandatory permit conditions for large hog farm lagoons currently installed or being installed in southwest Kansas. I will limit my comments to certain technical components of the bill.

Lagoon Leakage Monitoring. It is my understanding that Seaboard, Inc. employs anaerobic lagoons approximately 20 feet deep with soil liners obtained on-site. Recently they have installed some plastic shields at approximately the pond surface level to protect against wave action. In recent years researchers have found that some animal waste lagoons, including hog manure lagoons, that heretofore had been considered to be sealed, have in fact been leaking[1,2,3]. A recent review of seepage from animal waste lagoons concluded that some lagoons appeared to seal properly while others did not, that rates of seepage varied greatly, and that these variations did not appear to correlate with soil type. In other words it was difficult or impossible to predict if an animal manure lagoon would leak and at what rate.[1]

Compressed soil liners of the type employed by Seaboard would, in my opinion, have limited capacity over time to resist disturbances such as cracks from freeze/thawing and wetting/drying cycles caused by pond level fluctuations. These conditions could be extreme in the climate of SW Kansas. Since manure lagoons are supposed to be pumped periodically, such fluctuations are an inevitable part of the operation of such a facility. In comparison, sewage lagoons maintain essentially a constant liquid level. Further, soil liners may be subject to gases released by microbial activity in soil beneath the bottom of the lagoon and to the actions of worms and rodents.

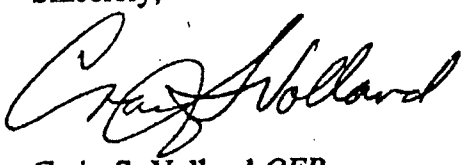
According to several permit application documents I've reviewed, some manure lagoons in Morton, Grant and Stanton Counties are proposed for installation in soils classified as sand, fine sand, silty sand and sandy silt that predominate at a depth of between 10 and 25 feet where the bottom and lower side walls of the lagoon are located. If the soil liner fails, escaping liquid will encounter conditions of medium to high permeability.

Apparently the KDH&E must anticipate leakage of facilities of this type because their infiltration standard is 1/4 inch per day. This works out to 2.5 million gallons per year per acre of lagoon area, year after year.

Since one cannot predict whether these lagoons will leak or not, it would seem essential to require monitoring devices and protocols to protect the groundwater in the area. Senate Bill 604 calls for monitoring wells to be installed near the facilities. Since the level of groundwater in counties where most of these facilities are currently being installed is 100 feet or more, monitoring wells will not detect leakage until a large amount of contamination has been released. Accordingly, in addition to the monitoring wells, I recommend that the permit holder be required to install lysimeters in the vadose zone just beneath the lagoons. The vadose zone is the soil above the water table that is not saturated with water. A lysimeter is a device that senses changes in electrical conductivity that signal an increase in soil moisture, ie. leakage. These should be designed and placed by a certified hydrogeologist. Normally one lysimeter would be placed at each corner of the lagoon and one in the middle. In addition a certified meter should be required to measure and record the inflow to the lagoon. This information should be regularly reported to the KDH&E along with calculations estimating evaporation losses and any leakage.

Certification of Specifications. Section (k)(2) requires that a registered engineer or consultant certify that the facility is built to specifications in the waste management plan. While this may seem elemental, I would note that the Missouri Department of Natural Resources encountered considerable difficulty in investigating several large manure spills in Northern Missouri because lagoons were either built without a permit or were not built in accordance with plans and specifications approved with the permit. Pipes were not where they were supposed to be, etc. Thus certification is a good idea.

Sincerely,



Craig S. Volland *QEP*
President

References:

1. D. Parker, D. Schutte, D. Eisenhauer and J. Nienaber, "Seepage from Animal Waste Lagoons and Storage Ponds - Regulatory and Research Review," Proceedings of the Great Plains Animal Waste Management Conference, Agricultural Council Publ. No. 151. Denver Colo., pp 87-98.

2. Dennis D. Schulte, PHD, PE, Univ. of Nebraska, "Oral Testimony to be Given to the Missouri Clean Water Commission," 31 August 1994.

3. "New studies show lagoons are leaking," Raleigh News and Observer, Feb. 19, 1995.