

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION II - SUITE 818
230 PEACHTREE STREET, NORTHWEST
ATLANTA, GEORGIA 30303

TELEPHONE 404/826-4503

JUL 20 1973

AEC Public Document Room
1717 H Street, N. W.
Washington, D. C. 20545

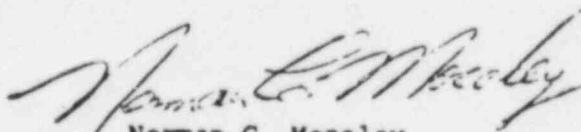
PUBLIC DOCUMENT ROOM

Enclosed are the documents listed on Enclosure A relating to
Chem-Nuclear Systems, Inc., License No. 46-13536-01.

This correspondence is submitted pursuant to arrangements made
with the Public Proceedings Branch, Office of the Secretary,
for use by the public.

Where possible, these materials should be punched and filed in
a folder labeled as follows:

INSPECTION FILE
(Including Inquiry and Incident Reports)


Norman C. Moseley
Director

Enclosure:
As stated

cc: Central Mail and Files Unit, Document Room Clerk
w/o documents
RO Files, w/o documents

Documents for Public Document Room:

Licensees

License No.

1. Chem-Nuclear Systems, Inc.
P. O. Box 1866
Bellevue, Washington 98009

46-13536-01

bcc: Enclosure A
only w/documents
State - South Carolina

OFFICE ▶	RO:II				ENCLOSURE A	
SURNAME ▶	LNUnderwood:gg					
DATE ▶	7/23/73					

JUL 20 1973

Form AEC-591 dated July 9, 1973 to
Chem-Nuclear Systems, Inc. - License No. 46-13536-01

cc w/encl:
H. D. Thornburg, RO
RO:HQ
DR Central Files
PDR
State - South Carolina

RO Rpt. No. 74-1

Inspection Report

Chem-Nuclear Systems, Inc.,
P. O. Box 1866
Bellevue, Washington 98009
(Barnwell, South Carolina
Burial Site)
License No. 46-13536-01

Prepared By:

P. R. Guinn, Radiation Date
Specialist
Radiological and Environmental
Protection Branch

G. L. Troup, Radiation Date
Specialist
Radiological and Environmental
Protection Branch

Inspection Date: November 26, 1974

Reviewed By:

J. T. Sutherland, Chief Date
Radiological and Environmental
Protection Branch

Licensed Activities Authorized By The State and By The AEC

1. AEC License No. 46-13536-01 authorizes the licensee to receive and process packaged waste byproduct, source and special nuclear material in the amounts specified in the license, in any State in the United States, except Agreement States, and to dispose of by burial packages containing uranium-235 in accordance with the amounts, procedures, and at the designated location specified in the license.
2. State of South Carolina License No. 097 authorizes the licensee to receive, process, store for disposal by burial byproduct and source material waste in accordance with the amounts, procedures and at the designated location specified in the license.

Licensee Activities

The licensee is receiving, possessing, transporting and storing byproduct, source and special nuclear material wastes in liquid and solid form. Most of the solid wastes are received and buried in packaged containers, although some internally contaminated pipes and other metal objects are received and buried without containers. Liquid wastes are transported in DOT authorized containers and are buried in metal drums after solidifying with cement. Spent resins are being transported in DOT authorized containers in semi-liquid form and are buried in special metal containers after de-watering. During the period of October 28, 1971, through November 12, 1974, a total of

61,586 curies of byproduct (mostly cobalt 60), 187,796 pounds of source material (mostly depleted uranium) and 258,326 grams of special nuclear (all uranium-235) material wastes have been received and disposed of by burial in nine burial trenches.

Burial Ground Operations

Most solid wastes are being received in wooden or cardboard packages and are taken directly to the trenches for burial. Some amounts of internally contaminated metal pipes and other metal objects are received and buried without containers. Liquid wastes are stored in a designated storage area and as time permits are mixed with cement in 55 gallon drums and after solidification are taken to the trenches and buried. Resins are screened to remove the liquids and placed in metal containers which are then placed in the trenches and buried.

Radiation Control Program

The licensee is requiring all employees to wear protective clothing, TLD badges and direct reading dosimeters. Radiation surveys, including instrument surveys and smear tests, are conducted on all incoming shipments. During operations where dusts are encountered, air samples are taken. Daily instrument surveys are conducted in all work areas, including the trenches in which burials are being made. After unloading of the trucks, instrument surveys and smear tests are conducted inside the trucks. Contamination surveys are made on each employee when exiting from the work area. Employees are given annual whole body counts and are required to submit quarterly urine samples for analysis. Whole body counts in 1974 for three employees indicated some uptake of uranium 235, but were only a fraction of lung burden limits. The only indication of an excessive exposure to any employee was that one employee's film badge result during the first calendar quarter of 1974 showed an exposure of 3.3 rem. This was attributed to an exposure to cobalt 60 and was reported to the State of South Carolina.

Control of Releases to the Environment

The licensee is controlling releases of radioactivity from the buried wastes by (1) the burying of solid wastes only and (2) by following burial methods which are designed to prevent the entrance of water into the burial trenches, thereby preventing migration of radioactivity from the trenches. Most of the wastes are buried in wooden or cardboard packages or metal drums. These are placed in the burial trenches which are excavated in a clay soil to a depth of 20 feet (about 20 feet above the water table) and are 500 feet in length. A layer of sand and rock, about three feet thick, is placed in the bottom of each trench for the purpose of collecting surface rainwater. The only other treatment for the trenches is that during excavation operations clay is piled on the sides of the trenches to a thickness of at least three feet. Waste

containers are stacked to a height of 12 feet but no higher than five feet from the top of the trench and then covered with soil. A layer of clay, at least six-feet-thick is placed over the top of the filled trench and then compacted and seeded. Each filled trench is marked with a permanent granite marker.

Environmental Monitoring Program

1. The AEC and State of South Carolina licenses specify that an environmental monitoring program shall be conducted, consisting of the following:
 - (a) thirty-five well water samples on annual basis (gross alpha, gross beta) except all wells within 1500 feet of trench boundaries shall be samples on a semi-annual period
 - (b) trench well water samples prior to burial operations and on a quarterly period.
 - (c) soil samples prior to burial operations
 - (d) animal and vegetable material sampled "periodically"
 - (e) Water samples from five municipal water supplies off-site on an annual basis
 - (f) "small number" of air samples to be obtained initially
 - (g) determination of water table configuration in March and September annually
 - (h) water level recorder installed in one well
2. The licensee is conducting an environmental monitoring program which was described by licensee representatives to consist of the following:
 - (a) nine well water samples on annual basis (gross alpha, gross beta, gamma isotopic and tritium); one well water sample semi-annually
 - (b) trench well water samples quarterly (Note: records indicate this is being performed semi-annually; review of records revealed no trench well samples were collected prior to burial).
 - (c) soil samples from six locations annually (gross beta, gamma isotopic); weekly samples from areas around site (no specific number) (gross beta as check for spread of contamination)

- (d) vegetation samples from six locations annually (gross beta, gamma isotopic); no animal samples are collected
- (e) no municipal water supply samples are collected; the State of South Carolina collects and analyzes the municipal water supply samples and furnishes results to the licensee
- (f) one continuous air particulate monitor changed weekly and analyzed (gross beta)
- (g) water levels in wells logged semi-annually, but not necessarily in March and September.
- (h) continuous water level indicated with strip chart recorder installed in one well (installed October 1974)

All samples are collected by licensee personnel. Water, annual soil and annual vegetation samples are analyzed by Eberline Instrument Corporation. Weekly soil samples and air particulate samples are analyzed on site by the licensee.

- 3. A review of the environmental monitoring program records indicates a gap in the performance of the required samples between 1970 and 1973 for peripheral well samples and no data prior to 1973 for other samples (soil, vegetation, animal material, trench well water). The trench well water sample data indicates that samples are being collected and analyzed semi-annually, not quarterly as stated by the licensee. Also, the wells around the site boundary which are not on the licensee's property are not being sampled and analyzed nor are animal samples being collected. The licensee is not conducting an environmental monitoring program in accordance with the conditions of the license.
- 4. A review of the available sample results for peripheral well water, trench well water, soil and vegetation does not indicate any apparent migration of radioactivity from the burial trenches to the surrounding environs. Examples of data collected by the licensee to substantiate this are:

Well B-18 (peripheral well)

gross beta : 12/70 1.25 E + 1 pCi/l
 3/73 <2.25 ± 2.25 E-2 pCi/l
 (reported as <1.00 E+01 d/m/200 ml ± 100%)

Well B-14 (peripheral well)

gross beta : 3/73 <2.25 ± 2.25 E-2 pCi/l
 5/74 01 ± 3.0 EO pCi/l
 (reported as <1.00 E+1 d/m/200 ml ± 100%)

Well 2-W-W (trench well)

gross beta : 8/73 0 ± 5.5 EO pCi/l
 5/74 0 ± 3.6 EO pCi/l

Well 1-E-W (trench well)

gross beta : 8/73 5.7 ± 5.7 EO pCi/l
 5/74 0 ± 3.6 EO pCi/l

Soil sample location #1: 11/74 9/73

Cs-137	1.1 ± 0.9 E-01 pCi/g	3.39 ± 1.05 E-01 pCi/g
Co-60	6.2 ± 5.7 E-02	2.19 ± 0.85 E-01
Bi-214	5.4 ± 2.1 E-01	8.06 ± 2.53 E-01
Pb-212	7.8 ± 2.7 E-01	1.01 ± 0.26 EO

Vegetation sample location #4: 11/74 9/73

Cs-137	<1.4 EO pCi/g	8.19 ± 4.68 E-01 pCi/g
Ph-212	<4.0 EO	<1.23 EO
Co-60	4.2 ± 1.4 EO	9.14 ± 3.94 E-01



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

WY - WRC
JL
Fy
D.V.

AUG 30 1984

MEMORANDUM FOR: G. Wayne Kerr, Director
Office of State Programs

FROM: Guy H. Cunningham, III
Executive Legal Director

SUBJECT: SOUTH DAKOTA INITIATIVE

In your memorandum of August 3, 1984 you requested the views of this office on the proposed South Dakota initiative concerning radioactive waste disposal. You also asked for our views on six specific questions that occurred to you.

In our analysis the initiative is a procedural measure that would add a referendum to any State procedure intended to pass on an application submitted to any South Dakota State authority for (1) interim storage or disposal of low-level waste, (2) interim storage or disposal of high-level waste, and (3) the formal participation of South Dakota in a low-level waste compact. Exempted are NRC licensees storing their own waste onsite. The referendum would presumably include NRC licensees disposing of their own waste onsite under NRC license.

Because the initiative only adds a referendum to procedures for state action where an application has to be made to the State we see no constitutional infirmity in the initiative as it pertains to storage or disposal of low-level waste or to joining a compact. (We are assuming for this purpose that such a referendum is allowed in South Dakota under the State's constitution.)

With respect to high-level waste, Section 116(b) of the Nuclear Waste Policy Act of 1982 (NWP) precisely provides for a submittal of a notice of disapproval of a repository siting decision to the Congress by whatever entity or person that State law provides. Thus, State law governs what procedures will be used by a State in submitting a notice of disapproval and the initiative procedure could legally be used in the State's decision making process. However, subsequent action by the Congress under Section 115 of NWP can override the State notice of disapproval, regardless of the procedure through which it was expressed. It should be noted that the State procedure for notice of disapproval is not applicable to Indian reservations (Section 116(b)(3)).

In line with the preceding analysis our answers to your specific questions are as follows:

Guy H. Cunningham 388.

AUG 30 1984

1. If enacted, would the Initiative Petition be unconstitutional because, among other things, it may violate the interstate Commerce Clause of the U.S. Constitution?

A. In line with our analysis given above the initiative does not violate the Commerce Clause of the U.S. Constitution.

2. The attached article from the Rapid City, South Dakota Journal dated June 9, 1984 attributed differing views to at least three lawyers. I would appreciate your comments on their views.

A. There is no need to comment on the views expressed by the three lawyers mentioned in the June 9, 1984 article in the Rapid City, South Dakota Journal. First, the article presents only the lawyer's conclusions, but not the basis for their conclusions. In law there is always room for differences of opinion on constitutional matters, and each opinion may have a reasonably valid basis. Our views on the constitutionality of the initiative are presented above, and may be no more or less meritorious than the views expressed by the other three lawyers cited in the article.

3. Does the interstate Commerce Clause allow a State to prohibit a business from being located within its borders?

A. This is a broad and abstract question. In the context of the initiative it is irrelevant. The initiative does not prohibit a business, but only provides a procedure for approving or rejecting certain applications made to State authorities. However, under certain conditions a state can prohibit a business from operating within its borders if its prohibition is not discriminatory and does not unduly burden interstate commerce. Exxon Corp. v. Governor of Maryland, 437 U.S. 117 (1978) (upheld non-discriminatory state law prohibiting vertically integrated gasoline retailers); see also Lewis v. BT Investment Managers, Inc. 447 U.S. 27 (1980) (state law unconstitutional that barred out of state bank holding companies from operating investment subsidiaries in state on ground of discrimination in favor of local banks).

4. If South Dakota joined a compact (consented to by Congress) which allowed the State to host a site, would this preempt the State prohibition under Section 1(1) of the Initiative (assuming it passes)?

A. Section 1(1) of the initiative does not prohibit the State from either joining a compact or hosting a site. Section 1(1) only applies the referendum procedure to applications for interim and permanent disposal of low-level waste and high-level waste. If the initiative passes, presumably South Dakota could join a compact after an approving referendum. A referendum would also presumably

AUG 30 1984

apply to a specific application to site a low-level waste disposal facility anywhere in the State.

5. Since the Congress has granted permission for States to enter into compacts pursuant to the LLRWPA of 1980, does this preempt the provisions of Section 1(2) of the Initiative assuming it is passed?
 - A. The Low-Level Radioactive Waste Policy Act of 1980 does not preempt Section 1(2) of the initiative. The Low-Level Radioactive Waste Policy Act is permissive. It does not require states to enter compacts. Further, the question appears to assume that the initiative prohibits the activities to which it applies (see Question 4 above).
6. What is the effect of the provision in Section 4(4) of the Initiative which states "Voter approval of this application shall precede any application or attempt to conform with any other State or Federal law or regulation including certification of ownership and liability." Since Dakota is not an Agreement State and NRC currently exercises regulatory authority in South Dakota?
 - A. The effect of the provision, within the context of the procedure that would be established by the initiative, is to make the referendum a threshold proceeding that would have to approve an application before any other State action could take place. Although the provisions could not preclude a private person from submitting an application to the NRC, it would preclude State officials from taking part pursuant to Subpart E of 10 CFR Part 61 in the NRC proceeding, from participating in review of a draft environmental impact statements, from providing State owned land or accepting ownership of applicant purchased land (10 CFR 61.59(a)), from participating in institutional control (10 CFR 61.59(b)), and from entering into the binding financial arrangement under 10 CFR 61.63. Since State participation in these matters under Part 61 is already discretionary, Section 4(4) merely adds an element of public participation in the decision on which way the State should proceed.

Guy H. Cunningham, III
Executive Legal Director