

STORAGE

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Division of Licensing and Regulation  
Washington, D.C.  
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Oak Ridge Operations Office

March 23, 1959

COMPLIANCE INSPECTION REPORTS, LICENSE NOS. SNM-15h, C-3571 AND R-218,  
SPENCER CHEMICAL COMPANY, KANSAS CITY, MISSOURI

SYMBOL: MHWMP

Submitted herewith are compliance inspection reports on special nuclear and source material programs, being conducted under the subject licenses, by the Spencer Chemical Company in their Jayhawk Plant near Pittsburg, Kansas.

Forwarded also is an ALOO assist inspection report on the subject licensed programs with their transmittal memorandum dated 9-23-58.

No items of noncompliance are reported for the programs being conducted under License Nos. C-3571 and R-218.

Two items of noncompliance are reported for the program being conducted under SNM-15h as follows:

Item 8 of the licenses:

- (1) The Licensee has made substantial changes in the administrative organization and other key personnel from that originally approved in the Licensee's application of September 15, 1958. These changes have not been reported to the DLR. (See paragraph 13 of the report details).
- (2) There were two deviations in equipment from plans submitted as part of applications:
  - (a) Changes made by the Licensee in the separation sections of the pulse columns are not in conformance with the changes approved in the Licensee's application of May 16, 1958.
  - (b) Insulating material several inches thick is present around a 6 inch process vessel, forming a reflector. (See paragraph 15 of the report details).

The above items of noncompliance were discussed with Mr. L. H. Landrum, Manager of the Nuclear Fuel Department and Mrs. C. E. Chenoweth,

*Mr. Sapiris, ALOO*

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Superintendent of the Licensee's Jayhawk Plant, Pittsburg, Kansas,  
both of whom stated that the changes would be reported to the DLR.

At the present time, with the current design of equipment, the current organization and procedures, and with the current inventory of low enrichment material, it appeared that operations of the Spencer Chemical Company in the licensed program present an acceptable risk from criticality and radiological health and safety. However when operations begin with a larger inventory of material, and particularly highly enriched material, there are a number of areas wherein operational safety could and should be improved. These include changes in the design of the equipment, procedures and possible changes in organization.

The current dimensions of some of the process equipment are clearly unsafe for use with highly enriched material. The lack of formal, detailed procedures for process operations, material transfers and criticality control is considered a serious deficiency if and when highly enriched material is processed. The Licensee's organization is avowedly kept small to minimize expense. This results in a general lack of trained and experienced personnel to evaluate criticality and health physics problems, which further results in inadequate training and indoctrination of supervision and operators in these aspects of plant operation.

Criticality considerations in the Licensee's application procedures include several stipulations that certain valves in the system shall be operated only by supervision or an analyst. Since this control is established at points where criticality considerations are very important it would seem advisable to secure such valves by locking, or other means, against use by anyone but those authorized. There are several operating functions in which criticality control in the program is dependent on the vigilance of the operator which could be improved by requiring that the operator obtain supervision's signature on a process sheet as approval for such functions. Safety procedures for cleaning up spills or overflow to control vessels (traps, pans, etc.) should include the requirement that supervision be present to approve vessels, tubes and methods used for recovery of the material. Level alarms should be installed on vessels that are dependent on periodic visual checks such as overflow through the condensate line of the evaporator to a vessel that must be visually checked to determine solution level.

There is a notable absence of plant safety procedures, posted or distributed to personnel, to be followed in the event of fire, explosion (hydrogen) or any incident that could involve the release of hazardous amounts of radioactivity.

In view of the above, and the general impression of unfamiliarity on the part of Spencer personnel with the technical aspects of criticality control and health physics evaluations, it is believed that the DLR should make a thorough review of the equipment and plans for operation of the Spencer plant before operations begin with highly enriched material. Until such time as there is staff assistance on the location

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able to advise on pertinent matters every effort should be made to fully assure that license conditions are clearly specified and that no deviations be allowed without DLR approval. We consider the present operation marginal.

No follow-up inspection is planned.

Original signed by  
Leo Dubrowski

*for* S. R. Spiria

Enclosures:

Inspection Report as Listed (1)

cc: M. M. Mann, Assistant Director for Compliance,  
Division of Inspection, Washington, w/encl.

✓ Vincent C. Vespe, Acting Director, Licensee Inspection  
Division, Albuquerque Operations, w/encl.

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