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MEMORANDUM FOR: John B. Martin, Director  
Division of Waste Management

FROM: Timothy C. Johnson  
Low-Level Waste Licensing Branch  
Division of Waste Management

SUBJECT: MEETING WITH DOW CHEMICAL

Enclosed is my report of our meeting with representatives of the Dow Chemical Company held in Silver Spring, Maryland on April 29, 1982.

Original Signed By

Timothy C. Johnson  
Low-Level Waste Licensing Branch  
Division of Waste Management

Enclosure:  
As stated

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## DOW CHEMICAL MEETING

Purpose: The purpose of this meeting was to discuss the waste form provisions of 10 CFR 61 with representatives of Dow Chemical Company (Dow).

Date & Location: April 29, 1982  
NRC Offices, Silver Spring, MD

Attendees: J. B. Martin, WM                      B. Owen, Dow  
R. E. Browning, WM                      B. Bader, CRB  
R. D. Smith, WM  
T. C. Johnson, WM

### Discussion:

Dow representatives desired a meeting with NRC staff to discuss their comments on 10 CFR 61 and on the NRC Draft Branch Technical Position (BTP) on Waste Form. Dow believes that 10 CFR 61 and the BTP do not encourage to use the best available waste form technology and should provide more stringent criteria for waste form properties.

Dow manufactures a solidification agent, vinyl ester styrene (VES), which has seen very little actual experience, but which has excellent properties as determined from laboratory testing. Currently seven utilities and three vendors are licensed to use the VES process.

Dow believes that the high integrity container (HIC) is a good concept but believes that those approved by the State of South Carolina (SC) are incapable of providing stability for 300 years. DOW has been unable to obtain specific design data on the HIC's approved by SC. In addition, Dow believes that handling tests for an HIC should include a 30 foot drop test rather than the Type A drop criteria (up to 4 feet) now required. Dow states this since it is likely that during normal handling an HIC will be greater than 4 feet from the ground and in some cases 60 feet above the ground.

Dow also stated that industry believes that the NRC will not enforce the waste form requirements.

The free liquid requirements in the proposed 10 CFR 61 stated that free liquids must be as low as possible but no greater than one percent of the volume of the waste. Dow disagreed with this position stating that it interpreted this to mean urea-formaldehyde (UF) was still acceptable as a solidification agent. Dow suggested that a 0.5 percent of the waste volume limit be placed on free liquids with a maximum volume of about three gallons included.

Following a long presentation of these comments, NRC staff and Dow engaged in an extremely frank discussion. Dow was unable to provide technical reasons why more restrictive waste form criteria, especially regarding leaching, was needed. NRC staff indicated that over the last five to eight years, NRC had tried to place restrictive requirements on waste form including solidification of resins.

However, our pathway evaluations indicated that stability was the most important factor and that overly restrictive criteria was unnecessary and even undesirable in light of the cost-benefit analyses required by the Reagan administration in promulgating any new regulations.

Regarding the HIC, NRC staff indicated that SC had not provided to NRC the submittals of the firms applying for HIC approval, since these submittals were considered proprietary. While NRC staff has some technical questions regarding the approved HIC's, it is believed that high density, high molecular weight polyethylene can be used to provide a stable 300 year waste container. This is based on NRC staff evaluations of biodegradability, radiation stability, and chemical resistance properties. The prerogatives of the individual Agreement States to regulate their disposal sites according to site specific problems was pointed out to Dow. Therefore, our authority to review cases which do not have significant health and safety impacts is limited.

Regarding the need for a 30-foot drop test for the HIC, existing containers and liners used for dewatered resins currently are generally not even qualified to meet the Type A tests. For transportation these containers or liners are placed into overpacks which provide the Type A or B protection required by the transportation regulations. No adverse public health and safety impacts have been observed at disposal facilities or have been projected by pathway analyses for the current operations. The NRC staff believes that a 30-foot drop test would be unnecessary.

It is apparent that HIC usage will affect the marketability of Dow's VES binder. This is obviously the concern which has motivated Dow to raise these specific objections against the HIC.

NRC staff indicated that industry's belief that NRC will not enforce the waste form criteria is unfounded. NRC staff are preparing the BTP to be used as the basis for qualifying process control programs at individual facilities. These requirements will be inspected against to ensure compliance.

The NRC staff is changing the free liquid requirements to be more in line with the Dow comments. These changes were also requested by others who commented on the proposed rule.

Dow indicated that they believed NRC was no longer concerned about waste form criteria. NRC staff responded that waste form was an extremely important area which when combined with the areas involving site selection, disposal operations, and closure and remedial care would ensure that low-level waste disposal would not be inimical to public health and safety.

Dow also indicated that they should have "made more noise" regarding the waste form criteria earlier. One of Dow's consultants, B. Bader, has been involved in a letter writing campaign with the SC governor openly stating that SC was not protecting public health and safety in its waste management policies. Therefore, NRC staff interpreted Dow's statement as a threat to initiate a

publicity campaign against the rule. NRC staff indicated that, if a threat was intended, Dow should carefully consider the impacts to establishing long needed low-level waste management guidance.

NRC Action Items:

Ensure that Dow's comments on the Draft BTP and the proposed 10 CFR 61 are carefully considered in the revisions to the two documents.