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NOTE TO: Philip Justus, Acting Chief Geotechnical Branch, DWM

FROM: John Linehan, Acting Chief Repository Projects Branch, DWM

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SUBJECT: STAFF POSITION ON CORE HANDLING

The staff has expressed concern regarding the handling of core samples collected at the potential geologic repository sites. This concern was specifically addressed for the NNWSI in a letter to Dr. Vieth dated November 18, 1985. In response, Dr. Vieth sent a letter to NRC (February 26, 1986) requesting guidance. Our reply, see attachment, provides some general references; however, the staff have not reviewed these and determined specifically what core handling practice and procedures will be needed to meet licensing requirements and NRC approval. While NNWSI seems to be taking the lead for DOE on developing acceptable core handling procedures, BWIP and SRPO are following their progress and will, no doubt, be using the same procedures, as applicable.

The purpose of this note is to identify the need to evaluate the information referenced in this letter and determine what will meet our acceptance so that we can provide comments to DOE once they submit their revised core handling procedures for our review. In addition since the procedures DOE develop may have a major impact on the reliability of information derived from core sampling, I would like you to consider the need for more detailed staff guidance to facilitate DOE's efforts at this time.

Please notify me as to what action you consider appropriate.

Attachment: May 19, 1986 letter to Dr. Vieth regarding core handling

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cc: JLinehan JGreeves SBilhorn

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Donald L. Vieth, Director Waste Management Project Office U.S. Department of Energy Nevada Operations Office P.O. Box 14100 Las Vegas, NV 89114-4100

Dear Dr. Vieth:

This is in response to your February 26, 1986 letter on the "documentation of custody of core." In reference to our November 18, 1985 letter on core handling problems at NNWSI, you raised two points for clarification: core handling precedents and procedures, and rules of evidence in the licensing process.

Proper handling of core is essential to assuring that the data needed to support licensing decisions are reliable. Accordingly, the purpose of our November 18, 1985 letter was to express the staff's concerns regarding core handling at NNWSI and to provide guidance on the steps necessary to resolve these concerns. The letter contained guidance on the types of procedures and documentation that will be needed to support licensing decisions. A number of other sources, discussed below, are also available to provide additional guidance on the practice of core handling for collection of licensing information.

Regulatory Guide 1.132, "Site Investigations for Foundations of Nuclear Power Plants," was developed to provide general guidance for conducting subsurface investigations for nuclear power plants. The staff considers the information contained within this regulatory guide directly applicable to geotechnical investigations for a geologic repository related to structures, systems, and components of the surface facilities which may be important to safety. With the exception of Appendix C, this document also contains information the staff considers applicable to both surface and subsurface investigations for the characterization of a geologic repository. For example, Regulatory Guide 1.132 specifically addresses procedures and personnel qualifications for field operations in the core handling process, subjects raised as staff concern in the November 18, 1985 letter. In the procedures for subsurface investigation Regulatory Guide 1.132 states that:

"Field operations should be supervised by experienced professional personnel at the site of operations, and systematic standards of practice should be followed. Procedures and equipment used to carry out the field operations should be documented, as should all conditions encountered in all phases of investigations. Experienced personnel, thoroughly familiar with sampling and testing procedures, should also inspect and document sampling results and transfer samples from the field to storage or laboratory facilities."

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Based on this paragraph the NRC staff would expect that the procedures developed by the DOE for activities such as coring, sample handling, and transfer from the site to storage facilities would include minimum qualifications for the personnel supervising such activities, and that these qualifications would include requirements for applicable training and experience. The staff would also expect that the procedures developed would reference the applicable standards [e.g. those established by the American Society for Testing Materials, (ASTM)], that development and use of these procedures would require suitable documentation, and that the procedures and documentation would be controlled through implementation of the applicable QA program.

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In addition to Regulatory Guide 1.132, a recent DOE contractor publication, "Evaluation of Regulatory Guides Potentially Useful to Geologic Repository Development" (BMI/ONWI-588), provides a description of various regulatory guides and an evaluation of their potential applicability to development of a geologic repository. The staff believes that this document contains useful summaries of available NRC guidance that provide a basis for future discussions with the NRC staff.

Other agencies have also developed procedures which address sample handling and custody concerns. For example the EPA published a document entitled "Samplers and Sampling Procedures for Hazardous Waste Streams," deVera, Emil, et. al., 1980, (EPA-600/2-80-018), which contains sections on identification of samples, chain of custody records, and receipt and logging of samples. Additional information and guidance is also available from sources such as the Navy design manual for soil mechanics, foundations and earth structures (NAVFAC DM-7), and other Navy, Air Force, and Corps of Engineers documents of a similar nature. While some of the information provided in these sources is general and must be adapted to the particular problems associated with the geologic repository program, many geotechnical consulting firms, architectural engineers, and utilities have used this information to develop core handling practices which have met the requirements for licensing nuclear power reactors.

In response to your concern regarding rules of evidence, Mr. Olmstead's remarks must be taken within the context of the Commission's rules of evidence for licensing precedings. 10 CFR 2.743 generally delineates the types and forms of evidence which will be accepted in NRC licensing proceedings. Specifically with regard to the care and custody of core samples, information from core samples entered as evidence can be challenged on the basis of its reliability, including questions of alleged tampering. The intent of our November 18, 1985

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letter was to identify certain procedures the DOE must implement to help preserve the integrity of the core samples and assure the reliability of information to be used to support licensing findings. We suggest that you discuss this subject further with the DOE legal counsel.

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For guidance on the rules of evidence applicable to NRC proceedings, see Section 3.11, and the cases cited therein, of the enclosed NRC Staff Practice and Procedure Digest, NUREG-0386. This Digest is updated periodically and may prove useful to your legal staff. Updates of the Digest are available through the Government Printing Office. In addition, while not directly applicable to NRC proceedings, the NRC adjudicatory boards often look to the Federal Rules of Evidence for guidance.

We hope you find the above information responsive to the concerns raised in your February 28, 1986 letter. While the staff stands ready to consult with you on these matters, we cannot be prescriptive on implementation of DCE's program. Specifically, the DOE should develop positions based on the unique knowledge resulting from DOE sponsored research/site activities and internal consultation among DOE technical experts and legal counsel. Designated staff contacts, such as the On-Site Licensing Representatives and project technical contacts, should be used to provide informal feedback to facilitate the DOE's efforts.

Please contact King Stablein (FTS 427-4611) if you want to discuss further NNWSI's plans to resolve the NRC's concerns regarding handling, transportation, and storage of core.

John J. Linehan, Acting Chief Repositcry Projects Branch Division of Waste Management Office of Nuclear Material Safety and Safeguards

Enclosure: U.S. NRC Staff_Prastice and Procedure Digest. NUREG-0386, January 1986.

Record Note: This letter has been coordinated with Chip Cameron, ELD.

