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Unclassified

Mr. Harold J. Davis, Chairperson  
WIPP Waste Acceptance Criteria  
Certification Committee  
DOE/WPO  
101 West Greene Street  
Carlsbad, NM 88221

*Handwritten notes:*  
Harold J. Davis  
April 2, 1991

Dear Mr. Davis:

**REF: WACC-WTG Review Comment Sheets (U)**

Attached to this memo are the WACC-WTG Review Comment Sheets covering my review of the "Quality Assurance Project Plan for the INEL Waste Isolation Pilot Plant Waste Characterization Project," EGG-WM-9526 DRAFT dated February 12, 1991. Appendices A and B were reviewed with the document as requested.

I recommend approval of the QAPjP document with the requirement that the organizational names, addresses, and phone numbers be provided in detail for the primary document and Appendix A activities prior to reporting of data. The critical organizations are described in the documents but the people filling the key positions are left unnamed in those documents. This leaves the impression that the organization exists only on paper and is not real.

I made several observations concerning the DOE QA Program Plan requirements for the WIPP project while doing my review and wish to pass these to you. First, I felt more emphasis on the safety of the personnel involved in the study should be in the DOE Plan. I believe DOE should have required those involved in the program to pass safety and health concerns between the many groups involved as part of the program requirements. I believe safe characterization of these hazardous materials should be a primary objective of DOE. This does not appear to be a requirement in the Plan. It was not possible to see how, for

Derivative Classifier

*Handwritten signature:* Cliff Jensen

**MASTER** *LD*

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example, the laboratory analyzing a gas sample would be clearly alerted about a sample which the samplers believed would have a high alpha internal surface contamination and might therefore require extra monitoring. DOE could have required that this information be passed on the chain-of-custody form. Our experience at Savannah River has shown that it is critical to safe handling of WIPP waste analyses to pass safety information between groups. This information is usually part of the process history records for the waste material.

Second, the DOE Plan appears to be inconsistent in the quality of calibrations required to meet the measurement objectives, especially if one contrasts the DOE nuclear analyses with the chemical calibrations required by the EPA methods. For example the DOE Plan for radio-assay (RA) allows a single point calibration of a non-matrix matched standard to be used for the Passive-Active Neutron assay (PAN). The "Pink Drum" is a Cf-252 source. Savannah River experience with assay of TRU wastes indicates that a multiple method assay is needed for some waste types to adjust for sources of neutrons generated by (alpha,neutron) reactions. Other corrections are needed for waste containing neutron absorbers. At Savannah River these factors if not corrected would cause a high uncertainty in the neutron measurement of the waste even though the assay of the "Pink Drum" falls within the required precision and accuracy. I am not familiar with the INEL waste and DOE may have supporting data to indicate that the simple calibration is not a problem with these wastes. But I saw no requirement in the DOE Plan which would account for matrix issues on the neutron assay.

In contrast to the RA, the organic measurements require multiple five level calibration curves with internal spiked standards. I suggest that DOE require that a matrix matched set of standards be used periodically to independently check the alpha activities for the primary types of waste forms.

The DOE QA Program Plan requires that a high resolution gas mass spectrometer be used for the assay of hydrogen and atmospheric and radiolysis gases. The Plan requires that the mass spectrometer resolve common mass interferences at mass 28. The DOE Plan did not appear to allow for alternative methods for making the same determinations. For example, the same measurement can be made using a GC coupled to a lower resolution quadrupole residual gas mass spectrometer. This latter option would be much cheaper (>\$600K vs <\$200K for instrumentation.) I assume that all of the sites that will need to follow the plan already have access to the high resolution gas mass spectrometer?

The plan should have options to reduce the amount of hazardous sampling as process knowledge develops. If a site determines that a certain type of waste is well characterized from process knowledge or RTR examination why is 100 percent sampling required. For example a quick screen for hydrogen and methane could quickly indicate if a radiolysis problem exists with a particular waste container. The present plan appears to require full determinations.

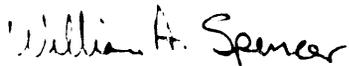
The DOE Plan does not formalize exchanges between sites of waste samples for performance evaluation. I suspect that a requirement to analyze a common and easily obtainable gas, inorganic, organic standard would improve the data transferability between laboratories. I suggest contacting the DOE EM-532 Laboratory Management Branch to coordinate a program of this type.

Finally, I suspect that the laboratories will not be able to maintain the 40 day reporting requirement especially if one considers the number of laboratories, people, and data validation review cycles involved. I recommend that DOE change the requirement. I suggest that DOE require the WIPP project groups to average less than 40 days for sample reporting. DOE should require that a non-conformance report be generated for analyses taking longer than 120 days or some other agreed upon time. The Plan should call for a summary of problems in making measurements early in the program to adjust for problems. In this way DOE will be able to focus on the real problems as opposed to problems such as key people on vacation or having extended medical care. DOE should impose maximum holding times for analyses of samples based on the suspected stability of the sample but not a 40 day reporting period.

My specific comments are attached. Most of my comments concern the primary document which appeared to be written with several key documents planned for but not completed. Key documents are missing references implying they do not exist. The two appendices were in excellent agreement with the requirements in the DOE plan.

I am forwarding my copy of the project plans to Jessie Donnan, the WSRC Waste Analyses Manager, and to Moheb Khalil, the QA/QC Manager for the WSRC Environmental Monitoring group. They will contact you directly with any comments they might have. My review comments are being sent to you immediately before completing the other WSRC reviews. Please contact me directly if you have questions. My number is (803) 725-5256 or FTS 239-5256

Sincerely,



William A. Spencer, Ph.D.  
Senior Fellow Scientist

cc: C.E. Coffey, Manager WSRC Analytical Development Section  
J.D. Heffner, Manager WSRC Environmental Monitoring Section  
M. Khalil, Manager WSRC Environmental Monitoring QA/QC Group  
J.G. Donnan, Manager WSRC Waste Analyses Group  
K. Wiersbicki, Manager WSRC Waste Management Technology group  
M.G. O'Rear, Branch Chief, Waste Technology, DOE-SR  
C.D. Morissette, Manager Waste Technology, Westinghouse WIPP  
D. Standiford, Westinghouse WIPP  
SRL Records (4)

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# WACC-WTG Review Comment Sheet Page 2 of 5

Document Reviewed: Quality Assurance Project Plan for the INEL Waste Isolation Pilot Plant Waste Characterization Project EGG-WM-9526  
 Reviewed by: W.A. Spencer, WSRC, Savannah River Site, March 20, 1991 DRAFT: February 12, 1991

Review Comments	PAGE	PARA	QAPP REF.	Recom-mendation	WAC CRITERIA	
					Document Section	Page Para
<p>The two training documents should have complete references including document numbers. These documents should be reviewed.</p> <p>Sample Custody people are missing</p> <p>Sample Chain of Custody Forms do not include information on safety, ALARA, radioactivity, or industrial health concerns. This information will probably be needed to safely complete this work and I recommend addressing these concerns with the chain-of-custody issues. This will assure that all parties are informed of hazards at turn overs. The RTR and RA information is being transferred but it is not clear how the information is flagged to alert personnel. HP and hazards labels are not clear.</p> <p>The INEL Safeguards and Security Manual should be referred to by document number.</p> <p>The QAPP requires that analytical data be transferred to the Site DOE WIPP Manager within 40 days of "validated time of receipt". Section 8.3 page 8-2 does not make it clear how the 40 day requirement is assured of being met.</p> <p>A result summary is required but not mentioned. Everything but results are mentioned.</p>	2-8	1		XX		
	5.1.2					
	5.1.3, 5-7,11				XX	
	5-12	1		XX		
	8-2		8-6			
	8-3		8-8			

# WACC-WTG Review Comment Sheet

**Document Reviewed:** Quality Assurance Project Plan for the INEL Waste Association Pilot Plant Waste Characterization Project  
**Reviewed by:** W.A. Spencer, WSOAC, Savannah River Site, March 20, 1991

EGG-WM-9526

DRAFT: February 12, 1991

## Review Comments

	PAGE	PARA	QAPP REF.	Recom- mendation	WAC CRITERIA Document Section Page Para
Key documents missing on validation. see 8.2.2 and 8.4	8-2,4				
Audit Program is vague. Who leads, what are compositions of teams, who collects information and prepares for auditors, who prepares single blind audit cyclinders and how are these tracked in the system?	10-1		10-2 para 3 10-3		
Corrective action criteria appears to be vague. What is an "adverse effect on worker safety"? Some would say that any radiation has an adverse effect. Suggest that guidelines be stated or referenced. Items that should be considered are reportable injuries, radiation exposure in excess of INEL/DOE policy, OSHA violations, failures to comply with fire and radiation protection standards, etc.	13-2	2		xx	
The flow of QA reports as presented does not assure timely reports to the DOE Operations office. If each group takes a few weeks to review a document as it chains upward, DOE could be informed of events several months old. I suggest a complete chart of the review cycle be shown in a diagram. In some cases parallel reporting might be advisable to assure timely response.	14-1	last	14-1 para 2		

**Appendices follow ...**

# WACC-WTG Review Comment Sheet

Document Reviewed: Quality Assurance Project Plan for the INEL Waste Isolation Pilot Plant Waste Characterization Project  
 Reviewed by: W.A. Spencer, WSRC, Savannah River Site, March 20, 1991

EGG-WM-9526  
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Review Comments	PAGE	PARA	QAPP REF.	Recom- mendation	WAC CRITERIA	
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<p><b>Appendix A. Comments follow....</b></p> <p>Why is gamma scanning or PNCC not used as a cross verification of alpha activity on a statistical number of drums? Do gamma and PAN assays compare?</p> <p>When is barcode put on a chain of custody form?</p> <p>Suggest add safety, and HP survey information to travel with chain of custody papers.</p> <p>What are the measuring and test equipment calibration controls placed on the HP survey equipment. I suspect that a simple reference to INEL procedures would suffice. Failure of the HP instruments could easily lead to an "adverse effect on worker safety" and therefore lead to NCRs and corrective actions.</p> <p>Calibration of PAN - blank plus a single point using a non-matrix matched standard creates considerable doubt as to whether the measurement is "quantitative". Suggest adding four levels of standards and blank for each of the major TRUCON listed on page 32. PAN assay is sensitive to fluoride content causing an (alpha,n) reaction. Fluoride is not measured. Is process history good enough?</p>	<p>34,52</p> <p>39</p> <p>39</p> <p>50</p> <p>65</p>					

# WACC-WTG-Review Comment Sheet

Document Reviewed: Quality Assurance Project Plan for the INEL Waste Isolation Pilot Plant Waste Characterization Project EGG-WM-9526  
Reviewed by: W.A. Spencer, WSRC, Savannah River Site, March 20, 1991 DRAFT: February 12, 1991

Review Comments	PAGE	PARA	QAPP REF.	Recom-mendation	WAC CRITERIA	
					Document Section	Page Para
<p>Performance Evaluation Sample should be considered as a feature of testing of the laboratories.</p> <hr/> <p>Appendix B appears to be in excellent agreement versus the requirements. This document contains considerably more details than Appendix A. Should the level of detail be consistent between the documents?</p> <p>Table 1-8 on record retention and filing is incomplete. If this is the only place where record retention times are covered then the table should be completed. A reference to another document containing the information should also suffice.</p>	66					
	B,1-14					

**DATE  
FILMED**

**8 / 14 / 92**

