

WIPP Waste Characterization:  
Implementing Regulatory Requirements in the Real World

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Introduction

It is imperative to ensure compliance of the Waste Isolation Pilot Project (WIPP) with applicable statutory and regulatory requirements. In particular, compliance with the waste characterization requirements of the Resource Conservation and Recovery Act (RCRA) and its implementing regulation found at 40 CFR Parts 262, 264 and 265 for hazardous and mixed wastes, as well as those of the Atomic Energy Act of 1954, as amended, the Reorganization Plan No. 3 of 1970, the Nuclear Waste Policy Act of 1982, as amended, and the WIPP Land Withdrawal Act, as amended, and their implementing regulations found at 40 CFR Parts 191 and 194 for non-mixed radioactive wastes, are often difficult to ensure at the operational level. For example, where a regulation may limit a waste to a certain concentration, this concentration may be difficult to measure. For example, does the definition of transuranic waste (TRU) as 100 nCi/gram of alpha-emitting transuranic isotopes per gram of waste mean that the radioassay of a waste must show a reading of 100 plus the sampling and measurement error for the waste to be a TRU waste?

Although the use of acceptable knowledge to characterize waste is authorized by statute, regulation and DOE Orders, its implementation is similarly beset with difficulty. When is a document or documents sufficient to constitute acceptable knowledge? What standard can be used to determine if knowledge is acceptable for waste characterization purposes?

The inherent conflict between waste characterization regulatory requirements and their implementation in the real world, and the resolution of this conflict, will be discussed.

Definition of Transuranic (TRU) Waste

Section 2(20) of the WIPP Land Withdrawal Act defines Transuranic Waste:

The term "transuranic waste" [is] waste containing more than 100 nanocuries of alpha emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for

- (A) high-level radioactive waste;
- (B) waste that the Secretary [of the Department of Energy] has determined, with the concurrence of the Administrator [of EPA], does not need the degree of isolation required by the disposal regulation; or

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C) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with part 61 of title 10, Code of Federal Regulations.

This statutory definition certainly seems clear enough, but what happens in the real world when a generator must determine whether he is dealing with Low Level Waste (LLW) or TRU waste? What happens if he gets a reading of 98 nCi/g, but the analytical method is only accurate to +/- 5 nCi/g? The "actual" value may be somewhere between 93 and 103 nCi/g, and thus could be either LLW or TRU waste. Which is it, LLW or TRU?

The current official version of the Transuranic Waste Characterization Quality Assurance Program Plan (QAPP) is Revision 0, Interim Change (November 15, 1996). The QAPP provides guidance for determining the alpha activity of radioactive waste. Section 9.1 of the QAPP describes the Quality Assurance Objectives (QAO) for radioassay: "Each participating site must use one or more [radioassay] techniques<sup>1</sup>.... QAOs for NDA [non-destructive assay] are specified over several different ranges of interest.... Participating sites need only demonstrate for individual measurement systems that the QAOs can be achieved for the respective ranges over which that system will be used". Additional details on the individual QAO parameters are given below.

#### "Precision

The precision of each measurement technique must be determined through replicate processing of a waste container containing a known quantity of the radioactive material of interest....

#### "Accuracy

Accuracy is determined through replicate processing of a waste container containing a known quantity of the radioactive material of interest. Accuracy is calculated from the ratio of the mean measured estimate to the known value for an accepted verification standard....

#### "Sensitivity Limits

Discrimination between [low-level waste] and TRU wastes for the Program may only be made with systems for which adequate sensitivity limits have been documented. The ability to achieve the required detection limit...must be demonstrated for each specific waste type/method combination planned for use in the Program. For the Program, detection limits will be defined to be that level of radioactivity which, if present will yield a measured value less than the critical limit with 5-percent probability. The critical limit is defined as that value which measurements of the background will exceed with 5-percent probability.

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<sup>1</sup> Non-destructive radioassay is used by the WIPP program to determine the alpha activity of the TRU wastestreams. The types of measurements that can be used include Gamma-Ray Measurements, Passive Neutron Measurements, Passive/Active Neutron Measurements, and Thermal Neutron Capture. Table 9-2 of the QAPP. (Footnote not in quoted material).

#### “Minimum Detectable Concentration

The detection limit used in the Program is the MDC [minimum detectable concentration].... The MDC is an a priori estimate of the detection capabilities of a given measurement system and method.... The MDC is defined on the basis of statistical hypothesis testing for the presence of activity. This approach is common to many authors and has been described extensively.... Sites may propose calculational bases more appropriate to their measurement systems. Such alternate methods must be described in [Standard Operating Procedures] and incorporate the same risks of false detection and false non-detection as are described [in this QAPP].

#### “Total Uncertainty

Total uncertainty includes the combined uncertainties for all corrections and factors applied to the analysis of real wastes to compensate for inhomogeneities and interferences from the waste matrix and/or radioactive components.... [I]ndividual sites are permitted the discretion to determine an acceptable limit on total uncertainty for their individual waste streams and measurement systems. The Program’s QAO for total uncertainty is limited to the requirement that it be properly calculated and documented for use in describing the reported assay data... The ability to achieve this QAO will be determined from an evaluation by an expert review team of the propagation of all uncertainties as documented by the site....

#### “Total Bias

The total bias of an [radioassay] technique or measurement system is defined as the systematic error component of the total uncertainty.... The QAOs for total bias are expected to be achievable in the presence of background generated by alpha and gamma emitting sources and in the presence of interfering quantities of neutron and gamma absorbing and moderating material.... The ability to achieve this QAO will be determined from an evaluation by an expert review team of the propagation of all bias elements as documented by the site....

#### “Completeness

Acceptable [radioassay] data shall be obtained for 100 percent of the waste containers characterized for disposal. Acceptable radioassay data shall consist of data on the radioactivity content of the waste package obtained from measurement systems which have been demonstrated to have met all the relevant QAOs for radioassay. [Radioassay] data shall be validated...prior to shipment of the waste to the WIPP facility.

#### “Comparability

For purposes of the Program, when multiple systems are planned for use in determining the same or comparable parameters, the participating sites shall perform multiple, independent radioassays of a sample of waste containers. Data from these multiple, independent radioassays shall be reported to CAO.... Where existing programs are inadequate, modified or new programs will be developed to ensure that an appropriate program is available for each general class of [radioassay].”

Section 1.5 of the QAPP provides the Data Quality Objectives (DQO) for the determination of total alpha activity: QAPP, Rev. 0, Interim Change, §1.5:

- [for Performance Assessment] “To classify waste by activity as low-level versus TRU by demonstrating with a 95-percent probability that the total TRU activity is less than 100

nCi/g of waste. The ...QAO for the minimum detectable concentration for TRU measurements was selected to help ensure that measurements in the 60 to 80 nCi/g region can be made with sufficient precision to avoid designating excessive quantities of alpha-contaminated TRU waste as [low-level waste].

- [for Performance Assessment] To confirm the radionuclide inventory on which the 40 CFR Part 191 Certification Application is based and assess compliance with the individual protection requirements, groundwater protection standards, and containment requirements....
- [for Transportation of Radioactive Waste, 10 CFR Part 70] To classify waste by activity as low level versus TRU by demonstrating with a 95-percent probability that the TRU activity is less than 100 nCi/g of waste.
- [for Transportation of Radioactive Waste, 10 CFR Part 70] To obtain the total activity in TRU waste to support revision of the thermal power restrictions for shipment of waste in the TRUPACT-II.”

QAPP, Rev. 0, Interim Change, Table AC-1 (additional changes) (11/15/96): “The data quality objectives for radioassay are corrected to read ‘...less than or equal to 100 nCi/g of waste.’ This correction provides for the classification of waste that measures exactly 100 nCi/g as low-level waste in accordance with DOE and NRC definitions.”

So what is the bottomline for distinguishing between LLW and TRU waste? Section 1.4 of the QAPP provides that “The DOE policy is that the TRU-contaminated wastes will be handled as TRU waste unless it can be demonstrated with a 95 percent probability that the TRU concentration is less than [or equal to] 100 nanocuries per gram (nCi/g) of waste”. Taking into account issues of waste matrix, contaminants, differences in wastestreams, measurement methods used, instrumentation accuracy and precision, etc., one must statistically show at the 95% confidence level that the alpha activity of the waste is equal to or less than 100 nCi/g of waste for that waste to be classified as LLW rather than transuranic waste potentially eligible for disposal at WIPP.

#### Acceptable Knowledge

Acceptable knowledge is information that includes “knowledge of the hazard characteristic of the waste in light of the materials or the processes used”, as opposed to sampling and analysis. There are advantages to the use of acceptable knowledge, especially for characterization of newly-generated mixed TRU waste: once the drum of waste is closed, it need not be opened again for characterization purposes (other than headspace gas analysis). The use of acceptable knowledge for characterization of both stored (legacy) waste and newly-generated mixed TRU waste is cost-effective, it is protective of worker safety because it reduces the number of times the waste container must be handled, it is responsive to DOE’s as-low-as-reasonably-achievable (ALARA) policy because it minimizes worker exposure to radiation, and it is more accurate for certain waste types, such as debris waste, for which it is difficult to obtain a representative sample.

Acceptable knowledge is defined in *Waste Analysis at Facilities that Generate, Treat, Store, and Dispose Of Hazardous Waste; A Guidance Manual* (EPA, 1994) to include process knowledge, waste analysis data, and facility records of analysis performed before the effective date of RCRA regulations. On Thursday, November 20, 1997, EPA and the NRC issued Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste, (Joint Guidance), 62 FR 62079. In this guidance, EPA interprets "waste knowledge" or "acceptable knowledge" similarly to the Guidance Manual published in 1994. "Waste knowledge" or "acceptable knowledge" of a waste is interpreted broadly to include, where appropriate:

"Process knowledge";

Records of analyses performed by generator or TSDF prior to the effective date of RCRA regulations; or,

A combination of the above information, supplemented with chemical analysis.

Process knowledge refers to detailed information on processes that generate wastes subject to characterization, or to detailed information (e.g., waste analysis data or studies) on wastes generated from processes similar to that which generated the original waste. Process knowledge includes, for example, waste analysis data obtained by TSDFs from the specific generators that sent the waste off-site, and waste analysis data obtained by generators or TSDFs from other generators, TSDFs or areas within a facility that test chemically identical wastes. *Id.* at 62081.

The EPA Guidance Manual describes four circumstances in which the use of acceptable knowledge is appropriate:

- *Hazardous constituents in wastes from specific processes are well documented, such as with F-listed and K-listed wastes.*
- *When health and safety risks to personnel do not justify sampling and analysis (e.g., radioactive mixed waste).*
- *When the physical nature of the waste does not lend itself to taking a laboratory sample (e.g., debris wastes).*
- *Wastes are discarded unused commercial chemical products, reagents, or chemicals of known physical and chemical constituents. Several of these fall into the P-listed and U-listed categories.*

The Joint Guidance provides that hazardous waste, including mixed waste, may be characterized by waste knowledge alone, by sampling and laboratory analysis, or a combination of waste knowledge, and sampling and laboratory analysis. The use of waste knowledge alone is appropriate for wastes that have physical properties that are not conducive to taking a laboratory sample or performing laboratory analysis. As such, the use of

waste knowledge alone may be the most appropriate method to characterize mixed waste streams where increased radiation exposures are a concern. Id. at 62082.

Much of the guidance provided in the Joint Guidance and the EPA Guidance Manual are reflected in the QAPP. Section 1.0 of the QAPP provides that acceptable knowledge is used in the WIPP Program to delineate waste streams, make all hazardous waste determinations for debris and special waste, and to determine if homogeneous solids and soil/gravel are RCRA-listed wastes. Acceptable knowledge can be used for RCRA characterization of waste streams for which it is difficult to obtain a representative sample because of physical form and/or heterogeneous composition (e.g. metal, glass, combustibles). Id. In these instances, acceptable knowledge will be verified by radiography, which can verify the physical form of debris wastes and special wastes and, by association, the RCRA constituents. Id.

#### Statutes, Regulations and DOE Orders Governing the Use of Acceptable Knowledge

Section 105 of the Federal Facilities Compliance Act of 1992 (FFCA), Public Law 102-386 of October 6, 1992, amends Subtitle C of the Solid Waste Disposal Act (42 U.S.C. §§6921 et seq.); this includes section 3021. Section 3021(a)(1)(G) provides that

The basis for the Department's determination of the applicable hazardous waste code for each type of mixed waste at each [DOE] facility and a description of whether the determination is based on sampling and analysis conducted on the waste or on the basis of process knowledge.

RCRA regulation 40 CFR §262.11 (Hazardous waste determination by generators) provides that:

"A person who generates a solid waste. . . must determine if that waste is a hazardous waste using the following method:

(a) He should first determine if the waste is excluded from regulation under 40 CFR §261.4.

(b) He must then determine if the waste is listed as a hazardous waste in subpart D of 40 CFR part 261.

(c) For purposes of compliance with 40 CFR part 268, or if the waste is not listed in subpart D of 40 CFR part 261, the generator must then determine whether the waste is identified in subpart C of 40 CFR part 261 by **either**:

(1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by [EPA]. . . ; **or**

(2) Applying **knowledge of the hazard characteristic of the waste in light of the materials or the processes used**". (Emphasis added).

RCRA regulation 40 CFR § 264.13(a) (General waste analysis by owners and operators of hazardous waste treatment, storage and disposal facilities) provides that:

(1) Before an owner or operator treats, stores, or disposes of any hazardous wastes. . he must obtain a detailed chemical and physical analysis of a representative sample of the wastes. **At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste** in accordance with this part and part 268 of this chapter.

(2) The analysis may include data developed under part 261 of this chapter **and existing published or documented data** on the hazardous waste or on hazardous waste **generated from similar processes**.

(3) The analysis must be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis must be repeated:

(i) When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous wastes. . has changed. . (Emphasis added).

Section II-2 of DOE Order 5820.2A (*Radioactive Waste Management*) provides that: "Transuranic waste shall be managed to protect the public and worker health and safety, as well as the environment, and performed in compliance with applicable radiation protection standards and environmental regulations", including RCRA. (Section II-4(b) of DOE Order 5820.2A.) DOE Order 5820.2A allows the use of acceptable knowledge ("knowledge of the waste generating process") for waste characterization when "chemical analysis would significantly increase the radiation hazard to personnel". (Section II-4(c) of DOE Order 5820.2A.)

DOE Order 5400.3 mandates the implementation of RCRA requirements at DOE facilities. 10 CFR 830.120 establishes DOE quality assurance requirements.

#### Caselaw

There have been several EPA administrative hearings in which the use of acceptable knowledge by a generator was upheld by the Administrative Law Judge. For example, the generator in In the Matter of Humko Products, An Operation of Kraft, Inc. (1985 RCRA Lexis 18) had not tested its waste (which was not listed in 40 CFR Part 261), but characterized the waste as hazardous based on knowledge of the characteristics of the waste. The generator contended that its data sheets constituted compliance with this alternative to testing allowed by 40 CFR §262.11(c). EPA Region V contended that these data sheets were not current and accurate and therefore were inadequate. The Judge determined that no violation of 40 CFR §262.11 had occurred because "the requirement of 40 CFR §262.11 is simply that a determination be made as to whether the waste is hazardous" and Humko Products had characterized their waste as hazardous "by applying knowledge of the characteristics of the waste [in light of the materials or the processes used] as permitted by 40 CFR §262.11".

The generator of hazardous wastes in In Re Kuhiman Diecasting Company (1983 RCRA Lexis 5 at 24) chose to characterize its waste (which was not listed as a hazardous waste

in Subpart D of 40 CFR 261) by “applying knowledge of the hazard characteristic of the waste in light of the materials or process used” as provided for by 40 CFR §262.11(c). . The generator determined that the solid waste was not a hazardous waste as described by the regulations. Subsequent testing confirmed that the material was not hazardous, and the Judge determined that no violation of RCRA or RCRA regulations had occurred. However, if subsequent testing had determined that the material was hazardous then a violation has occurred.

This finding appears to be contradictory to that of In the Matter of Humko Products. Accuracy was apparently not an issue to the administrative law judge in that case, but very much an issue to the judge in In Re Kuhiman Diecasting Company. However, both judges upheld the use of acceptable knowledge as permitted by 40 CFR 262.11

The generator in In Re Quaker State Oil Refining Corp. (1986 RCRA Lexis 12) chose to characterize its waste as hazardous despite the fact that the wastes were not “listed”, and despite the fact that the company did not believe the waste to be hazardous based on their knowledge of the materials and the processes which generated the wastes. Subsequent testing proved the waste not to be hazardous, and Quaker State discontinued treating the waste as hazardous. The EPA Region III wanted the generator to continue to treat the waste as hazardous, and believed there was a RCRA violation because the generator did not so treat the waste after it was determined by testing not to be hazardous. The EPA Region III wanted the generator to go through a formal delisting procedure before EPA would allow the material in question to not be handled as hazardous waste. The Judge determined that no violation of RCRA had occurred, and chided the EPA for being unduly rigid and illogical for requiring a delisting petition because the material in question was not a listed waste in the first place.

The judge in this case points out that “If a facility owner decides to utilize [acceptable knowledge], **which seems appropriate here**, he takes the risk that subsequent analysis of the waste may prove that his threshold determination was in error and he would then be subject to substantial penalties for failing to handle and manage the material as a hazardous waste”. (Emphasis added.)

The authoritative Court of Appeals for the District of Columbia in Hazardous Waste Treatment Council v. U.S. EPA, (HWTC), 886 F.2d 355, (D.C. Cir. 1989) held that “the EPA’s decision to allow generators to rely in appropriate circumstances on their knowledge of their restricted waste to certify that it naturally meets treatment standards is reasonable”. HWTC at 371. Although this case concerned the use of acceptable knowledge to certify that wastes are within LDR (“Land Disposal Restrictions”) treatment standards, it is applicable to the use of acceptable knowledge to characterize waste for compliance with the WIPP Waste Acceptance Criteria because both processes are an effort to gain “knowledge of the hazard characteristic of the waste in light of the materials or the processes used”. The HWTC court clarifies what is meant by “appropriate circumstances” by pointing out that “waste generators are allowed to rely on actual “knowledge” they have acquired only if such knowledge enables them to certify that their waste complies with applicable treatment standards. Generators are required to

keep records of all data that goes into their certifications, see 40 C.F.R. @ 268.7(a)(4), and they are subject to penalties for erroneous certifications". Id. at 369.

The court rejected the plaintiff's arguments that it is absurd to expect that "generators may to some extent "know their waste" without testing each batch produced". Id. Rather, the court thought it quite reasonable that "waste generators who apply the same methods to the same inputs in the same manner as part of the production process every day are, after a while, likely to be in a very good position to know the hazardous contents of their waste." Id. However, the court pointed out that EPA's regulation (in support of the use of acceptable knowledge) "does not allow generators to make guesses about the hazardous nature of their wastes without empirical or analytical foundation." Id. The court thought that the EPA scheme will require at least some initial testing of the generator's waste stream, and if subsequently the generator's familiarity with their wastes makes them capable of certifying the waste's content without conducting more frequent testing, the court saw "no reason to compel the EPA to require such unnecessary testing." Id. Indeed, the court pointed out that "in the proposed regulations [51 Fed Reg 40,597] the EPA clearly expressed its preference for a scheme under which generator testing would not be absolutely required for the particular reason that...this approach 'does not require redundant testing. . .'" Id. at 370, quoting 51 Fed.Reg. at 1692.

The HWTC court was unwilling to impose a requirement on generators that all waste must be tested before certifying that the waste meets treatment standards, regardless of the method used (presumably including especially use of acceptable knowledge) by the generator to determine that the waste is hazardous and subject to land disposal restrictions. Id. at 369. Moreover, the HWTC court specifically rejected the plaintiffs' argument that "absent continuous testing at the point of generation. . .generators cannot certify what levels of hazardous constituents their waste contains. . ." The court stated that "we cannot say that the statute requires testing beyond what is **practically** necessary to assure with a **high degree of confidence** that prohibited wastes are not being land disposed." (Emphasis added.) Id. at 371. The HWTC court explains its reasoning by stating that "common sense compels recognition of the fact that much of what we think of as "knowledge" in the practical world is nothing more than extrapolation from a more limited set of experiences" Id. at 371. "Given the agency's reliance on testing by landfill owners and operators to intercept erroneously identified waste, we cannot say that the EPA acted arbitrarily or capriciously in deciding not to require elaborate and even redundant testing by generators [who are] presumably able to identify [by use of acceptable knowledge] in a large number of cases the hazardous components of the waste they generate." HWTC at 370. After all, "generators can be expected to have reasonable knowledge of familiar wastes." Id.

The Hazardous Waste Treatment Council court also provided a standard to be used to judge whether the knowledge used is acceptable. Knowledge is acceptable if it creates a high degree of confidence in the generator that it knows everything that needs to be known about the waste to comply with the relevant regulation. This standard could be uncomfortable to scientists and engineers because it is subjective and not quantitative. However, the courts are always the ultimate arbiter of an agency's statutory

interpretation, and, as such, judicial standards must always be recognized and acknowledged. The holding of the Hazardous Waste Treatment Council court is still good law and is applicable to all TSDFs. However, the Hazardous Waste Treatment Council court also calls for practicality. Therefore, a better description of the standard to be used to judge the quality and value of knowledge used to characterize waste is a high degree of confidence gained from all knowledge that can practically be gathered given all the facts and circumstances of the particular situation.

### Discussion

The high degree of confidence required by the HWTC court must be thought of in the context of judicial standards, not in the scientific/engineering context of 95% or 99% confidence limits. The Hazardous Waste Treatment Council standard does not require absolute certainty, but clearly is more than a guess, and more stringent than the judicial standard used in civil cases of preponderance of the evidence<sup>2</sup>. The HWTC standard seems to be less stringent than the judicial standard used in criminal cases of "beyond a reasonable doubt"<sup>3</sup>. Rather, a high level of confidence is most analogous to the judicial standard of "clear and convincing"<sup>4</sup>.

Given that WIPP will not recharacterize the mixed TRU waste it receives, EPA and/or the New Mexico Environment Department (NMED) may require an even higher degree of confidence on the part of the generator to ensure that he knows his waste. The higher degree of confidence needed by generators who will ship mixed waste to WIPP must strongly satisfy the judicial standard of "clear and convincing", and come close to, but need not rise to the level of the judicial standard of "beyond a reasonable doubt".

Opponents to WIPP's opening have indeed claimed that DOE has not properly used Acceptable Knowledge to characterize WIPP waste. In fact, the New Mexico Environment Department has rejected the use of acceptable knowledge for characterizing a debris waste stream at Los Alamos National Laboratory (LANL) that had been

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<sup>2</sup> Black's Law Dictionary defines preponderance of the evidence as ". . . evidence which as a whole shows that the fact sought to be proved is more probable than not; evidence which is more credible and convincing to the mind". Black's Law Dictionary, Abridged Sixth Edition, 1991.

<sup>3</sup> Black's Law Dictionary defines beyond a reasonable doubt as "In evidence, means fully satisfied, entirely convinced, satisfied to a moral certainty; the equivalent of clear. Precise and indubitable". Black's Law Dictionary, Abridged Sixth Edition, 1991.

<sup>4</sup> Black's Law Dictionary defines clear and convincing as "That proof which results in reasonable certainty of the truth of the ultimate fact in controversy. Proof which requires more than a preponderance of the evidence but less than the proof beyond a reasonable doubt. Clear and convincing proof will be shown where the truth of the facts asserted is highly probable". Black's Law Dictionary, Abridged Sixth Edition, 1991.

The New Mexico Supreme Court defined "clear and convincing" in *Valdez v. New Mexico*, 88 NM 338, 343, 540 P. 2d 818, 823, (1975), quoting *In Re Sedillo*, 84 NM 10, 12, 498 P. 2d 1353, 1355 (1972): "This court has held that clear and convincing evidence is something stronger than a mere 'preponderance' and yet something less than 'beyond a reasonable doubt'. For evidence to be clear and convincing, it must instantly tilt the scales in the affirmative when weighed against the evidence in opposition and the fact finder's mind is left with an abiding conviction that the evidence is true". This is still good law.

earmarked to be the first shipment to WIPP. What is particularly interesting about this situation is that DOE was using acceptable knowledge to demonstrate that the wastestream is non-mixed; that is, that there is no hazardous waste at all in the wastestream. DOE's position has been that non-mixed waste is not subject to the RCRA authority of the State. It was only out of desire to work with the regulator that DOE asked for NMED's acceptance of that position. NMED was not comfortable with DOE's use of acceptable knowledge for the purpose of determining the very presence of hazardous waste, let alone the type and amount. In response, DOE agreed to a sampling and analysis plan to confirm the use of acceptable knowledge for determining whether the wastestream was non-mixed.

Both the EPA Guidance Manual and the Joint EPA/NRC Guidance explicitly state that acceptable knowledge is the preferred method for characterizing a non-radioactive, and especially, a radioactive debris wastestream, primarily because it is difficult to obtain a truly representative sample. It is interesting that, despite this guidance, NMED rejected the use of acceptable knowledge for determining whether the LANL wastestream was non-mixed. This appears to be a case of extreme distrust of the use of acceptable knowledge on the part of NMED, despite statutory and regulatory authority and, in some cases (debris waste) regulatory requirements, to use acceptable knowledge for characterizing waste. Moreover, NMED's rejected the use of acceptable knowledge for characterizing a wastestream that nominally is not even subject to NMED RCRA authority. Finally, using a sampling and analysis plan for characterization of a radioactive debris waste stream is neither justified by law nor regulation, contrary to EPA and NRC guidance, is contrary to DOE's ALARA policy, and may not be scientifically defensible.

The status of this situation will be reported on at the Waste Management '99 Meeting.