

DECLARATION OF MARK D. LENEY, PhD

EXHIBIT 1

**PLAINTIFF'S OBJECTION TO REPORT AND
RECOMMENDATION OF UNITED STATES
MAGISTRATE JUDGE**

**EAKIN v. AMERICAN BATTLE MONUMENTS
COMMISSION, et al**

CIV. A. NO. SA-12-CA-1002-FB(HJB)

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
SAN ANTONIO DIVISION**

JOHN EAKIN	§	
	§	
Plaintiff,	§	
	§	
v.	§	CIV. A. NO. SA-12-CA-1002-FB(HJB)
	§	
AMERICAN BATTLE MONUMENTS	§	
COMMISSION, <i>et al</i>	§	
	§	
Defendants	§	

DECLARATION OF MARK D. LENEY, PhD

I, Mark LENEY, declare as follows:

1.

I have a PhD in Biological Anthropology from the University of Cambridge. I worked as a forensic anthropologist at the United States Army Central Identification Laboratory, and subsequently at the successor organization Joint POW/MIA Accounting Command Central Identification Laboratory (“JPAC”) between 2000 and 2006. During this time, I served as a Recovery Leader conducting fieldwork, as an Anthropologist conducting laboratory work, and as the DNA Coordinator integrating the use of DNA analysis into JPAC’s casework. I also served as the JPAC’s DNA Manager – one of a team of laboratory managers working for JPAC’s Scientific Director – in my case with particular responsibility for the management of DNA sampling and DNA-related evidence in the context of JPAC’s casework. Since leaving JPAC, I have served *pro bono* as the Scientific Advisor to the National League of POW/MIA Families. I have remained moderately active in POW/MIA issues, providing advice to families and other

interested parties pursuing resolution of the cases of their unidentified kin or comrades. I have authored or co-authored a number of peer-reviewed publications detailing DNA-sampling methods and DNA casework in POW/MIA contexts. I current hold a faculty position as an Assistant Professor of Medicine at the University of Massachusetts Medical School. In rendering any technical opinions below, I rely on my training and experience, and in rendering any opinions about the conduct of the casework, I rely on my direct experience of casework at JPAC. My detailed knowledge of this specific case is grounded only in the identification packet for CIL 2014-125-I-01 as provided to me by the Plaintiff, hereafter “the packet”. Where other information that might be probative was implied to exist by the packet but is not present, I have indicated this. Where I have expressed opinions of the physical remains based on the written description and photographs provided in the packet, I have clarified to where alternate conclusions might have been drawn by an expert who had actual access to the remains.

2.

I have reviewed the packet, a proposed identification for Pvt Arthur Kelder. I believe that the packet does not represent a clear and complete explanation and evaluation of the evidence for identification, in that while some aspects of the identification are stronger than others, the weaker elements are not clearly represented. Furthermore, there is a minor error in Dr. Holland’s representation of the mtDNA evidence in his summary memorandum for the record dated 17 January 2015, hereafter “the Holland memo”. This minor error suggests that the packet was compiled and reviewed with inappropriate haste and contributes to he evidence being presented as stronger than it actually is. Additionally, the Armed Forces DNA Identification Laboratory (AFDIL) reporting emphasizes the statistical strength of the best evidence, but

underplays the weaker evidence. Supporting lines of evidence are suggested but not detailed, in that substantive documents are referenced but not provided, details of statistical methods used are not referenced or provided, and in several respects the casework is incomplete. This identification deviates from JPAC's normal standards in that probative evidence and reference samples were incomplete when the reports were authored while further analysis is required to properly conclude that all the remains presented for identification actually belong to Pvt. Kelder. I outline these issues in further detail below. Where I refer to an enclosure, this is one of the numbered enclosures to the Holland memo.

3.

Dr. Holland's Memo (at §2.d.) indicates that the remains presented for identification are attributable to Pvt Kelder "through mtDNA and Y-STR testing." Taken in the context of the whole identification packet, this summary does not clearly represent that the DNA evidence identifying the dental remains (including the teeth, mandible and maxilla) is much weaker than the evidence linking the rest of the remains to the family reference samples. Although the Memo does indicate that the teeth only have mtDNA data, it does not clearly discuss, explore or rebut the alternate hypothesis that, notwithstanding the stronger statistical evidence linking the DNA from the osseous remains to the family reference sample, the dental remains might belong wholly or in part to one of the other unidentified individuals attributed to Cabanatuan Common Grave 717, or to one of the already-identified individuals attributed to the 717 burial, or alternately, another individual exhumed from Cabanatuan or processed at the Manila mausoleum whose remains became inadvertently commingled with those of X-816.

While an expert in such casework would clearly perceive the strengths and weaknesses of this proposed identification, it is unlikely that many casualties' next-of-kin would be in a position to evaluate this fully, and few service casualty officers would be able to explain it to them. Several other factors concerning the DNA evidence could contribute to the next-of-kin being unable to properly evaluate the proposed identification.

a. When Dr. Holland expresses the frequency of the mtDNA profile, he provides an estimate of approximately 1.88% of the AFDIL Caucasian database. I believe that Dr. Holland obtained this estimate by dividing the number of consistent samples in the database by the total number of Caucasians in the database. For example, where there are 68 database sequences consistent with the evidence and 3613 Caucasians in the database, then $68 \div 3613 = 0.0188209$ or approximately 1.88% (Enclosure 4, page 5). However, the left humerus sample 08A from CIL 2014-128 (Enclosure 6, page 5) and the two teeth from CIL 2014-125 (Enclosure 5, page 5) actually have sequence data that is slightly more common in the AFDIL database. Where less sequence data is reported, the information is less specific - in this case as many as 77 profiles in the AFDIL Caucasian database are reported. I therefore suggest that Dr. Holland might have better represented the frequency in the Caucasian database as $77 \div 3613 =$ approximately 2.13%. It is unclear whether Dr. Holland makes a simple mistake here, or if he commits the logical fallacy of assuming that he should use the best evidence to supports his hypothesis that all these remains belong to Kelder rather than the weakest evidence. In order to properly evaluate the alternate hypothesis that some part of these remains belongs to some other individual he should use the weakest evidence.

While I do not believe that it is essential to the interpretation of this case, even assuming that the AFDIL Caucasian database was a perfectly random sample of the population from which the Caucasians that might be present amongst the evidence in these X-cases, there is still some uncertainty with respect to the frequency estimate that Dr. Holland makes. While Dr Holland does frame his estimate as *approximately* 1.88%, this “approximation” appears to be a straightforward rounding. It would be more consistent with accepted scientific practice, and the guidance provided by the Supreme Court in Daubert, to qualify such a point estimate with a term representing the uncertainty associated with the estimate. While not the only way in which this could be done, my recommendation would be to use the Wald approximation to the binomial proportion, in which case the Caucasian frequency estimate might more properly be expressed as “the sequence data are uncommon in the AFDIL database (approximately 2.13% of the Caucasian database), and it can therefore be inferred that the sequence is present within the general population at a rate that is unlikely to be more frequent than approximately 2.5%. As many as 1 in 40 Caucasians could share this mtDNA sequence.”¹ Dr Holland’s characterization of the strength of the evidence is misleading. Even if there were only three other casualties that could not otherwise be excluded due to a lack of appropriate family reference samples (which appears to be the *least* conservative scenario in this case) then the probability that one of them will be just as consistent with the DNA evidence from the dental samples can be estimated as:

$$p = 1 - (1 - 0.025)^3 = 0.073 = 7.3\%$$

¹ Using the Wald approximation for the population value associated with 77 consistent profiles in a random sample of 3613, I calculate the upper bound of the 95% confidence interval to be around 2.5%. That is to say, given the observation 77 in 3613, then 19 times out of 20 (or 95% of the time) the true frequency in a much larger population from which the 3613 were drawn will be 2.5% or less.

Even if other experts might reject my conservative approach at using the upper bound of the confidence interval (0.025 or 2.5%) and wished to rely on the empirical estimated based on counting the consistent sequences in the database (0.0217 or 2.17%) then

$$p = 1 - (1 - 0.0213)^3 = 0.0625 = 6.25\%$$

Given that the normative standard for rejecting the null hypothesis in a single scientific experiment is a probability of less than 5%, this probability (that another casualty reasonably believed to be present could provide DNA data just as similar to the Kelder family reference samples as the dental samples offered for identification in this case) is too high to be accepted as adequate evidence in a case where the identification of a human remains is in question.

b. In the AFDIL reporting, (Enclosures 4 , 5, and 6) at Appendix E in each report, a statistical interpretation of some of the evidence is provided. The presentation of this data in the context of an identification packet intended to be submitted to the next-of-kin or to others not expert in the interpretation of DNA evidence is less that clear. Specifically:

i. The statistical statements made (in Appendix E of Enclosure 5) only pertains to those samples from which both mtDNA and Y-STR are obtained. This is misleading because it does not make clear that the weight of statistical support for the attribution of the samples that *lack* Y-STR data (the two teeth) to Kelder is much weaker. A more comprehensive and straightforward approach would have been to express the evidence for *all* samples in the same format. There is a much greater likelihood given this evidence that some or all of the elements *lacking* Y-STR data actually came from the body of another casualty but

this is not clearly expressed. In plain language, whatever the intent in presenting the data in this manner, the result is that the strongest evidence is “cherry picked” and the weaker evidence is hidden.

ii. The Report Summary and Conclusions, section 1.f and 1.g of Enclosure 5, reiterate the same pattern in reporting the stronger statistical evidence resulting from the combination of mtDNA and Y-STR evidence while making no statistical statement concerning the mtDNA. I understand that it is acceptable for mtDNA to be reported without an explicit statistical statement. However in this case, AFDIL clearly assign statistical weight to mtDNA in their combined likelihood ratio, where they have mtDNA *and* Y-STR data and the omission of a statistical statement regarding the two tooth samples is unhelpful and misleading here.

iii. Where each likelihood ratio is presented (Appendix E of each of Enclosures 4, 5 and 6) there is no statement of the methods used or any reference to an authoritative source for the method, nor is this clarified in the Report Summary and Conclusions section, nor in the Report Interpretation Key, nor anywhere else in the report that I could discern. On this basis alone, the report does not meet the basic standards for the presentation of scientific evidence. Because the conclusions are presented *ex cathedra* the Defendants should not be permitted to rely on them in substantiating their identification.

iv. Dr Holland’s memo does not even note, let alone discuss or interpret the combined statistical evaluations offered for some of the DNA testing. His reasons for failing to do this are not clear. Perhaps like me, he finds them

hard to accept due to the lack of an explicit methodological statement or reference. Nevertheless, I believe that his summary of the analyses is incomplete without addressing the issue of how the different types of DNA evidence should be combined. Absent such an analysis Holland's conclusion is simply that, a conclusion, with no apparent scientific basis. I am sure that Dr Holland believes that all these remains belong to Kelder and he may well be correct. However, as presented in his memo, this opinion lacks scientific substantiation.

v. In her evaluation of the case, the consulting forensic anthropologist notes that *both* mtDNA *and* Y-STR testing were used to group remains but does not address the issue that some remains are grouped only by mtDNA. In addition she noted that the DNA data "allowed the lab...to rule out other men in the interment group" without clarifying that not *all* such men could be excluded from *all* the elements presented for identification for which DNA evidence was generated. I believe that the consulting anthropologist may have had insufficient time to review the final version of the case packet given that the anthropology report is dated 14 January and her opinion is dated 16 January. The fact that she mistakes the number of casualties implicated in the Cabanatuan 717 cases might also indicate that her review was relatively rapid. Alternately, as a specialized anthropologist she may have lacked expertise in reading the DNA reports. In addition, it is not clear that the consulting anthropologist was charged with reviewing the *completeness* of the identification or simply the basis for the conclusions drawn. This issue of the consultants scope of review is further complicated by the fact that the version of Dr Holland's memo present in the

identification packet is dated after the consultant completed her review (Dr Holland includes the consultants letter as an enclosure to his memo). The role of the consultant is thus confusing as she appears to have reviewed a version of the conclusions other than the one included in the case packet.

4.

Some of the potential shortcomings in the DNA evidence (the relatively weak evidence linking the teeth with mandible and maxilla) to the rest of the assemblage and to Kelder's family reference samples might be remediated if the mandible was convincingly associated with the maxilla by anthropological or odontological analyses, and/or if the maxilla could similarly be linked to the temporal bone (which has stronger DNA evidence). However, neither the Forensic Odontology Report (Enclosure 2) or the Forensic Anthropology Report (Enclosure 3) clearly address this issue, and although Enclosure 3 notes in passing that "pair matching, articulation and context" contributed to individuation it is not clear how this was done and the figures included with the report do not provide clarification. Dr Holland's report also fails to clarify this issue. As the physical evidence associating the maxilla, mandible and temporal bones cannot be evaluated from the packet and the packet does not speak to this issue, the packet represents an unclear and incomplete analysis.

5.

Enclosure 3, page 1 cites as an authority for the individuation of the elements present and the resulting segregation of CIL 2014-125-I-01 assemblage, "Report of Consolidation..." However, this report is not included in the identification packet and thus cannot be evaluated.

The identification packet is incomplete if a document reporting a substantive step in the identification process has been omitted. Dr Holland's memo references the individuation of the remains and the Forensic Anthropology Report (Enclosure 3) references this documentation directly. Because this "Report of Consolidation..." represents a substantive part of the process leading to this identification, I am unable to proceed with my review because the identification packet is incomplete in this regard.² The packet does not allow the Plaintiff or the Court to evaluate the steps that the Defendants have taken in their attempts to separate the remains of Kelder from the remains of the other individuals present.

6.

Best practice with DNA supported identifications using DNA methods that produce data that are not unique to individuals but rather report data that is more or less rare in a population of interest, is to take all reasonable steps to exclude other individuals that are potentially represented. This is relatively straightforward in closed populations, i.e. those scenarios where the list of individuals represented is known and limited (for example all the persons flying on an aircraft when it crashed). In this situation, only eleven individuals were believed to be represented but at least 14 individuals are already established to be present. While these 14 may represent portions of each of the individuals originally interred in grave 717, including those already identified, there are other reasonable possibilities, including accidental commingling during the various steps of secondary burial, exhumation and mortuary processing. While the

² In addition the Historical Analysis, Enclosure 1 refers to internal DoD documents that are not otherwise available which appear to represent substantial analysis of the cases in question. It appears, but cannot be verified that remarks in Dr Holland's memo (see paragraph 1b of his 17 January 2015 memo for example) may be based on such sources or perhaps the sources used in compiling these memos. The Beckenbaugh/Harris memos referenced at footnote 10, 13, 14, 15, 18 and 20 of Enclosure 1 appear relevant to understanding the provenance of these cases and are referenced but not included in the identification packet.

unbounded nature of the population of individuals potentially commingled with these remains is undoubted, it would still have been prudent to compare and attempt to exclude (by DNA or other means) the other individuals believed to have been present as far as reasonably possible. Family reference samples for the unaccounted for individual George York were available but had not been processed at the time the DNA report was written. Although it appears that decedent York, like decedents Guitierrez, Collins and Rurak lack mtDNA family reference samples and thus cannot be excluded from the two dental samples on the basis of the evidence presented in the report, it would still have been appropriate to attempt to exclude York from that part of the skeletal assemblage presented for identification for which Y-STR data *is* available. Additionally other methods might have been used to exclude these casualties from the part of the assemblage where DNA evidence only extends to mtDNA sequence by using other types of evidence. However, no evidence to this end was offered in the identification packet, and neither was any definitive statement made that such evidence had been sought and not found, or alternately, analyzed and found to be insufficient to exclude one or more of the four casualties that can not be excluded on the basis of mtDNA. Further, the Defendants merely state that no family reference sample was *available* to exclude or identify Juan Gutierrez but provide no objective evidence that they have diligently searched for one, let alone evidence definitively establishing that one is not available. In addition, Defendants acknowledge that 14 individuals were originally associated with Cabantuan 717 and that 14 DNA profiles have been found so far amongst the remains but there is no evidence that have sought, located or compared family reference samples from the casualties whose remains were believed to have been previously identified. Because, additional and obvious avenues could be pursued to better exclude some of the casualties who are reasonably suspected to be present in these X-cases, this identification packet is incomplete.

Either these analyses and investigations have not been undertaken or they have been undertaken but are not reported or summarized here for review.

7.

Given the success with obtaining Y-STR data from some of the osseous elements and the lack of such data from the DNA samples obtained from teeth, the DNA sampling of the remains presented for identification by the packet has not been carried to its logical conclusion. Gram-for-gram the mandible itself is an excellent source of DNA in CIL casework samples when compared to most other elements, as I have previously documented.³ In my experience it would have been more efficient to have started DNA sampling by taking a sample from the mandible. I base this on my impression of the preservation of mandible based on Figures 1, 3 and 4 of the Forensic Odontology Report (Enclosure 2). I am happy to defer to those experts who were able to evaluate the dental and osseous remains first hand and concede that sampling Tooth #22 *initially* is not an unreasonable strategy. However, given that this *initial* approach did not yield reportable Y-STR data, then another sample could have been taken. While teeth #23 or #28 appear to be candidates, I believe that samples of *at least* 3 grams of dense cortical bone could be removed from the inferior margin of the horizontal ramus of the mandible, immediately posterior to the mental foramen on either or both the left and right side. This would provide sufficient material, *ceteris paribus*, to make a Y-STR analysis practical and likely to succeed. In my experience of CIL casework, where less than complete DNA evidence was obtained from an element, and the missing DNA data was a) probative, b) practical to obtain and c) reasonably likely to be successfully obtained by additional sampling, then cases were not progressed to

³ Leney, M.D. (2006) "Sampling Skeletal Remains for Ancient DNA (aDNA)". *Historical Archaeology* 40(3) pp 31-49

identification until that additional DNA testing had been completed. I conclude then that the DNA sampling of the evidence presented for identification has not been progressed to its logical conclusion and that this case is being put forward for identification in a manner that is inconsistent with the measured approach that typified best practice at the CIL in the past.

8.

In Dr Holland's memo I noted the closing remark that it was possible that additional remains of Pvt Kelder might be identified in the future. While it may not be unprecedented I believe that this sort of rider is not typically included in the identification memo authored by the Scientific Director of the CIL. In my experience Dr Holland typically went to some pains to assure himself that all reasonable steps had been completed to identify any and all remains that could be attributed to an individual prior to proposing an identification. It is unclear to me if Dr Holland intend to imply that other remains might be present in CIL 2004-125 but not currently included in the CIL 2004-125-I-01 assemblage offered here for identification, or alternately if Dr Holland believes that additional remains might be present in some of the other CIL cases that relate to the 10 X-cases exhumed, or alternately if Dr Holland believes that some portions of Pvt Kelder may have been buried with the remains of other individuals identified in Manila in the wake of WWII, or even included with remains buried in other X-cases not yet exhumed. Given Dr Holland's significant knowledge and experience of this type of issue, it is my belief that the next-of-kin would be assisted in determining if they wish to accept the identification as it stands or defer acceptance pending the completion of further investigation and analysis, if Dr Holland were to be more explicit about what he means by his closing remark and the factual basis that led him to write this caveat. Insofar as it has not to my knowledge been CIL's practice to willfully

offer for identification partial remains that they suspect are represented by additional remains that are either already at CIL or that are recoverable, I believe that this identification, as presented, is incomplete.

9.

In the context of my opinion in paragraph 8 above, I note that Enclosures 4, 5 and 6 of the identification packet all indicate that bones that have been sampled from CIL cases 2014-122, 2014-125, and 2014-128 (respectively) were still undergoing analysis at the time the DNA reports were written by AFDIL. To the best of my recollection, reports that documented the comparison of evidence to reference samples and that were issued under the name of a specific casualty that is believed to be represented (i.e. a “BTB” report, also known as a “Name” or “Named” report) were never issued when AFDIL was in receipt of evidence in a case but had yet to complete processing it. In my experience and opinion this deviates from normal practice at the CIL and AFDIL. As a specific example, I note that Enclosure 5, at page 3, indicates that for samples 12A, 13A and 14A mtDNA testing remained in progress at the point that the report was authored. This means that although those elements have been sampled there is no evidence presented in this identification packet that either associates them with CIL 2014-125-I-01 or excludes them from it. This is one of several examples of incomplete work that are apparent in the evidence presented. It is reasonable to assume that the work in the other seven related CIL cases that is not presented here is, at least potentially, equally incomplete. The example cited shows that the investigation and analysis of this case is substantively incomplete.

10.

During the period that I was charged with coordinating the cases for identification at CIL, and particularly with managing the integration of the DNA analyses with the rest of the casework, I would have strongly objected to a case as obviously incomplete as this one being progressed to identification. While I have not been directly involved in the identification process for several years, I do not believe that standards at CIL have slipped so drastically as to make this a normally acceptable practice and I thus conclude that the unusual circumstances of this case have pushed Dr Holland into making this atypical, inadequate and incomplete attempt at an identification. I do not believe that this is scientifically or ethically appropriate and I recommend that these cases be analyzed further before a more substantiated and completed identification for Pvt Kelder can be produced. I understand that CIL has been under pressure to make an identification in this case, but a wish to be free of a reporting obligation to the District Court is not a justification for submitting an incomplete identification that glosses over the weak points in the proposed individuation and identification. I am aware that CIL has proposed and made identifications based on single bone fragments or teeth where necessitated by the limitations of the recoverable evidence. However, it is unacceptable to make a physically incomplete and scientifically inadequate identification because it is expedient.

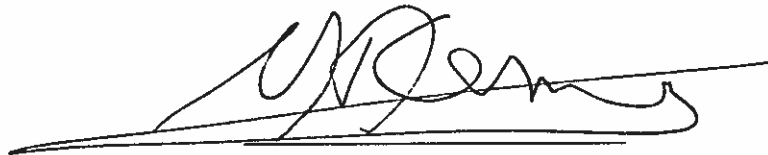
11.

My further recommendation is that all the potential identifications should be pursued simultaneously and the issue of potential further disinterment, reconciliation of any past errors or discrepancies that come to light and the question of disposition of group remains, residual to this group of X-cases, all be addressed at the same time. However, I believe that the interests of the next-of-kin take priority here, and if individual families wish to pursue partial identifications

while leaving the issue of additional remains and group remains for the future, that should be their prerogative, provided that they are provided with a clear and complete explanation of the entire issue.

12.

Pursuant to 28 U. S. C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed on the fourth day of February, 2015 at Boston, Massachusetts

A handwritten signature in black ink, appearing to read 'Mark D Leney', is written over a horizontal line. The signature is stylized and cursive.

(Mark D Leney)