Designation: E 2028 – 99

Standard Practice for Receiving, Testing and Reporting Results of Investigation of Metal, Ore, or Metal Related Samples that Are or May Be Involved in Litigation[1]

This standard is issued under the fixed designation E 2028; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the procedures to be used for receiving, testing and reporting results of investigation of metals, ores, related materials or samples thereof that have been the subject of an incident that is or is reasonably expected to be the subject of litigation.

1.2 This practice was developed particularly for cases involving civil litigation, however it can be applied to criminal cases where it does not conflict with applicable laws and regulations.

2. Referenced Documents

2.1 *ASTM Standards:*

E 620 Practice for Reporting Opinions of Technical Experts[2]

E 678 Practice for Evaluation of Technical Data[2]

E 860 Practice for Examining Testing Items that Are or May Become Involved in Litigation[2]

E 1188 Practice for Collection and Preservation of the Information and Physical Items by a Technical Investigator[2]

2.2 *ISO Standard:*[3]

ISO Guide 25 General Requirements for the Competence of Calibration and Testing Laboratories

2.3 *Other Documents:*

NIST Handbook 150 NVLAP Procedures and General Requirements[4]

NIST Handbook 150-18 NVLAP Fasteners and Metals[4]

3. Terminology

3.1 *Definitions:*

3.1.1 *deposition*, *n*—the process during which a potential witness for a trial is questioned under oath ("being deposed") by the attorney of the opposing party prior to the trial as part of the "discovery" process.

3.1.2 *evidence chain of custody form*, *n*—form used to accompany the evidence, when evidence is transmitted from one person to another to prove a continuous chain of custody.

3.1.3 *expert witness*, *n*—a witness having expertise in the field in which he is about to give testimony and whose testimony can aid the judge and jury to understand the technical facts involved in the case before them.

3.1.3.1 *Discussion*—Before being accepted as an expert witness in a case, the witness has to submit to an examination and a cross examination concerning his qualifications. An expert witness can testify to what he saw, heard, or did (such as tests performed), and state opinions in his field of expertise.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *evidence*, *n*—any metal, ore or related material, regardless whether or not it is an entire part, a portion of a part or a representative sample of some metal, ore or related material, having actual or potential bearing on the incident or its outcome.

3.2.2 *incident*, *n*—any event or occurrence that causes directly or indirectly death, injury, or material damage that results or can result in a claim or litigation.

3.2.3 *investigator*, *n*—the technically competent person in charge of the testing.

4. Significance and Use

4.1 This practice sets guidelines for the receiving, testing and reporting of result of the investigation of metal, ores and related materials that may constitute evidence that is or may become involved in litigation. It outlines procedures to be followed to document the nature and condition of the evidence, the planning and performance of the testing, and actions that involve altering the nature or condition of the evidence.

5. Procedure—General

5.1 The laboratory performing the testing can be: a laboratory owned or operated, or both, by one of the parties involved or potentially involved in the litigation of the incident, such as plaintiff(s), or defendant(s), an independent laboratory hired by one of the parties involved or his representative, a laboratory owned or hired by a government agency to establish if any violation of law or regulations was committed, or a laboratory to act as an arbitrator selected jointly by the plaintiff(s) and

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[2] *Annual Book of ASTM Standards*, Vol 14.02.

[3] Available from American National Standards Institute, 11 W. 42nd St., 13th floor, New York, NY 10036.

[4] Available from the U.S. Government Printing Office, Washington, DC 20402-9325.

defendant(s) or appointed by a court or arbitrating authority.

5.1.1 The laboratory shall follow all procedures outlined in this practice and produce unbiased results, opinions and reports.

5.2 When evidence from an incident is submitted to the laboratory, an investigator is appointed to the particular incident. The investigator shall be in charge of receiving, recording and securing all evidence received, planning the testing, performing or supervising the performance of the testing, preparing the report and preserving the evidence.

5.2.1 The investigator shall be a technically competent person in general, as well as in the principal areas of the testing. He shall be able to submit to a deposition and testify in court as an expert witness, if required.

5.3 *Confidentiality*—No aspects of the case, incident, evidence, and tests planned or performed shall be discussed with anyone outside the technical personnel of the laboratory. Such discussions with technical personnel within the laboratory shall be conducted strictly on a "need to know" basis.

6. Procedure—Evidence Receiving

6.1 When evidence is received by the laboratory, company or organization, the appointed investigator shall immediately take charge of the evidence. If no investigator has been appointed, the senior management person shall immediately appoint one. The investigator shall assign a unique case number to the incident and the evidence and prepare a record for the case.

NOTE 1—The unique case numbers (however called) shall be alpha-numeric numbers, using letters of the standard English alphabet and Arabic numerals. Example: The case number for an incident may be BL-12345 and each piece of evidence numbered BL-12345-1, BL-12345-2, BL-12345-3, etc. If any of the pieces of evidence is subdivided, cut, or broken, each portion may be referred to as BL-12345-2a, BL-12345-2b, etc. The number shall be unique. It shall not have been used before, and shall not be used again in conjunction with any other case.

6.1.1 If the laboratory keeps its records in record books, it may be advisable to start a new record book for each incident. If a record book is used for the record of the investigation, it should be a bound book with numbered pages.

6.1.2 If the laboratory keeps its records on a computer, it may be advisable to keep the records of a case that is involved in or subject to litigation in a record book, or, at least, on a completely separate data base if there is a compelling reason to keep it on a computer.

NOTE 2—All records related to a case may be subpoenaed by a court and are subject to inspection by the opposing party during the discovery process. If original records have to be introduced, complications may arise if the records are not kept separately.

6.2 The record created at the time of the receipt of the sample should include the following information:

6.2.1 A brief factual description of the incident indicating the date and time of the incident, and the source of information for the stated facts.

6.2.2 The date and time of the submission of the evidence, and the number of pieces of evidence submitted. For each piece of evidence, the unique number assigned to that sample, and the full description including all markings and conditions as required by ISO Guide 25, and NIST Handbook 150, and NIST Handbook 150-18 if applicable. A photographic record of each piece of evidence may be helpful, in which case it should be included in the record.

6.2.3 The identity of the person delivering the evidence or the means of delivery of the evidence such as, via registered mail (including registration number). If the delivery is made by a person unknown to the investigator, he shall request proper identification of the person making the delivery and record the type of identification, (for example, drivers licence) along with the serial number of the identification.

6.2.4 If the person making the delivery has an evidence chain of custody form, it shall be signed by the investigator and a copy shall be attached to the record. If there is no evidence chain of custody form, one should be created by the investigator, signed by the person submitting the evidence and the investigator. One copy shall be given to the person delivering the evidence and a copy shall be attached to the record.

6.2.5 All instructions received shall be recorded including the identification of the person who gave the instructions and how the instructions were given, such as, verbally, by messenger, by signed letter, or by telephone.

6.2.6 Any and all other pertinent facts.

6.3 No entry shall be made based on opinion or deduction.

6.4 All evidence received shall be properly identified with the assigned unique sample number, and secured from unauthorized access. It shall be stored in a location where the access is restricted to the investigator, and in a manner that is suitable for the proper preservation of the evidence.

7. Procedure—Planning of Testing

7.1 The first step in planning should be deciding which tests the laboratory intends to perform.

7.1.1 If the laboratory is part of the organization that is involved in the litigation (or potential litigation), the investigator should consult with the legal advisor (attorney) handling the litigation (or potential litigation) for the organization. His advice should be followed. No work should be performed without his prior approval. The decision on which tests to perform should be made by the legal advisor with technical input from the investigator.

7.1.2 If the laboratory is an independent laboratory hired by one of the parties involved in the litigation (or potential litigation), the decision regarding the tests should be made by the party that hired the laboratory, preferably after they have consulted with their legal advisor (attorney) handling the litigation (or potential litigation). In some instances the client may request that the laboratory consult with and receive the instructions from their legal advisor.

7.1.3 If the laboratory is hired by both parties involved in the litigation (or potential litigation) to act as an arbitrator, the parties jointly have to decide whether or not to leave the decision on which tests to perform to the laboratory performing the tests, or they can limit it to certain specified tests.

7.1.4 The court's or arbitrator's decision concerning the tests to be performed shall be followed.

7.1.5 If the laboratory is a governmental laboratory investigating any violations of law or regulations in conjunction with the incident, the laboratory shall follow the agency's or laboratory's standard policies if the policies include record

keeping outlined in this practice and impartial testing.

7.2 If the investigator determines that the tests requested require any alteration in the appearance, state, or condition, including, but not exclusively, the cutting up or removal of a portion of any of the evidence, he should take the following steps prior to proceeding, in accordance with Practice E 860:

7.2.1 Notify the legal advisor handling the litigation if the laboratory is part of the organization that is involved in the litigation (or potential litigation). The legal advisor may want to proceed or notify the other interested parties or the courts, if applicable.

7.2.2 Notify his client if the laboratory is an independent laboratory hired by one of the parties involved in the litigation (or potential litigation).

7.2.3 Notify both parties if the laboratory is an independent laboratory hired by both of the parties involved in the litigation (or potential litigation).

7.2.4 Notify the court or arbitrator if the laboratory is appointed by the court (or arbitrator).

7.2.5 If compelling reasons exist to perform the action without notifying other parties, the investigator has to draft and preserve documentation supporting the compelling reasons for such action.

7.3 When any subdivision (cutting) or any other alteration of any piece of evidence is performed, it should be clearly documented (see Practice E 1188), preferably with photographs. In instances where pieces of evidence are subdivided (cut), all pieces should be identified (see Note 1).

8. Procedure—Testing

8.1 The testing of evidence should be performed using appropriate standard test methods issued by recognized standards writing organizations. The record shall indicate the designation of the test method used. The test method should be followed.

8.2 If there is any deviation from the stated test method, an accurate description of the deviation shall be given in the record, together with justification as to why the deviation was required and documentation as to why the deviation should not affect the accuracy and precision of the test results.

8.3 Photographic illustrations of certain test methods may be advisable, especially if a trial is expected or anticipated and if the photographic illustrations could aid the judge or jury, or both, to better understand the tests.

8.4 The investigator should be present to observe all tests, even if they are performed by another technically competent person, so that he can testify to all tests performed.

9. Testing—Special Conditions

9.1 Special conditions may apply when the testing of an item of evidence is regulated by law or regulations.

9.2 In the United States, the testing of fasteners falls within the scope of this practice and is regulated by law and regulations. Certain fasteners to be made, sold or used in the United Sates have to be tested in accordance with the Fastener Quality Act (FQA)[4,5], and applicable regulations, by laboratories certified for the testing of fasteners.

9.3 Although any laboratory can test fasteners for litigation purposes, a laboratory may face a question of credibility if it is not certified for fastener testing.

10. Reporting Results

10.1 The report issued at the conclusion of the testing shall contain all the following items as listed in Section 13 of ISO Guide 25:

10.1.1 A title, such as “Test Report” or “ Test Certificate,”

10.1.2 The name and address of the laboratory, and the location where the test was carried out if different from the address of the laboratory,

10.1.3 A unique identification of the certificate or report (see 6.1 and Note 1) and of each page, and the total number of pages,

10.1.4 Name and address of the client, where appropriate,

10.1.5 The description and unambiguous identification of the evidence item(s) tested,

10.1.6 The characterization and condition of the evidence item(s),

10.1.7 The date of receipt of the evidence item(s),

10.1.8 The identification of the test method(s) used or unambiguous description of any non-standard methods used,

10.1.9 Reference to the sampling procedure, where relevant,

10.1.10 Any deviation from, addition to or exclusion from the test method, and any information relevant to a specific test, such as environmental conditions,

10.1.11 Measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified,

10.1.12 A statement of the estimated uncertainty of the test results (where relevant),

10.1.13 The signature and title of the investigator accepting responsibility for the contents of the certificate or report (however produced), and the date of issue,

10.1.14 Where relevant, a statement to the effect that the results relate only to the evidence items tested, and

10.1.15 A statement that the certificate or report shall not be reproduced except in full, without the written approval of the laboratory.

10.1.16 If the evidence or part of the evidence consists of fasteners, the report also has to contain additional items to comply with the FQA, as outlined in NIST Handbook 150 and NIST Handbook 150-18.

10.2 The report can be written in one of two formats: in the form of a laboratory report that gives only the information listed in 10.1, along with all results obtained, or in the form of a narrative report that, in addition to the information listed in 10.1 along with the results obtained, also includes a discussion of the results and a brief conclusion. See also Practice E 620 and Practice E 678.

10.2.1 If the narrative report is issued, it shall have the following sections if applicable:

10.2.1.1 *Introduction*—This section should contain a brief description of the facts involved in the incident, together with the source, a description of the evidence submitted and the request for the testing. If the work is done for an outside client, his name and address should also be stated here.

10.2.1.2 *Visual Inspection*—This section should contain a

[5] Public Law 101-592, as amended.

more detailed description of the evidence submitted, together with visually detected items such as crack or breaks.

10.2.1.3 *Testing*—This section should give all details and results on the testing, including procedures used, any deviations from the given procedure, equipment used, reference materials used, calibration status for the equipment, and the test results, with possible uncertainty values. If appropriate, this section can be broken up into subsections such as Chemical Analysis, Physical Testing, Metallurgical Examination, etc.

10.2.1.4 *Discussion*—This section is for the discussion and technical interpretation of the test results based on the data obtained from the testing. Published references to experts in the field can be used with appropriate footnotes. Language understandable to the non-technical person should be used in this section to aid in the interpretation of the report and understanding of the case by the judge or jury, or both.

10.2.1.5 *Conclusion*—This section should be a concise summary of the conclusion(s) reached based on the testing of the evidence. It should be written in plain, non-technical language so that it is clearly understandable to a judge or a lay jury, or both. It shall not contain any material that is not discussed in the previous sections and is not based on data obtained from the testing or observations described in the testing section.

10.3 The report shall be tamper resistant with the use of special watermarked paper, security paper, or embossed seals.

10.4 Each page of the report shall be initialed by the investigator who signs the report.

11. Preserving and Transferring Evidence

11.1 All evidence received, regardless whether it has been tested or not, whether it is considered significant or not, shall be preserved by the investigator in a way that it does not deteriorate, and stored in a place accessible only to the investigator. It shall be stored in tamper evident containers or packaging.

11.2 The evidence shall be preserved until the case, including possible appeals procedures, is closed, and the legal advisor approves of the disposal of the evidence. The evidence shall be disposed of at that time.

11.3 If any or all of the evidence has to be transferred, the approval of the client or legal advisor should first be secured. When transfer of the evidence is made, a chain of custody of evidence form shall accompany the evidence.

11.3.1 The evidence chain of custody form shall state:

11.3.1.1 The name, title and affiliation of the person from whom the evidence was transferred,

11.3.1.2 The name, title and affiliation of the person to whom the evidence was transferred,

11.3.1.3 The date and time of the transfer,

11.3.1.4 If and what changes have been made or have occurred while in the custody of the person from whom the evidence was transferred, and

11.3.1.5 The signature of the person from whom the evidence was transferred, and the signature of the person to whom it was transferred.

12. Documentation

12.1 All documentation shall be preserved for the same time as evidence as described in 11.2.

13. Keywords

13.1 evidence; litigation; metal testing; reports