

A. PURPOSE:

Proficiency testing is a tool to demonstrate and monitor the ability of each examiner to perform the examinations and/or analysis necessary to fulfill the request(s) of the submitting agency, using the currently validated procedures within the discipline. Additionally this is a tool to monitor the methods of the DSS, demonstrating their ability to achieve expected results. External proficiency testing is also a way for the DSS to compare the results generated by the DSS to other forensic laboratories. This allows for the DSS to ensure that the procedures used are appropriate and effective.

B. SCOPE:

As part of the Quality Management System, proficiency tests provide one basis for an assessment/monitoring of the individual performance of the examiner. They also provide an opportunity to evaluate aspects of the administrative and technical (SOP's) procedures applicable to each unit.

Analysts will be challenged at minimum, annually in each discipline of testing in which they perform testing; this may be through an internal or external test. Additionally analysts may be challenged in the various components of testing (as listed on the DSS Scope of Accreditation) in which they perform analysis. All analysts will be provided with at least 1 external proficiency in the 4 year accreditation cycle.

In some units, such as Toxicology, proficiency tests are routinely used as an assessment of the unit as a whole, since multiple analysts are involved in the analytical processes for each case.

In reviewing proficiency testing results, the overall findings are considered and when issues are identified, the process is reviewed in an effort to identify and rectify (and remediate if necessary) the underlying root cause.

C. RESPONSIBILITY:

1. Top Management: is responsible to ensure that funding is available for the proficiency testing program and that the requirements of the ANAB accreditation program and the FBI DNA QAS requirements are met.
2. Quality Manager (QM) and Forensic Biology/DNA Quality Manager (FB/DNA QM): responsible to oversee the Division's proficiency testing program.
3. DNA TL: responsible to review the results of all proficiency tests within the DNA section. Additionally, the DNA TL is required to ensure that the Quality Section is informed if there are changes to the FBI DNA QAS documents regarding proficiency testing requirements.
4. Assistant Director and Scientific Services Administrative Manager: responsible to work with the Quality Section to support the proficiency testing program.

5. Unit Supervisors/Leads: responsible to work with the Quality Section to support the proficiency testing program. Additionally, are required to ensure proficiency tests assigned within their unit are completed and forwarded to the Quality Section by the due date assigned by the Quality Section.
6. Analysts (however titled): responsible to analyze proficiency tests in a manner consistent with typical case work (as closely as reasonable) using current laboratory procedures. Additionally they are responsible to complete proficiency tests in a timely manner and submit results on or before the due date.
7. DNA Analysts: responsible to work all DNA proficiency tests in accordance with the FBI DNA QAS. Additionally they are responsible to complete proficiency tests in a timely manner and to enter the results in the proficiency test providers portal by the due date.

D. DEFINITIONS:

1. External Proficiency Test: unknown samples prepared by and obtained from an approved outside source such as Collaborative Testing Services, Forensic Testing Services, or the College of American Pathologists. The test provider must submit the results of the test directly to ANAB.
2. Internal Proficiency Test: these are testing materials either obtained externally or prepared internally. Certain test providers offer “internal” test materials. The results are not sent to ANAB.
3. Observational Based Monitoring: Used as a tool to assess continued competency/proficiency in components of work not captured during a typical external or internal proficiency test.

E. PROCEDURE (General):

1. The control of the proficiency testing program is assigned to the Quality Section.
 - The Quality Section will maintain all proficiency test case files for a minimum of 2 ANAB Assessment cycles.
 - The Quality Section will ensure that proficiency tests purchased meet the criteria as set forth by ANAB.
2. Each analyst will be provided with a minimum of one test per year (two in DNA) in each discipline in which they normally perform case analysis.
3. Each Unit will be provided with at least one proficiency tests in the ‘Components, Parameters or Characteristic Tested’ as listed on the DSS scope of testing and in all components within the 4 year accreditation cycle. Based on unavailability of external proficiency tests in some components, it may necessary to provide internal tests or to perform observational based monitoring.

4. Proficiency tests will be distributed through the Quality Section.
5. Upon completion of a proficiency test the analyst must submit the case file with all case documentation including the completed test provider paperwork to the Unit Supervisor/Lead (TL in DNA), Assistant Director or Deputy Director by the date designated by the QS.
6. The Supervisor/Lead (or designee) is responsible to ensure that the case has received a technical review, administrative review and that the results are submitted to the test provider by the date designated by the Quality Section. The Deputy Director or Assistant Director may require a review prior to submitting the test results to the provider. The Unit Supervisor/Lead will arrange for this to occur as requested.
 - If the results are submitted electronically (as required by test providers such as FTS and CTS) a copy of the submission form receipt will be placed in the case file. The analyst is responsible for the electronic entry and submission of the data.
 - If the results must be mailed (as with Resolution Video) a track-able method will be used (UPS, Federal Express).
7. The analyst will forward the case file and test materials to the Quality Section upon submitting the results to the test provider. Note that Toxicology and Controlled Substance testing materials will be maintained within the Units.
8. Upon receipt of the test results from the test provider, the Quality Section will review the documentation. The review will include assessment for results that are outliers as compared to other participating laboratories. When necessary the Quality Section may obtain discipline expertise when reviewing proficiency results. Feedback will be provided to the analyst(s). Generally this will be through a Qualtrax workflow.
9. Electronic notifications will be sent to the analyst and notification made to the unit Lead (DNA TL), Supervisor, Assistant Director or Deputy Director. A Qualtrax workflow is available for non-DNA and DNA proficiency test results.
10. If an unacceptable grade is obtained the Quality Section will work with the Director, Deputy Director, Assistant Director, and/or the Unit Supervisor/Lead (TL in DNA) to determine a remediation plan. The Quality Section will inform the Director of all unsatisfactory results. In general, a QAR will be initiated.

F. TYPES OF PROFICIENCY TESTS:

Proficiency tests for each Unit may consist of combinations of the following:

1. *External:* Proficiency tests obtained through an outside vendor that meets ANAB criteria. To be considered an external proficiency test the results must be reported to ANAB by the test provider. A list of tests ordered each year and the provider of each

test shall be maintained by the Quality Section. The schedule of these tests will be dependent on the schedule of availability from the provider.

- If a vendor cannot be identified that meets ANAB guidance ANAB must be contacted to obtain approval for the proposed test provider prior to use. This contact will be made through the QM or designee.
 - If no vendor is available for a Component/Parameter or Characteristic Tested of testing the Quality Section will work with the section Deputy Director, Assistant Director and/or the Unit Supervisor/Lead (TL in DNA) to design an internal test or to perform observational based monitoring.
2. *Internal:* the unit Supervisor/Lead or Quality Section member or designee may issue samples that have been created to simulate case samples or situations. The expected results of analyses of these samples shall be known to the test preparer. The completed proficiency test shall be submitted to the Quality Section as a regular case including the report and all pertinent case records.

Internal test may be purchased through an outside vendor. For these cases the vendor will not report the results to ANAB. The QS will track these as internal proficiency tests.

3. *Observational Based Monitoring:* this technique will be used when an activity on the DSS Scope of accreditation cannot be assessed through the use of a traditional proficiency test (internal or external). For this the Quality Manager will work with the appropriate Deputy Director, Assistant Director or their designee to determine the action to observe and the appropriate person(s) to perform the observation. The observation should be performed by someone authorized in the technique and may include the Unit Supervisor, the Unit TL and a member of the Quality Section.

The person(s) performing the observation will verify that the analyst being observed is performing the task as per laboratory protocols. The observer will provide written feedback using GL-16.1 'Direct Observation PT Worksheet' to the QS and the Unit's Deputy Director (or their Designee). The QS will review the feedback with the Deputy Director for appropriateness and then provide the feedback to the analyst. Records of the review will be maintained by the QS.

G. TESTING SCHEDULE:

1. Schedule Overview: the Quality Section is responsible to order external tests. The schedule will be prepared on a 4 year accreditation cycle basis.
 - Each year, each discipline of testing (as listed on the DSS Accreditation Scope of Testing document) will be challenged with one external proficiency test.

- In the four year accreditation cycle each Component/Parameter or Characteristic Tested as defined on the DSS Scope of testing will be challenged. External Proficiency tests are the preferred method however internal proficiency tests or observational based monitoring may be required.
- Each analyst will be assigned at least one external proficiency test, in each discipline in which they perform work, at least once in a four year accreditation cycle.
 - a. Attempts will be made to vary the testing assigned to an analyst throughout the accreditation cycle to ensure all aspects of applicable tasks, in which the analyst is authorized, are challenged.
 - b. If a unit performs proficiency tests as a unit, such as with Toxicology, each analyst will take part in at least 1 proficiency test. Each analyst will be responsible for the portion of the testing they perform.
- Each analyst will be assigned at least one internal or external proficiency test or will be observed as part of observational monitoring each year in each discipline in which they perform case work.
 - a. Members of the DNA unit shall complete an external proficiency test semiannually as defined in the FBI DNA QAS document.
 - Internal proficiency tests will generally not be used in the DNA unit, although they may be utilized for purpose of re-training.
 - b. DNA analysts shall comply with proficiency test requirements of the Quality Assurance Standards for Forensic DNA Testing Laboratories and Quality Assurance Standards for DNA Databasing Laboratories. DNA proficiency tests shall be reviewed by the DNA Technical Leader. The DNA Technical Lead and FB/DNA Quality Manager will work together to ensure all proficiency requirements within the DNA section are met.

H. PROCEDURES: External proficiency tests

1. When a test is assigned, the Quality Section or a member of the Case Management Unit will notify the individual(s) through email. Additionally an email may be sent through the proficiency test provider.
 - Some test providers require the use of their on-line portal for reporting of testing. In these cases the analyst will be required to create a logon (or account) with that test provider.

- For Collaborative Testing Services (CTS) the Quality Section will add the analyst to a group within the portal and an email will be sent to the analyst from the CTS portal inviting them to create a logon.
 - a. As new tests are available the QS will assign the tests in the portal, when an assignment is made the analyst will be notified by email from the CTS portal.
 - b. Results will also be entered through this portal as listed below. See references for a link to the CTS portal troubleshooting guide.
 - For Forensic Testing Services (FTS) instructions are provided as part of the documentation provided with the test packet.
 - For the International Society of Forensic Computer Examiners (ISFCE) the instructions are provided electronically with the emailed test information.
2. When possible, proficiency tests will be entered into Justice Trax as regular evidence.
 3. In general, the test materials will be retrieved from the Evidence Receiving Unit in the same manner as casework.
 4. Upon receiving the proficiency tests, analysts should inspect the contents for suitability. Due to the time limitations associated with these tests, this step should be completed early in the process.
 - If there are any issues with the proficiency test samples e.g. unclear images, broken samples etc. they shall be reported to the Unit Supervisor or Lead who will then notify the Quality Section.
 - A member of the Quality Section or their designee will contact the test provider to discuss the issue(s).
 5. To address the need to test individual proficiency and the desire to mimic the lab casework process:
 - Examiners shall conduct independent, individual examinations, analyses and testing of the proficiency samples. Noted exceptions to this is the DNA/FB Section who share proficiency tests and the Toxicology Unit where individual tests are rarely assigned.
 - a. All conclusions, including “inconclusive” must be based on the examiner’s own work.
 - b. It is inappropriate for any individual participating in a proficiency test to contact any other laboratory or professional user group concerning an active test.
 - c. Those individual conclusions should be obvious from the notes on the worksheets, analytical data or other documentation.

- d. Examiners must use appropriate and approved procedures, tests, software programs and/or instrumentation per the section SOPs to obtain the answer(s)/conclusion(s).
- The examiner will submit the case file, including the completed test paperwork for technical review per the unit's normal practice.
- Whenever possible, the review shall be conducted by an examiner who is not taking the same proficiency test.
 - a. When all analysts in a unit are taking the same test, the Unit Supervisor or Lead is responsible to ensure an individual assigned to perform the technical review has completed their own analysis of the test.
 - b. In the event there are no analysts in-house that can perform a technical review in the discipline, an analyst from another accredited laboratory (ANAB or equivalent) can be used for the purpose of technical review. The Section Deputy Director or Assistant Director with the Quality Section is responsible for arranging the review to be performed in a manner consistent with laboratory practices. In these cases for proficiency tests, the test results can be forwarded to the proficiency test provider prior to the technical review being performed.
 - c. At no time during the review process will the reviewer change any worksheets, data or other original documentation in the proficiency test file. This includes the test provider's result sheets. The test provider's result sheets will be submitted to the test provider as completed by the analyst, edits will not be made due to case review. It is permissible for typographical errors to be amended.
 - d. If the provider asks how an item would be reported by our laboratory, the analyst should simply copy the normal verbiage (as would be included in a case report) into the documents supplied by the test provider.
 - e. Test providers will not accept appended pages. The laboratory case report will not be forwarded to the test provider.
 - f. If issues are discovered during the technical review that cause the reviewer to question the findings, or if they determine inappropriate testing was performed, the reviewer must forward those issues to the Unit Assistant Director or Deputy Director. The Assistant Director or Deputy Director is responsible to inform the Quality Section.

- Note: For the Toxicology section; the analysts work proficiency samples in the same manner as regular cases. Proficiency samples are incorporated into extraction batches as routine samples. The batch technical reviewer will report any significant problems with the individual batches to the Assistant Director or Deputy Director; they will then inform the Quality Section.
- The QS need not be involved for simple typographical errors.
- The QS will work with the Deputy Director, Assistant Director, and/or Unit Supervisor or Lead (TL in DNA) to determine if there is an issue and if so how to proceed.
- As with any case, after the review, additional notes or conclusions may be made by the analyst but should be clearly initialed and dated as subsequent material.
- The analyst is responsible to electronically submit the results to the test provider. For both CTS and FTS the web code provided by the test provider is required to enter the results.
 - a. As part of the entry the analyst may be asked to provide accreditation information. If this is asked the analyst must enter the information to allow the test to be reported to ANAB, failure to do so disqualifies the test as an external proficiency test. General information to be provided as asked:
 - ANAB certificate number: ALI-204-T
 - Authorized contact Person: Current Quality Manager
 - Laboratory Name CT DESPP Division of Scientific Services
 - Location: Meriden CT
 - b. After entering the results into the test provider's portal and before submitting the results a 2nd person must review the data for accuracy.
 - The results will be printed as entered and the reviewer will initial and date the document once reviewed, this will remain in the case jacket.
 - Once the review is completed the analyst is responsible to submit the data on the portal per the test provider's guidance.
 - For the DNA Unit the DNA TL will review all proficiency case files prior to submission to the test provider.

- c. Record of the successful submission will be placed in the case file (generally a printed message from the portal).
 - d. The completed case file and the evidence will be forwarded to the QS once the data is submitted to the test provider. The QS is responsible to maintain proficiency files.
- The Unit Supervisor/Lead or designee has the responsibility to oversee the process and ensure that all work is completed (including case review) prior to the date assigned by the test provider.
- 6. The Quality Section is contacted by the test provider when the results of the testing are available for review.
 - Generally, test providers may provide:
 - a. Manufacturers report which generally describes how the test materials were prepared
 - b. Summary document which contains compiled results based on all test participants reported findings
 - c. Individual report which contains the analysts results
 - if there are inconsistencies (as compared to the expected results) these are generally highlighted in some manner
 - In the DNA Unit, the DNA TL is responsible to compare the results reported by each analyst to the results expected by the test provider.
 - For all other units the QS is responsible to compare the results reported by each analyst to the results expected by the test provider.
 - The results provided by the test provider will be used as the primary criteria for the evaluation of the tests. Any results identified as being outside of the expected by the test provider will be investigated.
 - a. The DNA TL and the QS may use other criteria in evaluating results. Thus can include (but is not limited too) ensuring DSS procedures were followed and due dates were met.
 - The results of the review shall be forwarded to the examiner.
 - a. In the DNA unit a Qualtrax workflow for DNA proficiency tests will be used to notify the analysts of the results. The DNA TL is involved in the workflow to the extent necessary for compliance with the DNA QAS. For all other units, a Qualtrax workflow (non-DNA) will be used for notification of results.

- In general, the findings from the test provider will be attached to the workflow for the analyst to review. Documentation that the analyst reviewed the test results will be in each workflow instance.
- 7. When the results are reviewed, if an issue is found the QS will work with the appropriate individuals (as designated by the Unit Deputy Director) to assess the extent of the issue and determine what remediation (if any) is required.
 - DNA Unit, the QS will work with the DNA TL and Assistant Director and/or Deputy Director.
 - All other units, the QS will work with the Assistant Director and/or Deputy Director and Unit Supervisor.
 - The QS will inform the Director of all issues with proficiency test results.
 - An incident report or corrective action will be initiated based on the issue.
 - a. Incident reports will be used for issues where remediation is not required such as administrative errors (typos or minor transcription errors).
 - b. Corrective Actions will be used for issues where remediation is required. Corrective actions will be activated for issues such as:
 - Incorrect conclusions
 - Quantitative values that are outside the expected range
 - Incorrect identifications
 - Occasions where the reported results are not part of the majority answer (example: 80% of test takers answered “x” and the DSS analyst answered in another category where only 10% of the test takers answered)
 - Improper documentation
 - When remediation is required, at the level of a Corrective Action, the QS, AD and DD (or TL in DNA) will work together to determine the needed steps (following the normal QAR process) to address the issue.
 - a. Each event will vary. Generally, the following are issues that may need to be determined:
 - Is the issue serious enough to warrant taking the individual off of case work until remediation is complete?
 - Does the issue warrant the review of past casework?

- Does the issue warrant the review of Unit methods?
 - Were proper methods followed?
 - Was there an instrumentation or reagent error?
 - Is retraining needed?
 - Was the test appropriate?
 - a.) Is the issue caused by the test provider asking the DSS to answer questions outside of normal testing?
 - b.) Were expected results outside of something the DSS would report (Example – in a chemical unknown case if a heavy metal was the expected result – the chemistry section may not have the methodology to detect that).
 - b. In cases where a corrective action is opened the remediation may include the issuance of an internal proficiency test.
 - When ANAB submits a request for information pertaining to reported proficiency test results, a QAR will be performed to document the response.
 - Note: This need not be done if the query is for clarification purposes only.
 - c. The QS will be responsible for a timely response to ANAB. This may include collaboration from the Deputy Director, Assistant Director and/or the Unit Lead (or DNA TL).
8. The QS will maintain the documentation of the ANAB inquiry. A copy of the inquiry and the final outcome will be placed in the proficiency test file. The Quality Section shall keep and maintain records as to who analyzed each test; copies of the reports and all supplemental materials.

I. PROCEDURE: Internal Proficiency Tests

1. Internal Proficiency Tests may be used in two ways.
 - As part of the normal annual proficiency test schedule as determined by the Quality Section.
 - As requested by the Director or Deputy Director at any time outside the prescribed schedule.

2. Internal proficiency tests samples:

- may be prepared by the QS, TL, section Assistant Directors, Deputy Director or designee
 - a. When an internal test is prepared the following documentation must be maintained:
 - who made the samples
 - how the samples were prepared
 - the expected results
- may be purchased through a test provider
- may be taken from previously issued proficiency tests (or those previously purchased but never issued). When previously issued tests are used efforts will be made to remove identifying case numbers. Note this may not be possible on some electronically submitted tests.

3. Documentation of the test samples and expected results will be prepared prior to submitting the test for analysis.

- For test samples prepared in house it may be appropriate to have the items analyzed by a competent analyst (other than the analyst to be challenged) prior to distribution for testing to document the expected results. This may not be required when:
 - a. A purchased test is used.
 - b. A previously analyzed proficiency test is used.
 - c. Certified reference materials or equivalent are used to prepare the test samples.

4. These samples shall be submitted as a case through Evidence Receiving in the same manner as an external proficiency test.
5. The examiner will follow the normal unit procedures and case flow. (See External Proficiency tests above).
6. Upon completion of the test, the entire case file and the report of findings will be forwarded to the Quality Section or their designee for review and comparison to the expected results.
7. Review, grading, notification of results and remediation (if required) will be performed in the same manner as for External Proficiency test.
8. If results are not as expected, an evaluation shall be performed in order to determine the cause of the deviation.

J. RECORDS:

1. The Quality Manager shall maintain records of proficiency testing for each DSS Laboratory section, including as a minimum:
 - who was challenged (analyst name)
 - the test identifier (as designated by the test provider)
 - a. test type (internal, external, observational)
 - the date the results were sent to the test provider
 - the discipline and the component from the DSS Scope
 - the test outcome (pass/fail)
 - a. If results from a proficiency test are not as expected the document will be marked “QAR” this will indicate that there was an issue that is being investigated.
 - b. Once the remediation is successfully completed, this can be updated to “Pass”
 - c. A grade of fail will only be given if the issue cannot be remediated
2. For External Proficiency Tests:
 - The case file, maintained in the Quality Section, will include:
 - a. Normal unit case documentation including appropriate technical records.
 - b. The expected results from the test provider.
 - c. Documentation that the results were submitted to and reviewed by the test provider.
 - d. A copy of the Qualtrax workflow documenting the evaluation of the results and the feedback provided to the analyst(s).
3. For Internal Proficiency Tests:
 - The case file, maintained in the Quality Section, will include:
 - a. Normal unit case documentation including appropriate technical records.
 - b. Documentation of how the test was prepared
 - c. Documentation of the expected results.
 - d. A copy of the Qualtrax workflow documenting the evaluation of the results and the feedback provided to the analyst(s).

- For Observational Based Monitoring:
 - a. Documentation of the review will be maintained by the Quality Section.
 - b. Feedback provided to the examiner will be maintained by the Quality Section.
- 4. Records of Proficiency testing will be maintained for a period of no less than 10 years.

K. REFERENCES:

CTS Portal troubleshooting guide: <http://support.cts-portal.com/troubleshoot/2019/1/10/need-to-view-or-print-data-entry-forms.html>

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