How to Handle Audit Reports and SOPs the “Write” Way

NAICC, QA Session – Tucson, AZ
January 19, 2018
2:00 – 3:30 PM
Session Chair: Lisa A. Wheelock-Roney
Agenda

- **Writing Findings**
  - Field Audits
    - Cathy Webster
  - Lab Audits
    - Carol Lee

- **Answering Findings**
  - Principal Investigator
    - Christina Linder

- **Final Approval**
  - Study Director
    - Ann Harbin

- **Writing SOPs**
  - Sandy Daussin

Words to remember: respect, concise, complete, balanced.
Introductions – Who we are

- Writing Findings
  - Cathy Webster
  - Carol Lee

- Answering Findings
  - Christina Linder

- Final Approval
  - Ann Harbin

- Writing SOPs
  - Sandy Daussin

» QA Team Lead, Syntech Research
Introductions – Who we are

- **Writing Findings**
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- **Answering Findings**
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- **Final Approval**
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- **Writing SOPs**
  - Ann Harbin

- **President, Lee Compliance Assessments**
  - Sandy Daussin
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- Writing Findings
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- Final Approval
  - Ann Harbin
- Writing SOPs
  - Sandy Daussin

- Principal Investigator/Study Director, EPL Bio Analytical Services
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Sr. Principal Scientist, International Agricultural Research

Sandy Daussin
Introductions – Who we are

- **Writing Findings**
  - *Cathy Webster*

- **Answering Findings**
  - *Carol Lee*

- **Final Approval**
  - *Christina Linder*

- **Writing SOPs**
  - *Sandy Daussin*

- Regulatory Consultant/Owner, Regulatory Partners, Inc.
Agenda

- Writing Findings
- Field Audits
- Answering Findings
- Final Approval
- Writing SOPs

Writing Field Audits the "Write" Way

Cathy Webster
Syntech Research
Field Inspection Tips

- Always start with reading the protocol and SOP’s
- Standard checklist – usual inspections
- Formatted similar to notebook requirements
- Customized checklist – new inspection, unusual inspection
- Good inspection report = accurate and complete information collected
Checklist examples – Application

- Test Substance:
- Name: Lot/Batch No.
- Received: Expiration:
- COC/COA:
- Plot Stake Info:
- UTC:
- TRT:
Checklist examples – application

Test Substance Requirement – Calculations for Application – Tank Mix for Spraying

Test Substance:
  - Actual Amount Measured _______ mL

Adjuvant:
  - Actual Amount Measured _______ mL

Carrier:
  - Actual Amount Measured _______ mL
  - Total tank mix prepared: ________________ mL
<table>
<thead>
<tr>
<th>Item</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data recorded directly into field notebook in ink and signed or initialed by the recorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry errors properly corrected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plot design and identification adequate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducted according to protocol / method</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samples properly labeled (test system, study, nature and date collected)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample handling techniques adequate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Checklist Examples – Sampling

- **Techniques used to avoid contamination**
  - Used soap and water to clean the equipment between samples.
  - Sampling progressed from control plot to the highest treated rate plot.
  - Control and treated plot(s) sampled simultaneously by different people.
  - Stored untreated and treated samples in separate coolers.
  - Other (explain):

- **Techniques followed to obtain samples**
  - Avoided plot borders.
  - Collected samples according to protocol
  - Collected from at least 12 separate areas of plot
  - Collected replicate samples from treated plot independently
  - Placed samples in cooler for transport with ice or blue ice.
  - Other (explain):
## Checklist examples – notebook

<table>
<thead>
<tr>
<th>Data Reviewed</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test site location is displayed on a map showing the trial location within the state and the nearest town or city</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location and layout of test facility/farm is documented with key features or landmarks listed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plot labeling consistent with protocol?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plot map/diagram references at least 2 permanent markers or GPS coordinates?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance between control and treated plots meet protocol requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Concluding Inspection

- Received proper documents (protocol, amendments, SOP’s)
- Collected all required information
- Check information before leaving field
- Discuss observations with PFI (if needed)
- Ask PFI for copies of relevant notebook pages
Writing findings

1. Protocol has wrong PFI and location.
   - Is there an amendment?
   - Is this a change or a repeat trial?
   - Who needs to prepare amendment?
   - Ask for copy for PFI and QA

Protocol needs to be amended to change the PFI and location of the trial for this repeated trial. The SD should prepare amendment and route to PFI and a copy needs to be provided to QA.
2. Sprayer calibration made >24hrs before application.
   - SOP deviation?
   - Protocol deviation?
   - Who needs to prepare SOP/Protocol deviation?
   - Ask for copy for PFI and QA

Sprayer was calibrated 2 days before application, a protocol and SOP deviation should be prepared by the PFI and sent to the SD for approval. Once prepared provide copy to QA.
Writing findings

3. Calculations for application not correct.
   - Plot size
   - Test Substance amount
   - Sprayer calibration (collection time/amounts)
   - Pass times
   - Show independent QA calculations
   - Did it trigger a deviation?

Which part of the calculation is incorrect?
   - Plot size in your calculation for actual application rate is incorrect, recalculate rate and ensure you are within the acceptable range of the protocol.
4. Samples not collected as per protocol deviation needed.
   ▪ Treated collected before untreated
   ▪ Outside rows and ends collected
   ▪ 12 independent areas of plot were not used
   ▪ Replicate samples were not collected independently
   ▪ Sample does not meet weight requirements

   ▪ For replicate samples only one sample was taken and split into two samples. The protocol required a separate collection in the plot for each sample. A protocol deviation will need to be prepared by the PFI.
Writing findings

5. Data entry errors not corrected according to GLP.
   - Reason for change not noted
   - Change not dated or initialed
   - Error code not circled (if in SOP)
   - Write–over

   - On calibration page 7.4 your correction to the date did not include a reason for change.
6. Sample storage temperatures were out of range.
   - Did protocol allow temporary deviation?
   - How long was the occurrence?
   - Did the samples thaw?
   - Deviation

   - Sample storage temperature exceeded –20°C limit in the protocol. Protocol allows temporary deviations. Need to specify how long the freezer was out of range.
Agenda

Writing Lab Audits the “Write” Way

Carol Lee
Lee Compliance Assessments
WHO AM I?

- Worked for sponsor companies and CROs in AgChem EPA GLPs for longer than I’ll admit.

- I’ve audited and written reports for environmental and GLP studies
INTRODUCTION
Key Points for an Auditor to Consider:

- **The QAU is the Protector** (ensures that the quality data and product are defensible as per GLPs)
- When Auditing, Make those Audits Detailed, but Easy to Follow
- Know Your Boundaries as the QAU
- Respect Your Scientists
The QAU is Your Protector, Not the Enemy

- We help ensure for the integrity of your study data and that it is defensible
- We provide proper guidance for GLP compliance
- We are the front man for EPA and sponsor audits to ensure that they go smoothly and successfully
- When we sign that QA statement in your report, we add credibility that your study documentation is sound
Make those Audits Detailed, but Easy to Follow

Tips & Suggestions:
- Provide enough detail in your finding so that it is easily understood – don’t make it vague
- Reference QA finding number in the report text and data
- Don’t make them hunt! Add post-it flags in raw data for easy view
- Use check-lists when possible
- Should you include typos and grammatical errors?
Know Your Boundaries

- You are not the Study Director
- You are not Management
- You are not the Sponsor
  (OECD No.11, Advisory Document *The Role and Responsibilities of the Sponsor in the Application of the Principles of GLP*)
Respect Your Scientists!

- It’s a hell of a lot easier to find errors in a report than to write a report and present the data
- They are looking to you for guidance, not criticism
- They want to produce a quality product
- Positive and constructive findings are Key

Remember:
We are all on the same Team!
EXAMPLE 1, DOCUMENTATION: *Bad*

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Write over for run A-20, 5/6/17 not properly corrected.</td>
<td></td>
</tr>
<tr>
<td>2. The sample prep sheet on 7/3/17 is missing an explanation for the</td>
<td></td>
</tr>
<tr>
<td>correction made.</td>
<td></td>
</tr>
<tr>
<td>3. The initials are missing on a late entry notation for the data run</td>
<td></td>
</tr>
<tr>
<td>on 6/7/17.</td>
<td></td>
</tr>
<tr>
<td>4. The explanation <em>and</em> date are missing to a correction on standard</td>
<td></td>
</tr>
<tr>
<td>prep form for 6/7/17.</td>
<td></td>
</tr>
<tr>
<td>**These are all serious GLP documentation violations which are not</td>
<td></td>
</tr>
<tr>
<td>acceptable!**</td>
<td></td>
</tr>
</tbody>
</table>

**Why is it Bad?**

- Recognize everyone makes mistakes – but investigate – e.g. were they made by one person or several? Training should be suggested.
- It takes a lot of time finding each error – flagging them in the data is more expedient.
## Example 1, Documentation: Better

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There were several GLP documentation errors in the raw data; I’ve flagged all with notation of what is missing. Please re-emphasize with your staff how to correct data as per the GLPs (signed/dated on day of correction &amp; reason for correction).</td>
<td></td>
</tr>
<tr>
<td>2. Recommend listing missing documentation as a GLP deviation on the compliance page.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Follow data documentation issue in this and future audits to ensure acceptable improvement. At some point, formal or informal training may be needed.
- The study director/PAI (not you) decides if documentation problems are noted on the GLP compliance page.
### Finding Response

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Report:</td>
<td></td>
</tr>
<tr>
<td>- Page 6, par. 3, line 4; correct typo, for clarification.</td>
<td></td>
</tr>
<tr>
<td>- Page 8, section 4.2, standard ID is wrong.</td>
<td></td>
</tr>
<tr>
<td>- Page 8, section 4.3, check grammar on second sentence.</td>
<td></td>
</tr>
<tr>
<td>- Page 9, table 4: sum for column 2 is wrong.</td>
<td></td>
</tr>
<tr>
<td>- Page 10, par. 3, correct typo for identification.</td>
<td></td>
</tr>
<tr>
<td>- Page 13, calculations: missing calculation of recoveries for fortifications.</td>
<td></td>
</tr>
<tr>
<td>- Page 14, summary section: missed reporting of field fortification samples.</td>
<td></td>
</tr>
<tr>
<td>- Page 15, archival section: add where final laboratory report will be archived.</td>
<td></td>
</tr>
<tr>
<td>- Page 16, several typos in references.</td>
<td></td>
</tr>
</tbody>
</table>

### Why is it Bad?

- Can you make this any harder???
- Don’t add typos and grammatical errors as part of findings

The Lab's Perspective
**EXAMPLE 2, REPORT: Better**

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Report (each number noted on QAU review copy of report):</td>
<td></td>
</tr>
<tr>
<td>1. Page 8, section 4.2, correct standard ID as noted.</td>
<td></td>
</tr>
<tr>
<td>2. Page 9, table 4: sum for column 2 is wrong as noted.</td>
<td></td>
</tr>
<tr>
<td>4. Page 14, summary section: recommend discussing field fortification samples in summary.</td>
<td></td>
</tr>
<tr>
<td>5. Page 15, archival section: add where final laboratory report will be archived.</td>
<td></td>
</tr>
</tbody>
</table>

*Please refer to QAU review copy for typographical/editorial comments/suggestions.*

**Note:**
- Refer them back to the QAU review copy for easy visual corrections.
- You separate out non-QA issues such as typos & grammar, but still lead them to what should be corrected.
Finding Response

The control sample XYZ in run 6172017 was obviously contaminated. This is due to analyst error.

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The control sample XYZ in run 6172017 was obviously contaminated. This</td>
<td></td>
</tr>
<tr>
<td>is due to analyst error.</td>
<td></td>
</tr>
</tbody>
</table>

Why is it Bad?

- It is not QAU’s job to assume analyst error – state the facts. There could be many reasons for the problem, e.g., error with the standard run, contaminated solvents used, poor integration, misidentification or contamination in the field.

- Proper investigation is needed, not accusations – remember, the PAI/study director is likely fiercely supportive of his/her staff and you’ve just put that person in a defensive posture.
# EXAMPLE 3, ANALYSIS: Better

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The control sample XYZ in run 6172017 was &gt;2ppm. I could find no clear explanation when reviewing the associated documentation: standard prep forms, sample prep forms, weigh logs. As per the SOP on re-analysis of samples, recommend re-extracting and re-analyzing this sample in triplicate in order to rule out analyst error. Also, recommend that you consult the study director if not resolved. Please keep me informed of follow-up.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- If this is the analytical lab with the PAI, make sure the study director is notified if problem cannot be resolved or identified.
- QAU should monitor the progress.
Agenda

Answering Findings the “Write” Way
Principal Investigator’s Perspective

Christina Linder
EPL Bio Analytical Services
Introduction

- Laboratory Audit Process
- Principal Investigator’s role
- Descriptive and complete audit responses
Laboratory Audit Process

A laboratory principal investigator (PI) assists the audit throughout the process

- QA completes audit and returns it to the PI
- PI addresses findings or delivers to the analyst
- Analyst returns the audit to the PI for a review of the corrections
- PI returns the audit to QA
Principal Investigator’s Role

- Fields questions from QA during the review
- Assists analysts in addressing the audits, if needed.
- Addresses higher level, study management types of findings
- Addresses findings if analyst is no longer with company
- Ensures audits are addressed in a timely manner
Principal Investigator’s Role

- Reviews the corrections to ensure findings have been addressed completely, thoroughly, and accurately
- Fields questions from the Study Director about the findings
- Other communications related to the conduct of the study, especially in relation to an audit.
Descriptive and Complete Audit Responses

- Did the analyst address the question or finding?
- Was a corrective action needed? If so, was that corrective action completed?
- Was it addressed in the raw data?
- Did the analyst address the audit response in a manner that would clearly and accurately describe the situation and how it was handled?
<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protocol Review</strong> – The protocol does not indicate where the study records should be maintained.</td>
<td>Contact Study Director to confirm this information and add to the protocol.</td>
<td>Study Director was contacted.</td>
</tr>
</tbody>
</table>
**EXAMPLE FINDING 1:** *Better*

<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
<th>Corrective Action Taken – Good Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protocol Review</strong> – The protocol does not indicate where the study records should be maintained.</td>
<td>Contact Study Director to confirm this information and add to the protocol.</td>
<td>Study Director was contacted.</td>
<td>The Study Director (SD) was contacted about the finding. It was decided that all raw data and study records should be transferred to the SD following study completion. The SD will address the missing information in a protocol amendment.</td>
</tr>
</tbody>
</table>
EXAMPLE FINDING 1: *Better*

**Corrective Action Taken – Good Response**

The Study Director (SD) was contacted about the finding. It was decided that all raw data and study records should be transferred to the SD following study completion. The SD will address the missing information in a protocol amendment.

- Reflects that the PI had communication with the SD
- Reflects the decision that was made through the communication
- Addresses how the finding will be handled
<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytical Run (All Sets)</strong> – Unable to determine the purpose of the hexane injections at the beginning of the run and throughout since the SOP does not require them.</td>
<td>Address; if hexane injections should be performed routinely for this method, suggest updating SOP.</td>
<td>Added explanation.</td>
</tr>
</tbody>
</table>
### EXAMPLE FINDING 2: *Better*

<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
<th>Corrective Action Taken – Good Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytical Run (All Sets) – Unable to determine the purpose of the hexane injections at the beginning of the run and throughout since the SOP does not require them.</strong></td>
<td>Address; if hexane injections should be performed routinely for this method, suggest updating SOP.</td>
<td>Added explanation.</td>
<td>Hexane is injected at the beginning and throughout the analytical run to condition and clean the column. A memo was included to clarify its use. The SOP has been updated to reflect the use of hexane.</td>
</tr>
</tbody>
</table>
Hexane is injected at the beginning and throughout the analytical run to condition and clean the column. A memo was included to clarify its use. The SOP has been updated to reflect the use of hexane.

- Answers the “question” proposed by the finding
- States how the finding was addressed
- States how the SOP is being changed to eliminate the need for this finding in the future
**EXAMPLE FINDING 3: Bad**

<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set 058G001</strong>– Sample weights in software do not agree with weigh sheet.</td>
<td>Address sample weights in software.</td>
<td>Weights were corrected.</td>
</tr>
</tbody>
</table>
**EXAMPLE FINDING 3: Better**

<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
<th>Corrective Action Taken – Good Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set 058G001–Sample weights in software do not agree with weigh sheet.</td>
<td>Address sample weights in software.</td>
<td>Weights were corrected.</td>
<td>The weights in the software were corrected to agree with the weight sheet. Results were confirmed to still be acceptable. Samples were re-processed. New reports were printed while old reports were noted as such. Spreadsheets were also corrected and printed.</td>
</tr>
</tbody>
</table>
EXAMPLE FINDING 3: Better

Corrective Action Taken – Good Response

The weights in the software were corrected to agree with the weight sheet. Samples were re-processed. New reports were printed while old reports were noted as such. Spreadsheets were also corrected and printed.

- Reflects how the finding was corrected
- Addresses other documentation that was affected by this finding
- Reflects how other documentation was also corrected.
Final Approval the “Write” Way
Study Director’s Perspective

Ann Harbin
International Agricultural Research
Tying it all Together

Assessing the compliance of each critical event in the study is the responsibility of the Study Director.
The QA, PFI, PAI, and SD are all critical to the success of the study. Each are the experts in their phases of the study.

A study will only be as good as the team.
Respect the Team

- The QA, PFI, PAI, and SD are all critical to the success of the study.
- Each are the experts in their phases of the study.

A study will only be as good as the team
Concise Findings

- The SD sees many audits, and wants to evaluate an audit as fast as possible.
- The more efficiently findings are phrased, the easier the audit is to review. Vague findings are unhelpful.
- Any follow-up required by the SD should be clearly indicated (e.g., required amendments, COAs, clarifications to the protocol, etc.)
- Any significant findings or required deviations should be clearly indicated.

A concise audit keeps the study moving
Complete (based on checklists)

- A checklist gives SD confidence that all critical and supporting information for a critical event were checked.

Without a checklist, the audit is useless.
The completed audit confirms the critical event was compliant.

The SD can understand the event, the findings, the responses without having to contact the PI or request raw data.

If pages need to be scanned to clarify and/or support the finding, this is helpful.

PI Responses address the finding directly. If PI cannot understand a finding, contact the auditor for clarification.

Focused Responses
Example: **USE A CHECKLIST**

<table>
<thead>
<tr>
<th>Bad</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>No findings / no comments observed (without a checklist).</td>
<td>A well-prepared checklist (Yes/No/Not Audited), and additional details entered by the auditor were used.</td>
</tr>
</tbody>
</table>
## EXAMPLE: FIELD FINDING

<table>
<thead>
<tr>
<th>Finding – Bad Finding</th>
<th>Finding – Good Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all of the GLP exceptions for the COC documented?</td>
<td>The signature for the test substance sender is missing from the Chain of Custody. This should be noted on the GLP exceptions summary page. Any shipping documentation to support the shipper/ship date should be included with the trial notebook.</td>
</tr>
</tbody>
</table>
A vague finding requires a lot of time/effort to understand. Be concise and specific.

A finding phrased as a question indicates “optionality”. This is a finding, not a question. State it specifically.

Specifically lets the PFI know the auditor’s recommendation on how to mitigate this non-compliance.

Specifically lets SD know this exception must be added to the compliance statement.
## EXAMPLE: ANALYTICAL FINDING

<table>
<thead>
<tr>
<th>Bad</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical in-phase inspection of sample extraction: “Sample prep sheets and extraction were verified.”</td>
<td>The sample preparation steps indicated on the prep sheet were reviewed/compared with the analytical method and the method modifications approved by the Study Director. Extraction steps 1 through 5 were observed with no discrepancies.</td>
</tr>
</tbody>
</table>
Good Auditor Remarks

The sample preparation steps indicated on the prep sheet were reviewed/compared with the analytical method and the method modifications approved by the Study Director. Extraction steps 1 through 5 were observed with no discrepancies.

- Be specific while recording exactly what was observed during the audit.
- A checklist for sample prep should be used by QA that records sample IDs extracted, fortification standard IDs, reagents used, and other details.
- The prep shep procedure should be compared against the method and method modifications.
Agenda

How to Handle SOPs the “Write” Way

Sandy Daussin
Regulatory Partners, Inc.
SOP’s – Who needs ’em?

We have ONE important message …

- Standard Operating Procedure documents, “SOPs” are key to operations in any GLP compliant organization (Test Facility)
  - Are business critical for any Testing Facility
  - Define the compliance, speed, work atmosphere, and the quality of the final product: The Final Study Report
  - Are legally required by the GLPs


- Provides a list of topics which must be covered by an SOP (e.g. handling of the test system, the test, control and reference substances, equipment, and data)
- The list is not all-inclusive
- Test Facility Managers may, and usually do, require more SOPs

“§ 160.81: Standard operating procedures.

(a) A testing facility shall have standard operating procedures in writing setting forth study methods that management is satisfied are adequate to insure the quality and integrity of the data generated in the course of a study…..”
How to Write a Good SOP

Some fundamentals

- **What you won’t find in the GLPs**
  - Who writes them?
  - Who reviews them?
  - How often should they be updated?
  - How often should staff be trained?

- **Things to keep in mind about SOPs**
  - Are meant for “humans” (us) – need to be easy to read, clear, and precise
  - Are frequently misunderstood (misused) as “technical descriptions” to be *followed* by staff
  - Are fundamental for all partners (managers and staff) working together under GLP
How to Write a Good SOP

You know this cycle....?

People

- SOPs
- Discussion
- Anxiety

Processes

- Findings

Well, there is a solution...
### How to Write a Good SOP

#### Main Points

**Balance** the need for detail, without creating unnecessary deviations.

**Buy-in is key!**

#### Edit Critically – ?’s to Consider

- Does this look like something someone who records data would do, exactly as written?
- Are there too many details?
- Is the text clear and easy to follow?
- Is the text ambiguous?
- Could it create conflict with a Protocol? If so, what to do?
Procedures for Documenting Raw Data*

Recording Raw Data

- All raw data recorded by hand shall be legible and in permanent ink at the time the data are generated.
- All data shall be recorded in lab or field notebook paper directly at the time the data are generated, and the data entries shall be dated, with the time also recorded.
- The person recording the data must provide their signature.
- The smallest unit of the measurement is considered uncertain.
- Zeros may or may not be significant.
- No intermediate number should ever be rounded in calculations, only final numbers.
- Scientific notation is used for larger numbers.
- For any empty space, “NA” must be written over a diagonal line.
- Dates must be recorded as DDMMYYYY.

Redundancies make this SOP difficult to read and understand.

Too much detail muddies the waters:
- Why not use initials too?
- What is a final number?
- ALL empty spaces need an NA and a diagonal line?
- ALL dates must be EXACTLY DDMMYYYY?
- What is a larger number?

*Note: In the interest of time, we will not be discussing electronic raw data – only hand recorded data.
Procedures for Documenting Raw Data*

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- Dates must be recorded as DDMMYYYY.

### Original Raw Data

- All raw data recorded by hand must be in ink and legible.
- All raw data need to be recorded, with a date and initials or signature of the person recording the data, at the time the data are generated.

### Verified True Copies or Transcriptions of Original Raw Data

- All copies or transcriptions of raw data must be certified for accuracy as a true and exact copy at the time the copy or transcription was made.
- Copies and transcriptions of data must be identified as such, and dated and signed or initialed by the person making the transcription or copy.

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Procedures for Documenting Raw Data*

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**Verified True Copies or Transcriptions or Original Raw Data**
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*Note: In the interest of time, we will not be discussing electronic raw data – only hand recorded data.*

Well organized.
Language is clear and concise.
Enough detail to convey meaning, but not so much user’s hands are tied.
Procedures for Documenting Raw Data*

Correcting Errors

- Errors need to be corrected as soon as they are noticed.
- Crosscuts cannot obscure the original entry.
- **Whiteout and pencils cannot be used.**
- There must be room to provide an explanation for the error. If not, a footnote should be used.
- The reason for change must be recorded.
- Use the following abbreviations:
  1. CE – Calculation Error
  2. ME – Mathematical Error
  3. WE – Wrong Entry
  4. RE – Recording Error
  5. SE – Sequencing Error
  6. LE – Late Entry
  7. WD – Wrong Date Entered
  8. WT – Wrote Time Entered
  9. IO – Inadvertently Omitted
  10. WO – Write Over
  11. TE – Transcription Error
  12. UE – Unnecessary Entry
  13. FE – Footnote Explanation
  14. AC – Additional Comment

Redundancies make this SOP difficult to read and understand.

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Corrections to Raw Data

- Any corrections to the raw data (original or verified true copy) should be done in a manner not to obscure the original entry, for example, with a single crossed line.
- The reason for change, along with the date and initials or signature of the person making the change must be recorded.
- The following provides a list of codes that may be used when recording the reasons for change. **NOTE:** Code numbers below should be circled to avoid confusion with recorded data.
  1. Mathematical Error
  2. Wrong Conclusion
  3. Wrong Entry
  4. Transcription Error
  5. Procedural Change
  6. Wrong Conclusion
  7. Illegible Error
  8. Unnecessary Entry
  9. Late Entry (provide reason for delay)
  10. Explanation provided in footnote

*Note: In the interest of time, we will not be discussing electronic raw data – only hand recorded data.
Procedures for Documenting Raw Data*

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*Note: In the interest of time, we will not be discussing electronic raw data - only hand recorded data.
How to Write a Good SOP

The Take Home Messages

- Remember to treat SOPs as business critical documents and key for GLP compliance
- Invest time up front to write good SOPs to save staff frustration, energy, and time in the long run.
Thank you!!

You still remember......?
Back ups connected via hyperlink
EXAMPLE 4, ANALYSIS:

Bad

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>You poorly integrated XYZ in run from June 17.</td>
<td></td>
</tr>
</tbody>
</table>

Why is it Bad?
Technically, this is a science issue and not part of the QAU job. If you do see a science problem, you should point it out, but understand your boundaries. If properly approached, the chemist will be more receptive to your opinion.

Also, comment too vague; a laboratory may have several runs on June 17 – don’t make him/her hunt for it – reference the exact run number and the full date it was run.
# EXAMPLE 4, ANALYSIS:

**Better**

<table>
<thead>
<tr>
<th>Finding</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Although a science issue, please re-check sample XYZ in run 6172017, as flagged. It appears that it was not fully integrated, and does not match how the standards were integrated.</td>
<td></td>
</tr>
</tbody>
</table>

Note:
Your scientists want to have good, quality data, so suggesting that it should be re-checked is all you need to say.
Christina Linder
EPL Bio Analytical Services

Lab Principal Investigator’s Perspective
Managing Audits the Write Way
## Example Finding 4

<table>
<thead>
<tr>
<th>Findings</th>
<th>Action Recommended</th>
<th>Corrective Action Taken – Bad Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set 338D001– Expiration date for mobile phases used in set 338D001 does not agree with the mobile phase prep form.</strong></td>
<td>Update expiration to agree with prep form.</td>
<td>Corrected.</td>
</tr>
</tbody>
</table>
## EXAMPLE FINDING 4

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<th>Corrective Action Taken – Good Response</th>
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</thead>
<tbody>
<tr>
<td>Set 338D001 – Expiration date for mobile phases used in set 338D001 does not agree with the mobile phase prep form.</td>
<td>Update expiration to agree with prep form.</td>
<td>Corrected.</td>
<td>Expiration date was corrected on LC–MS conditions summary for set 338D001 to agree with the prep form. The bottle label was also corrected to agree with prep form.</td>
</tr>
</tbody>
</table>
EXAMPLE FINDING 4: Better

Corrective Action Taken – Good Response
Expiration date was corrected on LC–MS conditions summary for set 338D001 to agree with the prep form. The bottle label was also corrected to agree with prep form.

- Addresses which form was incorrect.
- Addresses how the finding was corrected.
- Addresses other lab materials affected by the finding.
Moved from front
Inspection Findings the "Write Way"—Field Perspective

Cathy Webster, Syntech Research
How to Handle Audits the Write Way
The Lab’s Perspective
In prior year, signed over 300 audits (both bad and good!) for Import Tolerance studies located in the US, Brazil, Canada, and LatAm.