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SUBMITTAL OF CHANGE PAGES FOR SITE-WIDE CERCLA QUALITY ASSURANCE PROJECT PLAN

01/29/93

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LETTER

7124

Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
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JAN 29 1993
DOE-0998-93

Mr. James A. Saric, Remedial Project Director
U.S. Environment Protection Agency
Region V - 5HRE-8J
77 West Jackson Street
Chicago, Illinois 60604

Mr. Graham E. Mitchell, Project Manager
Ohio Environmental Protection Agency
40 South Main Street
Dayton, Ohio 45402

Dear Mr. Saric and Mr. Mitchell:

SUBMITTAL OF CHANGE PAGES FOR SITE-WIDE CERCLA QUALITY ASSURANCE PROJECT PLAN

This letter formally transmits changed pages for the Site-wide CERCLA Quality Assurance Project Plan (SCQ) in response to your comments concerning the chain of custody section of the SCQ. All of the comment resolutions have been previously discussed with you and your staff. With your approval of these changed pages, all outstanding comments on Volumes I and II of the SCQ will be resolved.

The Department of Energy, Fernald Field Office (DOE-FN) and Fernald Environmental Restoration Management Corporation (FERMCO) are continuing to address the outstanding issues concerning the SCQ analytical methods as discussed in the recent conference calls with you and Kevin Bolger.

If you or your staff have any questions concerning this transmittal, please contact me at FTS/Commercial (513) 738-6159 or Randy Janke at (513) 738-6937.

Sincerely,

for Randy Allen

Jack R. Craig
Fernald Remedial Action
Project Manager

FO:Craig

Enclosure: As Stated

Recycled and Recyclable

cc w/enc.:

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Section 7

SAMPLE CUSTODY

Sample custody procedures and documentation at FEMP are conducted in accordance with guidelines in the EPA Region V Model Superfund Quality Assurance Project Plan (U.S. Environmental Protection Agency, 1991), which are derived from EPA sample custody protocols described in ***NEIC Policies and Procedures***, EPA-330/9-78-001-R (revised May 1986). Custody requirements are addressed in three parts: (1) sample custody and handling in the field, (2) custody during laboratory receipt and analysis, and (3) evidence files. Sample custody flowchart is shown in Figure 7-1 of Appendix A.

A sample or evidence file is considered in the custody of a person if any one of the following are true.

- The person has physical possession of the sample or file.
- The sample or file is in view of the person, after being in possession.
- The sample or file is placed in a secure location by the custody holder.
- The sample or file is in a designated secure area.

Environmental samples at Analytical Support Levels (ASL) B (sub-level 1), C, and D require complete custody documentation. ASLs B (sub-level 2) and E samples shipped to off-site facilities or that have custody transferred on site also require complete custody documentation. ASLs B (sub-level 2) and E analyses performed at FEMP without custody transfers require completion of field and laboratory documentation as appropriate.

Compliance with sample packaging and shipment requirements in Section 6 and the custody requirements in this section will provide adequate documentation of sample custody from the time of sample collection to final disposition.

The ERMC accepts full responsibility for ensuring that all off-site laboratories' chain of custody (COC) procedures will be contained in written Quality Assurance Plans or SOPs, and that these COC procedures are fully consistent with the field COC procedures defined within.

7.1 FIELD PROCEDURES

The FEMP project manager is responsible for implementation of sample custody procedures.

The Designated FEMP Quality Assurance Organization is responsible for verifying that sample custody procedures are implemented and followed.

The field team leader or designee is responsible for the care and custody of the samples collected until they are transferred to a transporter or an analytical or processing facility. The actual sample collector must sign the chain of custody, and any transfer of the sample within the sampling team will be documented on the chain of custody. Any transfer of sample custody from the original samplers in the field must be documented by double transfer signature on the SAR/CR. The timeframe between sample collection and the arrival at at the sample processing facility shall be minimized to ensure that all holding times can be acheived by the lab. All samples requiring refrigeration will immediately be placed in coolers that already have ice or other cooling agents added. The field procedures shall be conducted as follows:

1. The Sitewide Analysis Request/Custody Record (SAR/CR) (Form 7-1, Appendix B) shall be generated either prior to or at the point of sample generation for transferring custody on site. If samples are shipped to an off site laboratory by a commercial carrier, an Offsite Custody Transfer Record (OCTR) form shall be used to transfer custody. Samples to be shipped off site shall be packaged in accordance with all applicable DOT regulations.

2. Print out duplicate sample labels containing sampling information for each individual sample as specified in section 7.1.3. Sample labels may be printed from a computer or handwritten using black waterproof ink. One label shall be permanently affixed to the sample bottle, while the second label shall be temporarily affixed to the same sample bottle.

3. Collect only the number of samples needed to represent the media being sample. As much as possible, determine the quantity and types of samples and sample locations prior to the actual field work. The number of persons having sample custody shall be minimized.

4. Record the information concerning the sample collection in a field log as specified in section 7.1.2. Record the date and time of collection on the SAR/CR once a sample has been collected. All samplers involved in the sample collection shall sign the SAR/CR.

5. Seal the sample immediately upon sample collection using custody tape around the lid of the jar/bottle in such a manner that when the jar is opened, the tape would be destroyed. The sampler will initial and date the custody tape prior to sealing the sample jar. Figure 7-2 (Appendix A) is an example of sample custody tape.

6. If the samples require refrigeration, the samples are placed immediately in a cooler which is to be kept under the rules of custody.

7. Deliver the samples directly to an analytical or processing facility, a transporter, or lock the samples in a secure area for the night when the sample collection has been completed for the day. For field personnel shipping samples directly to an offsite laboratory, see section 7.1.5. If the samples are not transferred immediately, then the SAR/CR shall contain the name of the storage area (room number) and state how custody was maintained (locked room or sealed cooler).

8. If analysis is completed in the field, the rules of custody shall apply (e.g., the sample always in possession of sampler or under lock and key).

9. The FEMP project manager or designee shall review activities to determine whether proper custody procedures were followed during field work and to decide if additional samples are required.

7.1.1 Sample Tracking and Control Documentation

Sample custody shall be documented from time of collection through disposal and final disposition of the sample shall be documented. The following sample custody records shall be maintained.

- Bound field log book with sequentially numbered pages or sequentially printed and numbered daily field activity log forms
- Sample identification and labeling
- Three-part SAR/CR

The first two items shall be completed for all samples regardless of ASL. The SAR/CR is required for samples shipped off site or for samples analyzed on site by a party other than the sample collector (i.e., a custody transfer occurs).

7.1.2 Daily Logs

Data collection activities shall be recorded in a bound field log or on daily field log forms (Form 5-1, Appendix B). Entries shall describe activities sufficiently for the sampling team to re-construct a particular situation without reliance on memory.

Field logs shall be bound field survey books or notebooks with sequentially numbered pages, preferably with water-resistant paper (standard engineering field book). Logs shall be

assigned to field personnel. They shall be stored in a secure area when not in use. Each log shall be identified by a project-specific control number.

Use of daily log forms was approved by EPA for the Remedial Investigation/Feasibility Study program (U.S. Department of Energy, 1988). Similar forms are used by other programs at FEMP. Each form shall be sequentially printed and numbered and logged into the data management system. Requirements for daily log entries at FEMP are provided in Section 5.

7.1.3 Sample Identification and Labeling

Samples shall be marked for identification from the time of collection and packaging through final disposition through the use of sample labels. Duplicate labels shall be printed or handwritten in black waterproof ink and attached to the sample jar/bottle. The sample label shall include the following information:

- Sample ID
- Date sampled
- Time sampled
- Material name
- Sample type
- Preservatives
- Container type
- Gross weight
- Collectors initials
- Tare weight
- Comments (CMT)
- Chain of Custody Number (COC #)

The duplicate sample label shall be attached to the original sample label by a perforation. The backing shall also be perforated at the point of the duplicate label. When the original

label is attached to the sample bottle, the backing shall be left attached to the duplicate label which will stay attached to the original label.

Form 7-2 (Appendix B) is an example of sample labels. Label A is automatically generated by the Laboratory Information Management System (LIMS) for known samples to be taken. Label B is for samples which does not have labels already preprinted for them. An established sample numbering system will be automatically generated for each sample (Label A) using a 10 digit number that would be assigned to each sample in consecutive order. The generated number will appear on the sample label as the SAMPLE ID and in a barcode format for the known sample ID. An example of this numbering system would be 1000000101: the one hundredth and first sample container logged into the LIMS system.

7.1.4 Request for Analysis

Analysis requests shall be prepared to specify the testing or analyses program required for collected samples using Form 7-1 (Appendix B). Analysis requests shall be confirmed prior to sample collection and coordinated by the FEMP sampling and analysis management coordinator. The analysis request shall be hand-carried or telefaxed to a FEMP-approved analytical laboratory (Table 3-1, Appendix A) to ensure laboratory capacity prior to sample collection. The laboratory project manager or representative shall sign the copy and transmit it by telefax to the FEMP project contact, committing laboratory resources to proper, on-time completion of requested analyses. Failure of the laboratory project manager to respond within one working day shall be interpreted as a lack of capacity, and other arrangements shall be made for sample analysis. Other properly documented communications with subcontractor laboratory personnel may substitute for this procedure if defined in a project-specific plan.

If the laboratory initially contacted cannot perform the analysis, an alternate FEMP-audited and approved subcontractor laboratory shall be chosen by the FEMP project contact. The analysis request process shall be repeated. This process eliminates capacity problems and excessive sample turn-around times. Record the following information from the analysis request process for the project file.

- Project name and number
- Number of samples
- Date samples shipped
- Required report date and turnaround times for testing or analysis
- Contact (with telephone number) for receipt of analytical report and invoices
- Sample identification numbers

- Sample media
- Sample volume collected and preservatives used
- Types of analyses required

Information on the SAR/CR shall be consistent with that on the sample labels. When a discrepancy exists, the laboratory project manager or representative shall notify the FEMP project contact immediately. The written discrepancy resolution shall be transmitted from the FEMP project contact to the laboratory within one working day of notification by the laboratory.

7.1.5 Shipment of Samples to Off Site Laboratory

Samples collected at FEMP within the scope of this SCQ shall be accompanied by the OCTR (Form 7-1, Appendix B). Instructions for its completion are included with the form.

The SAR/CR shall follow the samples from sample collection to sample disposal. If the samples are delivered to a processing facility for shipment to an off site laboratory, an OCTR shall accompany the sample shipment in place of the SAR/CR. The timeframe between arrival of samples and delivery to the analytical laboratories shall be minimized to ensure that all holding times can be acheived by the laboratory.

The shipment of samples to off site laboratories shall be done as follows:

1. The processing laboratory shall verify that the sample seals are intact and check sample identification on sampling containers against that listed on the SAR/CR. When discrepancies exist, record that on the SAR/CR and sign and date the notation. Notify FEMP project contact immediately and store the sample(s) until a resolution is received from FEMP project contact.

2. The processing laboratory shall originate and sign the OCTR at time of sample shipment and file a copy of the OCTR with the original SAR/CR. The duplicate labels are **not** removed from the sample bottles until the samples are received in the laboratory.

3. Maintain sample preservation (refrigeration) from receipt of samples until sample shipment. It is the responsibility of the processing laboratory to ship samples in a manner as to maintain sample preservation requirements during shipment.

4. Package the samples properly for off site shipment as specified in Section 6 and dispatched to the laboratory for analysis. A signed OCTR shall be enclosed in a watertight container (e.g., a zipper lock plastic bag) and shall accompany each shipment. The bill of lading (waybill) number shall be noted on the OCTR (when applicable) before sealing in the container.

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5. Secure shipping containers with custody tape and FEMP custody seals (Figure 7-2 and Figure 7-3 in Appendix A) and/or locked if appropriate, so that access to the container can be gained only by breaking a seal. The custody seal number shall be documented on the OCTR. If the shipping container is secured with custody tape, the packager shall initial and date the custody tape prior to placement on the shipping container.

6. If samples are sent by common carrier, a bill of lading (waybill) shall be used. Receipts for bills of lading shall be retained as part of permanent custody documentation.

7. Commercial carriers are not required to sign the custody form as long as forms are sealed inside the sample container and the custody seals remain intact.

7.2 ANALYTICAL LABORATORY

7.2.1 Laboratory Sample Receipt

The laboratory personnel are responsible for the care and custody of samples from the time they are received until the sample is exhausted or returned to the FEMP project contact. Within eight business hours of sample receipt by a laboratory, the designated sample custodian, laboratory project manager or representative shall examine the samples as follows:

NOTE

If samples arrive with either an incorrect SAR/CR, or OCTR for off site laboratories, or no SAR/CR or OCTR, custody is broken and analysis results can only be used for information purposes only. Notify FEMP project contact by telephone or telefax and store samples until a resolution is received. Documentation of the discrepancy and its resolution by the FEMP project manager shall be contained in a **laboratory non-conformance form** (Form 15-3, Appendix B). This form shall become a permanent part of the project file.

NOTE

The laboratory project manager or representative shall notify the FEMP project contact of discrepancies noted during sample receipt by telephone immediately and within twenty-four hours in writing (by telefax if necessary). The laboratory project manager may use a **laboratory non-conformance form** with the SAR/CR or OCTR attached. The FEMP contact shall advise the laboratory of disposition to be made of samples within twenty-four hours of notification by telephone or telefax followed in writing.

1. Examine the shipping container custody seals for breakage and tampering, if

applicable. Record condition of custody seals on the SAR/CR or OCTR.

2. Measure temperature of shipping containers holding samples that require refrigeration with a calibrated, standard laboratory thermometer and record temperature on the SAR/CR or OCTR. If the temperature is outside the range of 2 to 6 degrees Centigrade, document this information on a laboratory non-conformance form and notify the FEMP project contact. Store samples until directions for disposition are received.

3. Examine custody seals on samples for breakage and tampering. Record condition of custody seals on the SAR/CR or OCTR. Check sample identification on sample container against that listed on the SAR/CR or OCTR.

4. When applicable, verify the bill of lading (waybill) number against that on the OCTR. If the waybill number is not written on the OCTR, verify with the FEMP project contact that the number on the waybill is identical to that recorded in the project files.

5. Sign and date the OCTR and attach waybill to it (when applicable). Remove the temporary duplicate sample label from the sample bottle and affix them permanently to the back of the top copy of the SAR/CR or OCTR. This is to verify the identification of the samples that were sent for analysis. Off site laboratories return the signed top copy of the OCTR to the FEMP project contact. On site laboratories, distribute the bottom copy directly to the samplers (green) at time of delivery and the middle copy directly to the FEMP project contact (yellow).

6. Assign a unique laboratory tracking number to each sample and affix a label with the number onto each sample container if the FEMP sample number is not used for internal laboratory tracking purposes. Numbers shall be assigned sequentially as samples are coded in. Log sample receipt information, including holding times, test assignments, and anticipated reporting date into laboratory information management system. If sample holding time has been exceeded or cannot be met, notify FEMP project contact and complete a laboratory non-conformance form. Enter samples in laboratory tracking system with the following information.

   - Project identification number
   - Sample numbers
   - Types of samples
   - Date received in the laboratory

7. Store samples as required in laboratory facility. Custody rules shall be followed throughout the life of the sample in the laboratory.

8. Each laboratory must follow its established system for assuring that sample custody is

documented for all movements of both the sample and its extracts/digestates. Each laboratory shall have an approved, controlled SOP that gives stepwise intralaboratory custody procedures complete with copies of documentation to be used. This SOP shall be approved by the FEMP project contact before use. Any changes to the SOP shall also be approved by the FEMP project contact before installing. Transfers that shall be documented include:

- from sample receiving to sample preparation,
- return of original sample to sample receiving,
- from sample extraction to digestion,
- from digestion to analysis,
- from analysis to storage of both original sample and extract,
- from sample storage to disposal.

9. All documentation of sample custody within the laboratory shall become a permanent part of the laboratory project files.

10. The bottom copy the OCTR shall be signed and dated and accompany the samples when samples are shipped back to the FEMP by the offsite laboratory after approval by the FEMP project contact. Upon receipt at the FEMP the contents of the shipment shall be check against the accompanying OCTR. If any discrepancies exist they shall be noted on the OCTR and the FEMP project contact contacted immediately.

11. The original (white) copy of the SAR/CR or OCTR is to be held in the laboratory project files until either the samples are disposed of or returned to the FEMP customer. At that time the original copy of the SAR/CR or OCTR is to be placed in the FEMP project files with the duplicate sample labels attached to the back. A copy is to be kept in the laboratory project files.

7.2.2 Assignment of Processing Priorities

The laboratory manager is responsible for assigning priorities to samples to ensure that holding times will not be exceeded during the time needed to process the samples through the laboratory work stream.

7.2.3 Sample Holding and Disposal

It is essential to track the final disposition of each sample because of potential liabilities incurred through improper disposal of samples. Therefore, the SAR/CR for the sample shall be completed with the final disposition of the sample. Analysis will confirm if the sample contains non-hazardous or hazardous waste or non-radioactive or radioactive material as defined by the Department of Transportation and the Comprehensive Environmental Response, Compensation, and Liability Act. Non-hazardous and non-radioactive samples shall be disposed of in accordance with standard laboratory practices or returned to FEMP as

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specified by the FEMP project contact.

The disposition of hazardous and radioactive samples shall be determined on a laboratory specific basis. The majority of these samples will be returned to FEMP prior to determination of final disposition.

When environmental samples are held for re-analysis, proper environmental control and holding times shall be observed. When re-analysis is not anticipated, but samples must be held for a specific time, environmental conditions for storage will not be observed.

When hazardous waste samples are held for re-analysis, they shall be stored according to their hazard classification under the Resource Conservation and Recovery Act, defined environmental conditions, and holding times.

When radiological samples are held for re-analysis or for a specific time, they will be stored in accordance with DOE regulations, individual laboratory licensing requirements, and environmental conditions.

When mixed waste samples are held for re-analysis or for a specific time, they shall be stored in accordance with DOE regulations, their hazard classification under the Resource Conservation and Recovery Act, and environmental conditions.

Special arrangements may be necessary for samples maintained longer than six months.

Returned hazardous waste and radiologically contaminated samples shall be transported to FEMP in accordance with 49 CFR 171 through 177 (Section 6). Record disposition on the SAR/CR and file results.

FEMP shall maintain a sample disposal log defining methods for disposal of FEMP-generated samples. Contract laboratories shall provide information identifying sample disposal methods to FEMP. Following are examples of sample disposition.

- Consumed in analysis
- Returned to FEMP
- Stored
- Non-hazardous/non-radioactive-contaminated samples disposed of in accordance with standard laboratory disposal practices
- Hazardous waste/radiological-contaminated samples disposed of in accordance with standard laboratory disposal practices

Disposal methods of samples analyzed at FEMP shall be documented on the SAR/CR.

7.3 EVIDENCE FILES

Evidence files for analytical data are maintained at FEMP and contain relevant records, reports, correspondence, logs, field logs, original laboratory data packages, pictures, subcontractor reports, SAR/CRs, and data review reports. All information supporting FEMP CERCLA decisions shall be included in the final evidence file as support for the Administrative Record in accordance with the 1991 amended Consent Agreement.

Evidence files shall be in the custody of the FEMP project manager responsible for generating the data. They are kept in a locked, secure storage area. The file custodian is the FEMP Administrative Record Coordinator, who controls the central file for environmental sampling and analysis at FEMP in addition to managing the Administrative Record. The final evidence file shall be maintained for at least ten years after remedial activities at FEMP are complete. If DOE decides to discard the files after this time, the 1991 amended Consent Agreement specifies that the files be offered to EPA.

Data generated by subcontractors for FEMP are the property of DOE and shall be maintained under contract at the facility where it was generated. No files shall be discarded without written consent of the FEMP project manager. If a storage, security, or other problem is discovered at the facility, files shall be transferred to FEMP.

7.4 REFERENCES

U.S. Department of Energy. 1988. ***Remedial Investigation and Feasibility Study, Feed Materials Production Center, Fernald Ohio, Work Plan.*** Revision 3. prepared by Advanced Sciences, Inc. for U.S. Department of Energy, Oak Ridge Operations. March 31, 1988.

U.S. Environmental Protection Agency. 1991. ***Region V Model Superfund Quality Assurance Project Plan.*** Chicago, Illinois. May 1991.

Westinghouse Environmental Management Co. of Ohio. 1992. ***Processing the Site-Wide Analysis Request/Custody Record for Sample Control.*** Procedure SSOP-0018. February 14, 1992.

Westinghouse Environmental Management Co. of Ohio. 1991. ***Packaging, On-Site Movement, and Off-Site Shipment of Material.*** Procedure FMPC-0314. December 31, 1991.

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
SAMPLE ID :. XXXXXXXXXX
(barcode goes here)

DATE SAMPLED TIME SAMPLED

MATERIAL NAME / SAMPLE TYPE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
PRESERVATIVES
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

CMT:

COC #:

SAMPLE ID: XXXXXXXXXX

(barcode goes here)

Label A

TEMP SAMPLE ID X-REF SAMPLE ID

DATE SAMPLED TIME SAMPLED

MATL NAME

SAMPLE TYPE

CONTAINER TYPE GROSS WEIGHT
XXXXXXXXXXXXXXXXX

COLLECTORS INITLS TARE WEIGHT

PRESERV:

CMT:

COC #:

Label B

Form 7-2. Example Sample Label

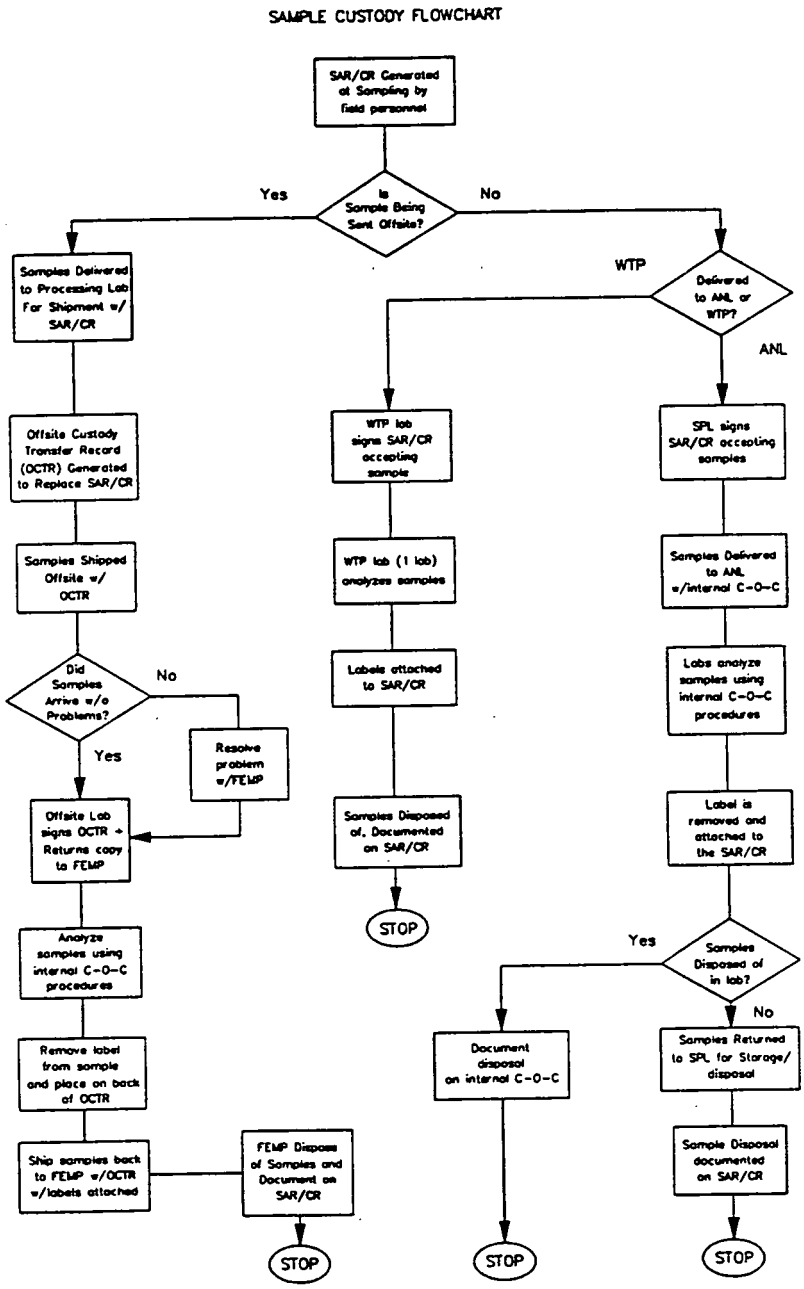

Figure 7-1. Sample Custody Flow Chart

LAB SAMPLE DATE _____

DO NOT TAMPER INITIALS _____

Figure 7-2. Example Custody Tape

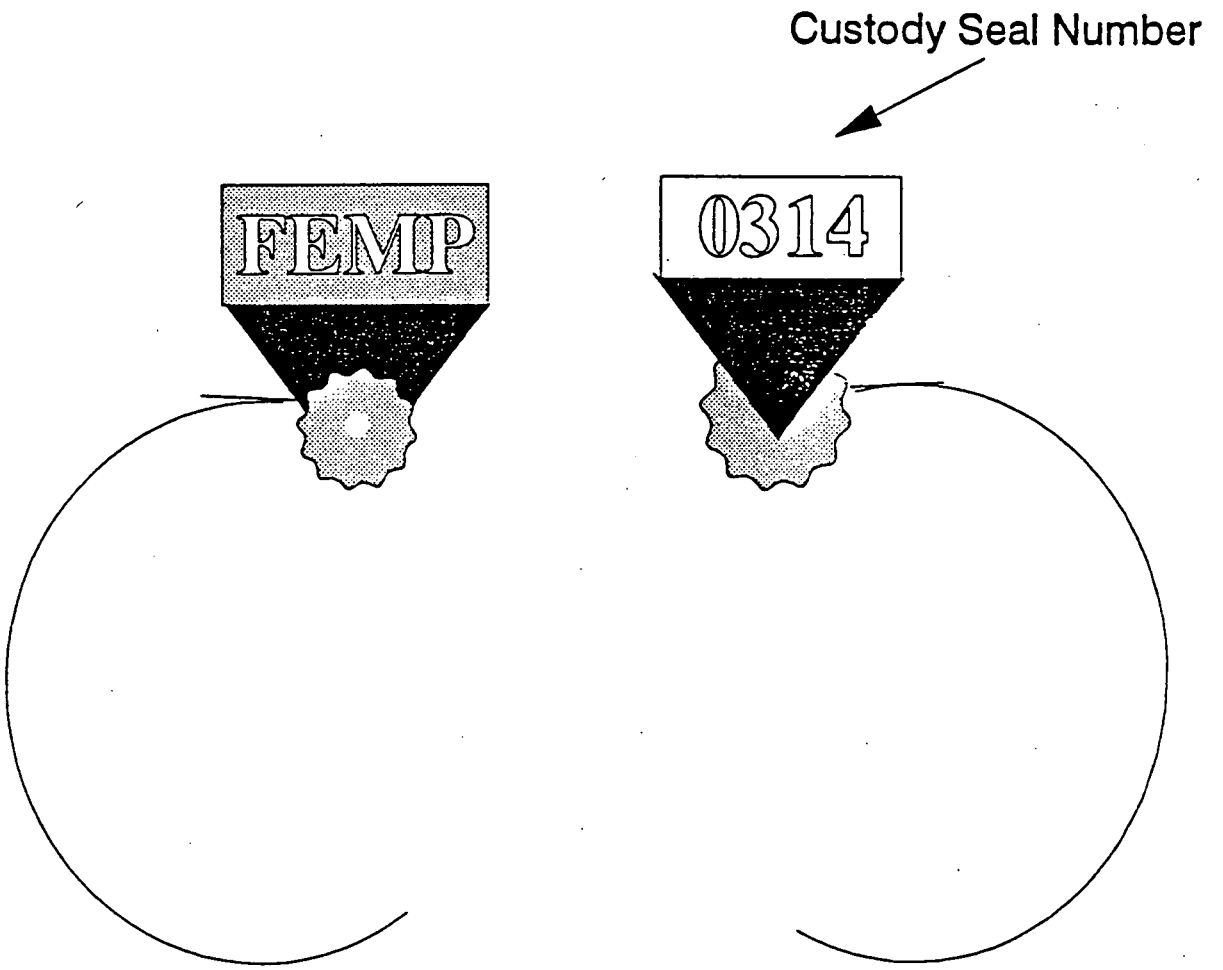

Figure 7-3. **Locking Custody Seal Page 1 of 2**

Wire Custody Seal Attachment

1. Wind the wire end of the custody seal around and/or through the locking ring and bolt or the latch of the container being sealed.

2. Slide the end of the wire through the seal portion of the custody seal till the wire is bound tightly around the container.

3. Crimp the seal to lock the wire in place.

NOTE

There may be several varations of how the seal is attached. However, the seal must be attached in a way so it will be broken or destroyed when the container is opened.

Figure 7-3. Locking Custody Seal Page 2 of 2