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QUALITY ASSURANCE PROJECT PLAN FOR THE NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS: WELL SAMPLING, DATA COLLECTION AND PROCESSING

Prepared by:

Harold Lester and Bruce Rappaport
ICF Incorporated
9300 Lee Highway
Fairfax, Virginia 22031-1207

Prepared for:

U.S. Environmental Protection Agency
Technical Support Division
Office of Drinking Water
26 W. Martin Luther King Drive
Cincinnati, Ohio 45268

APPROVAL PAGE

Harold Lester
ICF Project Director

James Boland
Acting NPS Director

Elizabeth Leovey
EPA Quality Assurance Officer
Office of Pesticide Programs

Alexis Taylor
ICF Quality Assurance

Maria Gomez-Taylor
EPA Quality Assurance Officer
Office of Drinking Water

NATIONAL PESTICIDE SURVEY
QUALITY ASSURANCE PROJECT PLAN FOR
WELL SAMPLING, DATA COLLECTION AND PROCESSING

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3. PROJECT DESCRIPTION

The project consists of well sampling, data collection and processing for the National Survey of Pesticides in Drinking Water Wells (NPS). The Survey is jointly sponsored by EPA's Office of Drinking Water (ODW) and the Office of Pesticide Programs (OPP). The Survey objectives are: 1) to determine the frequency and extent of pesticide contamination in drinking water wells of the nation; and 2) to understand how pesticide contamination is associated with patterns of pesticide usage and the vulnerability of ground water to pollution. A total of 783 domestic drinking water wells and 566 community water system wells will be sampled over a period of two years.

The portion of the overall program covered by this Quality Assurance Project Plan (QAPjP) consists of all activities connected with the actual sampling of the drinking water wells including:

- Preparation of sample containers;
- Pre-preservation of sample containers;
- Assembly and shipment of sample kits;
- Tracking of sample kits and samples;
- Scheduling training and sampling for field personnel;
- Training field sampling personnel;
- Field sampling of wells;
- Field data collection;
- Packaging and shipment of water samples;
- Reporting of sampling and analytical results; and
- Data collection and management.

The actual selection of wells to be sampled will be made by the Survey Statistics, Data Collection and Processing Group and is not within the scope of this portion of the overall program. The Well Sampling, Data Collection and Processing Group will obtain information on the wells that will be selected for sampling from the Survey Statistics, Data Collection and Processing Group. The responsibilities of the Well Sampling, Data Collection and Processing Group are to:

- Coordinate sample analysis with contract laboratories;
- Develop and run the NPS Information System (NPSIS1);
- Train ICF personnel to conduct domestic well sampling. Perform actual sampling where necessary;
- Train EPA Region or State sampling personnel to collect community water system (CWS) samples. Perform actual CWS sampling where necessary;
- Schedule and coordinate all sampling activities for both domestic and CWS wells;

- Compile data on characteristics of sampled wells and the surrounding area or obtain this data from the group actually doing the sampling; and
- Collect, input, and manage data collected by the field sampling personnel, interview personnel, and contract labs (after EPA review).

The actual analysis of the water samples will be performed by analytical laboratories under contract to the EPA specifically for the NPS. The water well samples will be analyzed for the presence of 126 pesticides and pesticide degradates and nitrate by eight separate analytical methods. The chemical analyses of NPS water samples will be performed at five contract laboratories and three EPA laboratories. The contract laboratories are responsible for chemical analyses of water samples collected in the field of one or more of the analytical methods. Two EPA laboratories are responsible for managing contract laboratories, confirming detections of pesticides in samples, and ensuring that quality control standards are maintained; the third EPA laboratory will perform chemical analyses. Exhibit 3-1 shows the analytical methods and the laboratories to be used for the Survey.

The analysis of the water samples is being performed under separate EPA contracts with the laboratories and therefore quality assurance/quality control (QA/QC) for the actual analysis of the water samples is not a part of this QAPjP.

This QAPjP for the Well Sampling, Data Collection and Processing Group of the NPS presents specific procedures adopted by ICF to fulfill the requirements of EPA's Quality Assurance (QA) Program. This QAPjP addresses these requirements:

- The QA objectives of the project;
- Specific QA/QC procedures that will be implemented to achieve these objectives; and
- Staff organization and responsibility.

EXHIBIT 3-1

ANALYTICAL METHODS AND LABORATORIES

Method	Analyses	Contract Lab[1/]	EPA Lab[2/]
1	Nitrogen and Phosphorus Containing Pesticides	JMM	OPP
2	Chlorinated Pesticides	ATI	TSD
3	Chlorinated Acids	JMM	OPP
4	Pesticides	RAD	TSD
5	N-Methyl Carbamoyloximes	ES&E	TSD
6	Ethylene Thiourea	BCL	OPP
7	EDB and DBCP	ES&E	TSD
9	Nitrate and Nitrite	JMM	TSD, RRE

[1/] ATI — Alliance Technologies/Clean Harbors, Inc., Bedford, MA
BCL — Battelle Columbus Division, Columbus, Ohio
ES&E — ES&E, Gainesville, FL
JMM — James M. Montgomery Consultants, Pasadena, CA
RAD — Radian, Inc., Austin, TX

[2/] OPP — Office of Pesticide Programs, Environmental Chemistry Laboratory, Bay St. Louis, MO
RRE — Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, OH
TSD — Technical Support Division, Office of Drinking Water Laboratory, Cincinnati, OH

Note: Analytical Method 8 has been dropped by EPA from the Survey after extensive evaluation because of problems with sample aeration under Survey conditions and cost considerations.

4. PROJECT ORGANIZATION AND RESPONSIBILITY

ICF Incorporated will have overall responsibility for well sampling, data collection and processing activities for the NPS. Exhibit 4-1 shows the position of this group within the overall NPS program organization. Exhibit 4-2 shows the project organization within the Well Sampling, Data Collection and Processing Group.

Responsibilities of the various positions in the group are as follows:

ICF Program Manager - Harold Lester - Responsible for the day-to-day management operations of the Survey.

Group Manager - Kim Green - Responsible for all work performed and assignments and budgets within the group; reports to ICF's Program Manager; coordinates with other group managers. Also responsible for running day to day activities of project group, reviewing training programs, field procedures, and assuring smooth operation of data and sample tracking systems and preparatory room operation.

Program Quality Assurance Officer - Gary McKown - Responsible for assuring the overall Survey quality including sampler training, well sampling, sample bottle preparation, kit packing, and field interviewing. Oversees the ICF QA Coordinator's activities.

Quality Assurance Coordinator - Davida Trumbo - Responsible for assuring compliance with QAPjP requirements, conducting audits of sample bottle preparation, sampling, prep room, training, and data management activities. Reports to the ICF QA Officer, and coordinates with the Sampling Group Manager.

Training Manager - Bruce Rappaport - Responsible for preparing training programs to instruct well sampling teams (from ICF, States, or EPA) in NPS sampling techniques, documentation, tracking procedures, information gathering, and other activities related to sampling; also will schedule and conduct training for designated sampling personnel; and manage training teams.

Kit Prep Room Manager - Cindy Jengeleski - Responsible for managing assembly and shipping of sampling kits, including maintaining adequate supplies of sample bottles and shipping containers and other materials; organizing the kit preparation room and managing the flow of work; assuring that proper cleaning and preservative addition procedures are being followed by bottle supplier.

EXHIBIT 4-1

NATIONAL PESTICIDE SURVEY
ICF PROGRAM ORGANIZATION

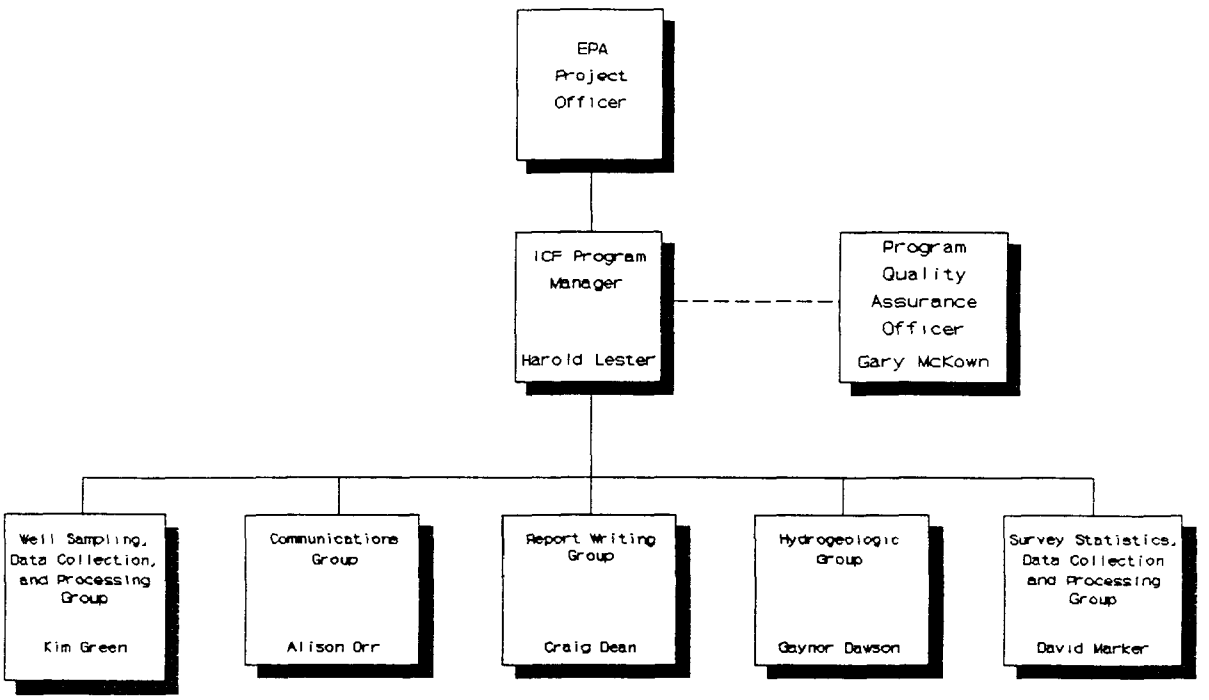
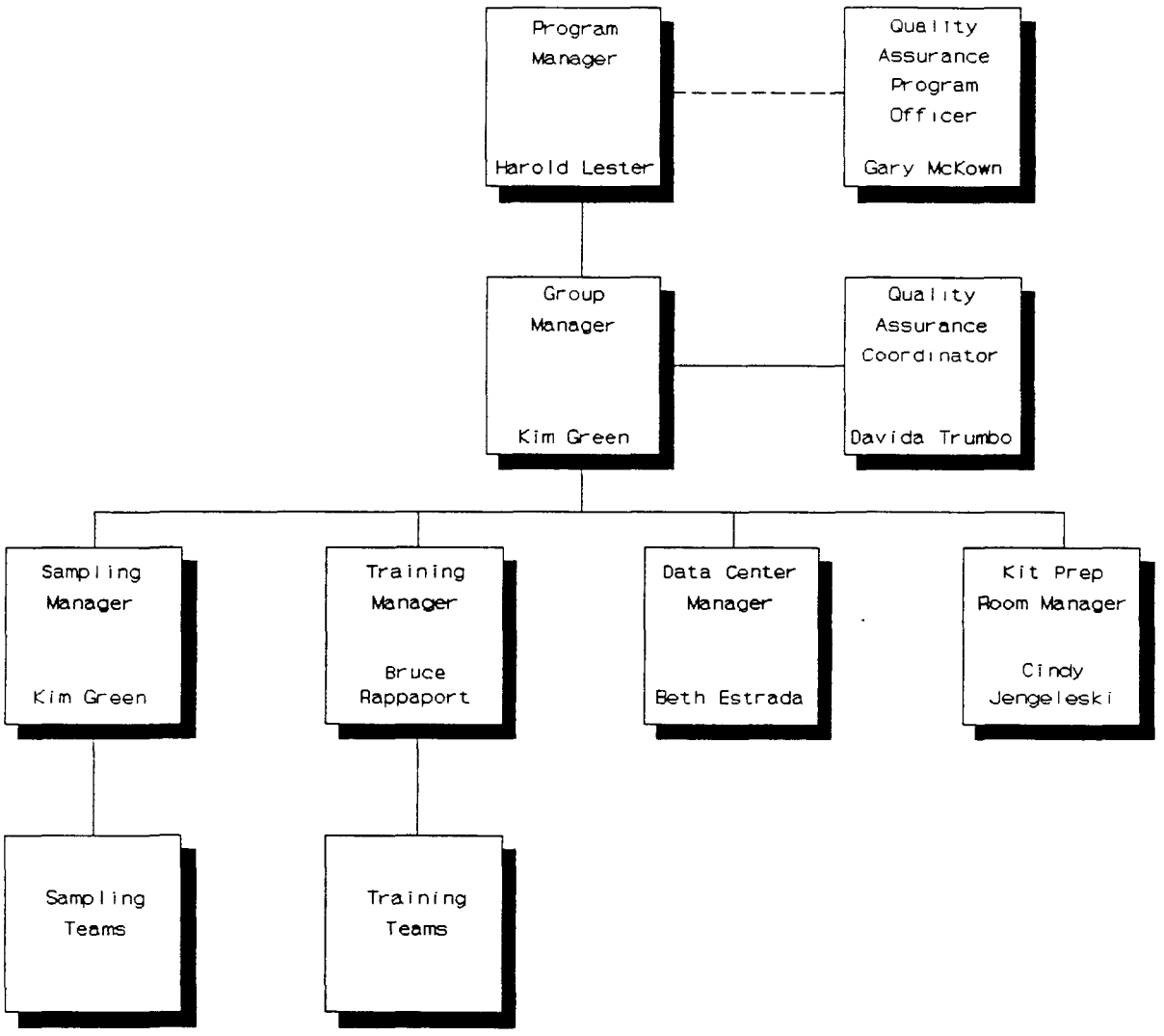


EXHIBIT 4-2

NATIONAL PESTICIDE SURVEY
WELL SAMPLING, DATA COLLECTION
AND PROCESSING GROUP ORGANIZATION



Sampling Manager	-	Kim Green - Responsible for selecting ICF sampling team personnel; assuring they are adequately trained; managing sampling activities conducted by ICF staff; accompanying State or EPA sampling teams on sampling visits as required; and developing standard operating procedures for sampling.
Data Center Manager	-	Beth Estrada - Responsible for development and management of the computerized sample tracking system, data management system, and maintaining the entire NPS information system.
Communications Manager	-	Alison Orr - Responsible for assisting with communication and logistics for training program. Responding to Hotline calls from participants and samplers during sampling effort. Preparing and distributing sampling schedules and Project Updates. Preparing Rapid Reports and Standard Result Notification Packets.
Report Writing and Preparation Group Manager	-	Craig Dean - Responsible for the development and production of all NPS reports. These reports include the NPS Phase I Report and the Phase II Report.
Survey Statistics, Data Collection and Processing Group Manager	-	David Marker - Responsible for managing Westat's statistical staff that involves questionnaire administration, data receipt, data coding, data entry, data imputation, and the development of sample weights for NPS data.
Hydrogeologic Group Manager	-	Gaynor Dawson - Responsible for managing the hydrogeologic characterization mapping activities.

5. QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall QA objective for the well sampling portion of the NPS program is to obtain representative samples from drinking water wells so that meaningful conclusions can reasonably be drawn from analytical results concerning the extent of pesticide contamination in the nation's drinking water wells. This means that consistent, verifiable procedures must be used throughout the Survey for sample collection, sample preservation and transport, and analytical techniques. Information about each well site must also be recorded in a consistent manner. Specific procedures for sampling, sample tracking, field instrument calibration, audits, and corrective action are described in other sections of this Quality Assurance Project Plan. The purpose of this section is to define goals for accuracy, precision, representativeness, completeness, and comparability needed for NPS sampling and data collection and processing activities.

This QA program is built on the concept of total quality assurance concerning all phases of the project, namely the identification, measurement, and control of all sources of error. The goal is to produce data that are of known high quality and to control total possible error. There are several components of the total error for sampling and data collection and processing:

- Sampling error, introduced through bottle preparation and field sampling procedures-- for example, when samples are incorrectly labeled, preserved or collected, or sent to the wrong contract laboratory;
- Measurement error, introduced by the measurement process -- for example, the measurements to be taken by the field staff (e.g., pH);
- Data collection and processing error introduced through the handling of data -- for example coding, transcribing, or keying data; and
- Other error due to non-response, bias, contamination, or shipping and handling problems with the samples.

Control of all these sources of error is essential if the data collected under this project are to be adequate to support program objectives. Control will be achieved in the sampling and data collection and processing activities by:

- The use of clearly defined Standard Operating Procedures for sample bottle cleaning and preservation;
- The use of clearly defined Standard Operating Procedures for sample collection, including procedures for well purging based on field measurements;
- The proper calibration and use of field measurement instruments, performance of specified QA procedures, and documentation of results;
- The use of clearly defined Standard Operating Procedures for preparation of field equipment, including bottle labels;
- The use of data collection and processing procedures that include assigned sample tracking responsibilities; and
- Complete documentation of all procedures and results.

6. SAMPLING PROCEDURES

A general flowchart for sampling at domestic wells and community water systems is given in Exhibit 6-1. The remainder of this section describes several components of the Survey sample collection process. Detailed descriptions of all sample collection procedures can be found in the Standard Operating Procedures in Appendix A to this QAPjP.

6.1 SITES

A total of 1,349 drinking water wells will be sampled nationwide: 566 wells from community water systems and 783 domestic wells. When site selection is completed by the Survey Statistics, Data Collection and Processing Group, all of the information needed to locate the sites and contact well owners/operators will be provided to the Well Sampling, Data Collection and Processing Group.

6.2 SCHEDULE FOR COLLECTION OF SAMPLES

Sampling will begin in the spring of 1988 and end in early 1990. It is also the responsibility of the Survey Statistics, Data Collection and Processing Group to determine the appropriate timeframe in which sites will be sampled. For community water systems, State personnel (or EPA or ICF, in the absence of State participation) will finalize the actual sampling date for a site within the timeframe specified. The procedures for coordination of CWS sampling are contained in Standard Operating Procedures No. A-7 included in Appendix A of this QAPjP. For domestic wells, the Survey Statistics, Data Collection and Processing Group will also schedule the actual sampling date for a site during the Random Digit Dialing (RDD) selection of the well site (see the QAPjP for Survey Statistics, Data Collection and Processing, for RDD procedures). The procedures for coordination of DWS scheduling are contained in Standard Operating Procedure No. A-8 included in Appendix A of this QAPjP.

Final dates for sampling both community and domestic water system wells will be provided to the Well Sampling, Data Collection and Processing group. This group will then be responsible for entering the scheduled dates into the NPS Information System (NPSIS1) for sample and project tracking purposes.

6.3 TYPE OF SAMPLES

All samples will be grab samples drawn from drinking water wells by the in-place pumping system. The water sample will be drawn from a tap or port as close to the well head as possible and before any treatment.

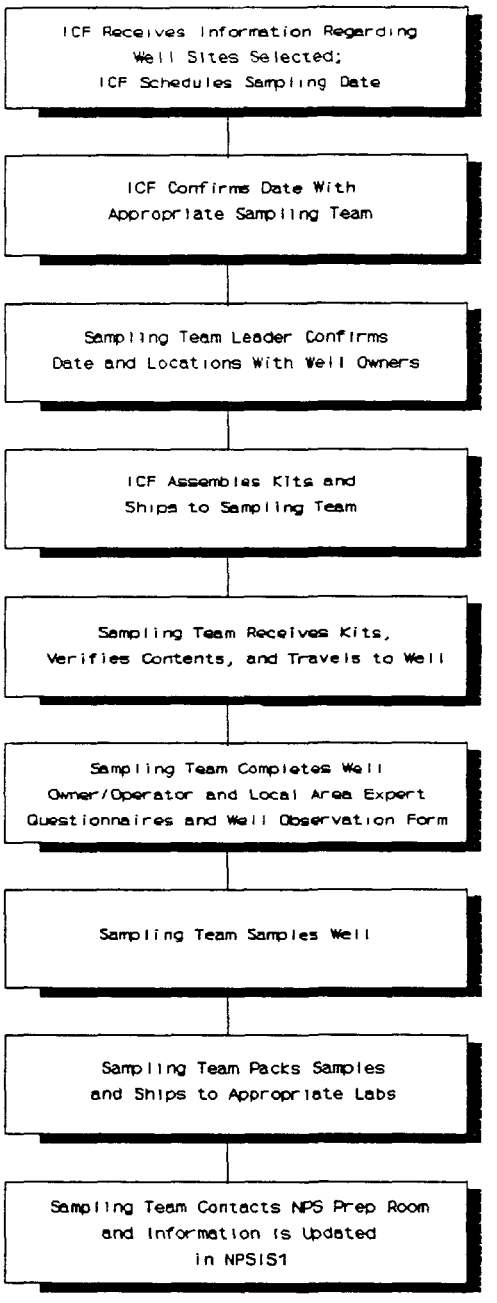
In general, five types of samples will be taken for the NPS:

Field Samples. One field sample will be taken for each analytical method at each of the 1,349 wells. The field sample serves as the primary sample for each site.

Backup Samples. One backup sample will be taken for each analytical method at each of the 1,349 wells. The backup sample will only be analyzed if the field sample is broken during shipment, if the validity of the field sample is suspect (i.e., potential contamination noted during sampling), or to confirm positive results.

EXHIBIT 6-1

GENERALIZED FLOWCHART FOR DOMESTIC WELL AND COMMUNITY WATER SYSTEM SAMPLING



Shipping Blanks. One shipping blank sample will be supplied for each of the 1,349 wells, for Method 7 samples only. Shipping blanks will be prepared at the ICF Prep Room by transferring reagent water to shipping blank sample bottles containing mercuric chloride as a preservative. Each shipping blank will be sent to the well site and subsequently to the analytical contract laboratory. A shipping blank will be analyzed only for sites for which positives occur.

Lab Spike Samples. The five analytical contract laboratories will be provided with one lab spike for each analytical method from a pre-determined number of sites (Exhibit 6-2). The spike mixture and associated mixture level for a given site will also be selected by ICF. Lab spike samples are used to assess whether the sample matrix affects analyte recovery.

Time Storage Samples. Time storage samples will be collected from a pre-determined number of sites (Exhibit 6-2) for each of the analytical methods. Time storage samples are used to estimate analyte stability. Time storage samples will only be collected at a site where a lab spike sample is taken. Time storage samples will be spiked with the same mixture and at the same level as the lab spike. They will be held for the maximum storage time allowed for the method (see Section 6.10) and then extracted. The results of these analyses will be compared with those for the laboratory spikes. In addition, two time storage duplicate samples will be analyzed and compared to the lab spike and time storage samples that will also be taken at a site. One of the time storage duplicate samples will be used to verify the lab spike sample results, the other to verify the time storage sample.

The sample type requirements for each site will vary depending upon QA/QC sample requirements. The requirements for each site will be determined by consulting with EPA, State, and contract lab personnel.

6.4 SAMPLING PERSONNEL

ICF staff will collect all of the domestic water system (DWS) samples. State personnel will generally collect the community water system (CWS) samples. ICF staff or EPA personnel will also assist in or perform CWS sampling on an "as needed" basis. All sampling personnel (State, EPA, or ICF) will be required to complete the 1 - 1½ day training course in sampling procedures given by the ICF Training Staff before conducting any sampling activities for the survey. Training procedures are presented in Standard Operating Procedure No. A-6 included in Appendix A to this QAPjP.

6.5 SAMPLE CONTAINERS AND THEIR PREPARATION

The sample containers for analytical Methods 1 through 4 will be clear 1-liter borosilicate glass bottles with Teflon-lined caps. Sample containers for Method 5 will be 250-mL amber screw-cap glass bottles with Teflon-faced septa. Sample containers for Methods 6 and 7 will be 60-mL screw-cap glass bottles with Teflon-faced septa. The Method 9 samples will be collected in 125-mL polyethylene bottles.

Sample container preparation will include bottle cleaning and the addition of sample preservatives. Procedures for sample container preparation are presented in Standard Operating Procedure No. A-1 included in Appendix A of this QAPjP. SOP No. A-1 also includes the QA/QC requirements for these procedures.

Generally the cleaning procedure for glass sample containers involves a hot water/detergent wash, deionized water rinse, and drying at high temperatures (i.e., 400-450°C). The caps for the glass sample containers will also be washed with detergent and rinsed with deionized water, followed by a solvent rinse.

EXHIBIT 6-2

ESTIMATED TOTAL NUMBER OF SAMPLES REQUIRED FOR THE FULL SURVEY

Sample Type	Method 5 Number	Bottle size	Method 6 Number	Bottle size	Method 7 Number	Bottle size	Method 9 Number	Bottle size	Total
Primary sample	1500	250-ml	1500	60-ml	1500	60-ml	1500	125-ml	12000
Back-up sample	1500	"	1500	"	1500	"	1500	"	12000
Lab spike (mix 1)	150	"	150	"	150	"	150	"	1200
Lab spike (mix 2)									600
Lab spike (mix 3)									150
Time storage (mix 1)	75	"	75	"	75	"	75	"	600
Time storage (mix 2)									300
Time storage (mix 3)									75
Trip blank					1500	"			1500
Referee sample	150	"	150	"	150	"	150	"	1200
Referee trip blank					150	"			150
Total	3375		3375		5025		3375		29775

NPS SAMPLE BOTTLE REQUIREMENTS (12/16/87)

Sample Type	Method 1 Number	Bottle size	Method 2 Number	Bottle size	Method 3 Number	Bottle size	Method 4 Number	Bottle size
Primary sample	1500	1-liter	1500	1-liter	1500	1-liter	1500	1-liter
Back-up sample	1500	"	1500	"	1500	"	1500	"
Lab spike (mix 1)	150	"	150	"	150	"	150	"
Lab spike (mix 2)	150	"	150	"	150	"	150	"
Lab spike (mix 3)	150	"						
Time storage (mix 1)	75	"	75	"	75	"	75	"
Time storage (mix 2)	75	"	75	"	75	"	75	"
Time storage (mix 3)	75	"						
Trip blank								
Referee sample	150	"	150	"	150	"	150	"
Referee trip blank								
Total	3825		3600		3600		3600	

The cleaning procedure for the plastic sample containers and caps involves a hot water/detergent wash followed by a tap and deionized water rinse.

After the sample containers are cleaned, the appropriate type and volume of preservative is added to each sample container. Three different preservatives will be used for samples taken for the NPS. The type and amount of preservative varies according to the NPS analytical method. Exhibit 6-3 summarizes the preservative requirements for NPS samples.

EXHIBIT 6-3

NPS SAMPLE PRESERVATIVE REQUIREMENTS

Method	Preservative	Bottle Volume	Preservative Volume
NPS-1	Mercuric Chloride*	1 liter	10 mL
NPS-2	Mercuric Chloride	1 liter	10 mL
NPS-3	Mercuric Chloride	1 liter	10 mL
NPS-4	Mercuric Chloride	1 liter	10 mL
NPS-5	pH 3 Buffer**	250 mL	7.5 mL
NPS-6	Mercuric Chloride	60 mL	0.6 mL
NPS-7	Mercuric Chloride	60 mL	0.6 mL
NPS-9	Sulfuric Acid	125 mL	0.25 mL

* Mercuric chloride stock solution with 1 g/L in deionized water.

** The pH 3 buffer is a mixture of 1 part 2.5 molar potassium acetate solution with 1.56 parts 2.5 molar chloroacetic acid solution.

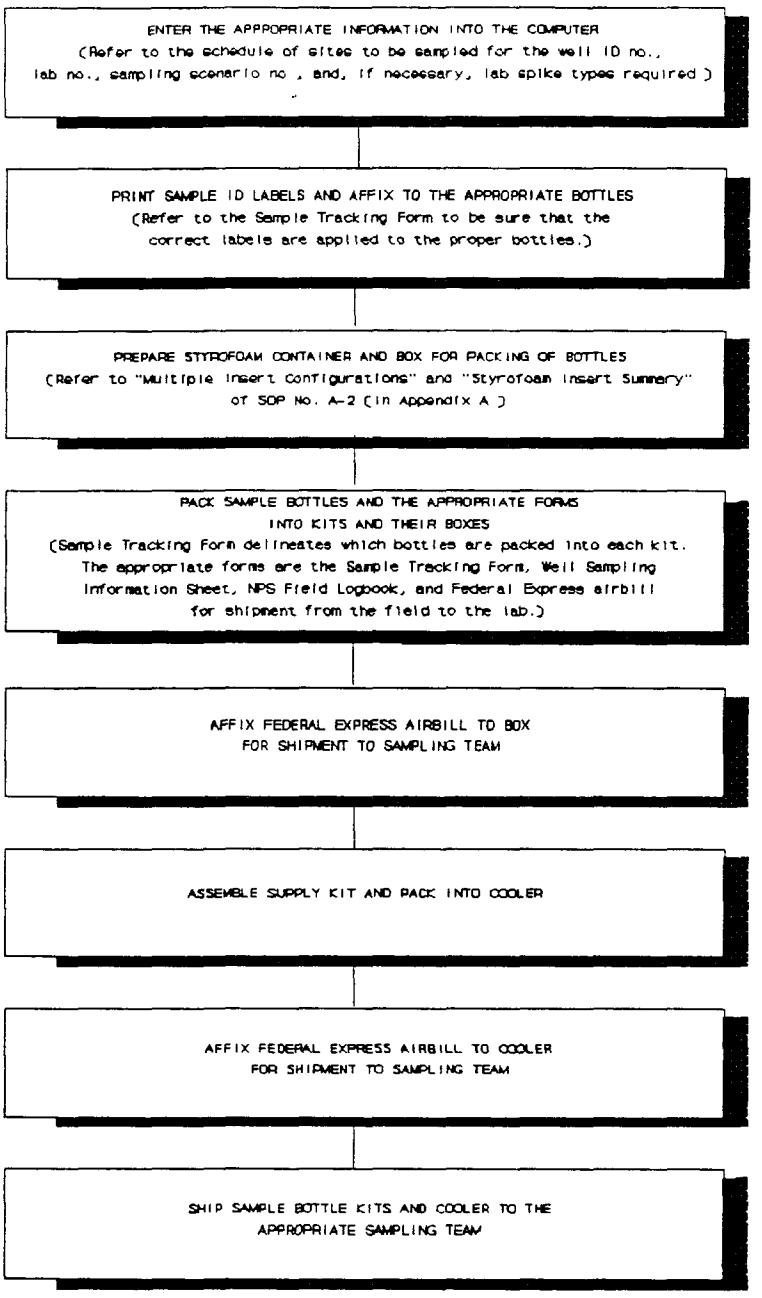
A periodic contamination check of sample bottles will be performed. ICF will send two sampling kits to each of the NPS contract laboratories. One kit will have clean, empty bottles. The second kit will contain clean, pre-preserved bottles. This will be done with sample bottles prior to the commencement of field sampling. The results of initial contamination checks of sample bottles indicated that it would not be necessary to conduct periodic contamination checks throughout the Survey.

6.6 SAMPLE KIT ASSEMBLY

The sample bottle preparation and kit assembly will be directed by a detailed kit assembly guide generated by the Well Sampling, Data Collection and Processing Group. This guide outlines the specific bottles/kits to be prepared for specific well types and to be packed in specific boxes. Computer-generated lists of sample bottles for each box will be provided on the Sample Tracking Forms for each box. A flowchart of the bottle preparation/kit assembly is presented in Exhibit 6-4.

EXHIBIT 6-4

GENERALIZED FLOWCHART FOR SAMPLE KIT PREPARATION



A supply kit will be prepared for each field sampling team. The supply kit contains all the materials necessary for sampling, labeling, taking field measurements, storing ice, and returning shipments. The procedures for sample and supply kit assembly are included in Standard Operating Procedure No. 2, entitled "NPS Sample Kit and Supply Kit Preparation and Sample Tracking," in Appendix A of this QAPjP.

6.7 SHIPMENT OF SAMPLING MATERIALS TO THE SITE

The kits for well sampling will be shipped from the ICF Sample Preparation Room to the assigned sampling team (either State, EPA Region, or ICF personnel). Kits will be shipped as far in advance of the actual sampling date as possible. Shipped kits will be tracked by the NPS Information System (NPSIS1) using Federal Express airbill numbers.

A listing of the assigned kits for a well site are included in each supply kit. Upon receipt, the sampling team will verify whether all boxes were received by calling the ICF NPS toll-free Hotline. Each sampling kit will contain a copy of a Sample Tracking Form that lists the bottles for each box shipped to a site.

6.8 COLLECTION PROCEDURES

The QA objectives of the field sampling procedures are to obtain samples that are representative and comparable. Trace levels of external contaminants should be eliminated in samples due to the use of trained field personnel that perform consistent well purging and sampling techniques.

The sample collection procedure is divided into four basic elements: preparation, well purging, sample collection, and sample shipping. Refer to SOP No. A-4 in Appendix A of this QAPjP for detailed sample collection procedures. Critical points in the procedure are summarized below.

Preparation includes the selection of an appropriate sampling point in the well water system. For both domestic and community wells, an appropriate sampling point is between the wellhead and any treatment system. Additional considerations for sampling point selection are included in SOP No. A-4 in Appendix A of this QAPjP.

To ensure that well samples are collected consistently throughout the Survey, a well purging procedure has been developed for use prior to sample collection. Well purging involves allowing water to flow freely from the sample port or tap until temperature, electrical conductivity, and pH measurements stabilize. Once a well has been properly purged, samples from the well will be collected. The procedure is more fully described in SOP No. A-4 in Appendix A of this QAPjP.

Sample collection procedures include reducing the flow of water to a manageable rate so as not to cause splashing or overfilling. Care must be taken not to overfill the bottles, because each bottle contains a sample preservative. For collection of samples in 1 L and 125 mL bottles, water is added until the bottle is almost full. For collection of samples in 60 mL and 250 mL bottles, water is added to completely fill each bottle, so as to avoid entrapment of air bubbles in the bottle. Sample collection procedures are more fully described in SOP No. A-4 in Appendix A of this QAPjP.

After the samples are collected, they will be stored in ice and protected from light until they are prepared for shipment. Sample kits will be repacked with ice after sample collection on an "as needed" basis and shipped via Federal Express Overnight Delivery to the appropriate laboratory by the sample collector. Each sample kit contains preprinted airbills for shipment to the appropriate contract and EPA laboratory. Samples will be transported to the nearest Federal Express site by ground transportation for shipment or will be picked up on-site. Once sample kits are shipped, the sampling team will notify ICF by calling the ICF NPS Hotline. Delivery of sample kits to the labs will be tracked through NPSIS1 using airbill numbers. This procedure is more fully described in SOP No. A-4 in Appendix A of this QAPjP.

6.9 NUMBER OF SAMPLES

The number of samples taken at each well site will vary slightly, depending on the need for lab spikes and time storage samples. One regular field sample and one back-up sample will be taken for each analytical method at each site. In addition, one shipping blank will always be prepared for NPS analytical Method 7 for each site. Samples for lab spikes will be collected at 30 percent of the sites for Method 1; 20 percent of the sites for Methods 2, 3, and 4; and 10 percent of the sites for Methods 5, 6, 7, and 9. Samples for time storage studies will be collected at 15 percent of the sites for Method 1; 10 percent of the sites for Methods 2, 3, and 4; and 5 percent of the sites for Methods 5, 6, 7, and 9. Time storage duplicate samples will also be taken at 30 of the sites where regular time storage samples will be taken. Finally, one additional sample for each analytical method will be taken at 150 sites for the EPA laboratories.

For a given site, the samples to be taken will be specified by ICF in conjunction with EPA. Exhibit 6-2 shows the estimated total number of samples that will be required for the full Survey.

6.10 SAMPLE HOLDING TIMES

All analyses, including all confirmations, must be performed within the sample and extract holding times shown below:

Method Number	Sample Maximum Holding Time (days)	Extract Maximum Holding Time (days)
1	14	14
2	14	14
3	14	14
4	14	14
5	14	--
6	14	14
7	14	14
9	28	--

All samples and extracts must be stored at 4° C and protected from light, except Method 5 samples and Method 6 extracts, that must be frozen. In case of severe delays in transport, the contract labs will contact their EPA Technical Monitor and the ICF NPS Hotline to decide on further action.

7. SAMPLE CUSTODY

Sample custody will be tracked by the NPSIS1 for bottles and kits. This system is described in SOP No. A-5 in Appendix A of this QAPjP. Based on discussions with EPA, formal chain-of-custody procedures will not be used for the NPS. Alternatively, a sample tracking system will be used to document sample custody.

Sample tracking begins at the ICF Sample Preparation Room where prepared (i.e., cleaned and preserved) sample bottles are stored prior to packaging and shipping to the field. The ICF Sample Preparation Room is located in a secured area with limited access. The ICF Prep Room Manager is responsible for oversight of these bottles and will track the inventory of bottles as they are received and shipped out. Inventory control of sample bottles will be managed within NPSIS1. Sample bottles will be prepared, received, and tracked according to sample lots (a lot is defined as 100 sample bottles for the 60 mL and 125 mL bottles, and 96 sample bottles for the 1-liter bottles and the 250 mL bottles).

After a site has been selected and the types of samples identified for the site, sample bottle labels, Sample Tracking Forms, and a Well Sampling Information Sheet will be concurrently generated by NPSIS1 for that site. Each sample label contains a unique sample number that identifies the sample, designation of preservatives contained in the bottle, and a sample kit number that is used to ensure that the correct sample containers are placed in the correct sample kit. An example of this sample label is provided in Exhibit 7-1. For each sample kit needed for a site, the Sample Tracking Form identifies the sample number and required bottle size (e.g., 1000 mL) for each of the sample containers to be included in a sample kit. Each sampling kit is assigned a unique kit number. An example of the Sample Tracking Form is shown in Exhibit 7-2. All the sampling kits needed for a site are listed on the Well Sampling Information Sheet. The Well Sampling Information Sheet also contains the name of the well owner or contact person. An example of the Well Sampling Information Sheet is provided in Exhibit 7-3.

When a sample kit is shipped to the field from ICF, Prep Room personnel will sign, date, and record the time at which the kit was shipped to the sampling team in the Prep Room telephone log book. The pink copy of the Sample Tracking Form will be retained in the Prep Room. After the sampling team receives the sample kits and after a sample is collected, a sampling team member will initial, date, and record the time of sample collection on the sample label on each sample bottle. The sampling team will also fill out the Sample Tracking Form at the time of sample collection, verifying collection of each bottle. Once all sample bottles for a kit are filled, the sample kit is packed with ice and sent to the appropriate contract lab. At the time of shipment, a sampling team member signs, dates, and records the time at which the kit was shipped to the sampling team. The yellow copy of the Sample Tracking Form will be sent back in the field logbook provided to each sampling team. The original copy of the form is sent to the appropriate lab with the sample kit.

EXHIBIT 7-1

EXAMPLE WATER SAMPLE BOTTLE LABEL

NATIONAL PESTICIDE SURVEY

SAMPLE #:

METHOD# KIT:

PRESERVATIVE:

DATE	TIME	SAMPLER

Blank Sample Bottle Label

NATIONAL PESTICIDE SURVEY

SAMPLE #: PD-9999-7-7-01

TSD - METHOD# 7 KIT: 711
FIELD SAMPLE
PRESERVATIVE: HgCl2

DATE	TIME	SAMPLER

Example Sample Bottle Label

EXHIBIT 7-2

EXAMPLE SAMPLE TRACKING FORM

SAMPLE TRACKING FORM
EPA NATIONAL PESTICIDE SURVEY

WELL I.D. NO.: 2201

FROS I.D. No. (CWS WELL ONLY): ID1280098

LAB: JMM
SCENARIO: 4

SAMPLE COLLECTION DATE: ___/___/___

KIT NO.: PC-2201-141
BOX 1 OF 2

TRACKING FORM COMPLETED BY: _____

TO BE COMPLETED BY:

ICF			FIELD TEAM			LAB	
SAMPLE NUMBER	BOTTLE SIZE	SAMPLE DESCRIPTION	SAMPLER (INITIAL)	TIME SAMPLED	COMMENTS (1)	RECEIVED	COMMENTS (2)
PC-2201-1-1-01	1000	FIELD SAMPLE		:		Y N	
PC-2201-1-1-03	1000	BACKUP SAMPLE		:		Y N	
PC-2201-1-3-01	1000	FIELD SAMPLE		:		Y N	

CHLORINE TEST: _____
(No Color Change, Light Pink, Dark Pink)

SHIPPED BY:

DATE _____ TIME _____

SENT TO:
JOE BALDWIN c/o G. GAFFNEY
IDAHO DIV. OF ENV. QUALITY
2110 IRONWOOD PARKWAY
COUER D'ALENE, ID 83814

LAB ADDRESS:
JAMES M. MONTGOMERY LABORATORIES
555 EAST WALNUT ST.

PASADENA, CA 91101

RECEIVED AT LAB BY:

DATE _____ TIME _____

CONDITION (3)

(1) FOR EXAMPLE: BOTTLE BROKEN, BOTTLE MISSING, OVERFILLED BOTTLE, CAP WAS DROPPED
(2) FOR EXAMPLE: BOTTLE BROKEN, BOTTLE MISSING, BOTTLE CONTAMINATED, TEMPERATURE CRITERIA NOT MET
(3) FOR EXAMPLE: ICE MELTED, BOX LEAKING
(Lab comments should concur with NPSIS SAMPLE RECEIPT)

EXHIBIT 7-3

EXAMPLE WELL SAMPLING INFORMATION SHEET

WELL SAMPLING INFORMATION SHEET
EPA NATIONAL PESTICIDE SURVEY

NPS Well ID No.: 1000 Sampling Date: 01/01/80

Well Type: C
(C-CWS, D-Domestic, R-Resample)

Well Contact & Address:
(Owner / Operator)

JOHN DOE
EXAMPLE WELL SYSTEM CORP.
100 EXAMPLE AVE.
EXAMPLE County
EXAMPLETOWN, EX 99999
Tel. (999)999-9999 Extn: 999

Well Sampling Assigned to:

JANE DOE
EXAMPLE STATE AGENCY BLDG.
111 STATE AGENCY ROAD
CAPITAL CITY, EX 99990

Closest Federal Express Office to Sampling Site:

222 FEDERAL EXPRESS ROAD, METROPOLIS, EX 99980

Federal Express Toll-Free Number: (800)238-5355

List of Sample Kits For This Well:

	KIT NO.	LAB
__	1. PC-1000-111	JMM
__	2. PC-1000-421	ESE

TOTAL NUMBER OF SAMPLE CONTAINER KITS SENT TO SAMPLING TEAM: 2

ICF's Toll-Free Hotline Number: (800)451-7896

County Agent (for administration of Local Area Expert Questionnaire):

Name: CWS TRAINING MATERIALS

When the sample kit is received at the appropriate laboratory, the laboratory sample custodian will sign and date the sample tracking form and record any problems (e.g., broken bottles.) Each of the laboratories participating in the NPS will also acknowledge sample kit receipt through direct access to NPSIS1. This will provide "real time" tracking of sample receipt by each lab. A copy of the Sample Tracking Form for a sample kit will be returned to ICF for hard copy documentation of sample kit receipt.

NPSIS1 will represent the primary QA/QC checks for assuring that each bottle, kit, and well ID is properly linked together throughout the Survey. In order to accomplish this link between sample bottles and wells, a sophisticated numbering system was created that will assign a unique sample ID number to each sample bottle. The numbering system includes a 10-digit sample ID number. Exhibit 7-4 provides a description of the sample code number.

The quality assurance program implemented for NPSIS1 includes a very careful review of the initial entry data. Once the initial site ID number, lab number, and sampling scenario number are checked, NPSIS1 automatically generates sample bottle labels, Sample Tracking Forms, and a Well Sampling Information Sheet.

A flowchart outlining the development and implementation of this sample/kit tracking system is shown in Exhibit 7-5.

EXHIBIT 7-4

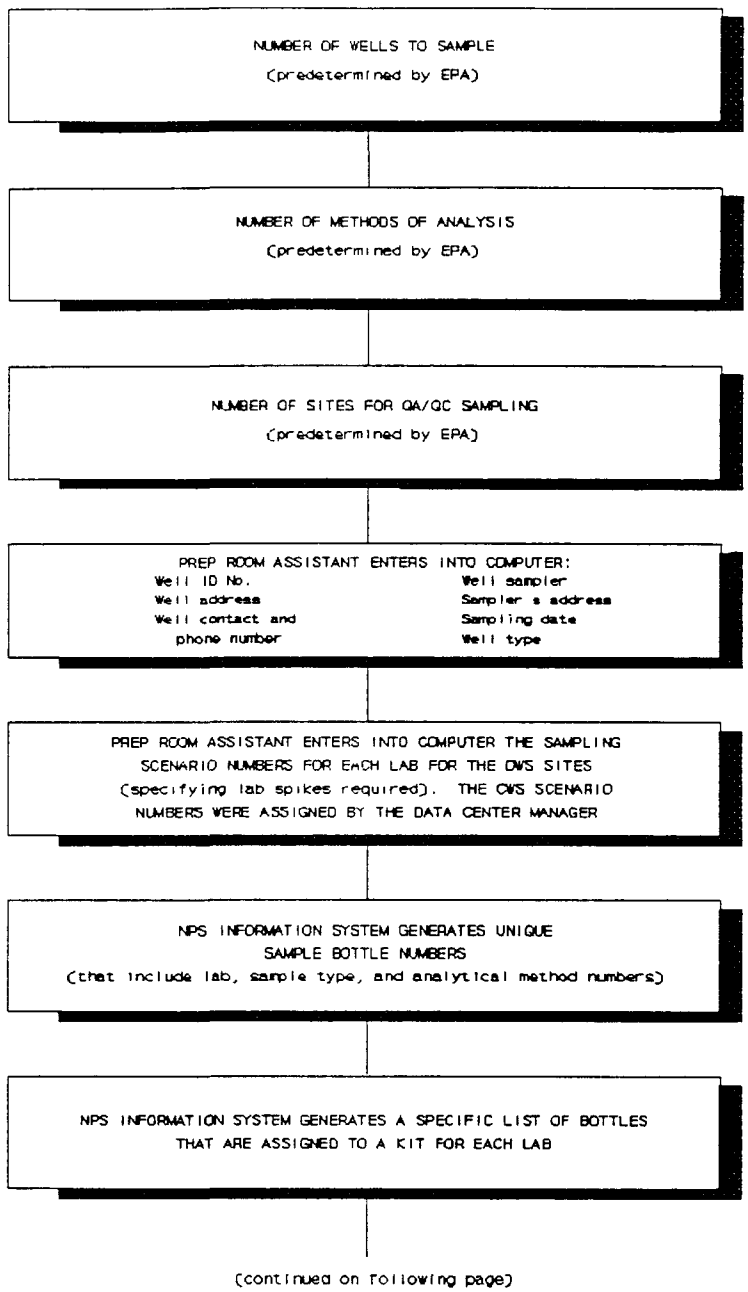
DESCRIPTION OF SAMPLE CODE NUMBER

PD-0001-1-1-01

Well Type	ID Number	Lab Name	Method Number	Sample Type
PC = Community Well	0001	1 = JMM	1	01 = Field Sample
PD = Domestic Well	.	2 = ATI	2	02 = Shipping Blank
	.	3 = RAD	3	03 = Backup sample
	.	4 = ESE	4	04 = Lab spike (mix A, level 1)
	2653	5 = BCL	5	05 = Lab spike (mix A, level 2)
		6 = BSL	6	06 = Lab spike (mix A, level 3)
		7 = TSD	7	07 = Lab spike (mix B, level 1)
		8 = RRE	9	09 = Lab spike (mix B, level 3)
				10 = Lab spike (mix C, level 1)
				11 = Lab spike (mix C, level 2)
				12 = Lab spike (mix C, level 3)
				13 = Time storage (0 duplicate)
				14 = Time storage - day fourteen
				15 = Time storage - day fourteen duplicate

EXHIBIT 7-5

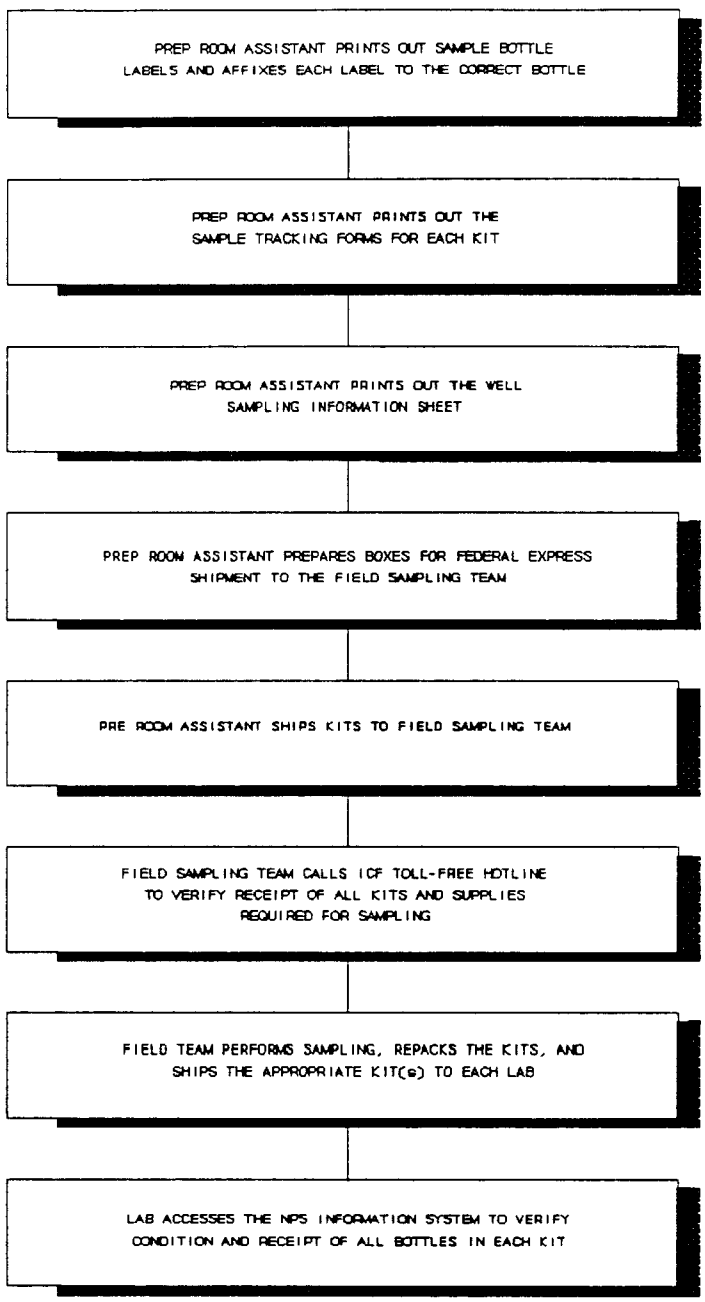
FLOWCHART OF NPSIS1 SAMPLE BOTTLE/KIT TRACKING SYSTEM



(continued on following page)

EXHIBIT 7-5 (Continued)

FLOWCHART OF NPSIS1 SAMPLE BOTTLE/KIT TRACKING SYSTEM



8. CALIBRATION PROCEDURES AND FREQUENCY

The only pieces of equipment requiring calibration to be used on this project are the portable meters for measuring temperature, pH, and electrical conductivity at the well site. Calibration procedures for these instruments are described in SOP No. A-3 (a,b, and c) in Appendix A of this QAPjP.

In summary, each portable meter will be calibrated at ICF prior to being sent to the field. Once a month the ICF Prep Room Manager will conduct random calibration tests on one of each type of meter prior to shipment to the sampling team. If monthly random probe calibration tests indicate that the Prep Room personnel accurately perform probe calibration for a time period of one year, the monthly checks will be discontinued. Records will be kept on all calibrations that are completed. A sticker will be affixed to each instrument, showing the date of the last calibration.

9. ANALYTICAL METHODS

The analytical methods to be used for NPS samples and the related QA/QC procedures are covered in separate QAPjPs for each of the laboratories participating in the NPS.

10. DATA REDUCTION AND REPORTING

10.1 SURVEY DATA MANAGEMENT

ICF will not perform any calculations or use data reduction methods. Two databases are used in implementing the Survey. NPSIS1 is a database that contains logistical sampling data and sample kit information. NPSIS2 is a database that consists of a comprehensive collection of all Survey information. The databases consist of the following:

- NPSIS1 Data.
  - -- Scheduling data
  - -- Sample bottle tracking
  - -- Well site information
  - -- Well purging records
- NPSIS2 Data.
  - -- Analytic Results
  - -- Questionnaire Data
    - Team Leader Introduction and Well Observation Record Community Water System
    - Local Area Community Water System Questionnaire
    - Community Water System Questionnaire
    - Team Leader Introduction and Domestic Well Observation Record
    - DWS Booklet - Domestic Well Questionnaire, Local Area Domestic Well Questionnaire

All data entered into NPSIS and received from EPA and the Survey Statistics, Data Collection and Processing group will be validated by two methods: 1) automatic computer checks; and 2) manual checks by experienced data analysts. All information entered into NPSIS, such as scheduling information and bottle tracking information, will be automatically audited by the computer software where possible. Any information which can be automatically generated by the software system, such as bottle identification numbers and well identification numbers will be entered. Also, the NPSIS software program will prompt the user with data entry screens that reduce the possibility of error. Automatic checks include determining if the data entered is appropriate and possible for the variable type.

Manual checks will be provided by ICF data analysts in the form of spot checks and reviews of the entered data. NPSIS allows auditing of information in real time by several users. While the Prep Room

Manager is entering the appropriate data into NPSIS, data analysts elsewhere in the ICF complex can access and monitor the data entry results. Also, standard operating procedures can also be audited at any time using this method.

Generally accepted statistical procedures will be used to identify and tag observations determined to be outliers. Univariate statistics will be generated from the distribution of each variable and utilized to screen for outliers. Specifically, analysis of sample means and standard deviations will provide evidence of outliers. If an individual observation for a variable lies outside one or two standard deviations or is logically invalid, it will be considered for tagging as an outlier. ICF statistical analysts will study the data patterns and determine which observations will be tagged as outliers for all appropriate analytic variables. No information will be deleted from the file, only information will be added such as outlier tags or flags.

10.2 NOTIFICATION OF RESULTS

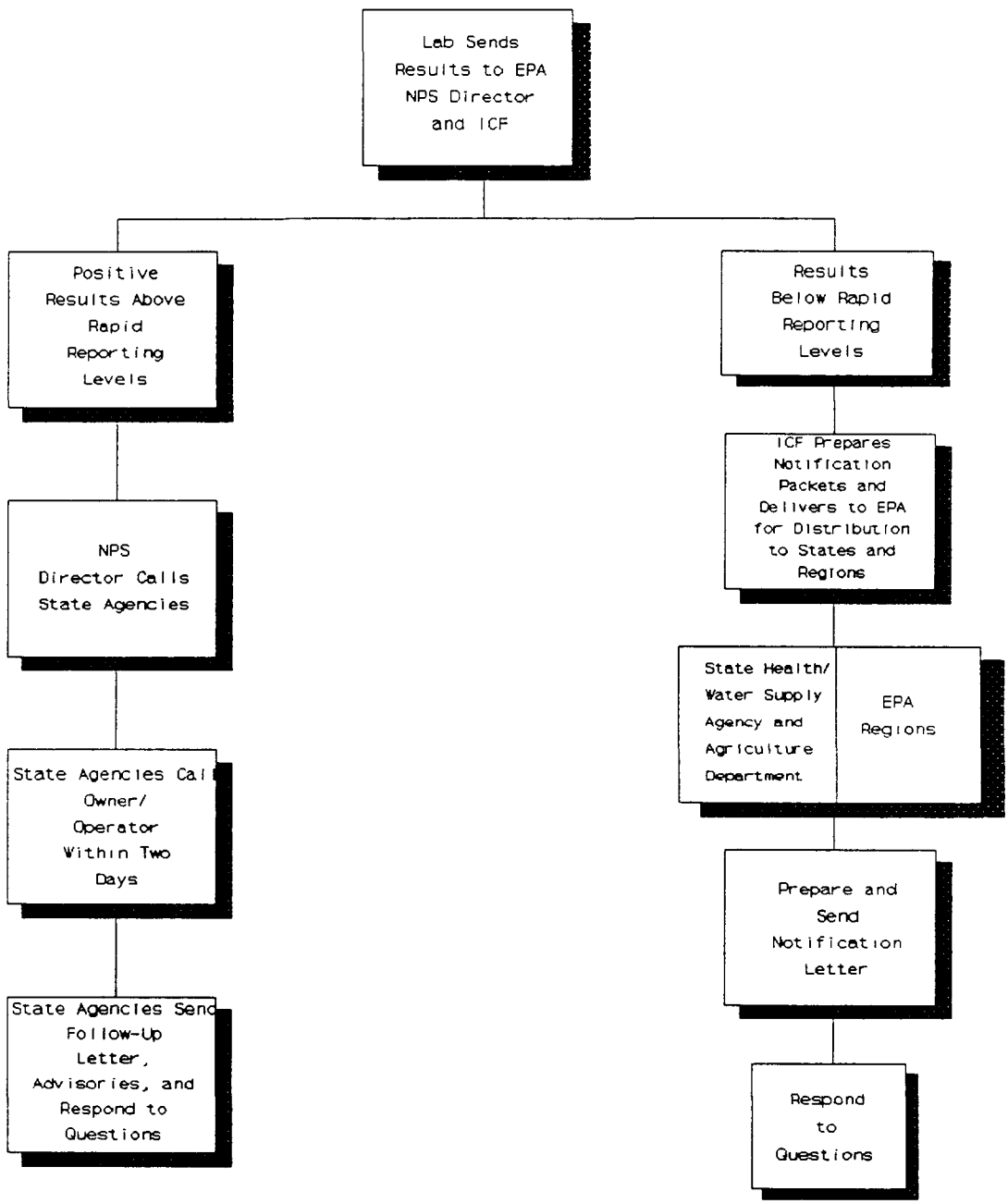
Upon completion of sample analyses, the laboratories will send the results to the ICF Project Director. ICF will then prepare notification packets containing the results and forward them to the NPS Director. The notification packets will then be sent to EPA Regions and States simultaneously. Exhibit 10-1 illustrates the steps for notifying EPA, States, and owners and operators of sampling results.

The NPS notification process will provide well owners and operators with accurate sample results in a timely manner, while maintaining the active involvement of the States. For sample results above rapid reporting levels, owners or operators will be informed through an expedited notification process. Telephone calls from EPA Headquarters will be made to the State and EPA Regional office to inform the contacts of the well results above rapid reporting levels. The appropriate contact will then contact the owner or operator of the well by telephone. Telephone calls are followed up by a notification letter prepared by ICF and sent out by the EPA to the State and regional contacts. For all results below rapid reporting levels, owners or operators will be notified by letter. Notification packets will be prepared to inform owners and operators of sample results. States are responsible for notifying community water system owners and operators, and the domestic well owners and residents of the sample results. Through ICF, EPA will provide both the State NPS contact responsible for reporting results and the EPA Regional Contact with a notification package containing the following items:

- Sample notification letters;
- Health advisory summaries for any pesticides found in a well;
- Print-out of well code, name and address of well owner/operator, and laboratory results;
- List of pesticides included in the survey; and
- Full analytical laboratory results for each method.

EXHIBIT 10-1

NPS WELL WATER SAMPLE ANALYSES NOTIFICATION PROCESS



11. INTERNAL QUALITY CONTROL CHECKS

The Prep Room Manager, Ms. Jengeleski, will be responsible for the conduct of internal quality control checks of assembly and packaging procedures for sample kits. Ms. Jengeleski's responsibilities include ensuring that equipment was sent to the correct sampling team, confirming that the correct kits were prepared for the well site, maintaining a computer record of airbill numbers and corresponding kit types, and confirming the date kits were sent to the sampling team leader. A kit tracking report will be run daily, used for tracking kits that have been sent out but, have not been reported from the laboratory.

Packaging and shipping procedures for the Prep room have been designed to ensure that the correct water sample container kits are sent to the correct location and the sample bottles are correctly labeled and tracked through NPSIS1. Sampling kit preparation and assembly for a well are determined by a pre-selected "sampling scenario" which instructs the computer to print the correct number and type of label for each bottle to be included in each kit for a given laboratory. Simultaneously, the computer prints the Sample Tracking Form for each kit and the Well Sampling Information Sheet for each site. These forms serve as the necessary packing list and contain pertinent information on the sampling team's address.

Preparation room staff are responsible for affixing the sample bottle labels onto the appropriate bottles. The Prep room personnel are required to cross-reference the Sample Tracking Form to ensure that the labels are applied to the correct bottle type, to confirm that the well I.D. is correct and that the laboratory number on the bottle corresponds to the laboratory box for the kit being prepared. The boxes are labeled with color codes according to the laboratory where completed samples will be sent with a space designated for indicating the number of kits required by a laboratory.

The sample container kit boxes have been specifically designed to ensure an added measure of quality control. Styrofoam inserts for each container kit are custom designed to ensure that the correct quantity of each bottle type for each kit is packed. All bottles rest securely in the precut holes. If there are any empty holes cut into the styrofoam or extra bottle labels prior to packaging then the packer is responsible for conducting an internal check as to why a mistake has occurred.

The sampling team is instructed in the NPS training course to call the ICF Hotline to acknowledge receipt of the correct kits for sampling.

To adequately ensure that no contamination has been introduced into the sample bottles, periodic shipping bottle blanks will be packed into one of the sample container kits. These blanks will be packed by the preparation room and sent to the NPS laboratories for analysis.

The Well Sampling Information Sheet that is sent to the field team lists the kit requirements of each laboratory for a particular site. It is used as a cross-reference to ensure that the correct kits were received. At the well site the team will only open and complete one sample container kit at a time. The samplers will

indicate the samples collected on the enclosed Sample Tracking Form for each kit. The Sample Tracking Form is also used to identify any problems that may have occurred for a field sample.

12. PERFORMANCE AND SYSTEM AUDITS

Performance and system audits will be conducted to ensure the consistency and validity of the standard operating procedures as they apply to project assignments.

The Quality Assurance Coordinator (QAC) will conduct audits of the operating systems to assure appropriate QA/QC measures have been implemented and maintained. It is imperative that the QAC have direct knowledge of operating protocols. The Quality Assurance Coordinator will not be actively involved in daily activities related to operating protocols.

The QAC will alert the Quality Assurance Officer (QAO) of tentative audit schedules in the monthly progress report. The QAC and the Group Manager will both decide on a scheduled audit time. Upon completion of the audit, the Group Manager will be informed of the findings, including any deficiencies that were observed. The Group Manager will be responsible for the immediate resolution of the problem. If the resolution requires a modification to standard operating procedures, the Group Manager will consult the QAO.

A formal audit report will be distributed within 10 working days of the audit.

The QAC, in conjunction with other key personnel from the Well Sampling, Data Collection and Processing Group, will perform audits for five general areas:

- Bottle Cleaning

  Three audits will be performed to assess whether the bottle preparation laboratory is following approved standard operating procedures (Standard Operating Procedures No. A-1 included in Appendix A of this QAPjP). This audit will evaluate bottle cleaning, preservation preparation, and pre-preservation of sample containers. The audit checklist for bottle cleaning protocols is shown in Exhibit 12-1.

- Sample Kit Preparation and Tracking

  Three audits will be performed on a quarterly basis to ensure that the standard operating procedures for sample kit preparation and tracking are being followed (Standard Operating Procedures No. A-2 in Appendix A of this QAPjP). This audit will primarily evaluate whether the correct kit inserts and bottles are placed in the appropriate container(s) according to the particular sampling scenario assigned to a site. In addition, the audit will evaluate whether the correct labels are placed on each bottle; whether the supply kit for each site is correctly prepared; whether all the appropriate tracking, data collection, and shipping forms are included in each kit; whether kits are shipped to the appropriate field team for the chosen sampling site; and whether the correct information regarding each kit (e.g., date shipped, airbill numbers) was entered into NPSIS1. The audit checklist for sample kit tracking and preparation is shown in Exhibit 12-2.

EXHIBIT 12-1

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
BOTTLE PREPARATION PROCEDURE AUDITING
PROTOCOL CHECKLIST

Date _____
Auditor _____
Document Number _____

Bottle Washing Procedure

		Yes	No
1.	Were containers soaked and washed with a strong, hot detergent solution?	—	—
2.	Were containers rinsed with tap water?	—	—
3.	Were containers rinsed three times with deionized water?	—	—
4.	Were bottles baked at 425°C in an oven or muffle furnace?	—	—
5.	Were bottles sealed and stored in a clean environment?	—	—

PRESERVATIVE PREPARATION

		Yes	No	NA
1.	Were preservatives made with reagent grade material?	—	—	—
2.	Was 10 mL of mercuric chloride added to 1-liter sample containers for NPS methods 1,2,3, and 4?	—	—	—
3.	Was 7.5 mL of pH 3 buffer solution added to the 250 mL container for NPS method 5?	—	—	—
4.	Was 0.6 mL of mercuric chloride added to the 60 mL containers for NPS methods 6 and 7?	—	—	—
5.	Was 0.25 mL of sulfuric acid added to the 125 mL containers for NPS method 9?	—	—	—

EXHIBIT 12-1 (continued)

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
BOTTLE PREPARATION PROCEDURE AUDITING
PROTOCOL CHECKLIST

Quality Assurance/Quality Control

		Yes	No
1.	Were sample containers assigned lot numbers?	—	—
2.	Was one container analyzed per lot for pesticide contamination?	—	—
3.	Is a log being maintained of preservative inventory?	—	—
4.	Are refrigerator logs being maintained?	—	—
5.	Is documentation being maintained of reagents utilized in the analyses?	—	—
6.	Does all paperwork appear to be in order?	—	—
7.	Do the preservatives have the expiration date on them?	—	—

EXHIBIT 12-2

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
SAMPLE KIT TRACKING AND PREPARATION CHECKLIST

Date _____
Auditor _____
Document Number _____

		Yes	No	Comment
1.	Are bottles shelved by bottle type?	—	—	
2.	Was a sampling schedule utilized to determine sampling sites?	—	—	
3.	Was the appropriate information entered in the computer system to generate labels and forms?	—	—	
4.	Does the well sampling information sheet contain the necessary information?	—	—	
5.	Was the appropriate scenario selected for the kit assembly?	—	—	
6.	Was the first insert listed under "Inserts and Tops Required" placed at the bottom of the appropriate styrofoam container?	—	—	
7.	Were block inserts placed with the holes facing up?	—	—	
8.	Were labels affixed to the appropriate bottles?	—	—	
9.	Is the well ID number correct?	—	—	
10.	Does the lab number correspond to the kit being prepared?	—	—	
11.	Does the sampling scenario number correspond to that applicable to the kit being prepared?	—	—	
12.	Is the correct bottle being used for the method listed on the sample bottle label?	—	—	
13.	Have the bottles been placed in the appropriate areas?	—	—	
14.	Are shipping blanks being used?	—	—	

EXHIBIT 12-2 (continued)

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
SAMPLE KIT TRACKING AND PREPARATION CHECKLIST

		Yes	No	Comment
15.	If shipping blanks are used, was a reverse meniscus achieved when filling the bottle for the blank?	—	—	
16.	Are all bottles resting securely in the appropriate areas?	—	—	
17.	Have all areas been filled?	—	—	
18.	Does the top insert rest above the throat of the bottles?	—	—	
19.	Have the styrofoam containers been placed in plastic containers?	—	—	
20.	Does the styrofoam container fit into the container box?	—	—	
21.	Have the Federal Express airbill and the sample Tracking Form been placed inside a ziploc bag?	—	—	
22.	Does the airbill address correspond to that of the lab to which the kit is being sent?	—	—	
23.	Was the label placed on the appropriate side of the box?	—	—	
24.	Was the correct color sticker placed in the upper right corner of the label?	—	—	
25.	Was the kit number filled in the appropriate space?	—	—	
26.	Was the field equipment placed in the nylon tote bag?	—	—	
27.	Was the correct Well Sampling Information Sheet included in the Field Logbook?	—	—	

- Well Sampling

  Audits of well sampling field teams will be performed by the NPS Training Manager or Group Manager for all new DWS samplers to evaluate the performance of well sampling procedures. The DWS well sampling teams to be audited will be selected randomly by the QAC. The QAC will accompany the sampling team at the site and observe the sampling procedures used by the team to collect, package, and ship samples. Specifically, the QAC will evaluate whether the Standard Operating Procedures for well sampling (Standard Operating Procedure No. A-4 in Appendix A of this QAPjP) are being followed. The CWS audit checklist for well sampling is shown in Exhibit 12-3.

- Data Management

  Audits of data entry for NPSIS1 will be completed by the QAC to ensure that the correct information was entered into the system. The audit checklist for NPSIS1 computer operations is shown in Exhibit 12-4.

EXHIBIT 12-3

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
COMMUNITY WATER SYSTEM
WATER SAMPLING AUDITING PROTOCOL CHECKLIST

Date _____
Auditor _____
Document _____
Well ID No. _____
Location _____
Sampling Team Leader _____
Sampling Team _____

SAMPLING PROTOCOLS		Yes	No	Comments
1.	Does the bottle number correspond to those listed on the Well Sampling Sheet?	—	—	
2.	Was ice placed in the sample coolers?	—	—	
3.	Was the sample location discussed with the water system manager, owner, or operator?	—	—	
4.	Was the sample taken from a port close to the wellhead and before any treatment system?	—	—	
5.	Was the SOP for well purging followed?	—	—	
6.	Did the sampling team adhere to wells purging procedures as defined in the field sampling manual?	—	—	
7.	Was the CWS sample taken during the automatic pumping cycle or a manual override of the automatic system?	—	—	
8.	Did the team observe pump operation during the purging and sampling task?	—	—	
9.	Did the sampler initial and date each bottle prior to it being filled?	—	—	

EXHIBIT 12-3 (continued)

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
COMMUNITY WATER SYSTEM
WATER SAMPLING AUDITING PROTOCOL CHECKLIST

SAMPLING PROTOCOLS (continued)		Yes	No	Comments
10.	Was care taken not to overfill bottles?	—	—	
11.	If spillage occurred, was it listed on the sample tracking form?	—	—	
12.	Did a team member record the date and time of sampling as it occurred?	—	—	
13.	Were completed samples placed in the cooler after collection?	—	—	
14.	Were any filled bottles left in the sunlight for an extended period?	—	—	
15.	Was the white copy of the sample tracking form placed in a ziploc bag and taped to the side of the kit?	—	—	
16.	Was the yellow copy of the sample tracking form placed in the logbook?	—	—	
17.	Was ice packed properly within each kit in accordance with the SOP?	—	—	
18.	Were sample container kit boxes properly sealed prior to transport by Federal Express?	—	—	
19.	Was a Federal Express mailing label attached to each kit and was it addressed to the correct laboratory?	—	—	
20.	Did the sampling team leader call the ICF tracking system to confirm completion of sampling and discuss relinquishment of kits to appropriate Federal Express agent?	—	—	

EXHIBIT 12-3 (continued)

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
COMMUNITY WATER SYSTEM
WATER SAMPLING AUDITING PROTOCOL CHECKLIST

FIELD LOGBOOK

		Yes	No	NA
1.	Does the Field Logbook have a Well ID control number?	—	—	—
2.	Is the author of an entry identifiable?	—	—	—
3.	Have entries been dated?	—	—	—
4.	Have changes in entries been documented?	—	—	—
5.	Have the reasons for changes been documented?	—	—	—
6.	Have entry changes been dated?	—	—	—
7.	Can the individual who made the change be determined?	—	—	—
8.	Are entries legible?	—	—	—
9.	Is there a table of contents or a means to find specific entries in the logbook	—	—	—
10.	Are erasures evident in the notebook?	—	—	—
11.	Have pages been taken from the notebook?	—	—	—
12.	Have notebooks or preprinted forms been permanently bound to provide good documentation?	—	—	—

HOTLINE/COMMUNICATIONS

1.	Did the field crew notify the hotline when kits were relinquished to Federal Express?	—	—	—
2.	Were any problems encountered with the tracking system?	—	—	—

EXHIBIT 12-4

NATIONAL SURVEY OF PESTICIDES IN DRINKING WATER WELLS
NPSIS1 COMPUTER OPERATIONS
CHECKLIST

Date _____
Auditor _____
Document Number _____

		Yes	No	Comment
1.	Have all printed selections been updated?	—	—	
2.	Have kit identification numbers been posted to the kit?	—	—	
3.	Have the Federal Express numbers been entered for the kits?	—	—	
4.	Have the bottle lot numbers been assigned?	—	—	
5.	Have kits that have not been received been flagged with an "N"?	—	—	
6.	Have kits which have been received been flagged with a "Y"?	—	—	
7.	Have results of kit verifications been saved?	—	—	
8.	Have the labs received the appropriate kits?	—	—	
9.	Was a report printed to determine if any kits were damaged?	—	—	
10.	Was a report printed to determine if any kits were missing?	—	—	
11.	Was data copied from the hard disk to a backup at the end of the day?	—	—	
12.	Was a phone log established of lab call-ins?	—	—	
13.	Were the electronic mailboxes of 131A and 131B checked for new memos?	—	—	
14.	If yes, were the memos placed into the binder entitled "NPS Memos"?	—	—	
15.	Were memos and other documents generated submitted to the project's document control system?	—	—	

13. PREVENTIVE MAINTENANCE

The only equipment maintenance to be performed in this project is that on the temperature, pH, and conductivity meters when they are returned to ICF after each sampling trip. The procedures are described in SOP No. A-3, Equipment Calibration, in Appendix A of this QAPjP.

14. SPECIFIC ROUTINE PROCEDURES TO ASSESS DATA PRECISION, ACCURACY, AND COMPLETENESS

An objective of the NPS is to determine the frequency and concentration of pesticide contaminants in the drinking water wells of the U.S. To accomplish this objective a subset of statistically chosen wells are sampled to be representative of all U.S. drinking water wells. These sampled wells can only be representative of the population of wells if no additional contaminants were introduced in the sample from the sampling or analytical phases of the Survey (false positives). Likewise, steps are also required to reduce the potential for false negatives due to sample loss from time storage, volatilization, or photosensitivity. Pursuant to the requirements to allow conclusive statistical evaluations of pesticide contamination in U.S. drinking water wells, systematic procedures have been incorporated into the well sampling, data collection, and processing stages of the Survey to evaluate data precision, accuracy, and completeness.

Precision refers to the level of agreement among repeated measurements of the same parameter. It is generally stated in terms of standard deviation, relative standard deviation, relative percent difference, range, or relative range. Well purging procedures have been established to ensure a desired level of precision for well water pH, electrical conductivity, and temperature. The level of precision for repeated well purging parameters is presented in the standard operating procedures for sampling (Standard Operating Procedure No. A-4 in Appendix A of this QAPjP). Well water is collected immediately (Time=T_0) after the tap is opened to record the parameter measurements on the Well Purging Parameters Sheet. With the water continuously running, samples are collected every 5 minutes and measurements recorded quickly and simultaneously. Sampling may begin only after conductivity, pH, and temperature exhibit stability for two simultaneous time readings beginning with Time=T_1. If all three readings do not exhibit stability while measurements are collected and recorded for a time period up to 30 minutes sampling may begin. Temperature is considered stable if two temperature readings, taken 5 minutes apart, are within one degree. The electrical conductivity and pH readings are considered stable after two conductivity and pH readings, 5 minutes apart, are within $\pm$10 percent for conductivity and 0.2 units for pH.

Accuracy refers to the difference between a measured value for a parameter and the true value for the parameter. It is an indicator of the bias in the measurement system. Accuracy will be assessed by calibrating the pH meter, electrical conductivity meter, and digital temperature stick before shipment to the sampling site and upon receipt of same after sampling.

Completeness is a measure of the amount of information that must be collected from the field to assure achievement of the overall objectives of the NPS. Percent completeness will be calculated by dividing the number of acceptable samples by the number of samples that were expected to have been obtained, and multiplying the result by 100. The program goal will always be 100 percent completeness. Percent completeness of less than 95% will be subject to in-depth management review.

Representativeness is a measure of how closely the measured results reflect the actual concentration or distribution of the chemical compounds in the sample. The standard operating procedure for well water sampling (Standard Operating Procedure No. A-4 in Appendix A of this QAPjP) specifies the exact well water purging procedure and the steps for filling, storing, and shipping sample bottles to assure that samples are representative of actual ground-water conditions.

Comparability is the measure of whether and to what degree a data set can be compared to other data sets. Specific training and SOPs for water sample collection will be used to assure comparability and consistency in sample collection activities.

15. CORRECTIVE ACTION

If internal quality control checks or quality control audits result in the detection of unacceptable conditions or data, the sampling group manager will be responsible for developing and initiating corrective action. The ICF Program Manager and the QA Officer will be notified if non-conformance is of program significance or requires special expertise not available to the Sampling Group. Corrective action may include:

- Resampling and analyzing; or
- Reanalyzing samples, if holding time criteria permit; or
- Accepting the data and acknowledging the level of uncertainty.

16. QUALITY ASSURANCE REPORTS TO MANAGEMENT

The Well Sampling Group Manager, Kim Green, will submit monthly progress reports to the Program Director, Harold Lester. These monthly reports will summarize the past months activities, deliverables submitted, changes in staff, difficulties encountered and remedial action taken, and work expected to be completed during the next month's time period. These reports will be submitted no later than on the third day of the following month.

This report, while brief in nature, will constitute a formal record of Survey activities. The report will be used to track well sampling progress and to inform Survey project managers of any task difficulties. The reports will document problems and resolution of the problems as well as the implementation of this phase of the Survey. This report will be attached to the National Pesticide Survey Progress Reports for EPA review. The table of contents of a monthly progress report is provided below:

Activities Undertaken During the Month

-- Provides a brief statement of the task schedule, summary of progress to date, and management activities, and a summary of the sampling schedule.

Difficulties Encountered and Remedial Action Taken

-- Identifies problems encountered and actions taken to resolve problems identified or anticipated.

Activities Anticipated During the Next Month

-- Identifies activities expected to begin, continue, or end in the upcoming month.

17. DOCUMENT ARCHIVAL

ICF will maintain accurate files on all NPS work documentation available to EPA. The NPS Project File is located in Hunters Branch II, Workroom 2. This file contains copies of all draft and final deliverables, memorandums, correspondence letters, and all work documentation including telephone records. Field logbooks and analytical results are processed using specific filing procedures and are incorporated at the completion of work.

A computerized Document Control System (DCS) has been developed to archive and sort information in the NPS project file in a systematic manner. Standard Operating Procedure No. A-12 included in Appendix A of this QAPjP for document control was developed to ensure that document archival is properly performed and maintained. A DCS control number is assigned to each item filed in the DCS. A Document Log Sheet is also filled out for hard copy documentation. Project personnel are responsible for submitting a completed Log Sheet with each item submitted to the project file. The project file will not be a "working file" and items stored here will not be routinely accessible. NPS staff keep copies of all frequently used information.

Items sorted in the project file can be referenced by a DCS report that lists documents by one of the following subjects: Control Number, Document Date, Activity Code, and selected Activity Code. Routine access to the DCS database will be restricted.

Quality Assurance reviews of 50 entries into the DCS system will be conducted by the Prep Room Manager after all field sampling information has been archived. A DCS Quality Assurance checklist will be used to conduct the quality assurance review of computer listings and hard copy files.

APPENDIX A

STANDARD OPERATING PROCEDURES FOR WELL SAMPLING, DATA COLLECTION AND PROCESSING

A-1 - Sample Bottle Preparation and Quality Assurance/Quality Control Procedures

A-2 - Sample Kit and Supply Kit Preparation and Sample Tracking

A-3 - Field Equipment Calibration Procedures

A-3a - Calibration Procedure for the Temperature Meter
A-3b - Calibration Procedure for the pH Meter
A-3c - Calibration Procedure for the Conductivity Meter

A-4 - Community and/or Domestic Well Sample Collection Procedures

A-5 - Computerized Tracking System for Bottles and Kits

A-6 - Well Sampling Training

A-7 - Coordination of CWS Sampling

A-8 - Coordination of DWS Sampling

A-9 - Auditing Procedures

A-10 - Domestic Well Logbook Purging Parameters Record Data Entry

A-11 - Community Water System Well Logbook Purging Parameters Record Data Entry

A-12 - Document Control System (DCS)

STANDARD OPERATING PROCEDURE

1. TITLE: Sample Bottle Preparation and Quality Assurance/Quality Control Procedures

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

Lot - For the purpose of identification and tracking throughout the Survey, a lot is defined as 100 bottles for the 60 mL amber bottles and 125 mL polyethylene bottles, and 96 bottles for the 1-liter Wheaton bottles and the 250 mL amber bottles.

Contamination

- Pesticides/Organics: Any peaks with heights or areas greater than the blank peak height or area for each parameter.

- Inorganics: Any concentrations found at or above the detection limit for each parameter.

4. GENERAL REQUIREMENTS:

1. **Methodology**

The purpose of this plan is to outline the requirements and procedures for sample bottle preparation for the National Pesticides Survey (NPS). Specifically, it defines sample container requirements, procedures for cleaning sample containers, sample pre-preservation requirements, and quality assurance/quality control procedures.

2. **Equipment and materials required**

a. Bottle and cap requirements for NPS analytical methods:

Four types of containers will be used to collect drinking water well samples for the NPS. Exhibit 1 presents specifications for each type of container.

b. Sample container preservation requirements:

NPS Method	Preservative
NPS-1	Mercuric chloride
NPS-2	Mercuric chloride
NPS-3	Mercuric chloride
NPS-4	Mercuric chloride
NPS-5	pH 3 Buffer
NPS-6	Mercuric chloride
NPS-7	Mercuric chloride
NPS-9	Sulfuric acid

Note: NPS Method 8 has been dropped from the Survey after extensive evaluation because of problems with sample aeration under Survey conditions and because of cost considerations.

EXHIBIT 1

Bottle and Cap Requirements for NPS Analytical Methods

Method No.	Sample Container Requirement	Cap Requirement
1,2,3,4	1-L borosilicate bottle with graduations (Wheaton Media/ Lab bottle No. 219820)*	TFE-fluorocarbon lined screw caps
5	250 mL amber Boston round bottle	Open-top screw caps with PTFE-faced silicone septa (Pierce No. 12722)*
6,7	60 mL amber Boston round bottle	Open-top screw caps with PTFE-faced silicone septa (Pierce No. 12722)*
9	125 mL clear or white high density polyethylene (cylinder-round) bottle	White polyethylene cap

* Catalog No. is intended as an example.

5. PROCEDURES

1. Sample Bottle Cleaning Requirements for NPS Analytical Methods

a. Glass containers for NPS Analytical Methods 1,2,4,6, and 7:

1. Wash with hot water and detergent.
2. Thoroughly rinse with tap water.
3. Thoroughly rinse with reagent water.
4. Drain dry, and heat in an oven or muffle furnace at 400° C for 1 hour.
5. After drying and cooling, seal and store glassware in a clean environment to prevent any accumulation of dust or other contaminants.

b. Glass containers for NPS Analytical Method 3:

1. Wash with hot water and detergent.
2. Thoroughly rinse with dilute acid.
3. Thoroughly rinse with tap water.
4. Thoroughly rinse with reagent water.
5. Drain dry, and heat in an oven or muffle furnace at 400° C for 1 hour.
6. After drying and cooling, seal and store glassware in a clean environment to prevent any accumulation of dust or other contaminants.

c. Glass containers for NPS Analytical Method 5:

1. Wash with hot water and detergent.
2. Thoroughly rinse with tap water.
3. Thoroughly rinse with reagent water.
4. Drain dry, and heat in an oven or muffle furnace at 450° C for 1 hour.
5. After drying and cooling, seal and store glassware in a clean environment to prevent any accumulation of dust or other contaminants.

d. Polyethylene containers for NPS Analytical Method 9:

1. Wash with hot water and detergent.
2. Rinse three times with tap water.

3. Rinse three times with deionized water.

4. Allow to drain/air dry overnight.

5. After drying, seal and store glassware in a clean environment to prevent any accumulation of dust or other contaminants.

e. An alternative procedure is being used to clean glass sample containers (1-L bottles; 250-mL and 60-mL Amber bottles):

1. Soak and wash with a strong, hot detergent solution (e.g., Chem-solv).

2. Immediately rinse the glassware with tap water.

3. Rinse three times with deionized water.

4. Bake in an oven overnight or a minimum of 4 hours at 425° C.

5. Remove from oven and allow to cool.

6. After drying and cooling, seal and store glassware in a clean environment to prevent any accumulation of dust or other contaminants.

f. The Teflon septa and bottle caps will be washed with detergent, rinsed three times with tap and deionized water, air dried overnight, and placed on bottles with the Teflon side of the septa facing down.

g. The Teflon-lined lids will be rinsed with pesticide grade hexane, allowed to air dry in a pesticide-free area, and placed on the bottles.

h. Caps for the 125 mL plastic bottles will be cleaned according to the protocol for cleaning the plastic bottles (hot water/detergent wash).

2. Preparation of Sample Preservatives

a. Mercuric Chloride: Dissolve 1 g of mercuric chloride ($HgCl_2$) in 1 L of deionized water. Use reagent-grade $HgCl_2$ crystal.

b. pH 3 Buffer: Prepare a 2.5 molar solution of potassium acetate by dissolving 245.38 g of potassium acetate in 1 L of deionized water. Prepare a 2.5 molar solution of chloroacetic acid by dissolving 236.25 g of reagent-grade monochloroacetic acid in 1 L of deionized water. To prepare the pH 3 buffer, mix 100 mL of the 2.5 molar potassium acetate solution with 156 mL of the 1 molar chloroacetic acid solution.

c. Sulfuric Acid: Use reagent-grade concentrated sulfuric acid (H_2SO_4).

3. Sample Pre-preservation

a. Containers for NPS Methods 1,2,3, and 4: 10 mL of mercuric chloride in a 1-liter sample.

b. Containers for NPS Method 5: 7.5 mL of pH 3 buffer in a 250 ml sample.

c. Containers for NPS Methods 6 and 7: 0.6 mL of mercuric chloride in a 60 mL sample.

d. Containers for NPS Method 9: 0.25 mL of sulfuric acid in a 125 mL sample.

NOTE: The volume of preservative should be $\leq$ 1% of the final sample volume for all methods.

6. QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

1. Inventory Control

a. Sample containers to be cleaned and preserved will be grouped into lots and assigned lot numbers for purposes of identification and tracking throughout the Survey. For purposes of this Survey, a sample lot consists of 100 bottles for the 60 mL amber bottles and 125 mL polyethylene bottles, and 96 bottles for the 1-liter Wheaton bottles and the 250 mL amber bottles.

2. Sample Containers

a. After the sample containers have been cleaned and the appropriate amount of preservative is added according to the above protocol, the container will be analyzed as part of the ongoing NPS quality assurance/quality control (QA/QC) program. One container per every five lots will be filled with deionized water and allowed to stand for at least 24 hours and then analyzed to check for pesticide (for glass containers) and nitrate (for plastic containers) contamination. If contamination is found, the lot will be rejected, recleaned, and reanalyzed for contamination. The QA/QC program to check for container contamination will be performed according to the procedures outlined in Exhibit 2.

b. In addition, one container type will be periodically analyzed to demonstrate that the cleaned and preserved containers are free of contamination from constituents other than pesticides that could interfere with the planned analysis. This periodic analysis will initially occur for every other lot. Sample containers subject to periodic checks for contamination/ interference will be analyzed only after they have been cleaned and the preservative added as described earlier. Periodic analysis to check for contamination/interference will be done according to the procedures outlined in Exhibit 3. If an analyte is detected, then the lot from which the container was selected will be rejected and recleaned, and another container selected from a different lot will be analyzed to check for contamination/interference.

c. In addition to the QA/QC procedures discussed above, a contamination check on the sample containers will also be performed by EPA for the NPS pesticide analytes through the NPS contract laboratories. Three sampling kits will be supplied to EPA. One kit will have clean, empty bottles. The second kit will contain the preservatives in clean, empty bottles. The third set will contain deionized water in clean bottles with appropriate preservatives.

EXHIBIT 2

NPS SAMPLE CONTAINER QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Container Type	Analytical Method	Parameters to be Analyzed	Frequency of Analysis[1]
1-L glass	EPA 608[2,3]	Endrin, 4-4' DDT, Heptachlor, Dieldrin, Aldrin	1:5
250 mL amber glass	EPA 608[2,3]	Endrin, 4-4' DDT, Heptachlor, Dieldrin, Aldrin	1:5
60 mL amber glass	EPA 608[2,3]	Endrin, 4-4' DDT, Heptachlor, Dieldrin, Aldrin	1:5

[1] Frequency of Analysis (e.g., 1:5) denotes the number of bottles that shall be QC checked per number of lots that are cleaned.

[2] If changes to Method 608 are proposed, such as adjustments of final volume or initial volume during extraction and concentration steps, then the laboratory shall submit a complete description of the modifications, together with documentation supporting the attainment of precision, accuracy, and detection limits comparable to the standard method or as required by the NPS program.

[3] Detection limits for pesticide analysis will be as specified in the method.

EXHIBIT 3

NPS SAMPLE CONTAINER CONTAMINATION/INTERFERENCE QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Container Type	Analytical Method	Parameters to be Analyzed	Frequency of Analysis[1]	Detection Limit, ug/l[2]
1-liter, 250-mL, and 60-mL glass	EPA 625[3,4]	Bis (2-ethylhexyl) phthalate	1:5	10
		Di-n-butyl phthalate		10
		Diethyl phthalate		10
	EPA 624[4,5]	Methylene chloride	1:5	5
		Acetone		10
		Toluene		5
		2-Butanone		10
		Trichloroethene		5
	(See Exhibit 4)	Inorganics	1:5	
125-mL plastic	(See Exhibit 4)	Inorganics	1:5	
	EPA 353.2[6]	Nitrate	1:5	

[1] Frequency of Analysis (e.g., 1:5) denotes the number of bottles that shall be QC checked per number of lots that are cleaned.

[2] USEPA Contract Laboratory Program Statement of Work for Organics Analysis, 2/88.

[3] If changes to Method 625 are proposed, such as adjustments of final volume or initial volume during extraction and concentration steps, then the laboratory shall submit a complete description of the modifications, together with documentation supporting the attainment of precision, accuracy, and detection limits comparable to the standard method or as required by the NPS program.

[4] The SIM (Selected Ion Monitoring) technique will be used for the analysis of volatiles and base neutral acid extracts.

[5] If changes to Method 624 are proposed, such as adjustments of volume purged, then the laboratory shall submit a complete description of the modifications, together with documentation supporting the attainment of precision, accuracy, and detection limits comparable to the standard method or as required by the NPS program.

[6] The detection limit for nitrate analysis will be 0.02 mg/L.

EXHIBIT 4

INORGANICS QC ANALYSIS
REQUIREMENTS

Element	Methods[1]	Detection Limit, ug/L[2]
Aluminum	200.7[3]	200
Antimony	204.2	60
Arsenic	206.2	10
Barium	200.7	200
Beryllium	200.7 or 210.2	5
Cadmium	213.2	5
Calcium	200.7 or 215.1	5000
Chromium	200.7 or 218.2	10
Cobalt	200.7	50
Copper	200.7	25
Iron	200.7	100
Lead	239.2	3
Magnesium	200.7 or 242.1	5000
Manganese	200.7	15
Nickel	200.7	40
Potassium	200.7 or 258.1	5000
Selenium	270.2	5
Silver	200.7 or 272.2	10
Sodium	200.7 or 273.1	5000
Vanadium	200.7	50
Zinc	200.7	20

[1] U.S. EPA, 1979, Methods for Chemical Analysis of Water and Wastes EPA-600/4-79-020, Washington, D.C.

[2] USEPA, Contract Laboratory Program Statement of Work for Inorganic Analysis, 7/88.

[3] If changes to Method 200.7 are proposed, such as adjustments of initial or final volume during concentration steps, then the laboratory shall submit a complete description of the modifications, together with documentation supporting the attainment of precision, accuracy, and detection limits comparable to the standard method or as required by the NPS program.

3. **Sample Preservatives**

a. To the extent possible, preservatives added to containers will be made from the same reagent lot for all sample containers. EPA approval will be obtained for the use of reagent lots for preservative preparation. On a periodic basis, an initial batch of preservative from each reagent lot purchased will be supplied to EPA for QA/QC analysis for NPS pesticide analytes.

APPENDIX A

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A-7 - Coordination of CWS Sampling

A-8 - Coordination of DWS Sampling

A-9 - Auditing Procedures

A-10 - Domestic Well Logbook Purging Parameters Record Data Entry

A-11 - Community Water System Well Logbook Purging Parameters Record Data Entry

A-12 - Document Control System (DCS)

STANDARD OPERATING PROCEDURE

1. TITLE: Sample Kit and Supply Kit Preparation and Sample Tracking

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

Sample kit - A styrofoam container with styrofoam inserts to secure and refrigerate sample bottles during shipment from the field to the lab.

Supply kit - A Coleman cooler with field equipment and tools (wrenches, knives, pens, tape, etc.) for sampling.

Sample type - Different drinking water samples taken from the same well for different analytical purposes. The five basic sample types are field sample, backup sample, shipping blank, lab spike, and time storage sample. One field sample and backup sample are taken for each analytical method at each well. A shipping blank will be taken at each site, but only for Method 7. For lab spikes and time storage samples, one or more will be taken at a limited number of wells for QA/QC purposes.

Sampling scenario - A required set of sample types taken for each method and lab. For each lab there are four possible sampling scenarios, except for James M. Montgomery lab, which has eight possible scenarios. See Exhibit 1 for a summary of different sample types required under each scenario for each lab.

4. GENERAL REQUIREMENTS:

Sample kit preparation for the National Pesticide Survey will take place in the preparation (prep) room at ICF Headquarters (at Hunters Branch in Fairfax, VA). The prep room personnel will first receive, organize, and store shipments of sample bottles, styrofoam containers, styrofoam inserts, cardboard boxes, and plastic liners. Then the prep room assistant will print the appropriate labels and forms using NPSIS1 and place the correct inserts and bottles in the appropriate styrofoam container according to the particular sampling scenario required for each lab in the current schedule of well sites to be sampled. A supply kit (containing tools and equipment required for sampling the drinking water wells in the field) will also be prepared for each well site. The prep room assistant will be responsible for shipping the kits to the proper sampling teams, confirming that the correct kits were prepared for each site, and maintaining a computer record of airbill numbers, their corresponding kit types, and the date on which each kit was sent. Computer generated reports will be produced on a regular basis to show the status of kits which are still outstanding, and the status of inventory stock on hand.

The ICF Prep Room Manager, Cindy Jengeleski, will be in charge of the prep room personnel, and will be responsible for ensuring the adherence to the following standard operating procedures.

EXHIBIT 1

SAMPLE TYPES REQUIRED FOR EACH SAMPLING SCENARIO

NPS SAMPLE BOTTLE REQUIREMENTS (12/16/87)

Sample Type	Method 1 Number	Bottle size	Method 2 Number	Bottle size	Method 3 Number	Bottle size	Method 4 Number	Bottle size
Primary sample	1500	1-liter	1500	1-liter	1500	1-liter	1500	1-liter
Back-up sample	1500	"	1500	"	1500	"	1500	"
Lab spike (mix 1)	150	"	150	"	150	"	150	"
Lab spike (mix 2)	150	"	150	"	150	"	150	"
Lab spike (mix 3)	150	"						
Time storage (mix 1)	75	"	75	"	75	"	75	"
Time storage (mix 2)	75	"	75	"	75	"	75	"
Time storage (mix 3)	75	"						
Trip blank								
Referee sample	150	"	150	"	150	"	150	"
Referee trip blank								
Total	3825		3600		3600		3600	

Sample Type	Method 5 Number	Bottle size	Method 6 Number	Bottle size	Method 7 Number	Bottle size	Method 9 Number	Bottle size	Total
Primary sample	1500	250-ml	1500	60-ml	1500	60-ml	1500	125-ml	1
Back-up sample	1500	"	1500	"	1500	"	1500	"	1
Lab spike (mix 1)	150	"	150	"	150	"	150	"	
Lab spike (mix 2)									
Lab spike (mix 3)									
Time storage (mix 1)	75	"	75	"	75	"	75	"	
Time storage (mix 2)									
Time storage (mix 3)									
Trip blank					1500	"			
Referee sample	150	"	150	"	150	"	150	"	
Referee trip blank					150	"			
Total	3375		3375		5025		3375		2

5. PROCEDURES

1. Procedural Steps

a. Ms. Jengeleski will ensure that the following procedural format for preparing the sample kits for shipment to the sampling team are observed:

- Receive from an outside vendor, boxes of cleaned and pre-preserved water sample bottles.

- Organize their storage on the prep room shelves by bottle type. This will facilitate kit preparation and assembly. Exhibit 2 presents the four types of water sample bottles used in the NPS.

b.
- Refer to the current schedule of sites to be sampled and note which site is to be sampled first. The schedule will delineate which "sampling scenario" will be employed for each lab at this site. This "sampling scenario," in turn, determines the number of each bottle type to be included in each styrofoam container (or "kit"). A sampling scenario may require that as many as three kits be assigned to a single laboratory.

- Note the "sampling scenarios" to be executed at this site for each lab.

c.
- Enter into the computer the appropriate information specific to this lab at this site:

  -- well ID number;
  -- lab initials (3 letters); and
  -- "sampling scenario" number for domestic wells only.

  After entering the "sampling scenario" if a lab spike was assigned to this lab, the analytical method and the assigned lab spike type must be entered into the computer. Refer to the schedule of sites to be sampled for the lab spike types required for this site. These lab spikes should be included in the options of lab spikes required for this lab under this scenario presented in Exhibit 1.

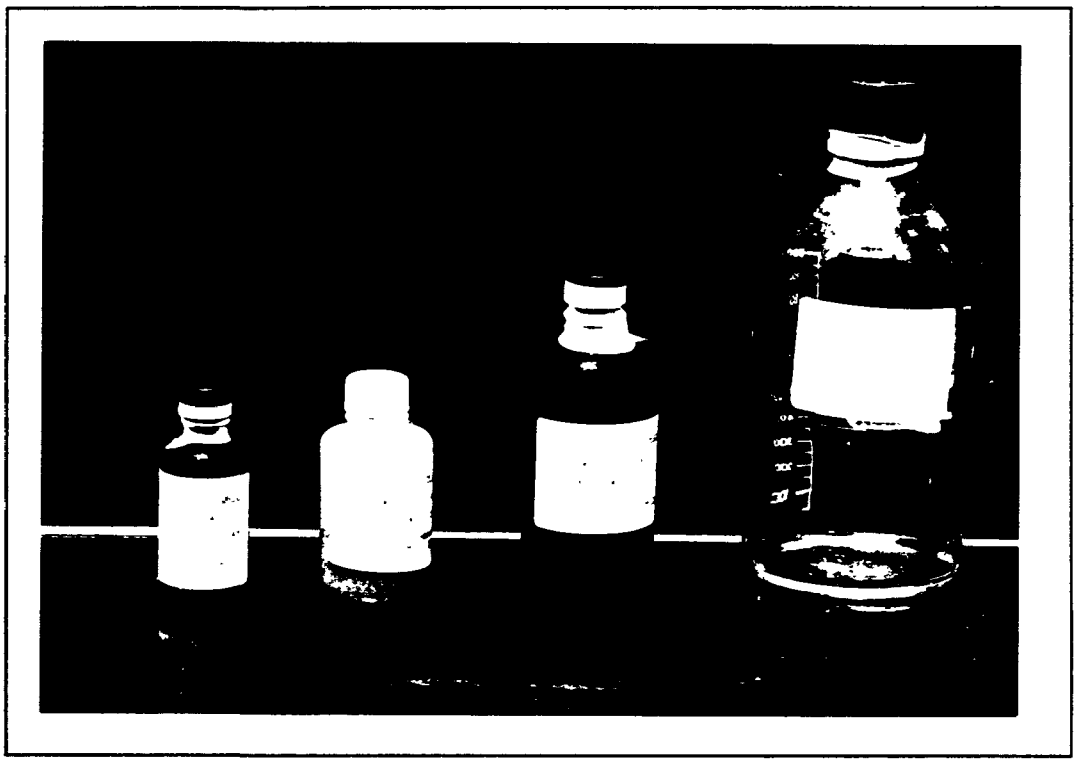
Given this information, the correct number of labels for each type of bottle to be included in each kit for a given lab can be printed using the computer. In addition, the Sample Tracking Form and the Well Sampling Information Sheet can also be printed. The Sample Tracking Form will serve as a packing list and a means of tracking the sample from ICF to the field and to the lab; it will list all sample bottles contained in each kit. The Well Sampling Information Sheet will contain all the pertinent information about the sampling site: well address, sampling date, contact name and phone number, the name and address of the individual responsible for sampling, and the kit numbers.

d.
- Print each of the following for this well ID# from NPSIS1:

  -- bottle labels;
  -- Sample Tracking Forms; and
  -- Well Sampling Information Sheet.

EXHIBIT 2

The Four Types of Water Sample Bottles Used in the NPS



60 mL	125 mL	250 mL	1 Liter
Glass Amber	Plastic	Glass amber	Glass

- Print the Well Schedule Report and the Lab Schedule Report whenever new sampling schedules are assigned and entered into the NPSIS1 system. To print these reports, select Schedule Printing Selections under Schedule Tracking System and then Print Well Schedule Report and Print Lab Schedule Report.

e.
- Begin assembling the first kit for the lab under the sampling scenario as listed on the Sample Tracking Form and sample bottle labels. Example: lab #1 (JMM) under sampling scenario #2 requires field samples, backups, and lab spikes for each method (Methods 1, 3, and 9). The lab spike for Method 1 will be either A0, A1, A3 (A2), B0, B1, B3 (B2), C0, C1, or (C3) C2. The lab spike for Method 3 will be A0, A1, A3 (A2), B0, B1, or B3 (B2). The lab spike for Method 9 will be A0, A1 or (A3) A2. For all possible lab spike requirements see Exhibit 1.

- Locate the styrofoam container(s) and box(es) of correct size for this lab's kit. Exhibit 3 summarizes which styrofoam containers are appropriate for each lab.

- Locate the appropriate styrofoam inserts for this kit. The NPS Kit Preparation "Styrofoam Insert Summary" (Exhibit 4) and the accompanying packet of sketches of inserts (Exhibit 5) outlines which inserts are appropriate for each lab under the different "sampling scenarios." For example, three separate kits are required for lab #1 (JMM) under sampling scenario #5. These three kits are identical; each requires inserts A, B, and B2.

f.
- Place the insert that is listed first under "Inserts and Tops Required" of the NPS Kit Preparation "Styrofoam Insert Summary" for this lab under this sampling scenario at the bottom of the appropriate styrofoam container.

- If there is a "block" insert (i.e., an additional insert other than the top insert), then place it on top of the bottom insert exactly according to the diagrams in NPS Kit Preparation "Multiple Insert Configurations." Note that "block" inserts are indicated by the tighter hatching pattern in the "Multiple Insert Configuration."

  The bottom insert should rest comfortably at the base of the styrofoam container and should not be able to slide or move during shipment and handling.

  The block insert should be placed with the holes facing up and should not cover any portion of any holes in the bottom insert.

- Examine all sample bottles for the presence of preservative prior to affixing sample bottle labels.

g.
- Affix the sample bottle labels (printed out by the computer) onto the appropriate sample bottles.

  Refer to the Sample Tracking Form to be sure that the correct labels are applied to the correct bottle types.

EXHIBIT 3

SUMMARY OF APPROPRIATE STYROFOAM KIT SIZES FOR EACH LAB

Kit Size	Labs
"Large" styrofoam container and cardboard box (19-1/4" x 17-1/4" x 12-1/2" O.D.)	JMM ATI RAD BSL (EPA lab) TSD (EPA lab)
"Small" styrofoam container and cardboard box (15" x 13" x 10" O.D.)	ESE BCL

EXHIBIT 4

KIT PREPARATION "STYROFOAM INSERT SUMMARY"

LAB (lab #)	Sampling Scenario #	No. of kits required	Styrofoam Inserts and tops required[1/]
JMM (1)	1	1	1) A B B_2
	2	2	1) A 2) C B R B_2 R_2
	3	2	1) A 2) C B C_2 B_2
	4	2	1) E 2) C E_2 S S_2
	5	3	1) A 2) A 3) A B B B B_2 B_2 B_2
	6	3	1) A 2) A 3) A B A_2 A_2 B_2
	7	2	1) A 2) A B A_2 B_2
	8	1	1) A B B_2
ATI (2)	1	1	1) C C_2
	2	1	1) E E_2
	3	2	1) E 2) E E_2 E_2
RAD (3)	1	1	1) C C_2
	2	1	1) E E_2
	3	2	1) E 2) E E_2 E_2

EXHIBIT 4 (continued)

KIT PREPARATION "STYROFOAM INSERT SUMMARY"

LAB (lab #)	Sampling Scenario #	No. of kits required	Styrofoam Inserts and tops required[1/]
ESE (4)	1	1	1) F G G_2
	2	1	1) H I I_2
	3	2	1) F 2) J G L G_2 L_2
BCL (5)	1	1	1) M M_2
	2	1	1) N N_2
	3	2	1) N 2) N N_2 N_2
BSL (6)	1	1	1) E T T_2
TSD (7)	1	1	1) C Q R Q_2

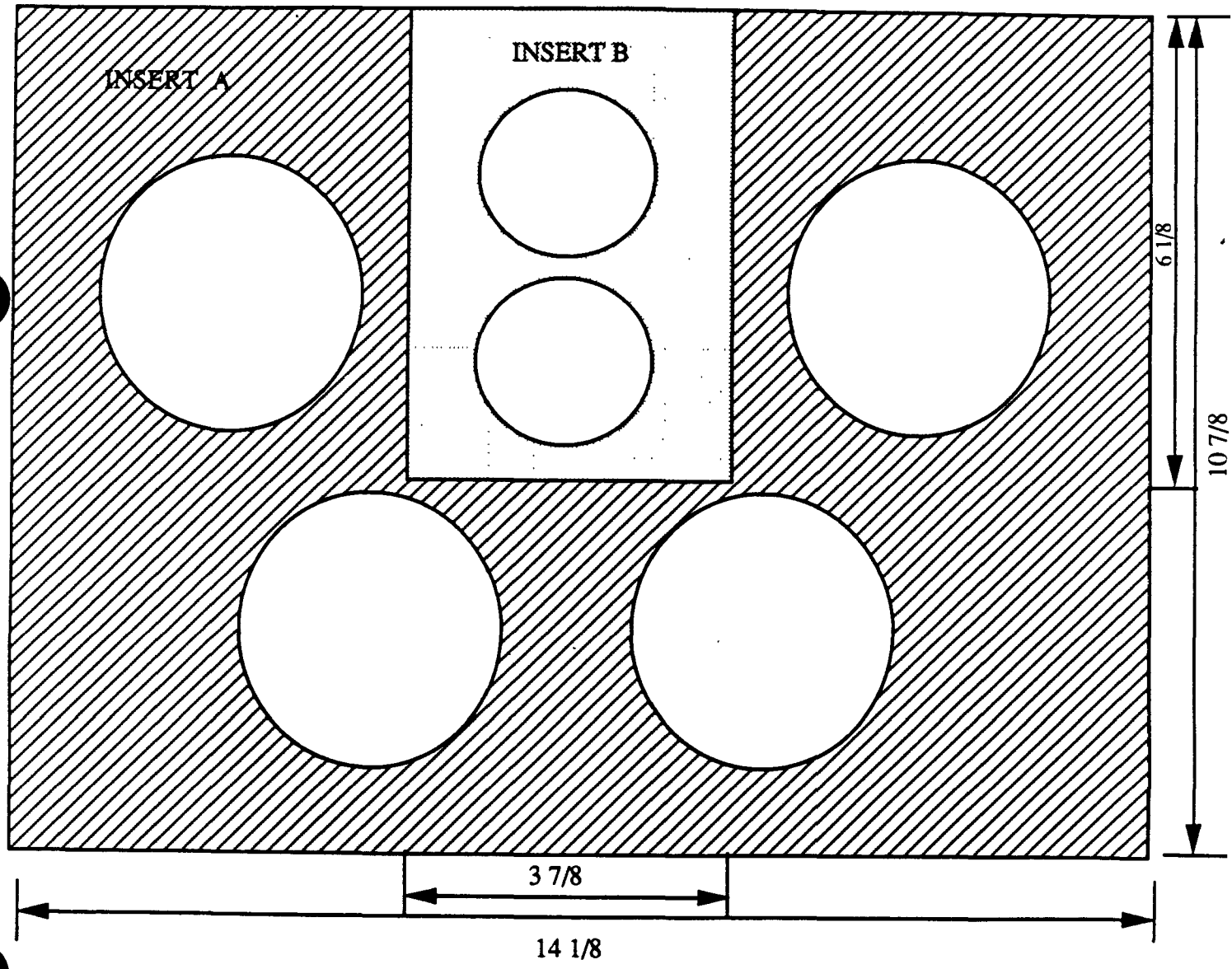
1/ The suffix "2" subscripted after an insert name designates that the insert is a top insert (i.e., it fits around the throats of the bottles and is put in place after the bottles have been placed in the holes of the base or block inserts).

EXHIBIT 5

SKETCHES OF STYROFOAM INSERTS

Scenarios for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
A B B_2	JMM(1)	1, 2, 3, 6, 7, and 8



1"

1"

Scale for All Sketches

EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
C R R_2	JMM(1)	2

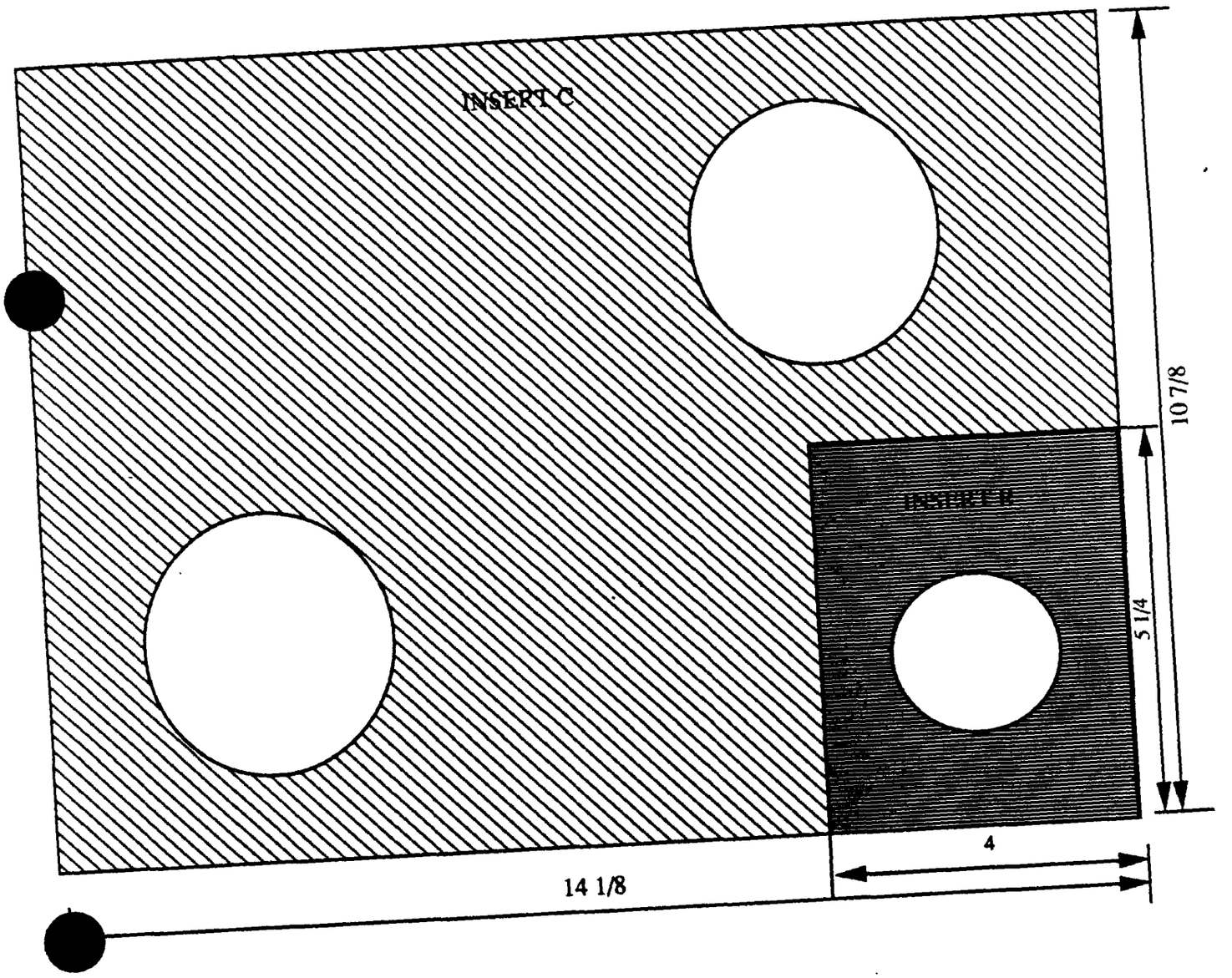


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
C S S_2	JMM(1)	4

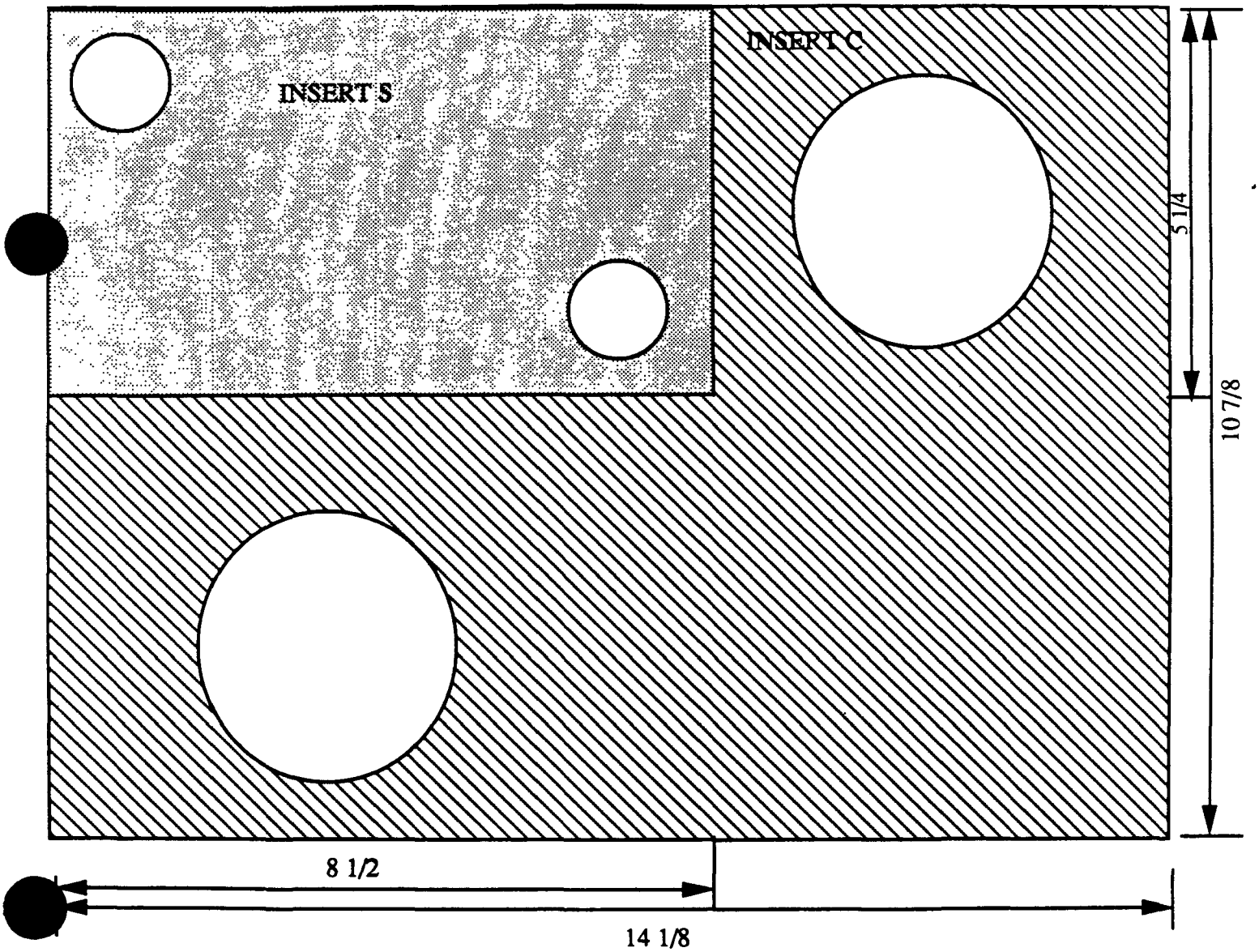


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenarios for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
F G G_2	ESE(4)	1 and 3

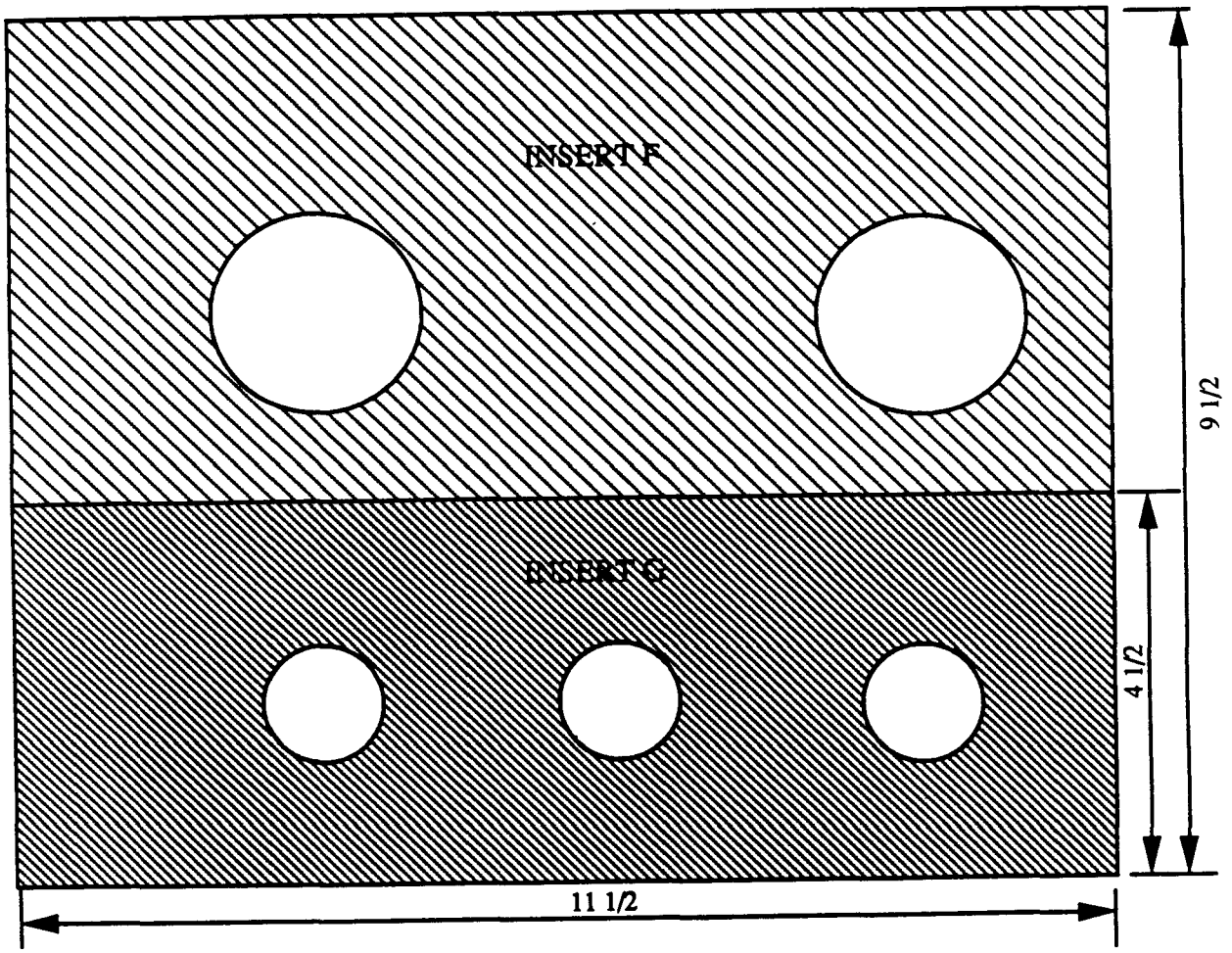


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
H I I_2	ESE(4)	2

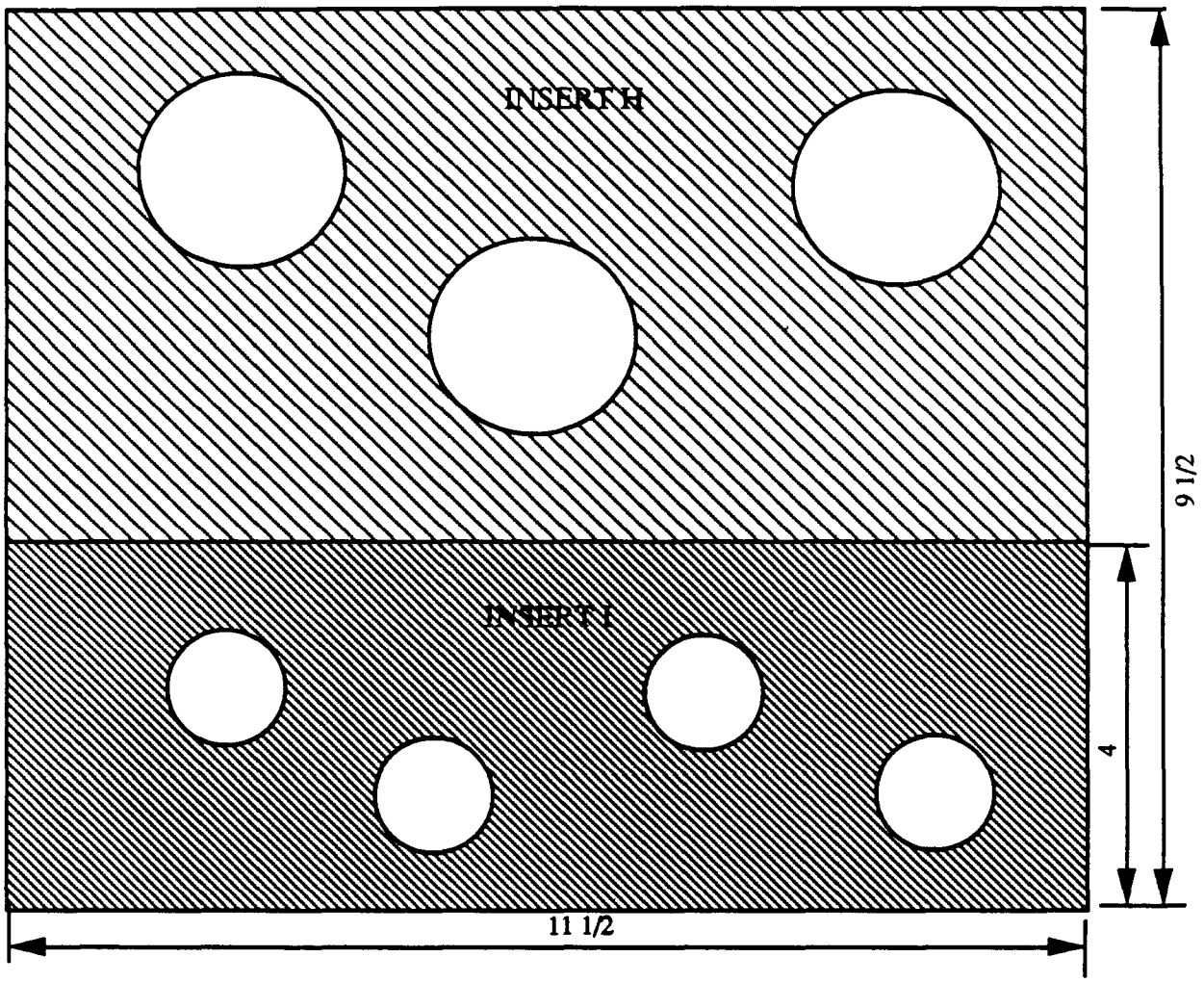


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
J L L_2	ESE(4)	3

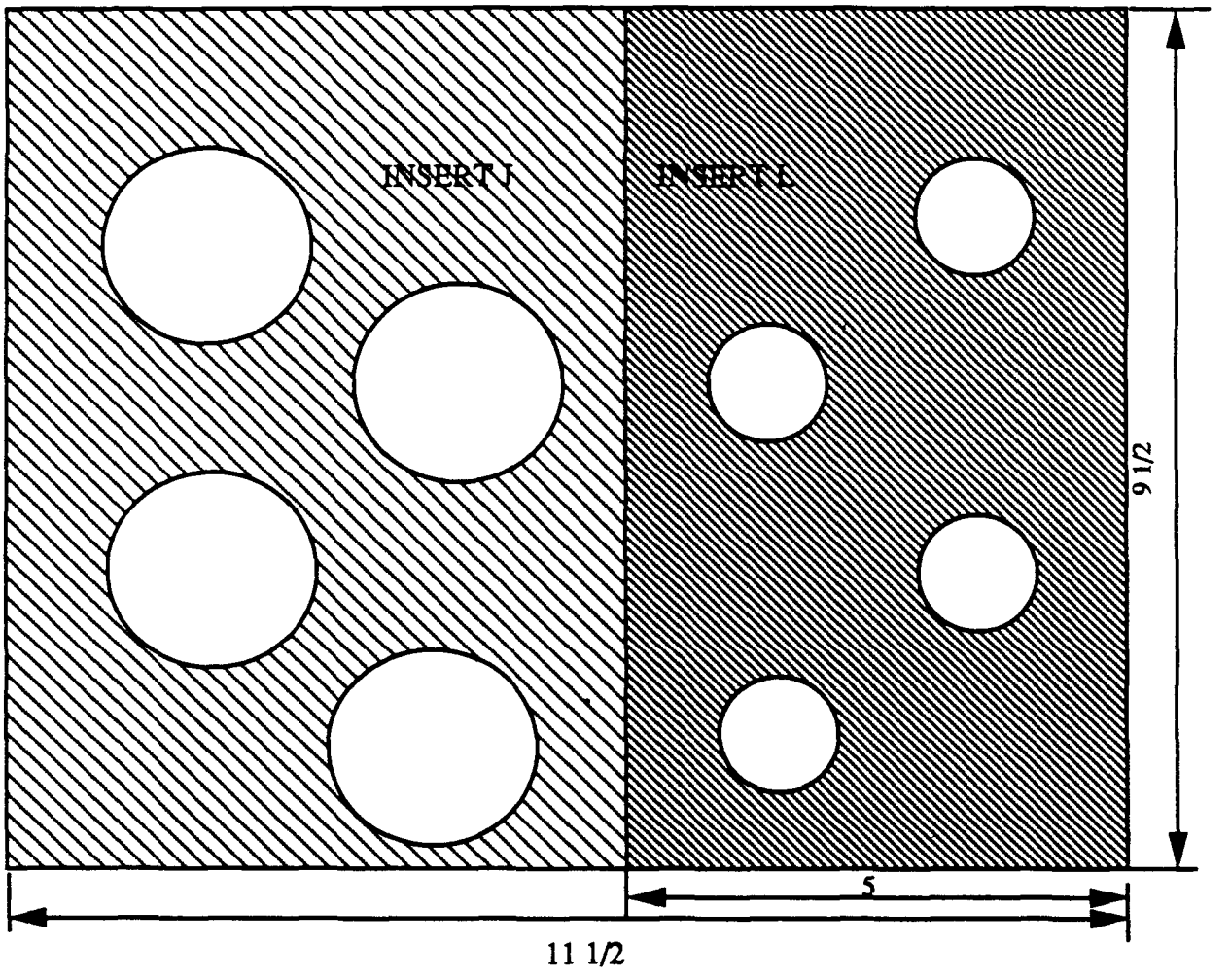


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
A	JMM(1)	6,7
A_2		

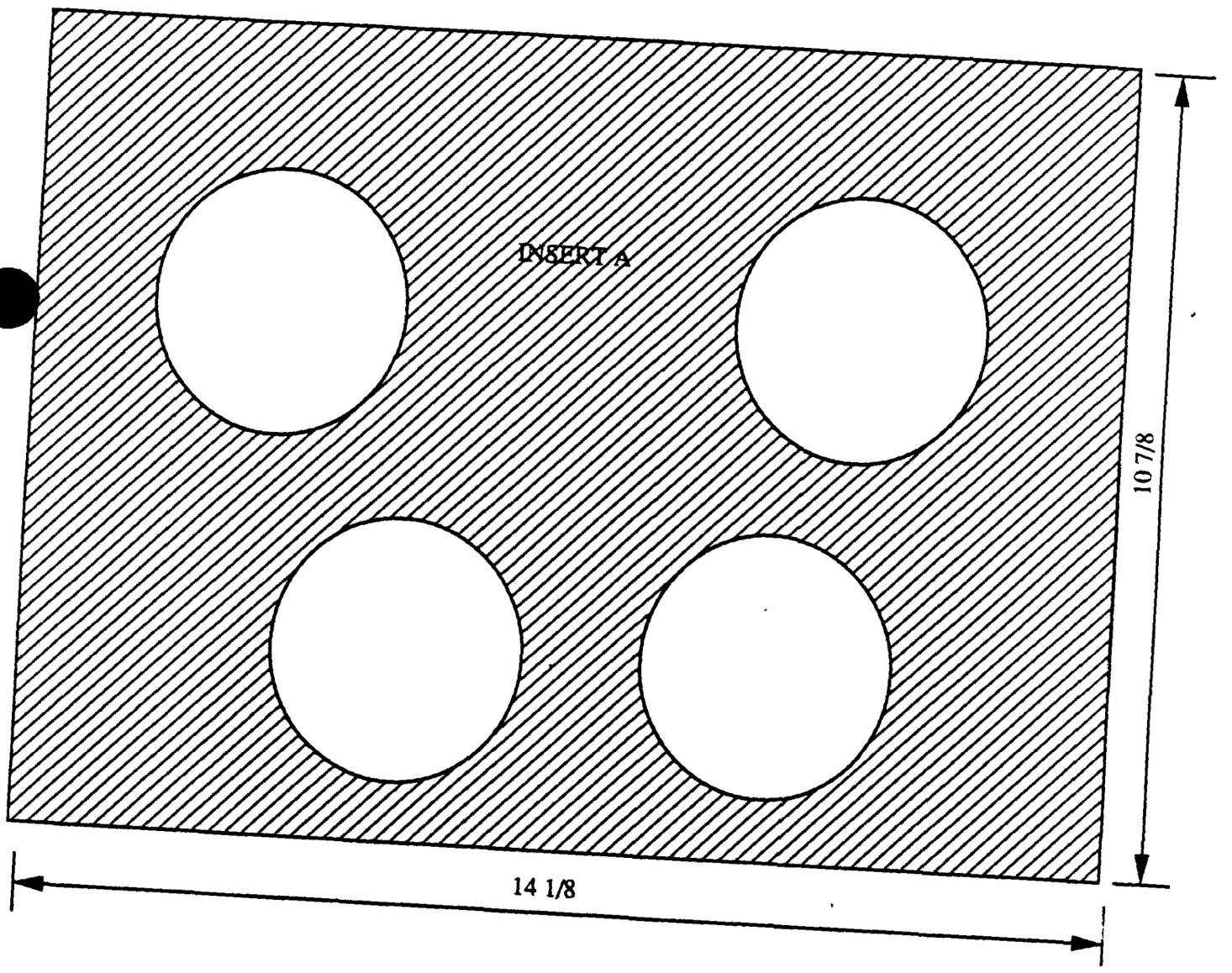


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
E	JMM(1)	4
E_2	ATI(2)	2,3
	RAD(3)	2,3

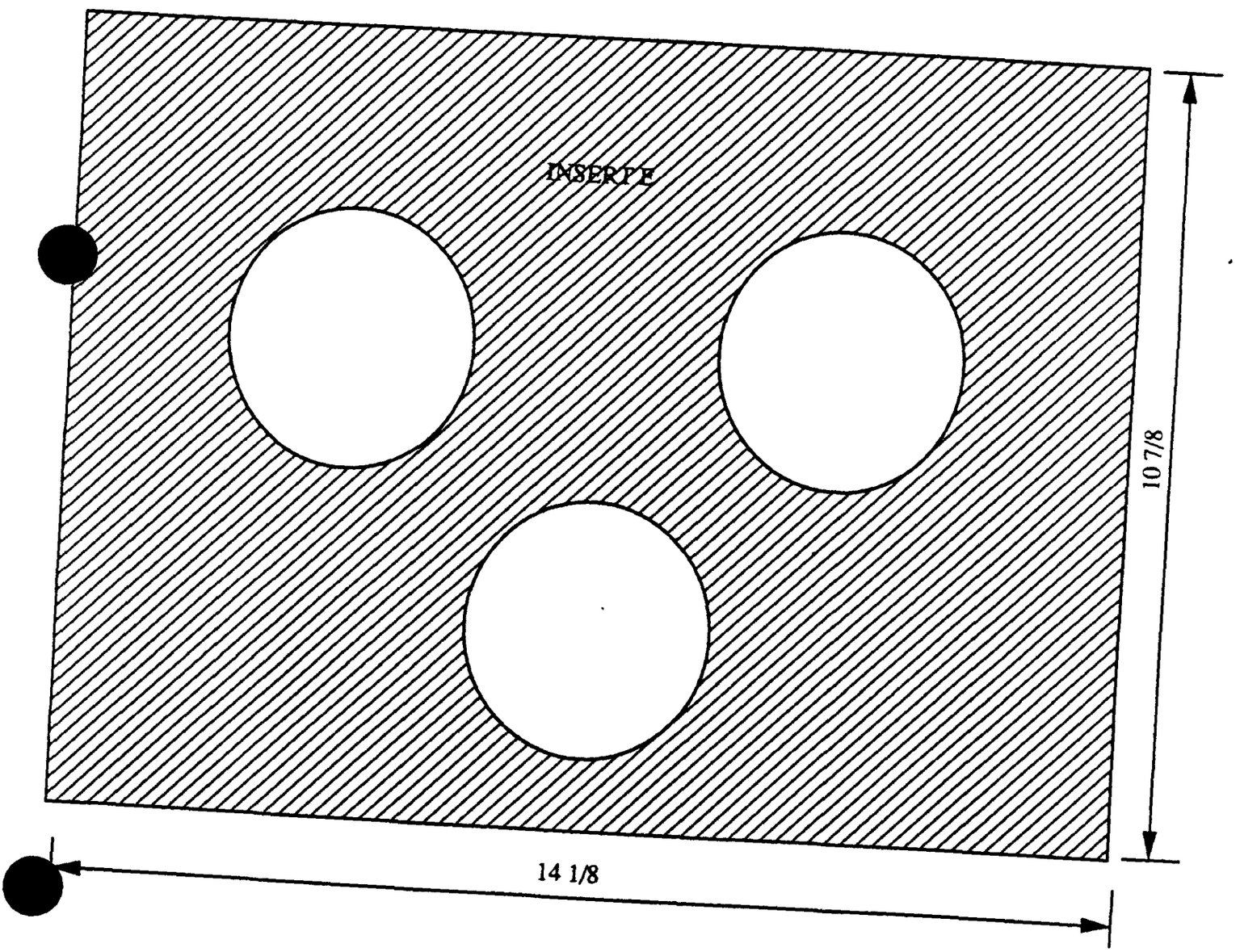


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
C	JMM(1)	3
C_2	ATI(2)	1
	RAD(1)	1

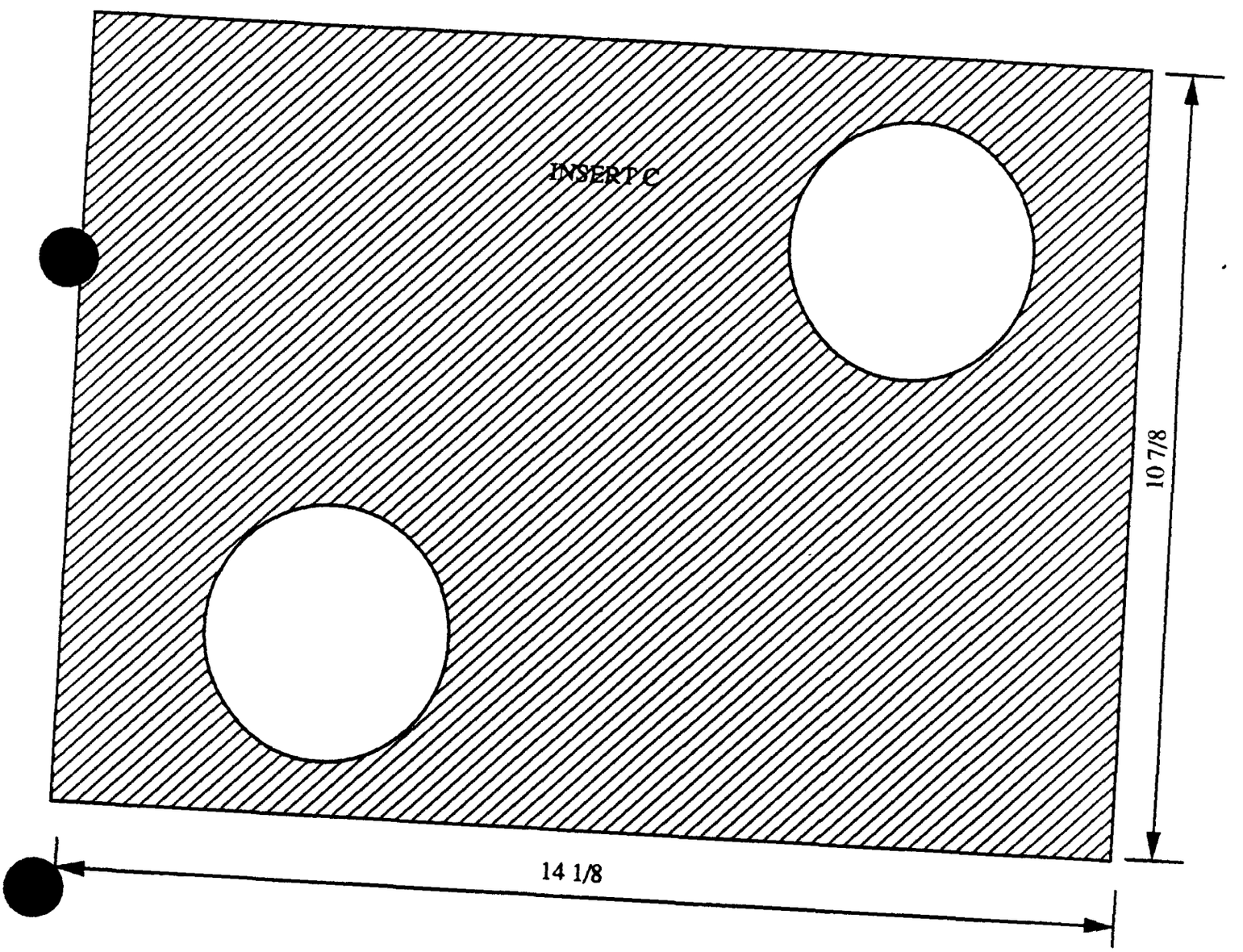


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
M M_2	BCL(5)	1

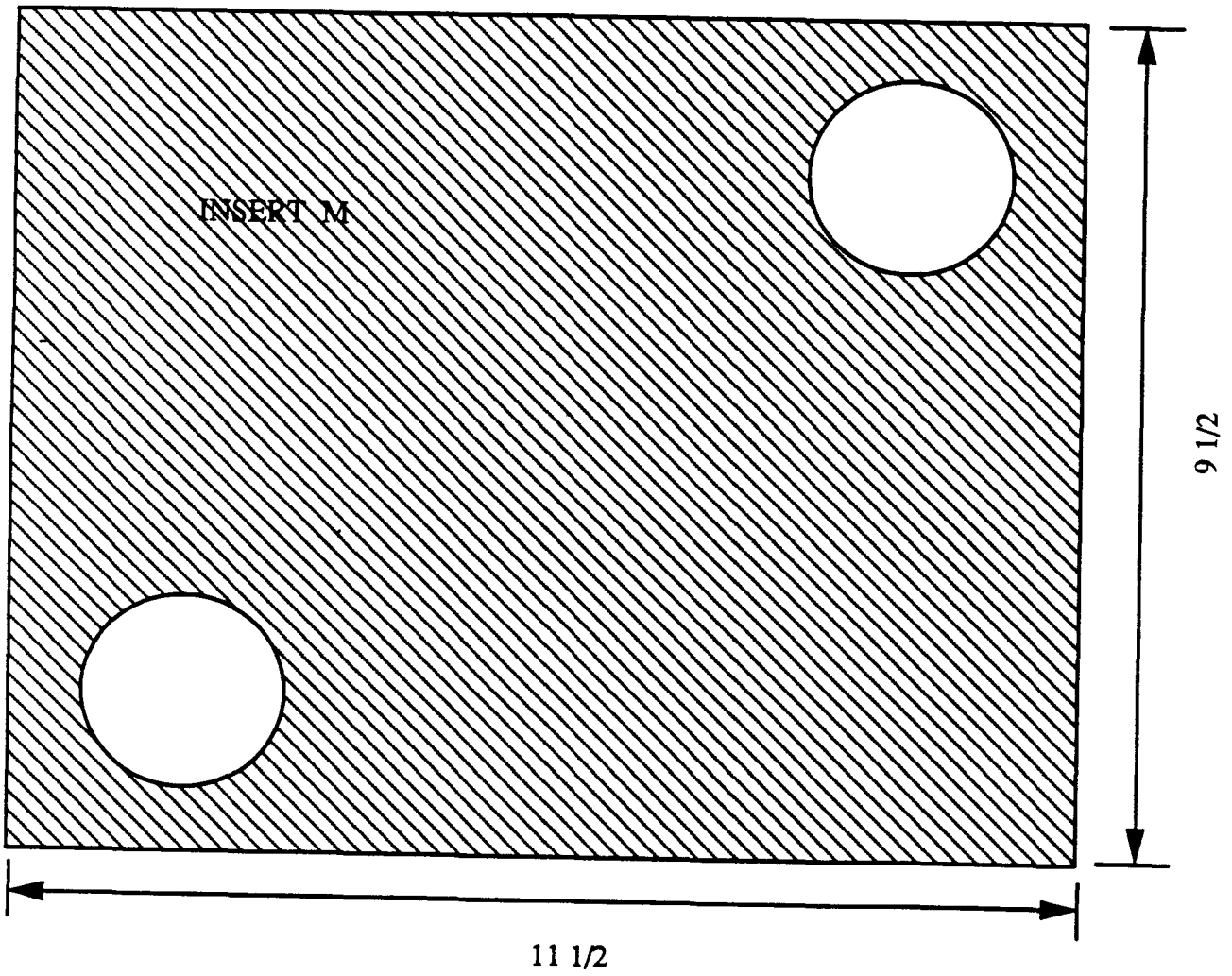


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
N	BCL(5)	2,3
N_2		

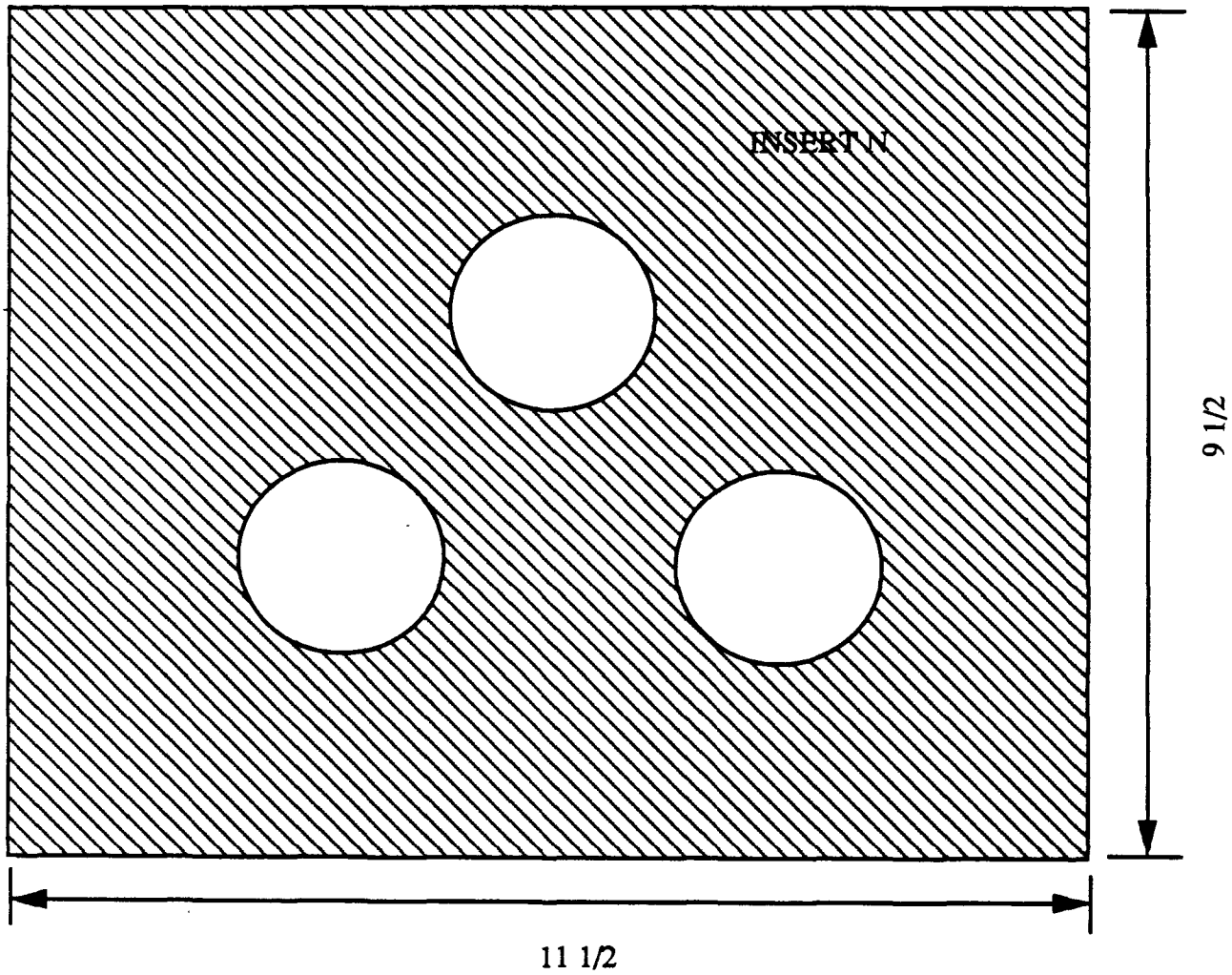


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
E T T_2	BSL(6)	1

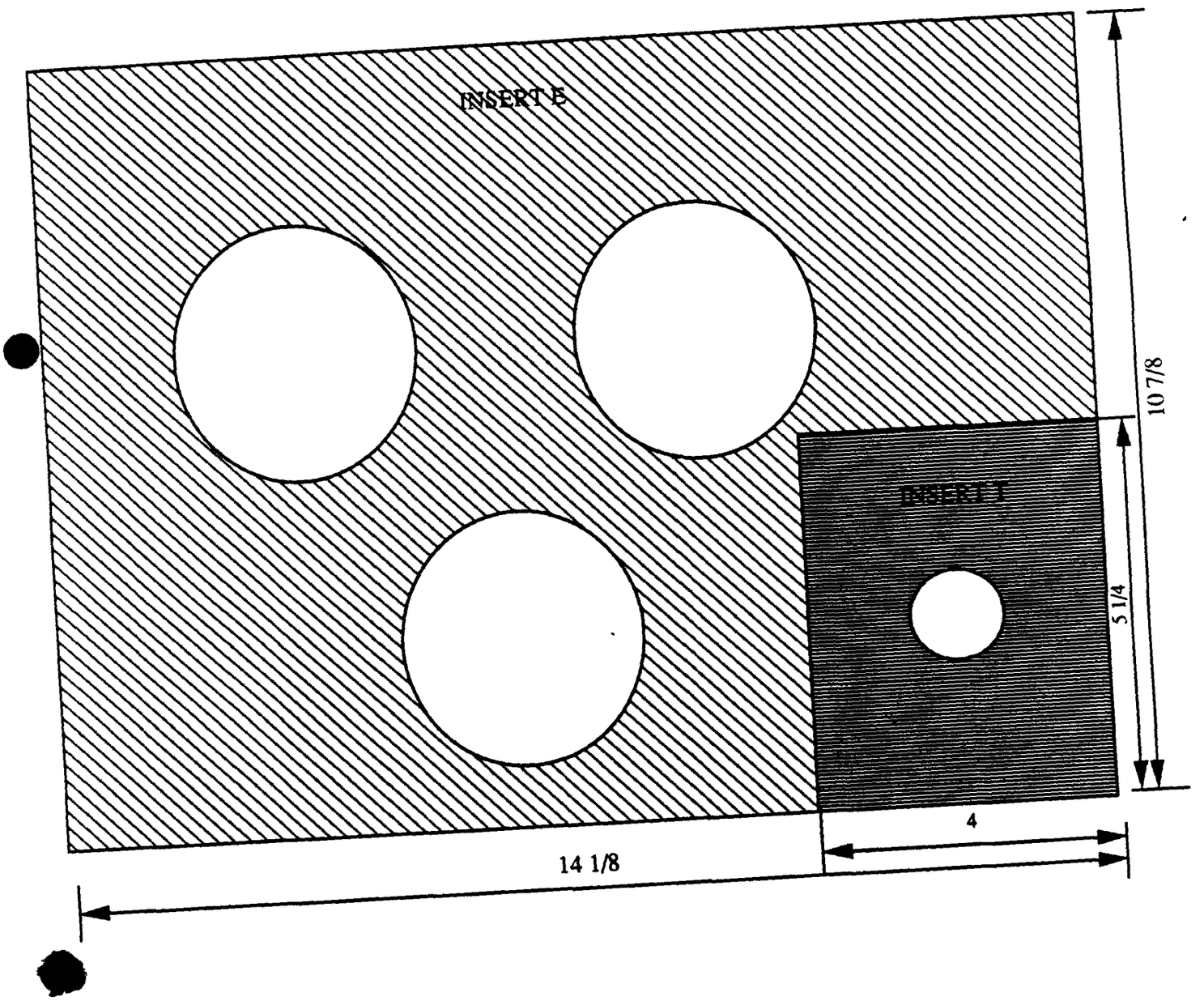
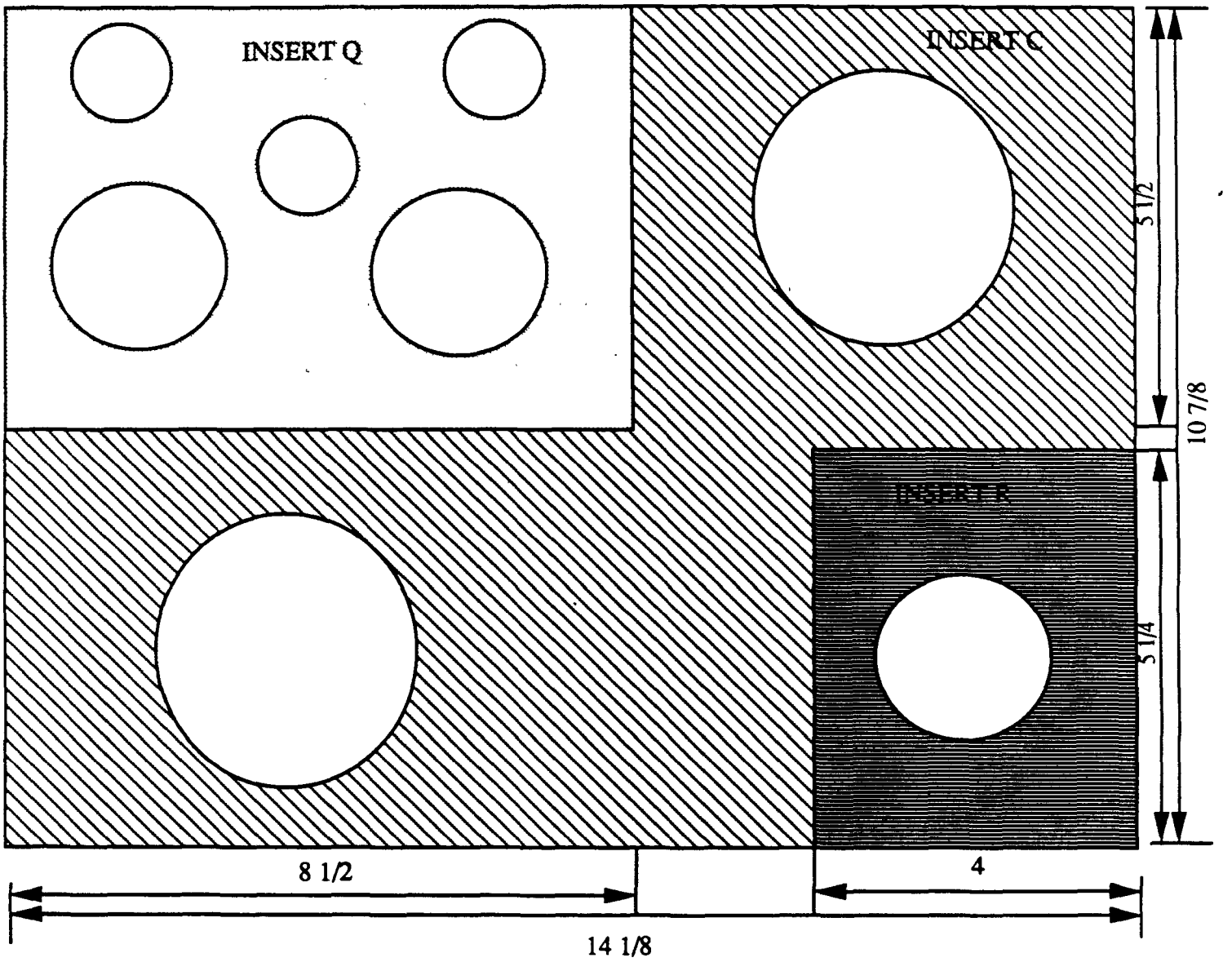


EXHIBIT 5 (continued)

SKETCHES OF STYROFOAM INSERTS

Scenario for which this combination is used:

Multiple Inserts Required	Lab (Lab #)	Sampling Scenario #
C Q R Q_2	TSD(7)	1



h. • Refer to NPS Kit Preparation "Sample Code Explanation" (Exhibit 6) to confirm the following:

- Confirm that the well ID # is correct.
- Confirm that the lab # corresponds to the correct lab.
- Confirm that the sampling scenario # corresponds to the correct kit.
- Verify that the correct bottle type is being used for the method listed on the sample bottle label.

i. • Samples designated as "shipping blanks" are to be filled with deionized water (forming a reverse meniscus so that no air bubbles occur in the bottle) in the prep room by the prep room assistant.

- Place a red sticker on top of the cap of the shipping blank to alert the field team that this sample should not be opened.

j. • Place the bottles in the appropriate holes in the inserts.

All bottles should rest securely in the holes.

There should be no empty holes.

All bottle tops should be at the same level (i.e., just under the inside of the styrofoam container lid).

- Place the top insert over the tops of the bottles.

The insert should rest around the throats of all bottles.

No holes in the top insert should be empty.

- Replace the lid of the styrofoam container.
- Make sure the lid fits properly (i.e., the bottle tops should not interfere with the proper closure of the lid).

k. • Carefully place the closed styrofoam container (with bottles) bottom down in the bottom of the appropriate plastic bag.

Larger bags are used for both the large styrofoam containers and small styrofoam containers.

l. • Carefully place the plastic bag and styrofoam container (with bottles) into the appropriate cardboard box.

The styrofoam container and plastic bag should fit comfortably in this box and should not be allowed to slide or move during shipment and handling.

EXHIBIT 6

DESCRIPTION OF SAMPLE CODE NUMBER

PD-0001-1-1-01

Well Type	ID Number	Lab Name	Method Number	Sample Type
PC = Community Well	0001	1 = JMM	1	01 = Field Sample
PD = Domestic Well	.	2 = ATI	2	02 = Shipping Blank
	.	3 = RAD	3	03 = Backup sample
	.	4 = ESE	4	04 = Lab spike (mix A, level 1)
	1500	5 = BCL	5	05 = Lab spike (mix A, level 2)
		6 = BSL	6	06 = Lab spike (mix A, level 3)
		7 = TSD	7	07 = Lab spike (mix B, level 1)
		8 = RRE	9	08 = Lab spike (mix B, level 2)
				09 = Lab spike (mix B, level 3)
				10 = Lab spike (mix C, level 1)
				11 = Lab spike (mix C, level 2)
				12 = Lab spike (mix C, level 3)
				13 = Time storage (0 duplicate)
				14 = Time storage - day fourteen
				15 = Time storage - day fourteen duplicate

Lab performing the analyses for the NPS:

1 = JMM (Montgomery Laboratories)
2 = ATI (Alliance Technologies, Inc./Clean Harbors, Inc.)
3 = RAD (Radian, Inc.)
4 = ESE (ES&E)
5 = BCL (Battelle, Columbus Division)
6 = BSL (Bay St. Louis (EPA/Environmental Chemistry Lab))
7 = TSD (EPA/Technical Support Division Lab)
8 = RRE (Risk Reduction Engineering Laboratory)

m. • Slide the excess portion of the plastic bag down the sides of the styrofoam container so that the field team will not inadvertently slash it when opening kits in the field and it will not interfere with the samples when the kits are being packed with ice.

• Write the appropriate kit number on each airbill. Place the preprinted Federal Express airbill for shipping the kit from the field to the lab, its clear plastic adhesive pocket, and the lab and field copies of the Sample Tracking Form inside a water-proof Ziploc bag. Tape the sealed Ziploc bag to the top of the styrofoam container. Place an extra plastic bag in the styrofoam container.

• Confirm that the address on the airbill corresponds to that of the lab to which the kit is to be sent from the field (refer to the Sample Tracking Form).

• Tape shut the top of the box and prepare for shipment to the field. Place the label with the appropriate lab name on the side of the box in the space provided. In the upper right corner of this label, place the color sticker that corresponds to this lab. Exhibit 7 indicates the color coding scheme for each lab. In the space provided in this label, fill in which kit number you have just prepared (refer to the Sample Tracking Form) and on the box the number of kits required by this lab for this site (e.g. JMM Box 1 of 3).

n. • Repeat steps c. through m. for lab #2 (ATI), lab #3 (RAD), lab #4 (ESE), lab #5 (BCL), and if necessary, the EPA labs, labs # 6 and 7 (BSL and TSD, respectively).

o. • Place all the field equipment and tools (wrenches, knives, pens, tape, etc.), in the nylon tote bag. The equipment bag is then placed in a coleman cooler secured with tape to avoid breakage. This ice chest is to be sent to the field site with the kits for each lab. The extra questionnaires in the NPS Field Logbook should be sealed in a Ziploc bag to protect them from moisture and replaced in the sleeve of the Field Logbook. Ensure that the proper equipment and supplies are included in the supply kit by referencing the supply kit equipment checklist (Exhibit 8).

p. • Affix a Federal Express air bill on the Coleman cooler containing the equipment bag. Affix a Federal Express multiple tracking bar code label on all the other kits for this site to be sent to the field, ensuring that they are addressed to the proper location for pick-up by the field sampling team.

q. • Select Printing Selections using the Schedule Tracking System. Then select Update Printed Data to Schedule. Enter the Well ID numbers for the kits that were just shipped to the field team. This updates shipping data to the Well Sampling Database.

r. • Escape to Schedule Tracking System. Select Post Kit and Bottle ID numbers to NPSIS1. Enter the Well ID Numbers that were just updated. This posts the kit numbers and sample bottle ID numbers to NPSIS1.

s. • Send the kit to the scheduled sampler roughly two weeks in advance of the sampling date.

EXHIBIT 7

COLOR CODING SCHEME FOR NPS LABS

Lab #	Lab Name	Color
1	JMM	Red
2	ATI	Black
3	RAD	Blue
4	ESE	Green
5	BCL	Fluorescent Green
6	BSL	Yellow
7	TSD	Orange

EXHIBIT 8

SUPPLY KIT EQUIPMENT CHECKLIST
(COMMUNITY AND DOMESTIC WATER WELLS)

EQUIPMENT

_____ 1 Beaker
_____ 1 Bucket
_____ 1 Chanel Locks
_____ 1 Wash Bottle
_____ 1 Duffel Bag
_____ 1 Garden Hose
_____ 1 Scissors
_____ 1 Screwdriver Kit
_____ 1 Slip-Joint Pliers
_____ 1 Supply Cooler

_____ 1 Digital Thermometer
Control #_____
1 Electrical Conductivity
Meter Control
Control #_____
1 pH Meter
Control #_____

SUPPLIES

_____ 2 Airbills
_____ 2 Ballpoint Pens
_____ 2 Sharpies
_____ 1 Magic Marker
_____ 1 Packaging Tape
_____ 1 Roll Paper Towels
_____ 5 Large Plastic Bags
_____ 5 Small Plastic Bags
_____ 5 Pr. Surgical Gloves
_____ 5 60 mL Bottle Caps
_____ 5 250 mL Bottle Caps
_____ 2 ICF Return Labels
_____ Wide Mouth Bottle
_____ Chlorine Test Kit
(Black Box) CWS
(Blue Box) DWS

INCLUDE THE ADDITIONAL ITEMS LISTED BELOW WITH DOMESTIC WELL SAMPLING KITS ONLY

_____ 1 Compass
_____ 1 First Aid Kit
_____ 1 Measuring Tape
_____ 1 Extra Beaker
_____ 4 Extra Rolls of Packaging Tape
_____ 2 Extra Rolls of Duct Tape
_____ 5 Extra Large Bags
_____ 5 Extra Small Bags
_____ 5 Pr. Surgical Gloves

_____ Additional Probes:
1 - Digital Thermometer Control #_____
1 - Electrical Conductivity Meter Control #_____
1 - pH Meter Control #_____

_____ Tape Disp.

t. • Select List or Edit Existing Kit using the Sample Kit Tracking System. In order to enter the Federal Express airbill number for shipment from ICF to the Sample Team and from Sample Team to NPS Laboratories, and the bottle lot numbers, enter the Kit ID number to select specific kits or press enter to view all existing Kit ID numbers.

u. • The Prep Room Assistant should retrieve the messages from the ICF toll-free hotline at the hours of 9:00 a.m., 12:00 noon, and 3:00 p.m. and log each in the NPS Phone Logbook. The Sampling Team is instructed to call the ICF toll-free hotline at (800) 934-3750 when they receive the kit. At this time, confirm in NPSIS1 the receipt of kits by the Sampling Team. To do this, select List or Edit Existing Kit at Sample Kit Tracking System and enter Y or N.

• If the sampling team does not call within three business days of the expected date of receipt, then it is the responsibility of the prep room personnel to call and verify receipt of kits. Federal Express Standard Air service will be used for shipments to the field from ICF except in cases when an overnight shipment is deemed necessary. (The Federal Express Customer Service Number is 1-800-238-5355.)

v. • When sampling is completed and kits are sent from the field to the labs, the sampling team is instructed to call the ICF toll-free hotline to confirm shipment of kits to the labs. At this time, the prep room personnel should confirm in NPSIS1 the shipment of kits from the field to the labs. To do this, select List or Edit Existing Kit at Sample Kit Tracking System and enter Y or N.

w. • At the end of every business day, a Kit Damage Report and a Missing or Damaged Bottle Report are printed. To print the Kit Damage Report, select Print Kit Damage Report under Sample Kit Tracking System and enter the Kit ID Numbers to be printed. To print the Missing or Damaged Bottle Report, select Print Missing or Damaged Bottle Report under Sample Bottle Tracking System and the Kit ID numbers to be printed.

x. • At close of business on each Friday, the following reports must be printed:

-- Kit Tracking Report;
-- Method 5 pH Value Report;
-- Misplaced Bottle Tracking Report; and
-- Sample Bottle Tracking Report.

Select Sample Kit Tracking System to print the Kit Tracking Report, the Method 5 pH Value Report and the Misplaced Bottle Tracking Report and enter the Kit ID numbers to be printed.

Select Sample Bottle Tracking System to print the Sample Bottle Tracking Report and enter the kit ID numbers to be printed.

y. • The well purging data must be entered after a Field Logbook for each well site is received from the field team. To enter these data, select Edit Existing Well Schedule under Schedule Tracking System. Then enter the well ID number or press enter to view all existing well ID numbers. Press enter at the appropriate well ID number in order to edit data for that well. Then press PgDn until the Enter Well Purging

Parameters screen is reached. Enter the data from the Well Purging Parameters Record found in the Field Logbook for this well.

- To print this report, select Printing Selections under Schedule Tracking System. Then, select Print Well Purging Parameters to print. A copy of this report should immediately be given to Kim Green or Bruce Rappaport for review.

z. - At the close of business on every other Friday, print the Equipment Tracking Report. Select Print Equipment Tracking Report under Equipment Tracking System to print the Equipment Tracking report.

aa. - At the end of the week, print the Process Completed Report. To do this, select "Print Process Completed Report" under "Sample Kit Tracking System". Then, enter the starting and ending dates of the specified period to compile the Process Completed Report. Press F4 to print.

2. QA Procedures

The kit preparation procedure will be audited by Ms. Jengeleski. This audit will involve ensuring that the kit packer is placing the correct bottles and inserts in the appropriate styrofoam containers according to the sampling scenario listed on the schedule of well sites to be sampled. The audit also ensures that the correct kits are shipped to the correct location and that the sample tracking system is flawless. Ms. Jengeleski will audit sample kits for one out of every ten well sites.

In addition, incorporated into the kit preparation procedures themselves are several quality assurance measures. The styrofoam inserts are custom designed to ensure that the correct quantity of each bottle type for each kit is packed. The Sample Tracking Form and the sample bottle labels are printed from the same data base to ensure consistency. The Well Sampling Information Sheet sent to the field lists the bottle requirements of each lab for that site. The labels on the cardboard boxes are color coded (according to the lab to which they will be sent) and the boxes have a space designated for indicating the number of kits required by a lab for a given site. Several different types of reports will be generated on a regular basis:

1) **Kit Tracking Report** is a report of all kits shipped to the field for which results from the lab have not yet been reported. This report will be run daily and is used for tracking kits in the system. All pertinent tracking information will be included: date of shipping from ICF, date of scheduled sampling, sampling team, and sampling team address, etc. All outstanding kits will be monitored for possible delays or other problems throughout the cycle.

2) **Damaged Kit Report** is a report that is printed daily in order to monitor sample kit damage. This report is printed for a kit only when damages are indicated on the Sample Kit Tracking Report.

3) **Misplaced Bottle Tracking Report** is a report that is printed daily in order to monitor any misplaced bottles. This report is printed only when damages are indicated on the Sample Kit Tracking Report.

4) **Sample Bottle Tracking Report** is a report that is printed daily in order to monitor sample kit bottles.

5) **Missing or Damaged Bottle Report** is a report that is printed daily in order to monitor sample kit bottles. This report is printed for a kit only when damages are indicated on the Sample Kit Tracking Report.

6) **Progress (Process) Completed Report** is a report run weekly to summarize all kits that have been completed through the NPSIS1 system for that week.

7) **Lab Spike and Time Storage Mix/Level Distribution** is a report that is printed weekly in order to monitor distribution of lab spikes and time storage samples.

8) **Well Schedule Report** is a report that is printed bi-weekly in order to monitor the sampling schedule of wells.

9) **Lab Schedule Report** is a report that is printed bi-weekly in order to monitor the kits the laboratories will be receiving for analysis.

10) **Method 5 pH Value Report** is a report that is printed monthly in order to display pH values for well water samples.

11) **Well Purging Parameters Report** is a report that is printed in order to monitor well purging parameters.

12) **Incomplete Well Purging Data Report** is a report that is printed monthly to monitor wells with incomplete well purging data.

13) **Equipment Tracking Report** is a report that is printed weekly to monitor field equipment shipments and damages on a weekly basis.

14) **NPS Completed Wells Report** is a report that is printed weekly to count the wells that have sampling completed and samples received by the NPS labs on a weekly basis.

15) **Electronic Mail System (EMAIL) Report** is a report that is printed each time an Electronic Mail Message is sent from the NPS prep room to the NPS laboratories. This computerized system serves as a communication network between the NPS prep room and the NPS laboratories. EMAIL is used to transmit critical messages from the NPS prep room to the NPS labs about schedule changes, kit damages, and other logistical problems. When a problem is encountered, the prep room staff will routinely call the NPS labs to convey the problem and send a follow up message via EMAIL.

3. Personnel Training

Individuals who will be trained for sample kit packing are required to read a current prep room Standard Operating Procedure prior to performing kit packing. Initially, the Kit Prep Room Manager assists the new kit packer with the kit packing procedure. It is the Kit Prep Room Manager's responsibility to verify that new kit packers are capable of packing flawless kits. Once this has been verified, the Prep Room Manager and the kit packer will sign the SOP to acknowledge that the SOP is understood and will be adhered to in all kit packing procedures.

STANDARD OPERATING PROCEDURE

1. TITLE: Calibration Procedure for the Temperature Meter

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

Temperature - A measure of the intensity of heat of a substance considered with reference to its ability to conduct heat to other bodies. Temperature is measured on a number of scales: Fahrenheit, Celsius, and Kelvin.
Celsius to Fahrenheit conversion = 9/5 * °C + 32.
Fahrenheit to Celsius conversion = (°F - 32) * 5/9.
For purposes of NPS uniformity, the Celsius scale will be used.

4. GENERAL REQUIREMENTS:

A. **Methodology**

Temperature meters are electronic instruments that require periodic maintenance and calibration. Maintenance and calibration will be performed at the equipment maintenance lab at the ICF Fairfax, VA office. This equipment will be calibrated before shipment to the field for use in well water sampling. If more than one month has elapsed between calibrations, then the instrument must be recalibrated before it can be used in the field.

Accurate records of all completed calibrations will be maintained. A calibration sticker showing the date of last calibration, the due date for the next scheduled maintenance and technician's initials will be affixed to each instrument. Expiration of the calibrated probe will be six weeks from the date of calibration.

B. **Equipment and materials required**

1. Digital temperature meter stick
2. Three 1000 mL beakers
3. Three precision mercury thermometers

5. PROCEDURE

A. **Preliminary Steps**

1. Fill one beaker with ice water (0°C - 5°C).
2. Fill the other beaker with tap water at approximately room temperature (19°C - 24°C).
3. Fill another beaker with half ice and 1/2 water (10°C - 15°C).
4. Insert a thermometer in each of the baths, and note the temperature of each.

B. **Operation**

1. Remove the temperature probe from its protective sheath.

2. Place the probe first in one bath, allow the temperature to stabilize, then compare the reading with that of the mercury thermometer standard.

3. The two temperature values should coincide. If they do not, adjust the temperature stick to read the proper value.

4. Now remove the probe from the first bath and place it into the second. Allow the temperature reading to stabilize before comparing the reading with the standard. Compare the two values as a test; the values should match. If they do not, adjust the temperature stick to read the proper value and repeat Steps 3 and 4.

5. Repeat Step 4 with the third bath.

6. Place a calibration sticker on the meter and record the calibration data in the calibration log.

7. Sign and date the log book after recording calibration data.

C. **QA/QC Procedures**

1. The ICF NPS Prep Room Manager will review and sign the log book once each week.

2. The ICF NPS Prep Room Manager will conduct a random calibration test once each month for one temperature meter. If after approximately one year of sampling, monthly random probe calibration tests indicate the prep room personnel accurately perform probe calibration, the monthly checks will be discontinued.

STANDARD OPERATING PROCEDURE

1. TITLE: Calibration Procedure for the pH Meter

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

pH	-	A value representing the acidity of an aqueous solution ranging in value from 1 (acid) to 14 (basic) with 7 being neutral.
pH buffer solution	-	A solution that is used specifically to test the accuracy of a pH meter. pH buffer solutions come in different pH values with the pH of the solution printed on the label.

4. GENERAL REQUIREMENTS:

A. **Methodology**

pH meters are electronic instruments that require periodic maintenance and calibration. Maintenance and calibration will be performed at the equipment maintenance lab at the ICF Fairfax, VA office. This equipment will be calibrated before shipment to the field for use in well water sampling. If more than one month has elapsed between calibrations, then the instrument must be recalibrated before it can be used in the field.

Accurate records of all completed calibrations will be maintained. A calibration sticker showing the date of last calibration, the due date for the next scheduled maintenance, and the technician's initials will be affixed to each instrument. Expiration of the calibrated probe will be six weeks from the date of calibration.

B. **Equipment and materials required**

1. Digital pH meter stick
2. Four 120 mL plastic sample bottles
3. pH 4, pH 7, and pH 10 buffer solutions
4. Deionized water

5. PROCEDURE

A. **Preliminary Steps**

1. Prepare four 120 mL bottles:

   a. one containing 75 mL of pH 4 buffer solution;
   b. one containing 75 mL of pH 7 buffer solution;

c. one containing 75 mL of pH 10 buffer solution; and
d. one containing 75 mL of deionized water.

B. Operation

1. Remove the pH probe from its protective sheath.

2. Place the probe first in the pH 7 buffer solution. With the probe, gently stir the solution in the beaker for several seconds (longer if the probe is dry) in order to normalize the measurement before taking a reading. Be careful not to bang the probe tip against the side or bottom of the beaker to avoid damaging the probe. Under no circumstances should the meter be immersed above the display level.

3. Take a reading; the display should read "7.0." (The standard error for this instrument is $\pm$ 0.2 pH units). If it does not, adjust the offset trimmer on the meter until the display reads "7.0."

4. Now remove the probe from the pH 7 buffer and rinse it in the deionized water; then shake off the excess water.

5. Place the probe in the pH 4 buffer solution as a test. It should now read "4.0" ($\pm$ 0.2 pH units).

6. Repeat with pH 10 buffer solution.

7. Place a calibration sticker on the meter and record the calibration data in the calibration log.

8. Sign and date the log book after recording calibration data.

C. QA/QC Procedures

1. The ICF NPS Prep Room Manager will review and sign the log book once each week.

2. The ICF NPS Prep Room Manager will conduct a random calibration test once each month for one pH meter. If after approximately one year of sampling, monthly random probe calibration tests indicate the prep room personnel accurately perform probe calibration, the monthly checks will be discontinued.

STANDARD OPERATING PROCEDURE

1. TITLE: Calibration Procedure for the Conductivity Meter

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

Conductivity - In electrolytic solutions, conductivity is a measure of the amount of free ions present. It is measured by the current carried by ions, as in solutions of acids, bases, and salts. Conductivity of solutions is typically measured in Micro Mhos per cm. The Mho is the unit of measure of conductance, and is the reciprocal of resistance in Ohms.

Conductivity can also be measured in Parts per Million (ppm) of total dissolved solids (TDS). Conductivity in Micro Mhos per cm $\approx$ 2 * (Dissolved solids in ppm of NaCl) where 1ppm = 1mg/liter.
The factor 2 is used as a rule of thumb, coming from the various conversions involved: the value is about 2.2 for low concentrations and less than 2 for high concentrations.

4. GENERAL REQUIREMENTS:

A. **Methodology**

Conductivity meters are electronic instruments that require periodic maintenance and calibration. Maintenance and calibration will be performed at the equipment maintenance lab at the ICF Fairfax, VA office. This equipment will be calibrated before shipment to the field for use in well water sampling. If more than one month has elapsed between calibrations, then the instrument calibration must be rechecked, before it can be used in the field.

Accurate records of all completed calibrations will be maintained. A calibration sticker showing the date of last calibration, the due date for the next scheduled maintenance, and the technician's initials will be affixed to each instrument. Expiration of the calibrated probe will be six weeks from the date of calibration.

B. **Equipment and materials required**

1. Digital conductivity meter stick
2. Three 120 mL plastic sample bottles
3. Test solutions of 100 and 1000 micro Mho per cm conductance
4. Thermometer
5. Deionized water

5. PROCEDURE

A. Preliminary Steps

1. Pour 75 mL of test solution into each plastic bottle.

2. Fill the remaining bottle 2/3 with deionized water.

B. Operation

1. Remove the conductivity probe from its protective sheath.

2. Take the temperature of both of the solutions. Conductivity is temperature dependent. For accurate results the temperature should be 20-30°C.

3. Place the probe first in the 100 uMho solution. Gently stir the solution with the probe for several seconds in order to normalize the measurement before taking a reading. Be careful not to bang the probe tip against the side or bottom of the beaker to avoid damaging the probe.

4. The conductivity meter measures in ppm (TDS), the calibration standards are in units of micro Mhos per cm. To determine the correct reading, divide the standard value by 2. For example, when using a calibration standard of 100 uν/cm, the meter should read 50. (Note: The display shows the value on the X10 scale, display value should be multiplied by 10).

5. Now remove the probe from the first solution and rinse it in the deionized water, then shake off the excess water.

6. Note the reading of the probe while in the deionized water. If it is not zero, the water should be discarded. If after rinsing in fresh deionized water, the meter still does not read zero, the meter should be rechecked in both solutions.

7. Place the probe in the 1000 uMho solution as a test. It should now display a number which corrects to the ppm equivalent of 1000 uMhos per cm.

8. Place a calibration sticker on the meter and record the calibration data in the calibration log.

9. Sign and date the log book after recording calibration data.

C. QA/QC Procedures

1. The ICF NPS Prep Room Manager will review and sign the log book once each week.

2. The ICF NPS Prep Room Manager will conduct a random calibration test on one conductivity meter each month. If after approximately one year of sampling, monthly probe calibration tests indicate the prep room personnel accurately perform probe calibration, the monthly checks will be discontinued.

STANDARD OPERATING PROCEDURE

1. TITLE: Community and/or Domestic Well Sample Collection Procedures

2. AREAS OF RESPONSIBILITY: NPS Project

3. GENERAL REQUIREMENTS:

A. **Methodology**

Collect water samples from preassigned Community Water System wells or Domestic wells as listed by the NPS final sample stratum well list. Step-by-step procedures must be available for water sample collection. Sample collection procedures must describe any prefield sampling requirements as well as packaging and shipping procedures. Well sampling dates and well contacts must be known. Water samples are collected in prepreserved sample containers. Sampling information is recorded permanently in the field logbook. Information about the well and land usage around the well is also collected on provided questionnaires.

B. **Equipment and Materials Required**

i. Airbills for supply kit and logbook
ii. Ballpoint pens (2)
iii. Beaker (1 liter)
iv. Bottle labels (spare)
v. Bucket (plastic tote box)
vi. Channel locks (pump pliers)
vii. Community Water System or Domestic Well Questionnaire
viii. Compass
ix. Digital thermometer meter
x. Duct tape
xi. Electrical conductivity meter
xii. Field Logbook including sampling instructions
xiii. Garden hose (domestic wells only)
xiv. Indelible ink pens (2)
xv. Local Area Community Well System Questionnaire or Domestic Well Questionnaire
xvi. Marker
xvii. Measuring tape
xviii. Overnight Courier-Pak Envelope
xix. Packaging tape
xx. Paper towels
xxi. pH meter
xxii. Plastic bags (spare)
xxiii. Sample container kits (styrofoam cooler)
xxiv. Sample collection bottles (60-1,000 mL)
xxv. Sample Tracking Form (1 per sample container kit)
xxvi. Scissors
xxvii. Screwdriver kit
xxviii. Slip-joint pliers
xxix. Spare airbills and labels
xxx. Spare sample bottle caps

xxxi. Supply cooler (ice chest)
xxxii. Surgical gloves (5 pairs)
xxxiii. Utility knives (2)
xxxiv. Wash bottle (plastic)
xxxv. Well Observation Record for Community Well System or Domestic Wells (Ice and deionized water are to be supplied by the field team)

4. PROCEDURE

Contained in two separate training manuals are the Standard Operating Procedures for collecting well water samples for the Survey. The first manual is the "Field Well Site Water Sampling Manual for Community Well Systems" and the second manual is the "Field Well Site Water Sampling Manual for Domestic Wells." These manuals contain the step-by-step instructions for collecting drinking water samples.

STANDARD OPERATING PROCEDURE

1. TITLE: Computerized Tracking System for Bottles and Kits

2. AREAS OF APPLICABILITY: NPS Project

3. DEFINITIONS:

NPSIS1	-	National Pesticide Survey Information System (NPSIS1). The group of Clipper compiled programs, dBase III Plus data bases, DOS commands, and other assorted programs which make up the software system that tracks the day-to-day operations of the NPS project.
Server	-	The IBM Personal System Model 60 computer which acts as a centralized storage area for the data files created and used by NPSIS1.
Network	-	IBM Token Ring Network software and hardware which allows all of the personal computers in the ICF facility to be linked electronically in such a fashion that information stored on one computer can be accessed by another.
Remote User	-	Any person outside the ICF facility who links into the NPSIS1 computers by using a personal computer, a phone line, and a copy of Carbon Copy software.
Carbon Copy	-	A piece of software used by ICF and the contract laboratories to establish communications between personal computers outside the ICF facility and the NPSIS1 computers.
Model 60	-	The IBM Personal System Model 60 computer being used as the file server for NPSIS1.
AT	-	The IBM AT personal computer used for remote access to NPSIS1.

4. GENERAL REQUIREMENTS:

A. **Methodology**

Data entry and use of the NPSIS1 computers will take place in the NPS preparation room, (Room 131) at ICF headquarters (at Hunters Branch in Fairfax, VA). The prep room attendant will generally be performing the tasks outlined in this document. He or she will need to access and utilize the personal computers which comprise the hardware of NPSIS1. NPSIS1 has a minimum requirement of computer hardware equipment and software. As a hardware requirement, the system must have at least two personal computers, at least two monitors, at least two keyboards, one or more printers, one modem, one data transmission line, at least two network adapter cards and outlets, power outlets, and a printer stand. The software requirements for NPSIS1 are: one copy of the Clipper compiler, dBase III Plus software, DOS 3.3 or above, the IBM Token Ring software, Carbon Copy software, and the Electronic Mail System.

B. **Equipment and materials required**

1. IBM Model 60 System Computer
2. IBM Model AT Computer
3. Network adapter card (2)
4. Hayes 2400 Modem
5. dBase III+ software
6. Clipper Compiler software
7. Carbon Copy software (8)
8. DOS 3.3 software
9. Modem and network cables
10. Epson FX286e Dot Matrix printer
11. Phone line access compatible for data transfer
12. Label and printer forms
13. NPS Information System software

5. **PROCEDURES:**

A. As well site and scheduling information becomes available the prep room attendant will perform the following tasks:

1. Press selection one "Schedule Tracking System". Then press the first selection entitled "Append/Add NPS Well Schedule". Then enter any available information as prompted by NPSIS1 such as: well owner, well address, date of sampling, date on which kits will be sent to the field, type of well (community or domestic), samplers name, samplers address, nearest Federal Express office, etc. This information can be obtained from Ms. Jengeleski.

2. Continue entering data until the screen where lab and sampling scenarios are chosen for each well site is accessed. Next to the three-digit abbreviation for each of the seven labs, enter the scenario number in the next field. If one or more of the labs are not designated to receive samples from a particular well site, delete or space over the three-digit lab name and lab spike method if necessary. Then, enter the lab spikes desired next to the appropriate method. This information can be obtained from Ms. Jengeleski.

3. After data entry for the lab, sampling scenario no., analytical method, and lab spike types is completed, the system will verify the lab spike types with the corresponding lab and scenario numbers. If there is any "ERROR!" message

on the screen under the lab spike indicating that an inappropriate lab spike type was entered for this lab and this scenario, the data should be checked and reentered.

4. If any of the above mentioned data needs to be edited or verified on the screen, press "Schedule Tracking System" and then press "Edit Existing Well Schedule". Enter the Well I.D. No. or press 'Enter' to display all wells and then move cursor to the desired well, then press 'Enter' to edit. Page down or cursor through the data entry screens and edit as necessary.

B. When all of the information for a well site has been finalized, during the period before a set of kits for a particular well must be packed, the following tasks must be completed:

1. Print out all of the following: Well Information Sheet for each well site, Sample Tracking Forms for all kits, bottle labels, mailing labels for each box/kit to the field, lab destination labels for each kit, and the field logbook label. These printouts can be obtained by pressing the sixth selection "Printing selections". Before each of the above mentioned reports is printed, the paper must be aligned to the top of the page or form before the characters are sent to the printer.

C. On the day the boxes for a well site are packed and to be shipped into the field:

1. Update all printed selections by pressing "Update Printed Data to Schedule". This automatically generates a flag to indicate the above forms and labels were printed and the date when a kit has been sent to the field. This flag makes it impossible to print out any tracking forms and bottle labels on the next printing selections.

2. Post kit identification numbers and bottle identification numbers (which have been automatically generated by NPSIS1) to the kit and bottle tracking systems, respectively. This is done by pressing "Post Kit and Bottle ID #s to NPSIS1" after pressing "Schedule Tracking System".

3. Enter the FedEx airbill numbers for the kits as they are shipped to the field and from the field to the laboratories. This is done by pressing "Sample Kit Tracking System" in the Main Menu, and then pressing the first selection "List or Edit Existing Kit". Once done, the airbill number can be entered into the appropriate data entry field to search the kit.

4. While in this data entry screen, enter the bottle lot numbers corresponding to each kit. Separate lot numbers must be entered for each bottle size. Lots must be used contiguously. This is done by pressing the second selection.

5. If the attendant wishes to add, edit, print or view any information related to the inventory of kits, boxes, or bottles select the menu item entitled "Inventory Tracking System". To enter data on kit, box, or bottle shipments select "Enter Ordering/Recycling No." in the next menu. To edit any data entered earlier select "Edit NPS Inventory List by Date". To view or print inventory status, number of kits, boxes, and bottles in transit, total levels or kits, boxes, and bottles, select "Inventory Information Report".

D. At this point, if there is any equipment which must be shipped to the field with the kits:

1. Enter the equipment identification number and description into the appropriate fields in NPSIS1 by pressing the fifth selection in the Main Menu "Equipment Tracking System" and then selecting the first option "Add NPS Equipment List".

2. If the attendant would like to determine the states of the equipment press "Equipment Tracking System" in the Main Menu, and then select "View Equipment List By Sampler".

3. If the attendant would like to transfer the sampler designation for a piece of equipment, select "Equipment Tracking System" in the Main Menu and the select "Edit Existing Equipment" and enter the appropriate information.

E. When the field team calls the NPS hotline number and reports that they have received kits or sent kits to the laboratories, this information must be entered into the system:

1. If the field team reports that they have not received kits shipped from ICF, the flags for these kits must have a value of "N". This can be done by selecting "Sample Kit Tracking System" selection from the Main Menu and then choosing the selection "List or Edit Existing Kit".

2. If the field team reports over the hotline that they have shipped kits from a well site to the laboratories, the prep room attendant must flag all of these boxes with a "Y" in the data entry screen entered by pressing "Sample Kit Tracking System" and then pressing item three "List or Edit Existing Kit".

F. The CWS well name and well purging parameters information need to be entered into the system when that information (contained in the NPS Field Logbook) is received at ICF.

1. Select "Schedule Tracking System" under the main selection menu and then press "Edit Existing Well Schedule". Enter the Well I.D. No. or press 'Enter' to display all wells and then move cursor to the desired well, then press 'Enter' to edit. Enter the CWS Well Name.

2. Page down the screens to "Enter Well Purging Parameters: ", confirm the Well I.D. No., Sampling Date, and Location with the system. Enter the Well Purging Parameters form the field logbook to NPSIS1.

G. Next, when the laboratories report that they have received kits sent to them from the field:

1. The labs should be performing their own data entry through remote access. However, should a laboratory call and request that the prep room attendant enter the appropriate information on kit receipt for them, the attendant should enter the data entry process for the labs by pressing the third selection on the Main Menu "Laboratories Sample Receipt" and then pressing the first item "Report/Edit a Sample Receipt". The kit number must be entered along with the FedEx airbill number as well as the last name of the person entering the data. If the airbill number does not match, leave the entry blank and enter the correct number in the next screen. NPSIS1 will prompt for the condition of

the kit and any comments, verification of the contents of the kit, and the condition of any bottles along with comment. Save the results when you have verified the correctness of the entries.

2. If the laboratories appear to be having any difficulties, go to the AT keyboard and press "Alt" and "Right Shift" together. This will place the Carbon Copy communication features and utilities on the screen. The cursor should be in a box labeled "Host Dialogue". Just type in the intended conversation to the remote user here. The remote user will type any dialogue in the box below labeled "Remote Dialogue". You will be able to see the words as the remote user types. When you are finished and wish to return to the NPSIS1 screen, press ALT F9 simultaneously.

3. Next, view on the screen or print a list of the kits that have been reported as received by the laboratories. This must be done to insure that all of the kits reached the labs in the required time frame, and that the labs are calling in as required by their contracts. To do this, select Main Menu item two, "Sample Kit Tracking System" and then select the menu item "List or Edit Existing Kit" to monitor the kit's process, or "Print Kit Tracking Report" for a hard copy. If the date associated with a kit is 1/1/80, then the laboratory has not called in to report receipt of that kit. These labs should be called by the prep room attendant.

4. At the end of the day, or when all of the labs have called in their receipts, print the report which displays information on any kits that have arrived at the labs damaged. To do this, select the second selection in the Main Menu titled "Sample Kit Tracking System" and then cursor down to the sixth menu item "Print Kit Damage Report". Make sure the printer is aligned properly and ready to receive the report. Print the report.

5. Also, print out the report which displays information on misplaced, additional, or switched bottles found in kits. Any bottle which was intended for a kit according to the tracking form, but which did not arrive in the kit, or any additional bottles which have arrived in the kit and were not on the tracking form will appear in this report. To print this report, choose selection two in the Main Menu "Sample Kit Tracking System" and then move the cursor down to the eighth menu selection "Print Error Bottle Tracking Report". Align and prepare the printer for receiving the report, and then print the report.

6. An additional table displaying information on each bottle, and any comments on its condition must also be printed by choosing the fourth item on the Main Menu entitled "Sample Bottle Tracking System" , and then choosing the first item on the next menu "Print Bottle Tracking Report".

7. Next, the prep room attendant must print a report displaying a list of missing and damaged bottles, as well as relevant information on the cause for damage. This can be done by selecting menu item four on the Main Menu "Sample Bottle Tracking System" and then selecting the second item on the next menu "Print Missing or Damaged Bottle Report".

8. At the end of each month, print the "Process Completed Report". To do this, select "Print Process Completed Report" under "Sample Kit Tracking System". Then, enter the starting and ending dates of the specified period to compile the report. Press F4 to print.

H. At the end of each day, the prep room attendant or computer systems staff (Cindy Jengeleski, Beth Estrada or Suha Beidas) must perform the following tasks:

1. Back up all of the database files located on the hard disk of the server and located in the NPS directory. To do this, insert a formatted disk (these disks can be obtained from Beth Estrada or Suha Beidas, or the attendant can format them by issuing the command FORMAT at the DOS prompt) and type the following command at the DOS prompt:

   COPY C:\NPS*.DBF A:

   Then, label the diskette by the date and contents. Do this two times and place one of the backup diskettes in the diskette holder located in the prep room, and give one copy to Beth Estrada.

2. Check the electronic mailboxes of 131A and 131B and print a copy of any new memos to Cindy Jengeleski, Bonnie Calendine, Kim Green, Bruce Rappaport, and Chip Lester. Also, put a copy of any new memo sent by ICF or received from the labs into the blue binder labeled "NPS Memos". To do this, in DOS type:

   Mail 131A

   Then enter the password: NPS. Note that this will not appear on the screen for security reasons. The attendant will then access the mail system. Cursor over to the menu selection "Print" and then press the space bar beside any memos you wish to print. The computer will ask the user if they wish to route the memos to a computer file or a printer. Select printer. It will then ask the user if they wish to start printing now, respond "Yes". The attendant can pick up your printouts on the third floor xerox and printing room.

3. Turn the brightness on the monitors down on the Model 60 and the AT at the end of each day. The remote users will still be able to see the menu at their end of the communications. This will prevent wear on the computer screens.

4. It is essential that the prep room attendant print the two reports described in section G items 4 and 7 of the procedures section.

STANDARD OPERATING PROCEDURE

1. TITLE: Well Sampling Training

2. AREA OF RESPONSIBILITY: NPS Project

3. DEFINITIONS: None

4. GENERAL REQUIREMENTS:

A. **Methodology**

To implement the collection of ground-water samples from Community Water System (CWS) wells and domestic water system (DWS) wells, the ICF Project Team has developed a well sampling training course. All sampling personnel must be trained in the collection of well water samples for the NPS. Samplers will be trained during a one-day seminar by ICF team members who understand the implementation of the Survey and the required sample protocol. To the extent possible, training seminars will be conducted in the States where samples will be collected.

B. **Equipment and materials required**

i. Community Water System - Well Sampling Training Manual
ii. Domestic Water System - Well Sampling Training Manual
iii. Classroom
iv. Microphone, slides, slide projector or overhead projector, and screen

5. PROCEDURE

1. Scheduling

a. Identify the trainees to attend the NPS well sampling training seminar. For CWSs, these trainees will be identified through contacts at the State in which sampling will be performed, or through EPA Region contacts. The ICF Well Sampling, Data Collection and Processing Group Manager will assign sampling teams for DWS sampling. After the trainees have been identified within a locality and a date identified for the seminar, a training room will be located. The training room can be located either in a State government office building, any of ICF's offices, or at a private conference room in a hotel.

b. Notify trainees in writing of the seminar date. Determine from return cards or by phone the number of students to attend the program.

c. To extent possible, training will be scheduled as close to the actual sampling date for a sample team.

2. Preparation

a. Print and ship training manuals to the seminar location prior to the scheduled training date.

3. Operation

a. Each person that attends the NPS well sampling training will be provided with either a CWS or DWS Well Sampling Training Manual. This manual will provide the basis of the training course. Both of these training manuals are provided in Appendix B (CWS Training Manual) and Appendix C (DWS Training Manual) of this QAPjP.

b. Community Water Systems: Following is a summary of the major topics to be covered during CWS well sampling training:

- Introduction
  - -- Survey organization
  - -- Purpose/organization of training
- Background and Overview
  - -- Survey background
  - -- Survey goals/EPA program objectives
  - -- Statistical design and implementation
  - -- CWS Training Manual
  - -- Role of States
- Overview of CWS Sampling Activities
  - -- Overview of CWS sampling process
- Field Team Organization
  - -- Assignment of field duties
  - -- Logistical arrangements
  - -- Training
- Well Area Data Collection
  - -- Field Logbook
  - -- General interview techniques (written manual to be provided)
  - -- Data collection instruments (question-by-question review)
  - -- Mock interview/data collection (trainees participate)
- Water Sampling Instructions
  - -- QA/QC aspects (including use of Well Sampling Assignment Sheet, Sample Tracking Form, Sample Bottle Label, and custom sample container kits)
  - -- Health and safety aspects
  - -- Initial communications and scheduling
  - -- Step-by-step instructions (including slide presentation)
  - -- Mock sample collection (trainees participate)

- Communications/Follow-up

  -- Sample team communications role/responsibility
  -- Notification of results

- Wrap-Up

  -- Summary of responsibility
  -- Discussion of administrative responsibilities/procedures

    - Return of materials from field
    - Contingencies
    - Troubleshooting

  -- Questions/issues

e. Domestic Wells: Following is a summary of the major topics to be covered during domestic well sampling training:

- Introduction

  -- Survey organization
  -- Purpose/organization of training

- Background and Overview

  -- Survey background
  -- Survey goals/EPA program objectives
  -- Statistical design and implementation
  -- DWS Training Manual

- Overview of Domestic Well Sampling Activities

  -- Overview of domestic well sampling process

- Field Team Organization

  -- Assignment of field duties
  -- Logistical arrangements
  -- Training

- Well Area Data Collection

  -- Field Logbook
  -- General interview techniques (written manual to be provided)
  -- Data collection instruments (question-by-question review)
  -- Mock interview/data collection (trainees participate)

- Water Sampling Instructions

  -- QA/QC aspects (including use of Well Sampling Assignment Sheet, Sample Tracking Form, Sample Bottle Label, and custom sample container kits)
  -- Health and safety aspects
  -- Initial communications and scheduling
  -- Step-by-step instructions (including slide presentation)
  -- Mock sample collection (audience participates)

- Communications

  -- Sample team communications role/responsibility

- Wrap-Up

  -- Summary of responsibility
  -- Discussion of administrative responsibilities/procedures

    - Return of materials from field
    - Contingencies
    - Troubleshooting

  -- Questions/issues

6. QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

During the early stages of the NPS, the training program will be audited by senior staff members of ICF to ensure technical accuracy. In addition, these senior members will review the training manual during the early draft stages.

To ensure that the field sampling collection procedures are being properly conducted a quality control review will be periodically performed. The NPS sampling team QA/QC officer will conduct these reviews. Based on any identified field problems, the training course will be revised to incorporate any new sampling procedures or training techniques. The NPS Training Manager will notify samplers of any new sampling protocols by telephone and memorandum.

STANDARD OPERATING PROCEDURE

1. TITLE: Coordination of CWS Sampling

2. AREA OF RESPONSIBILITY: NPS Project

3. DEFINITIONS: None

4. GENERAL REQUIREMENTS:

To ensure smooth and orderly coordination of sampling at community water systems.

Materials

i. Training manuals
ii. Sampling kits
iii. Survey instruments: interview questionnaires, Well Observational Record, Local Area Data Collection Form

5. PROCEDURES

1. ICF (Kim Green) provides the point of coordination with the Region, State, and laboratories, in terms of scheduling, shipping, and all field work activities.

2. One month before sampling is scheduled in a State, ICF calls the State lead contact to discuss the upcoming activities. ICF sends the State the training manuals for sampling and interviewing.

3. The State implements relevant portions of the State communications plan in terms of contacts with the county, local officials, and groups.

4. The State (or county) officials contact the CWS operators 2-4 weeks prior to sampling to brief them on the sampling visit (e.g., how much time they will need to spend) and to arrange sampling dates. ICF and the State establish an exact schedule for training and initiation of sampling. ICF transmits the exact schedule dates to the laboratories.

5. State calls CWSs 2-3 days in advance of the sampling visit to inform them of the time of arrival.

6. ICF holds a one-day training session prior to sampling, in order to conduct the sampling and data collection in a consistent manner across States. State and EPA regional staff receive training in conducting sampling and administering the questionnaires.

7. Where necessary, ICF may accompany State or EPA regional staff on the first day of CWS sampling in the State in order to provide hands-on training in water sampling.

8. State or EPA regional personnel visit the CWS, collect the well samples, interview the CWS operator, and complete the Well Observation Record and Local Area Data Collection Form. States distribute Questions and Answers brochures to CWS operators.

9. ICF coordinates all shipments of sampling kits to the State or EPA region and all shipments of samples to laboratories through ICF's central tracking station. States or EPA Regions send the samples to the specified laboratory and all forms back to ICF immediately upon completion.

10. The final laboratory results are sent to EPA Headquarters; the results are then shared with the Regions, States, and CWS owner/operators in accordance with the NPS notification process.

STANDARD OPERATING PROCEDURE

1. TITLE: Coordination of DWS Sampling

2. AREA OF RESPONSIBILITY: NPS Project

3. DEFINITIONS: None

4. GENERAL REQUIREMENTS:

To inform the Regions, States, and counties of the schedule of field activities in the 90 counties over the course of the Survey, and to provide useful information to well owners and householders.

Materials

i. Initial schedule included in letter to Regions and States
ii. Standard letters, information packets to county officials
iii. Schedule updates issued every 2-4 weeks
iv. Letter of introduction to householders
v. Second letter of introduction handed to householder
vi. EPA-produced news release
vii. Recent Project Update
viii. Question & Answer brochure on domestic well sampling
ix. Domestic Well Questionnaire
x. Water Sample Consent and Data Release Agreement Form

5. PROCEDURES

A. Initial Schedule

1. When the initial temporal schedule is developed by Westat, ICF will prepare a letter to be sent to the Regions outlining the schedule for domestic well field activities (including hydrogeological work, collection of cropping data, random digit dialing, interviewing, and sampling).

2. The first such schedule will be E-mailed to the Regions.

3. Upon receipt of the schedule, Regions should call States and/or send them copies of the letter/schedule.

4. States should call and/or send letters to county officials to notify them of the schedule. A courtesy package of information on the Survey will be available to be sent to county officials on request.

5. ICF's Communications Group will prepare regular updates of the general schedule (about every 2-4 weeks), which will be mailed to individuals on a separate mailing list of Regional, State, and county contacts.

6. Once sampling gets underway, a State or Region can join EPA's weekly conference call to obtain more up-to-date changes. The most recent schedule information can be obtained by calling the ICF toll-free line.

B. Final Schedule

1. One month before interviewing/sampling will take place, mail the letter of introduction and Q&A brochure to the householder/well owner.

2. At scheduled time, contact the household by telephone to arrange an appointment. (Optional)

3. At the household, interviewer introduces himself/herself, provides the handouts to the respondent, gives the respondent time to read the materials, answers questions, explains the Water Sample Consent and Data Release Agreement Form, and asks the respondent/owner to sign the form.

4. ICF calls the household separately to arrange a convenient time to sample the well.

5. Where the householder is not the well owner, separate procedures are followed to obtain the well owner's consent.

STANDARD OPERATING PROCEDURE

1. TITLE: Auditing Procedures

2. AREA OF RESPONSIBILITY: NPS Project

3. DEFINITIONS: None

4. GENERAL REQUIREMENTS:

Auditing is a quality assurance method designed to evaluate and interpret the validity of sampling programs. Audits will be performed on a periodic basis to determine the compliance to established standard operating procedures and the implementation and maintenance of adequate quality control measures. The areas to be audited and the frequency of audits in support of the National Pesticide Survey are as follows:

Area	Frequency
Bottle Cleaning Procedures	3 Times
Sample Kit Preparation	3 Times
Document Control System	On a periodic basis
Well Water Sampling	Monthly

The protocol required for conducting the audit must ensure that audit procedures are totally independent of project operations. The person responsible for conducting the audits will be the Quality Assurance Coordinator or a designated individual.

5. PROCEDURES

A. Prior to conducting the auditing, it is imperative that the auditor has reviewed all information relevant to the area to be audited.

1. Contact the project manager to ensure the information is the latest version on file.

2. Discuss the scope of the project with the manager to determine if the assignment has been redefined.

3. Review the checklist to be familiar with the various occurrences to be reviewed.

B. The audit should be coordinated in advance to ensure an event will be occurring, and project operations will not be impeded.

1. Discuss a tentative audit date with the project manager.

2. Follow-up by checking with the project manager no more than two weeks in advance.

3. Discuss the areas to be viewed, and define the intent of the audit for the project manager.

C. Upon arrival at the site, it is crucial to brief the personnel involved in the audit.

1. Meet with the project personnel and discuss the intended schedule identifying which personnel and operations will be involved in the audit.

2. Verify personnel identified by the project manager or listed in the QA plan.

D. When conducting the audit it is imperative that the auditor maintain an inquisitive yet impartial demeanor.

1. Do not discuss judgments with site personnel.

2. Do ask questions, but utilize a diplomatic tone. Project personnel should not feel like they are being tested.

3. Do not hinder project operations.

4. Observe all activities, or as many as possible, listed on the checklist.

5. If a procedure requires immediate corrective action, discuss these with the project manager.

6. Record additional observances on the checklist or in a notebook.

E. After the audit, the project officials should be debriefed on the initial finding.

1. Discuss the fact that the results are tentative and that the final results will be reported in writing.

2. Solicit comments from project personnel about topics discussed.

3. Request additional documentation which may be needed for the final report.

F. An audit report should be distributed no later than 10 days following the audit.

1. A copy of the checklist should be attached to the report.

2. Any items requiring corrective action should be included, as well as a tentative date for its resolution.

3. A copy of the report will be distributed to the following personnel:

Kim Green, Well Sampling Group Manager
Chip Lester, Project Manager
Linda Prevatte, Noelle Gantz, Document Control
Gary McKown, Quality Assurance Officer

STANDARD OPERATING PROCEDURE

1. TITLE: Domestic Well (DWS) Logbook Purging Parameters Record Data Entry

2. AREA OF RESPONSIBILITY: NPS Project

3. GENERAL REQUIREMENTS:

A. **Methodology:**

Field measurements of completed Field Logbook DWS Well Purging Parameter Record sheets will be entered into NPSIS1 for data analysis. Well purging parameter field measurements were recorded by DWS sampling teams to document the pH, temperature, and conductivity of drinking water samples collected. The Well Purging Parameter Record was also used to record the air temperature at time of sampling and any general conditions that were noted by the field team prior to filling sample bottles. Well Purging Parameter values were recorded at time zero, stability, and final sampling times.

DWS Well Purging Parameter Records will be entered into NPSIS1 by Heather Flore and Ms. Noelle Gantz. Ms. Flore and Ms. Gantz will report to their supervisor, Ms. C. Jengeleski who will review any inconsistencies noted on the Well Purging Parameter Record Sheets completed by the sampling teams. Dr. Rappaport will oversee all operations of data entry and will ultimately be responsible for resolving any questions.

B. **Equipment and Materials Required:**

i. Completed DWS Logbook Purging Parameters Record and Problems and Issues Form (if applicable).

ii. Hardware: IBM PC (640K memory).

iii. Software: NPSIS1 Schedule Tracking System.

4. PROCEDURE:

A. Retrieve Well Purging Parameter Records and Problems and Issues Forms (if applicable) from Document Control.

B. Examine the Problems and Issues Form (if applicable) and have C. Jengeleski review any problems noted.

C. Examine the Well Purging Parameter Record data entries, comments, and notes for any inconsistencies prior to entering any purging parameter information into NPSIS1. When inconsistencies are noted, do not enter any information into NPSIS1 until the purging parameters record is reviewed by C. Jengeleski. Examples of inconsistencies or problems are listed below:

i. tubular wells, springs;

ii. samples collected after treatment systems, ie. chlorine, water softener;

iii. hoses used to collect samples; and

iv. suspected contamination, i.e., insects, chemicals.

D. Access the NPSIS1 purging parameters field for data entry as follows: NPSIS1 Main Selection Menu, Schedule Tracking System, Edit Well ID No., and Page down three times.

i. Ensure that the Well ID No. listed on the purging parameters record is the Well ID No. selected for data entry into NPSIS.

ii. Enter data as follows:

1. Enter "WNS" for all parameters if the well was not sampled. Also, enter "Well Not Sampled" in the comments field.

2. Enter "NR" for a parameter if no results were recorded.

3. Ensure that the air temperature value entered into NPSIS is in degrees Celsius. Note: If the air temperature was recorded in Fahrenheit the value should be converted to Celsius prior to data entry as follows: °C = .555(°F -32).

4. Enter three pH readings into NPSIS1 as follows: time zero, stabilized, and final.

5. Enter three temperature readings into NPSIS1 as follows: time zero, stabilized, and final.

6. Enter three conductivity readings into NPSIS1 as follows: time zero, stabilized, and final. Ensure that the conductivity values recorded were multiplied by 10. Note: If the conductivity reading entered on the Well Purging Parameter Record Sheet does not end in a zero, multiply the reading by ten and indicate in blue pencil that the reading was changed. For values that will be recorded at levels greater than 1,000 ppm Dr. Rappaport will be consulted prior to data entry.

7. Enter comments reported. Ms. Jengeleski will review any unusual comments that are reported.

E. Return completed DWS Well Purging Parameters Record data sheets and Problems and Issues Forms (if applicable) to Document Control. The person who completed data entry should sign and date the data sheet.

5. STAFF TRAINING

Ms. Flore and Ms. Gantz will be trained with the SOP by C. Jengeleski.

6. STAFF CERTIFICATION

Upon completion of training, Dr. Rappaport will review five well site entries at random to ensure that SOP standards were maintained.

7. INTERNAL CONSISTENCY REVIEW

Ms. C. Jengeleski will review 5% of the completed entries at the end of every work week. She will complete a Quality Assurance Check Sheet (Exhibit 1) to ensure that the data is being entered correctly. These check sheets will be maintained in the NPSIS1 Document Control System.

8. EXTERNAL COMPARISONS

Completed Quality Assurance Check Sheets will be reviewed by Dr. Rappaport. If discrepancies are identified, the data will be modified according to a consensus of the team members.

A file will be maintained in the NPSIS1 Document Control System to document the results of each external consistency review. When significant discrepancies are noted, documentation will be provided to explain the corrective action implemented.

EXHIBIT 1

NATIONAL PESTICIDE SURVEY

Domestic Well (DWS) Logbook Purging Parameters
Record Data Entry Checklist

Name of Reviewer: _____ Date of Review:_____

Well ID No.: _____

1. Are the values of parameters entered in NPSIS1 within an acceptable range?

	YES	NO	Comments
1. Air Temperature in Celsius:	_____	_____	_____

	pH YES	pH NO	Temp. YES	Temp. NO	Cond. YES	Cond. NO	Comments
2. Time zero:	_	_	_	_	_	_	_____
3. Stabilized Readings:	_	_	_	_	_	_	_____
4. Final Readings:	_	_	_	_	_	_	_____

2. Were purging parameter values in NPSIS1 the correct values that should have been entered?

	YES	NO	Comments
1. Air Temperature in Celsius:	_____	_____	_____

	pH YES	pH NO	Temp. YES	Temp. NO	Cond. YES	Cond. NO	Comments
2. Time zero:	_	_	_	_	_	_	_____
3. Stabilized Readings:	_	_	_	_	_	_	_____
4. Final Readings:	_	_	_	_	_	_	_____

3. General Comments:

	YES	NO
4. Approved	____	____

STANDARD OPERATING PROCEDURE

1. TITLE: Community Water System Well (CWS) Logbook Purging Parameters Record Data Entry

2. AREA OF RESPONSIBILITY: NPS Project

3. GENERAL REQUIREMENTS:

A. **Methodology:**

Field measurements of completed Field Logbook CWS Well Purging Parameter Record sheets will be entered into NPSIS1 for data analysis. Well purging parameter field measurements were recorded by CWS sampling teams to document the pH, temperature, and conductivity of drinking water samples collected. The Well Purging Parameter Record was also used to record the air temperature at time of sampling and any general conditions that were noted by the field team prior to filling sample bottles. Well Purging Parameter values were recorded at time zero, stability, and final sampling times.

CWS Well Purging Parameter Records will be entered into NPSIS1 by Ms. Heather Flore and Ms. Noelle Gantz. Ms. Flore and Ms. Gantz will report to their supervisor, Ms. C. Jengeleski who will review any inconsistencies noted on the Well Purging Parameter Record Sheets completed by the sampling teams. Dr. Rappaport will oversee all operations of data entry and will ultimately be responsible for resolving any questions.

B. **Equipment and Materials Required:**

i. Completed CWS Logbook Purging Parameters Record.

ii. Hardware: IBM PC (640K memory).

iii. Software: NPSIS1 Schedule Tracking System.

4. PROCEDURE:

A. Retrieve Well Purging Parameter Records from Document Control.

B. Examine the Well Purging Parameter Record data entries, comments, and notes for any inconsistencies prior to entering any purging parameter information into NPSIS1. When inconsistencies are noted, do not enter any information into NPSIS1 until the purging parameters record is reviewed by C. Jengeleski. Examples of inconsistencies or problems are listed below:

i. tubular wells, springs;

ii. samples collected after treatment systems, ie. chlorine, water softener;

iii. hoses used to collect samples; and

iv. suspected contamination, i.e., insects, chemicals.

C. Access the NPSIS1 purging parameters field for data entry as follows: NPSIS1 Main Selection Menu, Schedule Tracking System, Edit Well ID No., and Page down three times.

i. Ensure that the Well ID No. listed on the purging parameters record is the Well ID No. selected for data entry into NPSIS1.

ii. Enter data as follows:

1. Enter "WNS" for all parameters if the well was not sampled. Also, enter "Well Not Sampled" in the comments field.

2. Enter "NR" for a parameter if no results were recorded.

3. Ensure that the air temperature value entered into NPSIS1 is in degrees Celsius. Note: If the air temperature was recorded in Fahrenheit the value should be converted to Celsius prior to data entry as follows: °C = .555(°F - 32).

4. Enter three pH readings into NPSIS1 as follows: time zero, stabilized, and final.

5. Enter three temperature readings into NPSIS1 as follows: time zero, stabilized, and final.

6. Enter three conductivity readings into NPSIS1 as follows: time zero, stabilized, and final. Ensure that the conductivity values recorded were multiplied by 10. Note: If the conductivity reading entered on the Well Purging Parameter Record Sheet does not end in a zero, multiply the reading by ten and indicate in blue pencil that the reading was changed. For values that will be recorded at levels greater than 1,000 ppm Dr. Rappaport will be consulted prior to data entry.

7. Enter comments reported. Ms. Jengeleski will review any unusual comments that are reported.

D. Return completed CWS Well Purging Parameters Record data sheets to Document Control. The person who completed data entry should sign and date the data sheet.

5. STAFF TRAINING

Ms. Flore and Ms. Gantz will be trained with the SOP by C. Jengeleski.

6. STAFF CERTIFICATION

Upon completion of training, Dr. Rappaport will review five well site entries at random to ensure that SOP standards were maintained.

7. INTERNAL CONSISTENCY REVIEW

Ms. C. Jengeleski will review 5% of the completed entries at the end of every work week. She will complete a Quality Assurance Check Sheet (Exhibit 1) to ensure that the data is being entered correctly. These check sheets will be maintained in the NPSIS1 Document Control System.

8. EXTERNAL COMPARISONS

Completed Quality Assurance Check Sheets will be reviewed by Dr. Rappaport. If discrepancies are identified, the data will be modified according to a consensus of the team members.

A file will be maintained in the NPSIS1 Document Control System to document the results of each external consistency review. When significant discrepancies are noted, documentation will be provided to explain the corrective action implemented.

EXHIBIT 1

NATIONAL PESTICIDE SURVEY

Community Water System (CWS) Logbook Purging Parameters
Record Data Entry Checklist

Name of Reviewer: _____ Date of Review:_____

Well ID No.: _____

1. Are the values of parameters entered in NPSIS1 within an acceptable range?

		YES	NO	Comments
1.	Air Temperature in Celsius:	_____	_____	_____

		pH		Temp.		Cond.		Comments
		YES	NO	YES	NO	YES	NO	
2.	Time zero:	—	—	—	—	—	—	_____
3.	Stabilized Readings:	—	—	—	—	—	—	_____
4.	Final Readings:	—	—	—	—	—	—	_____

2. Were purging parameter values in NPSIS1 the correct values that should have been entered?

		YES	NO	Comments
1.	Air Temperature in Celsius:	_____	_____	_____

		pH		Temp.		Cond.		Comments
		YES	NO	YES	NO	YES	NO	
2.	Time zero:	—	—	—	—	—	—	_____
3.	Stabilized Readings:	—	—	—	—	—	—	_____
4.	Final Readings:	—	—	—	—	—	—	_____

3. General Comments:

		YES	NO
4.	Approved	____	____

STANDARD OPERATING PROCEDURE

1. TITLE: Document Control System (DCS)

2. AREA OF RESPONSIBILITY: NPS Project

3. GENERAL REQUIREMENTS:

A. **Methodology:**

A computerized Document Control System (DCS) was developed to store and sort information in the NPS Project file in a systematic manner. A DCS Control Number is assigned to each item filed in the DCS. A Document Log Sheet (Exhibit 1) was developed to use with the DCS for hard copy documentation in the files. Project personnel are responsible for submitting a completed Log Sheet with each item submitted to the Project File. The Log Sheet should be filled out so that it clearly identifies the document, in order to facilitate retrieval of the document from the file.

B. **Equipment and Materials Required:**

i. Blank NPS Document Log Sheet
ii. Document to be submitted to the DCS
iii. Hardware IBM PC (640K memory)
iv. Software: DCS

4. PROCEDURE FOR COMPLETION OF A DOCUMENT CONTROL LOG SHEET:

A. Obtain a blank copy of the NPS Document Log Sheet and attach the document to be submitted to the DCS.

B. Enter the following information on the Document Log Sheet as follows:

1. Leave the Document Control Number blank. This number will be assigned when the document is entered into the DCS.

2. Indicate the date that the document was prepared.

3. Indicate the appropriate Task Number for the document.

4. Indicate if the document is a deliverable.

5. Indicate if the document is draft or final.

6. Identify the document author. The authorship can be general for a report or deliverable (ex. ICF). It is necessary to identify the author's name and affiliation (ex. C. Lester, ICF) for correspondence.

7. Indicate who the document was submitted to. The recipient of a report or deliverable can be general. For correspondence it is necessary to identify the recipient's name and affiliation (ex. L. Johnson, TAI). The document can also be submitted just to the DCS file for archival purposes.

EXHIBIT 1

NATIONAL PESTICIDE SURVEY
DOCUMENT LOG SHEET

EPA Contract No. 68D80006 NPS Document Control No. _____ (leave blank)

Document Date: _____ Task No. _____

Deliverable: ___ Y ___ N ___ Draft ___ Final

Document Author: _____

Document Submitted To: _____

Title: _____

_____

DOCUMENT TYPE (check one)

___ Briefing
___ Correspondence
___ Other _____
___ Publication
___ Report

ACTIVITY CODE (check one)

___ Analytical Methods
___ Analytical Results
___ Contract Administration
___ Cost Analysis
___ Contract Laboratories
___ Communications
___ Community Well Selection
___ Data Management
___ Data Quality Objectives
___ Domestic Well Selection
___ Survey Equipment/Facilities
___ Health Advisories
___ Hydrogeologic Characterization
___ Information Collection Request
___ Meetings (EPA)
___ Meetings (State-Region)
___ Project Planning/Tracking
___ Quality Assurance
___ Questionnaires
___ Sample Kits
___ Survey Design
___ Training
___ Well Sampling
___ Other _____

8. Clearly indicate the title or subject of the document.

9. Indicate the type of document. If the document cannot be categorized as one of the types listed then it should be designated as "Other". For example, data tape submitted to the DCS would be categorized as "Other".

10. Indicate only one activity code. Check "Other" if one of the activity codes listed does not apply.

11. Attach the completed Document Log Sheet to the document.

12. Submit the document to N. Gantz or L. Prevatte for entry into the DCS.

5. PROCEDURE FOR NEW DOCUMENT ENTRY INTO THE DCS:

A. Obtain a document with a completed DCS Log Sheet to be assigned a DCS Control Number.

B. Access the DCS to enter a new document into the system as follows: Enter DCS at the C:>, enter system password: DCS, DCS Main menu, Add a Document to DCS, and hit enter.

1. A new DCS number will be generated by the computer each time a new document is entered into the system. Record the DCS Control Number from the computer screen on the Log Sheet in the NPS Document Control No. blank. The information from the Document Log Sheet should be entered into the DCS computer fields as it is listed on the sheet.

   Note: To enter the Activity Code, the codes for Activity Code must be accessed by using the F1 command to display the abbreviated codes. The code that is to be entered is selected by highlighting it and pressing enter. The system will automatically enter and display the code entered into the field. To enter the Document Type into the system, the codes for Document Type must be accessed by using the F2 command to display the abbreviated codes. The code that is to be entered is selected by highlighting it and pressing enter. The system will automatically enter and display the code entered into the field. In addition, if the Document type or Activity Code is "Other" a comment field will appear and a description of the Document Type and Activity Code should be entered.

2. After document computer entry into the DCS is complete the document should be stored in a folder labelled with the assigned Document Control Number. The folder should be filed numerically in the NPS Document Control Room (Hunters Branch II, Workroom #2) file cabinets.

C. Access the DCS to edit a document's listing as follows: Enter DCS at the C:>, enter system password: DCS, DCS Main menu, Edit a Document by Control Number or Activity Code, and hit enter.

1. Access the document listing that needs to be edited by entering the appropriate DCS Control Number of Activity Code in the system.

6. STAFF TRAINING

Ms. N. Gantz and Ms. L. Prevatte will be trained with the SOP by Ms. Jengeleski.

7. STAFF CERTIFICATION

Upon completion of training, Dr. Rappaport will review five DCS entries at random to ensure that SOP standards are maintained.

8. INTERNAL CONSISTENCY REVIEW

Ms. Jengeleski will review 50 entries into DCS after all field sampling information has been archived. Computer listings will be examined and hard copy files will be reviewed. She will complete a Quality Assurance Check Sheet (Exhibit 2) to ensure that the documents are being entered correctly. These check sheets will be maintained in the DCS file.

9. EXTERNAL COMPARISONS

Completed Quality Assurance Check Sheets will be reviewed by Dr. Rappaport. A file will be maintained in the DCS to document the results of each external consistency review. when significant discrepancies are noted, documentation will be provided to explain the corrective action implemented.

EXHIBIT 2

NATIONAL PESTICIDE SURVEY

Document Control System Record Quality Assurance Checklist

Name of Reviewer: _____ Date of Review: _____

Document Control No.: _____

1. Are the computer entries for the following items in DCS correct?

		YES	NO	COMMENTS
a.	Document Control Number:	___	___	_____
b.	Task Number:	___	___	_____
c.	Deliverable:	___	___	_____
d.	Draft or Final:	___	___	_____
e.	Document Author:	___	___	_____
f.	Document Submitted to:	___	___	_____
g.	Title:	___	___	_____
h.	Document Type:	___	___	_____
i.	Activity Code:	___	___	_____

		YES	NO
2.	Is the hard copy of the document in the appropriate file in the DCS file cabinet?	___	___
3.	General Comments:		

		YES	NO
4.	Approved	___	___