United States Environmental Protection Agency

Office of Research and Development

National Human Exposure Assessment Survey (NHEXAS)

Region 5 Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Research Triangle Institute
Research Triangle Park, NC 27079

Cooperative Agreement CR 821902

Field Operations Protocol **RTI/ACS-AP-209-082**

Title: Procedures for Field Checks of Equipment

Source: Research Triangle Institute

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Human Exposure Research Branch

TITLE: PROCEDURES FOR FIELD CHECKS OF EQUIPMENT

SOURCE: Research Triangle Institute
Post Office Box 12194
Analytical and Chemical Sciences
Research Triangle Park, NC 27709-2194

AUTHOR(s):

Kent W. Thorn Date: 4/8/96

Date:

Date:

APPROVED BY:

Principal Investigator: E. Pellizzari Date: 4/23/96

QA Officer: W J Smith Date: 4/11/96

STATUS:		
	IN PROGRESS:	☐
	DRAFT:	☐
	FINAL VERSION:	☒

REVISIONS:

No.	Date	No.	Date
0	4/23/96	6	
1	‡	7	
2		8	
3		9	
4		10	
5		11	

‡ Effective date of this version is the date of the last approval signature; revision 0 is the original version.

PROCEDURES FOR FIELD CHECKS OF EQUIPMENT

TABLE OF CONTENTS

1.0 SCOPE AND APPLICATION

Several types of equipment will be used at the field staging area by the field staff in the National Human Exposure Assessment Survey (NHEXAS). Specific testing and recording requirements for this equipment are provided in this protocol.

2.0 MATERIALS

2.1 Refrigerators and Freezers

- 2.1.1 Refrigerator(s) for sample storage
- 2.1.2 Freezer(s) for sample storage
- 2.1.3 Temperature measuring devices capable of operation from -10EC to 10EC

2.2 pH Meter

- 2.2.1 Portable pH meter capable of pH measurement to ± 0.2 pH units
- 2.2.2* Buffer solutions, pH 4, pH 7, and pH 10

2.3 Food Balance

- 2.3.1 Mettler BD6000 balance or equivalent capable of measurement to 6000 g
- 2.3.2 NIST class 1 weights, 100 g and 1000 g

2.4 Field Notebook

3.0 REFRIGERATORS AND FREEZERS

3.1 Refrigerators and freezers used to store samples at the field staging area must be turned on at least one day before sample storage will begin.

3.2 The initial temperature will be monitored to make sure that the equipment is operating correctly.

3.3 The operating temperature of each freezer and refrigerator will be measured each day that samples are present, with the result recorded in the field notebook.

3.4 The allowable range for refrigerators is 1EC to 6EC.

3.5 The allowable range for freezers is #-2EC.

3.6 If temperatures are outside of the range, the temperature control will be adjusted.

4.0* pH METER

4.1 The pH meter calibration will be checked before beginning field sampling activities on each day it will be used.

4.2 Buffer solution at pH 10 will be measured first.

4.3 Buffer solution at pH 7 will be measured second.

4.4 Buffer solution at pH 4 will be measured third.

4.5 Measurement results will be recorded in the field notebook.

4.6 The allowable range is ±0.2 pH units.

4.7 If either of the measurements is outside this range, the pH meter will be calibrated according to instructions supplied with the meter.

5.0 FOOD BALANCE

5.1 The food balance will checked on each day that food samples are to be weighed.

5.2 NIST Class 1 weights, 100 and 1000 g, will be used to check the balance operation.

5.3 Class 1 weights must be handled only while wearing gloves.

5.4 The balance will be turned on and each Class one weight will be weighed.

5.5 Weighing results will be recorded in the field notebook.

5.6 The allowable range for the 100 g weight in 98 to 102 g.

5.7 The allowable range for the 1000 g weight is 980 to 1020 g.

5.8 If either weight is outside of this range after repeated measurements, the balance will be used in the short term, with comments on the diary page and in the diet page of the sample data collection spreadsheet. The field supervisor will be notified and will direct the staff on corrective action.

EXPLANATION OF REVISIONS

Revisions Made 4/96; Denoted by *

Calibration Check of pH Meter

Sections 2.2.2 and 4.0 were revised to include the use of a pH 10 buffer solution for checking the pH meter calibration. This change was instituted because we found tap water samples above pH 8 in several NHEXAS counties.