NBSIR 73-248

A Survey of the Sanitary Conditions of Migrant Labor Camps

Charles Fried, Robert Ramsburg, Stephen Butler

Technical Analysis Division
Institute for Applied Technology
National Bureau of Standards
Washington, D. C. 20234

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Community Health Services
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U. S. DEPARTMENT OF COMMERCE, Frederick B. Dent, Secretary

NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director

EXECUTIVE SUMMARY

At the request of the Community Health Service (CHS), a study team from the Technical Analysis Division (TAD) of the National Bureau of Standards devised a survey instrument and conducted a field assessment of the sanitary conditions of migrant housing. The survey team:

(1) Developed a sampling plan for the field survey.

(2) Constructed a questionnaire designed to allow laymen to evaluate sanitary conditions in the migrant camps. The questionnaire was designed with the aid of specialists in migrant housing.

(3) Selected camps which would be visited. The selection was intended to reflect migrant living conditions from as many regions of the country as possible.

(4) Performed on site field visits to camps in California, Texas, Florida, New York, Michigan, Maryland, Virginia and New Jersey.

(5) Analyzed and provided a summary of the survey findings.

(6) Recommended changes to the survey procedure which could be included in the design of future studies.

The instrument for evaluating the camps was based on the checklist procedure used by sanitarians for inspecting migrant camps. It contained questions in the following areas:

(1) General information,

(2) Water supply,

(3) Toilet or privies,

(4) Bathing and laundry facilities,

(5) Sewage disposal,

(6) Housing and screening

(7) Living/sleeping quarters,

(8) Cooking facilities,

(9) Garbage disposal, and

(10) General camp area.

Although one of the major purposes of the study was the design and field testing of a survey instrument, the data collected in the course of the field test is reported. This preliminary data is divided into two classes:

(1) Data from camps selected at random from counties containing a high concentration of camps. The selections were made prior to the visits of the survey team.

(2) Data from camps chosen by the local sanitarians. The basis of selection for these latter camps was left to the local sanitarian.

A few of the findings from camps that were randomly selected are:

25% of the camps had no refrigerators

49% of the camps had no screen doors

61% of the camps had garbage and debris strewn about

13% of the camps dumped sewage directly into open streams

26% of the toilet facilities were judged dirty and foul smelling

36% of the toilet facilities provided no toilet paper

86% of the camps did not use privies

100% of the camps had electricity

The survey team made a number of proposals for improving the procedures and the questionnaires for surveys as a result of the experience gained in the first survey. These include:

(1) All data should be collected by members of the survey team to avoid possible biases from external sources.

(2) Timing of visits should be arranged to reflect the stage of camp occupancy: (a) prior to occupancy; (b) at an early stage; (c) at peak occupancy; and (d) a late stage of occupancy before the camp closes.

(3) Geographically isolated camps should be included in the survey.

(4) Subjectivity of the survey team members should be minimized through such procedures as: (a) reduction in the number of questions requiring subjective judgment; (b) a training stage for the survey team to insure that they all respond to similar aspects of camps in the same way; and (c) normalization of the interviewer's responses to eliminate the effects of his personal biases.

(5) Future surveys should provide quantitative measures of overcrowding and adequacy of ventilation.

(6) Two types of questionnaires should be devised—one for family type camps and one for single person camps.

(7) The section on sewage disposal should be expanded, and qualified sanitary engineers should be consulted on the writing of questions pertaining to sewage disposal and communicable disease.

CONTENTS

CONTENTS (continued)

CONTENTS (continued)

APPENDICES

LIST OF TABLES

CONTENTS (continued)

LIST OF FIGURES

ABSTRACT

The Community Health Service (CHS) of the Department of Health, Education, and Welfare has been assigned the responsibility of providing health care services to migrant farmworkers. Since poor sanitation can be a major factor in the health of migrants, CHS requested NBS' Technical Analysis Division (TAD) to perform a field survey of the current state of the sanitary conditions of migrant housing.

A survey form was developed by TAD as an aid in evaluating migrant housing. The form was derived from the checklist procedure employed by sanitarians to determine whether migrant housing meets state and local housing regulations.

Field visits were made to migrant labor camps in five different regions of the United States. These regions were selected because they contained a large number of camps open at the time of the visits. Within each region, camps were selected on a modified random basis.

A description of the findings of the survey is provided in both tabular and narrative form. A discussion of the limitations in the procedures used in conducting the survey is also included, and changes are suggested which could be incorporated into future surveys.

1.0. INTRODUCTION

The Migrant Health Act of 1962 established a requirement for the Secretary of Health, Education, and Welfare to support the provision of health care services to migrant farmworkers and their families.

Concern for the health of migrants requires that all factors contributing to their health be considered. These factors include, among others, the sanitary conditions of the housing in which the migrants reside and the utilities which service these residences, such as the water supply and refuse disposal systems.

The establishment of housing standards for migrants and the enforcement of these standards has traditionally been the responsibility of the localities and states in which the migrants temporarily reside. While many communities have developed model building codes for both their migrant and permanent farmworkers, there are significant disparities between communities in the content and enforcement of these codes. Communities differ, for example, in their interpretation of "exempt" housing—residences to which the codes do not apply. In addition, the enforcement of housing codes among communities is not consistent. The sanitarian may note code violations and grant waivers, but if the period of time that the grower has to correct the violation is excessive, or if no attempt is made to determine if any remedial action has been taken, the violation is effectively overlooked. Similarly, the sanitarian may carefully inspect the migrant housing and document his findings, but code violations will persist if judicial authorities do not prosecute or otherwise favor the growers.

Since the living conditions and utilities used by migrants are factors which contribute to their health, CHS felt that it was necessary to determine through firsthand impartial observations what the living conditions actually were.

The Technical Analysis Division (TAD) of the National Bureau of Standards was asked to assist CHS in the design of a survey of the sanitary and living conditions of migrant workers. One purpose of the first study was to design a survey instrument used to examine conditions in the migrant camps and to conduct a field evaluation of the instrument. The findings of the preliminary investigation are also reported. In addition, the field test was intended to derive procedures and sampling techniques which CHS might apply to a longer, national investigation of migrant workers' living conditions.

2.0. PROCEDURES USED IN SURVEY

2.1. Selection Procedures

2.1.1. Selection of Areas for Survey

In selecting the camps to be visited, the survey team was limited by several conditions.

A major restriction was that the site visits were confined to the last three weeks in May 1973. Preparations for the survey were also limited to a two to three week period prior to the beginning of the visits.

Another restriction was that camps would be observed only if they were occupied by migrants. However, the number of migrants actually in the camp did not have to be more than a small proportion of the listed capacity of the camp.

The final condition was that visits should be made only to camps with a minimum licensed capacity of 20 migrants. This restriction severely reduced the number of available camps that the investigators could visit in any locality.

These conditions imposed the following limitations on the selection of camps.

1. Large areas of the country were systematically excluded from consideration since the crops in these areas were not ready to be harvested in May and the growers had no appreciable need for temporary farm help. Many of the communities visited contained large numbers of migrant labor camps, but only a few of these camps were open. Since it was undesirable to inform a camp owner in advance, that a visit to his camp was scheduled, a final determination of whether or not a camp was open could not be made until the camp was actually visited.

2. Due to the brief time allowed for the survey, it was felt that sufficient data could be collected only in localities in which there was a concentration of migrant camps. The costs and the time required to visit isolated camps would have been prohibitive.

3. The restriction on the time allotted for the visits, limited the survey to states in which the authorities could be expected to cooperate with the survey team.*

In further discussions with CHS it was determined that the survey would include a minimum of five states and 25 operating camps. The survey team actually visited eight states and 52 camps. It was also determined that data on migrant living conditions should be obtained from as many different regions of the country as possible. Regional differences are reflected in the length of the harvest season with its accompanying demand for temporary farm labor and different environmental problems for migrant housing.

The regions visited and the states selected from within the region are shown in Table 2.1.

Table 2.1. Regions Selected for the Survey and States Selected for Visits from within a Region

1.	Northeastern United States	- New York
**2.	Mid-Atlantic States	- Maryland, Virginia, New Jersey
3.	Southeast	- Florida
4.	North Central	- Michigan
5.	South Central	- Texas
6.	Far West	- California

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* Mr. Paul Agnano, of CHS' Rural Health Branch, was invaluable in arranging for the meetings with the state officials responsible for certifying migrant housing.

**It was not possible to obtain a random selection of camps from within the counties visited in Maryland, Virginia and New Jersey. The Mid-Atlantic states, therefore, are not represented in the population of camps on which the primary data analysis was made.

An attempt was made to include a state from the Southwest, but states that had any appreciable number of migrants in this region had only a few open camps. A similar attempt was made to include a state from the Northwest, but it was found that few, if any camps, in this region were open at the end of May.

The selection of a state from a region was made on the basis that it contained camps which met the conditions listed at the beginning of the section. If more than one state within a region met these conditions, the state containing the largest number of camps for that region was chosen.

2.1.2. Selection of Camps to Be Visited

A telephone conversation was held with the principal official responsible for migrant health and housing in the states selected to be visited. Table 2.2 lists these officials.* Each state official was informed of the general purpose of the survey and the approximate dates when the NBS representative would be in his state. He was asked to provide a current list of all known migrant camps in his state, the authorized capacity of each camp and the period in which the camps were expected to be open.**

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* The authors wish to acknowledge the many courtesies extended to them by the state and local health officials in the communities that were visited. The efforts of these officials made the visits to the migrant camps possible.

**The listing was necessarily incomplete since it did not include "exempt" camps, i.e., those camps which do not have to be licensed to operate. Camps generally fall into this category because they are occupied by less than some minimum number of migrants at any one time. In addition some camps operate illegally in that the owner has not applied for a license.

Table 2.2. Principal State Official Responsible for Migrant Housing in the States Included in the Survey

1. Mr. Ralph Stewart, Chief
   Temporary and Migrant Labor Residence Section
   Department of Health
   845 Central Avenue
   Albany, New York

2. Mr. Norman Papsdorf, Chief
   Migrant Labor Camp Section
   Department of Public Health
   3500 North Logan Street
   Lansing, Michigan 48914

3. Mr. Warren Holm
   Department of Public Health
   Farmworkers Health Service
   722 Capitol Mall
   Sacramento, California 95814

4. Dr. David Crane, Chief
   Bureau of Local Health Service
   State Division of Health
   1217 Pearl Street
   Jacksonville, Florida

5. Mr. Troy Lowry
   Coordinator of Labor Camp Inspection Program
   State Department of Health
   1100 West 49th Street
   Austin, Texas 78756

*6. Ms. Mary Jo Garreis
   Housing and Hygiene Section
   Maryland State Department of Health and Mental Hygiene
   Baltimore, Maryland

*7. Dr. Belle Fears
   District Health Office
   Nassawadox, Virginia

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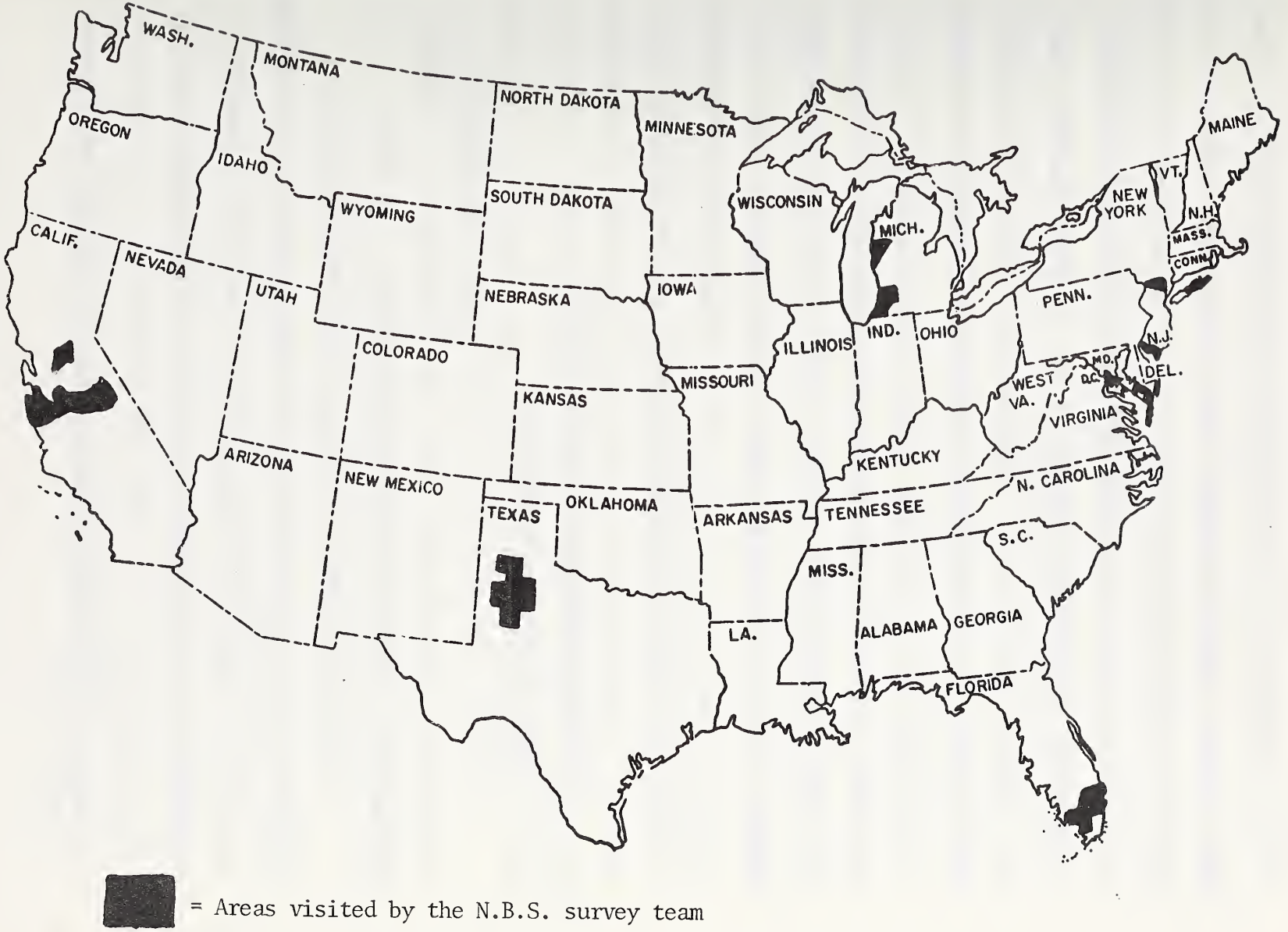
* Although data from these states were not used in the primary data analysis, the officials in these states were especially helpful and cooperated fully with the survey team.

Counties to be visited were selected from the lists provided by the state officials. The basis of the selection was the concentration of camps expected to be open at the end of May. The counties with the highest density of open camps were chosen with at least two such counties selected in each state. In several states, a number of counties met the requirement for a high density clustering of open migrant camps. In these states, the counties containing the largest number of camps were visited. Table 2.3 lists the counties selected for the survey. Figure 2.1 shows the locations of these counties.

Table 2.3. Counties Selected for the Survey

State	County
1. California	a. Fresno b. Monterey c. San Joaquin
2. Florida	a. Collier b. Palm Beach
3. Michigan	a. Berrin b. Manistee
4. New York	a. Orange b. Suffolk
5. Texas	a. Castro b. Dawson c. Hale d. Lubbock
*6. Maryland	a. Kent b. Prince Georges
*7. Virginia	a. Northampton b. Accomack
*8. New Jersey	a. Gloucester b. Salem

* Data collected from these states were not used in the primary data analysis.



= Areas visited by the N.B.S. survey team

Figure 2.1 - Location of Counties selected for field visits.

In order to select the individual camps which would be visited, each eligible camp on the original list was numbered in sequence. The camps were then chosen using a table of random permutations (Appendix D). The selection process consisted of going through the table of random permutations in some consistent fashion (e.g., up and down the columns) until a number equivalent to a camp number was reached. This camp was then listed as one of the camps to be visited. Six camps were selected in each county for each day that the NBS interviewer planned to be in that county. An estimate was made that the interviewer could visit approximately three camps in one day. The actual number visited would depend on the size of the camps and the distance between camps. An additional three camps were included since it was anticipated that some of the camps, listed as operating during May, would actually be closed.

2.2. Procedure Following the Selection of Camps

2.2.1. Travel to Preselected Campsites

After the list of camps was drawn up, the state officials responsible for the camps were called and informed as to the counties that would be visited and the dates of the visits.

The NBS interviewers* then went to the selected states and usually met the principal state official responsible for migrant housing. In addition to explaining the purpose of the survey, the interviewer emphasized that the survey was intended only to establish the facts of

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* In addition to the authors, the NBS study team included Mr. Donald Corrigan of TAD.

migrant living conditions—the interviewer was not looking for evidence of violations of state or local regulations. Similarly, the local health officials were assured that the survey team was not looking for instances of negligence by the officials themselves.

After this meeting, the interviewer traveled with the state official to the counties shown in Table 2.3. In most cases, the interviewer also met with the sanitarian responsible for certifying the camps in the county that was visited. Replies to survey questions which could only be answered by a local health official were obtained at this time (Questions A1, A2, A7 and A8). These questions dealt with the date and findings of the last water sample and any housing violations noted on the last inspection.

The visitors to a migrant camp usually consisted of the NBS representative, the state official and the local sanitarian. The camp owner was not notified in advance, that he would be visited. However, the owner's permission was requested before his property was entered. None of the owners refused entry.

2.2.2. Procedure in Using the Questionnaire to Evaluate Migrant Housing

The questionnaire used by the NBS survey team is shown in Appendix B. The areas covered by the survey included living quarters for individual families, dormitories, and communal facilities for bathing, laundry, kitchen, toilet and garbage disposal. In addition, the general camp grounds were viewed along with the water source and sewage disposal system if they were located at the camp.

In answering the questionnaire, the NBS representative relied mainly on his own observations. He avoided asking questions of the camp owner or the camp residents. Many of the questions required that a count be made of the number of facilities at the camp, such as the number of shower heads or mechanical washers, as well as the condition of these facilities. Conditions associated with good sanitary practice were recorded, such as the existence of screens and the availability of containers with tightfitting lids for solid waste disposal.

In answering questions pertaining to general sanitary conditions, the interviewer would merely note the occurrence or nonoccurrence of the pertinent condition. For a camp to be recorded as meeting a particular sanitary standard, all the facilities of the camp would have to exceed the standard. For example, all of the occupied units would have to have screens in good repair if the camp was to be considered as having screens. Similarly, if one housing unit did not provide heat to its occupants, the camp was classified as not providing heat to all occupants.

In some of the questions, the interviewer was required to subjectively judge some aspect of a facility, such as whether the bedding was clean, if the water used for laundry was hot, if the bathing facilities were clean, etc. Prior to the actual trips, all the members of the survey team made simultaneous visits to two camps in Maryland in order to encourage a uniform consensus in their judgments. Unfortunately, due to the brief time allowed for preparing for the field visits, the survey team was unable to view a sufficient number or variety of camps.

A summary of the survey team's findings is shown in Appendix A. A discussion of these findings is given in Section 5.0.

3.0. CONSTRUCTION OF QUESTIONNAIRE

3.1. Background to the Development of the Questionnaire

CHS desired that the present study provide a survey design which would aid in the assessment of the sanitary conditions of farm labor camps. The first survey was designed to be conducted by laymen with the assistance of professionally trained sanitarians.

The data acquired in this study and any future similar studies is intended for use by CHS in planning and evaluating its migrant health program. A basic assumption for the study is that there is a relationship between sanitary conditions of migrant housing and the health of the migrant farm workers. The survey was intended to assess only the living and sanitary conditions of migrant housing which pertained to health and disease control.

Familiarity with the following were required in the construction of the questionnaire:

1. Current regulations relating to migrant farm labor camps,
2. A knowledge of generally accepted sanitary practices, and
3. Information about the living habits and life style of migrants.

The NBS survey team was assisted by several well known authorities in the design of the survey. Although a number of prominent specialists were consulted, three principal advisors were used. These were:

Mr. Paul Agnano, Rural Health Branch, Community Health Service,

Professor John Cookson, Department of Engineering, University of Maryland, and

Mr. Boren Chertkov, Former legal counsel for the Senate Subcommittee on Migrant and Seasonal Farm Worker Powerlessness.

These advisors provided the NBS staff with the necessary background information used to devise the questionnaire. They identified the following basic references for the questions included in the questionnaire.

The first three references deal with migrant housing and the findings of past surveys, while the remaining ones contain administrative or regulatory provisions for migrant housing.

1. "Pieces and Scraps: Farm Labor Housing in the United States," by Lee P. Reno, Rural Housing Alliance, September 1970. Lib. Cong. No. 79-141814.

2. "Michigan Housing Report," Migrant Research Project and the United Migrants for Opportunity, Inc., May 1970.

3. "Hearings from the Senate Subcommittee on Migrant and Seasonal Farmworker Powerlessness." July 1970.

4. "Occupational Safety and Health Standards," Subpart J, "General Environmental Controls," OSHA, Department of Labor, Federal Register, Vol. 37, No. 202, October 18, 1972.

5. "Migratory Labor Camp Laws, Rules and Regulations," Texas State Department of Health.

6. "Housing for Migrant Agricultural Workers, Labor Camp Standards," Department of Labor, Bulletin 235 (Revised) November 1962.

7. "Housing for Agricultural Workers," Part 620 of Chapter V, Title 20 of the Code of Federal Regulations, Federal Register, Vol. 33, No. 213, October 31, 1968.

8. "Federal and State Statutes Relating to Farmworkers, A Compilation," report prepared for the Subcommittee on Migratory Labor of the Committee of Labor and Public Welfare, U. S. Senate, December 1972.

9. "APHA-PHS Recommended Housing Maintenance and Occupancy Ordinance," Department of HEW, PHS Publication No. 1935, 1969.

10. "California Administrative Code, Title 25, Chapter 2, Employee Housing," State of California, January 27, 1973.

After an examination of the above documents and discussions with the advisors, it was decided that the survey instrument should be a checklist, modeled after current state inspection forms. The same inspection forms are designed to aid a sanitarian in determining whether the sanitary and living conditions in a farm labor camp meet minimum legal standards. The checklist format is especially simple for laymen to use in evaluating camps. Examples of the checklist forms used by inspectors in New York and Texas are shown in Appendix C.

A preliminary checklist was developed from the source documents. An especially useful publication was the Department of Labor Bulletin, Number 235, "Housing for Migrant Agricultural Workers, Labor Camp Standards." This document contained a synopsis of state regulations relating to migratory labor camps. A checklist which contained a reasonable listing of minimum standards was developed with the assistance of this bulletin and the descriptions of the Texas and California Codes.

3.2. Testing and Redevelopment of the Contents of the Checklist

The first checklist developed was tested in two camps in Maryland. Several of the questions, taken from the above documents, were found to be awkward and susceptible to misinterpretation. In addition some questions were difficult to answer. The checklist was revised, and questions such as, "will the heating device maintain 65°F?" were eliminated or replaced with non-quantitative questions such as, "is the heating device adequate?"

The revised checklist contained ten sections. These were:

A. General Information
B. Water Supply
C. Toilets or Privies
D. Bathing and Laundry Facilities
E. Sewage Disposal
F. Housing and Screening
G. Living/Sleeping Quarters
H. Cooking Facilities
I. Garbage Disposal
J. General Camp Area.

The new form was then tested in six camps in New Jersey. While still not completely satisfactory, it was judged to be adequate for purposes of this first survey. The completed form used in the survey is shown in Appendix B.

3.3. Description of Questionnaire Sections

The following is a description of each section of the questionnaire including some of the information that the survey team hoped to acquire when asking the questions.

3.3.1. General Information

This section contained nine questions pertaining to the surveyed camp. It was anticipated that a state or local official would accompany the NBS interviewer to the camp, and that this information could be obtained from their records. Questions pertaining to the type of crop or to the type of migrants in the camp were included in the belief that a subsequent analysis might indicate a relationship between camp sanitation and these factors.

3.3.2. Water Supply

This section was designed mainly to evaluate the supply of drinking water. The two items which occur most frequently in state and federal regulations on drinking water are potability of the water and adequacy of the system. Since tests for these factors can only be done by professional sanitarians, seven questions were devised which served as surrogate questions for potability and adequacy.

3.3.3. Toilets and Privies

Questions in this section deal primarily with the cleanliness and number of toilets and privies. Most states have some standards requiring that those facilities be shielded from disease carrying insects and still be readily available for use by the camp occupants.

3.3.4. Bathing and Laundry Facilities

This section is designed to aid the interviewer in recording the cleanliness and availability of bathing and laundry facilities. Questions were also included on the availability of hot water and the provision for waste water runoff. The first group of questions was intended to determine if the facilities were close enough to living quarters to encourage good sanitary practices by migrants. The questions on waste water runoff were designed to determine if the camp contained possible breeding grounds for disease carrying insects.

3.3.5. Sewage Disposal

A number of the questions in this section were removed after it was found that an evaluation could not be made by laymen. The questions included such factors as the adequacy of the drain field and its proximity to the water supply. The changes are discussed in the section on proposed improvements in the checklist.

3.3.6. Housing and Screening

This section deals with the types of living quarters and materials used in the construction of the housing. The questions were designed to

determine whether certain desirable minimum features were present in the housing. Since structural soundness is a difficult item to assess in checklist form, the interviewer was encouraged to write qualitative remarks on the structure. The remarks would be based on the interviewer's observations and his limited knowledge of construction material.

3.3.7. Living/Sleeping Quarters

This section was used to assess overcrowding and cleanliness in the housing units, but overcrowding was difficult to assess in the field survey. It was not possible to view all of the living quarters in camps with a large number of buildings. In addition, it was difficult for a layman to measure living space in a brief survey. As a result, the questions on overcrowding were not as complete as the survey team would have desired. A typical problem found in the field survey was that it was not possible to determine the number of migrants using a bed.

3.3.8. Cooking Facilities

Most of the questions in this section were concerned with cooking facilities in shared kitchens. The questions emphasized factors that could promote the spread of disease among non-family members. In addition, questions were included on items such as the availability of hot and cold water and the presence of vermin in areas used to store food.

3.3.9. Garbage Disposal

Questions in this section were designed to determine whether the garbage facilities were adequate. Questions on the frequency of garbage

removal could not easily be answered so surrogate questions were used. One area, relating to central garbage facilities, was investigated at length.

3.3.10. General Camp Area

This section contained six questions on general camp-wide conditions. These items appear in nearly all relevant state and federal regulations.

4.0. SAMPLING PROCEDURE AND ANALYSIS OF RESULTS*

4.1. Background of the Sampling Plan

In deriving a sampling plan for the survey, it was determined that the only feasible approach, given the constraints in time, was to consider only a segment of the United States as the population. The segment consisted of counties within five states. The states selected usually had the largest concentration of open migrant camps for its particular region of the United States. The procedure used in selecting the states is described in Section 2.0, while the states visited are shown in Table 2.1. Within each of these states a minimum of at least two and occasionally three counties were visited. The localities chosen in each state were the areas having the highest known concentration of camps open during May 1973.

Since the states and counties within the state were not selected at random from each region, the findings from the field visits cannot technically be generalized to the remainder of a region or to the country as a whole. However, since the segment studied contained especially large concentrations of camps, it is felt that the findings are a reasonably good indication of the present state of migrant camps.

4.2. Selection of Camps and Method of Analysis

The sampling plan considered each of the counties as a stratum or a subunit of the population of camps studied. Within each stratum a sample of camps was selected according to a modified random procedure.

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* The statistical procedures and notations follow the discussion on sampling by Kish (1).

Estimates of the population mean and an associated standard estimate of the mean was computed for each strata. The separate estimates were then combined to provide an estimate of the total population of camps in the segment of the United States that was studied.

A major advantage of stratification is that the sampling rate for each stratum can be varied. In combining the separate estimates across strata to obtain an estimate of the total population, the estimate obtained from each stratum can be weighted according to the proportion of camps in the total population located in that particular stratum.

With each stratum, the sequence of procedures was to first list all migrant camps in that county which met the criteria of having a legal capacity of 20 or more migrants, and which were believed to be open at the time of the survey.* This listing was taken from the list of all camps sent to NBS by state officials. Then six camps were selected from the list for each day that the investigator planned to visit a particular county. This selection process produced the sample of camps that were to be visited.

In a number of counties the local sanitarian expressed a desire to show the investigator additional camps that had not been randomly selected. The investigator recorded his observations for these non-random camps on the survey instrument, following the same procedures he used for the randomly selected camps. A separate data analysis was made for these

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* A camp listed as open meant only that the owner was legally eligible to open the camp if he wanted to at the end of May. Many eligible camps were not actually open since the owner's labor requirements were met by farm laborers permanently residing in the community.

camps, since it was recognized that the sanitarian may have been biased in his selection of camps. The analysis used for these camps is discussed at the end of this section.

The selection process was designed to allow each eligible camp an equal chance of being included in the sample of camps to be visited. The only exception to this was that once a camp had been selected it was not eligible to be picked again in subsequent choices. The random selection without replacement was accomplished with the aid of a table of random permutations (an example of which is shown in Appendix D). A correction factor for selecting camps without replacement was included in the formula for the standard error of the mean.

The responses to the questions were scored in one of three ways. Questions which provided descriptive information on the types of camps visited such as capacity, types of crops grown, etc., were tallied and categorized according to frequency. Replies to questions that required a yes or no answer were processed by assigning a value of 1 to each yes reply and a value of 0 to each no reply. In a number of camps the yes/no question was not applicable, or could not be answered. In these cases, only those camps for which the question was applicable were used in computing the means and standard errors.

The results of questions to which a numerical response was required were converted into a ratio consisting of the number of units available to the total authorized capacity of the camp. Although the actual number of occupants at a camp might be less than the camp's capacity, the camp owner was still required to provide facilities for the legal capacity of the camp.

4.3. Computational Formulae Employed in Analysis

The mean for each stratum was computed for each question. The mean for the numerical replies were computed as follows:

Formula 1A

$$\bar{x}_o' = \frac{1}{n_s}\sum^{n_s} x$$

where $\bar{x}_o'$ is the estimate of the population mean derived from a random sample of n_s camps visited within a stratum.

The mean reply for questions resulting in a yes/no answer was computed as:

Formula 1B

$$\bar{x}_o' = \frac{1}{n_s}\sum^{n_s} y = p'$$

where $\sum^{n_s} y$ is the number of camps in a stratum that were sampled that replied with a yes answer. p' is the proportion resulting from dividing $\sum^{n_s} y$ by n_s.

Following the computation of the mean for each question in a stratum the associated standard error for that sample mean was computed. The formula for the standard error for the numerical replies was:

Formula 2A

$$\text{Est. S.E. } (\bar{x}_o') = \left[(1 - \frac{n_s}{N_s}) \quad \left(\frac{\sum^{n_s} (x - x_o')^2}{n_s\,(n_x - 1)}\right)\right]^{1/2}$$

where N_s is the total number of camps in the county which met all the survey requirements.

The standard error for questions requiring a yes/no answer was:

Formula 2B

$$\text{Est. S.E. } (p') = \left[(1 - \frac{n_s}{N_s}) \quad \frac{p'(1 - p')}{n - 1}\right]^{1/2}$$

The two standard error formulas are familiar formulas for the computation of the standard error with the exception of the first term on the right which is a correction term for sampling from a finite population without replacement.

Many of the camps listed as open during May by the state authorities were not actually open, due to inclement weather, difficulties in obtaining migrant labor, etc. To derive an estimate of N_s, the proportion of camps actually found to be open was multiplied by the number of potentially open camps in the county. For example, the NBS investigator might have been given a list of 12 camps to visit from a possible 60 camps in a county. If only 9 of the 12 camps were actually found to be open, the fraction 9/12 was multiplied by 60 to obtain an estimated 45 camps open in the county.

After the derivation of the mean and standard error of the mean for each stratum, a mean and standard error was computed for the entire sample by combining the estimates across all of the strata. This combination included a weighting factor to allow for differences in the number of camps contained in each county. The weighting factor increased the influence of communities which contained large numbers of camps. The weighting factor was:

Formula 3

$$w_n = \frac{N_s}{N}$$

where N is total number of eligible open camps in the segment of the United States that was studied.

$N = \sum_{s}^{R} N_s$ where R is the number of stratum.

The computation of the weighted combination is given by:

Formula 4

$\bar{x}_w' = \sum^{R} w_h \cdot \bar{x}_o'$ where $\bar{x}_w'$ is the weighted estimate of the mean of the entire population obtained from all of the strata visited.

The computation of the standard error for the weighted mean is given by:

Formula 5

$$\text{Est. S.E. } (\bar{x}_w') = \left[\sum^{R} w_h^2 \left(1 - \frac{n_s}{N_s}\right) \left(\frac{\sum^{n_s} (x - x_o')^2}{n_s (n_s - 1)} \right) \right]^{1/2}$$

The means and standard errors for each question were derived for each stratum and combined according to formulas 4 and 5. The results are shown in tabular form in Appendix A and are discussed in Section 5. The findings are provided only for the entire population studied rather than for individual stratum. This decision was made since in some counties visited there were only a few camps open at the end of May. Presenting means for this small a sample would have revealed information on individual camps. The NBS representative had assured the camp owners that data on individual camps would be kept confidential.

The above account describes the treatment of data obtained from camps chosen by a random sampling technique. Data collected from camps which were chosen by the local sanitarians were not included in this analysis since it was felt that the selection of these camps may have been dictated by the biases of the sanitarian to show especially good or especially poor camps in his community. However, means were computed on the data collected at the non-randomly selected camps according to Formula 1. A combined mean was then computed in which each county visited was

given an equal weight. These means are reported separately from the means derived from the randomly selected camps.

5.0. REVIEW OF SURVEY FINDINGS

5.1. Overview

Each part of the questionnaire will be examined and the essential results discussed in the following review of the survey findings. Where appropriate, a reference will be made to state or federal regulations with remarks on how the findings pertain to the regulation. Comparisons will be made between the results of data collected from the random selections of camps and camps to which the local sanitarian directed the NBS investigator. The latter are referred to as non-random camps.

5.2. Sections of the Survey

5.2.1. Water Supply

Most state and federal regulations (2) require an adequate and convenient supply of water. Standards for the quality of the water is established by the local health authority. However, in 22% (7%)* of the randomly selected camps, no water sample had been taken in the first five months of 1973. All of these camps were occupied, and the water was being used without any assurance that it was safe.

As shown in Figure 5.1, the principal water source is a well in 62% of the random camps and 56% of the non-random camps. It should be noted that 28% (4%) of the randomly selected camps had wells which were not properly sealed. These camps, as well as the 14% using cisterns,

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* The figures in the parenthesis are the standard error of the mean values. There is a 95% probability that the population mean lies in a range between the sample mean and $\pm$ 2 standard errors.

could be prime sources of water carried diseases if water purification practices were inadequate.

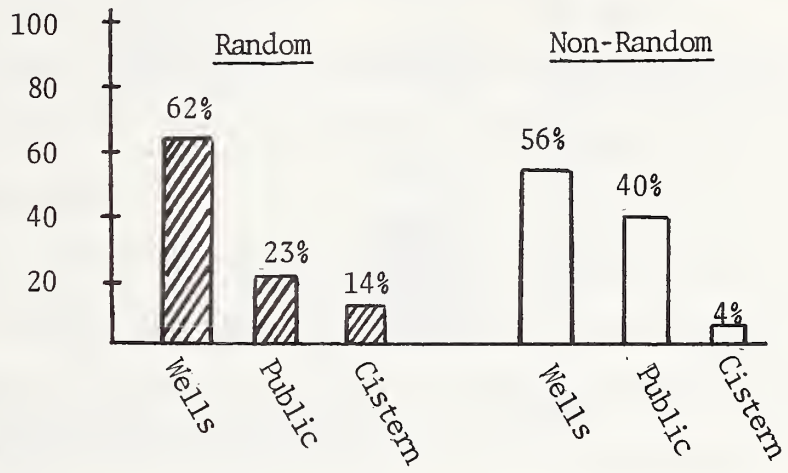

Figure 5.1. Sources of Water Supply

A surprising 23% of the random and 40% of the non-random camps were linked to a public water supply. It may be assumed that this source water is safe. All of the camps had water which was judged by the interviewers to be clean and clear looking. Only one camp in each of the random and non-random samples had a public drinking cup.

A question was included as to whether a resident of the camp had to walk more than 100 feet to get a drink of cold water. Only 2% (0.2%) of the residents in the randomly selected camps had to walk more than 100 feet as compared to 17% in the non-random camps. However, in 16% (1%) of the random camps, the water supply was not working on the day the camp was visited. Thus, in nearly 1/5 of all the camps, fresh water was not readily available to the camp occupants.

As shown in Figure 5.2, 37% (8%) of the randomly selected camps had water piped directly into the camp living quarters. However, this was true for only 23% of the non-randomly selected camps. This question

was included since the shorter the distance that water must be carried the less likely that it will become contaminated.

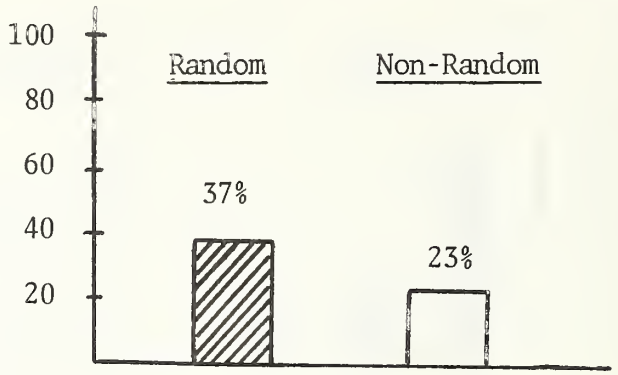

Figure 5.2. Percentage of Camps with Water Piped into Living Quarters

5.2.2. Toilets and Privies

An interesting finding of the survey was the decreased use of privies. In some states, such as California, privies are illegal, and growers must provide chemical toilets. The original questionnaire was not prepared for this, so question E1 was rephrased to read: "Are there any privies in this camp?" A surprising 86% (6%) of the camps did not have a single privy. The large number of camps without privies prevented analysis of question C5 and C7 which were designed for camps with privies. Question C4 confirmed these findings on privies because in the random sample 85% of the toilets were flush toilets, while only 15% were privies. In the non-random sample, 75% had flush toilets while 25% used privies.

However, toilet facilities for the migrants are far from ideal. Eighty percent (7%) of these facilities are shared. They were generally large washrooms in which the toilets, showers, lavatories, urinals and, occasionally, laundry facilities were combined. Such a washroom may be

in the same building as the living quarters, but it was more frequently part of a separate building. This required the migrant to walk outside his living unit to use the washroom.

Twenty percent (7%) of the camps had toilets in individual living units. Of these, 49% had the only available drinking water tap in the same room as the toilet.

Nearly all states have regulations regarding the maximum distance a resident of a migrant camp should have to walk to use the toilet facilities. Federal requirements establish a maximum distance of 200 feet (2). The survey indicated that 96% (2%) of the camps were in compliance with this standard.

Ninety-two percent (8%) of the toilet buildings (or rooms) had tightfitting doors. The data further show that 16% (13%) of the randomly selected camps lacked ventilation in the toilet rooms. In the non-randomly selected camps only 5% showed a similar lack of proper ventilation. The camps did not do as well with regard to the screening of toilet facilities. Figure 5.3 shows that 21% (8%) of the randomly selected camps had unscreened openings. In the non-random camps, the figure rises to 42%.

Federal regulations (2) state that, "an adequate and accessive supply of toilet tissue, with holders shall be furnished." This requirement is not found in most state codes for migrant housing. Question C14, did not require the surveyer to record whether there was paper and holder in every water closet, but only whether there was some toilet paper available. Still, 36% (7%) of the randomly selected camps and 51% of the non-randomly selected camps had no toilet paper available.

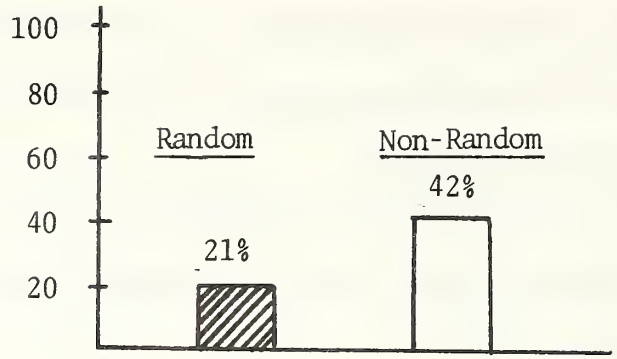

Figure 5.3. Percentage of Camps with Inadequately Screened Toilet Facilities

Various state regulations require from 1 toilet per 10 people to 1 toilet per 25 people in a camp. The federal regulation (2) requires at least 1 toilet seat for each 15 occupants. The survey showed that there was, on the average for all camps, 1 toilet seat for every 15.6 residents. It should be noted that some of the camps did not meet the federal regulations. One camp did not even have any usable toilets.

Toilets can be one of the most serious sources of communicable diseases in a migrant labor camp. Yet, 26% (2%) of the facilities were either dirty or foul smelling. In the non-randomly selected camps, the figure was 30%. Poor maintenance and lack of local enforcement was the probable reason for the condition of the toilets. The camp owner frequently blamed the migrant and held him responsible for cleaning the facilities. In some states, such as California, the camp manager is required to designate a laborer to clean the facilities. Nevertheless, the final responsibility for the cleanliness of a shared toilet facility belongs to the owner.

5.2.3. Bathing and Laundry Facilities

As with toilet facilities, 22% (6%) of the living quarters had bathing and laundry facilities with hot and cold running water. Answers to questions C1 and D1 show that full services are provided when plumbing to individual quarters is available. The primary type of bathing facility was showers (89%). Only 9% of the camps had tubs. Two percent of the camps offered both showers and tubs. These figures applied to non-random camps as well. Hot water was available in 91% (6%) of the camps, and all but one camp had some type of bathing facility available.

A migrant farm laborer spends much of his working time in the fields exposed to dust, dirt and pesticides, some of which may be harmful to him. Yet, in over 28% (13%) of the camps, the migrant had to walk more than 100 feet to bathe. This is usually an outdoor walk to an unheated facility. It is unusual for the owner to provide a changing room, and 20% (7%) of the time there were not even hooks to hang clothes on in the shower room. In 28% (14%) of the cases, water formed pools due to improper drainage on the shower room floor; and in 15% of the bathing facilities the floor was dirt rather than cement or wood required by most state regulations. Figures 5.4 to 5.6 depict these situations.

It is possible then, that a migrant may have to walk a great distance in inclement weather to an overcrowded shower room where he has to lay his clothes on a wet, dirt floor while he bathes.

Finally, 23% (13%) of the facilities were judged to be unclean (dirty or foul smelling), and 14% (13%) had waste water draining onto the surface rather than into some approved sewer or septic system.

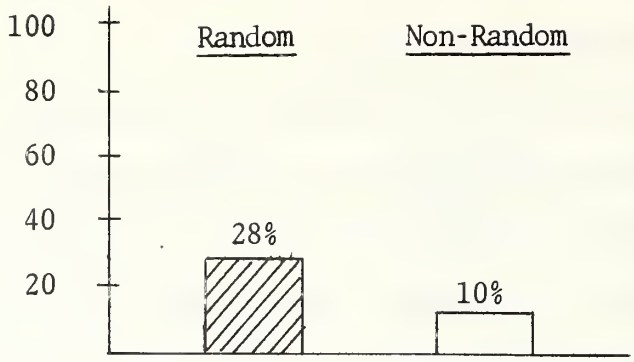

Figure 5.4. Percentage of Camps where the Migrant Must Walk More than 100 ft. to Bathe

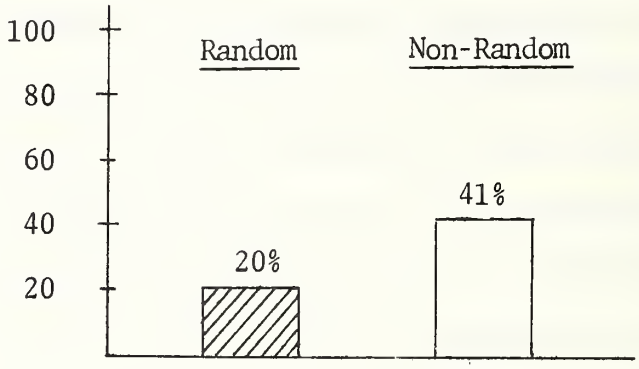

Figure 5.5. Percentage of Camps where There Are No Hooks for Hanging Clothes

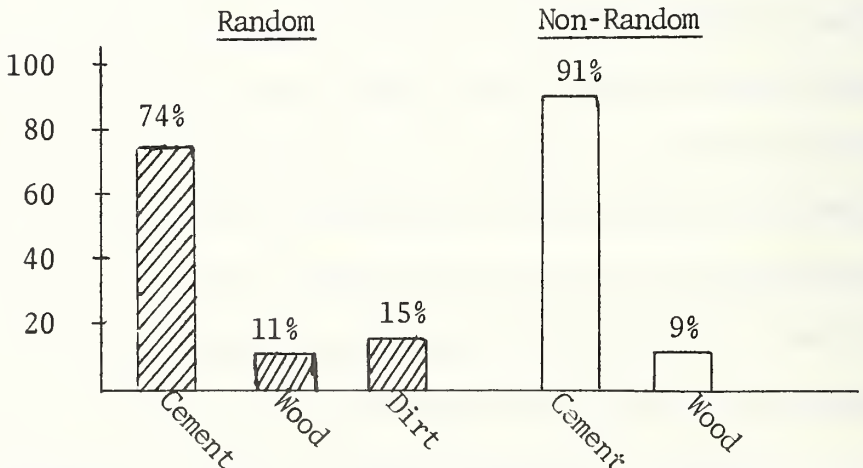

Figure 5.6. Types of Floors Found in Bathing Facilities

Laundry and bathing facilities are often combined, and much of what has been said about the condition of the bathing facilities applies to laundry facilities as well. The average number of laundry tubs available in a camp with laundry tubs was 1 for every 15.8 migrants. However, in 33% of the camps no tubs were provided at all. Indeed, in 17% (9%) of the camps, hot water was not available for laundering and as with the bathing facilities the percentage of camps with surface drainage of waste water was high 19% (15%). Ninety percent of the laundry facilities had cement floors while 10% had dirt floors.

5.2.4. Sewage Disposal

The sewage systems were not observed to be inoperative in any of the camps. Waste water was not seen to form pools on the ground, and from what could be determined, sewage disposal was not a health problem in the camps visited.

5.2.5. Housing and Screening

A variety of housing types employing a number of forms of building material were provided for the migrants. Two hundred and ten buildings in 20 randomly selected camps and 128 buildings in 21 non-randomly selected camps were observed. Tables 5.1 and 5.2 show the type of housing used by migrants. Tables 5.3 and 5.4 show the principal construction material employed.

Table 5.1. Types of Housing Shown as a Percentage of the Total Number of Housing Units Observed

	Random		Non-Random	
Cabins, Small Houses	171	(81%)	75	(59%)
Motel Style	20	(10)	30	(23)
Large Houses	3	(1)	21	(16)
Barracks Style	14	(7)	2	(15)
Others	2	(1)	0	
	210	(100)	128	(100)

Table 5.2. Types of Housing Found in Migrant Labor Camps

	Random		Non-Random	
Cabins, Small Houses	16 camps	(55%)*	6 camps	(30%)*
Motel Style	11 camps	(38)	14 camps	(70)
Large Houses	2 camps	(6)	2 camps	(10)
Barricks Style	5 camps	(17)	9 camps	(45)
Other	2 camps	(7)	1 camp	(5)

Table 5.3. Principal Construction Material of Housing Shown as a Percentage of the Total Building Surveyed

	Random		Non-Random	
Wood	171	(81%)	81	(63%)
Cinder Block	20	(10)	20	(16)
Metal	10	(5)	2	(1.5)
Masonry	9	(4)	25	(19.5)

*Since some of the camps include more than one type of building and are constructed of different materials, the percentages in Tables 5.2 and 5.4 total to more than 100.

Table 5.4. Principal Construction Materials Used in Migrant Labor Camp Buildings

	Random		Non-Random	
Wood	20 camps	(69%)*	12 camps	(60%)*
Cinder Block	10 camps	(35)	13 camps	(65)
Metal	5 camps	(17)	1 camp	(5)
Masonry	2 camps	(7)	6 camps	(30)

Cabins are the most common form of housing, while wood is the principal construction material. There seems to be a trend towards the use of motel style units constructed of cinder blocks in the newer camps.

The survey team reported that the housing was in good or average condition. There was no mention of unsound buildings in their reports. None of the living quarters had dirt floors or showed evidence of leaking roofs. Nearly all the housing viewed by the survey team complied with the federal regulations requiring living units to be, "so located as to prevent the entrance of ground and surface water" (2). Also, electricity was available in every one of the housing units that was visited.

A problem referred to in previous surveys was the lack of tightfitting screened doors and windows. The NBS survey supported these reports. Buildings without tightfitting doors were found in 23 percent (14%) of the camps. One-third (4%) of the camps did not have self-closing devices on the screen doors as required by many state regulations. Screen doors were not provided at all in 49% (14%) of the camps. This can be serious since open doors are often the major source of ventilation

*Since some of the camps included more than one type of building and are constructed of different materials, the percentages in Tables 5.2 and 5.4 total to more than 100.

in a housing unit on hot days. Unscreened doors, left open for ventilation provide an easy source of entry for insects and disease carrying rodents.

Figure 5.7 shows that on questions relating to windows and screens there were few differences between the random and non-random camps. Nearly all state regulations require windows to be screened with at least 16 mesh screening. Actually, 19 percent (6%) did not meet this requirement. Sixteen percent (10%) of the screens were in some state of disrepair. Also, the windows in 19 percent (6%) of the camps would not open at least half way.

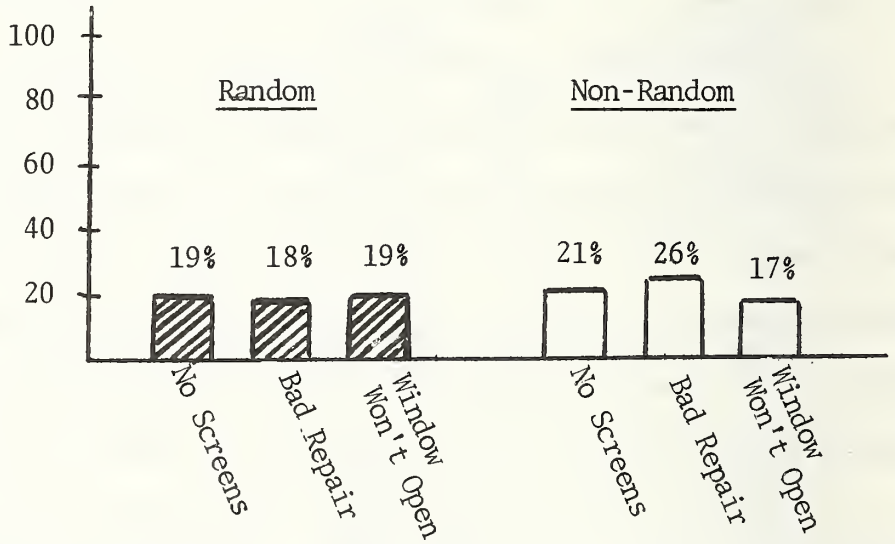

Figure 5.7. Comparison of Random vs. Non-Random Camps on Items of Windows, Screens and Repairs

The absence of screens, non-fitted doors, etc., meant that the migrants had no adequate protection against mosquitos and rodents. This was especially serious in camps where poor refuse disposal allowed the conditions for the breeding of disease bearing insects and rodents.

5.2.6. Living/Sleeping Quarters

This section was originally designed to determine the degree of overcrowding. Most of the remarks that were recorded indicated that overcrowding was not a problem. However, in six camps a notation was made that there would be extreme crowding if the camps were to accommodate their listed capacity.

All of the state and relevant federal regulations, (2) require a minimum seven-foot ceiling height in occupied rooms. Yet in 8% (6%) of the camps, rooms with less than this minimum were found. There was, however, 100% observance of two other widely accepted regulations that there should not be more than two tiers of bunk beds and that cots should be at least 12 inches off the floor. Ninety-three percent (22%) of the beds that were seen had metal frames. No substandard or unacceptable bed frames were found. In 82% (3%) of the camps, the owner provided bedding and/or mattresses. However, in 28% (18%) of the camps, the linen was observed to be extremely dirty. There was only one camp, however, in which there was any obvious indication of vermin.

The housing units that were visited appeared to be adequately heated. About 75% (6%) had some heating devices. The remaining 25% of the camps, were either not open during the cold season, or were located in a climate that was reasonably warm all year.

One of the most undesirable aspects of "bullpen" housing units is the lack of space to store personal effects. Sixty-nine percent (8%) of the camps did not provide any place to store personal items such as tooth paste, soap, razors, etc. Similarly, 48% (18%) of the camps did not provide any place to hang clothes.

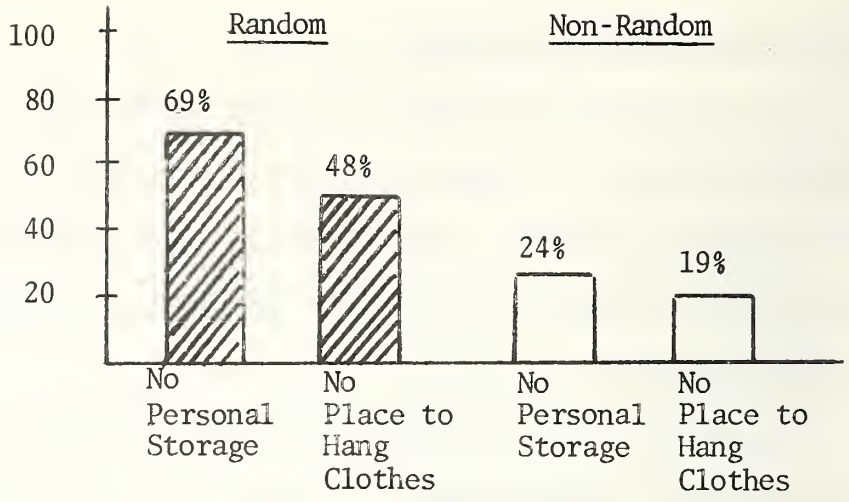

Figure 5.8. Comparison of Random vs. Non-Random Camps on Devices for Storing Personal Items and Hanging Clothes

5.2.7. Common Cooking Facilities

Shared kitchens, or eating areas, may be primary places for disease transmission. Yet 22% (18%) of the kitchens were not clean In some camps, open, overflowing garbage cans and flies were observed near the cooking area.

Every kitchen surveyed had hot and cold running water for washing dishes and a refrigerator for storing food. However, in 25% (18%) of the cases there were indications that the refrigerator would not keep the food cold even though most states require that the temperature be kept under 45°.

Only 49% (18%) of the camps provided adequate food storage space. This requirement was especially important since exposed food could attract rodents and disease carrying insects.

5.2.8. Garbage Disposal

Only 59% (13%) of the camps provided fly-tight, rodent-tight and durable garbage cans. Only 26% (15%) of these camps made garbage can lids available. As a result the majority of the camps seen had exposed garbage cans which can draw flies, mosquitos, and rats.

A few camps had no central disposal facility but used trash removal service instead. In 14% of the camps, the occupants had to walk more than 100 feet to dispose of their garbage. The central facilities consisted of dumpsters (63%), separate buildings (9%), and other (28%). The other forms of central facilities were open pits, dumps, or uncovered trucks. The latter facilities can become breeding grounds for rodents and insects. An especially serious factor was that in 34% of the camps the central garbage facility was within 100 feet of a kitchen.

5.2.9. General Camp Area

All state regulations require that the camp area be well drained and free from standing water. However, 19% (2%) of the camps were judged to have poor drainage. In addition, 41% (13%) had uncontrolled weed growth, and 18% (6%) had holes of at least five feet in diameter in which water could stand after a rain. Sixty-one percent (16%) of the camps had garbage and debris strewn about. This was strong evidence of the generally poor maintenance practiced at some of the camps.

6.0. PROPOSED IMPROVEMENTS TO PROCEDURES FOR CONDUCTING THE SURVEY

6.1. Purpose of Field Investigation

One purpose of the field investigation was to determine what problems might arise in a longer survey, and what procedures could be adopted to improve the accuracy of any longer survey. The following are suggestions for improving the procedures for any major national survey of migrant housing.

6.2. Suggested Changes to Procedures

6.2.1. Members of the Survey Team

The information obtained for the survey should be collected exclusively by members of the survey team. They should not, for example, rely on external sources for water samples or on the camp owner to provide information on how solid waste was disposed of after it was removed from the camp. This change is suggested due to the possible inaccuracies of these sources and to inadequacies in the documentation of their tests. In lieu of collecting data from these sources, it is suggested that the survey team include one or more professionally trained sanitarians who could perform any needed tests.

If all data obtained for the survey were produced by the survey team, there would be greater consistency in the results and comparisons would not be confounded by testing methods, disparate definitions, scaling differences, etc.

6.2.2. Time of Visit to Migrant Camps

The timing of the visits by the members of the survey team should be adjusted to reflect the stage of occupancy of the camps. Although some camps are open all year and include both permanent residents and migrants, most migrant labor camps are open only part of the year. The population of the camps tends to increase as the labor demands of the grower increase - usually reaching a maximum at harvest time. A common occurrence is that the available housing is not sufficient when there is a large influx of migrants. At such time, the grower may use improvised housing such as tents, or he may employ housing that has not met minimum legal standards. These high influx periods of migrant population may be extremely short - lasting from two to three weeks. If the survey does not include these periods, it may not detect some of the extreme conditions in migrant housing.

Another factor in adapting the survey to the camp habitation cycle is to consider the period of time during which the camp has been inhabited. Maintenance and care of the camps are minimal in many cases. The deterioration of the camps is increased by the overcrowding and poor sanitary habits of some of the occupants. Viewing the housing during an early stage of occupancy can result in a false inference that the camp conditions are better than they actually are during its entire period of use.

In future surveys, the nucleus of the survey team should function through the calendar year; it could be increased by short term hires as

the demands for survey members increased. The visits to migrant camps would be designed so a record could be made of the camp's condition during each phase of its occupancy: (a) prior to occupancy; (b) at an early stage of occupancy; (c) at peak occupancy; and finally, (d) during a later stage of occupancy, before the camp closes. Data collected from these successive stages would insure that any trends in sanitary conditions ate noted.

6.2.3. Collection of Data From Isolated Camps

It is conceivable that housing conditions are especially bad for isolated camps. The plight of the migrant in an isolated migrant camp, is less likely to receive public attention.

In order to insure that these camps are represented in any larger survey, it is suggested that a stratified survey design be employed. One level of the stratification would be the concentration of camps in the localities surveyed. The sampling rate within a stratum can be adjusted for the costs of collecting data within that stratum - for example, a smaller proportion of camps would be sampled for isolated camps than for camps located in areas of a high concentration of camps.

6.2.4. Consistency of Reports Made by the Interviewers

A feature noted in the description of the procedures was that only some of the questions required operational procedures such as measuring the distance between buildings. Replies to the other questions required a subjective judgment by the interviewer. The particular disadvantage of this practice as it pertains to this first survey, is that only one member of the NBS survey team would go to a locality such as a

state or county. Therefore, conclusion about the camps in that locale might be due to biases of the interviewer visiting the locality rather than to the camps themselves.

In any future survey, a series of techniques should be employed to minimize interviewer bias. These could include: (a) A reduction in the number of questions requiring subjective judgment, (b) Exposure of all of the survey team to a variety of camps during a training stage in order to insure that they respond to similar aspects of the camps in the same way, (c) Normalization of interviewer's responses. Responses of an interviewer in a locality will be made relative to the average of all his responses, including those made in other localities. The normalized score would eliminate any biases ascribable to tendencies of the interviewer such as leniency, (d) If feasible, replications of the survey would be made at the same camp by different interviewers. Interviewers' peculiarities would be minimized by averaging judgments across interviewers for the same camp.

7.0 PROPOSED IMPROVEMENTS TO THE QUESTIONNAIRE

7.1. Purpose of the Development of Test Instrument

One major purpose of the study was to field test a survey instrument which could be used by the survey team in evaluating migrant housing. It was felt that as field experience with the questionnaire was gained an improved version could be designed for future surveys. The checklist developed for the survey had serious shortcomings—some of which could not have been anticipated before the field visits.

7.2. Suggested Changes to Questionnaire

7.2.1. Measure of Overcrowding

A principal deficiency of the survey instrument was its inability to provide a quantitative measure of overcrowding. More time should be spent in each camp, and the survey form should be expanded to allow for the recording of dimensions of typical structures in the camp. In camps where there are a large number of buildings the interviewers could randomly select building units to visit. He would then record the number of occupants and the dimensions of the sleeping rooms in these units.

7.2.2. Measure of Ventilation

Related to the overcrowding of rooms is the adequacy of window space and ventilation. The literature on migrant camps indicate that poor ventilation is a prime source of the poor health of migrants. An index of adequate ventilation would require recording the dimensions of an inordinately large number of rooms. One possible solution might be the use of the random sampling technique proposed for overcrowding so that valid data could be obtained without measuring each living unit.

7.2.3. Types of Questionnaires Used

At least two types of questionnaires should be devised - one for family type camps and one for single person camps. Some of the data in the completed survey was ambiguous because this distinction was not made. Similarly, two sections on kitchen facilities should be included. The number of burners available for cooking, for example, is important only if the migrant prepares his own food and must share a communal stove—but it is not important if the camp has a cook who prepares food for everyone.

7.2.4. Enlargement of Sewage Disposal Section

The sewage disposal section in the survey form should be expanded. Qualified sanitarians should contribute to this section in order that the essential factors pertaining to the spread of contagious disease are included.

Garbage disposal was also inadequately treated in the survey. Questions should be included to determine the frequency of collection and the ultimate disposal of the garbage. Answers to these questions might be facilitated by unnanounced repeat visits to the camps.

8.0. REFERENCES

1. Kish, Leslie, Selection of the Sample. In Festinger, L. and Katz, D. (Editors) "Research Methods in the Behavioral Sciences," Holt, Rinehart and Winston, New York 1953.

2. "Housing for Agricultural Workers". Part 620 of Chapter V, Title 20 of the Code of Federal Regulations, Federal Register, Vol. 33, No. 213, October 31, 1968.

APPENDIX A. SUMMARY OF DATA ANALYSIS

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers N	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
A1. Has this camp been licensed or certified by a state or local official?	29	21	99%	90%	1%	10%	0.5%
A2. See page A-9.							
A3. See page A-9.							
A4. See page A-9.							
A5. See page A-9.							
A6. See page A-9.							
A7. Was a water sample taken in calendar year 1973?	29	7	78	100	22	0	6.6
A8. Was the sample positive?	25	7	1	0	99	100	0.6
A9. See page A-9.							
B1. See page A-9.							
B2. If a well, is it sealed?	20	13	72	85	28	15	3.6
B3. Is the water clear?	29	23	100	96	0	4	0.0
B4. Does each set of living/sleeping quarters have its own piped-in drinking water?	28	22	37	23	63	77	8.8
B5. Are there living/sleeping quarters more than 100 feet from the nearest cold drinking water?	28	23	2	17	98	83	0.2
B6. Are public or common drinking cups used?	28	23	6	94	4	96	6.1
B7. Is the water system at this camp operating today?	26	22	84	95	16	5	1.3

*R = Responses from random selected camps.
**NR = Responses fron non-random selected camps.

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers R	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
C1. Does each living/sleeping quarter have its own toilet?	28	23%	20%	13%	80%	87%	6.6%
C2. If yes, is it enclosed?	11	3	89	100	11	0	10.7
C3. If yes, is the only drinking water for the living/sleeping quarter in the toilet room?	11	3	49	33	51	67	0
C4. See page A-9.							
C5. Could not be analyzed due to lack of data.							
C6. Does any resident walk more than 200 feet to the nearest toilet or privy?	28	23	4	0	96	100	2.4
C7. Could not be analyzed due to lack of data.							
C8. Does the facility have tight fitting doors?	20	19	92	79	8	21	2.4
C9. Is the facility ventilated?	21	19	84	95	16	5	13.5
C10. Are there screens covering all holes or vents?	20	19	79	58	21	42	8.0
C11. See page A-10.							
C12. See page A-10.							
C13. See page A-10.							
C14. Is there toilet paper and holders provided?	27	23	64	48	36	52	7.2
C15. Are the facilities clean?	27	23	74	70	26	30	2.5
D1. Are there bathing facilities in each living/sleeping quarters?	29	23	22	22	78	78	6.5

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers N	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
D2. Is hot running water piped into each living/sleeping quarter?	29	23%	25%	17%	75%	83%	7.2%
D3. See page A-10.							
D4. Is hot running water piped into the bathing facility?	29	23	91	91	9	9	6.0
D5. Does any resident have to walk more than 100 feet to bathe?	29	21	28	10	72	90	12.8
D6. See page A-10.							
D7. See page A-10.							
D8. Are there hooks on which to hang clothes?	28	22	80	59	20	41	7.2
D9. See page A-10.							
D10. Does water pool on the floor of bathing facility?	27	22	28	18	72	82	14.8
D11. Does waste water drain to surface?	29	22	14	0	86	100	12.7
D12. Are bathing facilities clean?	29	22	77	68	23	32	13.0
D13. See page A-11.							
D14. See page A-11.							
D15. Is hot water available for laundering?	28	22	83	73	17	27	8.6
D16. Is hot water piped to the laundry facility?	26	22	80	77	20	23	9.2
D17. Does the laundry facility drain to surface?	20	18	19	11	81	89	15.3
D18. Floor of laundry facility is earth?	22	18	18	0	82	100	15.3

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers N	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
E1. Are there privies?	29	23%	14%	13%	86%	87%	5.6%
E2. Does waste water or sewage form pools on ground?	29	22	1	14	99	86	1.0
E3. Is the sewage system clogged, overflowed or inoperable?	29	23	0	13	100	87	0
F1. See pages 36 & 37 in text.							
F2. Do any buildings have earth floors?	28	23	0	0	100	100	0
F3. Are concrete floors at least 6" off the ground?	20	19	95	100	5	0	0
F4. Are wooden floors at least 12" off the ground?	14	12	97	100	3	0	1.0
F5. Can it be determined that the roof leaks?	28	22	0	5	100	95	0
F6. Do all buildings have tight fitting doors?	29	19	77	83	23	17	14.0
F7. Do the doors have self-closing devices?	29	23	33	61	67	39	4.0
F8. Is electricity available?	29	23	100	100	0	0	0
F9. Are electrical outlets overloaded?	29	22	0	0	100	100	0
F10. Do windows open at least 1/2 way?	29	19	81	83	19	17	6.3
F11. Do all windows have 16 mesh screening?	28	23	81	80	19	20	6.4
F12. Are the screens in good repair?	26	22	82	73	18	27	9.7
F13. Are screen doors provided?	29	23	51	65	49	35	13.1

QUESTIONS	Number of Responses		Percentage of Yes Answers		Percentage of No Answers		Standard Error
	R	NR	N	NR	R	NR	
G1. Are there separate quarters for each family?	24	18%	74%	56%	26%	44%	3.6%
G.2 Do any habitable rooms have ceilings less than 7 feet high?	29	23	8	4	92	96	5.6
G3. Do bunk beds have more than two tiers?	25	22	0	0	100	100	0
G4. Are all beds or cots at least 12" above the floor?	28	21	100	5	0	95	0
G5. Beds are made of metal frames?	28	21	93	100	7	0	2.4
G6. Are heating devices provided?	29	21	75	81	25	19	6.3
G7. If the answer to G6 is yes are they gasoline fueled?	15	17	4	0	96	100	0
G8. Could not be analyzed due to lack of data.							
G9. If there is a heating device, is it working?	21	17	100	94	0	6	0
G10. Does the owner provide bedding or mattress?	27	19	82	84	18	16	2.9
G11. If the answer to G10 is yes is it dirty?	20	18	28	50	72	50	17.6
G12. Is there evidence of vernim?	23	20	1	0	99	100	1.1
G13. Is there a storage space for personal health items?	24	21	31	76	69	24	8.0
G14. Are there hooks, etc., for hanging clothes?	24	17	52	71	48	29	16.2
G15. Is there less than 3 feet along one side and one end of each bed?	24	21	17	0	83	100	6.6
G16. Could not be analyzed due to lack of data.							

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers N	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
H1. Is the kitchen area clean?	14	16%	78%	69%	22%	31%	18.2%
H2. Is the kitchen sink metal or porcelain?	18	15	100	100	0	0	0
H3. Is the kitchen sink pitted or rusted?	14	15	74	40	26	60	9.8
H4. Is there a refrigerator?	14	17	100	88	0	12	0
H5. Are there indications that refrigerator doesn't work?	9	14	25	14	75	86	18.2
H6. Is there hot and cold water available under pressure?	14	17	100	71	0	29	0
H7. Can food be stored in vernim-proof containers?	14	17	49	35	51	65	18.4
H8. Are there sleeping quarters combined with the kitchen?	14	17	18	18	82	82	17.9
H9. Are there signs of vermin or insect infestation?	14	17	30	29	70	71	20.0
H10. This question could not be analyzed due to lack of data.							
I1. Are vermin-tight, durable containers provided for garbage?	29	23	59	39	41	61	13.0
I2. Do all containers have tight-fitting lids?	28	22	26	23	74	77	14.6
I3. Does any resident have to walk more than 100 feet to dump garbage?	28	23	14	4	86	96	8.7
I4. Could not be analyzed due to lack of data.							
I5. Is hot water available to wash garbage cans?	27	23	3	0	97	100	0.8

QUESTIONS	Number of Responses R	Number of Responses NR	Percentage of Yes Answers N	Percentage of Yes Answers NR	Percentage of No Answers R	Percentage of No Answers NR	Standard Error
I6. Could not be analyzed due to lack of data.							
I7. Could not be analyzed due to lack of data.							
I8. Does the central facility have a door?	7	2%	26%	50%	74%	50%	0%
I9. Is the central facility ventilated?	2	1	100	100	0	0	0
I10. If yes to I8 is it screened?	2	1	87	100	13	0	o
I11. Could not be analyzed to to lack of data.							
J1. Is the camp area well drained?	29	23	81	91	19	9	2.3
J2. Is the camp near or in a swampy area?	29	23	1	4	99	96	0.5
J3. Are there uncontrolled or noxious weeds in the camp?	29	23	41	17	59	83	12.8
J4. Are there holes at least 5 feet in diameter within 200 feet of the camp area?	29	23	18	22	82	78	6.1
J5. Are there buildings located near poultry or livestock quarters?	29	23	1	13	99	87	1.0
J6. Is there loose garbage, junk, or debris in the camp area?	29	23	61	35	39	65	15.8

A2. Conditions attached to camp certification?

6 Camps - Licenses granted only on one time basis.
2 Camps - Window space must be increased.
1 Camp - Sewer must be connected to public system.
1 Camp - Fire extinguishers needed in camp.
1 Camp - Screens needed to be repaired.

A3. Camp capacities, by geographic region, for single person camps

	Northeast		Southeast		Far West		North Central		Mid-East	
	R	NR	R	NR	R	NR	R	NR	R	NR
25- 50	6	0	3	1	5	1	1	0	0	4
51-100	0	0	1	0	1	0	2	0	0	6
101-150	0	0	1	0	0	3	0	0	0	0
151+	0	0	1	1	2	2	0	0	0	1

A4. Camp capacities by geographic region, for family camps

	Northeast		South Central		Far West		North Central	
	R	NR	R	NR	R	NR	R	NR
1-10	2	0	2	0	1	0	0	0
11-20	1	0	2	1	1	0	2	0
21+	0	0	2	2	0	1	1	0

A5. Type of Camp Quarters

Number of Responses		Men Only		Families		Men, Women Only		Men, Women, Families	
R	NR	R	NR	R	NR	R	NR	R	NR
29	23	54%	39%	20%	9%	1%	0	25%	52%

A6. Crop worked at camps

Crops worked at the farms visted were: apples, asparagus, grapes, celery, strawberries, cotton, melons, sugar beets, sugar cane, and sod.

A9. Sewage systems hooked into the camp

Number of Responses		Public Sewer		Private Sewer		Septic System		Other		Open Stream	
R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
29	23	7%	30%	25%	0	37%	61%	18%	9%	13%	0

B1. Source of the water supply

Number of Responses		Well		Cistern		Public	
R	NR	R	NR	R	NR	R	NR
29	23	63%	50%	14%	4%	23%	40%

C4. Toilet facilities

Number of Responses		Flush		Privy	
R	NR	R	NR	R	NR
29	23	85%	87%	15%	13%

C11. The weighted ratio of migrants toilet. (Based on listed capacity. No ratio was computed for non-random camps.)

15.6 migrants / toilet

One camp, which did not have a usable toilet, was not included in the ratio.

C12. The weighted ratio of male migrants/urinal. (Based on listed capacity. No ratio was computed for non-random camps.)

26.6 male migrants / urinal

Thirteen camps which had no urinals, were not included in the ratio.
Three camps, which were family camps, were not included in the ratio.

C13. The weighted ratio of migrants/ lavatory is? (Based on listed capacity. No ratio was computed for the non-random camps.)

19.3 migrants / lavatory

Eight camps, which had no lavatories, were not included in the ratio.

D3. Bathing facilities?

Number of responses		Showers		Tubs		Bath		None	
R	NR	R	NR	R	NR	R	NR	R	NR
29	23	89%	92%	9%	4%	2%	0	0	4%

D6. The weighted ratio of migrants shower head? (Based on listed capacity. No ratio was computed for non-random camps.)

12.2 migrants / shower head

One camp, which had no working shower, was not included in the ratio.

D7. The weighted ratio of migrants/tub.

There were too few camps with tubs to permit the computation of a meaningful ratio.

D9. The floor of the bathing facility?

Number of Responses		Cement		Wood		Earth	
R	NR	R	NR	R	NR	R	NR
29	22	74%	96%	11%	4%	15%	0

D13. The Weighted ratio of migrants laundry tubs? (Based on listed capacity. No ratio was computed for non-random camps.)

15.9 migrants / laundry tub

Seven camps, which had no laundry tubs, were not used in computing the ratio. Two camps had no laundry facilities at all.

D14. The weighted ratio of migrants/mechanical washer? (Based on listed capacity. No ratio was computed for non-random camps.)

25.8 migrants / mechanical washer

Fourteen camps, which had no washing machines, were not used in computing the ratio.

APPENDIX B. QUESTIONNAIRE USED IN SURVEY

A. GENERAL INFORMATION

TO BE OBTAINED FROM THE ACCOMPANYING PUBLIC SERVANT OR PUBLIC RECORDS.

[ ] 1. Has this camp been licensed, certified, or approved by a state or local health or housing official?

2. If the "approval" granted in #1 has conditions, state them _____

_____

3. The listed capacity of the camp is _____?

4. If capacity is quoted in family units, how many _____?

5. The camp quarters:

[ ] men only; [ ] women only; [ ] men and women only;

[ ] families; [ ] men, women and families?

6. The type of crop worked at this camp is _____?

7. When was the last water sample taken _____?

[ ] 8. Was the result of the sample in #7 positive? Are any remarks in order?

_____

_____

9. The sewage system in this camp is:

[ ] hooked to a public sewer;

[ ] hooked to a private sewer (with treatment facilities);

[ ] a septic system; [ ] a stream;

[ ] open ground; [ ] other, specify_____.

10. The code number is _____?

B. WATER SUPPLY

1. The source of the water supply is a:

   ☐ well; ☐ cistern; ☐ stream; ☐ other, specify _____.

☐ 2. If the source is a well, is it sealed?

3. The drinking water is:

   ☐ clear; ☐ turbid; ☐ discolored; ☐ foul smelling.

☐ 4. Does each set of living/sleeping quarters have its own piped in drinking water supply?

☐ 5. Are there living/sleeping quarters more than 100 ft. from the nearest cold drinking water?

☐ 6. Are public or common drinking cups used?

☐ 7. Is the water system at this camp operating today?

8. Remarks: _____

_____

C. TOILETS OR PRIVIES

☐ 1. Does each living/sleeping quarter have its own toilet?

☐ 2. If the answer to #1 is yes, is the toilet enclosed in its own room?

☐ 3. If the answer to #2 is yes, is the only drinking water supply for the living/sleeping unit in the toilet room?

THE REMAINING QUESTIONS PERTAIN TO COMMON TOILET FACILITIES.

4. The facilities available are:

   ☐ flush toilets; ☐ privies; ☐ other, specify _____.

5. Is any privy within 50 ft. of a:

   ☐ kitchen; ☐ living/sleeping quarters; ☐ well.

☐ 6. Does any resident have to walk more than 200 ft. to the nearest toilet or privy?

C. TOILETS OR PRIVIES (CONTINUED)

☐ 7. If there are privies, are the pits fly tight?

☐ 8. Does the facility have tight fitting doors?

☐ 9. Is the facility ventilated?

☐ 10. Does the facility have screens covering all holes or vents?

11. The total number of working toilet or privy seats is _____?

12. The total number of urinals available is _____?

13. The total number of wash basins available is _____?

☐ 14. Is there toilet paper and holders provided?

15. The facilities are:

☐ clean; ☐ dirty; ☐ foul smelling

16. Remarks: _____

_____

D. BATHING AND LAUNDRY FACILITIES

☐ 1. Are there bathing facilities in each set of living/sleeping quarters?

☐ 2. Is hot, running water piped into each living/sleeping quarters?

THE REMAINING QUESTIONS PERTAIN TO COMMON FACILITIES

3. The bathing facilities available are:

☐ showers; ☐ tubs; ☐ other, specify _____.

☐ 4. Is hot, running water piped into the bathing facility?

☐ 5. Does any resident have to walk more than 100 ft. to bathe?

6. The total number of working shower heads is _____?

7. The total number of tubs available is _____?

☐ 8. Are there hooks on which to hang clothes?

D. BATHING AND LAUNDRY FACILITIES (CONTINUED)

9. The floors of the bathing facilities are:

   ☐ cement; ☐ wood; ☐ earth; ☐ other, specify_____.

☐ 10. Does water pool on the floor of the bathing facility?

11. The bathing facilities drain off to:

   ☐ open ground; ☐ other, specify _____.

12. The bathing facilities are:

   ☐ clean; ☐ dirty; ☐ foul smelling

13. The total number of laundry tubs available is _____?

14. If mechanical washers are available, how many are working _____?

☐ 15. Is hot water available for laundering?

☐ 16. Is the hot water piped to the laundry facility?

17. The laundry facility drains off to:

   ☐ open ground; ☐ other, specify _____.

18. The floor of the laundry facility is:

   ☐ cement; ☐ wood; ☐ earth; ☐ other specify _____.

19. Remarks: _____

_____

E. SEWAGE DISPOSAL

☐ 1. Privy pits have been limed and back-filled after privy was moved?

☐ 2. Waste water or sewage can be seen forming pools on the ground?

☐ 3. The sewage system is clogged, over-flowed or not operating?

4. Remarks: _____

_____.

F. HOUSING, SCREENING

1. Type	No. of Bldgs.	Const. Materials	Usage and Remarks
Cabin (small house)	_____	_____	_____
Motel or dormitory No of rooms	_____	_____	_____
House (Farm or Boarding)	_____	_____	_____
Barricks	_____	_____	_____
Trailer	_____	_____	_____
Tents	_____	_____	_____
Other	_____	_____	_____

[ ] 2. Do any buildings have earth floors?

[ ] 3. Are ground level concrete floors at least 6 inches above ground?

[ ] 4. Are ground level wooden floors at least 12 inches off the ground?

[ ] 5. It can be determined that roof leaks?

[ ] 6. Do all buildings have tight fitting doors?

[ ] 7. Do the doors have self-closing devices?

[ ] 8. Is electricity available?

[ ] 9. There are indications that a number of electrical outlets are overloaded. Give details _____.

[ ] 10. Are windows easy opened at least 1/2 way for (ventilation)?

[ ] 11. Are all windows screened with at least 16 mesh screening?

[ ] 12. Are the screens generally in good repair (no holes)?

[ ] 13. Are screen doors provided?

14. No questions have been asked specifically about structural soundness, paint, or general condition because of the innumerable variations that could exist. Please provide detailed remarks about these items

_____

_____

_____

G. LIVING/SLEEPING QUARTERS

☐ 1. Are there separate quarters for each family?

☐ 2. Do any habitable rooms have ceilings less than 7 ft. high?

☐ 3. Do bunk beds have more than two tiers? If so, how many _____?

☐ 4. Are all beds and cots at least 12 inches above the floor?

5. Beds are constructed of:

☐ wood; ☐ metal; ☐ other, specify _____.

☐ 6. Are heating devices provided?

☐ 7. If the answer to #6 is yes, are any gasoline fuel?

☐ 8. If the answer to #6 is no, do you find any reason to believe that heat is needed? Describe _____.

☐ 9. If a heating device is provided, does it work?

THE REMAINING QUESTIONS PERTAIN TO BARRICKS STYLE FACILITIES ONLY

☐ 10. Does the owner provide and maintain the bedding?

☐ 11 If the answer to #10 is yes, is the bedding dirty?

☐ 12. Does the bedding show evidence of the presence of vermin?

☐ 13. Are storage facilities provided for personal health items (soap, tooth paste, etc)?

☐ 14. Are hooks (closets, ropes, etc) provided for hanging up clothes?

☐ 15. Is there less than 3 feet of space along <u>one</u> side <u>and</u> one end of each bed?

16. The number of square feet of floor space and cubic ft. of living space are important for sanitary reasons. In a survey such as this it is difficult to provide questions and space to cover all possible variations. Provide detailed remarks on evidence of overcrowding in family or barricks style facilities. Give dimensions and No. of beds where known _____

_____

_____

_____

H. COMMON COOKING FACILITIES

1. Kitchen or mess hall is:

   ☐ dirty; ☐ foul smelling; ☐ clean

2. The kitchen sink is made of:

   ☐ metal; ☐ porcelain; ☐ not there; ☐ others

☐ 3. The kitchen sink is pitted or rusted?

☐ 4. There is a refrigerator for food storage?

☐ 5. Refrigerator is present but there are indications that it will not keep food cold? Describe _____.

☐ 6. Kitchen has hot and cold water under pressure?

☐ 7. Food can be stored in closed, vermin-proof containers?

☐ 8. Sleeping quarters are combined with communal kitchen?

☐ 9. There are signs of vermin or insect infestation? Describe _____.

☐ 10. The total number of stove burners or hot-plates in the camp are ___?

I. GARBAGE DISPOSAL

☐ 1. Are water tight, metal containers provided for garbage?

☐ 2. Do all the containers have tight fitting lids?

☐ 3. Does any resident have to walk more than 100 ft. to have access to garbage cans? If so, how far _____?

4. The number of water tight metal garbage cans available are _____?

☐ 5. Is hot water available for washing garbage cans?

THE REMAINING QUESTIONS PERTAIN TO CENTRAL GARBAGE FACILITIES

6. The central garbage facility is a:

☐ dumpster; ☐ open pit or pile; ☐ separate bldg.;

☐ other, specify _____.

7. The central garbage area is within 100 ft. of:

☐ kitchen; ☐ sleeping/living quarters; ☐ well or cistern?

☐ 8. The central facility has no door?

☐ 9. If the central facility is a building, is it ventilated?

☐ 10. If the answer to #8 is yes, is it screened?

11. Remarks: _____

_____

J. GENERAL CAMP AREA

☐ 1. Is the camp area well drained?

☐ 2. Is the camp located in or near a swampy area? If yes, how close ____?

☐ 3. There are uncontrolled weeds, or noxious plants in the camp?

☐ 4. There are holes or depressions at least 5 feet in diameter within 200 feet of the camp in which still water may stand?

☐ 5. Are there buildings located near poultry or livestock quarters? If yes, how far _____?

☐ 6. There is loose garbage, junk, or refuse in the camp area?

APPENDIX C. SAMPLE INSPECTION FORMS USED BY STATE SANITARIANS

1. NEW YORK STATE INSPECTION FORM

2. TEXAS STATE INSPECTION FORM

NEW YORK STATE DEPARTMENT OF HEALTH
MIGRANT LABOR CAMP OPERATION AND MAINTENANCE INSPECTION REPORT

NAME AND ADDRESS	TOWN OR VILLAGE	COUNTY	CAPACITY	NO. OCCUPANTS M	F	C

0 2 (1–2) | (3) COUNTY | (5) CAMP CODE (8)

PRE SEASON 1 ☐
MID SEASON 2 ☐
POST SEASON 3 ☐ (9)

(10) DATE (15)

(16 – 18) (19–21) (22–24) (25–26)

GENERAL		
Volid permit to aperate	27	
Grounds and cammon use spaces clean	28	
General supervis ion and maintenance	29	
Supervision of children under 16	30	
Arrangements far medical care and first aid kit	31	
Notice of canstruction; permits if required	32	
Fire fighting equipment	33	
	34	
HOUSING AND SANITATION		
Adequate floor area per person in sleeping rooms	35	
Required beds and mattresses pravided and in gaod canditian	36	
Adequate electrical light outlets provided and warking	37	
Stoves and heaters of approved type. Electrical type graunded	38	
Hot water and heating facilities properly installed and vented	39	
Temperature at least 68°F where and/or as required	40	
Screens provided for all exterior openings of living quarters	41	
Water of satisfactory quality	42	
Adequate hot and cold running water where required	43	
Hot water temperature 110°F to 120°F	44	
Method of dispensing water	45	
No comman cup	46	
Water treatment. State residual Cl_2 _____ ppm	47	
Daily water system operating reports	48	
Disposal of all sewage and other liquid wastes	49	
Sewage system canstruction and maintenonce	50	
Sewage system treatment and operating reports	51	
Toilets, privies, urinals properly maintained	52	
Ventilation and lighting at toilets, etc.	53	

Storage of garbage and other refuse	54	
Disposal of garbage and ather refuse	55	
Plumbing fixtures and housing properly maintained	56	
Swimming pool/beach meets Part 6 requirements	57	
COMMISSARY AND SALE OF FOOD		
Storage of milk, milk products, faad	58	
Adequate mechanical refrigeration	59	
Only pasteurized milk, milk products sold or furnished	60	
Requirements of Part 14 met	61	
COMMON COOKING AND DINING		
Properly screened	62	
Dish washing facilities	63	
Adequate mechanical refrigeration	64	
Adequate area and seating facilities	65	
COOKING IN INDIVIDUAL QUARTERS		
Adequate mechanical refrigeration	66	
Adequate area and seating facilities	67	
Dish washing facilities	68	
RESPONSIBILITIES OF OCCUPANTS		
Dwelling units maintained in clean and sanitary condition	69	
Garbage and refuse disposal	70	
Insects, rodents, ather pests controlled	71	
Plumbing fixtures and housing properly used and cared for	72	
Illegal heaters not in use	73	
Coak stoves or burners not used for heating	74	

Note to Key Punch Operator
Autoskip to column 80

4 (80)

REMARKS (List by numbers)

PERSON INTERVIEWED AND TITLE	
WHERE INTERVIEWED	DATE INTERVIEWED
INSPECTED BY (SIGNATURE)	DATE INSPECTED
REP. REC'D BY (SIG.)	DATE REC'D.

GEN. 112 (REV. 10/71)

NEW YORK STATE DEPARTMENT OF HEALTH
MIGRANT LABOR CAMP STRUCTURAL INSPECTION REPORT

NAME AND ADDRESS	TOWN OR VILLAGE	COUNTY	CAPACITY	NO. OCCUPANTS		
				M	F	C

0 2 (1) (2) (3 COUNTY) (4) (5 CAMP CODE) (6) (7) (8)

PRE SEASON 1 ☐
MID SEASON 2 ☐
POST SEASON 3 ☐ (9)

(10) (11) (12) DATE (13) (14) (15)

16 – 18

HOUSING			SANITATION			REMARKS (List by numbers)
Grounds clean. Surface drainage	27		Water readily available within 100 ft.	53		
Structures easy to keep clean	28		Water source and storage protected	54		
Structurally safe, sound and in good repair	29		No cross or interconnections	55		
Floors in good repair, smooth readily cleanable	30		Toilets, privies, urinals properly constructed	56		
Ceiling height: 80% at least 7 feet	31		One toilet or privy seat per 15 occupants	57		
Adequate storage area per person	32		One urinal per 30 men	58		
Sleeping quarters for parents separated from children	33		Toilets within 200 ft. Privies between 50–200 ft.	59		
Opposite sexes separated except for families	34		Separate toilet facilities for each sex	60		
Minimum 27–inch clear space above bed surface	35		One handwashing unit per 15 occupants	61		
Natural light – Adequate where required	36		One shower head per 15 occupants	62		
Natural ventilation at least 40% of window area	37		Separate shower facilities for each sex	63		
Electrical light facilities where required	38		Dry dressing space adequate	64		
Wall type electrical convenience outlets where required	39		One laundry tray or washtub per 25 occupants	65		
Electrical wiring properly installed and maintained	40		One mechanical washer per 50 occupants	66		
Stoves fire protected and vented as required	41		If mechanical washers, 1 laundry tray or tub per 100 occupants	67		
Automatic hot water and heating equipment with safety controls	42			68		
Outside exit above ground floor. If window, max. 14 ft. above ground	43			69		
At least 2 doors from sleeping rooms for 10 or more persons	44			70		
Enclosed stairs above second floor with proper fire construction	45		**COMMON COOKING AND DINING**			
Fire resistant construction provided in housing for 15 or more	46		Separate from toilet and sleeping rooms	71		
Storage of toxic and flammable substances	47		Two burners per 10 occupants or per 2 families	72		
Protection from pest infestation	48		Food and utensil storage shelves and counter space	73		
	49		Non-absorbent, easily cleaned wall surfaces where required	74		
	50		**COOKING IN INDIVIDUAL QUARTERS**			
	51		Separate area 10 sq. ft. per occupant	75		
	52		Stove/hotplate with minimum of 2 burners	76		
			Food and utensil storage shelves and food counter	77		
			Space for dishwashing	78		
			Non-absorbent, easily cleaned wall surface where required	79		

PERSON INTERVIEWED AND TITLE

WHERE INTERVIEWED | DATE INTERVIEWED

INSPECTED BY (SIGNATURE) | DATE INSPECTED

REP. REC'D BY (SIG.) | DATE REC'D.

GEN. III (REV. 10/71)

Texas State Department of Health
Migrant Labor Camp Survey and Analytical Report

NAME OF CAMP _____ LOCATION _____ COUNTY _____

OWNER _____ MANAGER _____ PERSON CONTACTED _____

OTHER INFORMATION _____

TOTAL NUMBER OF HOUSING UNITS _____ POPULATION AT PRESENT _____

A. Camp Area

1 Well drained
2 No extreme traffic or other hazard without appropriate safeguards
3 Not located on water shed of domestic or public water supply
4 Camp structure not located less than 200' from livestock or poultry quarters
5 Camp structure not located less than 200' from commercial food processing distributing business
6 Recreation space provided
7 Camp grounds maintained in a clean, safe and sanitary condition free from rubbish, debris, waste paper, garbage and other refuse

B. Water Supply

1 From an approved source
2 Adequate supply
3 Hot and cold running water provided for bathing, laundry, and dish-washing
4 Water outlets within 100' of each shelter
5 Drainage facilities for overflow or spillage from water outlets
6 Water under pressure in each unit of camps constructed after publication of "Suggested Standards for Migratory Labor Camps"
7 Where it is necessary to haul water, an approved type container used
8 Water drawn from containers has residual chlorine content of at least 0.3 parts per million
9 Common drinking cup not used
10 Water sample submitted for bacterialogical examination

C. Excreta and Liquid Waste Disposal

1 Facilities connected to public sewer, if line available
2 Approved septic tank system used if no public sewer available and conditions permitting
3 Non-water carriage excreta disposal facilities approved

D. Shelter

1 Structurally sound and in good repair
2 Floor constructed of wood or concrete
3 Floor elevated at least 6" above average ground level
4 Adequate floor space
5 Sleeping areas separated from cooking and eating areas
6 Minimum ceiling height of 7'
7 At least one window or skylight opening directly to the out-of-doors for each habitable room
8 All living and sleeping quarters maintained in a clean, sanitary condition

E. Means of Egress

1 Exits to comply with State Fire Marshal requirements

F. Screening

1 All outside openings screened; in good repair
2 All screen doors outward-opening; self closing

G. Heating

1 All quarters provided with properly installed heating equipment; space heaters with rigid connections
2 Heating equipment adequate to maintain temperature of at least 70 degrees F in climate requiring artificial heating

H. Lighting

1 Where electric service is available, each habitable room provided with at least 1 ceiling-type light fixture and at least 1 floor or wall-type electrical outlet

I. Toilets

1 Facilities, approved type
2 Adequate for capacity of camp
3 Accessible and located within 200' of door of sleeping room
4 No privy closer than 50' to any sleeping room
5 For multi-family dwelling, separate toilet rooms for each sex distinctly marked by sex (one unit for each 15 persons)
6 Urinals provided on the basis of 1 for each 25 men
7 Toilet rooms maintained in a clean and sanitary condition
8 Adequate supply of toilet paper

J. Washrooms, Bathrooms and Laundry Tubs

1 Approved washing, bathing and laundry facilities adequate to the capacity of the camp
2 In multiple family dwellings, separate, conviently located bath-rooms for each sex
3 Adequate dressing space and adjacent to bathing facilities
4 All shower and wash fixtures with hot and cold water under pressure
5 Floor drains properly trapped
6 Laundry and bathing facilities maintained in a clean and sanitary manner

K. Cooking and Eating Facilities

1 Where there is a central mess of multi-family feeding operation, the kitchen and mess hall constructed in accordance with the regulations of the State Health Department
2 Where workers are permitted or required to cook in their individual quarters, a separate room provided and equipped for use as a kitchen is available

L. Garbage Refuse Disposal

1 Garbage and refuse disposed of in accordance with rules and regulations of the State Health Department
2 Acceptable watertight metal containers with lids, provided adjacent to each shelter for refuse disposal
3 Garbage collected and properly disposed of at least 2 times (3?) per week
4 Garbage cans cleaned thoroughly after emptying

M. Beds and Bedding if Furnished

1 If provided, consist of beds, cots or bunks, complete with springs and include clean mattresses and mattress covers or mattress ticks filled with clean straw or other suitable material free from dust or vermin
2 Mattresses and mattress covers provided; mattress ticks filled with clean straw or other suitable material free from dust or vermin
3 Beds, bunks or cots have clear space of at least 12" from floor
4 Mattresses and mattress ticks treated, as necessary, with insecticide to prevent vermin infestation
5 Triple deck facilities prohibited from use

N. Insect and Rodent Control

1 Rodents, flies, mosquitoes, bed bugs and other insect vectors or parasites under control

O. Safety and Fire Prevention

1 First-aid facilities maintained and made available for the emergency treatment of injured persons
2 First-aid facilities readily accessible for use at all times
3 Fire-extinguishing equipment located not less than 100' from any point to reach the nearest unit
4 At least one unit provided for each 1,000 square feet of floor space

REMARKS _____

Date _____ Signed _____

Copies to _____ Operator _____

APPENDIX D. TABLE OF RANDOM PERMUTATIONS

TABLE 7—INTEGERS 1-200

Each one-third page is a permutation

23	62	186	81	115	60	7	119	137	109	158	147	33	44	165
50	35	21	29	8	154	117	106	169	174	127	187	2	12	76
88	78	22	103	190	141	143	179	183	57	83	9	28	99	45
68	32	129	34	112	125	167	96	136	172	130	86	63	6	196
77	53	163	140	180	79	17	185	72	110	145	159	38	85	156
161	123	75	138	104	48	105	36	82	71	132	20	149	171	175
40	55	173	131	128	178	111	200	120	90	24	102	31	160	49
114	195	150	67	126	191	148	98	142	121	42	189	4	139	192
27	146	39	61	164	92	87	14	100	94	151	184	47	177	133
73	181	166	118	124	3	168	152	122	108	43	59	54	101	95
37	182	30	65	13	74	198	66	51	80	197	113	144	194	70
56	58	193	15	1	52	16	10	176	199	155	135	162	64	84
5	41	134	25	116	188	11	97	19	69	46	107	89	91	18
170	153	93	157	26										
181	16	27	88	161	116	129	93	12	187	176	198	73	135	5
123	51	69	137	43	45	68	194	138	183	166	167	77	49	97
139	65	39	41	160	56	110	178	113	95	83	140	92	57	36
89	1	168	10	170	195	62	112	153	17	164	3	114	119	109
151	120	156	11	154	149	54	173	40	131	13	145	58	96	32
115	177	34	87	91	78	55	175	191	7	81	162	200	157	72
197	63	48	31	80	174	193	30	100	42	19	163	6	21	111
15	53	105	66	90	117	192	33	179	60	103	64	98	126	74
165	122	155	171	127	132	134	121	180	46	125	47	71	94	106
189	76	158	70	44	150	141	99	101	136	28	9	199	79	18
23	25	133	61	107	26	20	130	124	52	148	196	152	182	4
59	190	142	67	169	118	75	128	143	104	102	144	24	22	185
85	8	29	188	14	184	2	37	172	38	159	50	146	35	84
186	108	86	147	82										
83	37	122	104	179	96	20	26	62	31	101	16	165	150	76
124	74	93	170	50	107	45	113	168	183	6	61	57	110	149
112	77	140	163	166	103	35	156	176	154	130	40	99	119	105
189	47	78	43	33	71	15	92	38	116	89	138	56	114	10
102	29	80	73	167	81	63	60	173	169	153	191	24	187	195
141	151	155	135	120	17	198	100	199	68	178	94	95	182	181
30	137	180	177	128	190	42	82	5	118	67	162	55	18	97
148	72	117	161	41	121	32	90	125	184	159	186	2	23	88
51	4	7	109	75	64	108	142	59	152	66	134	185	164	44
188	136	132	197	144	157	85	34	196	158	3	14	12	27	87
115	111	160	172	69	192	84	200	79	145	129	139	19	194	123
13	126	70	58	49	28	39	193	48	11	147	143	36	53	21
8	127	133	174	91	171	54	65	22	146	175	52	9	86	98
106	25	1	46	131										

Sample Table of Randomized Permulations

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15. SUPPLEMENTARY NOTES

16. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)

The Community Health Service (CHS) of the Department of Health, Education, and Welfare has been assigned the responsibility of providing health care services to migrant farmworkers. Since poor sanitation can be a major factor in the health of migrants, CHS requested NBS' Technical Analysis Division (TAD) to perform a field survey of the current state of the sanitary conditions of migrant housing.

A survey form was developed by TAD as an aid in evaluating migrant housing. The form was derived from the checklist procedure employed by sanitarians to determine whether migrant housing meets state and local housing regulations.

Field visits were made to migrant labor camps in five different regions of the United States. These regions were selected because they contained a large number of camps open at the time of the visits. Within each region, camps were selected on a modified random basis.

A description of the findings of the survey is provided in both tabular and narrative form. A discussion of the limitations in the procedures used in conducting the survey is also included, and changes are suggested which could be incorporated into future surveys.

17. KEY WORDS (Alphabetical order, separated by semicolons)

Health standards; migrant labor camps; questionnaire construction; regulations; survey design

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