

FINAL REPORT (Draft)

**Assessment of Exposure to Lead Poisoning
Demographic and Land Use and Activity Patterns**

For

**Black and Veatch
(Subcontractors of Environmental Protection Agency, Region VII for Omaha Lead Site)**

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Superfund

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Assessment of Exposure to Lead Poisoning Demographic and Land Use and Activity Patterns

Purpose:

The purpose of this project is to gather site-specific information on the extent of exposure of residents in East Omaha to lead poisoning in the soil through their daily activities in their home environment. The Environmental Protection Agency's (EPA) on-going soil testing for lead contamination in East Omaha indicates significantly high levels of lead concentration in the area. This site has been designated as a "Superfund Site," which includes the most environmentally contaminated sites in the nation.

In Omaha, the main source of soil lead contamination is from industries such as ASARCO and others that were located in the downtown area close to the Missouri River. Black & Veatch Special Projects (Engineer) was issued a work assignment by the U.S. Environmental Protection Agency (EPA) to determine if wide spread metals contamination exists around the ASARCO facility. Black and Veatch's (B&V) responsibilities under the work assignment include obtaining access agreements from property owners within a three-mile radius of the ASARCO facility, and collecting and analyzing soil samples from the owners.

Based on preliminary analysis the EPA designated the approximate boundaries of the Omaha Superfund site to be south of Ames Street, north of L Street and east of 45th St.

Objectives:

The main objectives of this project are to:

- a) Gather Socio-demographic data;
- b) Gather information on current land use and activity patterns; and

- c) Obtain information on exposure frequency, duration, and type of outdoor activities in the home environment, particularly among children below the age of seven.

Sample size and sampling procedure:

The sample size and the specific homes sampled were determined by B & B as part of their indoor-dust sampling study. The initial plan involved a door-to-door survey of approximately 550 homes in the Superfund site area. However, only 158 homes were sampled.

Data Collection process:

The Project Coordinator (PC), Prof. Shireen Rajaram constructed the survey questionnaire to gather demographic information and activity patterns at the Omaha site. In the construction of the questionnaires, similar questionnaires used at other lead sites and relevant research studies were reviewed. Input was obtained on several drafts of the questionnaire from the State Risk Assessor at Nebraska Health and Human Services. Several modifications were made in the questionnaire in the course of data collection based on outreach workers' field experience. The PC requested B&V for feedback from key community leaders but did not receive any response. The questionnaire was translated into Spanish by a bilingual medical professional (physician from Colombia) trained in environmental issues. See Appendix 1 for a copy of the questionnaire for adults and children in Spanish and English.

No approval from the Institutional Review Board (IRB) at the University of Nebraska was obtained to conduct the project. This was because the IRB – in a personal communication to the PC – ruled that since the primary aim of the study was not research but service to the community, IRB approval was not required.

Outreach workers were hired by the PC to conduct door-to-door surveys. The plan was for the outreach workers to make home visits together with the B&V indoor-dust sampling team

to gather the demographic data. Black and Veatch obtained written permission through an access agreement from the residents prior to the door-to-door visits to conduct the indoor dust sampling (See Appendix 2). On August 29th, a request was made by the PC to B&V (Ellen Kimmel) to include permission to conduct the demographic survey in the access agreement. The PC was told that this would not be a problem but would first need to be cleared by the EPA attorney. The final access agreement did not include information about the demographic survey.

The contract allowed for the hiring of three bilingual, outreach workers, fluent in Spanish. Bilingual interviewers were essential since there has been a dramatic increase in first generation immigrants from Mexico and other parts of Latin America in South Omaha, that comprises a large part of the Superfund site. Many (36.5%) lack a high school education (U.S. Census, 2000) and may not speak and/or read English.

The PC trained the outreach workers in: a) epidemiology and hazards of lead poisoning in general, and issues specific to the community (e.g., EPA Superfund listing, ASARCO, etc.); and b) community-based survey research and face-to-face interview techniques. This is essential to ensure the integrity of the study and to maintain consistency and validity of data.

The data collection process was carried out over a 31 workday period – from November 19th, 2003 to January 10th, 2004. Black & Veatch directly made appointments with residents for home visits by the B&V dust team accompanied by the UNO outreach workers. Three days ahead of the scheduled interview, B&V (Leah Mac Neill) informed (email) the PC and the three outreach workers of appointments in blocks of three days. For example, each Monday the PC and outreach workers were informed of the interview schedule for the following Thursday through Saturday. Each Thursday the interviewers were informed of the interview schedule for the following Monday through Wednesday. The outreach workers would then email their

availability to conduct interviews for each three-day period to the PC. Upon receipt of all three workers availability for each three-day period, the PC would first ensure there was no overlap in interview schedules before emailing the final interview schedule to the three outreach workers and Leah Mac Neill at B&V.

The interview schedules varied from day to day. Initially, there were only two dust-sampling teams and the three UNO outreach workers were able to cover the interviews. Over the course of the project, more dust-sampling teams were added. During the final week of the project there were four dust teams in operation each day with a high volume of interviews. There were several last minute changes in interview schedule and many known and unknown cancellations. Outreach workers were sometimes not informed of known cancellations.

Problems in Data Collection Process:

1. The process of providing interview schedule information in three-day blocks of time, three days in advance of the interview proved to be very chaotic and complicated with several breakdowns in communication. The part-time outreach workers found it difficult to rearrange their schedule every three days to accommodate the changing interview schedule. The PC requested B&V (Leah Mac Neill) to provide a one-week schedule more than three days in advance of the first interview to streamline the process. B&V did not accommodate and the scheduling chaos persisted through-out the project.
2. The outreach workers were hired as hourly workers and were to meet the B&V dust-sampling team at the respective homes to conduct the interviews. B&V requested the workers not to enter the homes and were told to wait until the arrival of the B&V team. This

often resulted in great inconvenience to the outreach workers especially given the cold weather in the November-January winter months.

3. Despite repeated requests by the PC to B&V, the outreach workers were often not informed of know cancellations. The outreach workers reported that two phone numbers at the B&V Omaha office were often busy. The workers had to wait outside in the dark and cold for about 15 to 20 minutes. When the B&V dust sampling team did not arrive, they assumed that B&V knew about the cancellation of the appointment. This resulted in much frustration and low morale among the outreach workers and UNO was concerned about the safety of the workers. On December 16th, one of the workers who had a pager (the number was given to B&V) quit the job after not being informed of a cancellation for the third time in a week. On December 19th the PC sent an email to B&V to renegotiate the contract to ensure better working conditions for the outreach workers. No response was received from B&V and on December 23rd the PC was informed that the project would be ending on January 10th.
4. Initially, the interview schedules were sparse with only two dust-sampling teams in operation. This together with repeated cancellations resulted in the second outreach worker temporarily quitting to take a more stable and predictable job to cover her living expenses. She subsequently returned to work during the final week of the project in January. The contract allowed hiring of only three outreach workers. No response was received on the request sent to B&V on December 19th by the PC to renegotiate the contract to hire additional workers.
5. As of December 15th, B&V did not have a bilingual worker on staff in the Omaha office who accompanied the dust-sampling and the UNO outreach workers at the home visits to Spanish speaking households. The UNO outreach workers complained that they were being used as

interpreters despite repeated reassurances to the PC by B&V (Leach Mac Neill and Ellen Kimmel) that this would not occur. The PC sent two additional emails on December 15th and December 19th complaining about this problem. Subsequent to this B&V hired a bilingual worker.

6. As stated earlier, the access agreement did provide any information on gathering demographic data from the residents. It is likely that the residents were not pleased with the face-to-face request in their home to provide demographic and activity data. This may have resulted in missing data and compromised the quality of data collected.
7. During home visits, the outreach workers complained that the residents were often distracted by the activities of the dust-sampling team. This distraction sometimes resulted in lack of focus on the interview questions which might have compromised the quality of the demographic data.
8. Outreach workers indicated that often adults were either reluctant or not able to provide details on activities of the child during the different seasons and times in the week.
9. On account of the attrition of the workers, and sometimes high-volume of interviews with four dust-sampling teams in operation, the UNO workers were unable to cover all the scheduled interviews. B&V volunteered to have their workers cover the interviews that UNO workers were unable to do. On November 21st, the PC briefly trained three B&V employees (Leah Mac Neill, Steve Langum, and Melina Vituse) in conducting the interviews. In addition to these three workers, four other B&V workers (Claudia Preddy, Ramita Shrestha, Schrick) who were not trained by the PC conducted 41 of the 158 interviews (see Table 1). The lack of trained and/or experienced interviewers very likely affected the quality and integrity of the demographic data collected.

10. Prior to the commencement of the project, B&V agreed to work with the Douglas County Health Department (DCHD) in making health education material on lead poisoning prevention available for the residents. On November 18th, 2003, the PC provide an email "introduction" between Douglas County Health Department (DCHD) (Kathy Leinenkugel) and B&V (Ellen Kimmel). However, as late as Dec 18th, B&V had not responded to DCHD willingness to provide educational material on lead poisoning prevention. To the knowledge of the PC no educational material on lead poisoning prevention was given to the residents at the home visits. The recommended procedure in data collection in research, particularly among disenfranchised populations is to provide the respondents with some form of token compensation in return for their time and assistance. The lack of any form of compensation in this study might have been negatively perceived by the residents making them less forthcoming in providing survey data.

Data Analysis:

The initial contract allowed for only one part-time research assistant to assist in data entry and analysis using *Statistical Package for the Social Science (SPSS)* and *Microsoft Excel*. In January, the contract was re-negotiated to hire an additional part-time research assistant to expedite the data entry and analysis process.

The data was first entered into SPSS which is a commonly used program in the social and behavioral sciences in data management and analysis. Approximately, 650 variables were created to provide information on the survey data on the adult(s) and children. Frequencies were run on key variables. The data was then exported into Microsoft Excel. Unlike SPSS, Excel is unable to accommodate a data set with a large number of variables. Hence, the SPSS files were

broken down into several Excel file. The code-book that is part of the SPSS program was exported into a Microsoft Word file.

Results:

Survey data was collected from 158 homes. Demographic and other information was obtained from the respondent and one other adult above the age of 18 in the household. Detailed activity of each child under age seven was collected to provide information on week-day and week-end land-use and activity patterns during the different seasons of the year. Data was collected on a total of 69 children. However, there were several missing data in the activity of the children to make this data of much use for research purposes.

Of the sixty-nine children below the age of 7, eight were less than one year, 19 were between 1-2 years old, 24 were between 3-4 years old and 18 were between 5-6 years old (see Table 2).

The age of the respondents ranged from 19 to 93 years (see Table 3) and 20% of the respondents were retired. The majority of the respondents (65%) were female (see Table 4). Thirty-nine (25%) of the respondents were African American, thirty-eight (24%) were Hispanic/Latino, seventy-two (46%) were White Caucasian, and six (.04%) were Asian-American (see Table 5). The majority of the respondents (49%) lived in housing built before 1950 (see Table 6). Also, the majority of the respondents rented their home (89%) (see Table 7).

Their-two percent of the households surveyed were in zip-code 68105, 21% were in zip-codes 68111 and 68108 respectively, and 13% were in zip-code 68107 (see Table 8). Eighty-five percent of the interviews (n=134) were conducted in English and twenty-five percent (n=24) of the interviews were conducted in Spanish (See Table 9).

Problems in the Data and Data Analysis:

1. On account of the problems outlined in the section "Problems in Data Collection Process," the quality of the data are very likely compromised.
2. There are several missing data, particularly in the activities of the children in the home and day care during the different seasons, unfortunately, making the data on the children of little use. Possible explanations for the missing data are several: a) the respondents might have been unable to properly estimate the time their child spent in the different activities at home and the daycare for the different seasons; b) The access agreement of B&V did not alert respondents that they would be required to provide detailed information on the activities of their children. When faced with the questions, respondents might have found the questions to be too tedious, time-consuming, difficult, intrusive or unnecessary; c) respondent might have been unwilling to provide certain data such as the name and phone number of day care or school; d) the lack of adequate compensation for their time in providing information might have made respondents reluctant to be forthcoming with the information; e) the low-morale of the UNO workers with the frequent cancellations and wait outside in the cold might have resulted in carelessness in properly collecting all the necessary data; and f) the lack of training and/or experience among B&V workers might have resulted in poor data collection. Additionally, six of the surveys done in Spanish by B&V during the last two weeks of the project did not have the last page of the questionnaire, once again resulting in missing data.

Recommendations:

1. Include information on collection of demographic data in the access agreement. If the interior dust levels as well as demographic data are key components in the Risk Assessment process, then both need to be mentioned in the access agreement. Alternatively, the PC needs to be requested to gather permission independent of the B&V access agreement, and the demographic study needs to be done separately from the interior dust sampling study. Clearly, residents in this study are not obligated to provide demographic and land use survey data if prior notice was not provided to them.
2. At the start of the project determine the number of dust-sampling teams and inform the PC to hire the same number of full-time outreach workers to conduct the demographic surveys in conjunction with the dust team. This will ensure that there will be a sufficient number of trained outreach workers to conduct the demographic and land use surveys.
3. The outreach workers need to meet with the dust-sampling team at the B&V office rather than at the residence. This will avoid unnecessary waiting in the cold in an unfamiliar neighborhood.
4. At the start of the project B&V needs to hire a bilingual Spanish speaking person so the UNO outreach workers are not exploited when asked to translate at the home visits of Spanish speaking households.
5. Allow adequate time to pilot the data so "glitches" in the questionnaire can be rectified before the main data collection begins.
6. Obtain input from key community leader on the survey questionnaire and access agreement.
7. Perhaps, specifically over-sample households with children, by working with day-cares, schools, Douglas County's childhood blood-lead screening database, etc. If the activity

patterns of children below age seven are an important component of the Risk Assessment, it might be beneficial to specifically target children to increase the sample size in this age group.

8. Include some form of compensation as a token of appreciation for the respondent's time.

This might make the respondents more willing to take time to answer detailed survey questions.

9. Better planning, and management of the project by B&V will help to eliminate breakdown in communication with the PC and outreach workers. Disorganization in the data collection process will affect the quality of the data collected.

Table 1

Names of Interviewers	
Name	Number of Interviews
Megan McMalone (UNO)	52
Cesar Hernandez (UNO)	10
Katrina Wilcox (UNO)	17
Claudia Preddy (B&V)	23
Leah McNeil (B&V)	16
Ramita Shrestha (B&V)	7
Melina Vituse (B&V)	12
Don Woody (B&V)	10
Steve Langum (B&V)	8
Schrick (B&V)	1
Missing	2
Total	158

Table 2

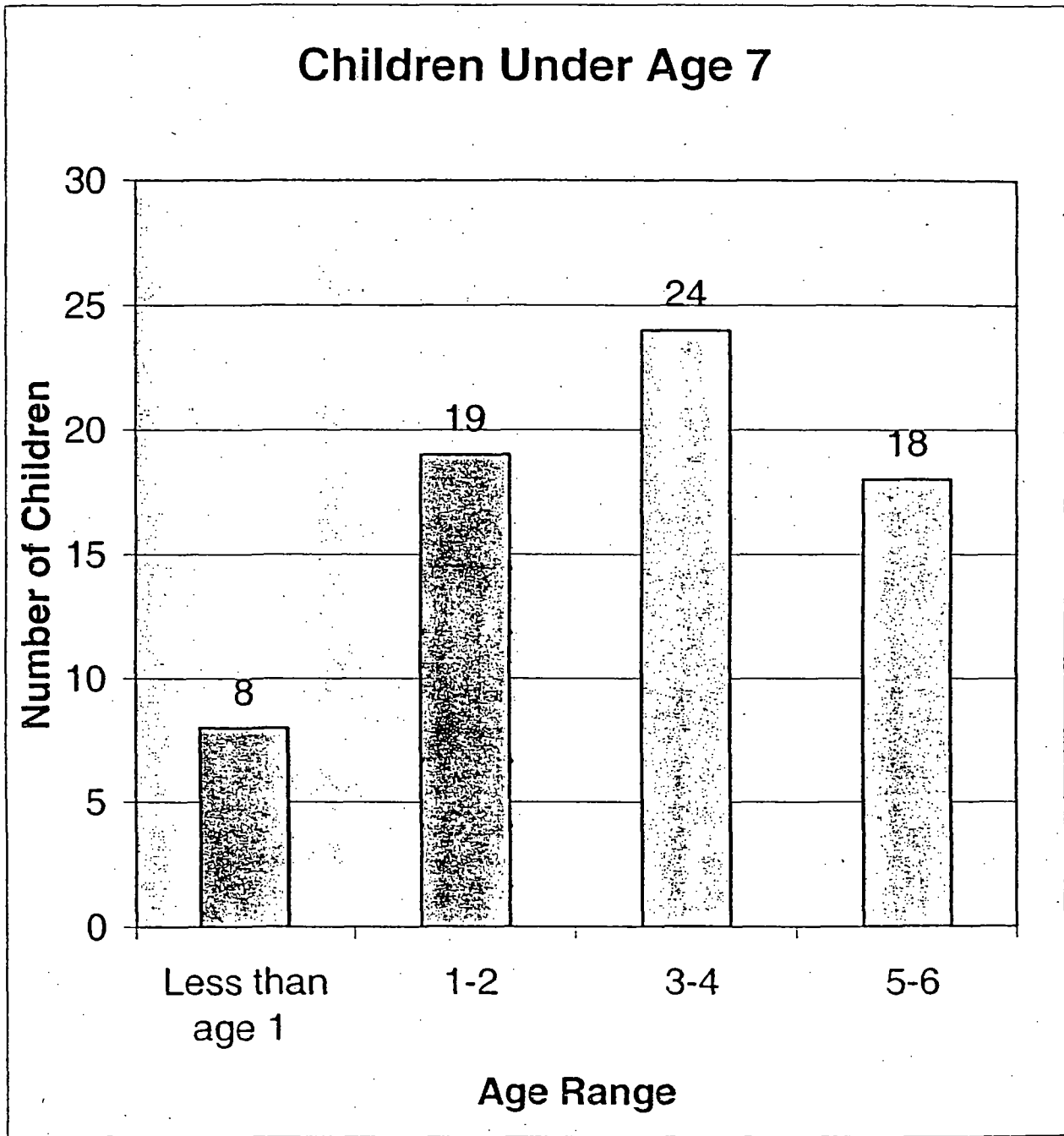


Table 3

Age Range of Respondents

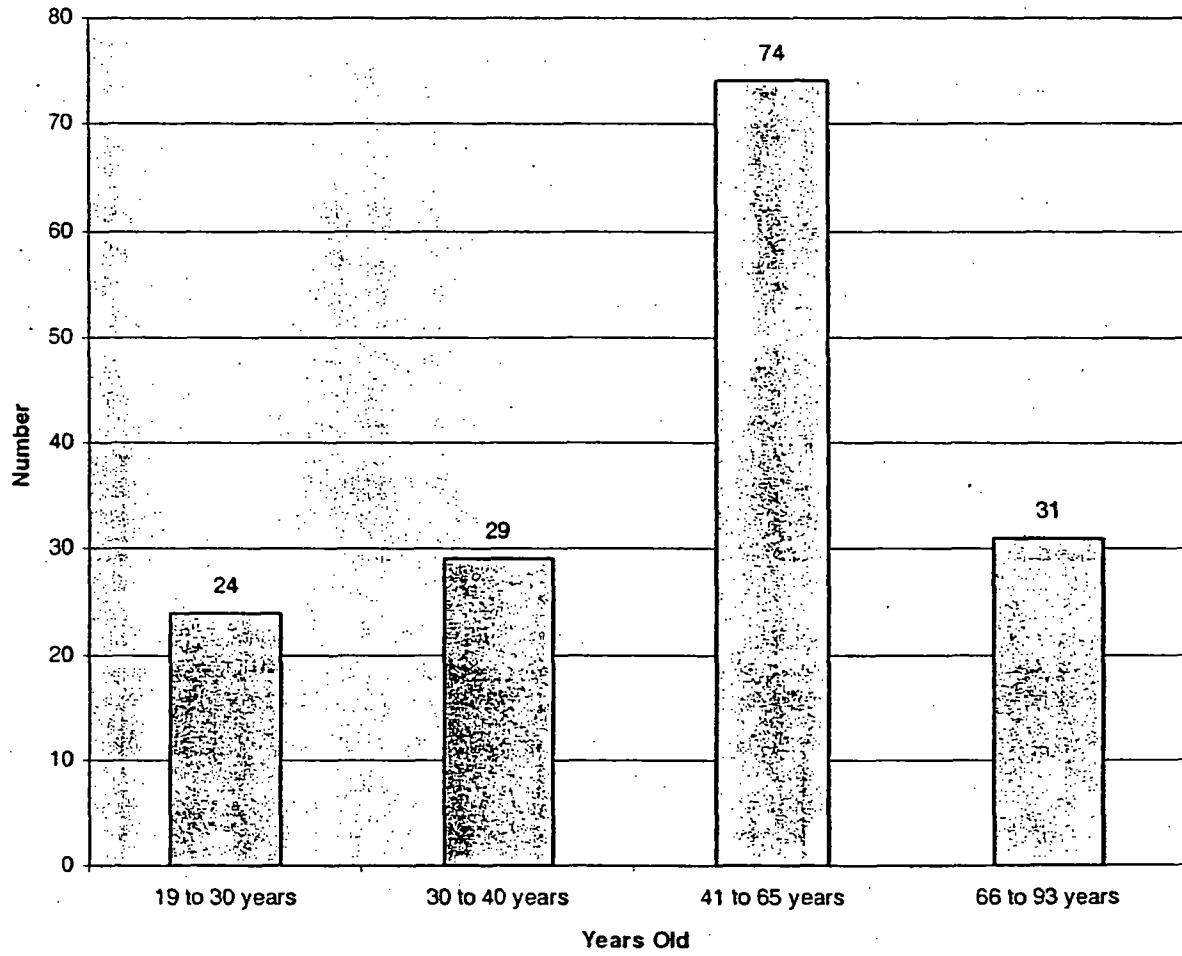


Table 4

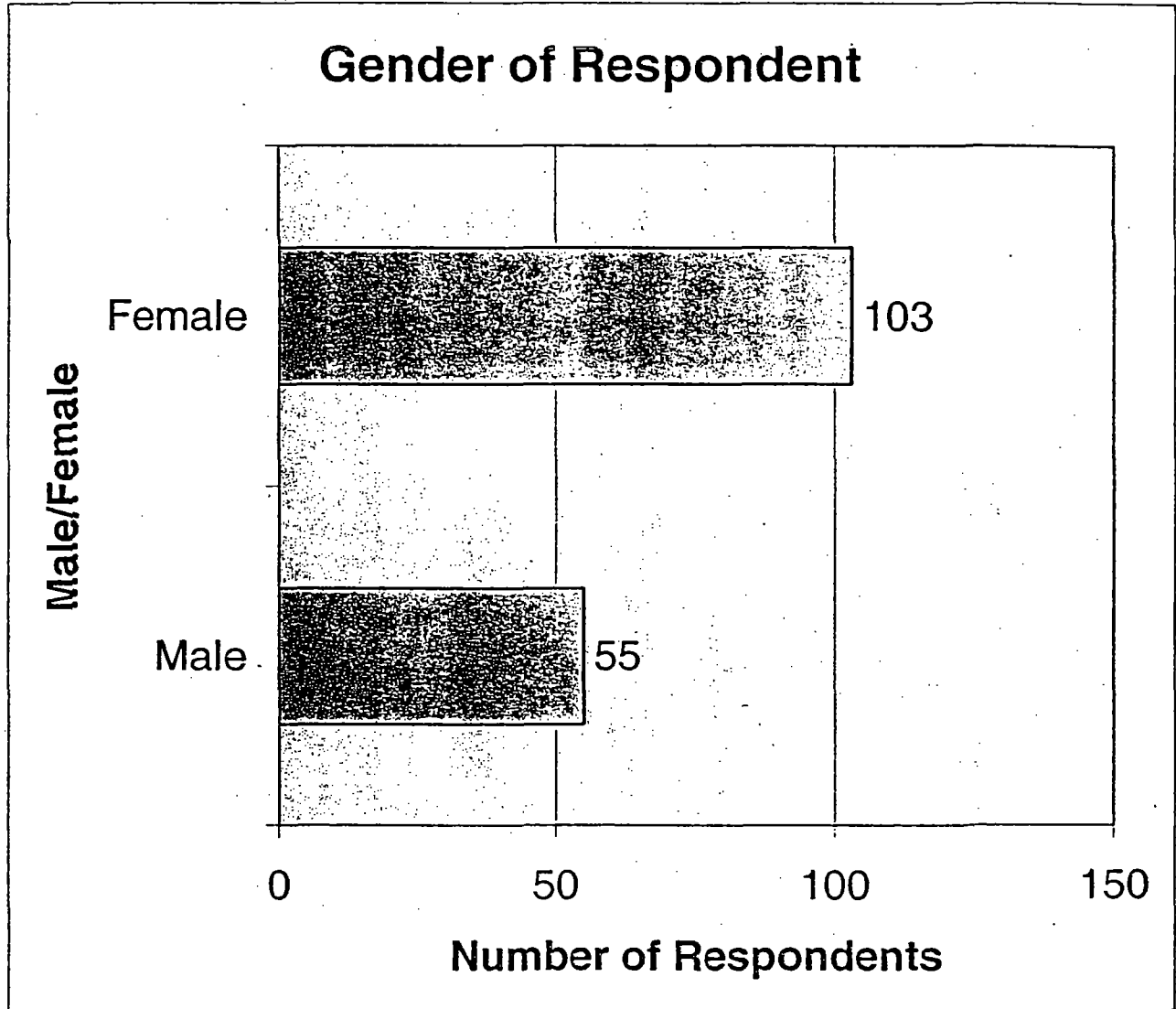


Table 5

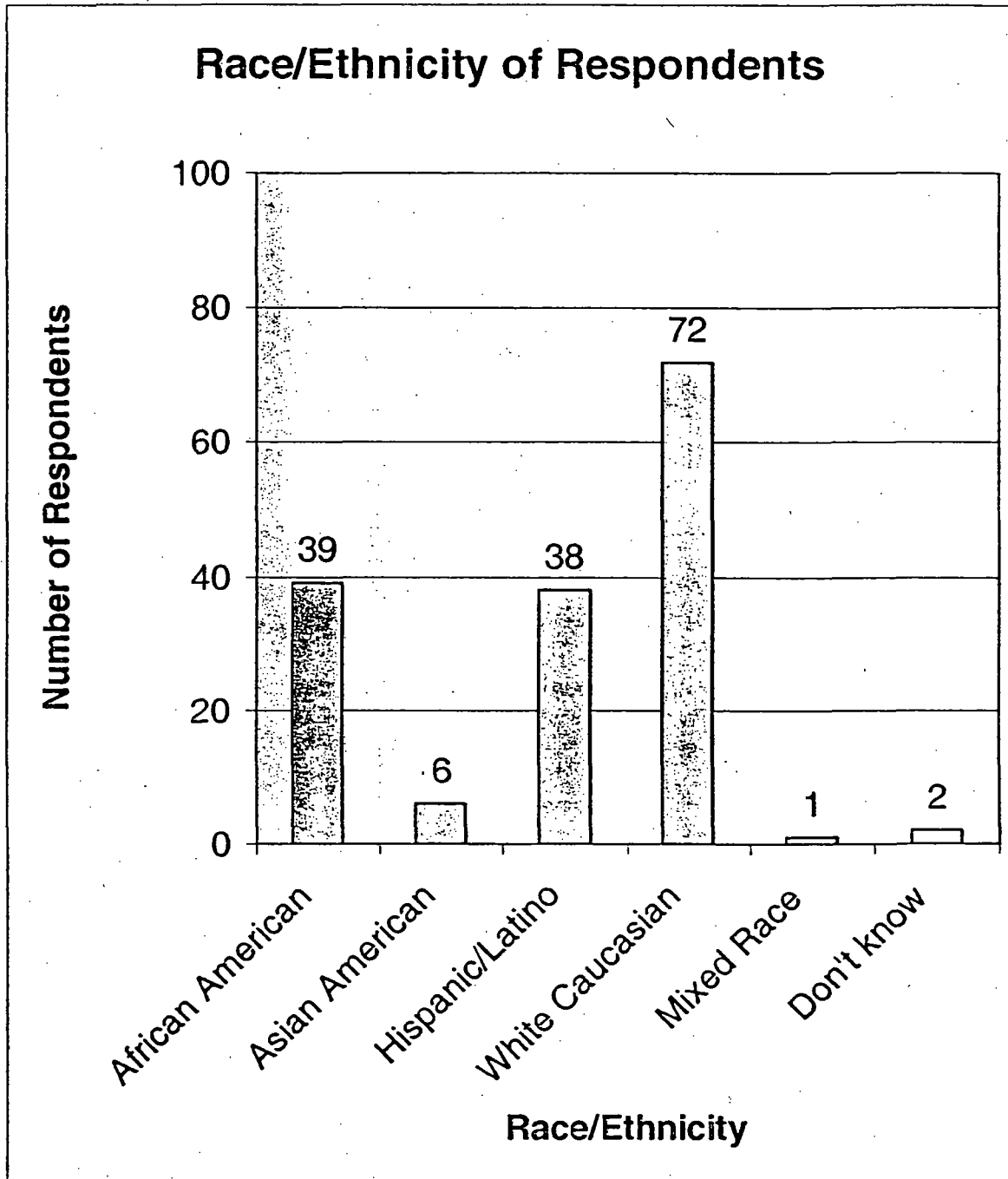


Table 6

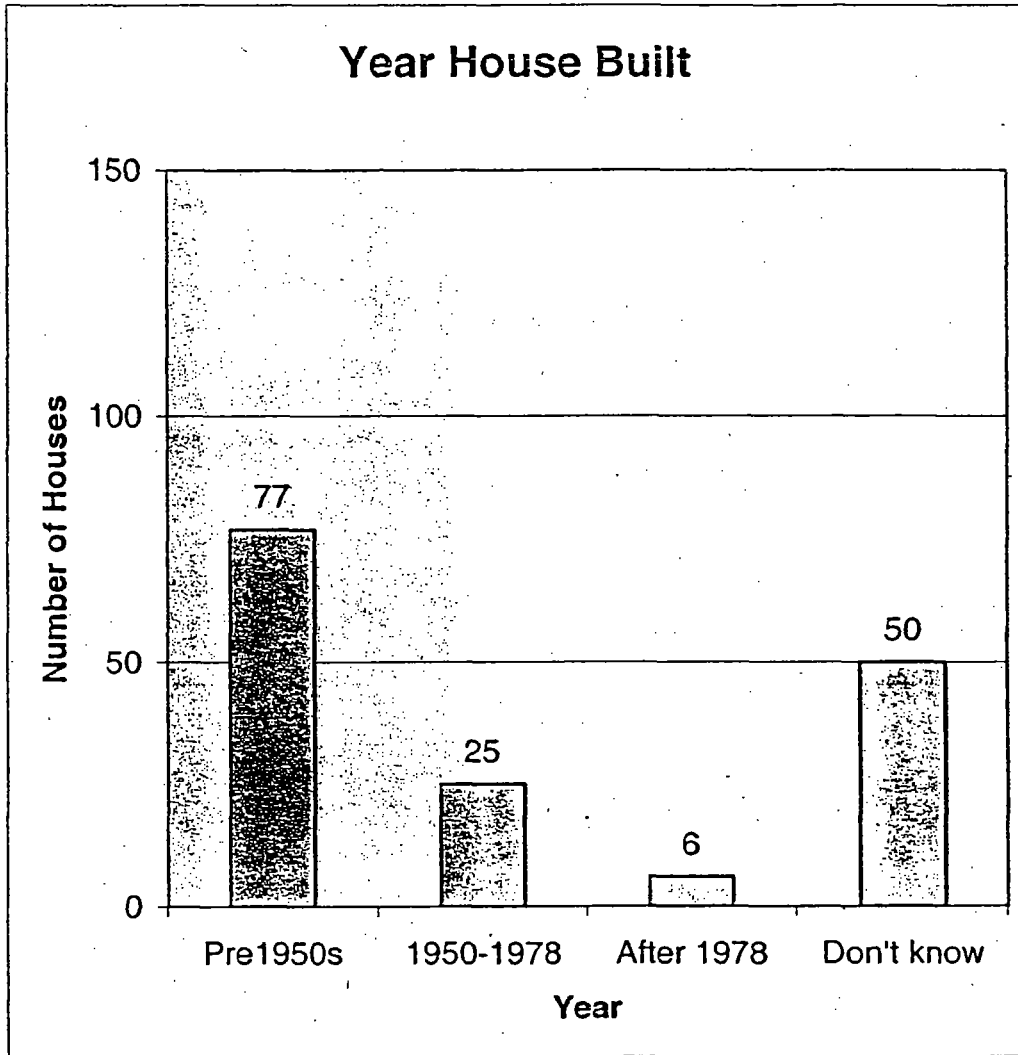


Table 7

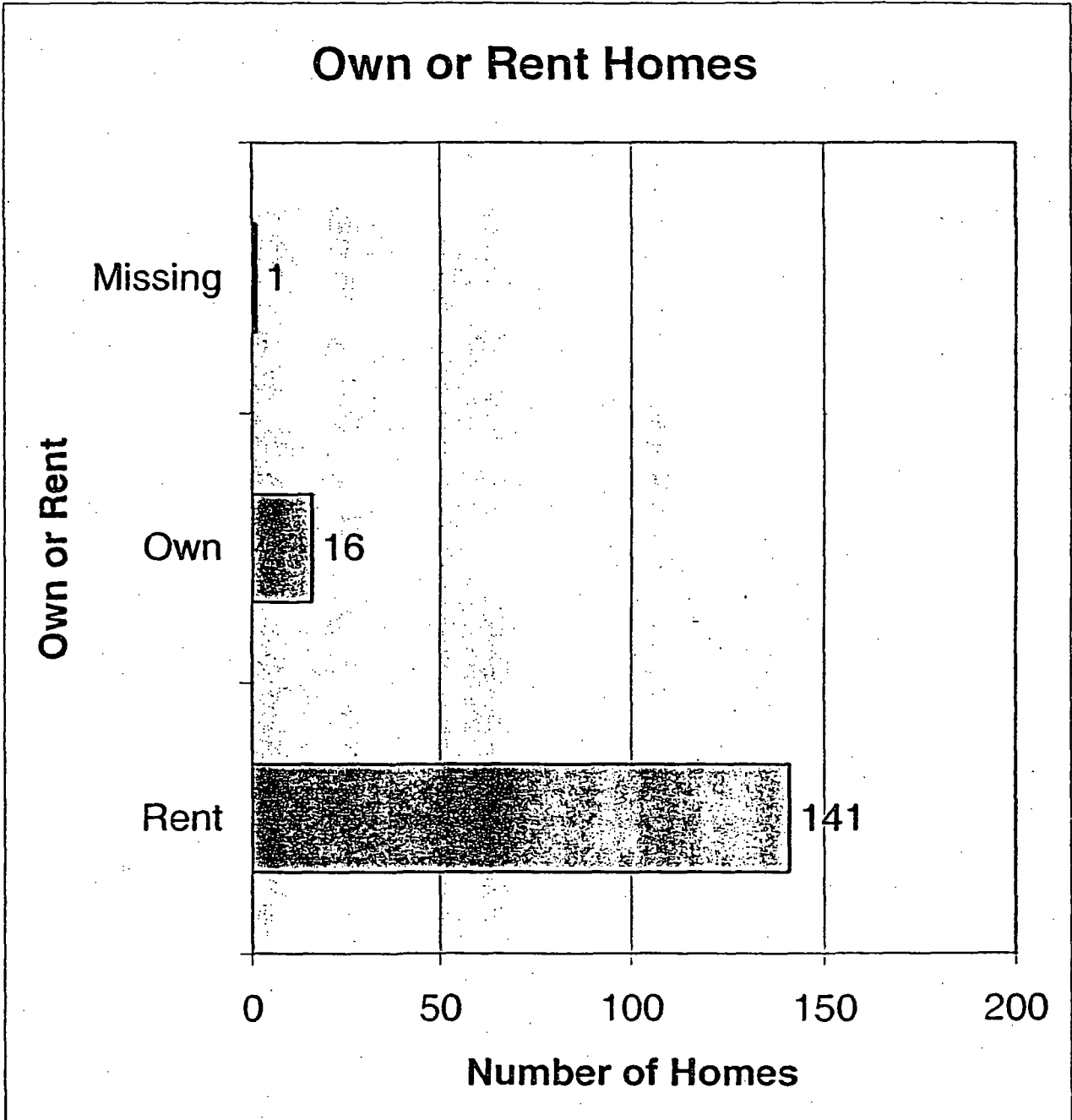
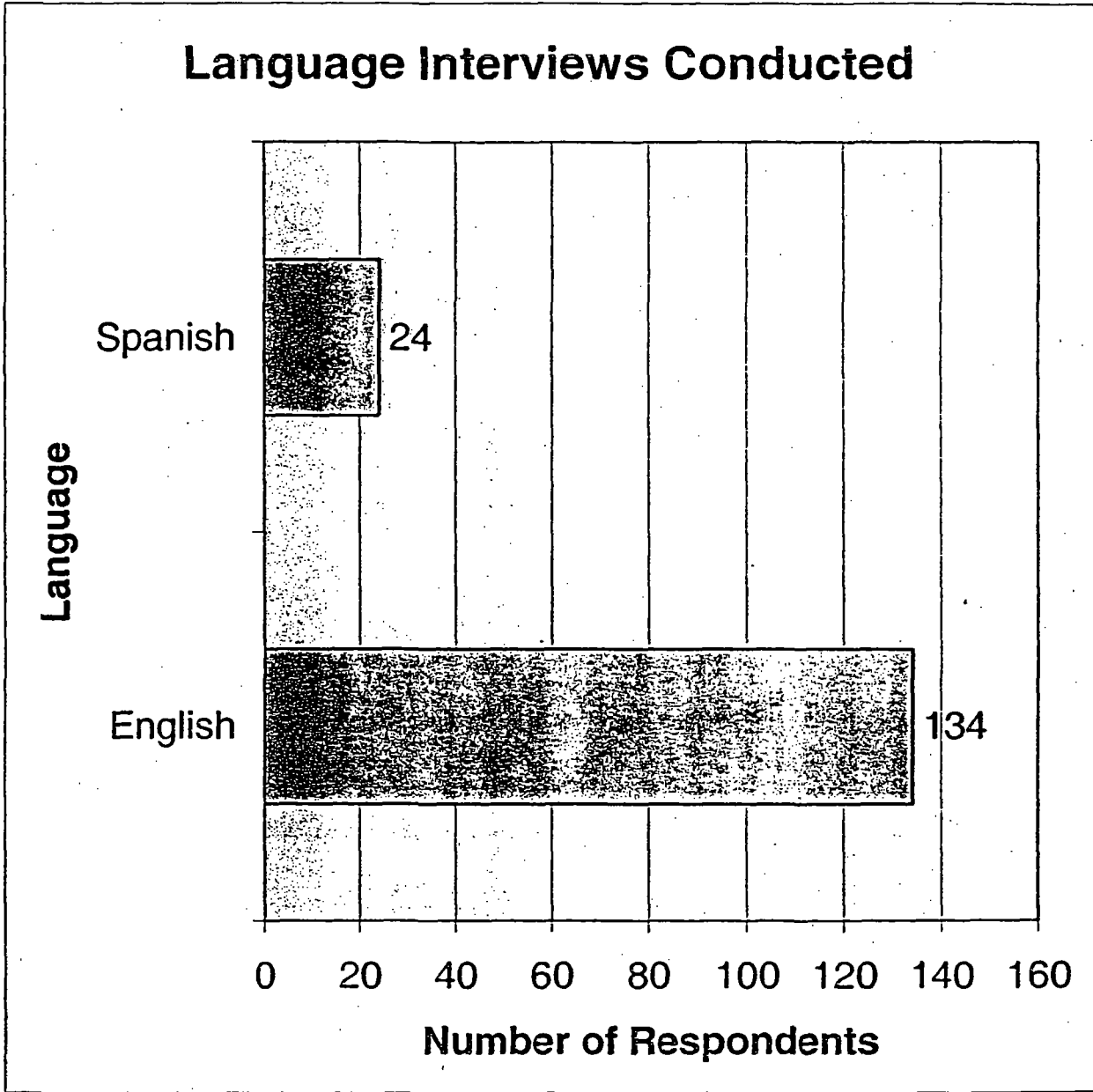


Table 8

Zip Codes	Frequency	Percent
68104	1	0.6
68105	51	32.3
68106	2	1.3
68107	21	13.3
68108	34	21.5
68110	9	5.7
68111	34	21.5
68131	157	3.2
Missing	1	0.6

Table 9



APPENDIX - 1

DEMOGRAPHIC AND LAND USE SURVEY
Omaha Superfund Site
Omaha, Nebraska

By

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August 2003

For
The Nebraska Health and Human Services
System – Risk Assessment Program

Under a Cooperative Agreement with the
U. S. Environmental Protection Agency, Region VII
and
Black & Veatch

(IEUBK – Omaha Super Fund Site)

**(PLEASE DROP OFF COMPLETED SURVEYS IN DR. RAJARAM'S MAIL-BOX IN
ROOM, ASH 383, DEPARTMENT OF SOCIOLOGY, UNIVERSITY OF
NEBRASKA- OMAHA, WITHIN A WEEK OF COMPLETION OF THE SURVEY)**

**All information obtained during the course of this survey and the project needs to
be kept strictly confidential at all times.**

Interview Number: _____

Date _____ Time: _____

Interviewer's Name (Print): _____

House Address: _____

We are doing a survey of people in neighborhoods east of 45th street, to better understand the daily activities and background of the community. This information will help us determine people's risk for exposure to lead.

We have a few questions to ask you. I will read out the question to you and will make a note of your answers on these forms. The information you provide will be held confidential.

First,

1. How many individuals live in this home: _____

2. How many:

Adults (above 18): _____

Children below age 7: _____

Children between 7 and 18: _____

3. Please tell me more about the age, gender and Ethnic/Racial background of the people who live in the house.

Person	Age (Years)	Gender (M/F)	**Race/Ethnicity (and country of origin) (Interviewer see categories below)
Respondent			
Spouse/Partner			
Child 1			
Child 2			
Child 3			
Child 4			
Others (specify relationship to respondent):			

**** Race/Ethnicity** (Interviewer, please ask country of origin, if applicable, for #1,2,3,5. For example: Guatemala, Sudan, Vietnam, etc.):

1. African American
2. Asian American
3. Latino(a)/Hispanic
4. Native American/Alaskan
5. White/Caucasian (non Hispanic)

ADULTS

First, let me ask you a few questions about yourself and any other adult (age 21 and above) that lives in the house (restrict questions to only 2 adults), before we move on to some questions on your children's play activity. First,

1. Do you have a vegetable garden at home (check one)? Yes No

2. What are your primary crops in order of quantity?

- a) Tomatoes (rank #) _____
- b) Bell Peppers (rank #) _____
- c) Green Beans (rank #) _____
- d) Okra (rank #) _____
- e) Other: Specify _____

3. Animals in the household. Do you have:

Any cats? Yes No If so, how many? _____

Check one: Indoor; Outdoor; Both Indoors and Outdoors

Any dogs? Yes No If so, how many? _____

Check one: Indoor; Outdoor; Both Indoors and Outdoors

Other animals (specify): _____

4. At home, do you mainly consume water directly from the tap or do you filter it or do you use bottled water (check one)?

For drinking purposes: tap water; filtered tap water; bottled water

For cooking purposes: tap water; filtered tap water; bottled water

5. Do you or any adults in the home participate in any of the following ACTIVITIES and/or HOBBIES at home?

Hobbies/Activities	YES	NO
Stained-glass; make or repair		
Lead sinkers, bullets; make or repair		
Batteries; manufacture, salvage		
Pottery/Ceramics; make or decorate		
Painting; artistic or industrial		

Hobbies/Activities	YES	NO
Target Shooting; indoor/outdoor		
Metal Work; salvage, sand, cut, weld		
Brass, Bronze, Pewter; collect, polish, sand		
Auto services; batteries, radiators		
Electrical Work; soldering, welding		
Carpentry; construct, renovate, demolish		
Power cleaning; sand, water		
Chemical/Electrical		
Glass factory		
Oil refinery		
Others: Specify _____		

6. What is your primary occupation: _____.

Please describe: _____

7. Do you have lead exposure in your occupation:

_____ Yes; _____ No; _____ Don't know

8. Do you work full- or part-time (check one): _____ full-time _____ part-time

9. Approximately, how many hours per week do you work? _____

10. Approximately, how many vacation or work-days per year do you spend away from Omaha (home)? _____

11. Do you do volunteer outside the home (check one)? _____ Yes _____ No

12. If yes, how many hours per year do you volunteer outside the home? _____

Now we have some questions about your where you live.

13. What year was your house built: _____

14. Do you Own or Rent your home (check one): _____ Own; _____ Rent

15. Has there been any recent renovations or remodeling? _____ Yes; _____ No

If yes, describe _____

16. Have any structures of homes next door been renovated, repainted, demolished, sand/water blasted? _____ Yes; _____ No

17. How long have you lived in this house (number of years): _____.

18. If less than one year, did you previously live East of 45th St or West:

_____ West of 45th Street. Go to NEXT ADULT. If no other adult lives in the house, but children below age 7 live in the house go to #28. Or go to END.

_____ East of 45th Street. How many years _____. Go to NEXT ADULT. If no other adult lives in the house, but children below age 7 live in the house go to #28. Or go to END.

CHILD (only for children below age 7)

Interview Number: _____

Date _____ Time: _____

Interviewer's Name (Print): _____

House Address: _____

Child # ____ Age ____; Relationship to the respondent: _____

4. How many hours PER WEEK does your child (0 to 6 years only) spend at HOME, both indoors and outdoors? ("Indoors," refers to waking hours, and "Outdoors" refers to time spent outdoors in the yard).

Home Location	Hours/week (Summer: June-Aug)		Hours/week (Fall: Sep - Nov)		Hours/week (Winter: Dec - Feb)		Hours/week (Spring: Mar-May)	
	Week day	Week End	Week day	Week End	Week day	Week End	Week day	Week End
Indoors:								
Outdoor:								

5. If the child does not play outdoors (in the yard), skip to question #8.

6. Where is your child's outdoor primary play area (check one):

Front yard; Back yard; Not applicable (explain) _____

7. Please describe the nature of your child's (0-6 years only) outdoor activity. How many hours would you estimate that your child is involved in the following activities?

Outdoor HOME Activity	Hours/week (Summer: June-Aug)	Hours/week (Fall: Sep - Nov)	Hours/week (Winter: Dec - Feb)	Hours/week (Spring: Mar-May)
Play in the sand-box				
Play in grass-covered areas on the property (participating in activities such as soccer, catch, etc.). Identify primary types				

NEXT ADULT

Age: _____; Gender: _____; Relationship to respondent: _____

19. What is the occupation of this adult: _____

Please describe: _____

20. Does this person have lead exposure in his/her occupation: _____ Yes; _____ No

21. Does this person work full- or part-time (check one): _____ full-time _____ part-time

22. Approximately, how many hours per week does this person work? _____

23. Approximately, how many vacation or work-days per year does this person spend away from Omaha (home)? _____

24. Does this person volunteer outside the home (check one)?

_____ Yes _____ No

25. If yes, how many hours per year does this person volunteer or work outside the home? _____

26. How long has this person lived in this house (number of years): _____

27. If less than one year, did this person previously live East of 45th St or West: _____ West of 45th Street. If no children below age 7 live in the house, GO TO END. If there are children below age 7, GO TO #28

_____ East of 45th Street.. How many years _____. If no children below age 7 live in the house GO TO END. If there are children below age 7, GO TO #28.

END. Thank you very much for your time. The information that you have provided will help us in determining the level of exposure of people to lead in the community.

28. As you know, children are the ones at the greatest risk for lead poisoning. So now, we would like to ask you some questions about the daily activities of the children (below age 7) in the home at different times in the year, for example in spring, summer, etc. (Interviewer, now GO TO "CHILD" questionnaires).

+++++
Interviewer, please visually inspect the yard and provide a percentage estimate of the property in:

_____ Front Yard; _____ Back Yard
(note that the total needs to add up to 100)

Percentage of Front Yard comprising (total needs to add up to 100):

_____ grass-covered area _____ sandbox area
_____ dirt covered area _____ asphalt or paved area
_____ other, specify

Percentage of Back Yard comprising (total needs to add up to 100):

_____ grass-covered area _____ sandbox area
_____ dirt covered area _____ asphalt or paved area
_____ other, specify

of activities close (1-2 feet) to the house: _____				
	Hours/week (Summer: June-Aug)	Hours/week (Fall: Sep - Nov)	Hours/week (Winter: Dec - Feb)	Hours/week (Spring: Mar-May)
Play in exposed soil or dirt area (non grass-covered area) (such as digging in the dirt with trucks, etc.). Identify primary types of activities in this area: _____				
Assist with planting or gardening				
Play on swing set or similar structure. (Interviewer should determine percent of cover in this area)				

8. Next, we would like to know this child's activity outside of the home.

Does this child attend day-care, pre-school or school?

_____ Day-care. Name and address _____; Phone: _____

Located (check one): _____ East of 45th Street; _____ West of 45th Street.

How many hours at day-care:

Week-day, from _____ to _____

Weekend, from _____ to _____

	Hours/week (Summer: June-Aug)		Hours/week (Fall: Sep - Nov)		Hours/week (Winter: Dec -Feb)		Hours/week (Spring: Mar-May)	
	Week Day	Week End	Week Day	Week End	Week Day	Week End	Week Day	Week End
Play in exposed soil or dirt area (non grass-covered area) such as digging in the dirt with trucks, etc. Identify primary types of activities in this area								
Play on swing set or similar structure								

If this child does not attend pre-school or school, go to question #13.

_____ PRE-SCHOOL OR _____ SCHOOL (check one)

11. How many hours per week does your child spend at PRE-SCHOOL OR SCHOOL, both indoors and outdoors?

	Hours/week (Summer: June-Aug)	Hours/week (Fall: Sep - Nov)	Hours/week (Winter: Dec -Feb)	Hours/week (Spring: Mar-May)
Indoors:				
Outdoor:				

If the child does not play outdoors at pre-school, skip to question #14.

12. Please describe the nature of your child's (0-6 years only) outdoor activity at the pre-school or school. How many hours would you estimate that they are involved in the following activities? (Interviewer, if the adult is unable to provide this information, skip to #13. This information will be obtained directly from the pre-school or school).

Outdoor PRE-SCHOOL or SCHOOL	Hours/week (Summer: June-Aug)	Hours/week (Fall: Sep - Nov)	Hours/week (Winter: Dec -Feb)	Hours/week (Spring: Mar-May)
Play in the sand-box				
Play in grass-covered areas on the property (participating in activities such as soccer, catch, etc.). Identify primary types of activities close (1-2 feet) to the property:				
Play in exposed soil or dirt area (non grass-covered area, such as digging in the dirt with trucks, etc.). Identify primary types of activities in this area:				
Play on swing set or similar structure (Interviewer should determine percent of dirt cover in this area)				

13. Now, I have some questions on **FOOD** consumption for your child. Does your child consume the following foods:

FOODS	YES	NO
Fruits grown in your garden		
Vegetables grown in your garden		
Take any Mexican home remedies such as <i>Greta</i>		
Mexican home remedies such as <i>Arzcon</i>		
Any other home remedies or herbal treatments? Specify: _____		
Any other home remedies or herbal treatments? Specify: _____		
Eat foods from any pottery or ceramic-ware made in Mexico		
Eat canned foods or drinks made in Mexico or any other country Specify: _____		
Eat candy made in Mexico or any other country		

14. Has your child been tested for lead before:

When	Where	Results (ug/dL)	Child's type of insurance	Any other health problems such as asthma, anemia, sickle cell? (Specify)

15. Does your child chew or suck on any of the following non-food items. (Interviewer check appropriate box):

Fingers/Thumbs	Newspapers/ Magazines	Pewter/Brass	Woodwork/Rails
Pacifier	Cosmetics	Mini-blinds	Doors
Toys	Matches	Knick Knack	Paint Chips
Blanket/Plush Toys	Jewelry/Key	Furniture	Pick at Paint
Crayons/Art Supplies	Dirt/Rocks/Sticks	Window sills	Play w/ baby powder
Other: Specify: _____	Other: Specify: _____	Other: Specify: _____	Other Specify: _____

If more children in the household, below age 7, go to new "CHILD" questionnaire.

16. If no more children in the household below age 7, then **END** the interview.

END: Thank you so much for your time. The information you have provided will help us in determining the level of exposure of people to lead in the community.

IN SPANISH

DEMOGRAPHIC AND LAND USE SURVEY Omaha Superfund Site Omaha, Nebraska

By

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University of Nebraska – Omaha
August 2003

For

The Nebraska Health and Human Services
System – Risk Assessment Program

Under a Cooperative Agreement with the
U. S. Environmental Protection Agency, Region VII
and
Black & Veatch

(IEUBK – Omaha Super Fund Site)

**(PLEASE DROP OFF COMPLETED SURVEYS IN DR. RAJARAM'S MAIL-BOX IN
ROOM, ASH 383, DEPARTMENT OF SOCIOLOGY, UNIVERSITY OF
NEBRASKA- OMAHA, WITHIN A WEEK OF COMPLETION OF THE SURVEY)**

**All information obtained during the course of this survey and the project needs to
be kept strictly confidential at all times.**

Entrevista Número: _____

Fecha: _____ Hora: _____

Nombre del Entrevistador (Letra Imprenta): _____

Dirección de la Casa: _____

Estamos haciendo una encuesta a la gente del vecindario al Este de la calle 45, para entender mejor las actividades diarias y la situación de la comunidad. Esta información nos ayudara a determinar el riesgo que tiene la gente a la exposicion a plomo.

Tenemos unas pocas preguntas que hacerle. Voy a leerle la pregunta y hare unas anotaciones de sus respuestas en este formulario. La información que usted provea va a permanecer confidencial.

Primero,

1. Cuantas personas viven en esta casa: _____
2. Cuantos :

Adultos (mayor de 18) : _____

Niños menores de 7: _____

Niños entre 7 y 18: _____

1. Por favor cuenteme mas acerca de la edad, sexo y herencia etnica/racial de la gente que vive in la casa.

Persona	Edad (años)	Sexo (M/F)	** Raza/Etnicidad (y pais de origen) (Entrevistador mire las categorias abajo)
Encuestado/a			
Esposo/Compañero/a			
Hijo/a 1			
Hijo/a 2			
Hijo/a 3			
Hijo/a 4			
Otros (especifique parentesco con el entrevistado)			

** raza/Etnicidad (Entrevistador, por favor pregunte pais de origin, si aplica para # 1, 2,3,4. Por ejemplo: Guatemala, Sudan, Vietnam, etc.):

1. Africo Americano
2. Asiatico Americano
3. Latino(a)/Hispano(a)
4. Nativo Americano/Alaska
5. Blanco/Caucásico (no Hispano)

ADULTOS

Primero, permitame hacerle algunas preguntas respecto a usted y otros adultos que puedan vivir en la casa (preguntas restringidas para solo 2 adultos) antes de que continuemos con otras preguntas sobre la actividad de juego de sus hijos. Primero,

1. Tiene usted un jardin de vegetales en su casa (marque uno)? Si No
2. Cuales son sus principales cultivos en orden de cantidad ?
 - a) Tomates (grado #)___
 - b) Chiles (grado #)___
 - c) Arverjas (grado #)___
 - d) Quingombo(grado #)___
 - e) Otros (especifique)_____

3. Animales en la cas. Usted tiene:

Gatos?: Si No Sí es si cuantos?_____

Marque uno: Adentro; Afuera; Ambos adentro y afuera

Perros?: Si No Sí es si cuantos?_____

Marque uno: Adentro; Afuera; Ambos adentro y afuera

Otros animals (Especifique): _____

4. En casa usted consume agua principalmente de directamente de la llave o la filtra o usa agua enbotellada (marque uno)?

Para beber: Agua de la llave; Agua filtrada de la llave; Agua enbotellada

Para cocinar: Agua de la llave; Agua filtrada de la llave; Agua enbotellada

5. Usted o algun adulto en la casa participa de las siguientes ACTIVIDADES y/o PASATIEMPOS en la casa?

Pasatiempos/Actividades	SI	NO
Vidrieria hacer o reparar		
Fregaderos de plomo,balas, hacer o reparar		
Baterias, manufactura, restauración		
Ceramica; hacer o decoración		

Pasatiempos/Actividades	SI	NO
Pintura, artistica o industrial		
Tiro al blanco; adentro/afuera		
Trabajo en metal; restauración, lijar, cortar, soldar		
Latón, Bronce, Peltre; recolectar, pulir, lijar.		
Autoservicio; baterias, radiadores		
Trabajo Electrico, soldadura.		
Carpinteria; construccion, renovacion, demolicion		
Limpieza con poder; arena, agua.		
Quimico/Electrico		
Fabricacion de vidrio		
Refineria de petroleo		
Otros; Especifique: _____		

6. Cual es su ocupacion principal: _____

Por favor describa: _____

7. Tiene usted exposicion a plomo en su ocupacion: Si; No; No sé
8. Trabaja usted tiempo completo o medio tiempo (marque uno); Tiempo completo
 medio tiempo
9. Aproximadamente, cuantas horas semanales trabaja usted? _____
10. Aproximadamente, cuantos dias de vacaciones o dias de trabajo usted esta fuera de Omaha(Casa)? _____
11. Usted es voluntario fuera de casa (marque uno)? Si No
12. Sí si, cuantas horas al año usted es voluntario fuera de casa? _____

Ahora tenemos algunas preguntas respecto a donde vive usted.

13. En que año fue construida la casa? _____
14. Usted es propietario o toma en renta la casa (marque uno)? Propietario Renta
15. Ha habido alguna resiente renovacion o remodelacion? Si No
- Sí si, describa: _____
16. Algunas estrucutras de la casa de al lado han sido renovadas, pintadas o demolidas limpieza con chorro de arena o agua? Si; No
17. Hace cuánto usted vive en esta casa (numero de años): _____
18. Sí es menos de un año, vivia usted previamente al Este de la calle 45 o al Oeste?:
 Oeste de la calle 45. Vaya al SIGUIENTE ADULTO. Si no hay otro adulto viviendo en la casa, pero hay niños menores de 7 años viviendo en la casa, vaya a # 28. O vaya al FINAL.
19. Este de la calle 45. Cuantos años _____. Vaya al SIGUIENTE ADULTO. Si no hay otro adulto viviendo en la casa, pero hay niños menores de 7 años viviendo en la casa, vaya a # 28. O vaya al FINAL.

SIGUIENTE ADULTO

Edad: _____; Sexo: _____; Relacion con el entrevistado: _____

19. Cual es la ocupacion de este adulto: _____

Por favor describa: _____

20. Esta persona tiene exposicion a plomo en su ocupacion: ___ Si; ___ No

21. Esta persona trabaja tiempo completo o medio tiempo (marque uno); ___ Tiempo completo ___ medio tiempo

22. Aproximadamente, cuantas horas semanales trabaja esta persona? _____

23. Aproximadamente, cuantos dias de vacaciones o dias de trabajo esta persona esta fuera de Omaha(Casa)? _____

24. Esta persona es voluntario/a fuera de casa (marque uno)? ___ Si ___ No

25. Sí si, cuantas horas al año es voluntario/a fuera de casa? _____

26. Hace cuanto esta persona vive en esta casa (numero de años): _____

27. Sí es menos de un año, esta persona vivia previamente al Este de la calle 45 o al Oeste:?

___ Oeste de la calle 45. Si no hay niños menores de 7 años en la casa, VAYA AL FINAL. Si hay niños menores de 7 años de edad, VAYA AL # 28.

___ Este de la calle 45. Cuantos años _____. Si no hay niños menores de 7 años en la casa, VAYA AL FINAL. Si hay niños menores de 7 años de edad, VAYA AL # 28.

FINAL. Muchas gracias por su tiempo. La informacion que usted a dado nos ayudara a determinar el nivel de exposicion a plomo que la gente tiene en la comunidad.

28. Como usted sabe, los niños son los que tienen mayor riesgo de envenenamiento por plomo. Entonces ahora nos gustaria hacerle algunas preguntas acerca de las actividades diarias de los niños en la casa durante los diferentes periodos del año, por ejemplo en primavera, verano, etc.

(Entrevistador, ahora VAYA A "NIÑO/A" questionarios).

+++++

Entrevistador, por favor haga una inspección visual del jardin y de un porcentaje estimado de la propiedad en:

___ Jardin delantero; ___ Jardin Trasero

(note que el total debe sumar 100)

Porcentaje de jardin delantero comprometido (note que el total debe sumar 100):

- | | |
|-----------------------------|----------------------------------|
| ___ Area cubierta de pasto | ___ Caja de arena |
| ___ Area cubiertad e tierra | ___ Area asfaltada o pavimentada |
| ___ Otra, Especifique | |

Porcentaje de jardin trasero comprometido (note que el total debe sumar 100):

- | | |
|-----------------------------|----------------------------------|
| ___ Area cubierta de pasto | ___ Caja de arena |
| ___ Area cubiertad e tierra | ___ Area asfaltada o pavimentada |
| ___ Otra, Especifique | |

NIÑO/A (solo sin son niños menores de 7 años de edad)

Entrevista Número: _____

Fecha: _____ Hora: _____

Nombre del Entrevistador (Letra Imprenta): _____

Dirección de la Casa: _____

Niño/a # _____ Edad: _____ Relación con le entrevistado: _____

4. Cuantas horas POR SEMANA su niño/a esta en CASA, ambos adentro y afuera?
("adentro" se refiere a horas despierto, y "afuera" se refiere a tiempo gastado afuera en el jardín).

Lugar de la casa	Horas/Semanales (Verano: Junio-Agosto)		Horas/Semanales (Otoño: Septi-Noviembre)		Horas/Semanales (Invierno: Dicie-Febrero)		Horas/Semanales (Primavera: Marzo- Mayo)	
	Entre Semana	Fines de Semana	Entre Semana	Fines de Semana	Entre Semana	Fines de Semana	Entre Semana	Fines de Semana
Adentro								
Afuera								

5. Si su niño no juega afuera de casa vaya a la pregunta # 8.

6. Si su hijo juega el mayor tiempo afuera de la casa(marque uno):

_____ Jardín del frente; _____ Jardín trasero; _____ No aplica(explique)_____

7. Por favor describa el tipo de actividad que el niño realice afuera de la casa (0-6 años unicamente). Cuantas horas usted estima que su niño esta involucrado en las siguientes actividades?

Actividad fuera de CASA	Horas/Semanales (Verano: Junio-Agosto)	Horas/Semanales (Otoño: Septi-Noviembre)	Horas/Semanales (Invierno: Dicie-Febrero)	Horas/Semanales (Primavera: Marzo- Mayo)
Jugar en la caja de arena				
Jugar en las area cubiertas de pasto de la propiedad (participar en actividades como futbol, atrapar, etc.). Identifique el				

principal tipo de actividades cerca (1-2 pies) de la casa:				
	Horas/Semanales (Verano: Junio- Agosto)	Horas/Semanales (Otoño: Septi- Noviembre)	Horas/Semanales (Invierno: Dicie- Febrero)	Horas/Semanales (Primavera : Marzo- Mayo)
Jugar en areas expuestas a la tierra, al suelo (no areas cubiertas con pasto) (como cavar en la tierra con escavadoras, etc.). Identificar el tipo de actividades principales en esta area: _____				
Ayudar con las plantas o jardineria				
Juegos o columpios o estructuras similares. (Entrevistador tiene que determinar el porcentaje de esta area)				

8. Ahora, nos gustaria conocer la actividad de este niño fuera de casa.

El niño asiste a guarderia, pre escolar o Escuela?

_____ Guarderia. Nombre y Dirección _____

Localizada (marque uno): _____ Este de la calle 45; _____ Oeste de la calle 45

Cuantas horas en la guarderia:

Dias entre semana , de _____ a _____

Fines de semana , de _____ a _____

Pre-escuela o Escuela (marque una): _____ Pre-Escuela _____ Escuela.

Que grado: _____

Nombre y Dirección _____

Localizada: _____ Este de la calle 45; _____ Oeste de la calle 45

Si la guarderia o pre-escuela o escuela esta localizada al OESTE de la calle 45 vaya a la pregunta # 13.

GUARDERIA

9. Cuantas horas por semana su niño esta en la GUARDERIA, ambos adentro y afuera?

Juegos o columpios o estructuras similares. (Entrevistador tiene que determinar el porcentaje de esta area)								

Si este niño no asiste a pre-escuela o Escuela, vaya a la pregunta # 13.

 PRE-ESCUELA O ESCUELA (marque una)

11. Cuantas horas por semana su niño esta en la PRE-ESCUELA O ESCUELA, ambos adentro y afuera?

	Horas/Semanales (Verano: Junio- Agosto)	Horas/Semanales (Otoño: Septi- Noviembre)	Horas/Semanales (Invierno: Dicie- Febrero)	Horas/Semanales (Primavera: Marzo- Mayo)
Adentro				
Afuera				

Si el niño/a no juega afuera de la pre-escuela o escuela, evite las preguntas hasta la la # 14.

12. Por favor describa el tipo de actividad que su niño realice afuera de la pre-escuela o Escuela (0-6 años unicamente). Cuantas horas usted estima que su niño/a esta involucrado en las siguientes actividades? (Entrevistador, si el adulto no puede dar esta informacion, evitela y vaya a # 13. Esta informacion se va a obtener directamente de la Pre-escuela o Escuela).

Actividad fuera de PRE-ESCUELA O ESCUELA	Horas/Semanales (Verano: Junio- Agosto)	Horas/Semanales (Otoño: Septi- Noviembre)	Horas/Semanales (Invierno: Dicie- Febrero)	Horas/Semanales (Primavera : Marzo- Mayo)
Jugar en la caja de arena				
Jugar en las area cubiertas de pasto de la propiedad (participar en actividades como futbol, atrapar, etc.). Identifique el principal tipo de actividades cerca (1-2 pies) de la casa:				

Actividad fuera de PRE-ESCUELA O ESCUELA	Horas/Semanales (Verano: Junio-Agosto)	Horas/Semanales (Otoño: Septi-Noviembre)	Horas/Semanales (Invierno: Dicie-Febrero)	Horas/Semanales (Primavera : Marzo-Mayo)
Jugar en áreas expuestas a la tierra, al suelo (no áreas cubiertas con pasto) (como cavar en la tierra con escavadoras, etc.). Identificar el tipo de actividades principales en esta area: _____				
Juegos o columpios o estructuras similares. (Entrevistador tiene que determinar el porcentaje de esta area)				

13. Ahora , tengo unas preguntas acerca de el consumo de ALIMENTOS de su niño. Su niño consume los siguientes alimentos:

ALIMENTOS	SI	NO
Frutas cultivadas en su jardin		
Vegetales cultivados en su jardin		
Toma remedios caseros mejicanos como <i>Greta</i>		
Remedios caseros mejicanos como <i>Arzcon</i>		
Algun otro remedio casero o tratamiento herbal? Especifique: _____		
Algun otro remedio casero o tratamiento herbal? Especifique: _____		
Come algun alimento de vasijas de barro o ceramica hecha en Mejico?		
Come alimentos o bebidas enlatadas hechas en Mejico u otro Pais. Especifique: _____		
Come dulces hechos en mejico u otro pais		

14. Ha sido su niño examinado para plomo anteriormente:

Cuando	Donde	Resultados (ug/dL)	Tipo de aseguranza del niño	Algún otro problema de salud como Asma, anemia, anemia falciforme? (Especifique)

15. Su niño mastica o chupa algo de los siguientes no-alimentos. (Entrevistador marque la casilla apropiada):

Dedos	Periodicos/Magazines	Peltreria/Latas	Objetos de Madera/Rieles
Chupo/Entretenedor	Cosmeticos	Mini-percianas	Puertas
Juguetes	Fosforos	Chucherias	Fichas pintadas
Cobijas/felpas	Joyeria/llaves	Muebles	Pedazo de pintura
Crayones/materials de arte	Tierra/ piedras/palos	Marcos de ventanas	Jugar con talco para bebes
Otros: Especifique:	Otros: Especifique:	Otros: Especifique:	Otros: Especifique:

Si hay mas niños en la casa menores de 7 años de edad, vaya a un nuevo "NIÑO/A" cuestionario.

16. Si no hay mas niños en la casa menores de 7 años de edad, entonces FINALICE la entrevista. Muchas gracias por su tiempo. La informacion que usted a dado nos ayudara a determinar el nivel de exposicion a plomo que la gente tiene en la comunidad.

APPENDIX - 2

BVID _____



U.S. Environmental Protection Agency Region VII

Omaha Lead Site
Omaha, NE

Interior Dust Samples
Remedial Investigation/
Feasibility Study

PROPERTY ACCESS

(to be completed by property owner)

Black & Veatch Special Projects Corp. (BVSPC) is under contract with the U.S. Environmental Protection Agency (EPA) to assist in the determination of levels of lead and other metals in interior dust within the Omaha, Nebraska area. Your cooperation is requested in giving BVSPC/EPA permission to access your property for the purpose of interior dust sampling analysis in support of this study. For further information contact Don Bahnke, EPA Project Manager, (913) 551-7703 or the Office of External Affairs (800) 223-0425.

Property Access Granted By: _____
(Please Print Name)

(Property Owner Signature) _____
(Date)

NOTE: Granting permission DOES NOT necessarily imply your property will be sampled at this time.

SAMPLE INFORMATION

(to be completed by sampler - Please Print)

Residence address: _____
(City) *(State)* *(Zip)*

Children live at the residence: Yes No List ages: _____

Sampler: _____ Date: _____

Wipe Sample

Room: Kitchen/Breakfast Bedroom Living Room Dining Room Den/Great Room/Family Room
Play Room Office Other _____

Area of sample collection: _____ (*inches²*)

Time of collection: _____

Lead loading: _____ (*µg/ft²*) Lab result: _____

Vacuum Sample No. 1

Room: Kitchen/Breakfast Bedroom Living Room Dining Room Den/Great Room/Family Room
Play Room Office Other _____

Area of sample collection: _____

Time of collection: _____ Total Sample Time: _____

Type of Floor Sampled:

(Check one) Carpet Rug
(Check one) Plush Level Loop Multi-level Shag Other _____

-OR-

(Check one) Hard Surface: Wood Tile Vinyl/Laminate Concrete Brick Other _____

Access Attempts:

First: _____ Second: _____ Third: _____



Last vacuumed: _____
 Temperature: _____ Humidity: _____ Flow rate: _____ Pressure drop: _____
 Tare weight (container before sample): _____ g Final weight (container and sample): _____ g Weight of total sample: _____ g
 Pan tare weight (pan w/o sieved sample): _____ g Final weight (pan and sieved sample): _____ g
 Weight of sieved dust sample: _____ g (Fine Dust)
 Lead loading: _____ ($\mu\text{g}/\text{ft}^2$) Lead concentration: _____ ($\mu\text{g}/\text{g}$) Lab result: _____

Vacuum Sample No. 2

Room: Kitchen/Breakfast Bedroom Living Room Dining Room Den/Great Room/Family Room
 Play Room Office Other _____
 Area of sample collection: _____ (inches²)
 Time of collection: _____ Total Sample Time: _____
 (Check one) Carpet Rug
 (Check one) Plush Level Loop Multi-level Shag Other _____
 -OR-
 (Check one) Hard Surface: Wood Tile Vinyl/Laminate Concrete Brick Other _____

Last vacuumed: _____
 Temperature: _____ Humidity: _____ Flow rate: _____ Pressure drop: _____
 Tare weight (container before sample): _____ g Final weight (container and sample): _____ g Weight of total sample: _____ g
 Pan tare weight (pan w/o sieved sample): _____ g Final weight (pan and sieved sample): _____ g
 Weight of sieved dust sample: _____ g (Fine Dust)
 Lead loading: _____ ($\mu\text{g}/\text{ft}^2$) Lead concentration: _____ ($\mu\text{g}/\text{g}$) Lab result: _____

Vacuum Sample No. 3

Room: Kitchen/Breakfast Bedroom Living Room Dining Room Den/Great Room/Family Room
 Play Room Office Other _____
 Area of sample collection: _____ (inches²)
 Time of collection: _____ Total Sample Time: _____
 (Check one) Carpet Rug
 (Check one) Plush Level Loop Multi-level Shag Other _____
 -OR-
 (Check one) Hard Surface: Wood Tile Vinyl/Laminate Concrete Brick Other _____

Last vacuumed: _____
 Temperature: _____ Humidity: _____ Flow rate: _____ Pressure drop: _____
 Tare weight (container before sample): _____ g Final weight (container and sample): _____ g Weight of total sample: _____ g
 Pan tare weight (pan w/o sieved sample): _____ g Final weight (pan and sieved sample): _____ g
 Weight of sieved dust sample: _____ g (Fine Dust)
 Lead loading: _____ ($\mu\text{g}/\text{ft}^2$) Lead concentration: _____ ($\mu\text{g}/\text{g}$) Lab result: _____

AUTHORITY FOR ENVIRONMENTAL RESPONSE ACTIONS
 The activities to be implemented by EPA under this agreement are pursuant to Section 104 of CERCLA, 42 U.S.C. 9604. EPA's right of access to the property for in Section 104(e) of CERCLA, 42 U.S.C. 9604(e), which provides entry for, "determining the need for response, or choosing or taking any response action under this title, or otherwise enforcing the provisions of this title."