ENVIRONMENTAL SAMPLING PLAN
CHURCHILL COUNTY, NEVADA

Prepared in Support of:

CDC/NCEH Cross Sectional Assessment Study

Prepared by:

Nevada Division of Environmental Protection
333 West Nye Lane
Carson City, Nevada

December 14, 2001

Allen J. Biaggi, Administrator
H. LaVerne Rosse, Deputy Administrator
Jolaine A. Johnson, Deputy Administrator

Table of Contents

TABLES

APPENDICES

ATTACHMENTS

1.0 INTRODUCTION

1.1 Executive Summary

This sampling plan was prepared by the Nevada Division of Environmental Protection (NDEP) to support the environmental sampling component of the Centers for Disease Control and Prevention's (CDC) National Center for Environmental Health (NCEH) study entitled, "Cross-Sectional Exposure Assessment of Case-Children With Leukemia (Acute Lymphocytic and Acute Myelocytic Leukemias) and A Reference Population In Churchill County, Nevada." This document will be referred to as the CDC/NCEH study protocol throughout this sampling plan.

The CDC/NCEH study protocol was designed to assess exposure to a variety of chemicals, radioactive elements, and infectious agents among children diagnosed with leukemia (acute lymphocytic leukemia [ALL] and acute myelocytic leukemia [AML]), and compare their exposure to that of their immediate family members (parents and siblings only) and to reference families. The reference families will consist of children without cancer diagnoses, and their parents. Exposure will be assessed by measuring for specific analytes within blood, urine, and indoor and outdoor environmental samples, in conjunction with a questionnaire about pertinent risk factors.

As described in the CDC/NCEH study protocol, the study was designed as a cross-sectional exposure assessment of current exposures; it is very difficult to collect reliable information about exposures that happened in the past. Environmental samples will be collected from the current household of each participating case and control family to help interpret the results of the blood and urine tests. In addition to the case-family's current home, environmental samples will be collected from each house they previously occupied within Churchill County, Nevada during the defined time period for this study. Environmental samples will also be collected from the previous residences of 1 out of every 4 control children in each frequency strata. The control family whose historic residences will be sampled will be randomly selected without prejudice to number of residences or duration of residence. The CDC/NCEH study protocol determined that environmental samples would consist of indoor air, play yard soil, drinking water, and household dust from each past and current residential location. NDEP will collect, coordinate the laboratory analysis, and disseminate the results of the indoor air, play yard soil, and household dust; the US Geological Survey will be responsible for the collection and analysis of drinking water.

1.2 Background – Study History

The following background information was taken from the CDC/NCEH study protocol document. In July 2000, Dr. Randall Todd, State Epidemiologist, identified an increase in the incidence rate of ALL for Churchill County, Nevada. According to the Nevada State Cancer Registry, the first case of ALL diagnosed in Churchill County, Nevada was in 1997, with 2 subsequent cases in 1999, and 9 additional cases diagnosed by July 2000. In September

2000, Dr. Todd began an investigation of the case-families by administering a questionnaire and collecting drinking water samples from case-family homes. The questionnaire covered residential history prior to conception, pregnancy history, water supply choices and use, chemical use inside the home, occupational history of parents, sources for radiation and electromagnetic (EMF) exposure, child activities, and smoking in the home. The investigation did not reveal any obvious risk factor or etiology. In total, 14 cases of childhood leukemia were detected in Churchill County, Nevada between 1997-2001.

In February, 2001 Dr. Mary Guinan, State Health Officer for Nevada, convened an Expert Panel to review the State of Nevada's investigation and other literature about ALL among children. Following recommendations from this Expert Panel, the State of Nevada formally requested assistance from both CDC/NCEH and ATSDR on March 7, 2001 for further evaluation of risk factors or etiologic exposures linked to this childhood leukemia cluster in the Fallon area. ATSDR has been asked to evaluate contaminant releases in Churchill County, Nevada and provide an assessment of completed exposure pathways for the case-families. CDC/NCEH was asked to design and conduct a cross-sectional exposure assessment of selective contaminants using environmental (household) and biologic specimens for case-families and a reference population.

1.3 Site Location and Description

Churchill County, created in 1861, takes it name from Brigadier General Sylvester Churchill. The County covers 4,926 square miles of the 109,826 square miles that comprises the State of Nevada. The U.S. Census Bureau tabulated year 2000 population of the State of Nevada at 1,998,257 people. The population of Churchill County was reported at 23,982 people. Of that number 8,386 people reside within the city limits of Fallon, the county seat.

Situated in the Lahontan Valley at an elevation of 3,965 feet above mean sea level, the City of Fallon is located 60 miles east of Reno, Nevada. U.S. Highway 50 crosses the town in the east-west direction, and U.S. Highway 95 passes through the town in the north-south direction. U.S. Interstate 80 passes the area in a southwest-northeast direction 28 miles northwest of town and can also be reached traveling 32 miles north of town. The incorporated area occupies approximately two square miles within Sections 1, 25 and 36 of Township 19 North, Range 28 East, and Sections 30, and 31 of Township 19 North, Range 29 East, Mount Diablo Baseline and Meridian. The geographic coordinates are 39° 28' to 39° 29' N latitude, 118° 27' 45" to 118° 28' 45" W longitude.

2.0 PROJECT DESCRIPTION

2.1 Responsible Agencies

The Deputy Administrator of the NDEP will oversee this project with divisional bureaus and staff providing support. The NDEP will prepare and implement this Sampling Plan that will support the environmental sampling objectives described in the CDC/NCEH Cross-Sectional Exposure Study. NDEP will collect environmental samples as appropriate, facilitate the laboratory analysis of the samples, facilitate the organization of the laboratory results from the various laboratories used, and provide these results back to the Nevada State Health Division, CDC /NCEH and to the property owners, or renters, identified as case and control homes.

NDEP will coordinate with other State and Federal Agency activities in support of this study. NDEP may also be utilizing commercial laboratories for selected environmental analysis.

- Nevada Department of Agriculture: Provide assistance in determining pesticide use in Churchill County in order to determine appropriate analytical parameters. The Department will also be utilized to provide laboratory analysis of soil and home dust samples for a limited number of organo-phosphate and other pesticides.

- Nevada State Health Division: Provide radon screening test kits and laboratory analysis. Provide laboratory analysis of a limited number of radionuclides in soil and indoor dust.

- United States Environmental Protection Agency (U.S. EPA) Region 9: Provide laboratory analysis of soil and home dust samples for metals, organo-chlorine pesticides and polychlorinated biphenyls (PCB) and semi-volatile organics. The EPA regional laboratory will also be providing air sampling collection equipment.

- U.S. EPA Environmental Response Team (ERT): Provide home dust sample collection equipment.

- U.S. Geological Survey (USGS): Will be collecting tap water samples at the case and control homes, independent of NDEP sample collection activities.

- Agency for Toxic Substances And Disease Registry (ATSDR): Provide technical support to NDEP in reviewing and implementing the Sampling Plan. ATSDR will also assist NDEP in coordinating Agency activities.

- Commercial laboratories: Contracted by NDEP, as necessary, in order to provide needed laboratory analysis. Specifically, a commercial laboratory will be utilized for indoor air samples to be analyzed for volatile organics.

2.2 Project Organization

The NDEP portion of the project will use the Incident Command System (ICS) as the model tool for command, control and coordination. ICS uses principles that have been proven to improve efficiency and effectiveness in a business setting. The entire Churchill County Investigation includes personnel from the Nevada Division of Environmental Protection, Nevada State Health

Division, Nevada Department of Agriculture, U.S. Geological Survey, U.S. Environmental Protection Agency, Agency for Toxic Substances and Disease Registry and the Centers for Disease Control and Prevention. Primary contacts for the Churchill County Investigation are as follows:

Overall Project Manager:
Mary Guinan, Ph.D., M.D.
State Health Officer
Nevada State Health Division
505 East King Street
Kinkead Building, Room 304
Carson City, NV 89701
(775) 684-4200

Fallon Project Manager
Dr. Randall Todd
Nevada State Epidemiologist
Nevada State Health Division
(775) 684-5946

Assistant to Project Manager:
Ms. Kelly Service
Nevada State Health Division
(775) 684-5947

Public Information Officer:
Mr. John Flamm
Nevada State Health Division
(775) 684-4200

Environmental Project Technical Support:
Libby Levy
Regional Representative
ATSDR
75 Hawthorne St., Ste. 100
San Francisco, CA 94105
(415) 947-4319

CDC/NCEH Exposure Study Project Coordinator:
Adrianne Holmes
CDC/NCEH
(404) 498-1372

NDEP Project Manager:
Verne Rosse, P.E., Deputy Administrator
Nevada Division of Environmental Protection

333 West Nye Lane
Carson City, NV 89706
775-687-4670 extension 3045

NDEP Operational Coordinator:
Jim Najima
Nevada Division of Environmental Protection
775-687-4670 extension 3154

NDEP Environmental Sample Coordinator:
Jennifer Carr, P.E., C.E.M.
Nevada Division of Environmental Protection
775-687-4670 extension 3020

NDEP: Documentation/Logistics Coordinator:
Jennifer McMartin
Nevada Division of Environmental Protection
775-687-4670 extension 3152

NDEP Health & Safety Officer:
Marcia Manley
Nevada Division of Environmental Protection
775-687-4670 extension 3162

2.3 Objectives and Data Use

The objective of this sampling event is to support the Centers for Disease Control and Prevention's study plan for a "Cross-Sectional Exposure Assessment of Case-Children with Leukemia (Acute Lymphocytic and Acute Myelocytic Leukemias) and a Reference Population in Churchill County, Nevada." The CDC study design is a cross-sectional exposure assessment of selective contaminants using biological specimens and environmental field sample analysis for case-family homes and a reference population. The cross-sectional exposure assessment design will allow for the comparison of laboratory testing results from case-children's blood and urine to their family members' samples; and between case-families and control-families. Environmental samples will be collected from the current household of each participating family (case & control) to assist the CDC's interpretation of their results of

the blood and urine tests. Past households of case families and a portion of the control families will also be sampled. The data collected in this study will also be used by ATSDR to investigate and assess any completed exposure pathways in the case families. Finally, a review committee will review the results of the environmental sampling and the NDEP will facilitate the peer review process.

2.4 Scope of Work

The NDEP designed this environmental sampling protocol for the collection of surface soil, indoor air and home dust sampling for the participating study homes. The NDEP will implement this environmental sampling plan upon concurrence of the CDC/NCEH and appropriate agencies that are part of this multi-agency investigation.

Environmental samples will be collected from residential properties of both case and control families. Residences will be located both in the City of Fallon and throughout Churchill County. The control homes will be selected by CDC/NCEH through a random digit dialing protocol. There are approximately 21 case homes, which include current and past Churchill County residences of the case families. There will be approximately 60 control residential properties.

The CDC/NCEH study protocol estimated that environmental samples would be collected from approximately 100 residences in Churchill County. This figure includes current and past residences of cases (n=22), and current residences of all control subjects (n=52), and past residences of 1 out of every 4 control children enrolled in the study, assuming each control family has 2 past residences in Churchill County (n=26).

The types of samples and analytical parameters were determined based on the goals and objectives of the CDC/NCEH study protocol and the recommendations of the Expert Panel that met in March and July, 2001.

The locations and analytical parameters of the sampling will be discussed in the following sections. Overall, NDEP will be collecting the same set of samples from each participating case and control home. These samples will include:

- One outdoor soil sample
- One indoor air sample
- One indoor floor dust sample
- One indoor wipe dust sample
- One indoor radon kit

Field sampling will be consistent with EPA standard operating procedures (SOP's), as appropriate, or other SOP's as determined by NDEP. Sample handling and shipping will follow standard EPA Chain of Custody protocols. All SOP's may be found as appendices to this document. If any significant deviations from the SOP's occur during field implementation, the sampling team will be responsible for documenting such deviations. Significant processes developed for field activities will be included as attachments.

Laboratory analysis provided by EPA Region 9 will follow the Regional Laboratory's Quality Assurance and Quality Control (QA/QC) practices followed for EPA Superfund Sites. Some samples analyzed through the EPA Regional laboratory will be sent to EPA Contract Laboratory

Program (CLP) laboratories for analysis. These laboratories will also follow their EPA contract specified QA/QC procedures. The commercial laboratories contracted by NDEP will provide the NDEP with information regarding their use of performance evaluation samples, previous laboratory

audits, and ethical conduct. In addition, specific information regarding the laboratory's performance with the particular methods to be used for the samples will also be provided. This and other information will be reviewed by the NDEP Project Management Team and deemed satisfactory before the laboratory is selected and a contract negotiated.

3.0 SAMPLING PROCEDURE

3.1 Sample Collection

All sampling activities will be performed by the NDEP sampling teams. Each team will consist of a team leader and two to three samplers. A NDEP field coordinator will be stationed in the City of Fallon Field Office and will coordinate sampling schedules with the team leader and the residents. The team leader will be responsible for communication with the residents of each home. Each sampling team will be responsible for the proper field documentation and field collection of environmental samples. NDEP sampling teams will be familiar with the standard operating procedures (SOP's) for this study and SOP's will be followed whenever possible.

Every effort will be made by the NDEP to ensure that the sampling teams will not know if a residential property is from the case or control group. Samples will be identified by a house number assigned by the CDC/NCEH and given to the NDEP field coordinator. The house number and address will be given to the team leader. All samples and chain of custody records will only utilize the house number. Sample number and type will be denoted by the following code:

House Number -- Matrix -- Sequence:

House Number:
Assigned by CDC/NCEH. Numbers will run from 001 through 100.

Matrix:
Surface Soil = SS
Home Dust = HD
Wipe Sample = WS
Indoor Air = IA
Radon Kit = RK
Equipment Blank = EB

Sequence:

Samples will be numbered according to the number of samples collected at each residence. This last number is provided, in case additional samples are needed at a sample location. For example, if two dust samples are required at house #17, the following sample numbers would be used:

017-HD-01 and 017-HD-02

This would denote that house 17 had two dust samples; HD-01 and HD-02.

Table 1 provides a summary of sample type and general location for the sample.

Table 1
Sampling Summary

Sample Identifier	Matrix	Type of Sample	Location
(001-100) – SS - 01	Soil	Surface Soil	Outdoor Play Area
(001- 100) - HD -01	Dust	Dust	Indoor Living Area
(001-100) – IA- 01	Air	Air	Indoor Living Area
(001- 100) - RK-01	Air	Radon Kit	Indoor Living Area
(001- 100) - WS -01	Dust	Dust	Television/Computer Monitor

3.2 Sampling Matrices

The following sections describe the sample collection procedures for the various matrices that will be collected during the sampling event.

3.2.1 Soil Samples

One soil sample will be collected from a children's play area at each study residence. The specific area will be determined by the team leader after consulting with the residents of each home. The sample will consist of a three-part composite of the surface soil of the designated play area. Samples will preferably come from dirt play areas.

All surface soil composite samples will be collected at a depth of 0 to 3 inches using disposable scoops and aluminum pans. The sampler will don a disposable Tyvek suit, booties and use clean powder free latex or nitrile gloves at each sampling location to minimize the chance of cross-contamination. The samples will be homogenized in a dedicated aluminum tray. Homogenization will be performed by removing all stones and extraneous matter, thoroughly mixing the aliquots, and dividing the soil into four roughly equal aliquots. This procedure will be repeated three times. If all of the play areas at a study residence are grass covered, three (3) small areas of grass will be removed and the first 0-3 inches of soil below the grass cover will be collected from the area. The grass will be removed with a small disposable or steel garden trowel. Care will be taken to replace the grass and clean soil potting will be added below the grass to restore the sample area. All soil sampling activities will be conducted according to the Surface Soil Sampling Standard Operating Procedure (SOP) developed for this sampling event, this SOP may be found as Appendix A.

3.2.2 Air Samples

One air sample will be collected from a frequently used room of each study home, such as the living room or other room frequently used by the children of the family. The sample will be collected as a "grab" or instant sample by using a Summa canister. The exact location will be determined after consulting with the residents of each home. The canister will be placed at a height of approximately three feet off the ground. This height was selected to approximate a child's breathing zone.

Air samples will be collected in accordance with the Summa Canister Air Sampling SOP, developed for this sampling event; this SOP may be found as Appendix B. The samples will be sent to an approved laboratory for analysis of volatile organic compound parameters. The canisters and all sampling equipment will be pre-cleaned and provided by the EPA Regional laboratory. The Summa canister will be sent to the selected laboratory for analysis and then returned to the EPA Regional laboratory to be cleaned for re-use.

3.2.3 Dust Samples

Vacuum Dust samples will be collected from the living areas of each study home. This will include the living room, dining room, bedrooms, hallways and kitchen. Samples will not be collected from generally inaccessible areas such as behind the refrigerator, storage closet/attic, or crawl spaces. The areas sampled will be measured and recorded in order to perform quantitative calculations.

Approximately 70 grams of sample will be needed to perform the full list of analytical parameters described in the CDC/NCEH Cross Sectional Exposure Study. The EPA Regional laboratory will be using approximately 5-10 grams for metals analysis and approximately 30 grams for organo-chlorine pesticide and PCB analysis. The remaining sample volume will be sent by the EPA Regional Laboratory to the Nevada Department of Agriculture (NDOA) to be analyzed for organo-phosphate, carbamate, and pyrethroid pesticides.

Samples will be collected with a Nilfisk Vacuum and collection procedures will follow the Nilfisk Home Dust Sampling SOP developed for this sampling event, this SOP may be found as Appendix C.

A separate dust sample will be collected as a dry wipe sample and will be laboratory analyzed for gamma spectrometry, and Uranium 234, 235, and 238. This sample will be collected from a television screen in a family room or a computer monitor, if the television screen is inappropriate for sample collection. The wipe sample will be sent directly to a contract laboratory arranged through the Nevada State Health Department. The field sampling will be conducted according to the Dry Wipe Sampling SOP developed for this sampling event, this SOP may be found as Appendix D.

3.2.4 Radon Kits

The homeowner will be contacted prior to the sampling event and the placement of the radon test kit and instructed to keep the house closed at least 12 hours prior to placement. It is necessary to keep all external doors and windows closed for at least 12 hours prior and during the entire test period. Normal coming and going is acceptable, however external doors should not be left open for periods of more that a few minutes. Internal/external air exchange systems other than the furnace, such as high volume attic and window fans, should not be operated for at least 12 hours prior to and during the measurement period. Operation of closed circulation systems should not affect the test. Swamp coolers must not be utilized. Radon samples will be collected in accordance with the Radon Sampling SOP developed for this sampling event, this SOP may be found as Appendix E.

At the end of the test period, the testing team will collect the test kits, prepare the appropriate forms and send the test kit to the laboratory for analysis. The NDEP will receive the test results. The Nevada State Health Division will also receive the test results on a monthly report.

3.3 Field Data Documentation

A sampling team member will document sample conditions; estimate ambient air temperature (indoor and outdoor), cloud cover, and other relevant observations of the sample property and adjacent properties. Documentation will be conducted by using the Combined Field Data Sheets developed for this sampling event, these forms may be found as Appendix F.

3.4 Labeling Protocol

The NDEP field administrative staff will prepare all sampling labels with confirmation by the sampling teams. The NDEP field administrative staff will notify and provide required labels when required for the duplicates, QC double volume and blanks. Each sample team will be responsible for the proper field labeling documentation. The Labeling protocol SOP may be found as Appendix G.

3.5 Decontamination

Personnel field gear and the majority of field sampling equipment scheduled to be used at this site will be disposable, and will be double-bagged and disposed of as dry industrial waste. Any non-disposable sampling equipment, such as stainless-steel trowels, will be decontaminated at the Fallon field office and will utilize appropriate procedures, such as washing with a solution of Alconox (phosphate detergent) and distilled water. Decontamination of the Nilfisk dust sample equipment will follow procedures outlined in the Vacuum Sampling SOP. All other field decontamination will follow the Decontamination SOP developed for this sampling event, this SOP may be found as Appendix H.

4.0 ANALYTICAL PARAMETERS

Table 2 provides a summary of the sampling matrices, analytical parameters, analytical methods, sample containers, and designated laboratory for this sampling event. Detection Levels will be

the best achievable given the sample volumes actually collected for each parameter. A complete list of analytical parameters may be found as Attachment 1.

Table 2 - Summary of Analytical Parameters

Sample Type	Analytical Parameter	Test Method	Laboratory	Containers Preservatives Volumes
Soil	TAL Metals	CLP SOW ILM04.1	EPA CLP Laboratory	One 8-oz CWM 4°C
	TCL Pesticide/PCB Organo-chlorine	CLP SOW OLM04.2	EPA Region 9 Laboratory	One 8-oz CWM 4°C
	Uranium 234, 235, and 238 Gamma Spectroscopy		NSHD Contract Laboratory	Plastic Zip-Lock Bag
	Pesticides (NDOA Lab List) Organo-phosphate, Carbamate, Pyrethroid	Methanol Extraction and ELSA Kit	NDOA Laboratory	One 8-oz CWM 4°C
Dust	TAL Metals	CLP SOW ILM04.1	EPA Region 9 Laboratory	5-10 grams of dust sample
	TCL Pesticide/PCB (Organo-chlorine)	CLP SOW OLM04.2	EPA Region 9 Laboratory	30 grams of dust sample
	Uranium 234, 235, and 238 Gamma Spectroscopy		NSHD Contract Laboratory	Plastic Zip-Lock Bag
	Pesticides (NDOA Lab List) Organo-phosphate, Carbamate, Pyrethroid	Methanol Extraction and ELSA Kit	NDOA Laboratory	30 grams of dust sample
Air	Volatile Organics	T015	NDEP Contract Laboratory	Summa – Grab Sample
Radon	Radon Kit		NSHD Contract Laboratory	7 Day Sample

Notes:
CLP SOW	Contract Laboratory Program Statement of Work
CWM	clear wide mouth
Oz	ounce
°C	degrees Celsius
TAL	EPA Target Analyte List
TCL	EPA Target Compound List
TIC	Tentatively Identified Compound

5.0 QA/QC PROCEDURES

5.1 Responsibility

The NDEP Environmental Sample Coordinator will be responsible for ensuring that sample quality and integrity are maintained. The Sample Coordinator will also ensure that sample labeling and documentation are performed in accordance with approved SOPs.

Air carriers that transport hazardous materials, in particular Federal Express, require compliance with the current International Air Transport Association (IATA) Regulations, which applies to the shipment and transport of hazardous materials by air carrier. This study will be utilizing air carriers to transport environmental samples (not hazardous waste samples), and will be shipping small quantities of water samples preserved with nitric acid. The water samples will be generated during field QA/QC procedures. NDEP will follow IATA regulations to ensure compliance.

5.2 Field QC

Field QC will consist of collecting and analyzing decontamination (rinsate) blanks and field duplicates.

The duplicate samples will be collected for the soil and air samples at a rate of one per 10 samples. Duplicates for the air samples will be collected by filling the containers simultaneously. Splitting the sample volume into two distinct samples will provide duplicates for the soil. Each sample from a duplicate set will have a unique sample number; the duplicates will be sent "blind" to the lab. Because of limited availability of amounts (mass) of dust, duplicate dust samples will be collected as appropriate, based on mass collected in the field.

Decontamination blanks will be collected to test for contamination that could possibly be introduced by the reusable sample equipment used for this study. Decontamination blanks will be collected on the vacuum sampling equipment that will be decontaminated for re-use. The decontamination blank will be collected at the rate of one per 20 samples and be analyzed for all parameters. The field rinsate blanks will be collected according to the Field Decontamination Bank SOP prepared for this sampling event, this SOP may be found as Appendix I.

Field QC will also include completing Chain of Custody documentation.

5.3 Laboratory QC

A field sample will be designated as a "lab QC sample" at a frequency of 1 per 20 samples and be analyzed for all parameters. The lab QC sample is the sample the laboratory will use for its internal quality control analyses. The lab QC sample will be a sample suspected of being contaminated and which is representative of other contaminated samples. The lab QC sample

will consist of a double volume of sample. The sample containers and paperwork will be clearly labeled "Lab QC Sample."

Laboratory QC samples will be collected from the soil and dust samples as field conditions permit:

The EPA Regional Laboratory QC will comply with all Regional Laboratory SOP's. Contract Laboratory Program (CLP) analysis will consist of all QC stated in the CLP Statement of Work (SOW) and includes all forms and deliverables required in the SOW. Laboratory QC for commercial labs will be determined by the NDEP contract with the laboratory.

The NDOA and contract laboratories will follow their standard QC procedures.

5.4 Field Variances

As conditions in the field may vary from that planned or conceived, it may become necessary to implement minor modifications to sampling as presented in this plan. When modifications are needed, the team leader will be notified, and when appropriate, other members of the project team may be consulted. In all cases, documentation of field changes will be conducted by the sample team.

5.5 Data Validation

Data validation for the samples analyzed through EPA Regional laboratory and CLP laboratory will be performed by EPA Region 9 Regional Laboratory's Quality Assurance Staff in accordance with CLP National Functional Guidelines for Data Review for all soil and dust samples analyzed through EPA. Data validation for analysis through commercial labs will be determined by the NDEP contract with the laboratory

6.0 HEATH AND SAFETY

6.1 Scope and Applicability of the Site Health and Safety Plan

This Health and Safety Plan (HASP) was prepared by the Nevada Division of Environmental Protection (NDEP) to support the environmental sampling component of the study entitled "Cross-Sectional Exposure Assessment of Case-Children With Leukemia (Acute Lymphocytic and Acute Myelocytic Leukemias) and A Reference Population in Churchill County, Nevada" as developed and conducted by the Center for Disease Control and Prevention (CDC) and the National Center for Environmental Health (NCEH). For the purposes of this HASP, the "site" shall include the field office located at 485 W. B Street in Fallon, Nevada and all private residences or public facilities within Churchill County which have been identified by the CDC as participants in the study or otherwise included as sites normally visited within the scope of work (i.e. State Health Dept. offices, Federal Express offices, hospital, etc.).

All personnel on site, including other agency staff and contractors and subcontractors, shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of the operation. All personnel who are included in sampling team efforts shall be required to review, comply with and sign the HASP prior to entering the site. Site personnel will be provided site-specific training based on a worker's potential for exposure and compliance with the requirements of 29 CFR 1910.120(e)(3) prior to commencement of work. All field staff will follow the Health and Safety SOP developed for this sampling event, this SOP may be found as Appendix J.

7.0 REPORTING

Information gathered from this study will be received by the NDEP. NDEP will facilitate the compilation of the analytical results and field reports. The completed sampling information will be forwarded to the CDC/NCEH.

A peer review committee will review the environmental data results. Based on the committee's evaluation, a study participant will be notified if an analyte is determined to warrant additional attention. If action is not warranted, the compilation and interpretation of the environmental and biological study will be conducted by CDC/NCEH with the results forwarded to the NSHD. **A summary of the results will also be prepared so that NSHD, in concert with other agencies, can inform the participant of each study home.**