Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory/University of California
Risk Reduction & Environmental Stewardship (RRES)
Remediation (R) Program, MS M992
Los Alamos, New Mexico 87545

TA-50 (MDA C, 50-009)

Date: January 29, 2003
Refer to: ER2003-0091

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED-Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

RECEIVED
JAN 2003

SUBJECT: SAMPLING NOTIFICATION

Dear Mr. Young:

During the week of February 17, 2003, the Los Alamos National Laboratory (LANL) Risk Reduction & Environmental Stewardship-Remediation (RRES-R) Project is planning to collect soil vapor and biota samples at Material Disposal Area (MDA) C at Technical Area (TA) 50.

Fifteen shallow pore-gas vapor probes will be installed across MDA C with two vapor probes advanced within the boundary of each disposal pit (six pits) and at three discretionary locations to be selected on the perimeter. Proposed vapor probe locations are provided in the attached figure. The vapor probes consist of a disposable, screened port bit driven down approximately one meter and connected to the ground surface with Teflon tubing (or equivalent). The disposable, screened bits will be left in place at one meter and each hole will be backfilled and sealed. If refusal is encountered prior to reaching 1 meter below ground surface (bgs), an auger attachment will be used to advance the probe. Probe installation in this instance will involve placement of the screened sampler in a sand pack at the bottom of the hole; the remainder of the hole will be backfilled and sealed. Following installation of the shallow vapor probes; tritium vapor samples will be collected from each probe using absorbent silica gel columns.

During the same sampling event, Ponderosa pines will be identified sequentially (i.e., the first tree sampled is tree one) and by spatial coordinates using GPS in accordance with ER-SOP-3.11, "Coordination and Evaluating Geodetic Surveys." Approximately 500 grams of pine needles (where possible) will be collected by hand-stripping branches and placing the needles in sample containers. Each container will be identified by sequential tree numbers and by GPS location, as well as by Sample ID. Sample ID numbers are assigned following SOP-01.04, "Sample Control and Field Documentation." The height of each tree will be recorded and, after needles are collected, the tree will be cut down at its

base and rings counted to determine the age of each tree. This information will be recorded in a field notebook according to SOP-01.04, "Sample Control and Field Documentation." The tree stump will be identified in the field according to sample number and spatial coordinates, using a permanent marker to inscribe a marking flag.

Collected pine needles will be rinsed with deionized water to reduce confounding effects of soil contamination on the needle's exterior. Washed needles will be sent to ARS in Los Alamos for gross alpha, beta, and gamma screening. Tree data will be plotted according to spatial locations and overlain with a map of fill thickness to assess each tree location relative to buried waste and to assess the likelihood of the tree reaching these wastes; the latter based on fill thickness and inferred root depth (older, taller trees having deeper roots).

Ant mounds created by harvester ants (*Pogonomyrmex* sp.) represent likely sampling points as these organisms can delve several meters into the subsurface and are therefore capable of accessing contamination associated with buried wastes. A biologist will accompany the sampling team to identify appropriate ant mounds for sampling. The burrow spoils onsite represent the activity of unidentified fossorial mammals.

Mounds and burrows across the site will be screened for gross alpha, beta, and gamma activity in the field according to ER-SOP-10.14, Performing and Documenting Gross Gamma Radiation Scoping Surveys and ER-SOP-10.10, Radiation Scoping and Background Surveys. Instrumentation for field screening will be performed with a Ludlum 139 radiation meter for alpha radiation. A Ludlum ESP 1 radiation meter with an HP 260 pancake probe, a Ludlum Model 2221 Scaler/Ratemeter (or equivalent) with a Ludlum Model 44-10 2x2 Gamma Scintillator or Ludlum Model 19 MicroR Meter (or equivalent) will be used for beta/gamma radiation. The screening will follow protocols outlined in ER-SOP-10.10, Radiation Scoping and Background Surveys. The meter will be source checked daily prior to use, and background readings will be taken periodically during the meter's daily use. Field team personnel will record the reading in the field logbook if the readings are not recorded by the radiation detector. Each sampling location will be surveyed for its GPS coordinates in accordance with ER-SOP-3.11, "Coordination and Evaluating Geodetic Surveys."

Soil collection will follow ER-SOP-6.09, spade-and-scoop method for the collection of soil samples. For all soil material, efforts will be made to collect the light gray fill only as this represents material that was used to cover burial pits and shafts. Collected material will be placed in sample containers. Sample identification will follow SOP-01.04, "Sample Control and Field Documentation." Each location will be surveyed by GPS in accordance with ER-SOP-3.11, "Coordination and Evaluating Geodetic Surveys." The soil sample locations will also be identified in the field according to type (burrow 'B' or mound 'M') to indicate origination from mammal or ant activity. Approximately 500 grams of soil material will be collected from mounds and burrows with 12 samples collected from areas not directly overlying buried waste and 12 samples collected from areas above pits. Soil samples will be sent to ARS in Los Alamos for gross alpha, beta, and gamma screening. As with the plant data, animal data will be plotted according to spatial locations and

overlain with a map of fill thickness to assess where the material occurs relative to buried waste and the animal's likelihood of reaching these buried wastes based on fill thickness. Evidence of mounds/burrows showing higher activity in areas overlying buried waste relative to areas where waste is not buried will be revealed through exploratory data analyses (e.g., boxplots, scatter plots, etc.).

The RRES-R Project will verbally confirm and/or notify New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB) staff of any changes to the schedule. Results from the sampling will be presented in the MDA C Resource Conservation and Recovery Act (RCRA) facility Investigation (RFI) Report. The sampling is summarized in the following table, which indicates the minimum number of samples to be collected:

Plan/Document	Location	Number of Samples	Sample Type	Analyses
1. Sampling and Analysis Plan Addendum to the OU 1147 Work Plan for MDA C (SWMU 50-009) at TA-50, LA-UR-03-0119	MDA C at TA-50, SWMU 50-009	15	Absorbent Columns	Tritium (liquid scintillation)
2. RFI Work Plan for OU 1147, (TA-50) H, (LA-UR-92-969)		24	Soil	Gross alpha, beta and gamma
		25	Plant	Gross alpha, beta and gamma

If you have any questions or concerns please feel free to give me a call at (505) 665-5138.

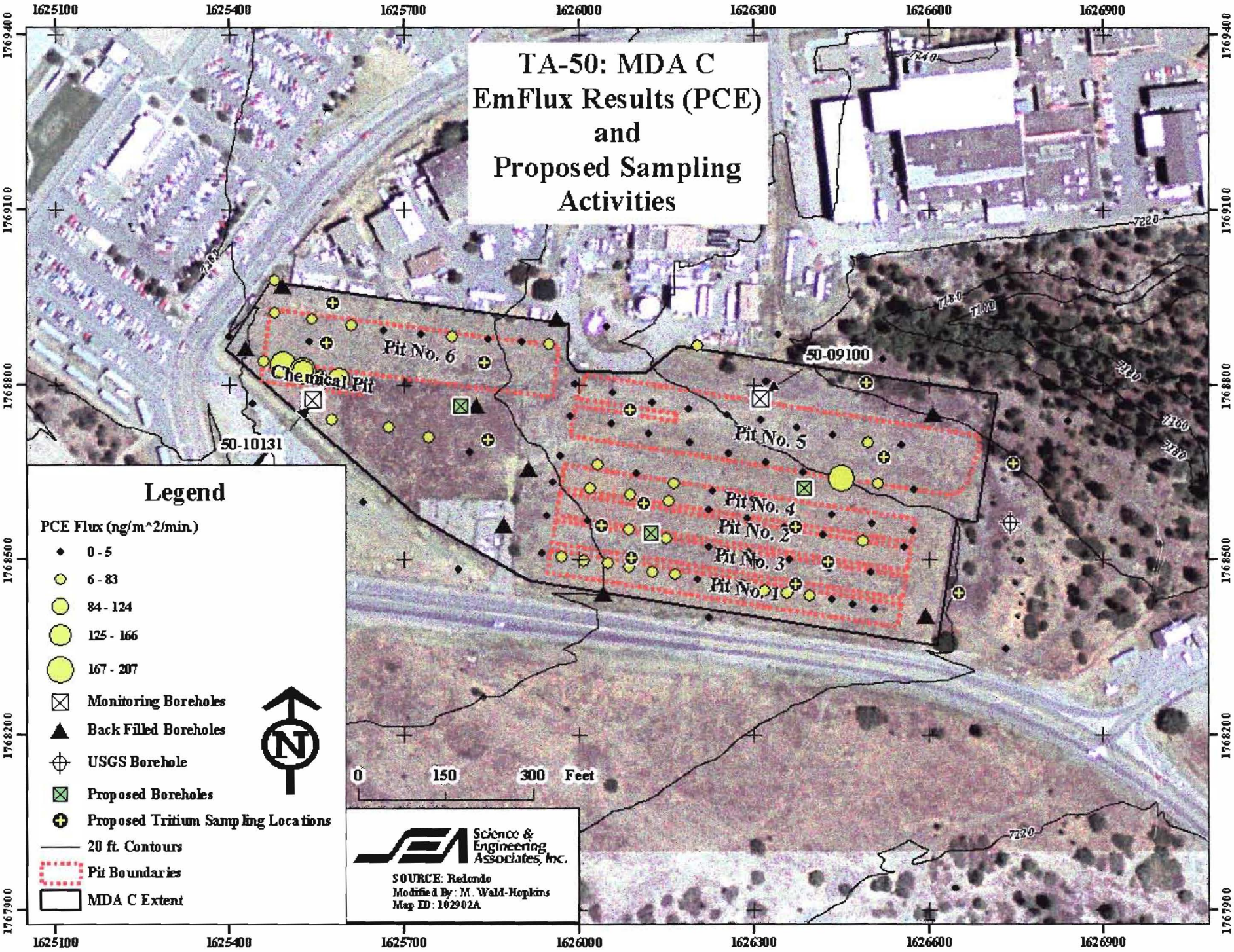
Sincerely,

Roy Bohn
Environmental Restoration Project
Los Alamos National Laboratory

RB/PB/dv

Cy: (w/enclosure):
R. Alexander, FWP-WFW, MS E518
P. Bertino, RRES-R, MS M992
J. Hopkins, RRES-R, MS M992
L. Nonno, RRES-R, MS 992
J. Pope, RRES-R, MS 992
M. Wetovsky, RRES-R, MS M992
V. Maranville, NMED-HWB
W. Woodworth, OLASO, MS A906
S. Yanicak, NMED-OB, MS J993
RRES-R File, MS M992
IM-5, MS A150
RPF MS M707

Cy: (w/out enclosure):
D. McInroy, RRES-R, MS M992
B. Ramsey, RRES-DO, MS J591
J. Bearzi, NMED-HWB
J. Parker, NMED-OB


TA-50: MDA C
EmFlux Results (PCE)
and
Proposed Sampling
Activities
Pit No. 6
Chemical Pit
50-10131
50-09100
Pit No. 5
Pit No. 4
Pit No. 2
Pit No. 3
Pit No. 1
Legend
PCE Flux (ng/m^2/min.)
0 - 5
6 - 83
84 - 124
125 - 166
167 - 207
Monitoring Boreholes
Back Filled Boreholes
USGS Borehole
Proposed Boreholes
Proposed Tritium Sampling Locations
20 ft. Contours
Pit Boundaries
MDA C Extent
N
0
150
300
Feet
Science & Engineering Associates, Inc.
SOURCE: Redondo
Modified By: M. Wald-Hopkins
Map ID: 102902A
1625100
1625400
1625700
1626000
1626300
1626600
1626900
1769400
1769100
1768800
1768500
1768200
1767900