

Appendix A

Survey Release Records

This appendix provides the results for each of the Survey Release Record (SRRs). Each batch of debris or soil was assigned an SRR report.

The reports include data for four nuclides: naturally occurring potassium (K-40); uranium (Bi-214); thorium (Tl-208); and cesium (Cs-137). The results for the naturally occurring nuclides were reported as a convenience, and to permit comparison with the lab measurements.

Each report shares the same format. A data header block at the top of every report provides a general description of the survey including the Survey Location Code (SLC) assigned to the SRR, the equipment used, the date of the survey, the name of the surveyor, amount of material surveyed (in tons), the moisture content (in percent as determined by the laboratory), a derived dry density, a description of the material surveyed, and the date of the survey. The first table below the header block provides a summary of the analysis of the spectra taken, including the mean, median, maximum, minimum and two-sigma values for each of the four nuclides of interest (after a 5 acquisition moving average filter is applied). The data is reported as dry concentration.

Next the four-plot method, from exploratory data analysis (EDA), was applied to the Net Cs-137 values (after a 5 acquisition moving average filter is applied). The values are plotted in pCi/g and the alarm limit that was utilized is shown as a dashed line.

On the following page, a waterfall plot is utilized to show all the spectral data collected. Below the waterfall plot is a table summarizing the files recorded for the SRR.

If an alarm occurred during a survey, a few acquisitions or the entire belt was removed by GPU and placed in a separate "suspect" pile or barrel. The SRR reports only include data that was processed into the "clean" pile.

The calibration factors for KUT were calculated using a log-log extrapolation from the Cs-137 and Co-60 results (which were based on NIST traceable sources). This extrapolation is adequate for K-40, whose energy lies close to Co-60. However, the extrapolation has larger uncertainty for Bi-214 (uranium) and Tl-208 (thorium). In addition, calculation of net uranium was derived from the 1764 keV photo peak from Bi-214. There are two main sources of background in the ROI at 1764 keV: Compton scatter from the Tl-208 peak at 2615 keV and Compton scatter from the Bi-214 peak at 2204 keV. The later was not removed from the gross counts in the ROI. This generated concentrations of uranium that were higher than the laboratory's.

During the course of surveying the debris pile, seasonal climatic conditions at Saxton changed from those characteristic of late winter to those of late spring. During a warm spell that occurred while processing SR-55 batch 25, the ambient conditions in the trailer supporting the electronics rose above 40°C. The data acquisition computer shut down automatically. Following recovery from the event, the zero offset of the MCAs was found to have shifted downward. The computer controlled amplifier gain was adjusted to re-align the K-40 peak (1461 keV) of each MCA back to channel 250. Other peaks were shifted by varying amounts with greater shifts observed for energies farther away from 1461 keV. The event and its recovery is summarized in Appendix H.

The system was re-aligned prior to starting the second material pile (SR-62 batches reported in this report). However, the data collected in SR-55 batches 25 to 38 reflect the shift.

The immediate assessment of the data indicated that the system had shifted by less than 20% in reported Cs-137 concentration, and the system was used as a process monitor for alarms without further change. For reporting the data, additional review indicated that Detectors 1 and 2 had experienced similar shifts in zero offset that were significantly greater than the shift experienced by Detectors 3 and 4. In order to report the data, SR-55 batches 25 to 38 make use of only Detectors 3 and 4. The impact of the shift resulted in the mean reported Cs-137 concentration changing from 0.04 pCi/g to -0.1 pCi/g for SR-55 batches 25 to 38.

Appendix B

SRA Tech Note 03-003

NaI Detector Calibration Factors

SRA Tech Note no. 03-003
Author: R.E. Burmeister and R.E. Burns and J. Kelley

Dated 06-24-03

NaI Detector Calibration Factors

This document summarizes development of the calibration factors for the 5-inch \times 2-inch (12.7 cm \times 5.1 cm) sodium iodide (NaI) detectors used in the Subsurface Multi-Spectral Contamination Monitor (SMCM). The calibration factors provided herein were computed using results from a point kernel model of the SMCM detectors. The model was implemented using the QAD-SRA point kernel code in conjunction with the MONTE Monte Carlo source point generation utility. This document provides a general description of the modeling process and shows how the results from the QAD-SRA model were converted to calibration factors for the SMCM detectors. Calibration factors are given for a uniform source. Calibration factors were developed for primordial K-40, Cs-137, primordial U, primordial Th.

The calibration factors for the SMCM detectors depend on

- the sensitivity measured for each detector (expressed in terms of net count rate per unit flux) for the photon energy of interest, and
- the flux per unit activity for the source geometry of interest.

Detector Sensitivity:

The average sensitivity data measured for the four SMCM detectors deployed for the measurements made prior to deployment are given in Figure 1-B and Figure 2-B. This data was acquired by determining the net photopeak count rate for each detector using NIST traceable sources of Cs-137 and Co-60 at a distance of one meter from the face of each detector. As seen in the figures, the flux is computed at a point corresponding to the center of the detector, giving a source-to-detector distance of 40.4 inches (102.54 cm). The flux at the detector point is computed assuming no air attenuation, which is a valid approximation for the high-energy photons being considered. The sensitivity values are provided in dimensions of counts-per-second (cps) per unit flux.

Average Net Count Rate (cps) = 109.67
Assay activity (μ Ci) for the ^{137}Cs standard = 9.301
Assay date for the ^{137}Cs standard = 7/1/98
^{137}Cs half-life (days) = 11019.5925
Measurements date = 2/11/03
^{137}Cs activity (μ Ci) on measurements date = 8.365
Distance from source to center of detector (cm) = 102.54
Cs-137 gamma-ray intensity = 0.8512
Gamma flux at detector center (in vacuum) ($\gamma/\text{cm}^2\text{-sec}$) = 1.994
Average Calibration Sensitivity Factor ($\text{cps}/\gamma/\text{cm}^2\text{-sec}$) = 55.00

Figure 1-B. Cs-137 sensitivity measurements for the four SMCM detectors.

Average Net Count Rate (cps) = 4.49
Assay activity (μCi) for the ^{60}Co sources = 0.803
Assay date for the ^{60}Co sources = 7/1/98
^{60}Co half-life (days) = 1925.233
Measurements date = 11/4/02
^{60}Co activity (μCi) on measurements date = 0.453
Distance from source to center of detector (cm) = 102.54
Co-60 gamma-ray intensity (1173 keV) = 1.0
Gamma flux at detector center (in vacuum) ($\gamma/\text{cm}^2\text{-sec}$) = 0.127
Average Calibration Sensitivity Factor ($\text{cps}/\gamma/\text{cm}^2\text{-sec}$) = 35.35

Figure 2-B. Sensitivity measurements for the 1173 keV Co-60 photopeak for the four SMCM detectors.

For nuclides of interest for which traceable calibration sources were not available (namely primordial K-40, primordial U, primordial Th), sensitivities were established through log-log extrapolation. Primordial U refers to naturally occurring U-238. The IAEA region-of-interest is centered on the prominent peak at 1.764 MeV due to the decay of Bi-214, a daughter in the decay of U-238. Primordial Th refers to naturally occurring Th-232, and the IAEA region-of-interest is centered on the prominent peak at 2.614 MeV due to the decay of Tl-208, a daughter of the decay of Th-232.

Table 1-B gives the average sensitivities determined from the regression.

Table 1-B. Sensitivity values calculated for Cs-137, primordial K, U, and Th.

Nuclide	Average Sensitivity ($\text{cps}/\gamma/\text{cm}^2/\text{sec}$)
Cs-137 (0.662 MeV)	55.0
K-40 (1.4608 MeV)	29.84
Bi-214 (1.764 MeV)	25.80
Tl-208 (2.614 MeV)	19.04

Model Results:

The QAD-SRA model was used to compute the uncollided flux in the 5-by-2 NaI crystal from a rectangular, volumetric source 25 ft (7.6 m) in length, 32 inches (0.8 m) wide and 4 inches (0.1 m) deep. The source material was soil (SiO_2 plus moisture content) at a density of $1.6 \text{ g}/\text{cm}^3$. The QAD-SRA model for the SMCM detectors accurately accounted for the 45° lead collimator, the copper foil, steel enclosure, and sand shielding. The model was also used to develop the ratio of the flux in air to the flux in NaI for the SMCM detector geometry. These ratios are needed to convert the measured sensitivity data from flux in air basis to flux in NaI so they are consistent with the detector response results from the QAD-SRA model. Results for the volume source are given in

dimensions of flux in NaI per unit gamma emission rate per unit mass. The results from the QAD-SRA model used in determining the calibration factors for the SMCM detectors are given in Table 2-B.

Table 2-B. Results from the QAD-SRA model used in computing the calibration factors for the SMCM detectors.

Nuclide	Energy (MeV)	Flux Ratio (air:NaI)	Model Result: volume source ($\gamma/\text{cm}^2/\text{sec}$ in NaI per $\gamma/\text{g}/\text{sec}$ emitted)
Cs-137	0.662	1.8524	0.631
K-40	1.461	1.649	2.21
U-238	1.764	1.597	2.91
Th-232	2.614	1.524	4.99

Calibration Factors:

The calibration factors for the SMCM detectors deployed for the Saxton survey were established by combining the individual detector sensitivity values and the results from the QAD-SRA model. The calibration factors for the uniform source volume geometry for the nuclides are given in Figure 3-B.

Isotope	Cs-137	K-40	U-238	Th-232
Sensitivity (cps/photons/cm ² -s)	55.003	29.838	25.795	19.036
Qad (photons/cm ² -s per photons/g-s)	0.631	2.210	2.910	4.990
intensity (photons per decay)	0.851	0.107	0.170	1.000
branching	1.00	1.00	1.00	0.36
photons/g-s per pCi/g	0.037	0.037	0.037	0.037
flux ratio	2.008	1.649	1.597	1.524
Cal Factor (cps per pCi/g)	2.195	0.429	0.754	1.928

Figure 3-B. Calibration factors for the four SMCM detectors.

Appendix C

NaI Detector Quality Control

Quality Control

SMCM QC measurements, including SRCs and PBCs, were performed at the beginning and end of each day and at least every five hours throughout the day. The QC routine consisted of a MCA gain check and adjustment if necessary at the start of the day and calculation of the net count in the Cs-137 ROI. The gain was not adjusted just prior to subsequent SRCs or PBCs. For SRCs, sources were mounted to a removable SRCs fixture, which mounts to the detector enclosure. The SRC spectra were logged in the same fashion as normal survey data; using the SMCM software to log survey strips of data to the field computer with unique SRC filenames. The SRC results for each detector are shown in figures Figure 1-C, Figure 2-C, Figure 3-C, and Figure 4-C for SR-55 and figures Figure 7, Figure 8, Figure 9, and Figure 10 for SR-62. SRC data was investigated for trending using the Shewart rules for control charts.

Detector 1 for both SR-55 and SR-62 shows a trend wherein the value jumps by about 20% higher value. At about SRC number 48 during SR-62, it was found that when the process software was started and a SRC immediately performed the initial value on detector 1 was high due to a shorter livetime. This was remedied by starting the software, going to the alignment screen, clearing detector 1, and then returning to the operations screen. A new strip or a PBC then performed recorded with the correct livetime and the counts for the SRC became repeatable within -2.7% and $+5.4\%$ of the mean for the SRC 55 through 85 (the last SRC). This operational workaround allowed detector 1 to behave much like detectors 2, 3, and 4. When the livetime of detector 1 becomes less than desired the counts increase and may be the cause of higher counts recorded for detector 1 during the processing of a batch.

PBCs were performed in addition to the SRCs for additional quality assurance. PBCs were performed by randomly placing a point-like Cs-137 source on the moving conveyor as the SMCM software recorded a PBC survey strip. This was repeated 3 times for each PBC. The maximum net Cs-137 value for each of the three measurements was recorded. The mean and standard deviation of the three measurements are shown in Figure 5-C and Figure 6-C for SR-55 and Figure 11 and Figure 12 for SR-62. No qualifications were placed on the PBCs.

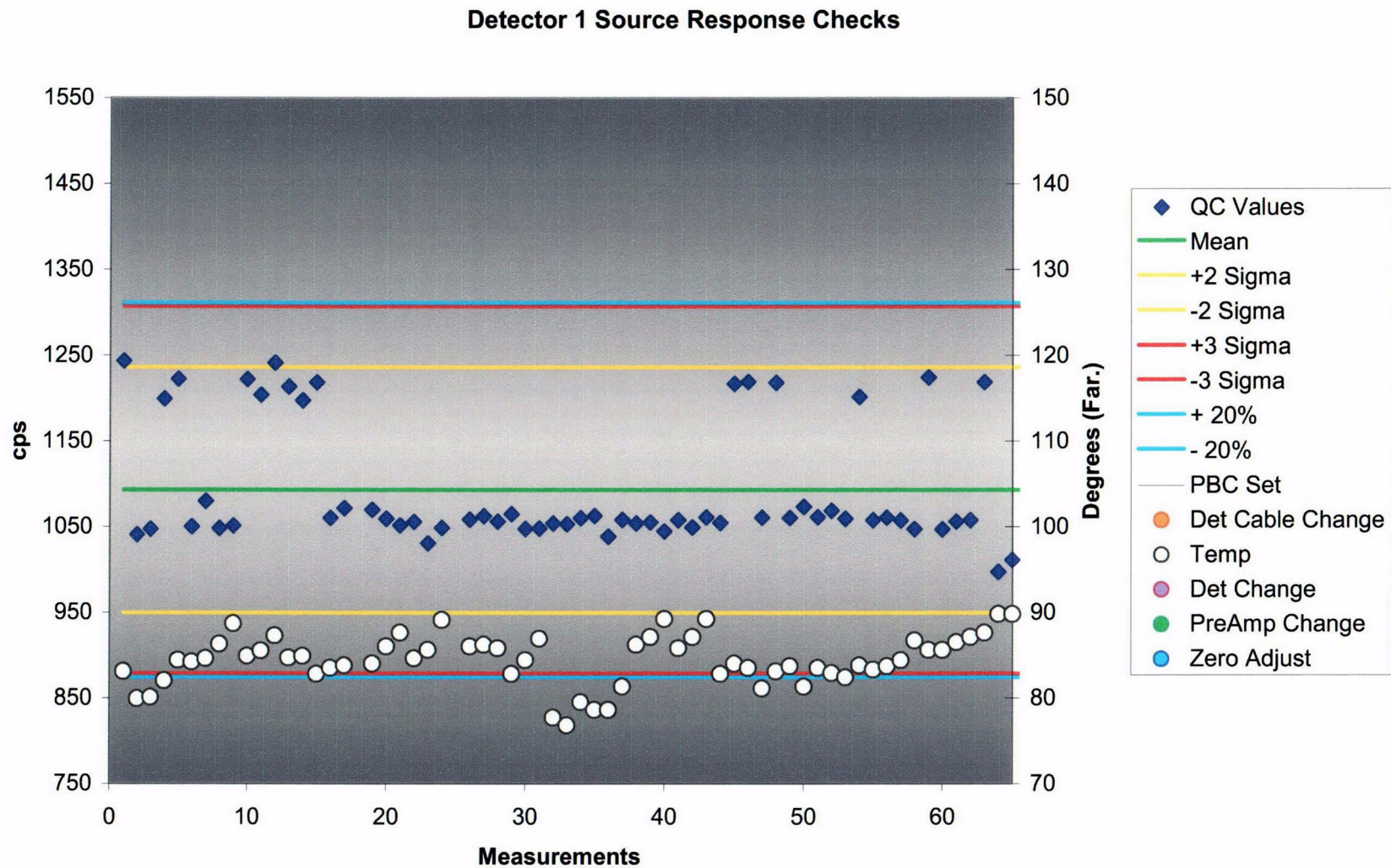


Figure 1-C. SR-55 Detector 1 Source Response Checks.

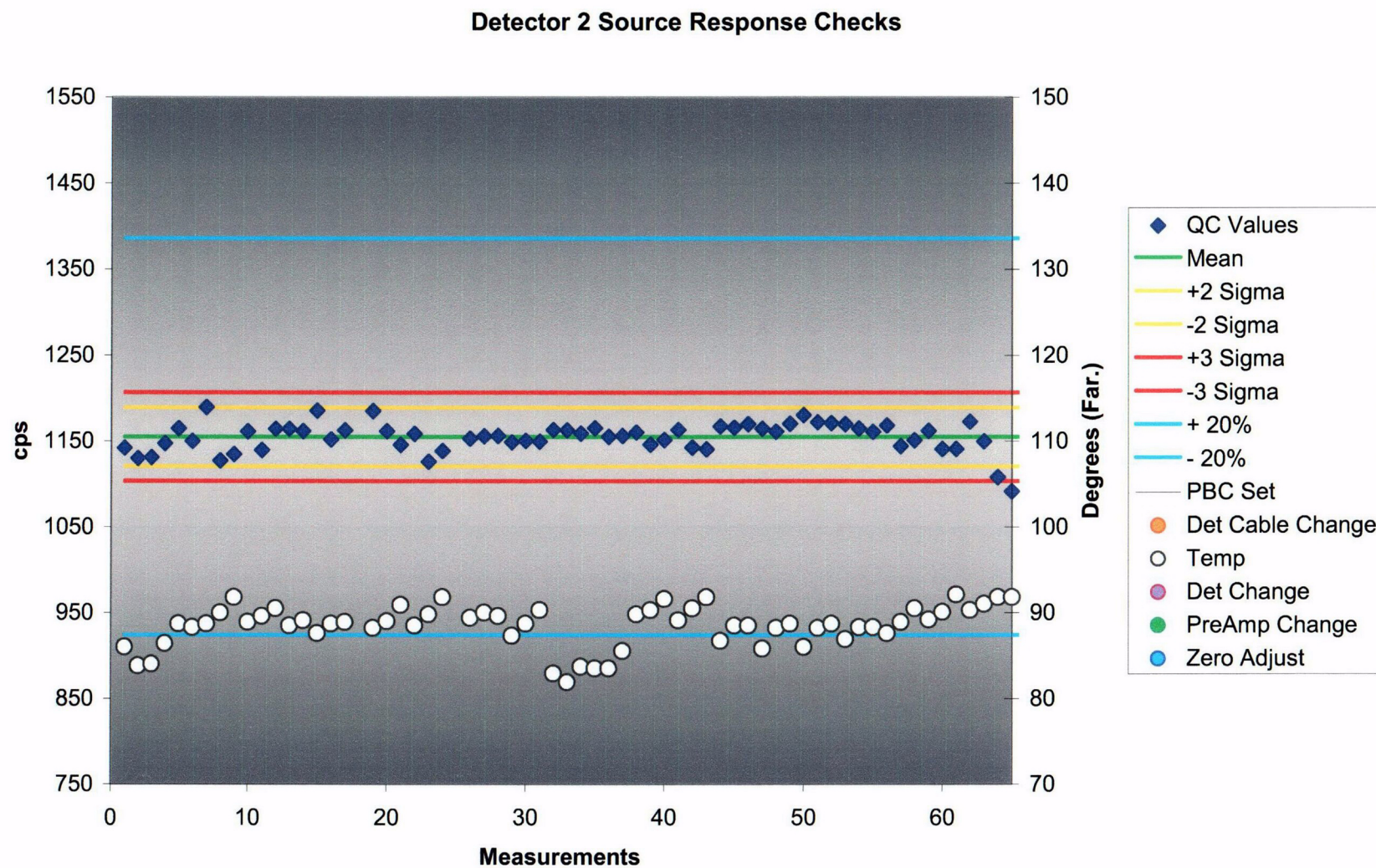


Figure 2-C. SR-55 Detector 2 Source Response Checks.

Detector 3 Source Response Checks

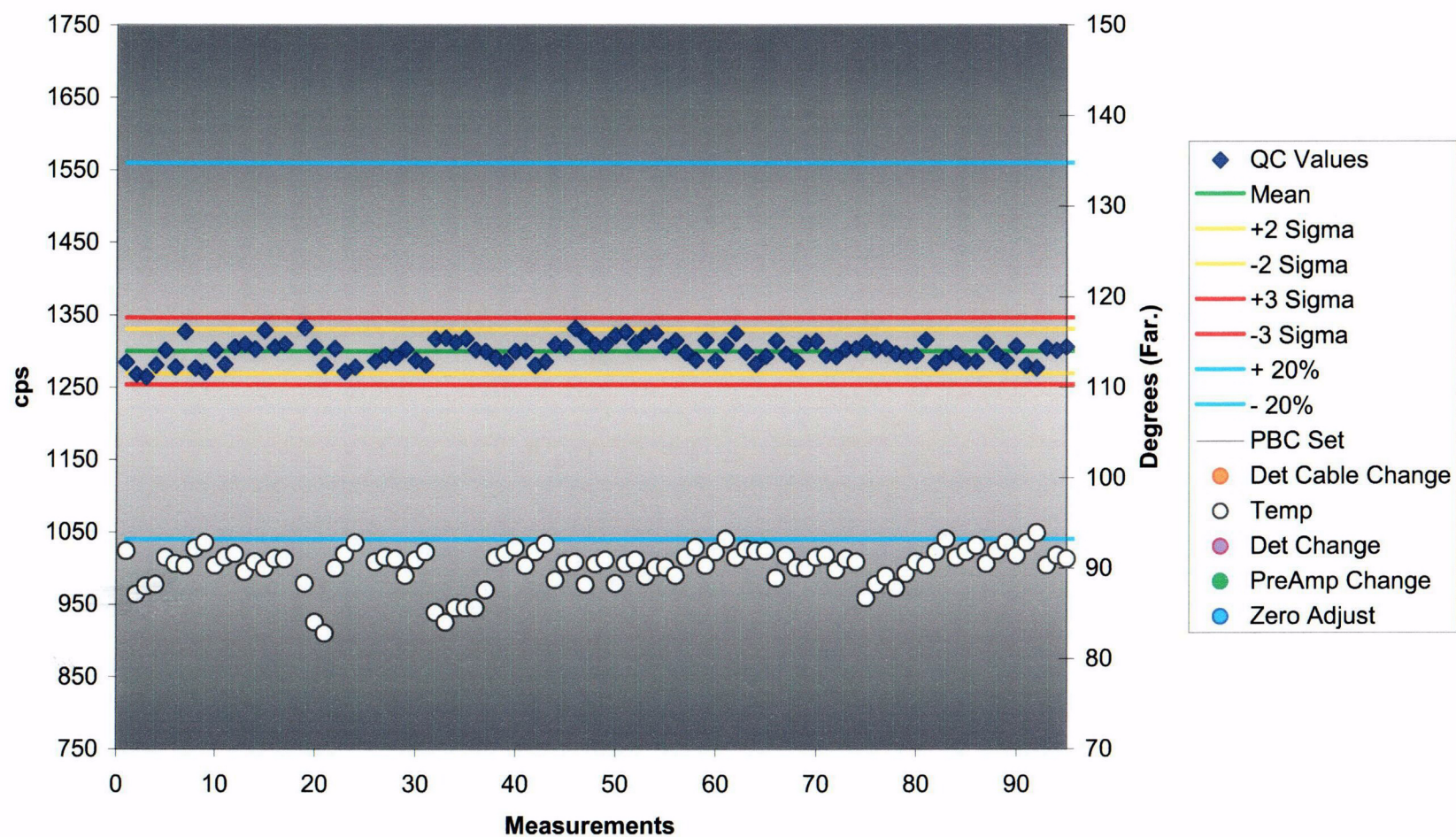


Figure 3-C. SR-55 Detector 3 Source Response Checks.

Detector 4 Source Response Checks

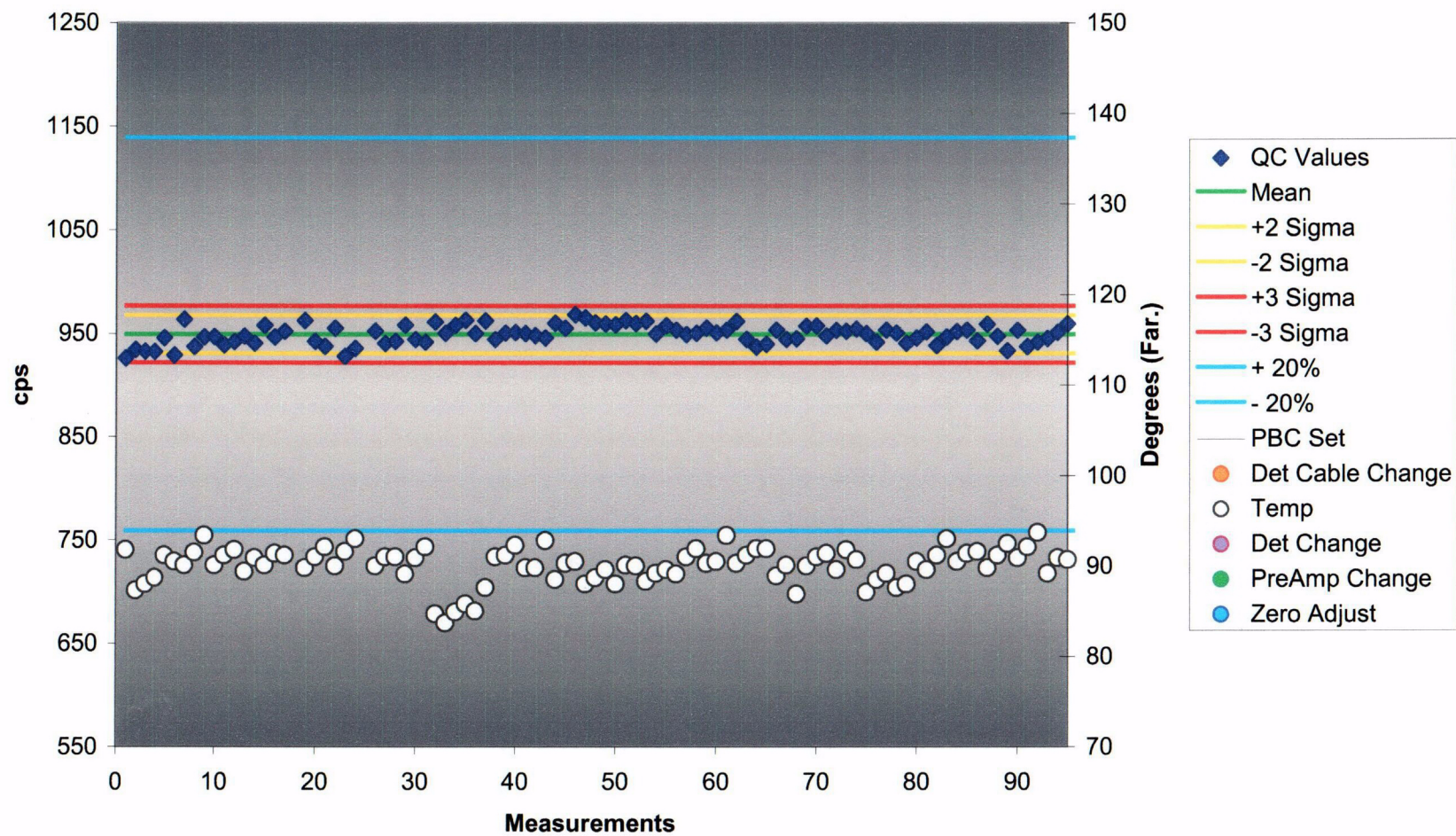


Figure 4-C. SR-55 Detector 4 Source Response Checks.

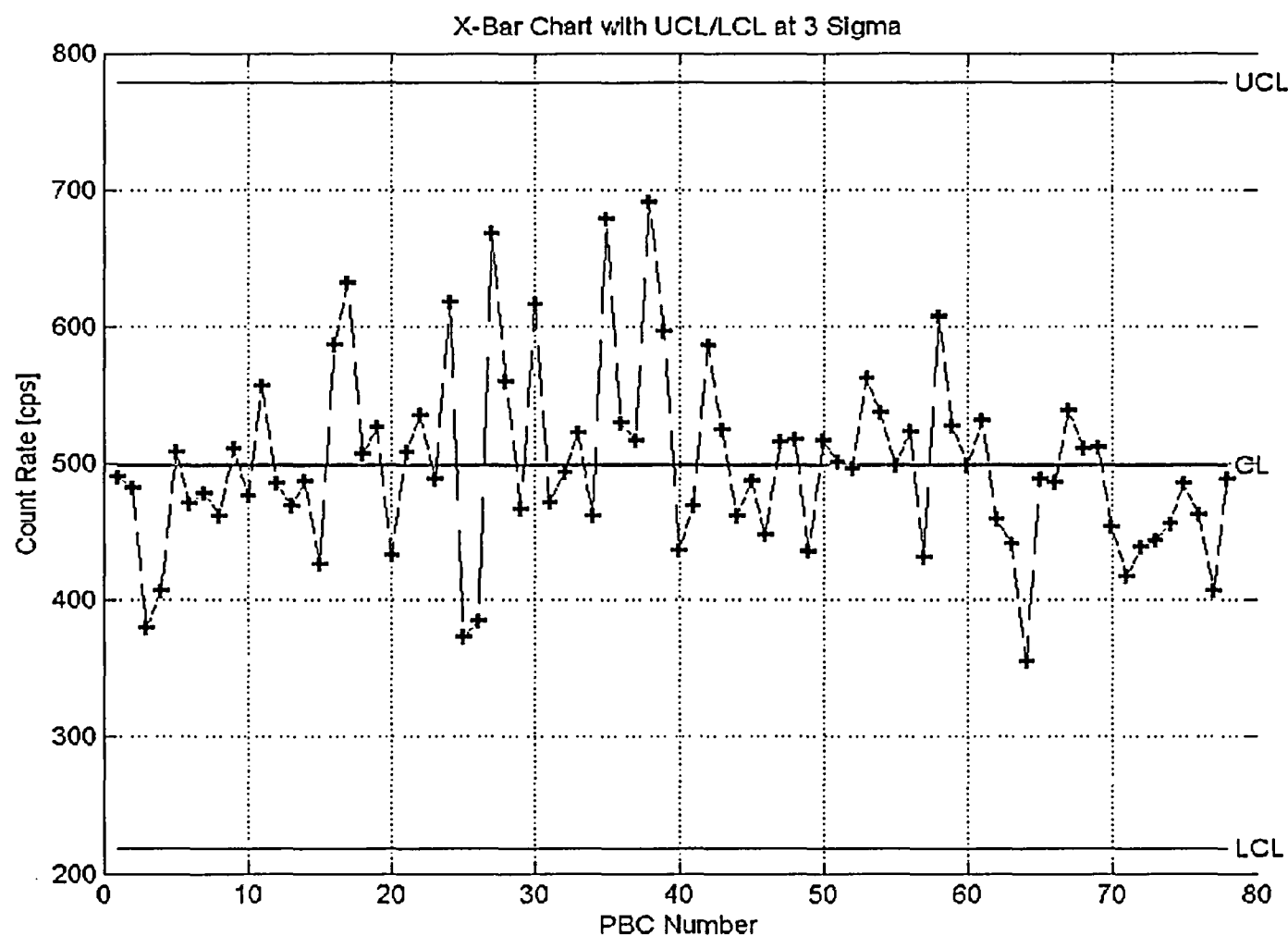


Figure 5-C. SR-55 Mean of PBC Measurements.

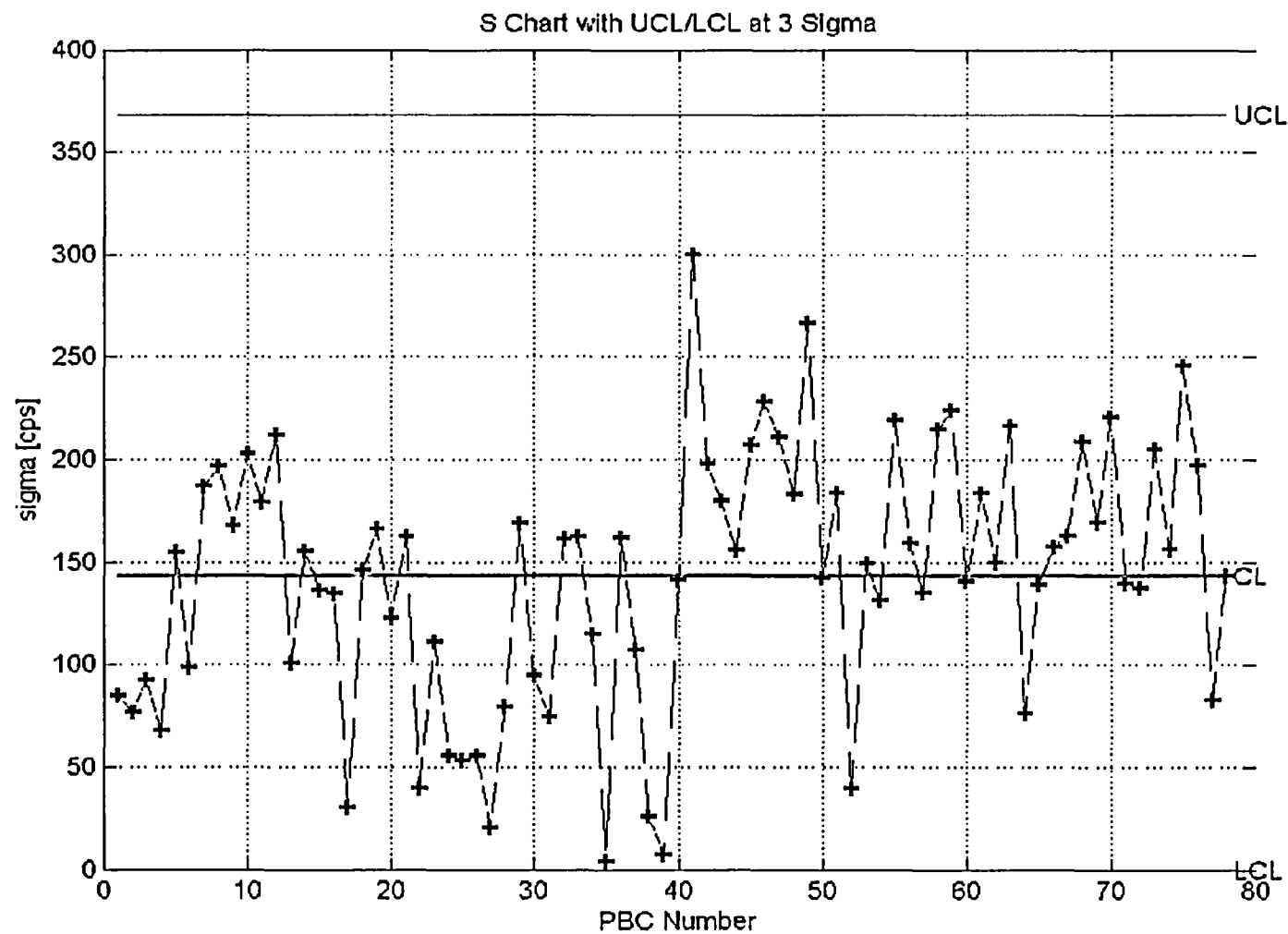


Figure 6-C. SR-55 Standard Deviation of PBC Measurements.

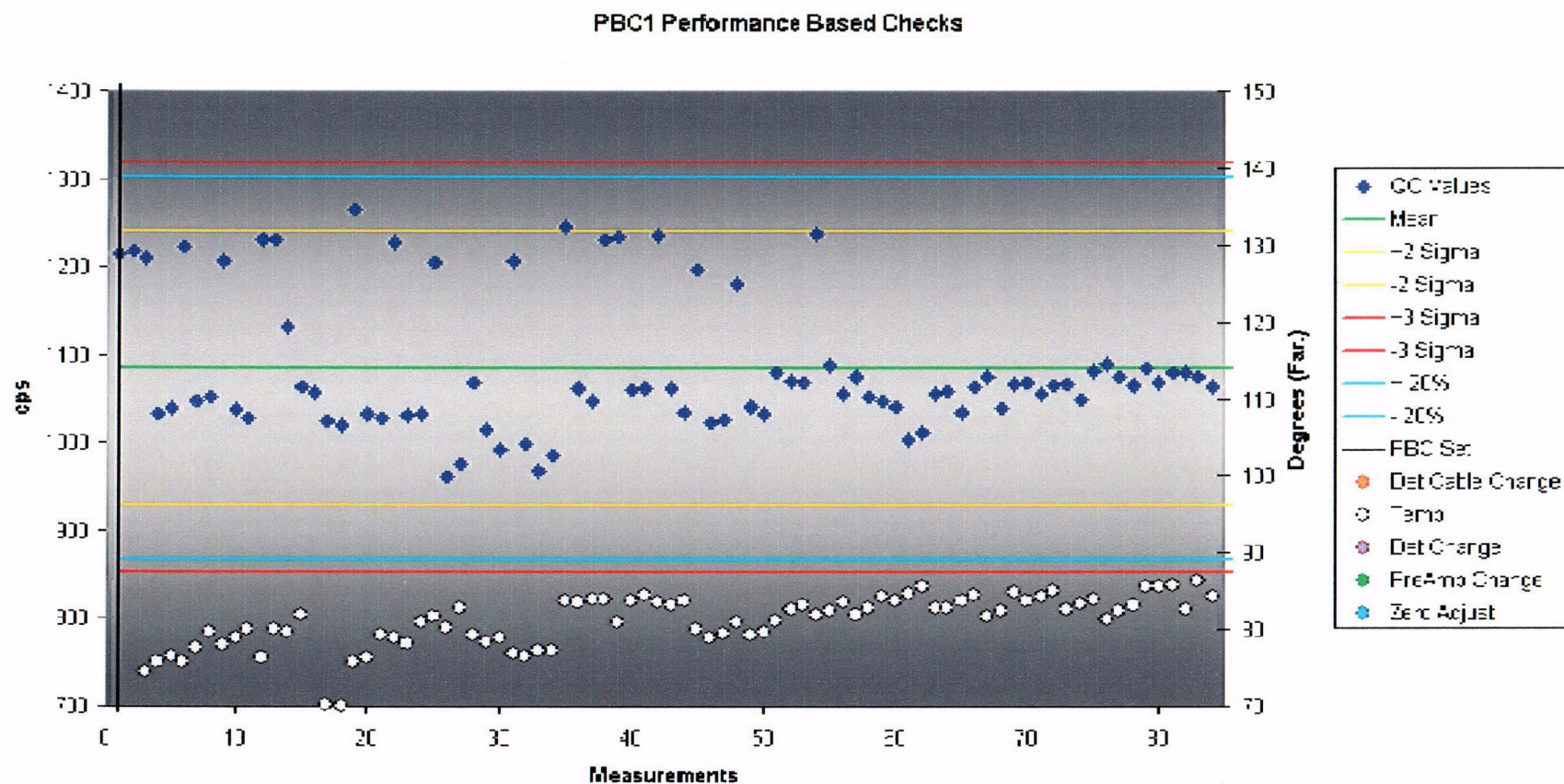


Figure 7-C. SR-62 Detector 1 Source Response Checks.

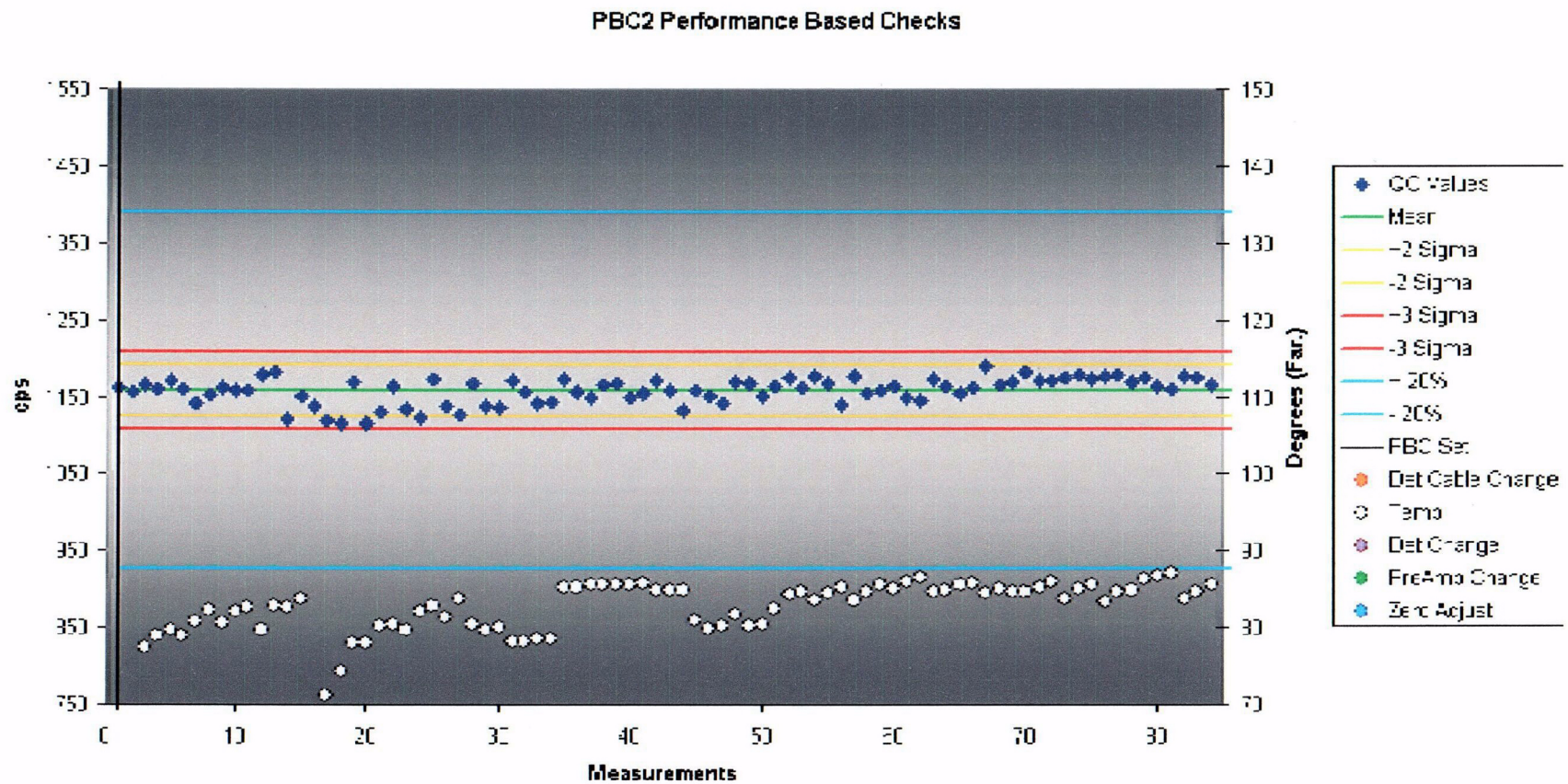


Figure 8-C. SR-62 Detector 2 Source Response Checks.

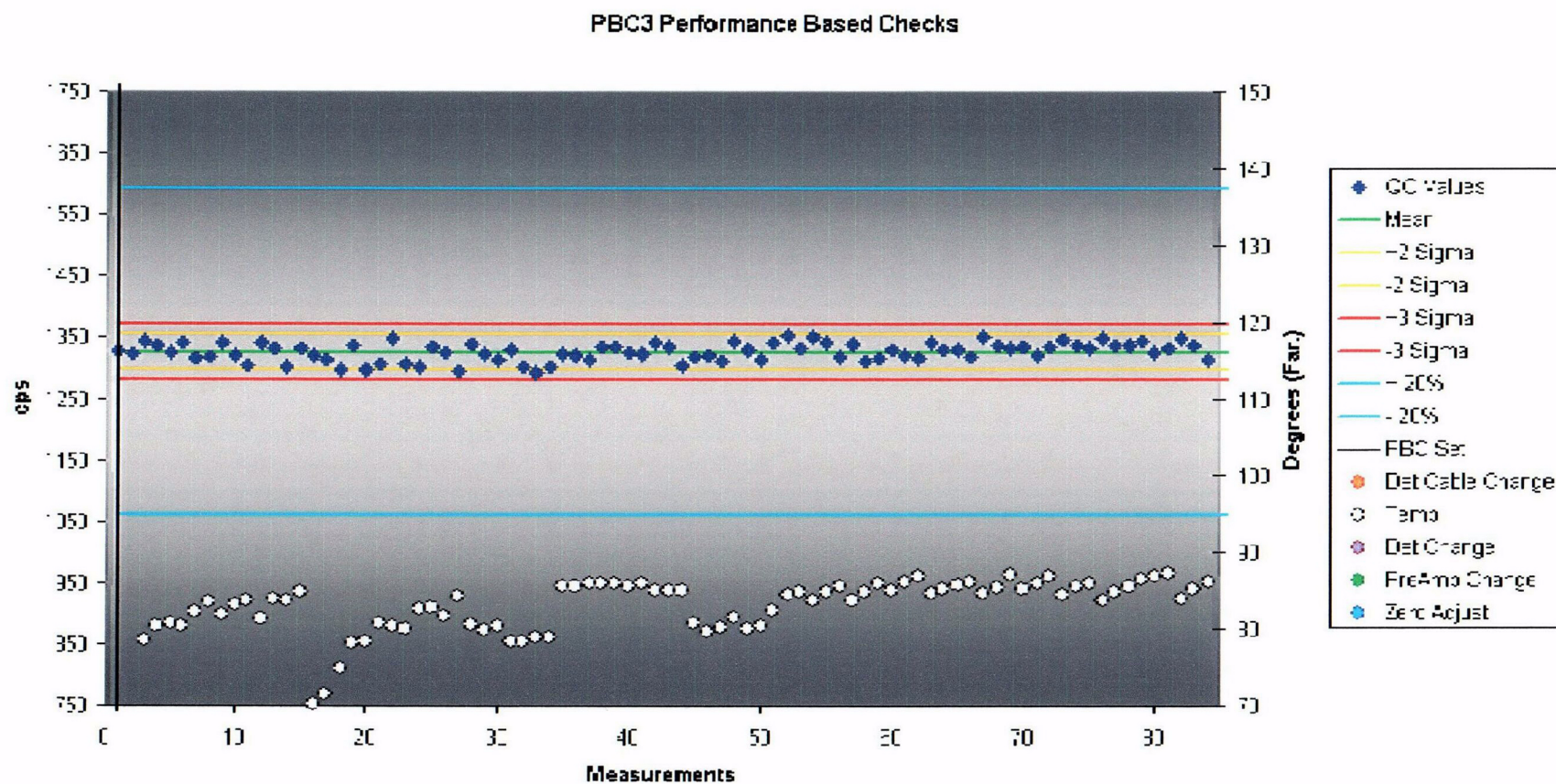


Figure 9-C. SR-62 Detector 3 Source Response Checks.

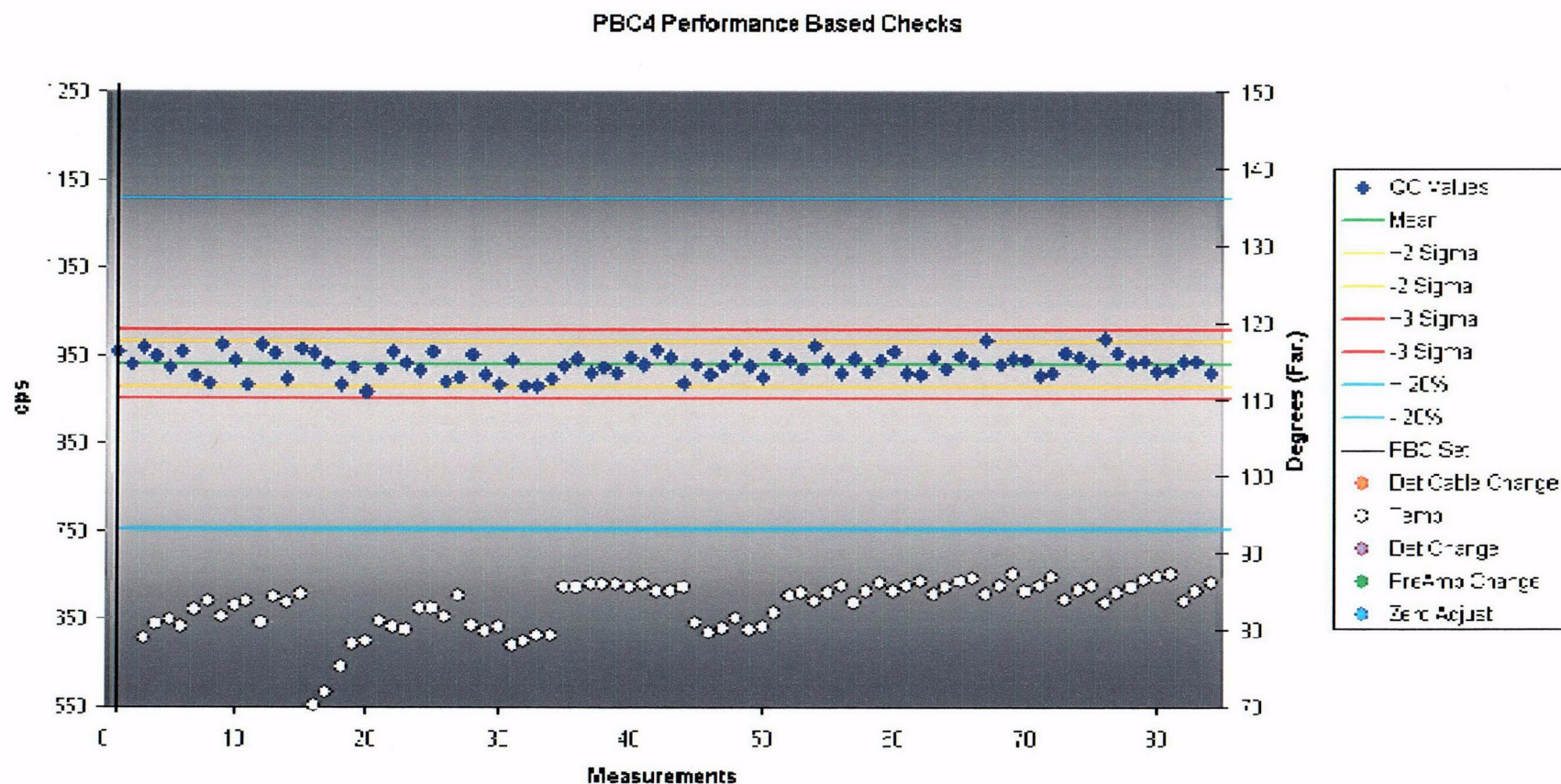


Figure 10-C. SR-62 Detector 4 Source Response Checks.

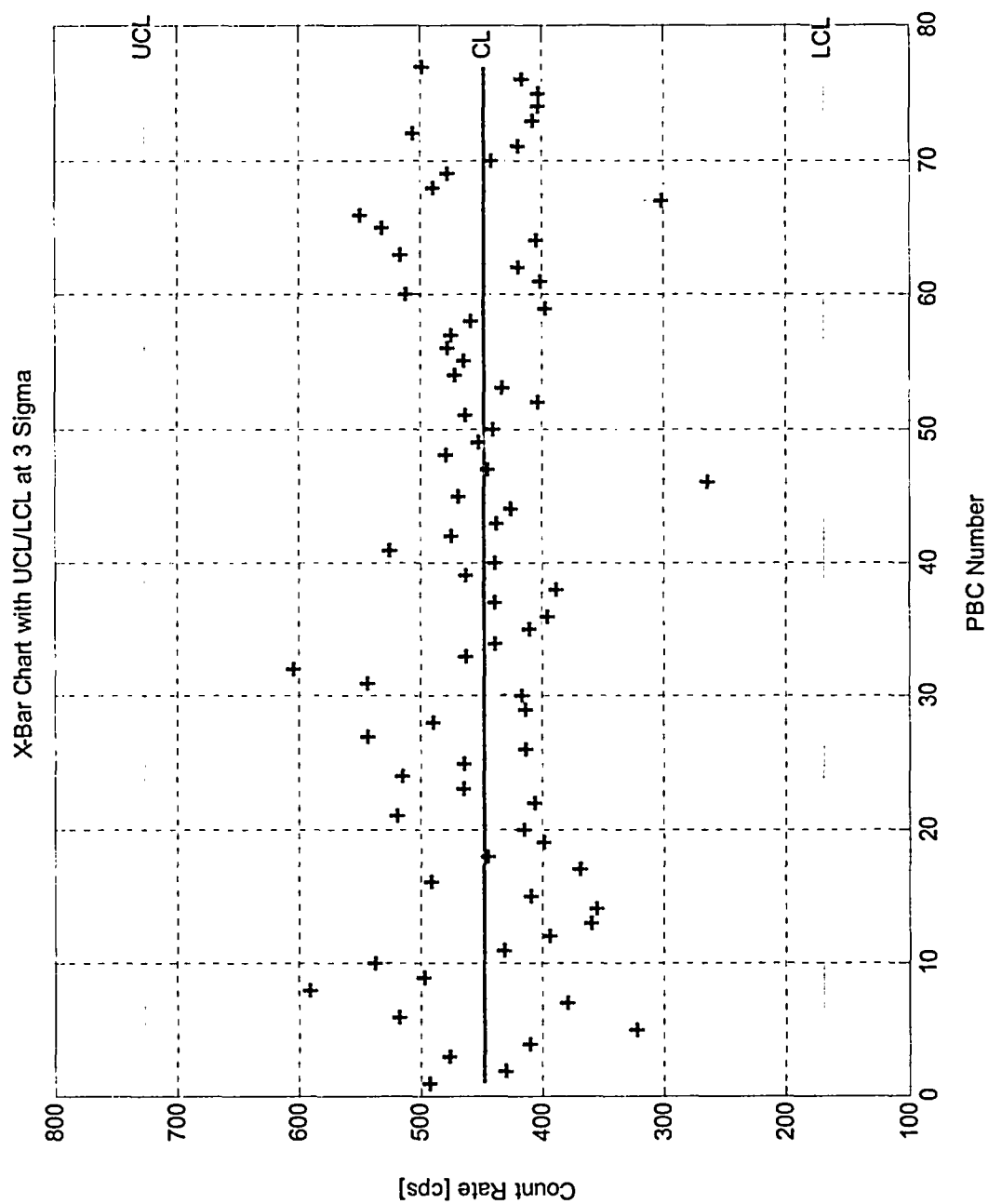


Figure 11-C. SR-62 Mean of PBC Measurements.

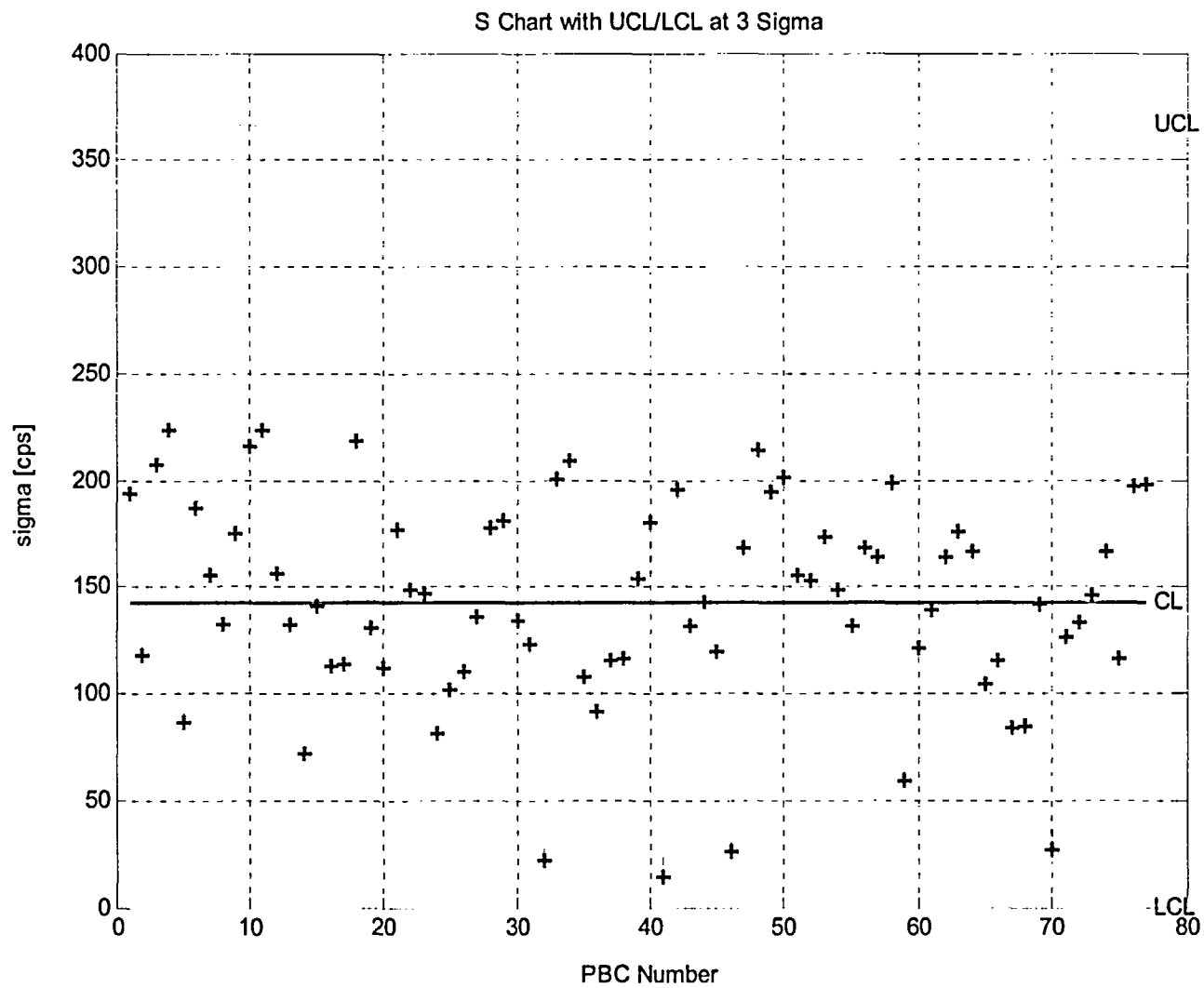


Figure 12-C. SR-62 Standard Deviation of PBC Measurements.

Appendix D

SRA Tech Note 03-002

Determination of Cs, K, U, T Stripping Coefficients

SRA Tech Note no. 03-002
Author: J. Kelley

Dated 08-18-03

Determination of Cs, K, U, and T, Stripping Coefficients

During a SMCM survey, the spectra collected from each detector are usually between five and ten seconds long. Typical SMCM surveys collect thousands of acquisitions per survey area. Conventional gamma ray spectroscopy analysis methods utilize peak search algorithms. The number of spectra collected, along with the statistical noise of each short duration spectra in SMCM surveys prevents the use of conventional analysis methods.

Alternatively, the count rate in channels around a specific energy can be integrated; each integration is termed a region of interest (ROI). Spectral interferences among K, U, and Th radiations occur due to the combined effects of full-energy-peak overlaps and gamma ray scattering in the source, in the transport path from source to detector, and as a result of partial absorption processes in the detector. There are standard methods to treat these interferences, and the traditional IAEA recommended method is applied. In this method, only the relative contributions from the Th source into the U and K denoted as α and β , respectively, and the U contribution to K, denoted as γ , were taken into account (IAEA 1979). The contributions are displayed symbolically in the following equations:

$$\begin{aligned}Th_c &= Th - Th_b \\U_c &= U - U_b - \alpha Th_c \\K_c &= K - K_b - \beta Th_c - \gamma U_c\end{aligned}$$

where

K_b , U_b , Th_b are background count rates;
 K , U , Th are uncorrected count rates;
 K_c , U_c , Th_c are corrected count rates.

The stripping coefficients or stripping ratios are defined as the ratio of the number of counts due to a nuclide in other windows to the number of counts in the window for the nuclide. In order to calculate the coefficients, one must record spectra of varying concentrations of uranium and thorium. The ratios are usually determined from calibration pads, which are large concrete pads that are doped with uranium, thorium, and potassium sources. Assuming that the Compton distribution is primarily a function of the detector and not the source geometry, point sources could be used instead of pads. Exempt, non-NIST traceable, uranium and thorium sources were used to determine the stripping coefficients. The background count rate constants (due to mostly to muon interactions) were assumed to be zero.

Stripping ratios for a few cylindrical detectors are available (Grasty, 1997). The 5-inch x 2-inch (12.7 cm x 5.1 cm) detectors used by the SMCM were not part of the available lists. The coefficients available and the calculated coefficients are provided below in Table 1-D.

Table 1-D. KUT Stripping Coefficients for Some Standard Detectors (Grasty1997) and the SRA 5x2 (in bold).

Detector	α	B	γ
3x3	0.71	0.88	1.0
5x5	0.43	0.62	0.95
9x4	0.39	0.52	0.90
5x2	0.54	1.03	0.75

The same technique was applied to determine the interferences in the Cs-137 ROI.

$$Cs_c = Cs - Cs_b - \kappa Th_c - \mu U_c - \tau Th_c$$

Uranium and thorium sources and potassium varying material were used to solve for the subtraction coefficients. Cs_b was assumed to be zero.

Table 2-D. Cs Stripping Coefficients for SRA 5x2.

Detector	κ	μ	τ
5x2	0.172	4.903	4.385

- (Grasty 1997) Grasty, Bob. *Standardization of Airborne Gamma-Ray Surveys*.
Presentation at HPS 42nd Annual Meeting, Summer 1997.
- (IAEA 1979) International Atomic Energy Agency. *Gamma Ray Surveys in Uranium
Exploration*. Technical Report Series 186. International Atomic Energy
Agency, Vienna.

Appendix E

Radon Detector

Radon Detector Setup

The SMCM platform utilized for the survey at Saxton included a radon detector to monitor the radon content in air. The radon detector consisted of an Eberline HP210L lead shielded pancake GM probe, an electric air pump, and hardware and tubing to direct air to the open face of the detector. The detector was connected to a Ludlum Model 440-1, which provided high voltage, preamp, and amplifier. A CIO-CTR (counter) card in the SMCM process computer monitored the counts from the M440-1. Counts from the radon detector were recorded during each of the SMCM's acquisitions.

Calibration

No calibration was performed. The data was used for qualitative observations only.

Data Analysis

The counts from the radon detector were accumulated for five seconds and logged. The raw radon data did not go through any changes (filters, moving average, etc.) prior to data analysis. Correlation plots of the radon and net Cs-137 data were used to confirm that variations in radon did not affect the survey data. Figure E-1 shows the NAVSD Cs-137 net cps for each individual NaI detector versus the gross cps from the radon detector.

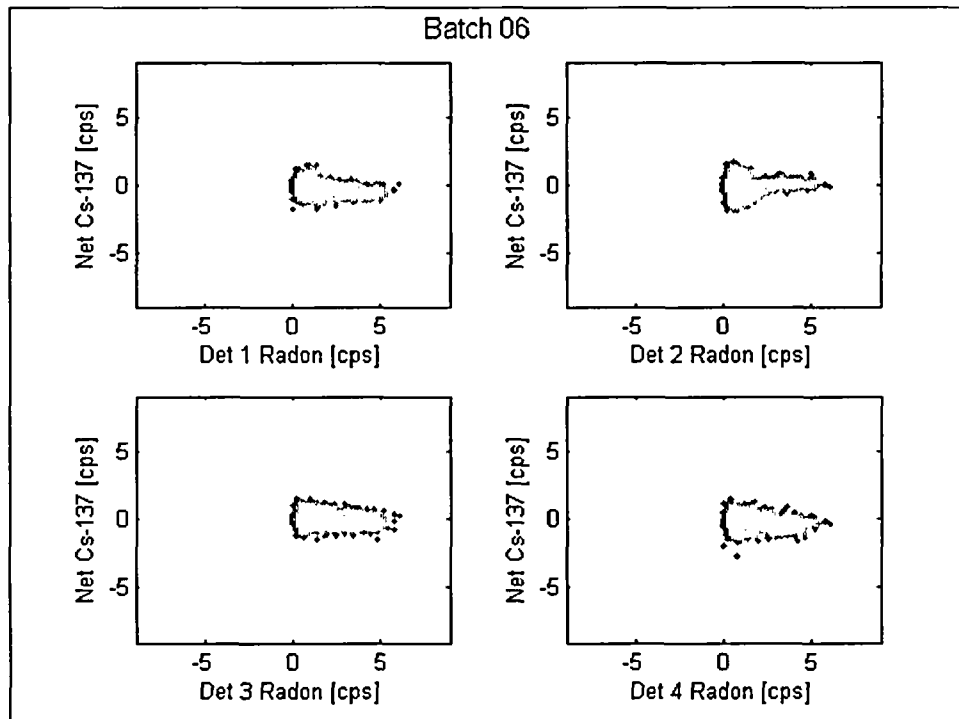


Figure E-1. Radon vs. net Cs-137.

Batch 6 was surveyed over 2 days. Figure E-2 shows a jump in radon at acquisition 1688 that corresponds to the morning hours of the second day.

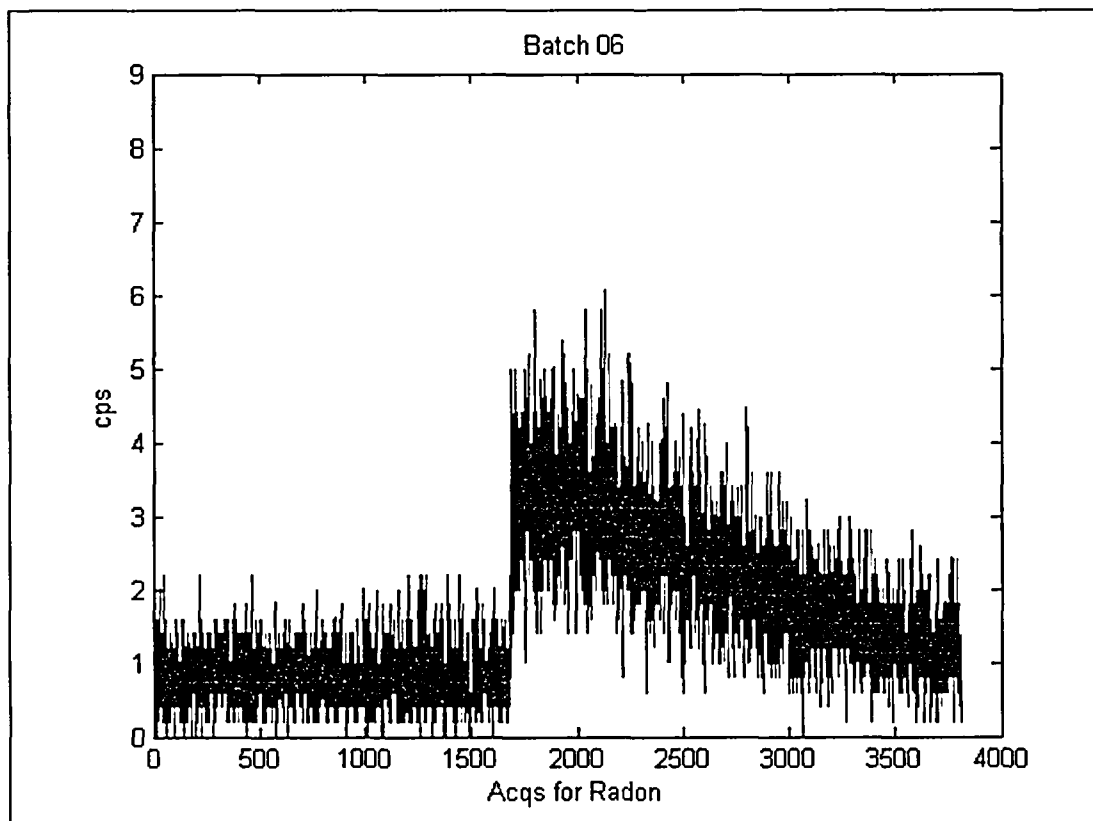


Figure E-2. Radon run sequence for Batch 6.

Appendix F

Source Calibration Certificates

CERTIFICATE OF CALIBRATION GAMMA STANDARD SOURCE

Radionuclide	Cs-137	Customer	MILLENNIUM SERVICES, INC.
Half Life	30.17 ± 0.16 years	P O No.	98-1003
Catalog No.	GF-137	Reference Date	1 Jul 98 12.00 PST
Source No.	619-38-1	Contained Radioactivity	9.301 µCi
		Contained Radioactivity	344.1 kBq

Source Description

a. Capsule type	D
b. Nature of active deposit	Evaporated metallic salt
c. Active diameter/volume	5 mm
d. Backing	Epoxy
e. Cover	Acrylic

Radiopurities:

None detected

Method of Calibration

This source was assayed by gamma spectrometry:

Energy peak(s) integrated under	662	keV.
Branching ratio(s) used	0.851	gamma rays per decay.

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration	+ 3.0%
b. Random uncertainty in assay	+ 0.8%
c. Random uncertainty in weighing(s)	+ 0.0%
d. Total uncertainty at the 99% confidence level	+ 3.1%

NIST Traceability

This calibration is traceable to the National Institute of Standards and Technology

Leak Test(s)

See reverse side for Leak Test(s) applied to this source

Notes

1. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST verification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES

1800 N. KYLESTONE STREET
BURBANK, CALIFORNIA 91504

818-843-7000 FAX 818-843-6168


QUALITY CONTROL

18 Jun 98
Date Signed

IPL Ref. No.: 619-38

CERTIFICATE OF CALIBRATION GAMMA STANDARD SOURCE

Radionuclide	Co-60	Customer	MILLENNIUM SERVICES, INC.
Half Life	5.271 ± 0.001 years	P.O. No	98-1003
Catalog No	GF-060	Reference Date	1 Jul 98 12:00 PST
Source No	578-32-17	Contained Radioactivity:	0.8029 µCi
		Contained Radioactivity:	29.71 kBq

Source Description

a. Capsule type	D
b. Nature of active deposit	Evaporated metallic salt
c. Active diameter/volume	5 mm
d. Backing	Epoxy
e. Cover	Acrylic

Radioimpurities:

None detected

Method of Calibration

This source was assayed by gamma spectrometry:

Energy peak(s) integrated under	1173, 1333	keV.
Branching ratio(s) used	0.9986, 0.9998	gamma rays per decay

Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration	± 3.0%
b. Random uncertainty in assay	± 1.9%
c. Random uncertainty in weighing(s)	± 0.0%
d. Total uncertainty at the 99% confidence level	± 3.6%

NIST Traceability

This calibration is traceable to the National Institute of Standards and Technology

Leak Test(s)

See reverse side for Leak Test(s) applied to this source

Notes

- IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of radionuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES

1800 N. KAYSTONE STREET
BURBANK, CALIFORNIA 91504

818-843-7000 FAX 818-843-6168

QUALITY CONTROL

Date Signed

IPL Ref. No.: 578-32

Appendix G

Shift in Zero Offset

Statement of the Event

The conveyORIZED SMCM was installed at Saxton and first operated in production mode on March 12th, 2003. On April 16th, 2003, during the processing of SR-55 batch 25, truck 12, high temperatures in the mobile control center (MCC) trailer that supports the electronics caused the shutdown of the process computer. Truck 12 was the last truck of the day and processing stopped about halfway through the loading of the truck. Truck 12 was dumped back into the feed pile. After the condition was studied and addressed, changes were noted in the system response. Detector 2 was found to have one outlier outside three standard deviations after taking the end-of-day source check. The window used for monitoring Cs-137 (centered about 662 keV) had lowered count rates. A single point above 3 standard deviations indicates that the system has changed. The source check utilizes a fixture for a source, ensuring constant location, and is counted for a long count time. It is measured with good precision, as indicated by the relative standard deviation of 1.5%. The exception noted was within 5% of the nominal value, and more than a factor of four less than ANSI N323 criteria. This exceptions report discusses this issue.

Nature of the Event

The elevated temperatures resulted in the industrial computer shutdown, likely due to the internal thermistor over-temperature protection circuit. The industrial rating is typically negative 5°C to 50°C (23°F to 122°F) for operating, and -25°C to 60°C (-13°F to 140°F) for storage. The process computer has an internal heat shutdown setting that may be set to 40°, 50° or 60°C (104°, 122° or 140°F). The operating temperature range for the ORTEC MicroAce card is specified at 15°C to 30°C (30°F to 86°F). Temperatures in the rack-mounted enclosure exceeded the safety limit of 40°C (122°F). The industrial computer serves as the host for the ISA card based ORTEC Micro Ace MCA. The rack-mounted enclosure temperature was likely higher than the ambient trailer temperature of 32°C (90°F).

As shown below, the data indicated no change up to the moment the computer was shut down by the thermal protection circuit. When the computer is shut down, cooling fans are turned off, which prevents the removal of stored heat. The data indicates that a change occurred after shutdown. It is likely the change resulted from slightly higher temperatures present during shutdown.

Detector 2 was three standard deviations low in the SRC in which a known source of Cs-137 is counted in a fixed location, and the count rate in a window centered on the peak is compared to prior operating history. The process computer system was temperature stabilized during the early spring months using a heater in the MCC trailer. Warmer temperatures are now present, and additional ventilation or cooling should be provided.

Prior to the event, the PBCs showed a standard deviation of about 1.5%, and three standard deviations of about 4.5%. The last PBC for Detector 2 was a little over three standard deviations (4.5%) indicating a change had occurred. When examined, the spectra showed that the peaks at 1461 keV (K-40) were in similar channels for all detectors (channel 250 out of 512 total channels), but the peak at 662 keV (Cs-137) was slightly lower for Detector 2 than for the other detectors. The K-40 peak was routinely adjusted to maintain channel 250 by the computer-controlled fine gain setting. After the event, the gain was increased by 5% to keep K40 in channel 250. Increasing the gain (without also adjusting the zero offset) in this manner spreads the spectrum out. Thus, the thorium window (centered on Tl-208 at 2615 keV) is shifted to the right (higher apparent energy) while the Cs-137 window (centered on 662 keV) is shifted to the left (lower apparent energy). The shift of Cs-137 in Detector 2 indicates that a slight shift in the zero threshold (channel corresponding to 0 keV) has occurred. This is likely the cause of the (less than 5%) shift in the SRC data.

The MCAs had the zero offset (an internal trim pot) of the internal amplifier adjusted in accordance with vendor procedures just prior to calibration and deployment. To correct the (presumed) temperature-induced shift in zero offset would require repeat of the vendor procedure. Because the change is less than 20%, the vendor suggests that the operations continue. The standard deviations of the detector (that from the acceptance criteria) were small during operations in which the MCC trailer temperature was controlled (cold outdoor ambient temperatures). As the season changed and warmer temperatures were encountered, the MCC trailer temperature was no longer controlled. The control chart alerted the system's operator to that fact. The less than 20% change (actually less than 5%) did not invalidate the results from monitoring material prior to the shutdown. The last ten tons present in the last truck (approximately ten minutes of data) was returned to the pile to be counted again. Further, investigation showed Detector 1 was also affected with a mean count rate lower by 5%. Detectors 3 and 4 showed no change.

The change in the net signal of detectors 1 and 2 dropping by 5%, which averages the four detectors, would be just over 2.5% if Cs-137 were present. The average for SR-55 batches 2 thru 24 showed an average of 0.6 pCi/g. SR-55 batch 26 shows an average of negative 0.3 pCi/g. The change from 0.6 to -0.3 is due primarily to the shifting of the Bi-214 peak at 609 keV out of the monitored Cs-137 window. Therefore, the apparent background had been lowered in the Cs-137 window. This change was due to the gain shift, and not the presence of Cs-137. These changes are well below the monitoring alarm limit for the system.

Furthermore, analysis of the spectrum using the components method showed no Cs-137 present. Examination of the components for Detectors 1 and 2 showed an apparent gain shift in the lower and upper ends of the spectrum in the second component (peaks in the first component are seen with a bimodal peak). Detectors 3 and 4 showed no gain shift. This was consistent with the observations discussed above. Moreover, none of the

components showed evidence of a peak consistent with Cs-137. Thus, although there was a gain shift, there was no Cs-137 underlying the data that was missed by the system.

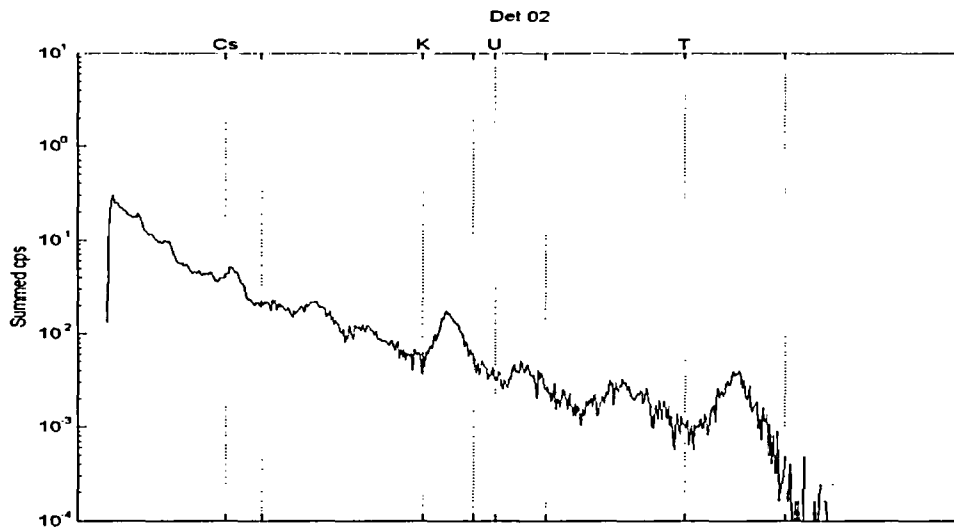


Figure 1-G. Detector 2 spectrum logged, as survey 25-03.N01, during truck 12 showing Bi-214 609 keV peak in the Cs-137 window. The K-40 1460keV and Bi-214 1764 keV (labeled U) are centered within their respective windows.

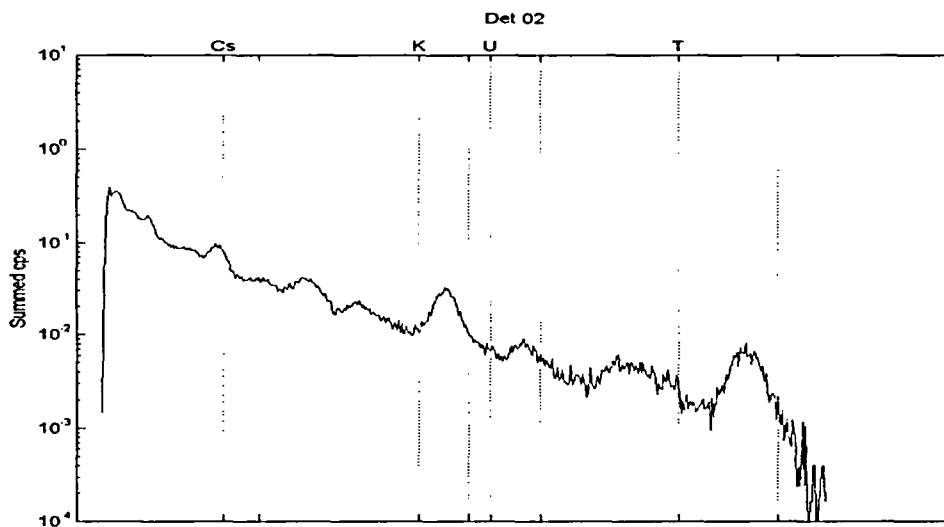


Figure 2-G. Detector 2 spectrum logged, as survey 25-04.N01, during truck 12 after the event showing Bi-214 609 keV peak mostly outside the Cs-137 window. Also, note the Bi-214 1764 keV and Tl-208 2614 keV windows are slightly shifted to the right. The K-40 1460keV is centered within its window.

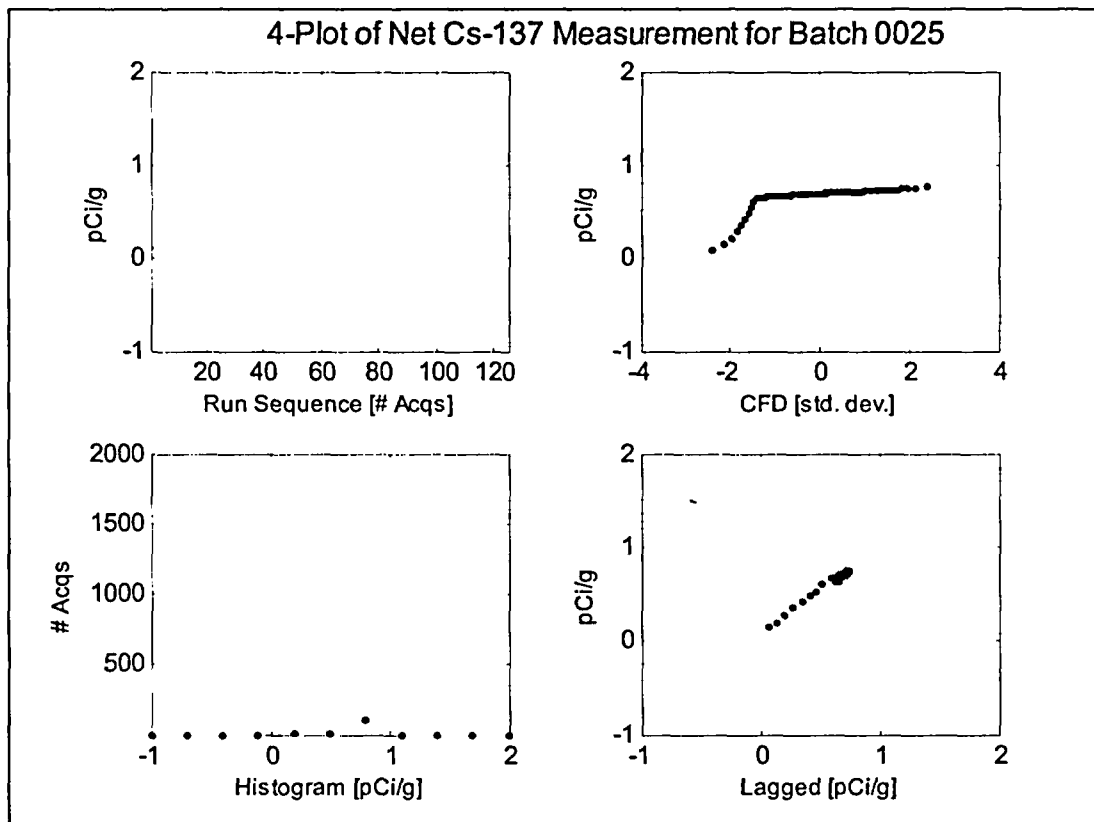


Figure 3-G. Four-Plot Presentation of Truck 12 measurements before the event indicating the system was stable up to the event occurrence. Although the system was stable, truck 12 was completely re-measured as survey 25-04.N01

Resolution of the Event

- The system continued to operate as-is taking the penalty for a 2.5% lower Cs detection level.
- Additional external cooling fans for the back of the rack as well as a roof-mounted air-conditioner were implemented.
- The system was re-tuned when the system was broken down to move to the next location on-site. Re-tuning involved adjusting the zero offset and the system course gain using a pulse of known magnitude at roughly 25% and 75% of full-scale pulse height. Upon system demobilization efficiency verification may be run using vendor prescribed procedures.

Appendix H

SRA Technical Note 03-001

Comparison of SMCM Results with Laboratory-Based Measurements

SRA Tech Note no. 03-001
Author: J. J. Shonka

Dated 06/24/03

Comparison of SMCM Results with Laboratory-Based Measurements

When results from two different measurement methods are compared, the reasons that differences might occur must be understood. The magnitude of these differences is important when the reported values differ by an amount that would be significant when compared to the applicable limits. The magnitude of the differences can also be important when the two measurements do not agree within the uncertainties of each method. This latter issue can occur because the results differ, but more often occurs when the stated uncertainty does not include all sources of bias and error.

In situ measurements in support of D&D often have no positive results for contaminants of concern. Comparison with widely distributed primordial nuclides from potassium and the uranium and thorium primordial series provide a convenient means to assess the performance of the *in situ* measurement system against laboratory results.

In comparing the lab and field measurements, sources of bias, when small and largely offsetting, can often be ignored as a matter of convenience.

Laboratory measurements have good precision, and excellent control of measurement parameters including sample geometry. However, laboratory measurements are subject to sampling uncertainty that is typically estimated through assumptions that are not quantified. NUREG-1501 notes that spatial variability in primordial nuclides can triple the exposure rate in a small field. Differences between field and lab measurements can be due to inadequacy in the sampling program for the lab samples.

Static *in situ* gamma spectroscopy using germanium-based detectors has been studied and compared to lab measurements ("An *In Situ* Gamma-Ray Spectrometry Intercomparison" pending Environmental Measurements Laboratory publication in *Health Physics Journal*). In those comparisons, agreement to within a factor of 2 was found to be the limits of the state of the art. Agreement, at times, would fall outside of this range, but the reasonable conjectures for the disagreement were asserted, typically due to simplified assumptions made by one of the *in situ* measurement systems.

Static *in situ* measurements enjoy a large field of view that typically provides an extremely large effective sample. The large effective sample greatly reduces sampling errors at the measurement point. However, static measurements are subject to uncertainties due to the assumptions of source and inherent shielding that are made to quantify the detector response.

The SMCM provides a scanning *in situ* gamma spectroscopy measurement, which can provide greater insight (than a more limited static measurement program) for the spatial source

distribution (for measured radioactivity). However, most of the same assumptions for source and shielding distributions (as made for static *in situ* measurements) are necessary to quantify the results.

In comparing *in situ* field measurements with laboratory-based soil sample measurement made using gamma spectroscopy, the following parameters (beyond calibration bias and uncertainty) should be considered:

1. Percent Soil Moisture
2. Detector-Source Geometry
3. Source Distribution
4. Inherent Source Shielding
5. Sources and Treatment of Background
6. Degree of Secular Equilibrium and Branching Ratio

Laboratory measurements report soil that has been dried. *In situ* measurements, by their very nature, measure wet soil. The difference provides a source for bias that should be considered in comparing lab and field measurements. The percent soil moisture typically varies from 10% to 20% by weight.

Lab measurements use well-defined detector source geometries (such as Marinelli Beakers) for which NIST traceable calibration standards are available. In contrast, field measurements use calibration to a NIST traceable point source with calculated response functions for assumed source geometries. Typical geometries used include semi-infinite source with collimated or uncollimated detectors. Other configurations include sources of limited extent for estimating response functions for DCGL_{emc} or for conveyor based spectrometer systems. When the detector-source geometry does not match the assumed one, bias between the lab and field measurements can occur.

If the source distribution in the field is not uniform, laboratory assumptions for sampling are not met, and assumptions for field measurements to estimate response functions can introduce bias between field and lab results. In conveyor-based systems (which are finite in size and more sensitive to changes), these differences can be significant, particularly when an assumption of uniform concentration for the field of view of the detector is not met.

In field measurements, assumed source distribution includes aerial variability as well as changes with depth. Samples for lab measurements can improperly average with depth if great care is not taken in the sampling procedure. For field measurements, the inherent source shielding assumed for the detector can also result in bias in the reported results.

Lab results benefit from constant geometry measurements with well-characterized backgrounds. Field measurements often have sources of background that cannot be fully shielded and which (if not considered) produce a bias that must be considered. For example, the monitored material on a conveyor system may not fully shield the radioactive material present in the ground under the

conveyor. One cannot simply take a "belt empty" background since the material in the belt will partially shield the ground.

The SRA Subsurface Multi-spectral Contamination Monitor (SMCM) reports primordial concentrations (potassium, uranium and thorium, KU&T) for specific *in situ* source geometries. Example geometries include semi-infinite volume sources with shielded and unshielded detectors as well as specialized geometries such as conveyor systems. The measurements follow the practice of aerial surveys for KU&T. Potassium is monitored directly with the 1461 keV photon emitted in decay. Uranium and thorium are monitored using daughter products and the assumption of secular equilibrium. Bi-214 is used for uranium, and is monitored using the 1764 keV photon. Tl-208 is used for thorium, and is monitored using the 2614 keV photon.

The SMCM data analysis reports the primordial nuclides (potassium, uranium, and thorium) since these materials are present in virtually all environmental measurements. A comparison with laboratory measurements of soil samples is useful to identify any bias between the field measurements and those from a laboratory. This is particularly useful when the contaminants of concern (e.g. Cs-137) are not present at concentrations that can be measured using short duration measurements in field conditions. Others have used the comparison with potassium in comparing field measurements with lab results.

Figure H-1 and Figure H-2 in this appendix and associated text were taken from the *Human Health Fact Sheet* ANL, July 2002: <http://www.ead.anl.gov/pub/doc/NaturalDecaySeries.pdf>, and provide schematic presentations of the U-238 and Th-232 decay series.

Uranium and thorium occur in three natural decay series, headed by Uranium-238, Thorium-232, and Uranium-235, respectively. In nature, the radionuclides in these three series are approximately in a state of secular equilibrium, in which the activities of all radionuclides within each series are nearly equal. Potassium does not have an extended decay chain.

When gamma spectroscopy Lab based measurements are used, the daughter product Bi-214 is used for the uranium decay chain. To ensure equilibrium in lab measurements, best practice is to hermetically seal the sample in a crimp "tuna" can and permit two weeks of ingrowth to occur to ensure that Bi-214 is at equilibrium.

When the Tl-208 radionuclide is used for assessing thorium content, the 36% branching ratio must be considered (see Figure H-2).

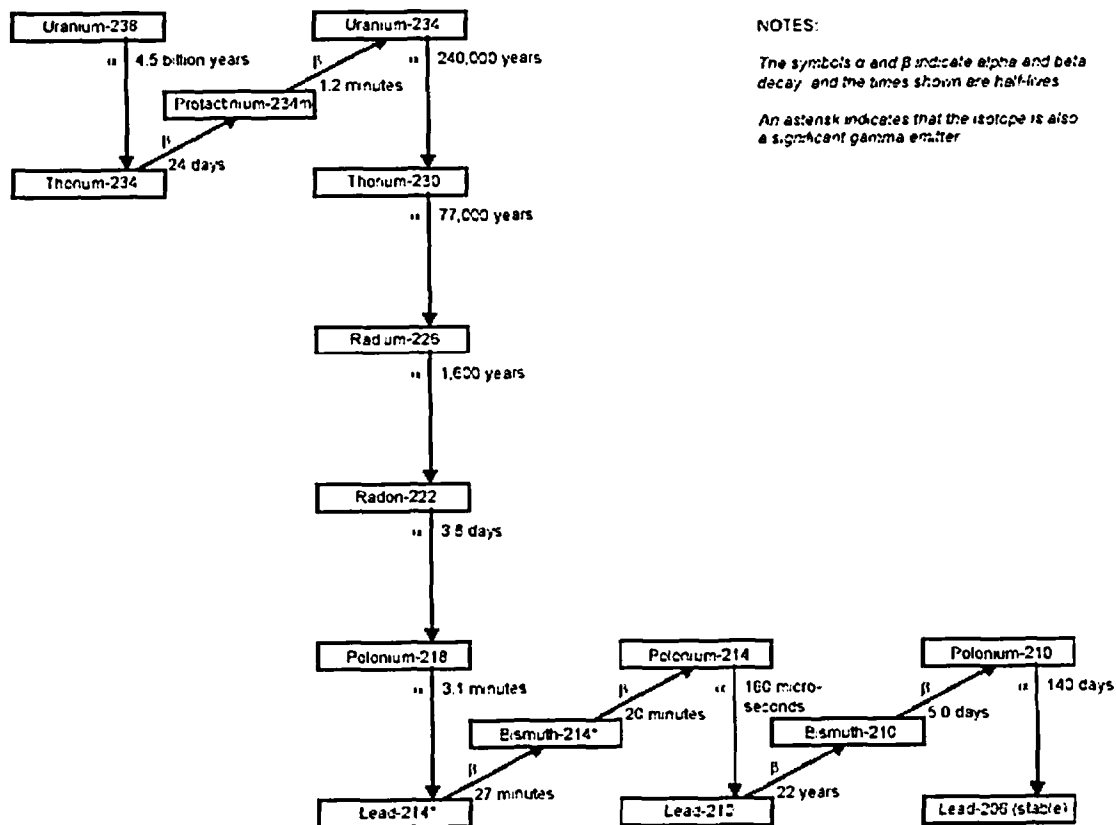


Figure H-1 Natural Decay Series: Uranium-238

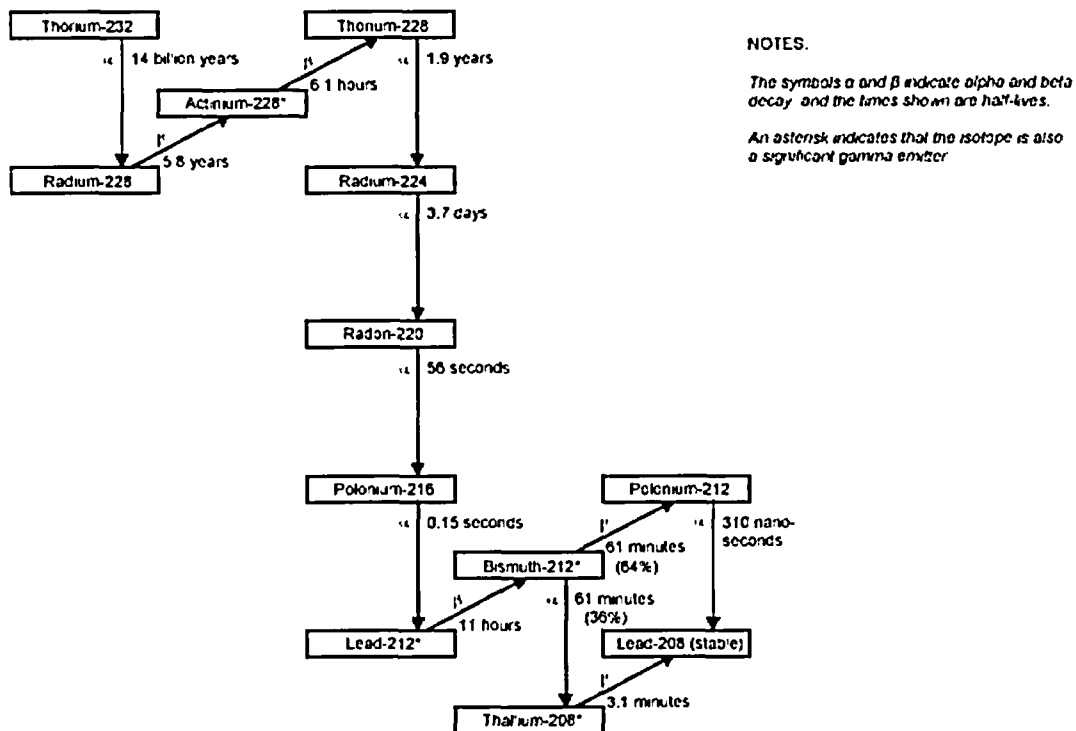


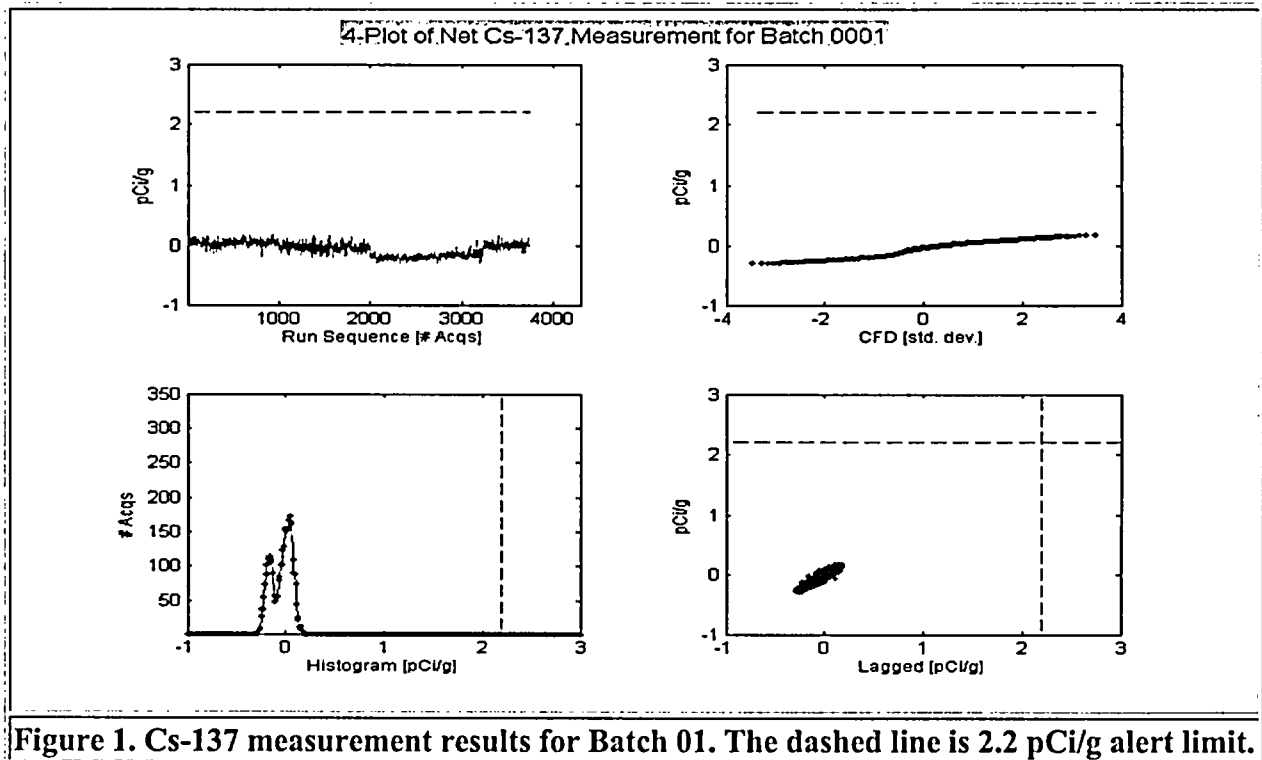
Figure H-2 Natural Decay Series: Thorium-232

Survey Release Record

Survey Location Code	SR-55, Batch 0001		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	12-Mar-2003 15:29:52, 13-Mar-2003 14:41:48		
Surveyor	M. Marcial		
Tons Surveyed	289		
Moisture Content [%]	13.0	Dry Density [lbs/ft ³]	76
Surveyed Material	Crushed Brick and Mortar		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.04	-0.02	0.18	-0.29	0.20
K-40	12.17	12.04	16.41	6.67	2.32
Bi-214	1.90	1.83	2.92	0.85	0.54
Tl-208	0.45	0.43	0.79	0.25	0.25
Marinelli Sample					
Cs-137	<0.07	Sample Log Number 5-13271			N/A
K-40	16.55				1.84
Bi-214	1.03				0.12
Tl-208	0.37				0.06

*No Cs-137 was detected during the survey.



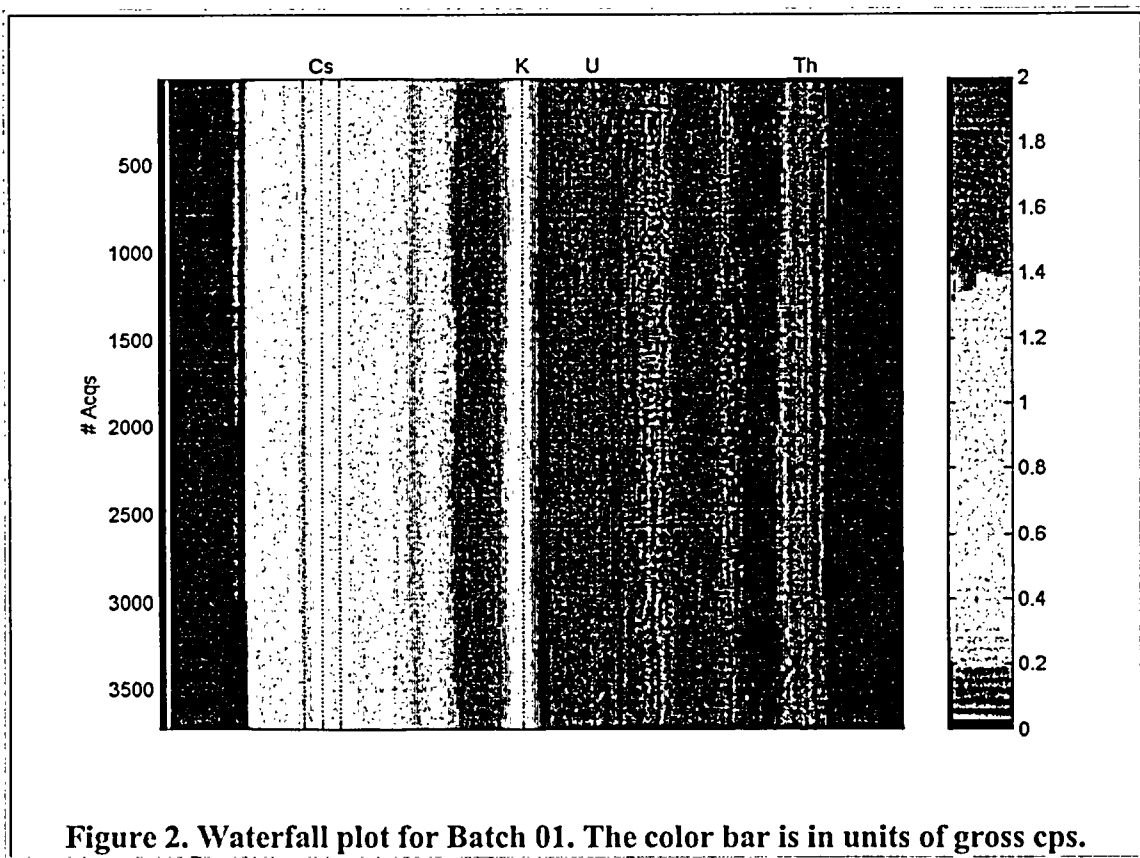


Figure 2. Waterfall plot for Batch 01. The color bar is in units of gross cps.

Table 2. Filenames for Batch 01.

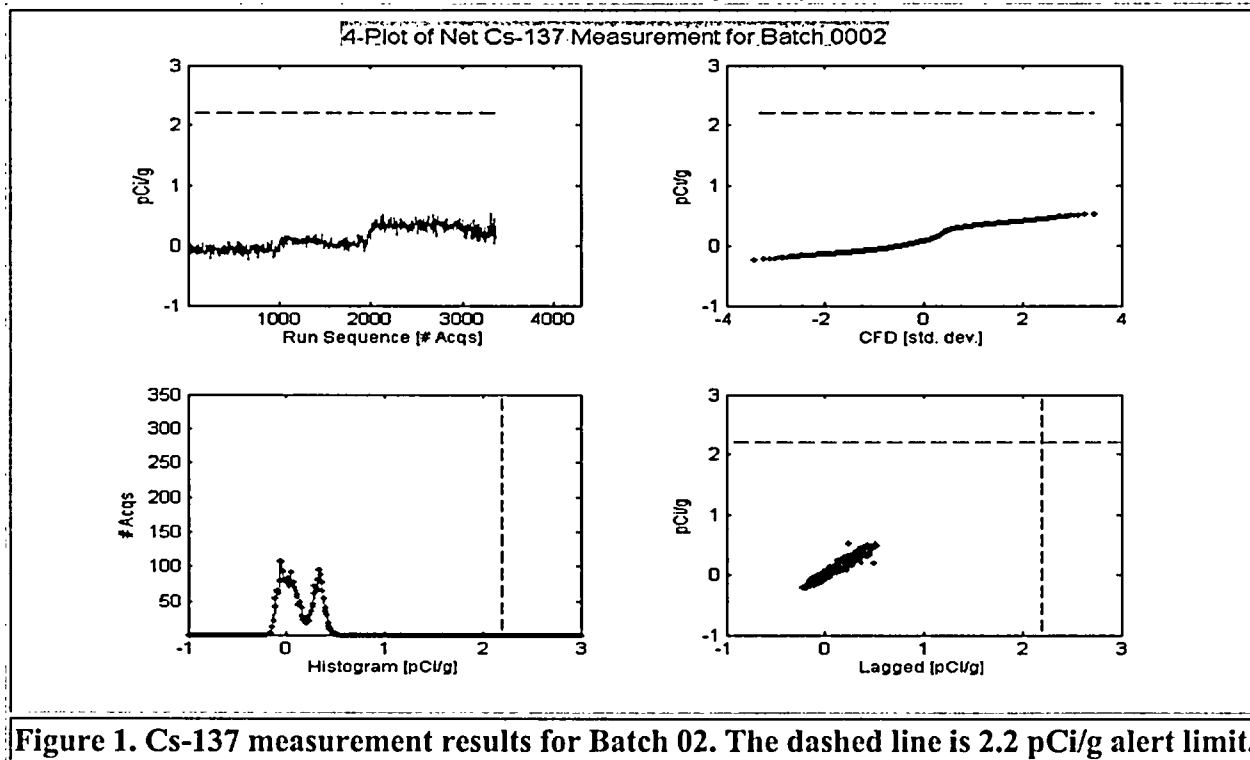
Date and Time	Filename	Acquisitions	Sum of Acquisitions
12-Mar-2003 15:29:52	01-01.N01	72	72
12-Mar-2003 15:47:36	01-01.N02	147	219
12-Mar-2003 15:55:32	01-02.N01	25	244
12-Mar-2003 16:11:48	01-02.N02	162	406
12-Mar-2003 16:32:18	01-03.N01	206	612
12-Mar-2003 16:52:02	01-04.N01	218	830
12-Mar-2003 17:12:44	01-05.N01	229	1059
12-Mar-2003 17:34:26	01-06.N01	236	1295
13-Mar-2003 10:00:46	01-07.N01	256	1551
13-Mar-2003 10:23:54	01-08.N01	256	1807
13-Mar-2003 10:47:18	01-09.N01	238	2045
13-Mar-2003 11:13:46	01-10.N01	245	2290
13-Mar-2003 11:36:16	01-11.N01	248	2538
13-Mar-2003 11:56:44	01-12.N01	223	2761
13-Mar-2003 12:19:54	01-13.N01	233	2994
13-Mar-2003 12:46:12	01-14.N01	239	3233
13-Mar-2003 14:15:06	01-15.N01	244	3477
13-Mar-2003 14:22:12	01-16.N01	59	3536
13-Mar-2003 14:41:48	01-16.N02	204	3740

Survey Release Record

Survey Location Code	SR-55, Batch 0002		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 12:46:28, 17-Mar-2003 16:37:16		
Surveyor	M. Marcial		
Tons Surveyed	260		
Moisture Content [%]	11.9	Dry Density [lbs/ft ³]	85
Surveyed Material	Crushed Brick and Mortar		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.13	0.09	0.52	-0.22	0.34
K-40	12.31	12.24	16.32	6.06	2.16
Bi-214	1.92	1.84	3.23	-1.22	0.63
Tl-208	0.45	0.44	0.63	0.24	0.23
Marinelli Sample					
Cs-137	0.02	Sample Log Number 5-13274			0.03
K-40	15.32				1.69
Bi-214	0.89				0.10
Tl-208	0.33				0.06

*No Cs-137 was detected during the survey.



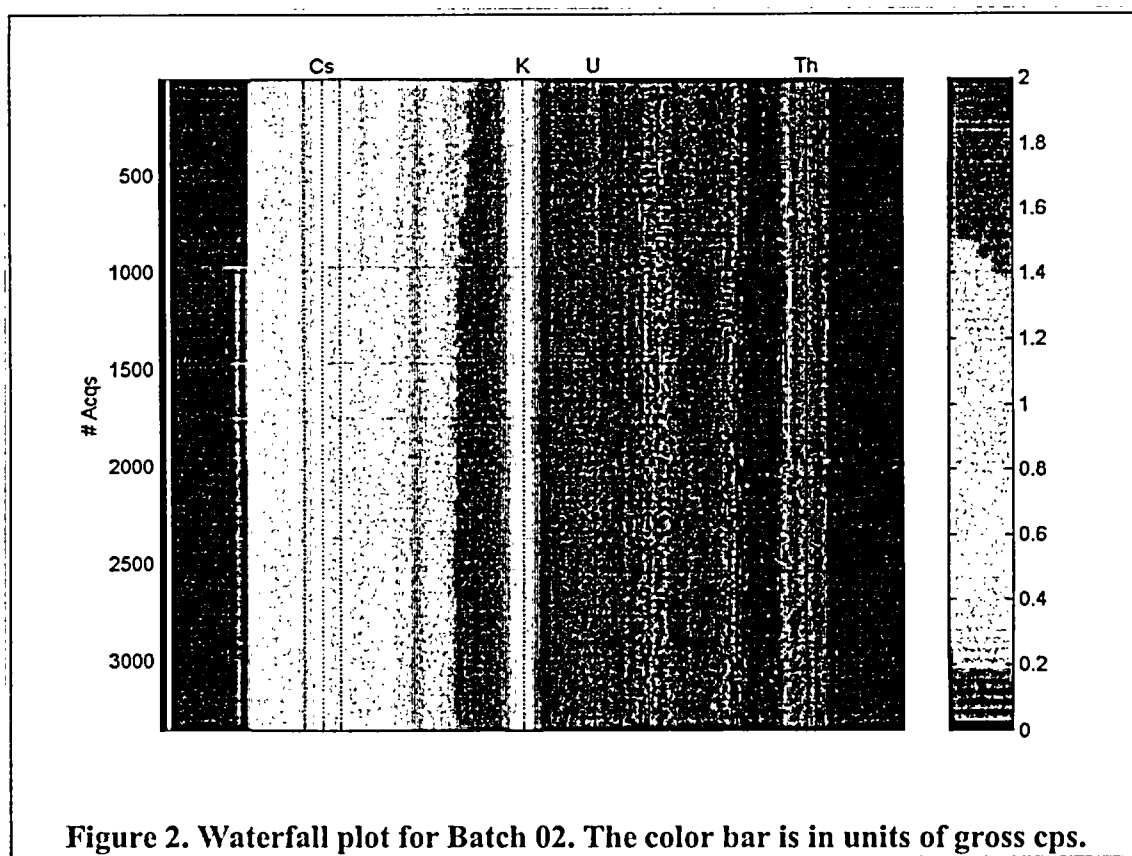


Figure 2. Waterfall plot for Batch 02. The color bar is in units of gross cps.

Table 2. Filenames for Batch 02.

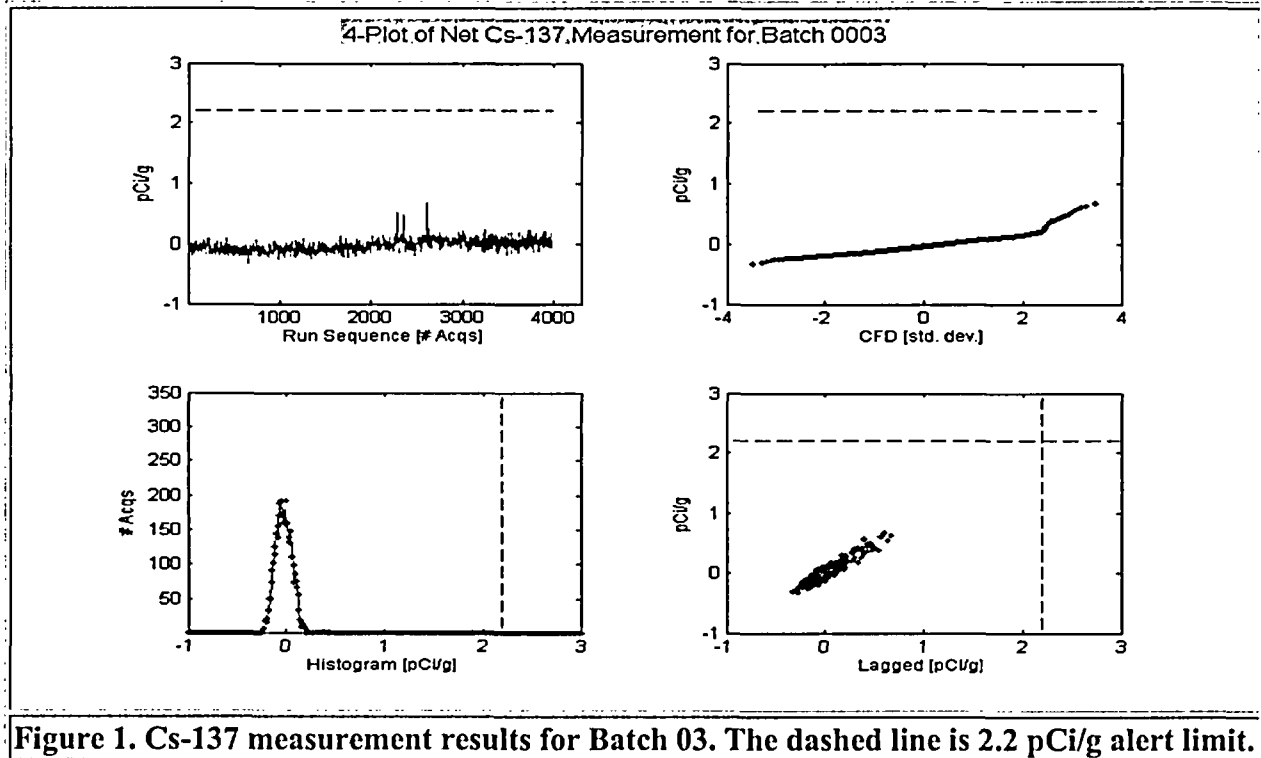
Date and Time	Filename	Acquisitions	Sum of Acquisitions
13-Mar-2003 15:07:26	02-01.N01	238	238
13-Mar-2003 15:29:48	02-02.N01	242	480
13-Mar-2003 15:52:22	02-03.N01	246	726
13-Mar-2003 16:14:46	02-04.N01	186	912
13-Mar-2003 16:20:50	02-04.N02	59	971
13-Mar-2003 17:13:10	02-05.N01	250	1221
13-Mar-2003 17:36:12	02-06.N01	251	1472
17-Mar-2003 09:45:20	02-07.N01	253	1725
17-Mar-2003 09:49:40	02-08.N01	23	1748
17-Mar-2003 10:12:06	02-08.N02	210	1958
17-Mar-2003 14:45:04	02-09.N01	255	2213
17-Mar-2003 15:07:40	02-10.N01	242	2455
17-Mar-2003 15:31:14	02-11.N01	240	2695
17-Mar-2003 15:52:30	02-12.N01	239	2934
17-Mar-2003 16:14:06	02-13.N01	177	3111
17-Mar-2003 16:37:16	02-14.N01	259	3370

Survey Release Record

Survey Location Code	SR-55, Batch 0003		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 18-Mar-2003 15:49:02		
Surveyor	M. Marcial		
Tons Surveyed	308		
Moisture Content [%]	14.1	Dry Density [lbs/ft ³]	78
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.02	-0.03	0.66	-0.32	0.18
K-40	9.66	9.46	14.73	0.34	2.19
Bi-214	1.84	1.79	2.76	0.81	0.47
Tl-208	0.44	0.42	0.65	-0.00	0.29
Marinelli Sample					
Cs-137	0.09	Sample Log Number 1-13280			0.03
K-40	9.63				1.12
Bi-214	0.77				0.09
Tl-208	0.28				0.04

* No Cs-137 was detected during the survey.



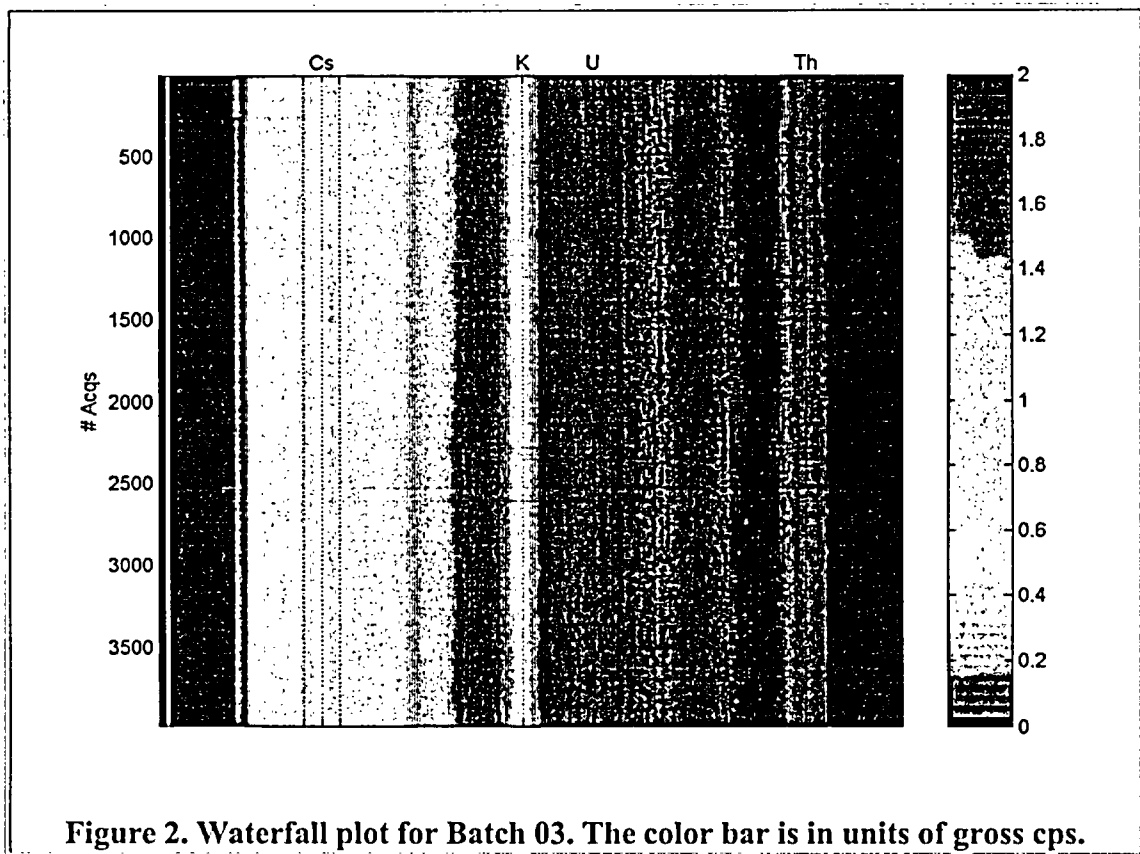


Figure 2. Waterfall plot for Batch 03. The color bar is in units of gross cps.

Table 2. Filenames for Batch 03.

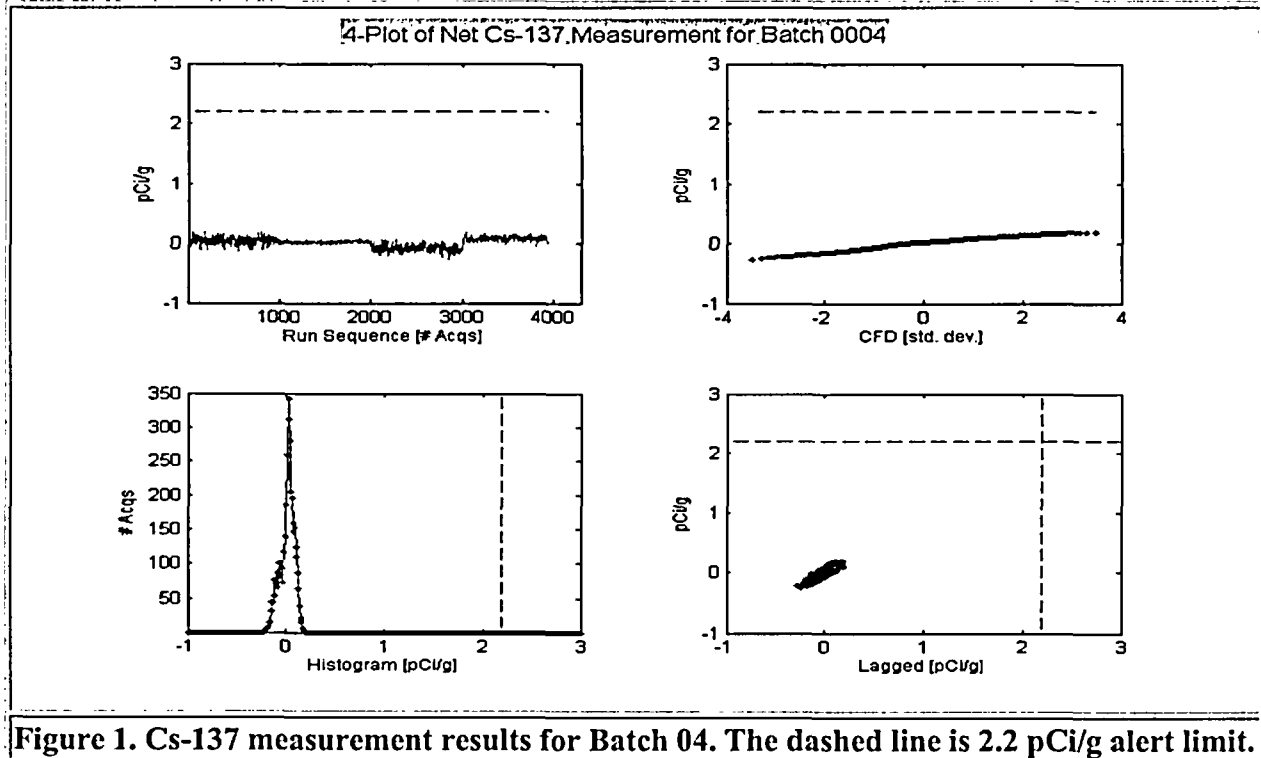
Date and Time	Filename	Acquisitions	Sum of Acquisitions
17-Mar-2003 17:23:36	03-01.N01	251	251
18-Mar-2003 09:31:10	03-02.N01	262	513
18-Mar-2003 09:53:38	03-03.N01	247	760
18-Mar-2003 10:15:34	03-04.N01	248	1008
18-Mar-2003 10:37:02	03-05.N01	243	1251
18-Mar-2003 11:02:08	03-06.N01	250	1501
18-Mar-2003 11:25:26	03-07.N01	260	1761
18-Mar-2003 11:47:50	03-08.N01	252	2013
18-Mar-2003 12:09:40	03-09.N01	247	2260
18-Mar-2003 12:35:14	03-10.N01	250	2510
18-Mar-2003 12:38:30	03-11.N01	22	2532
18-Mar-2003 14:00:52	03-11.N02	261	2793
18-Mar-2003 14:23:10	03-12.N01	250	3043
18-Mar-2003 14:43:34	03-13.N01	233	3276
18-Mar-2003 15:07:10	03-14.N01	247	3523
18-Mar-2003 15:27:36	03-15.N01	230	3753
18-Mar-2003 15:49:02	03-16.N01	238	3991

Survey Release Record

Survey Location Code	SR-55, Batch 0004		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 19-Mar-2003 15:54:10		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	13.5	Dry Density [lbs/ft ³]	79
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.01	0.02	0.19	-0.27	0.14
K-40	9.66	9.49	15.01	5.60	2.20
Bi-214	1.76	1.71	2.73	1.08	0.41
Tl-208	0.43	0.42	0.59	0.27	0.27
Marinelli Sample					
Cs-137	0.05	Sample Log Number 5-13283			0.03
K-40	9.26				1.14
Bi-214	0.79				0.09
Tl-208	0.26				0.05

*No Cs-137 was detected during the survey.



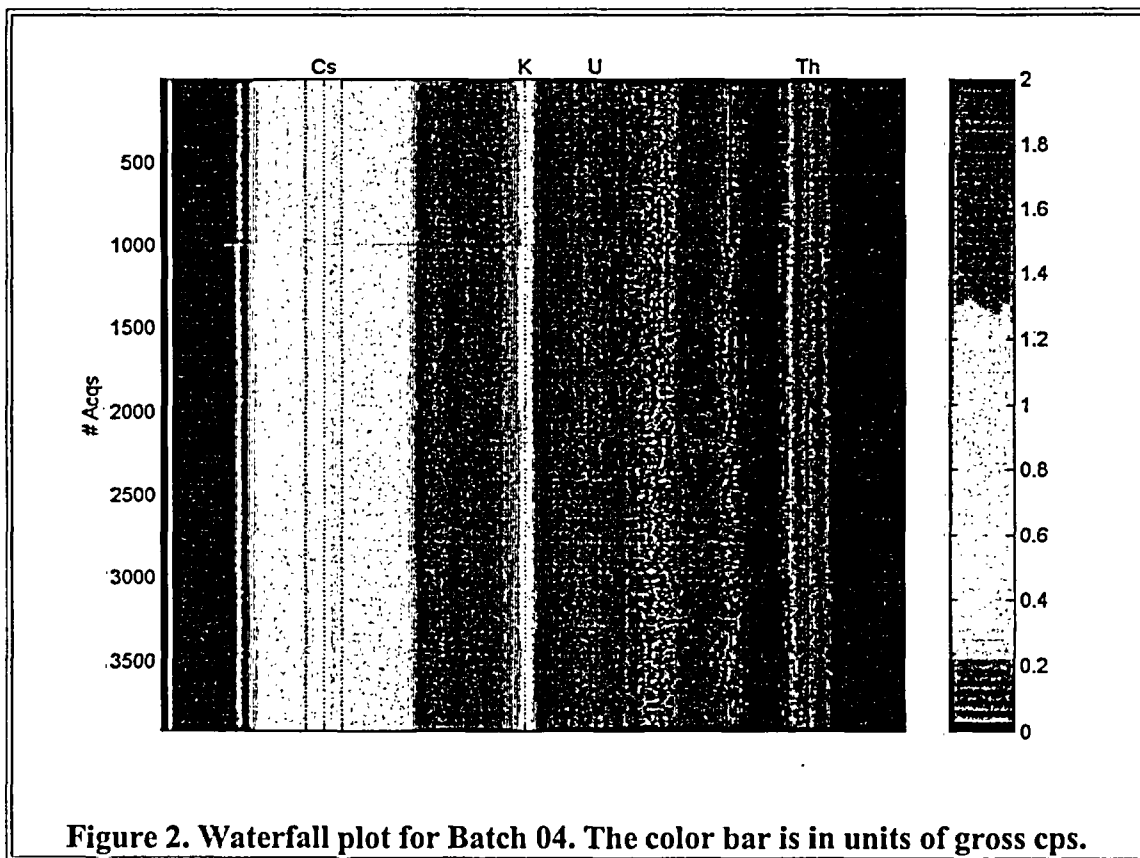


Figure 2. Waterfall plot for Batch 04. The color bar is in units of gross cps.

Table 2. Filenames for Batch 04.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
18-Mar-2003 16:12:16	04-01.N01	249	249
18-Mar-2003 16:34:10	04-02.N01	245	494
18-Mar-2003 17:00:10	04-03.N01	255	749
18-Mar-2003 17:25:16	04-04.N01	247	996
19-Mar-2003 09:40:22	04-05.N01	257	1253
19-Mar-2003 10:01:56	04-06.N01	246	1499
19-Mar-2003 10:24:08	04-07.N01	250	1749
19-Mar-2003 10:45:46	04-08.N01	244	1993
19-Mar-2003 11:07:30	04-09.N01	244	2237
19-Mar-2003 11:28:40	04-10.N01	239	2476
19-Mar-2003 11:52:28	04-11.N01	252	2728
19-Mar-2003 11:53:54	04-12.N01	7	2735
19-Mar-2003 14:19:42	04-12.N02	227	2962
19-Mar-2003 14:41:10	04-13.N01	243	3205
19-Mar-2003 15:02:12	04-14.N01	239	3444
19-Mar-2003 15:33:28	04-15.N01	249	3693
19-Mar-2003 15:54:10	04-16.N01	237	3930

Survey Release Record

Survey Location Code	SR-55, Batch 0005		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 20-Mar-2003 14:45:42		
Surveyor	M. Marcial		
Tons Surveyed	305		
Moisture Content [%]	15.5	Dry Density [lbs/ft ³]	80
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.07	-0.07	0.17	-0.23	0.11
K-40	9.32	9.24	12.61	5.41	1.59
Bi-214	1.81	1.80	3.57	0.85	0.40
Tl-208	0.43	0.42	0.61	0.28	0.20
Marinelli Sample					
Cs-137	0.06	Sample Log Number 5-13285			0.03
K-40	10.02				1.21
Bi-214	0.80				0.10
Tl-208	0.31				0.05

* No Cs-137 was detected during the survey.

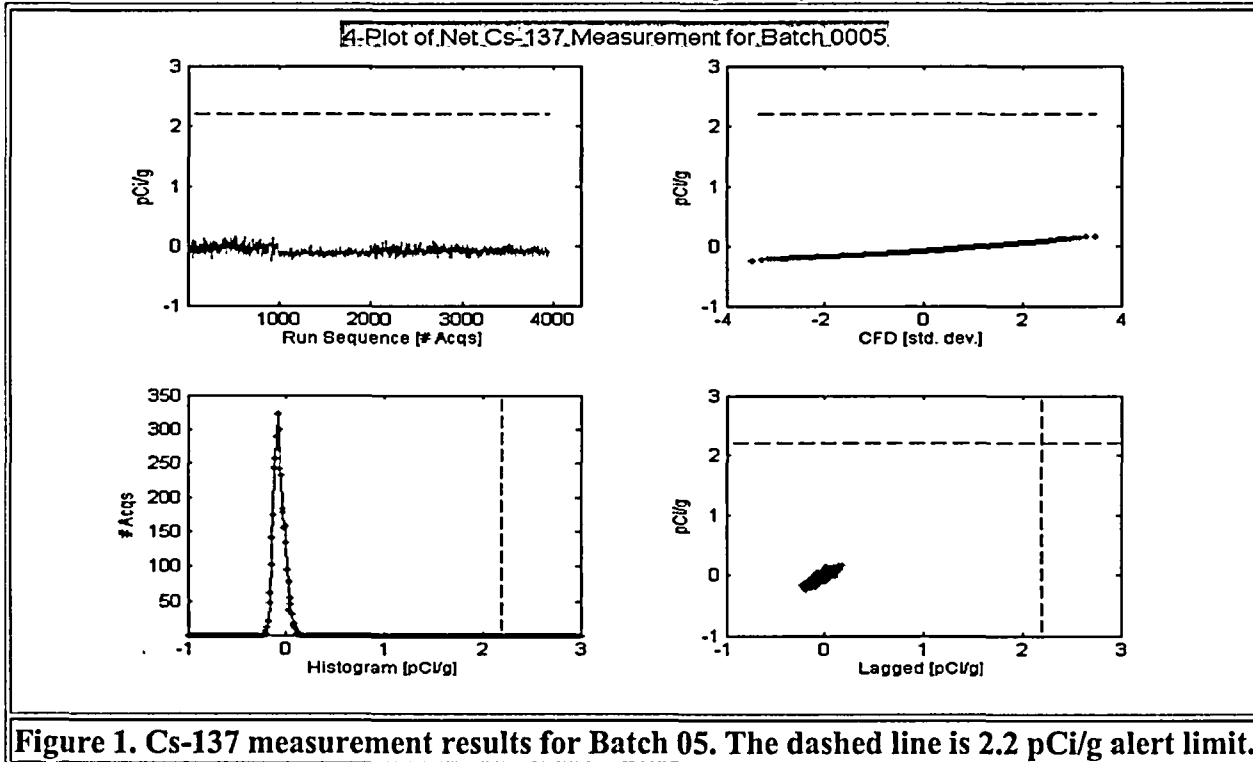


Figure 1. Cs-137 measurement results for Batch 05. The dashed line is 2.2 pCi/g alert limit.

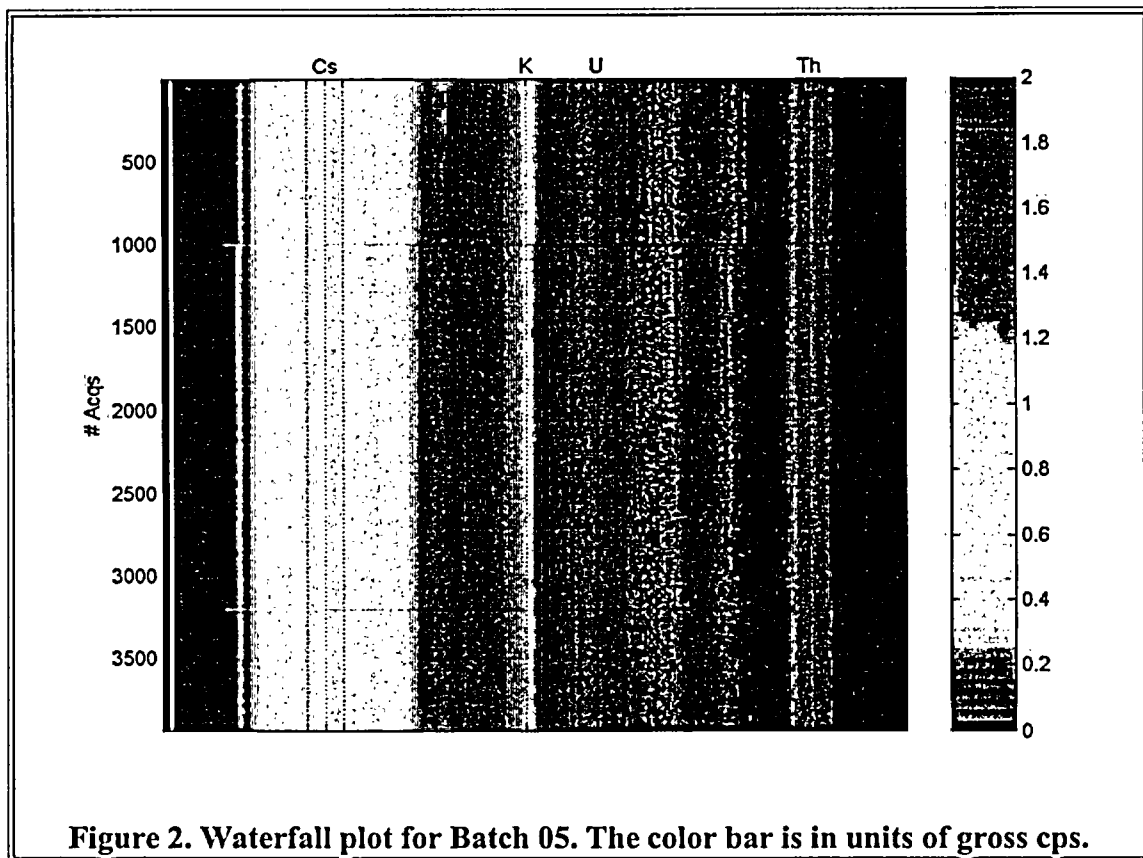


Figure 2. Waterfall plot for Batch 05. The color bar is in units of gross cps.

Table 2. Filenames for Batch 05.

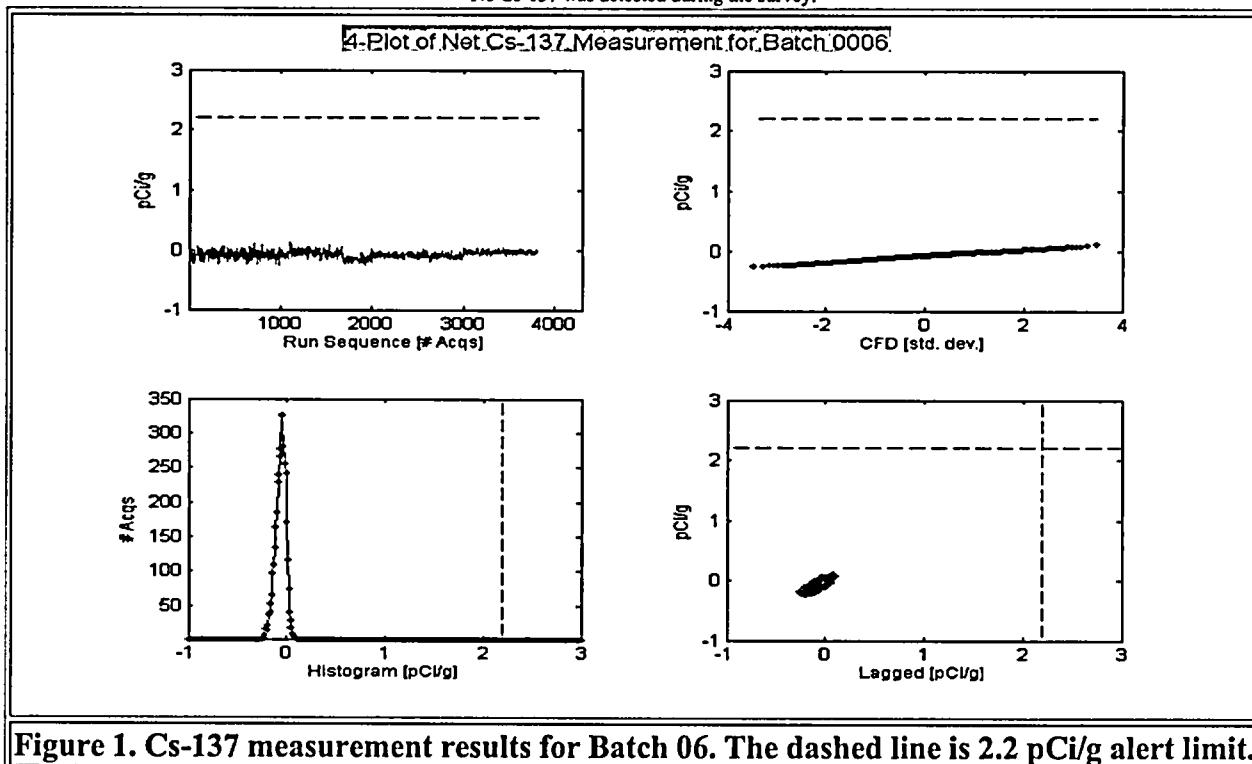
Date and Time	Filename	Acquisitions	Sum of Acquisitions
19-Mar-2003 16:16:40	05-01.N01	247	247
19-Mar-2003 16:38:24	05-02.N01	247	494
19-Mar-2003 16:40:28	05-03.N01	11	505
19-Mar-2003 17:06:56	05-03.N02	229	734
19-Mar-2003 17:31:30	05-04.N01	270	1004
20-Mar-2003 09:38:12	05-05.N01	261	1265
20-Mar-2003 09:59:52	05-06.N01	238	1503
20-Mar-2003 10:21:24	05-07.N01	246	1749
20-Mar-2003 10:45:28	05-08.N01	240	1989
20-Mar-2003 11:08:44	05-09.N01	244	2233
20-Mar-2003 11:30:36	05-10.N01	244	2477
20-Mar-2003 11:52:12	05-11.N01	244	2721
20-Mar-2003 12:16:48	05-12.N01	246	2967
20-Mar-2003 12:41:32	05-13.N01	247	3214
20-Mar-2003 14:03:34	05-14.N01	252	3466
20-Mar-2003 14:24:34	05-15.N01	239	3705
20-Mar-2003 14:45:42	05-16.N01	240	3945

Survey Release Record

Survey Location Code	SR-55, Batch 0006		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 24-Mar-2003 12:09:28		
Surveyor	M. Marcial		
Tons Surveyed	294		
Moisture Content [%]	14.4	Dry Density [lbs/ft ³]	80
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.06	-0.06	0.11	-0.25	0.10
K-40	9.22	9.19	11.96	5.83	1.26
Bi-214	1.87	1.82	2.61	1.06	0.44
Tl-208	0.42	0.41	0.54	0.27	0.13
Marinelli Sample					
Cs-137	0.05	Sample Log Number 1-13289			0.03
K-40	10.36				1.18
Bi-214	0.82				0.09
Tl-208	0.30				0.05

*No Cs-137 was detected during the survey.



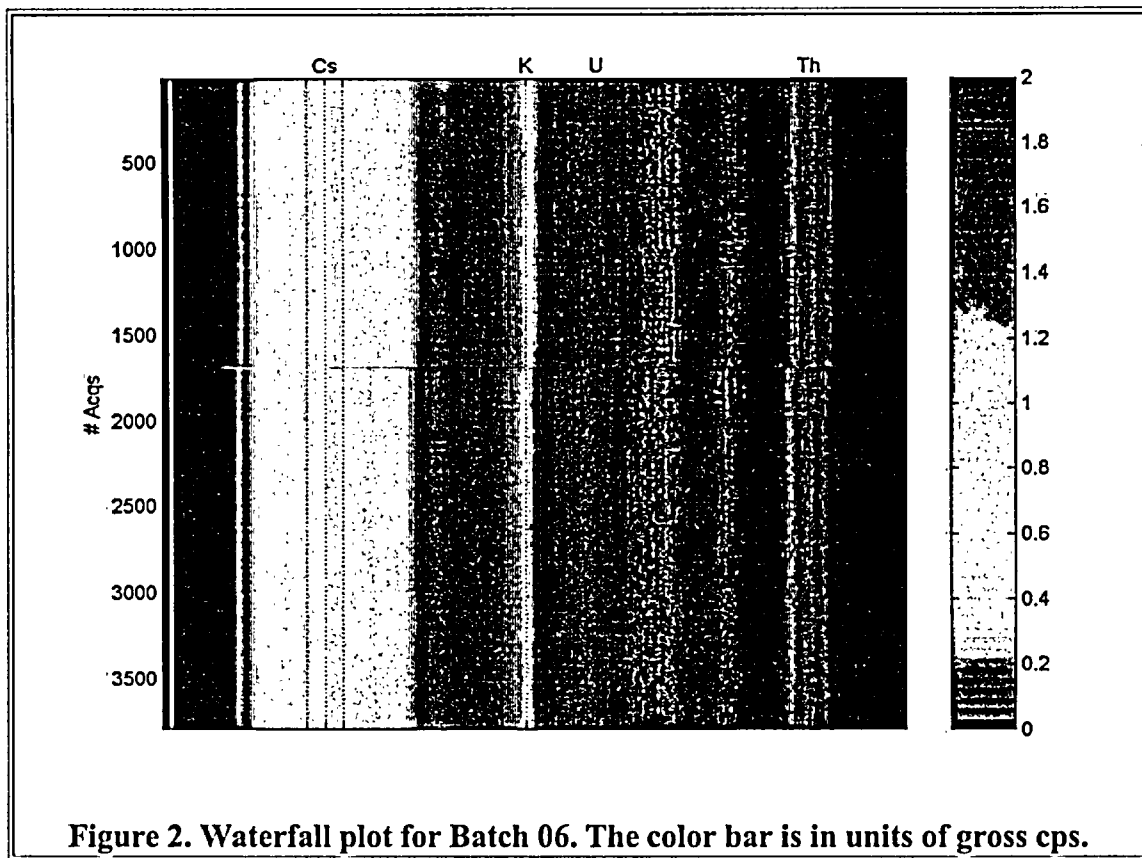


Figure 2. Waterfall plot for Batch 06. The color bar is in units of gross cps.

Table 2. Filenames for Batch 06.

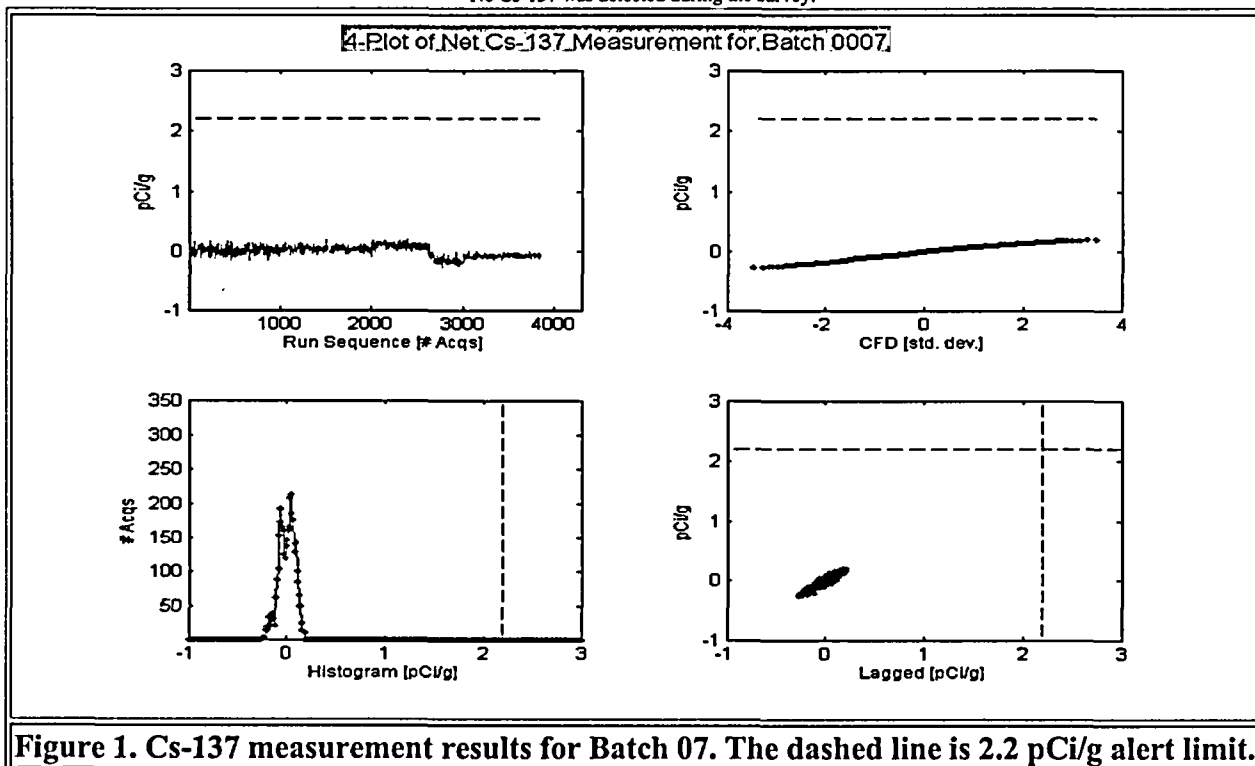
Date and Time	Filename	Acquisitions	Sum of Acquisitions
20-Mar-2003 15:07:38	06-01.N01	247	247
20-Mar-2003 15:28:52	06-02.N01	242	489
20-Mar-2003 15:52:06	06-03.N01	242	731
20-Mar-2003 16:13:06	06-04.N01	239	970
20-Mar-2003 16:33:42	06-05.N01	236	1206
20-Mar-2003 16:54:36	06-06.N01	239	1445
20-Mar-2003 17:16:42	06-07.N01	243	1688
24-Mar-2003 09:15:54	06-08.N01	242	1930
24-Mar-2003 09:37:44	06-09.N01	243	2173
24-Mar-2003 09:59:22	06-10.N01	190	2363
24-Mar-2003 10:20:46	06-11.N01	242	2605
24-Mar-2003 10:42:18	06-12.N01	246	2851
24-Mar-2003 11:06:14	06-13.N01	241	3092
24-Mar-2003 11:27:18	06-14.N01	239	3331
24-Mar-2003 11:48:36	06-15.N01	242	3573
24-Mar-2003 12:09:28	06-16.N01	237	3810

Survey Release Record

Survey Location Code	SR-55, Batch 0007		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 25-Mar-2003 10:34:46		
Surveyor	M. Marcial		
Tons Surveyed	297		
Moisture Content [%]	13.8	Dry Density [lbs/ft ³]	78
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.00	0.01	0.21	-0.27	0.16
K-40	9.16	9.14	12.19	5.41	1.31
Bi-214	1.69	1.69	2.48	0.69	0.29
Tl-208	0.42	0.42	0.53	0.27	0.15
Marinelli Sample					
Cs-137	0.03	Sample Log Number 1-13293			0.03
K-40	9.53				1.12
Bi-214	0.79				0.09
Tl-208	0.27				0.04

*No Cs-137 was detected during the survey.



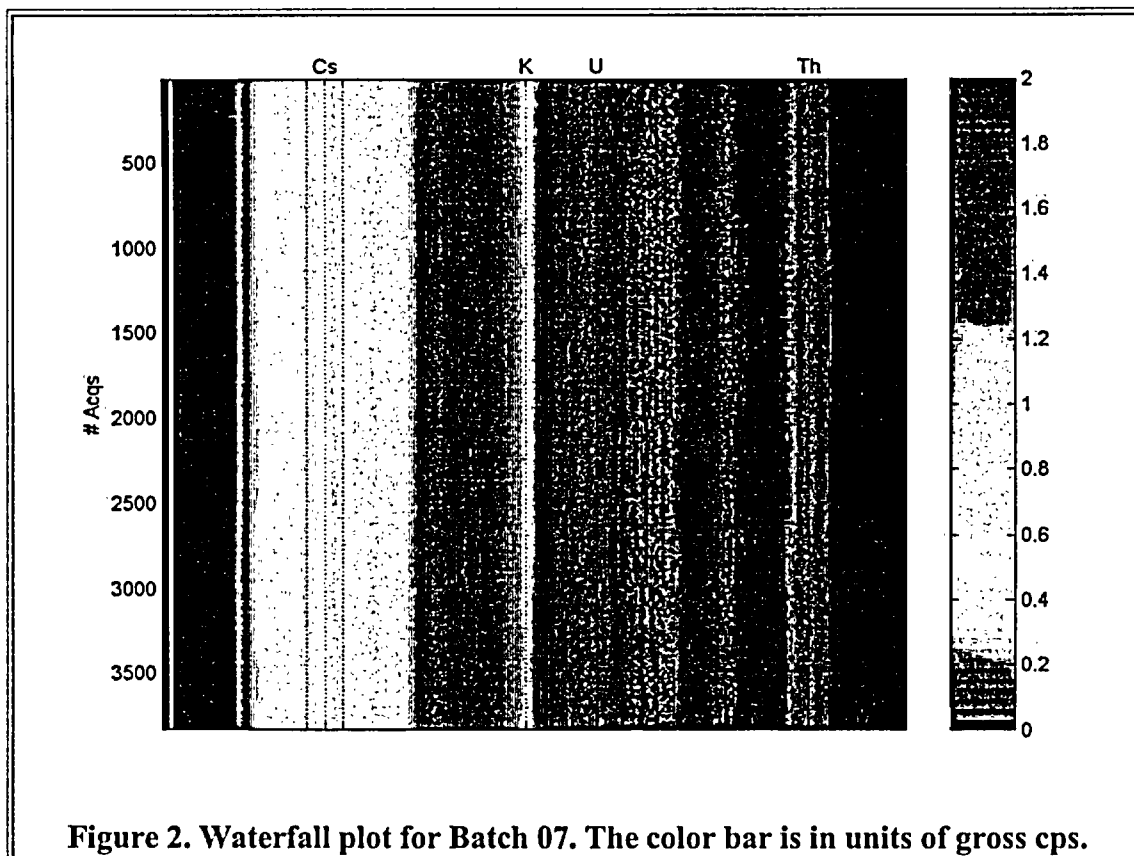


Figure 2. Waterfall plot for Batch 07. The color bar is in units of gross cps.

Table 2. Filenames for Batch 07.

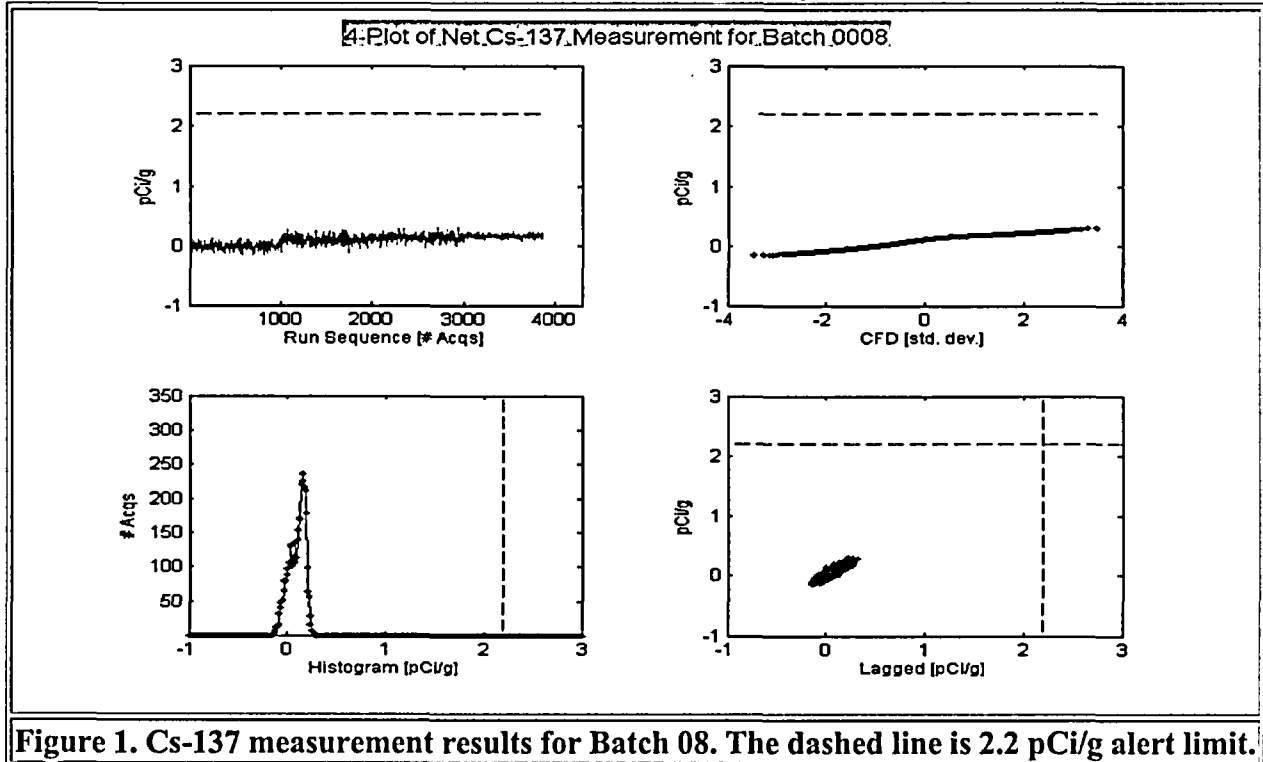
Date and Time	Filename	Acquisitions	Sum of Acquisitions
24-Mar-2003 12:32:48	07-01.N01	225	225
24-Mar-2003 14:11:54	07-02.N01	253	478
24-Mar-2003 14:33:12	07-03.N01	239	717
24-Mar-2003 14:54:24	07-04.N01	242	959
24-Mar-2003 15:15:10	07-05.N01	240	1199
24-Mar-2003 15:36:04	07-06.N01	240	1439
24-Mar-2003 16:02:34	07-07.N01	238	1677
24-Mar-2003 16:23:16	07-08.N01	236	1913
24-Mar-2003 16:46:26	07-09.N01	237	2150
24-Mar-2003 17:07:28	07-10.N01	234	2384
24-Mar-2003 17:29:12	07-11.N01	242	2626
25-Mar-2003 09:08:36	07-12.N01	257	2883
25-Mar-2003 09:29:26	07-13.N01	241	3124
25-Mar-2003 09:50:20	07-14.N01	239	3363
25-Mar-2003 10:11:42	07-15.N01	239	3602
25-Mar-2003 10:34:46	07-16.N01	244	3846

Survey Release Record

Survey Location Code	SR-55, Batch 0008		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 25-Mar-2003 17:13:20		
Surveyor	M. Marcial		
Tons Surveyed	299		
Moisture Content [%]	13.8	Dry Density [lbs/ft ³]	81
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.10	0.11	0.31	-0.15	0.16
K-40	9.24	9.24	11.53	5.70	1.24
Bi-214	1.72	1.72	2.65	1.00	0.23
Tl-208	0.42	0.42	0.53	0.27	0.14
Marinelli Sample					
Cs-137	0.08	Sample Log Number 1-13296			0.03
K-40	9.62				1.11
Bi-214	0.84				0.09
Tl-208	0.32				0.05

*No Cs-137 was detected during the survey.



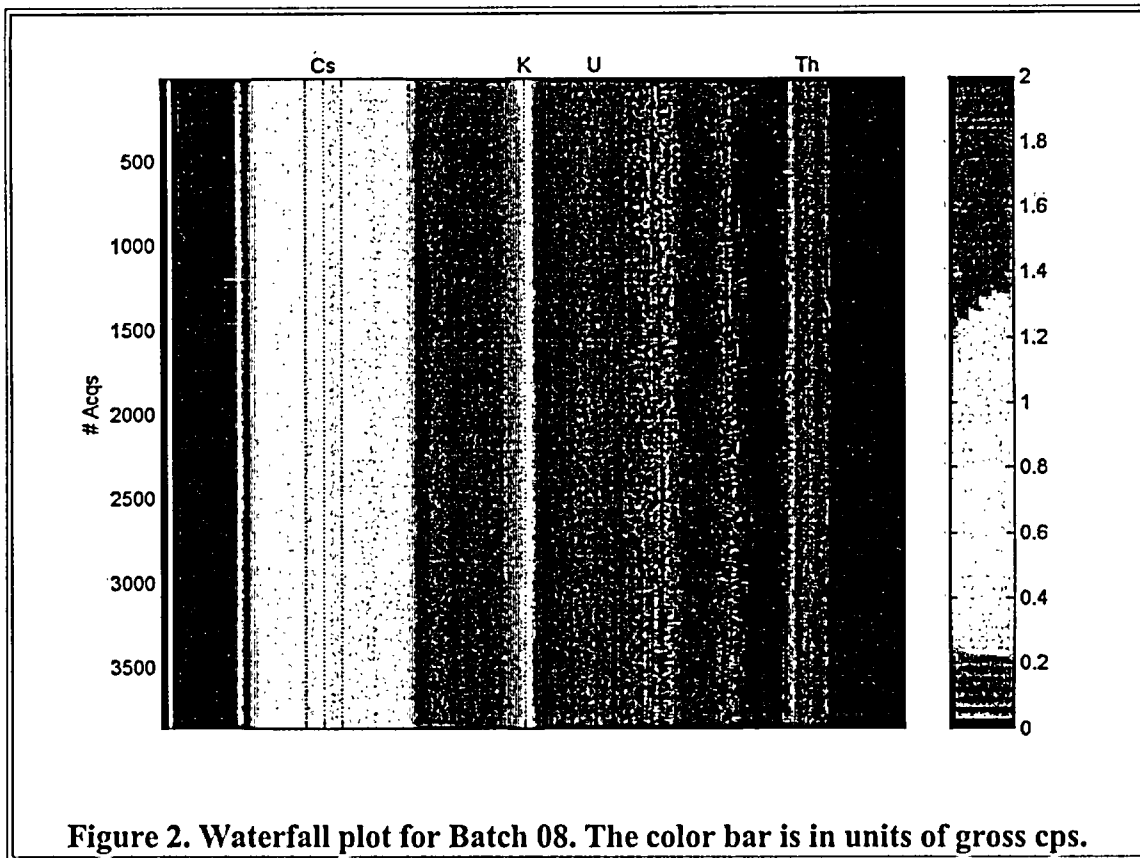


Figure 2. Waterfall plot for Batch 08. The color bar is in units of gross cps.

Table 2. Filenames for Batch 08.

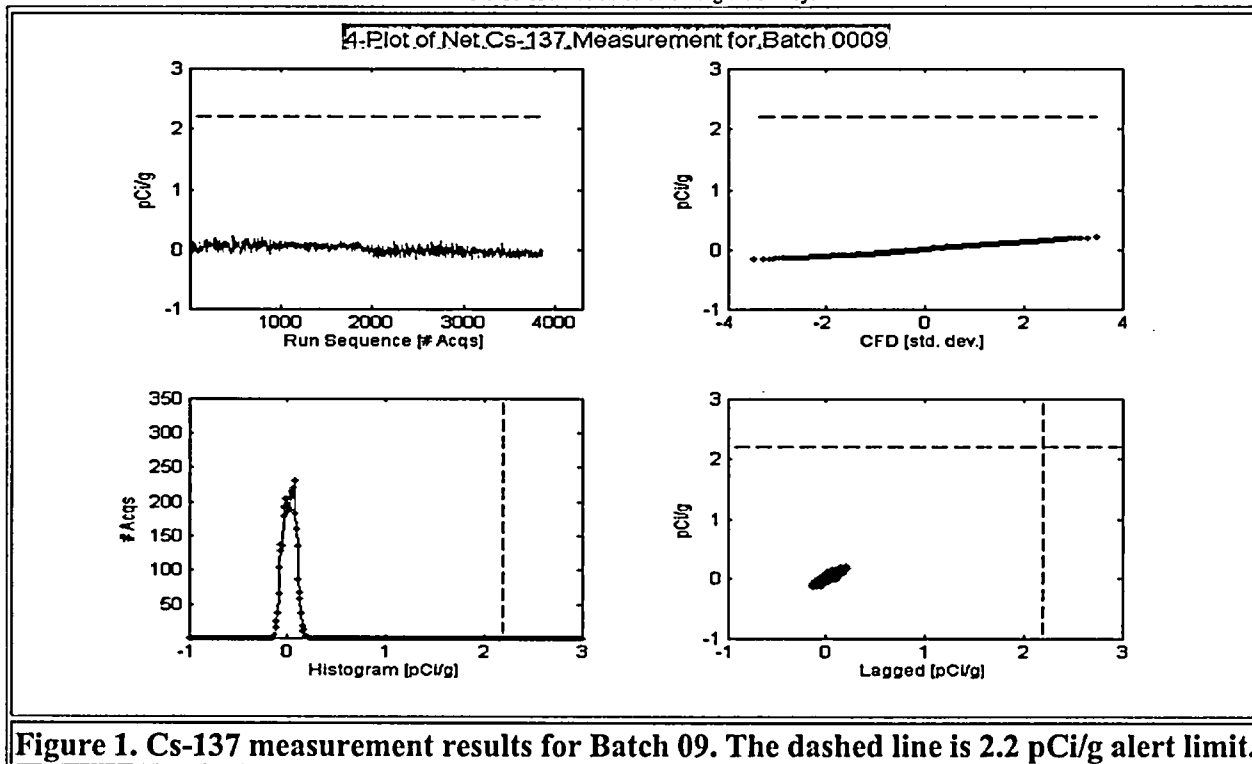
Date and Time	Filename	Acquisitions	Sum of Acquisitions
25-Mar-2003 10:56:32	08-01.N01	243	243
25-Mar-2003 11:17:38	08-02.N01	242	485
25-Mar-2003 11:37:32	08-03.N01	228	713
25-Mar-2003 11:58:56	08-04.N01	243	956
25-Mar-2003 12:21:36	08-05.N01	242	1198
25-Mar-2003 12:46:50	08-06.N01	260	1458
25-Mar-2003 13:59:42	08-07.N01	252	1710
25-Mar-2003 14:20:56	08-08.N01	243	1953
25-Mar-2003 14:42:04	08-09.N01	244	2197
25-Mar-2003 15:03:12	08-10.N01	241	2438
25-Mar-2003 15:25:56	08-11.N01	243	2681
25-Mar-2003 15:47:14	08-12.N01	244	2925
25-Mar-2003 16:08:48	08-13.N01	242	3167
25-Mar-2003 16:32:04	08-14.N01	243	3410
25-Mar-2003 16:53:32	08-15.N01	245	3655
25-Mar-2003 17:13:20	08-16.N01	219	3874

Survey Release Record

Survey Location Code	SR-55, Batch 0009		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 26-Mar-2003 15:26:34		
Surveyor	M. Marcial		
Tons Surveyed	299		
Moisture Content [%]	11.7	Dry Density [lbs/ft ³]	69
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.02	0.02	0.22	-0.14	0.12
K-40	9.19	9.20	12.52	5.71	1.37
Bi-214	1.79	1.78	2.66	0.89	0.34
Tl-208	0.41	0.41	0.57	0.26	0.12
Marinelli Sample					
Cs-137	0.06	Sample Log Number 1-13300			0.03
K-40	9.34				1.11
Bi-214	0.76				0.09
Tl-208	0.30				0.05

*No Cs-137 was detected during the survey.



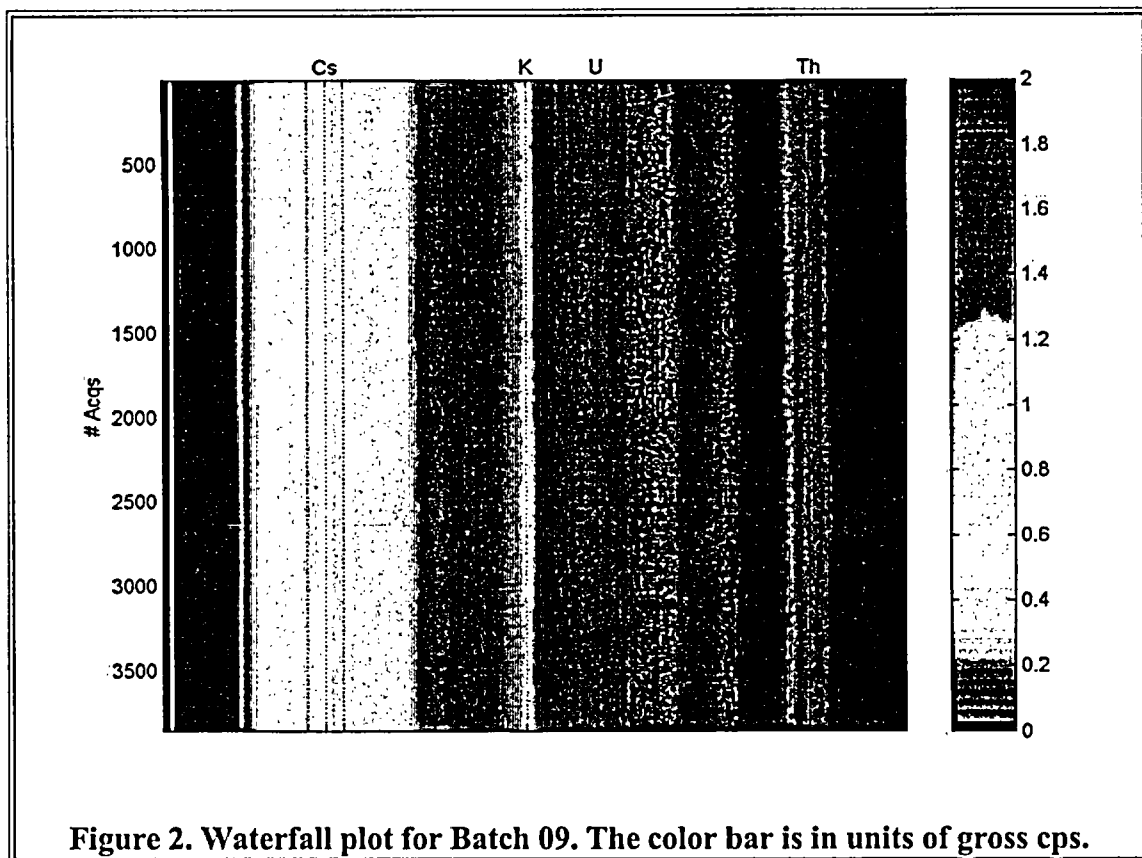


Figure 2. Waterfall plot for Batch 09. The color bar is in units of gross cps.

Table 2. Filenames for Batch 09.

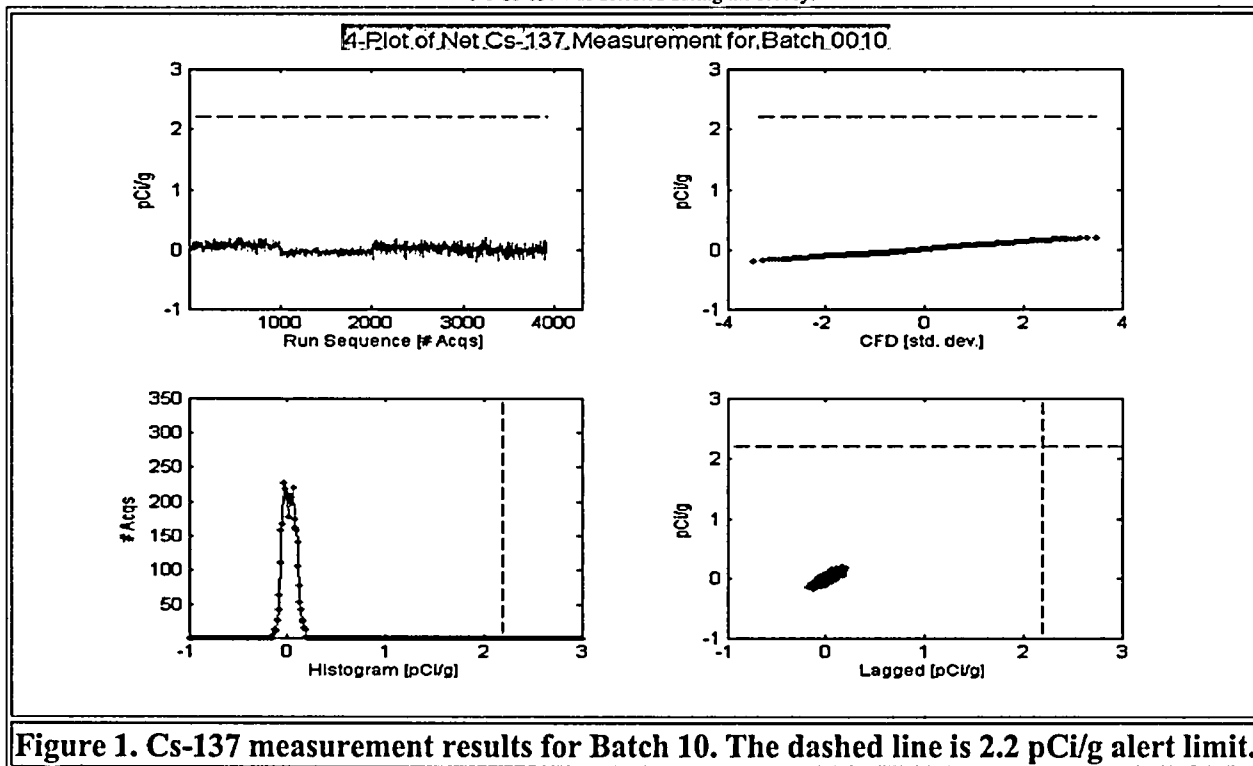
Date and Time	Filename	Acquisitions	Sum of Acquisitions
26-Mar-2003 09:19:56	09-01.N01	254	254
26-Mar-2003 09:40:24	09-02.N01	236	490
26-Mar-2003 10:00:32	09-03.N01	230	720
26-Mar-2003 10:21:28	09-04.N01	241	961
26-Mar-2003 10:42:36	09-05.N01	243	1204
26-Mar-2003 10:58:22	09-06.N01	176	1380
26-Mar-2003 11:06:48	09-06.N02	74	1454
26-Mar-2003 11:30:24	09-07.N01	248	1702
26-Mar-2003 11:51:24	09-08.N01	242	1944
26-Mar-2003 12:12:18	09-09.N01	241	2185
26-Mar-2003 12:33:18	09-10.N01	242	2427
26-Mar-2003 12:53:30	09-11.N01	216	2643
26-Mar-2003 14:01:40	09-12.N01	256	2899
26-Mar-2003 14:22:36	09-13.N01	241	3140
26-Mar-2003 14:43:36	09-14.N01	242	3382
26-Mar-2003 15:04:44	09-15.N01	244	3626
26-Mar-2003 15:26:34	09-16.N01	244	3870

Survey Release Record

Survey Location Code	SR-55, Batch 0010		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 27-Mar-2003 12:54:38		
Surveyor	M. Marcial		
Tons Surveyed	303		
Moisture Content [%]	13.3	Dry Density [lbs/ft ³]	70
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.02	0.02	0.21	-0.18	0.12
K-40	9.14	9.15	11.62	5.49	1.20
Bi-214	1.74	1.74	2.63	0.94	0.29
Tl-208	0.42	0.41	0.50	0.27	0.11
Marinelli Sample					
Cs-137	0.08	Sample Log Number 1-13308			0.03
K-40	9.56				1.13
Bi-214	0.81				0.09
Tl-208	0.28				0.05

*No Cs-137 was detected during the survey.



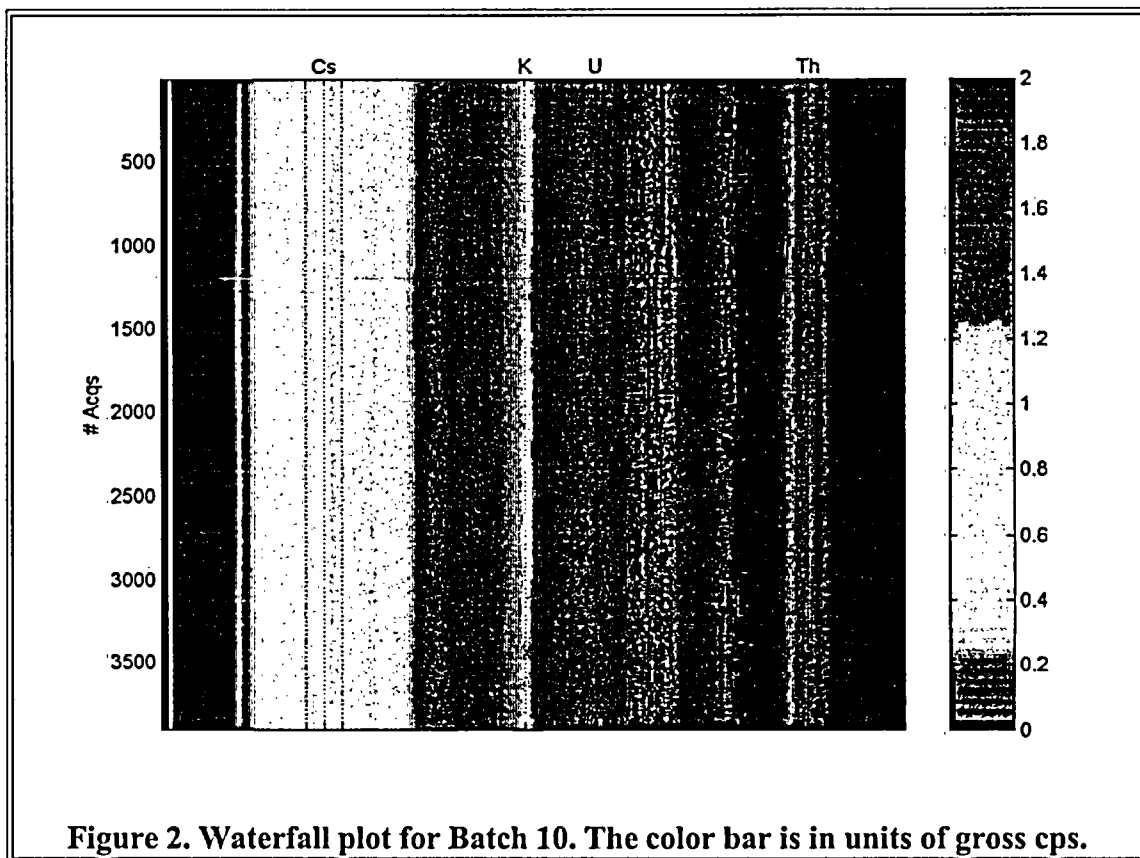


Figure 2. Waterfall plot for Batch 10. The color bar is in units of gross cps.

Table 2. Filenames for Batch 10.

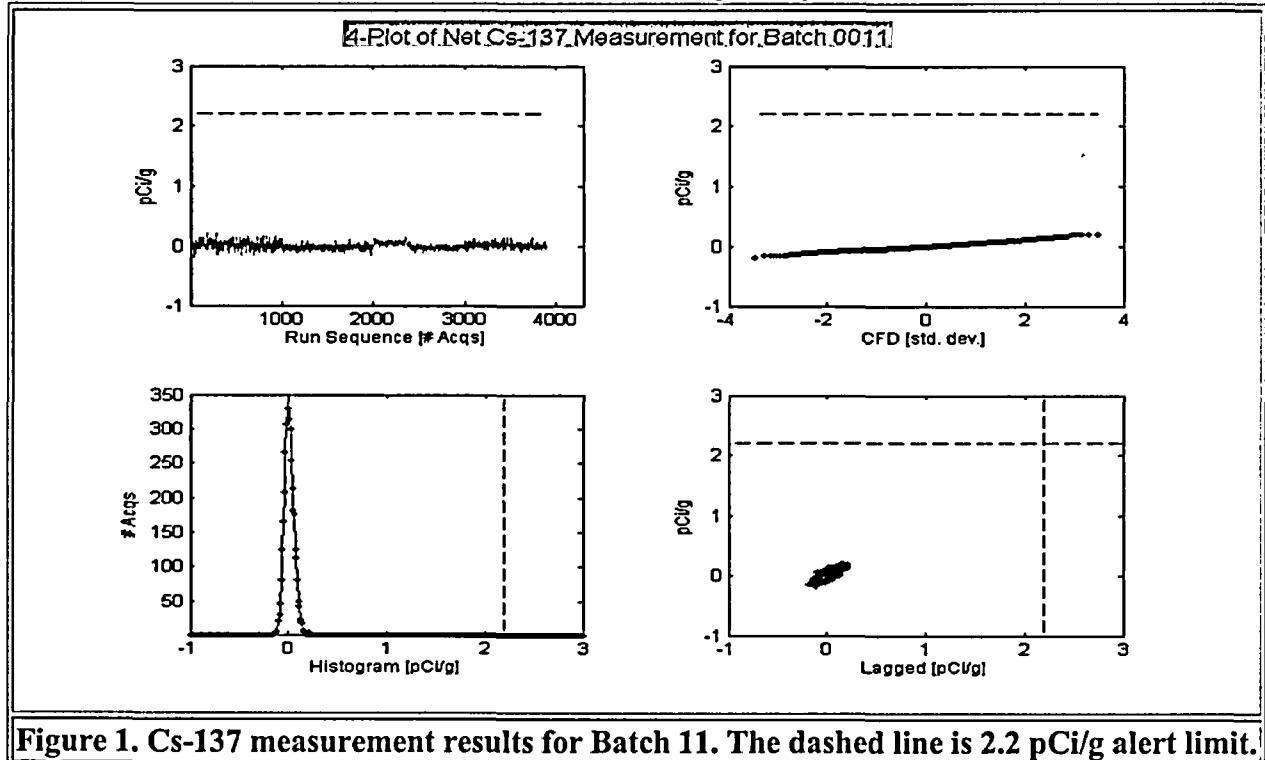
Date and Time	Filename	Acquisitions	Sum of Acquisitions
26-Mar-2003 15:47:44	10-01.N01	235	235
26-Mar-2003 16:08:36	10-02.N01	239	474
26-Mar-2003 16:30:34	10-03.N01	252	726
26-Mar-2003 16:54:32	10-04.N01	241	967
26-Mar-2003 17:16:06	10-05.N01	233	1200
27-Mar-2003 09:12:40	10-06.N01	256	1456
27-Mar-2003 09:33:46	10-07.N01	241	1697
27-Mar-2003 09:55:56	10-08.N01	251	1948
27-Mar-2003 10:17:24	10-09.N01	242	2190
27-Mar-2003 10:38:24	10-10.N01	241	2431
27-Mar-2003 11:01:36	10-11.N01	239	2670
27-Mar-2003 11:23:04	10-12.N01	245	2915
27-Mar-2003 11:47:58	10-13.N01	261	3176
27-Mar-2003 12:09:50	10-14.N01	241	3417
27-Mar-2003 12:31:12	10-15.N01	244	3661
27-Mar-2003 12:54:38	10-16.N01	260	3921

Survey Release Record

Survey Location Code	SR-55, Batch 0011		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 31-Mar-2003 11:21:38		
Surveyor	M. Marcial		
Tons Surveyed	301		
Moisture Content [%]	13.1	Dry Density [lbs/ft ³]	71
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.01	0.00	0.20	-0.18	0.10
K-40	8.97	8.98	11.98	5.62	1.22
Bi-214	1.65	1.66	2.39	1.01	0.24
Tl-208	0.42	0.42	0.54	0.24	0.15
Marinelli Sample					
Cs-137	0.07	Sample Log Number 1-13331			0.03
K-40	9.26				1.09
Bi-214	0.74				0.09
Tl-208	0.31				0.05

*No Cs-137 was detected during the survey.



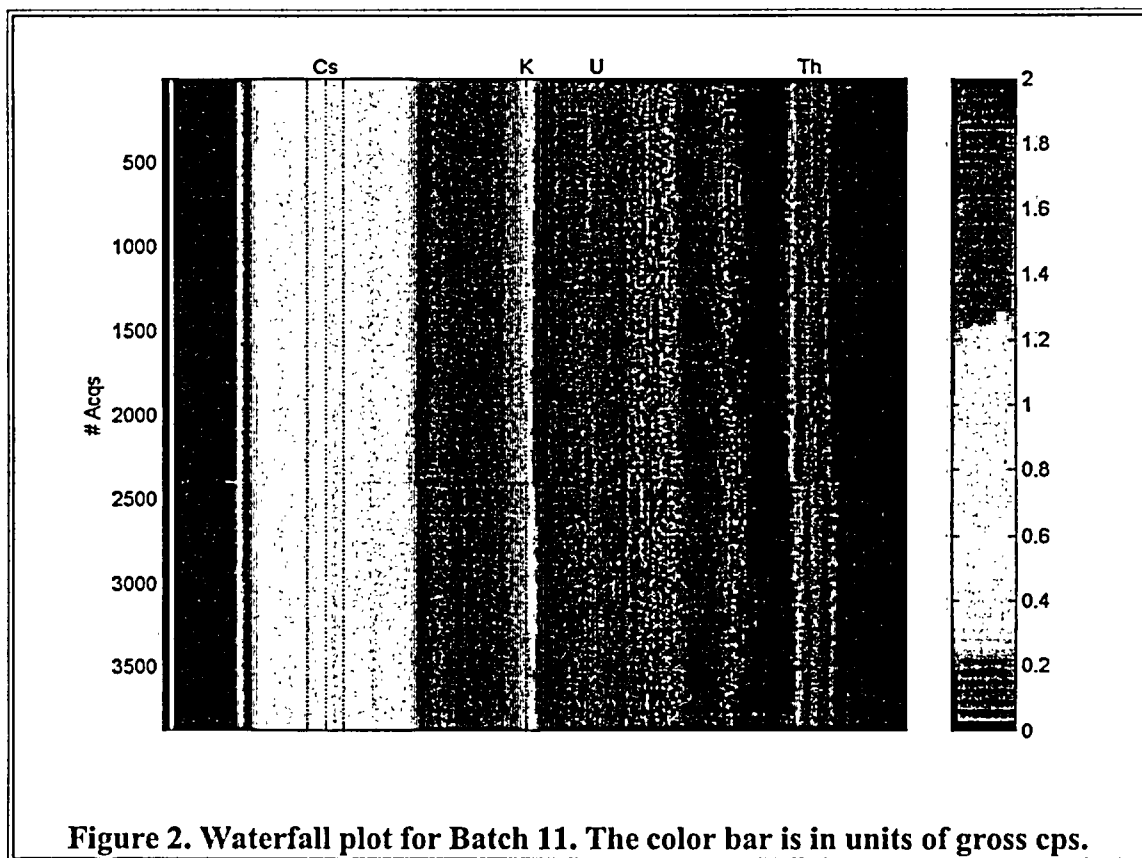


Figure 2. Waterfall plot for Batch 11. The color bar is in units of gross cps.

Table 2. Filenames for Batch 11.

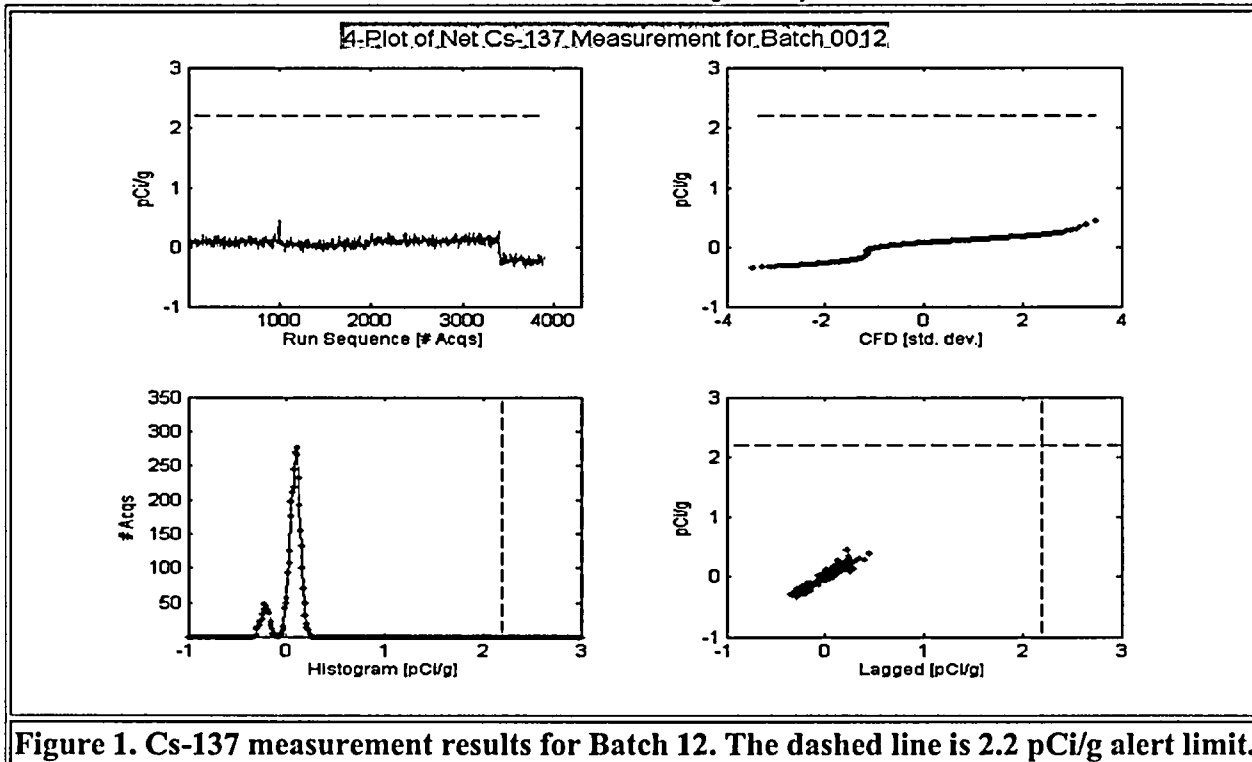
Date and Time	Filename	Acquisitions	Sum of Acquisitions
27-Mar-2003 14:00:48	11-01.N01	250	250
27-Mar-2003 14:21:30	11-02.N01	237	487
27-Mar-2003 14:43:16	11-03.N01	240	727
27-Mar-2003 15:04:56	11-04.N01	242	969
27-Mar-2003 15:27:42	11-05.N01	243	1212
27-Mar-2003 15:48:44	11-06.N01	241	1453
27-Mar-2003 16:09:18	11-07.N01	235	1688
27-Mar-2003 16:29:58	11-08.N01	238	1926
27-Mar-2003 16:51:34	11-09.N01	247	2173
27-Mar-2003 17:13:58	11-10.N01	235	2408
31-Mar-2003 09:33:20	11-11.N01	268	2676
31-Mar-2003 09:54:16	11-12.N01	241	2917
31-Mar-2003 10:15:22	11-13.N01	241	3158
31-Mar-2003 10:36:56	11-14.N01	248	3406
31-Mar-2003 10:58:00	11-15.N01	242	3648
31-Mar-2003 11:21:38	11-16.N01	245	3893

Survey Release Record

Survey Location Code	SR-55, Batch 0012		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 01-Apr-2003 09:39:46		
Surveyor	M. Marcial		
Tons Surveyed	301		
Moisture Content [%]	13.9	Dry Density [lbs/ft ³]	76
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.05	0.08	0.43	-0.33	0.23
K-40	9.19	9.16	16.75	5.57	1.46
Bi-214	1.74	1.70	2.72	0.69	0.38
Tl-208	0.42	0.42	0.82	0.26	0.22
Marinelli Sample					
Cs-137	0.06	Sample Log Number 5-13334			0.03
K-40	9.65				1.19
Bi-214	0.79				0.09
Tl-208	0.30				0.05

* No Cs-137 was detected during the survey.



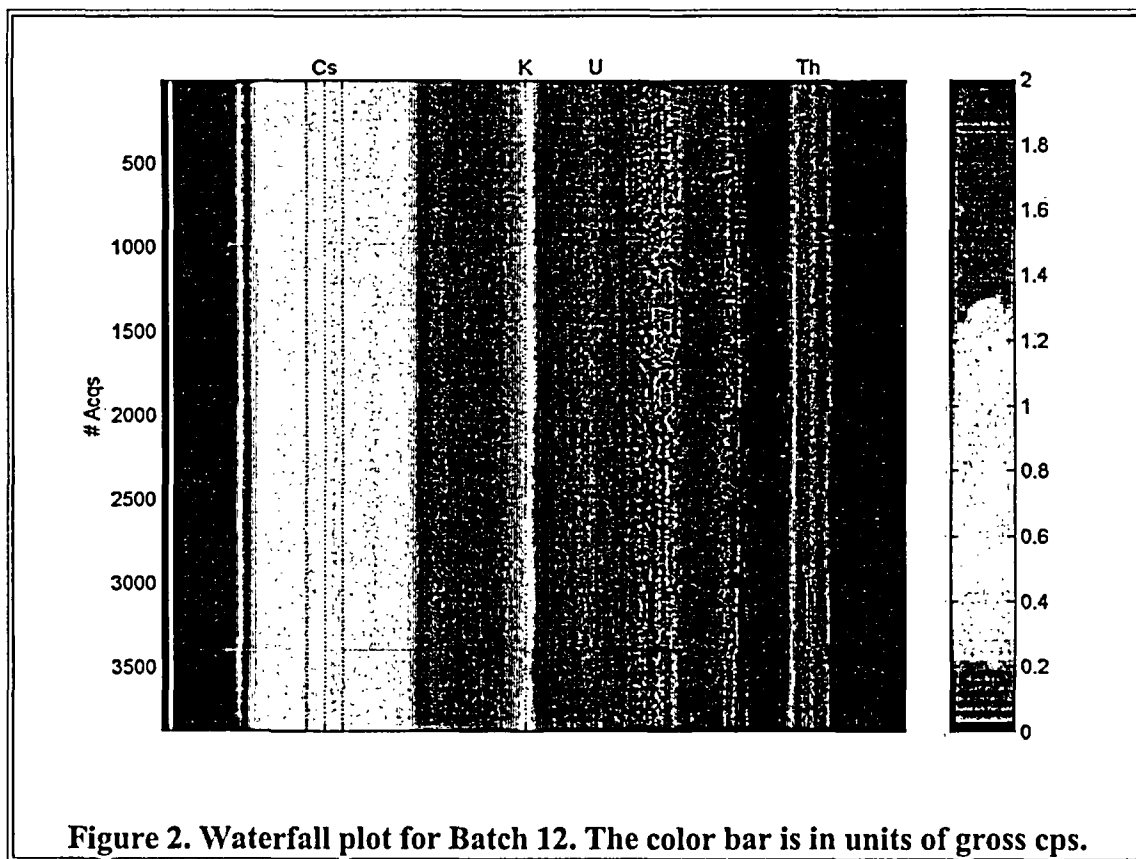


Table 2. Filenames for Batch 12.

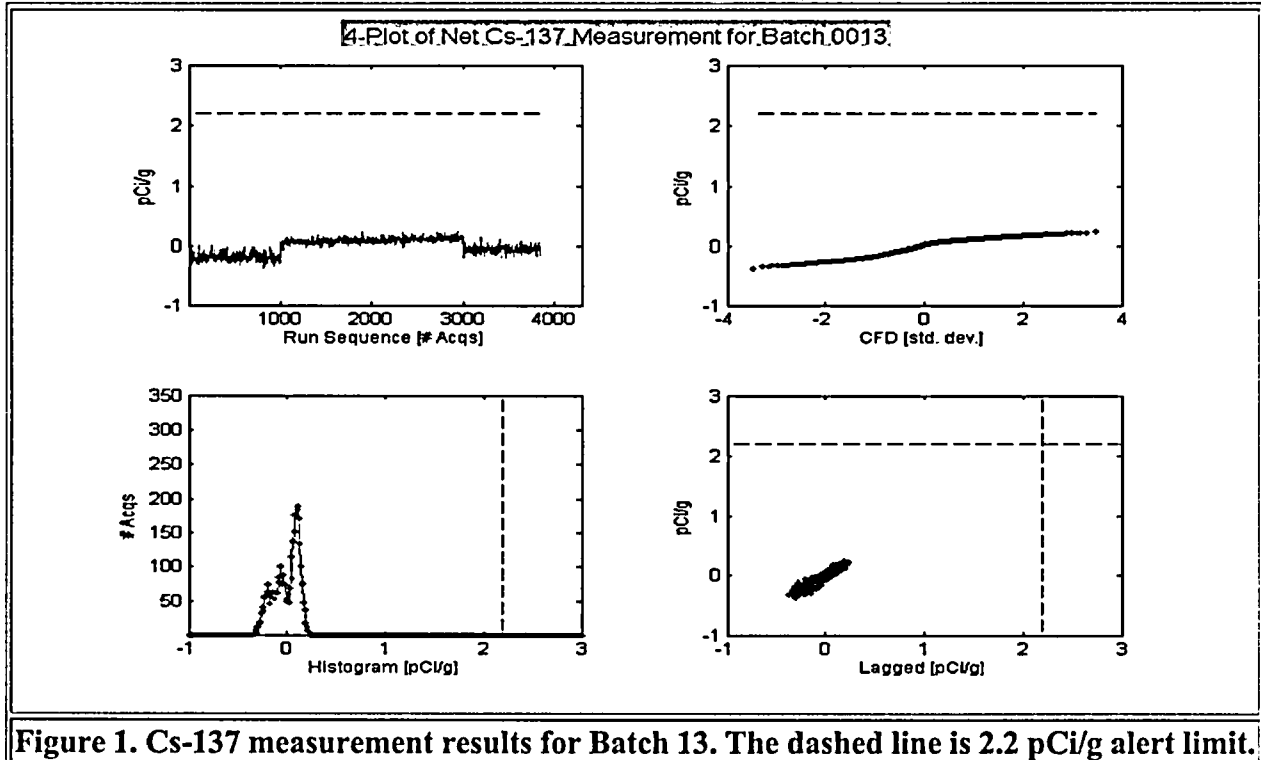
Date and Time	Filename	Acquisitions	Sum of Acquisitions
31-Mar-2003 11:43:26	12-01.N01	244	244
31-Mar-2003 12:06:28	12-02.N01	245	489
31-Mar-2003 12:27:24	12-03.N01	241	730
31-Mar-2003 12:49:42	12-04.N01	250	980
31-Mar-2003 14:21:12	12-05.N01	252	1232
31-Mar-2003 14:41:58	12-06.N01	239	1471
31-Mar-2003 15:02:50	12-07.N01	239	1710
31-Mar-2003 15:24:00	12-08.N01	241	1951
31-Mar-2003 15:46:16	12-09.N01	242	2193
31-Mar-2003 16:09:12	12-10.N01	267	2460
31-Mar-2003 16:30:06	12-11.N01	242	2702
31-Mar-2003 16:51:00	12-12.N01	240	2942
31-Mar-2003 17:12:08	12-13.N01	235	3177
31-Mar-2003 17:33:08	12-14.N01	229	3406
01-Apr-2003 09:19:08	12-15.N01	255	3661
01-Apr-2003 09:39:46	12-16.N01	235	3896

Survey Release Record

Survey Location Code	SR-55, Batch 0013		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 01-Apr-2003 16:06:16		
Surveyor	M. Marcial		
Tons Surveyed	298		
Moisture Content [%]	13.8	Dry Density [lbs/ft ³]	79
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.01	0.03	0.24	-0.38	0.25
K-40	9.19	9.19	11.80	6.13	1.20
Bi-214	1.82	1.79	2.62	1.10	0.37
Tl-208	0.43	0.43	0.54	0.28	0.15
Marinelli Sample					
Cs-137	0.05	Sample Log Number 1-13333			0.03
K-40	9.49				1.11
Bi-214	0.85				0.09
Tl-208	0.31				0.05

*No Cs-137 was detected during the survey.



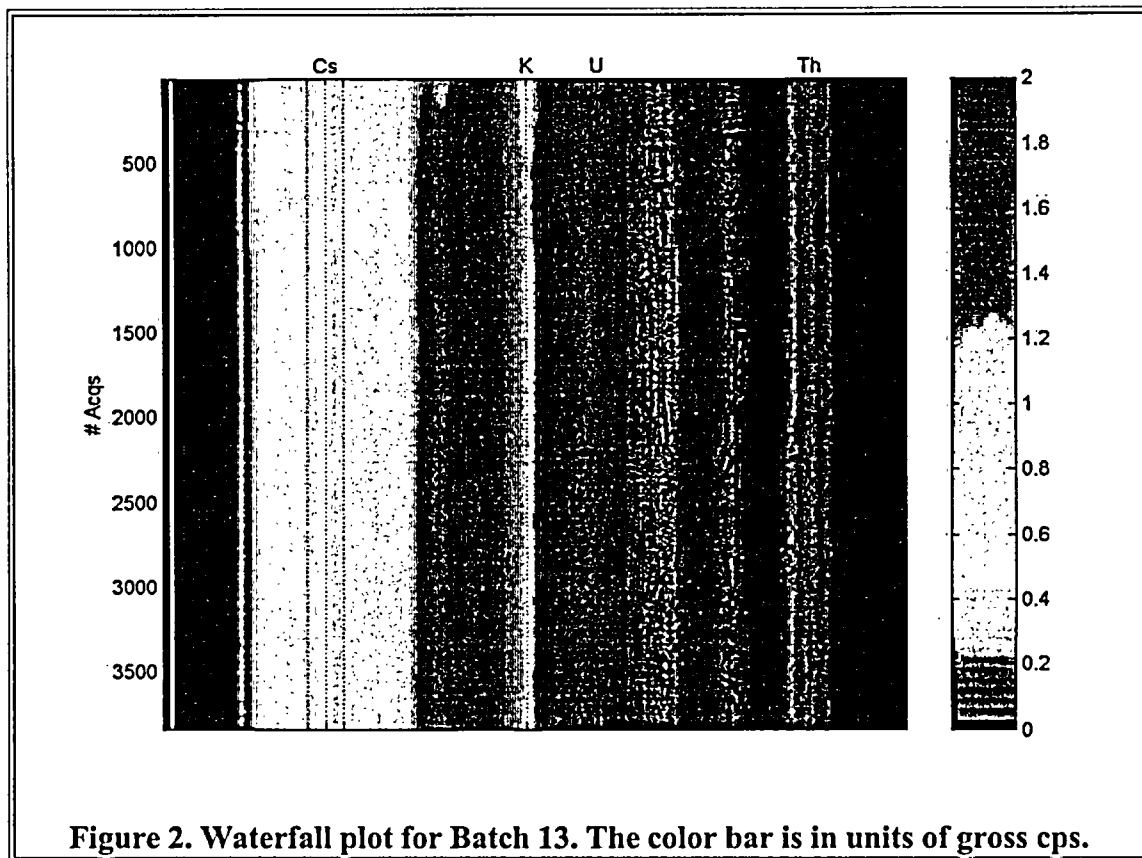


Table 2. Filenames for Batch 13.

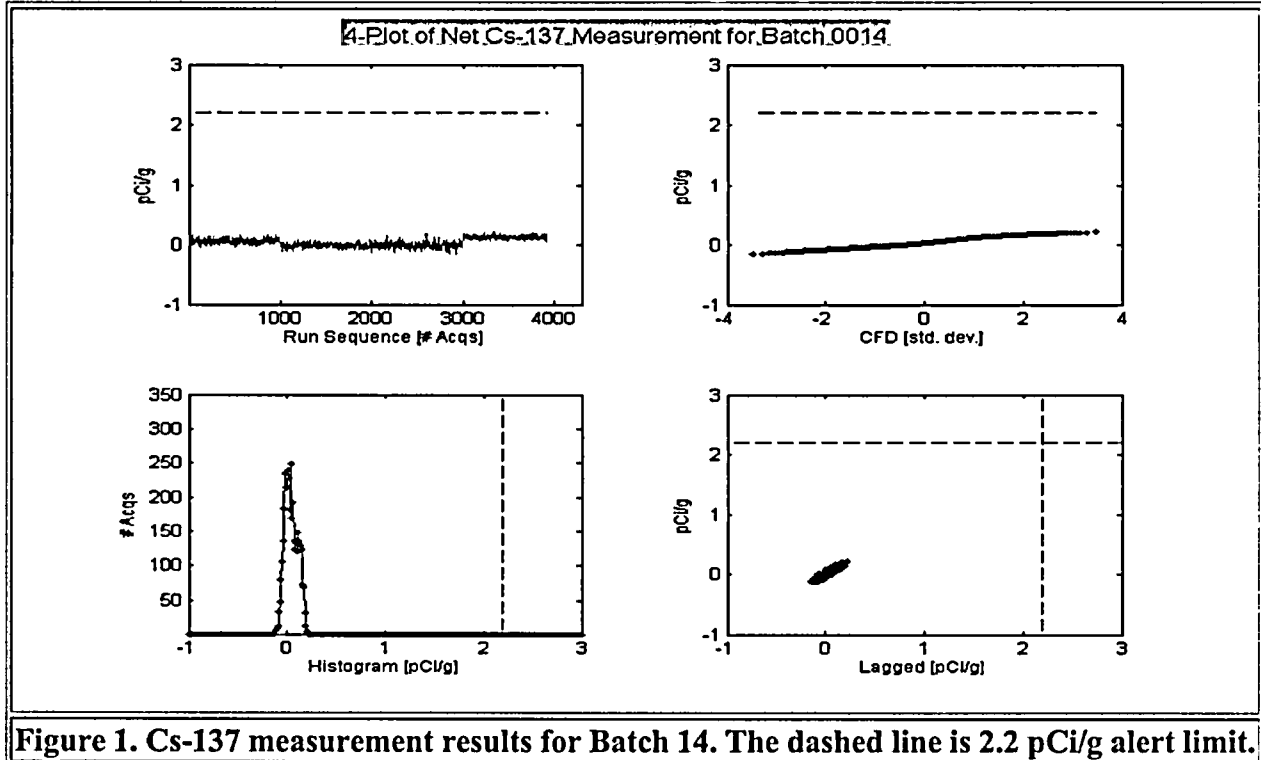
Date and Time	Filename	Acquisitions	Sum of Acquisitions
01-Apr-2003 10:00:30	13-01.N01	237	237
01-Apr-2003 10:21:48	13-02.N01	244	481
01-Apr-2003 10:42:54	13-03.N01	241	722
01-Apr-2003 11:05:14	13-04.N01	240	962
01-Apr-2003 11:26:32	13-05.N01	242	1204
01-Apr-2003 11:47:50	13-06.N01	243	1447
01-Apr-2003 12:08:46	13-07.N01	240	1687
01-Apr-2003 12:30:42	13-08.N01	244	1931
01-Apr-2003 12:51:54	13-09.N01	235	2166
01-Apr-2003 14:00:22	13-10.N01	249	2415
01-Apr-2003 14:21:30	13-11.N01	245	2660
01-Apr-2003 14:42:52	13-12.N01	244	2904
01-Apr-2003 15:03:38	13-13.N01	238	3142
01-Apr-2003 15:24:20	13-14.N01	236	3378
01-Apr-2003 15:45:24	13-15.N01	236	3614
01-Apr-2003 16:06:16	13-16.N01	240	3854

Survey Release Record

Survey Location Code	SR-55, Batch 0014		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:15:06, 02-Apr-2003 14:25:18		
Surveyor	M. Marcial		
Tons Surveyed	303		
Moisture Content [%]	14.2	Dry Density [lbs/ft ³]	82
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.04	0.04	0.22	-0.14	0.13
K-40	9.27	9.26	12.57	5.96	1.29
Bi-214	1.72	1.72	2.33	1.04	0.25
Tl-208	0.41	0.41	0.50	0.26	0.14
Marinelli Sample					
Cs-137	0.09	Sample Log Number 1-13342			0.03
K-40	8.73				1.03
Bi-214	0.70				0.08
Tl-208	0.28				0.05

*No Cs-137 was detected during the survey.



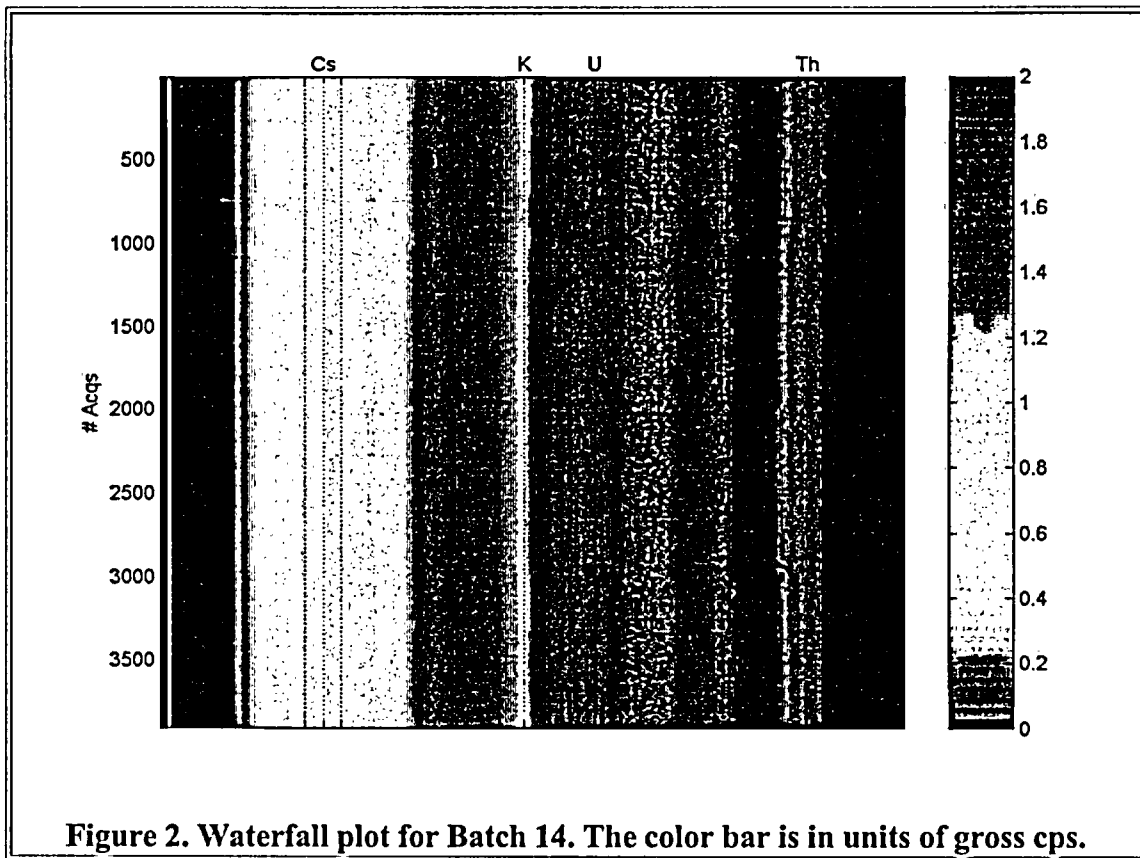


Table 2. Filenames for Batch 14.

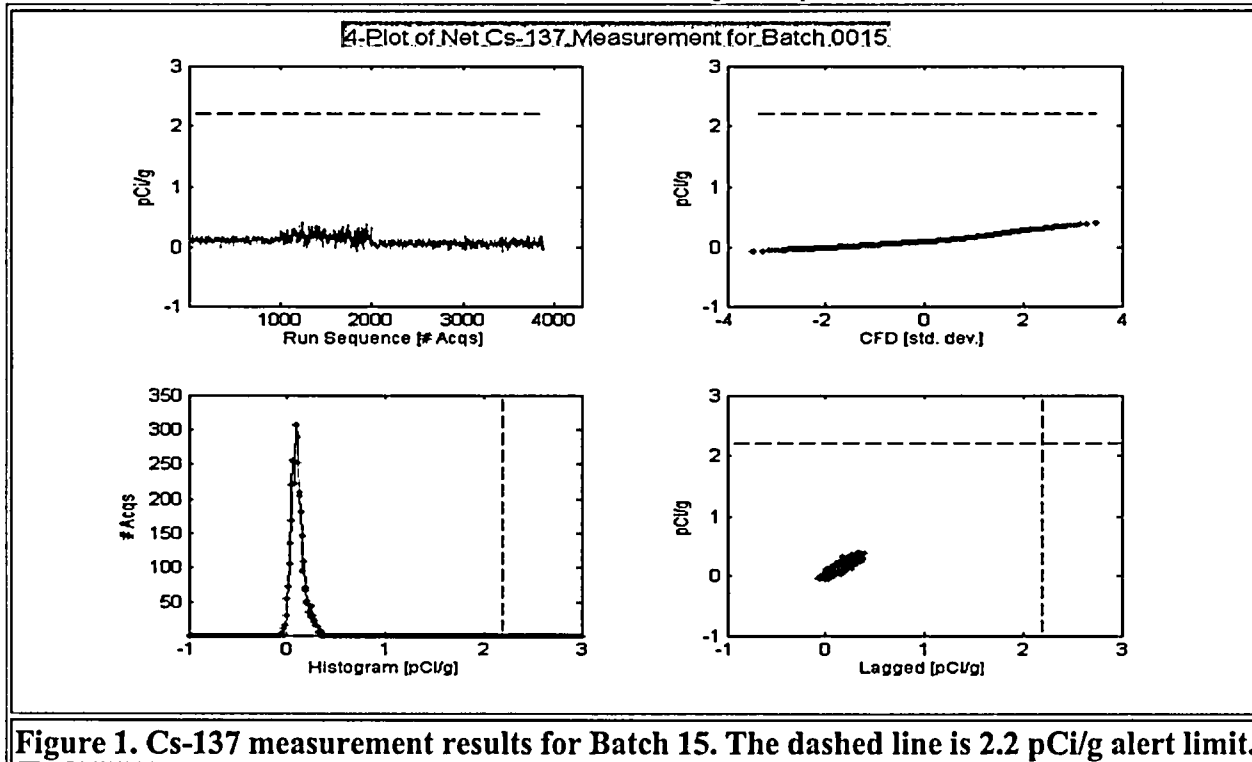
Date and Time	Filename	Acquisitions	Sum of Acquisitions
01-Apr-2003 16:27:54	14-01.N01	243	243
01-Apr-2003 16:50:34	14-02.N01	252	495
01-Apr-2003 17:13:44	14-03.N01	249	744
02-Apr-2003 09:07:44	14-04.N01	269	1013
02-Apr-2003 09:28:54	14-05.N01	243	1256
02-Apr-2003 09:51:56	14-06.N01	244	1500
02-Apr-2003 10:12:58	14-07.N01	243	1743
02-Apr-2003 10:33:56	14-08.N01	240	1983
02-Apr-2003 10:54:32	14-09.N01	238	2221
02-Apr-2003 11:15:40	14-10.N01	241	2462
02-Apr-2003 11:37:06	14-11.N01	243	2705
02-Apr-2003 11:58:52	14-12.N01	244	2949
02-Apr-2003 12:20:12	14-13.N01	242	3191
02-Apr-2003 12:42:30	14-14.N01	224	3415
02-Apr-2003 14:03:50	14-15.N01	268	3683
02-Apr-2003 14:25:18	14-16.N01	243	3926

Survey Release Record

Survey Location Code	SR-55, Batch 0015		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 03-Apr-2003 11:39:52		
Surveyor	M. Marcial		
Tons Surveyed	300		
Moisture Content [%]	12.6	Dry Density [lbs/ft ³]	75
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.11	0.10	0.40	-0.07	0.13
K-40	9.24	9.26	12.69	5.78	1.33
Bi-214	1.67	1.67	2.45	0.66	0.28
Tl-208	0.41	0.41	0.52	0.26	0.14
Marinelli Sample					
Cs-137	0.10	Sample Log Number 5-13350			0.03
K-40	9.31				1.15
Bi-214	0.86				0.10
Tl-208	0.34				0.05

*No Cs-137 was detected during the survey.



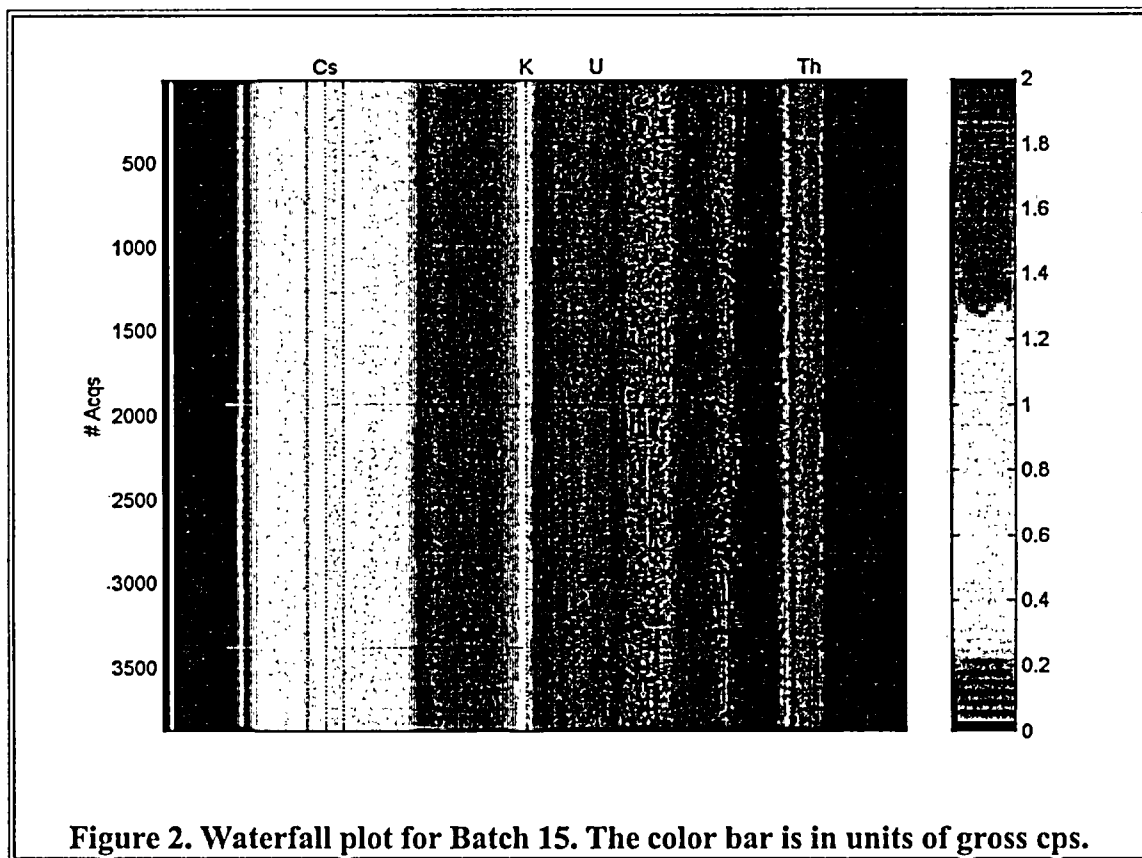


Table 2. Filenames for Batch 15.

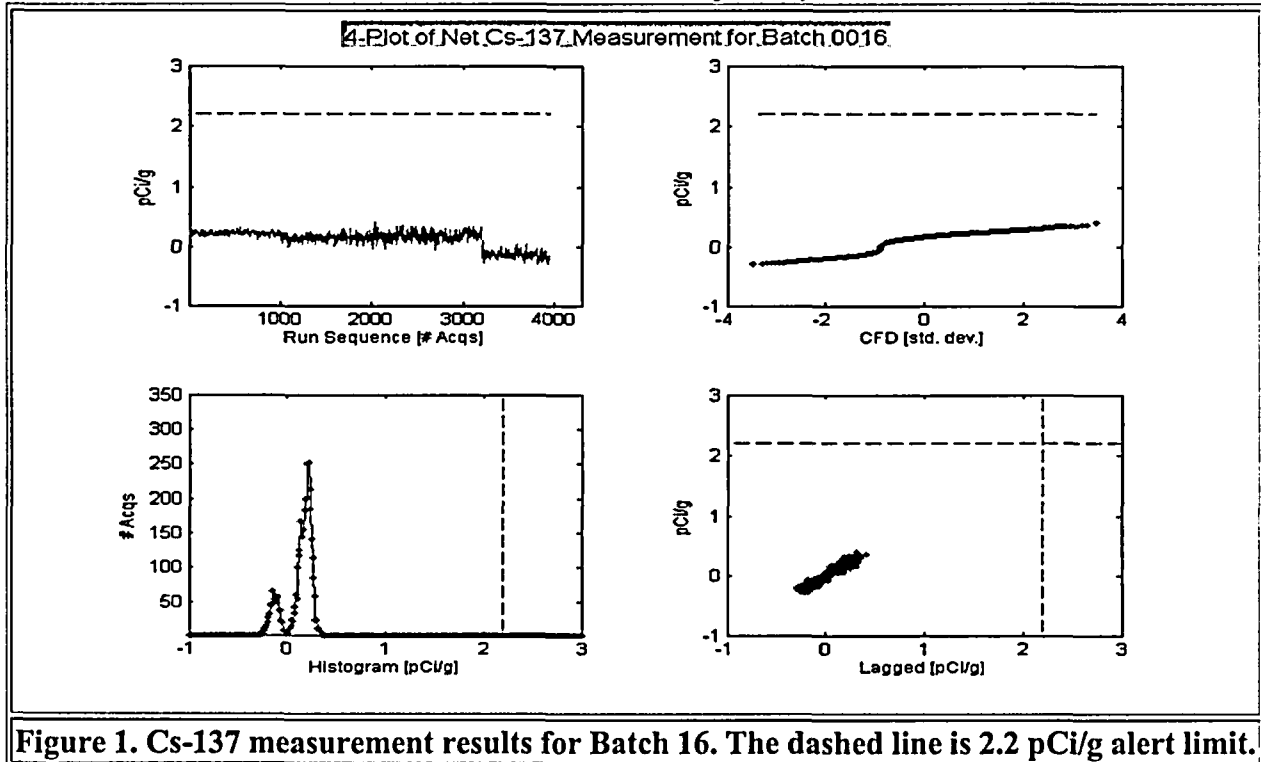
Date and Time	Filename	Acquisitions	Sum of Acquisitions
02-Apr-2003 14:46:04	15-01.N01	236	236
02-Apr-2003 15:06:46	15-02.N01	238	474
02-Apr-2003 15:27:48	15-03.N01	240	714
02-Apr-2003 15:48:42	15-04.N01	240	954
02-Apr-2003 16:10:38	15-05.N01	246	1200
02-Apr-2003 16:32:30	15-06.N01	245	1445
02-Apr-2003 16:54:24	15-07.N01	248	1693
02-Apr-2003 17:16:30	15-08.N01	240	1933
03-Apr-2003 09:07:56	15-09.N01	270	2203
03-Apr-2003 09:29:04	15-10.N01	244	2447
03-Apr-2003 09:51:28	15-11.N01	239	2686
03-Apr-2003 10:11:58	15-12.N01	233	2919
03-Apr-2003 10:32:50	15-13.N01	239	3158
03-Apr-2003 10:57:20	15-14.N01	261	3419
03-Apr-2003 11:02:38	15-15.N01	50	3469
03-Apr-2003 11:18:14	15-15.N02	172	3641
03-Apr-2003 11:39:52	15-16.N01	246	3887

Survey Release Record

Survey Location Code	SR-55, Batch 0016		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 07-Apr-2003 08:59:54		
Surveyor	M. Marcial		
Tons Surveyed	306		
Moisture Content [%]	13.1	Dry Density [lbs/ft ³]	69
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.13	0.17	0.41	-0.28	0.27
K-40	9.33	9.35	12.12	5.18	1.21
Bi-214	1.72	1.70	2.48	0.89	0.36
Tl-208	0.41	0.42	0.52	0.23	0.14
Marinelli Sample					
Cs-137	0.09	Sample Log Number 1-13354			0.02
K-40	9.77				1.16
Bi-214	0.75				0.09
Tl-208	0.35				0.05

*No Cs-137 was detected during the survey.



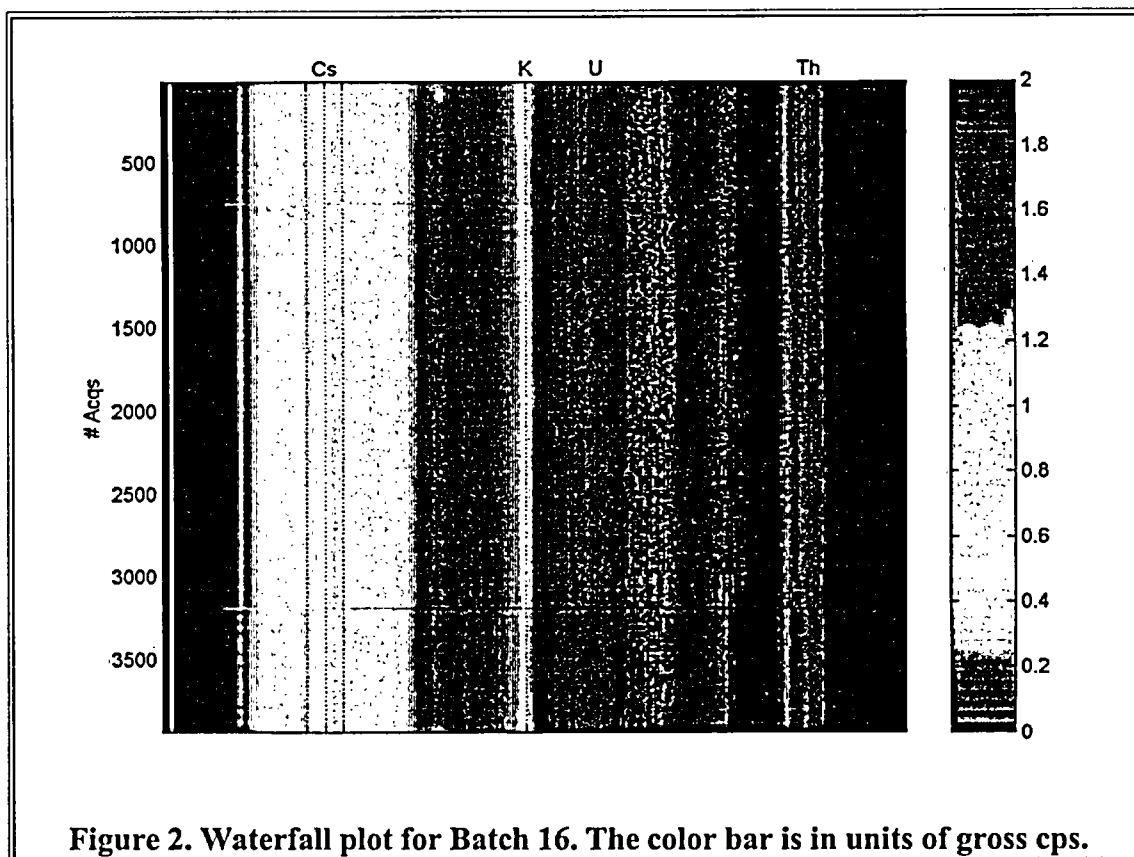


Figure 2. Waterfall plot for Batch 16. The color bar is in units of gross cps.

Table 2. Filenames for Batch 16.

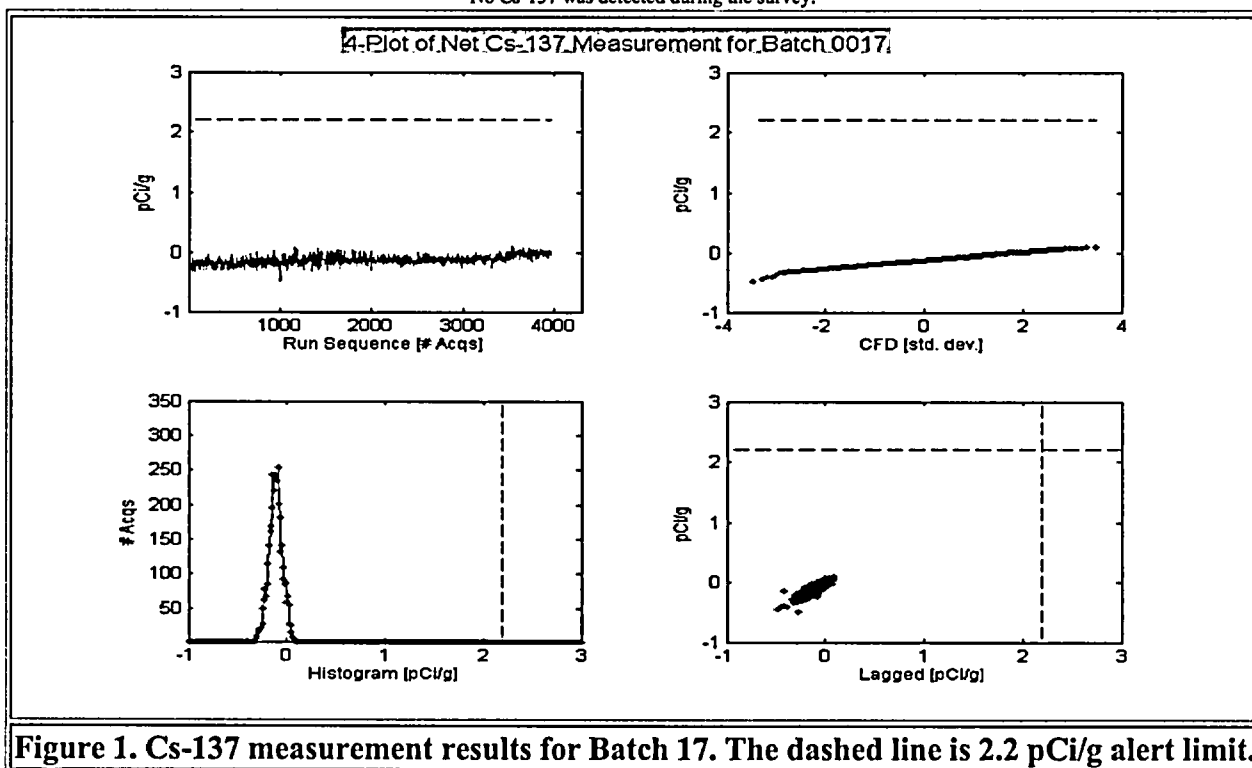
Date and Time	Filename	Acquisitions	Sum of Acquisitions
03-Apr-2003 12:01:46	16-01.N01	245	245
03-Apr-2003 12:23:10	16-02.N01	245	490
03-Apr-2003 12:46:28	16-03.N01	255	745
03-Apr-2003 14:00:24	16-04.N01	257	1002
03-Apr-2003 14:22:04	16-05.N01	243	1245
03-Apr-2003 14:43:14	16-06.N01	242	1487
03-Apr-2003 15:04:22	16-07.N01	241	1728
03-Apr-2003 15:26:00	16-08.N01	248	1976
03-Apr-2003 15:47:58	16-09.N01	245	2221
03-Apr-2003 16:10:08	16-10.N01	247	2468
03-Apr-2003 16:33:12	16-11.N01	247	2715
03-Apr-2003 16:54:28	16-12.N01	244	2959
03-Apr-2003 17:16:08	16-13.N01	243	3202
07-Apr-2003 08:59:54	16-14.N01	754	3956

Survey Release Record

Survey Location Code	SR-55, Batch 0017		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 08-Apr-2003 08:32:58		
Surveyor	M. Marcial		
Tons Surveyed	307		
Moisture Content [%]	12.1	Dry Density [lbs/ft ³]	68
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.11	-0.11	0.10	-0.49	0.14
K-40	9.26	9.19	13.89	-3.07	1.83
Bi-214	1.84	1.79	3.40	0.79	0.45
Tl-208	0.43	0.41	0.69	0.24	0.25
Marinelli Sample					
Cs-137	0.07	Sample Log Number 1-13357			0.03
K-40	8.82				1.07
Bi-214	0.80				0.10
Tl-208	0.32				0.06

*No Cs-137 was detected during the survey.



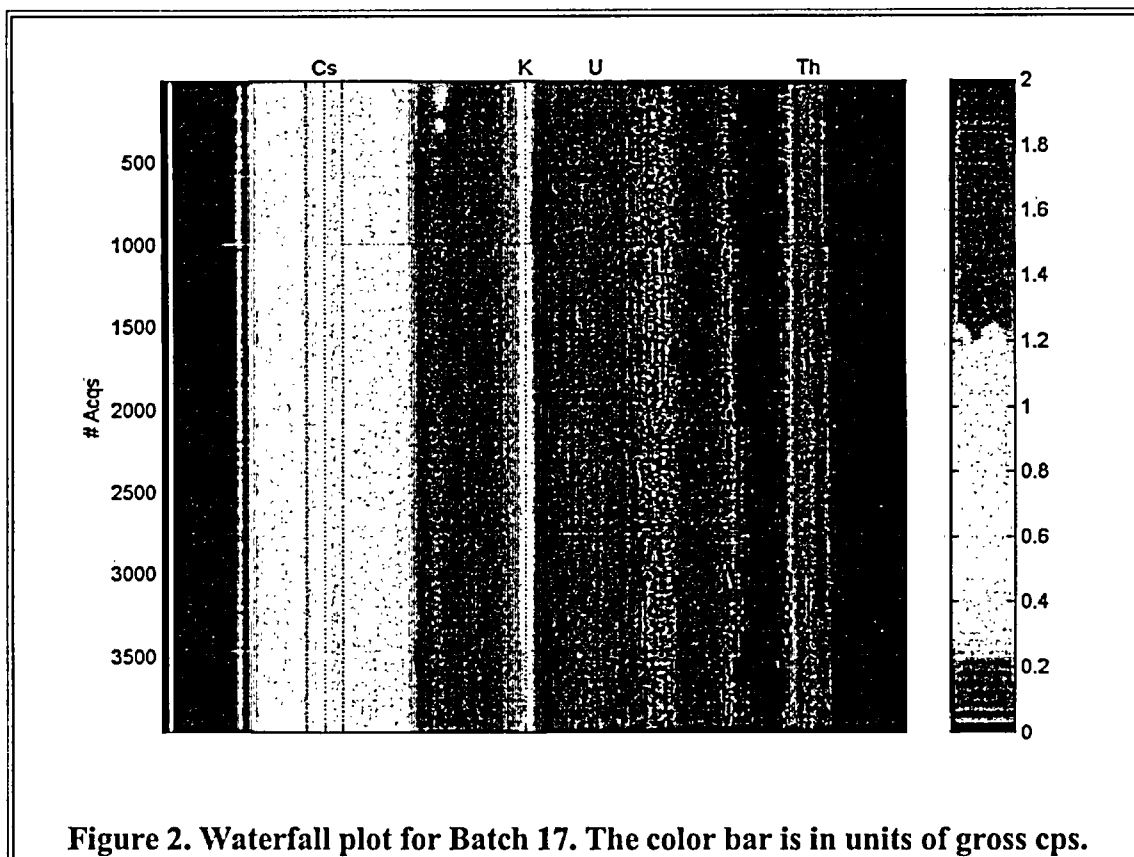


Figure 2. Waterfall plot for Batch 17. The color bar is in units of gross cps.

Table 2. Filenames for Batch 17.

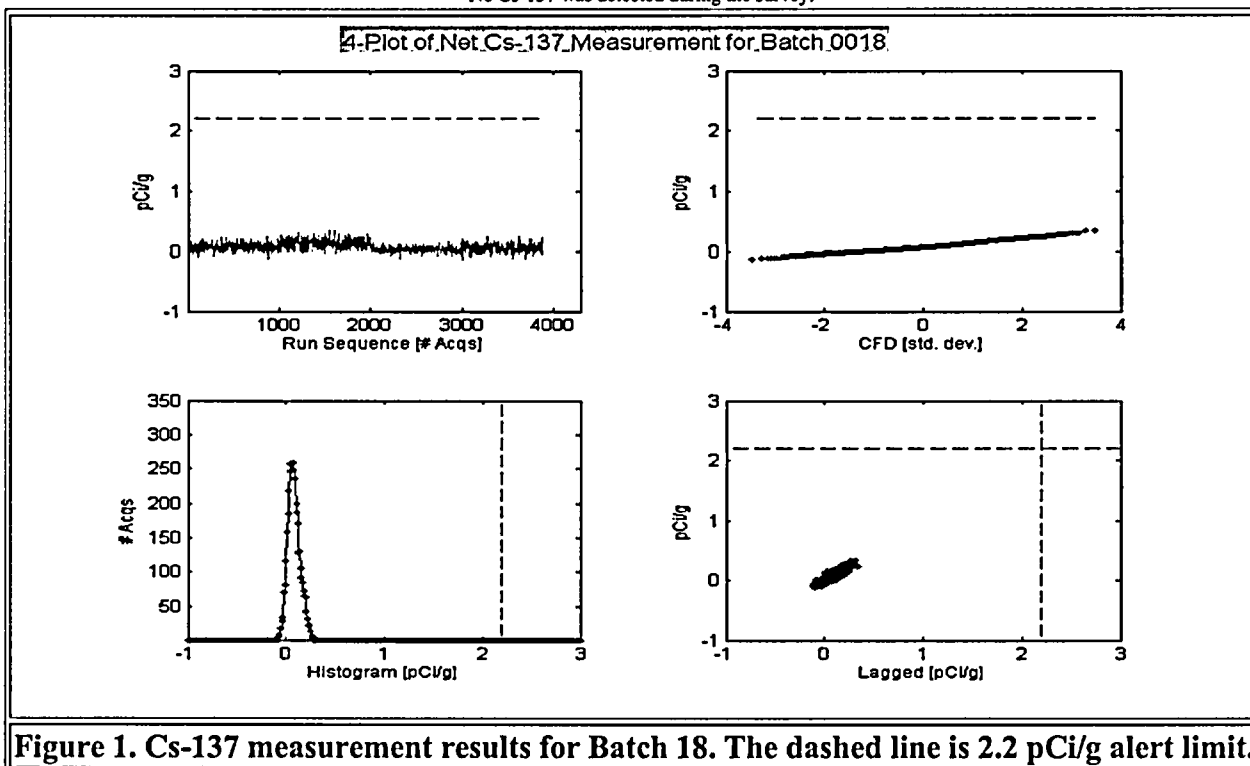
Date and Time	Filename	Acquisitions	Sum of Acquisitions
07-Apr-2003 09:49:36	17-01.N01	491	491
07-Apr-2003 11:49:42	17-01.N02	505	996
07-Apr-2003 15:57:34	17-01.N03	2208	3204
07-Apr-2003 16:22:18	17-01.N04	271	3475
08-Apr-2003 08:32:58	17-01.N05	496	3971

Survey Release Record

Survey Location Code	SR-55, Batch 0018		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 08-Apr-2003 15:29:06		
Surveyor	M. Marcial		
Tons Surveyed	301		
Moisture Content [%]	12.3	Dry Density [lbs/ft ³]	69
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.08	0.08	0.35	-0.12	0.13
K-40	9.22	9.08	13.41	4.91	1.92
Bi-214	1.70	1.67	3.07	0.78	0.41
Tl-208	0.43	0.42	0.62	0.27	0.24
Marinelli Sample					
Cs-137	0.10	Sample Log Number 5-13358			0.04
K-40	9.36				1.20
Bi-214	0.81				0.11
Tl-208	0.29				0.05

*No Cs-137 was detected during the survey.



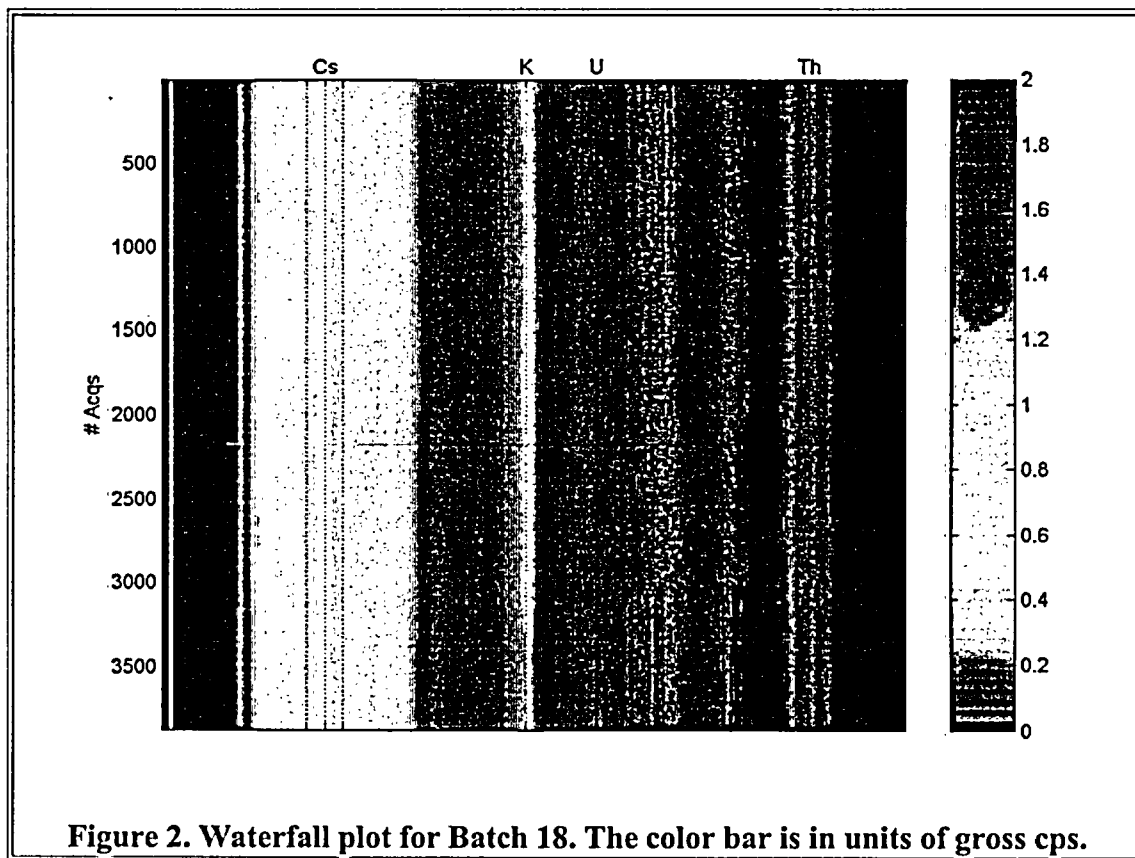


Figure 2. Waterfall plot for Batch 18. The color bar is in units of gross cps.

Table 2. Filenames for Batch 18.

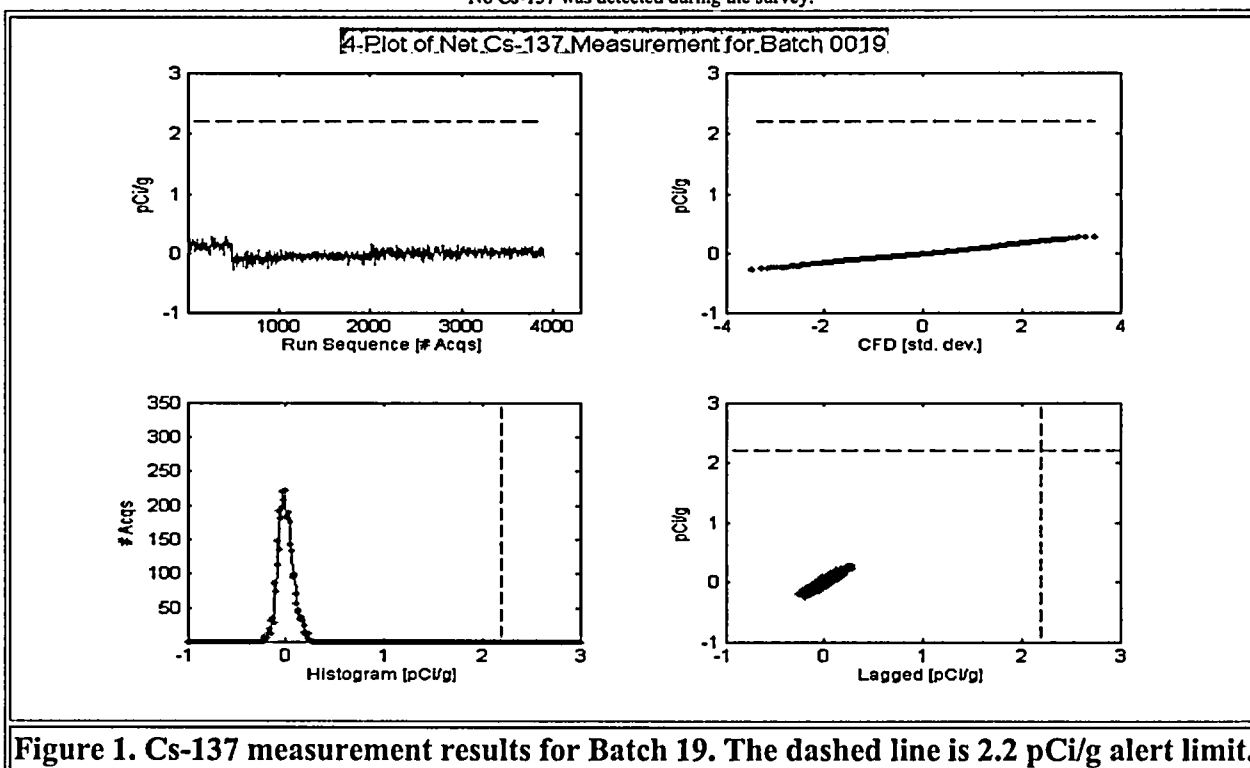
Date and Time	Filename	Acquisitions	Sum of Acquisitions
08-Apr-2003 11:51:14	18-01.N01	2182	2182
08-Apr-2003 14:25:50	18-01.N02	980	3162
08-Apr-2003 15:29:06	18-01.N03	726	3888

Survey Release Record

Survey Location Code	SR-55, Batch 0019		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 09-Apr-2003 13:42:40		
Surveyor	M. Marcial		
Tons Surveyed	302		
Moisture Content [%]	14.4	Dry Density [lbs/ft ³]	68
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.00	-0.01	0.29	-0.25	0.16
K-40	9.07	9.09	12.01	5.38	1.18
Bi-214	1.82	1.83	2.67	1.09	0.31
Tl-208	0.42	0.42	0.51	0.28	0.12
Marinelli Sample					
Cs-137	0.08	Sample Log Number 1-13365			0.03
K-40	9.30				1.11
Bi-214	0.77				0.09
Tl-208	0.32				0.05

*No Cs-137 was detected during the survey.



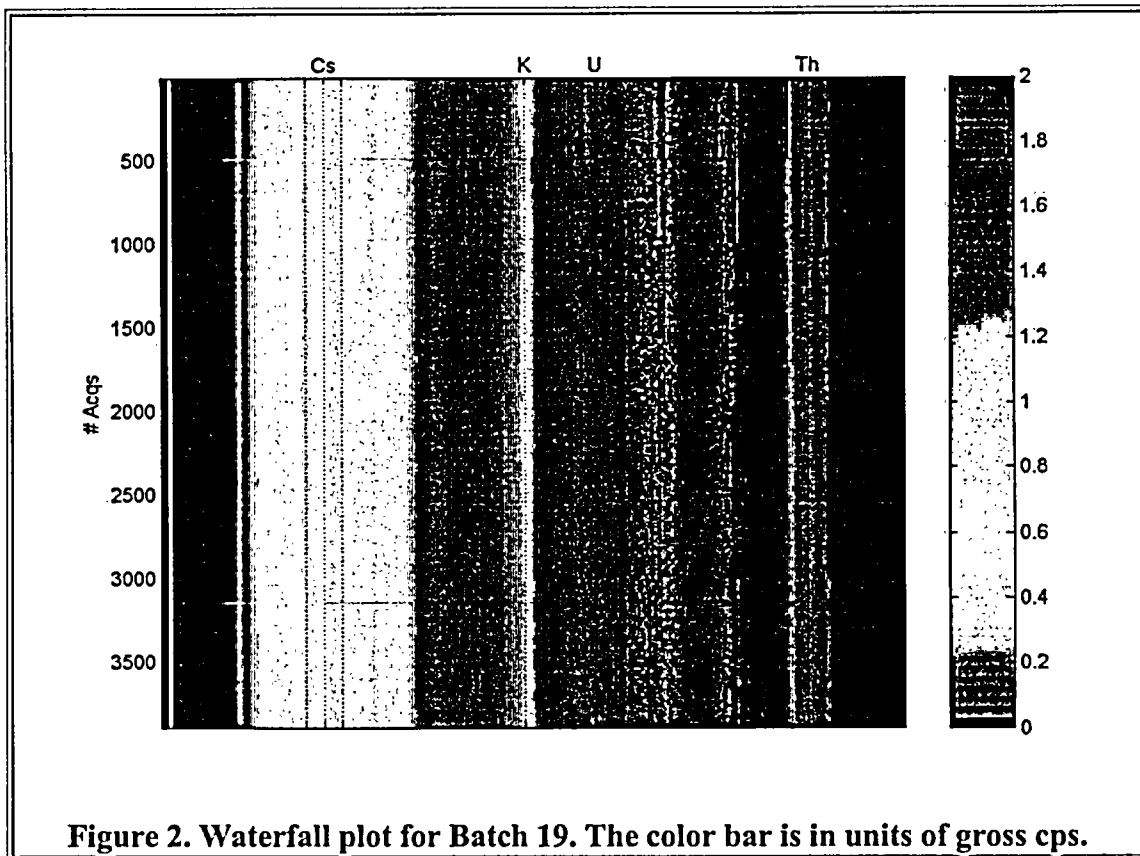


Figure 2. Waterfall plot for Batch 19. The color bar is in units of gross cps.

Table 2. Filenames for Batch 19.

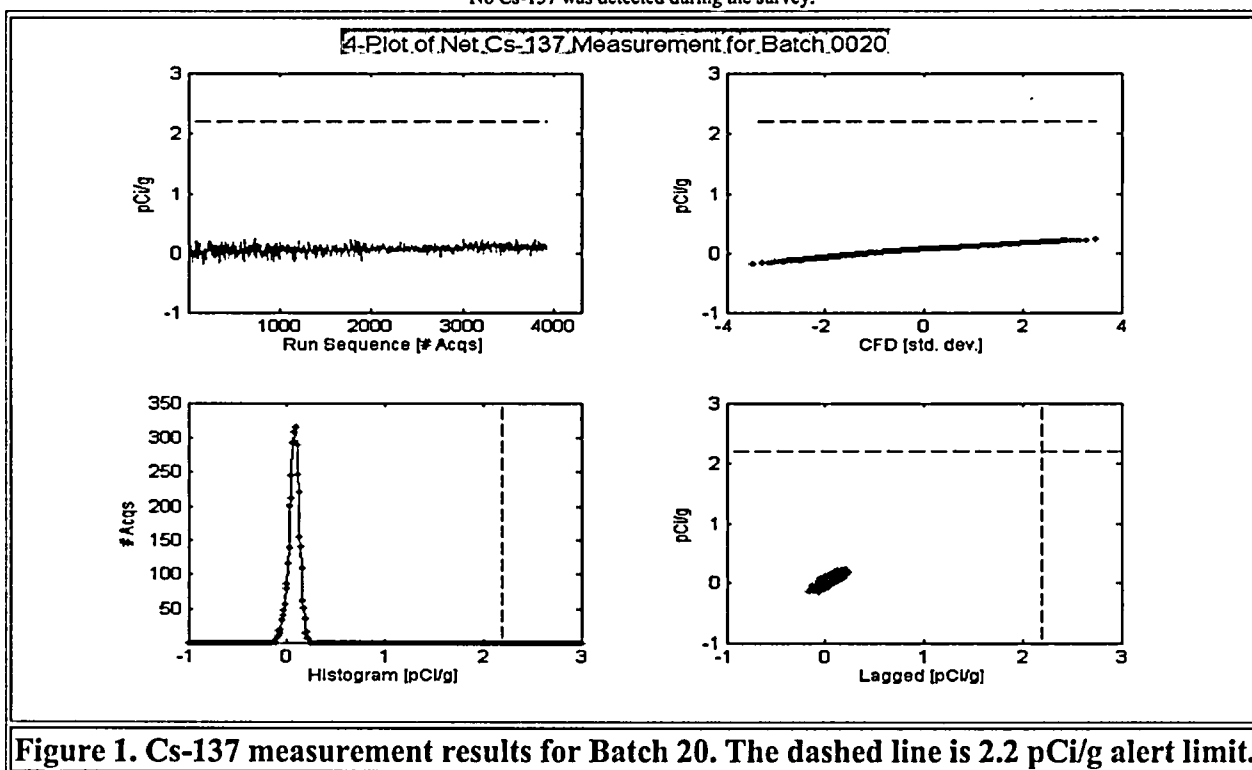
Date and Time	Filename	Acquisitions	Sum of Acquisitions
08-Apr-2003 15:52:10	19-01.N01	249	249
08-Apr-2003 16:13:50	19-01.N02	241	490
09-Apr-2003 11:39:14	19-03.N01	2663	3153
09-Apr-2003 13:42:40	19-04.N01	756	3909

Survey Release Record

Survey Location Code	SR-55, Batch 0020		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 14-Apr-2003 08:40:56		
Surveyor	M. Marcial		
Tons Surveyed	302		
Moisture Content [%]	14.7	Dry Density [lbs/ft ³]	69
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.07	0.08	0.24	-0.17	0.11
K-40	9.40	9.29	13.09	5.59	1.68
Bi-214	1.75	1.72	3.02	1.02	0.36
Tl-208	0.43	0.42	0.60	0.29	0.23
Marinelli Sample					
Cs-137	0.07	Sample Log Number 1-13368			0.02
K-40	9.59				1.13
Bi-214	0.80				0.09
Tl-208	0.28				0.05

*No Cs-137 was detected during the survey.



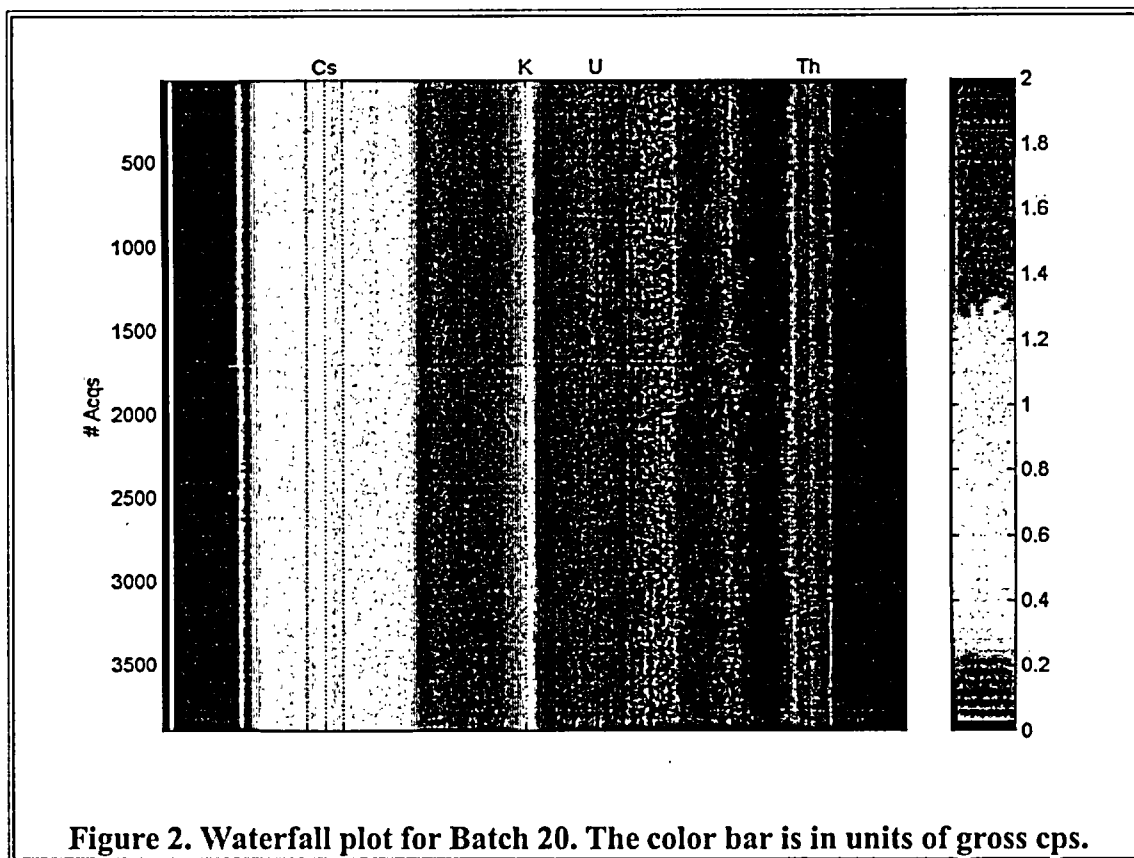


Figure 2. Waterfall plot for Batch 20. The color bar is in units of gross cps.

Table 2. Filenames for Batch 20.

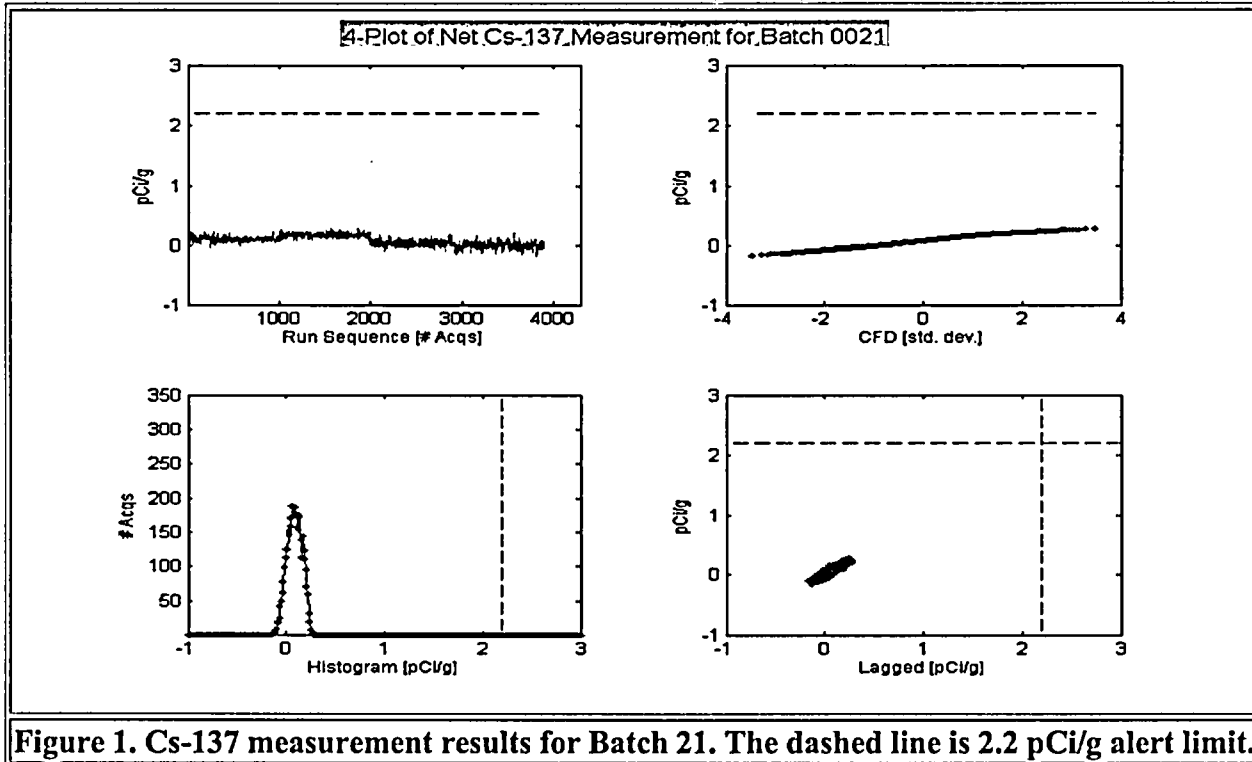
Date and Time	Filename	Acquisitions	Sum of Acquisitions
14-Apr-2003 08:40:56	20-01.N01	1468	1468
14-Apr-2003 08:39:56	20-02.N01	246	1714
10-Apr-2003 10:44:04	20-03.N01	1956	3670
10-Apr-2003 11:06:04	20-04.N01	242	3912

Survey Release Record

Survey Location Code	SR-55, Batch 0021		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 14-Apr-2003 09:15:50		
Surveyor	M. Marcial		
Tons Surveyed	302		
Moisture Content [%]	13.3	Dry Density [lbs/ft ³]	72
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.08	0.08	0.28	-0.16	0.15
K-40	9.29	9.28	14.13	5.27	1.43
Bi-214	1.71	1.71	2.69	0.92	0.32
Tl-208	0.42	0.42	0.58	0.25	0.17
Marinelli Sample					
Cs-137	0.05	Sample Log Number 5-13371			0.03
K-40	9.34				1.17
Bi-214	0.73				0.09
Tl-208	0.27				0.05

*No Cs-137 was detected during the survey.



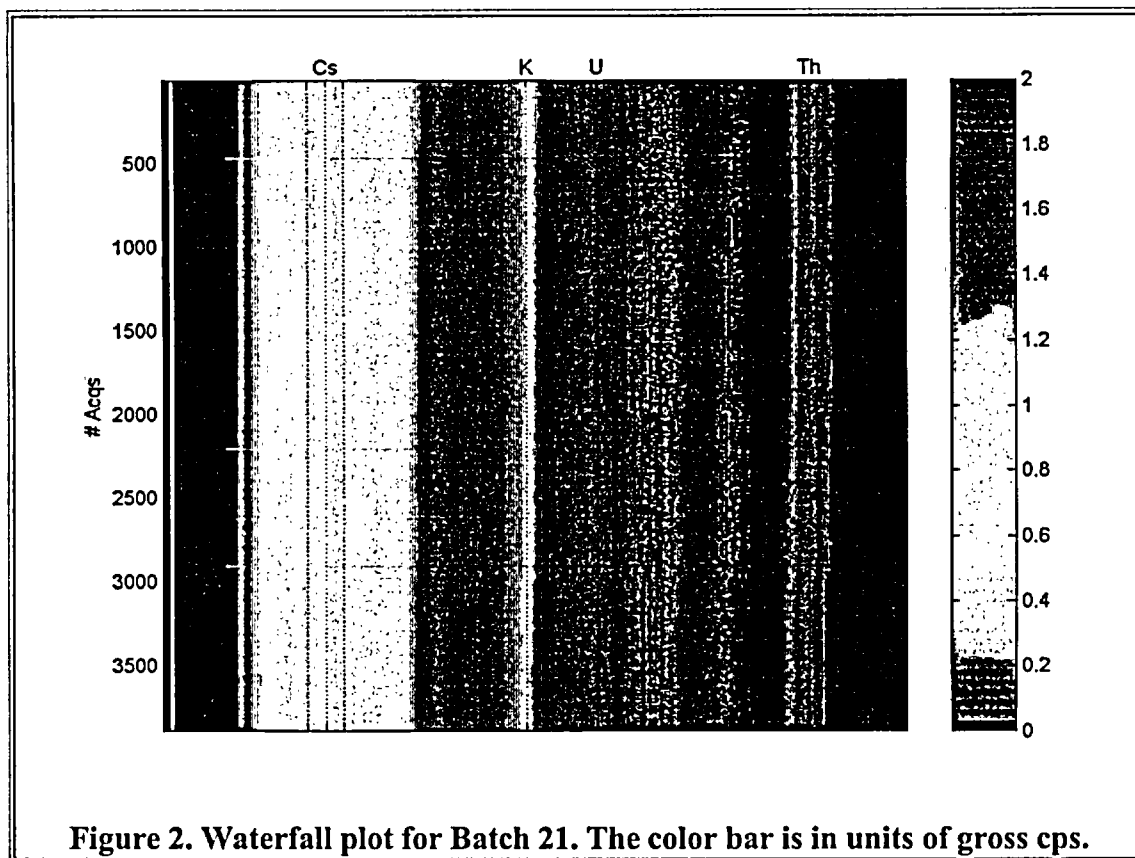


Figure 2. Waterfall plot for Batch 21. The color bar is in units of gross cps.

Table 2. Filenames for Batch 21.

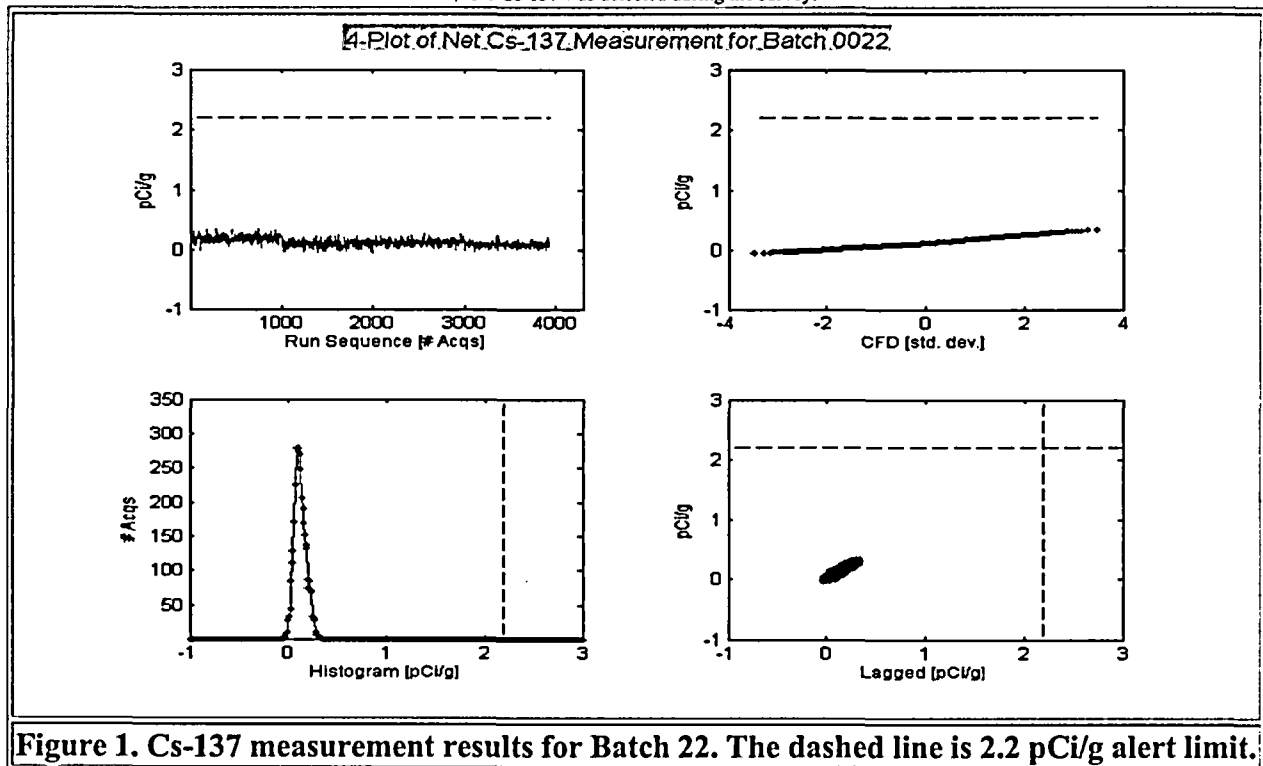
Date and Time	Filename	Acquisitions	Sum of Acquisitions
10-Apr-2003 11:47:54	21-01.N01	469	469
10-Apr-2003 14:26:30	21-02.N01	1221	1690
10-Apr-2003 15:33:28	21-02.N02	738	2428
10-Apr-2003 15:54:14	21-03.N01	241	2669
10-Apr-2003 16:17:24	21-04.N01	245	2914
14-Apr-2003 08:54:22	21-05.N01	748	3662
14-Apr-2003 09:15:50	21-06.N01	246	3908

Survey Release Record

Survey Location Code	SR-55, Batch 0022		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 14-Apr-2003 15:54:44		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	13.5	Dry Density [lbs/ft ³]	70
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.12	0.12	0.35	-0.04	0.12
K-40	9.22	9.21	12.00	5.87	1.23
Bi-214	1.69	1.69	2.33	0.70	0.27
Tl-208	0.42	0.42	0.54	0.26	0.15
Marinelli Sample					
Cs-137	0.06	Sample Log Number 1-13370			0.03
K-40	9.64				1.13
Bi-214	0.88				0.09
Tl-208	0.33				0.05

* No Cs-137 was detected during the survey.



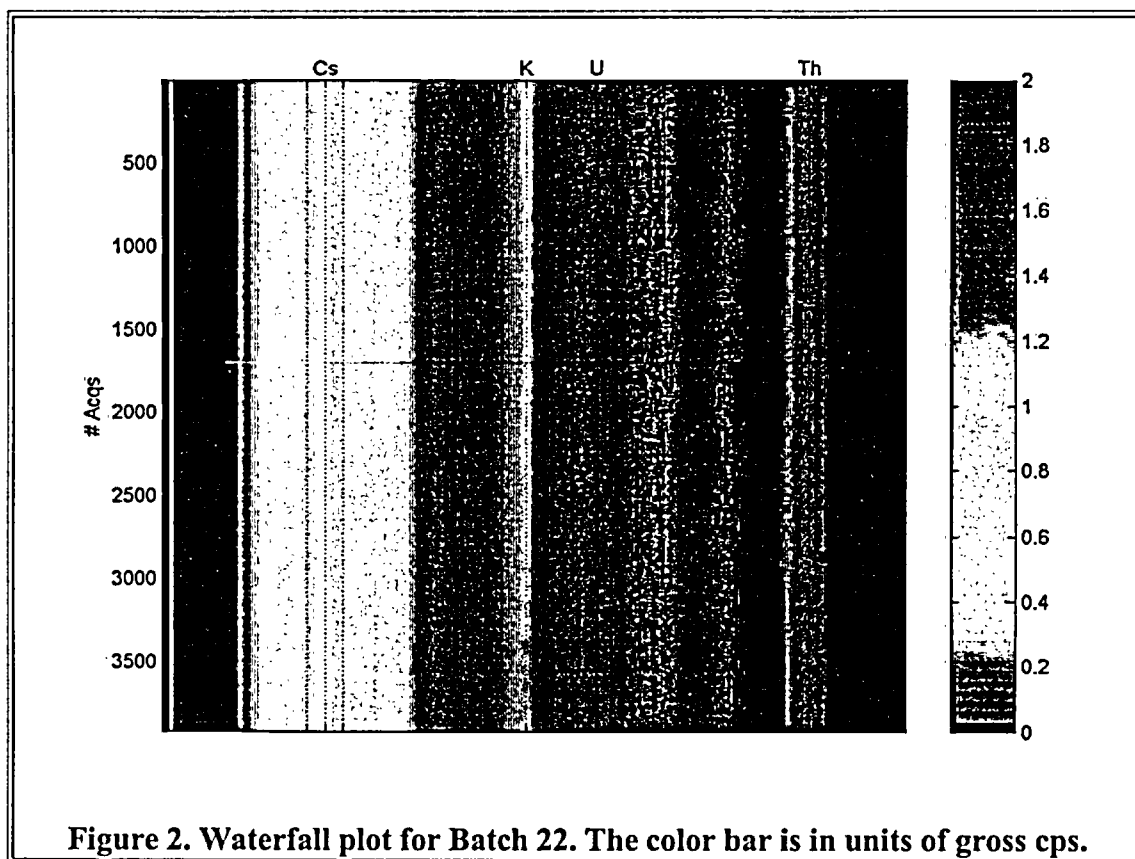


Figure 2. Waterfall plot for Batch 22. The color bar is in units of gross cps.

Table 2. Filenames for Batch 22.

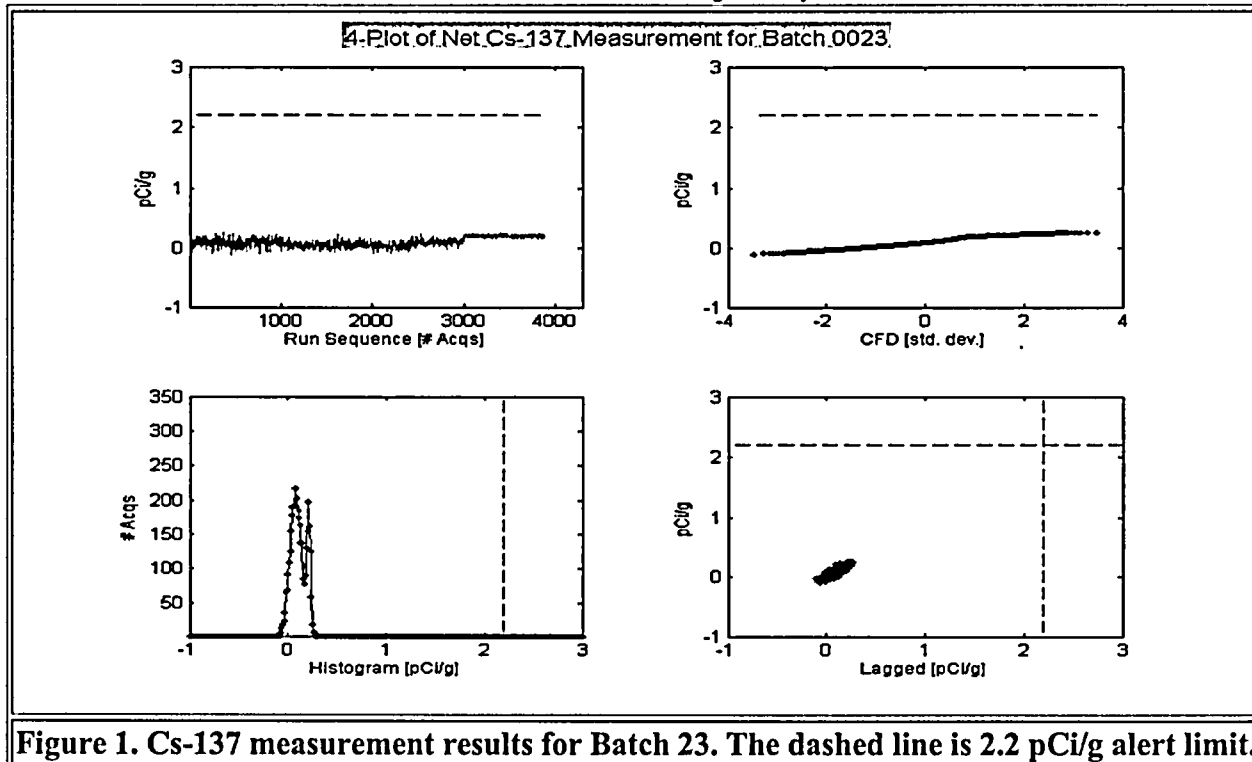
Date and Time	Filename	Acquisitions	Sum of Acquisitions
14-Apr-2003 11:44:54	22-01.N01	1700	1700
14-Apr-2003 15:54:44	22-02.N01	2236	3936

Survey Release Record

Survey Location Code	SR-55, Batch 0023		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 15-Apr-2003 14:15:58		
Surveyor	M. Marcial		
Tons Surveyed	300		
Moisture Content [%]	12.7	Dry Density [lbs/ft ³]	71
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.11	0.10	0.27	-0.10	0.15
K-40	9.40	9.28	13.87	5.43	1.80
Bi-214	1.79	1.74	2.61	1.14	0.40
Tl-208	0.43	0.42	0.64	0.25	0.25
Marinelli Sample					
Cs-137	0.05	Sample Log Number 1-13373			0.03
K-40	9.32				1.13
Bi-214	0.83				0.10
Tl-208	0.32				0.06

*No Cs-137 was detected during the survey.



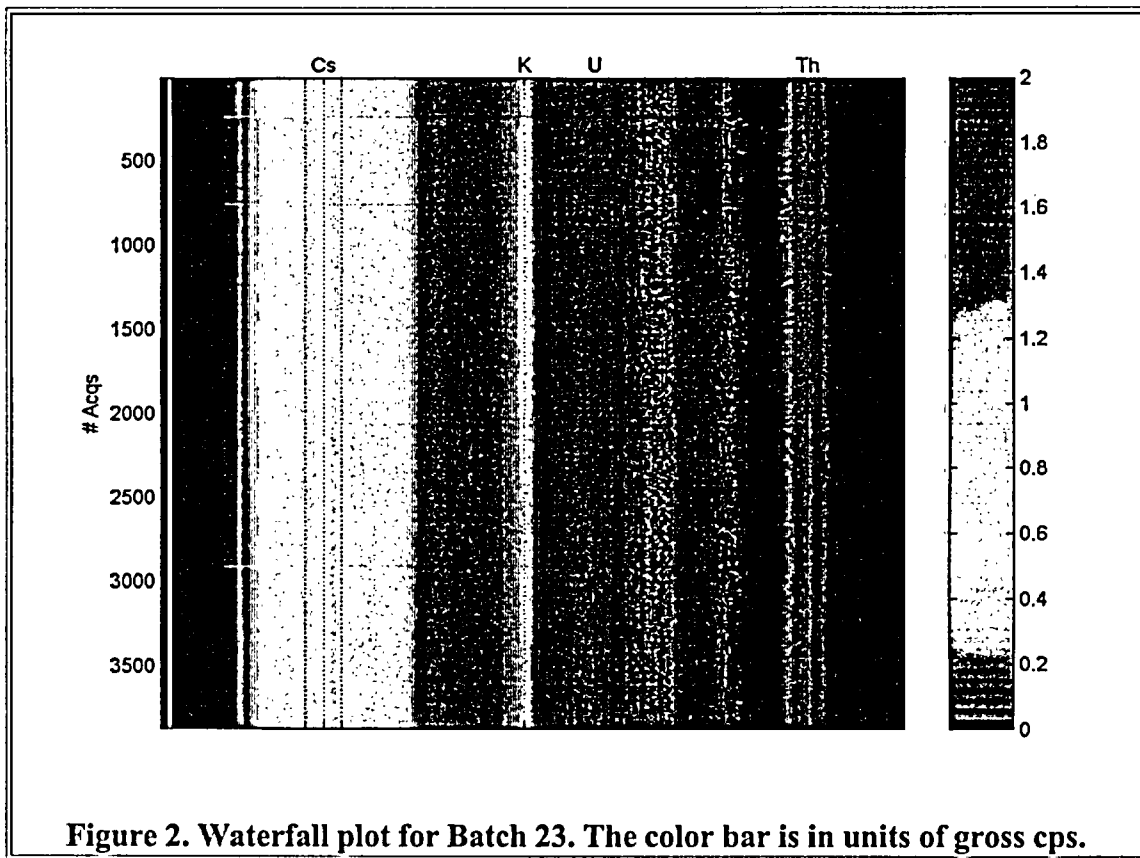


Figure 2. Waterfall plot for Batch 23. The color bar is in units of gross cps.

Table 2. Filenames for Batch 23.

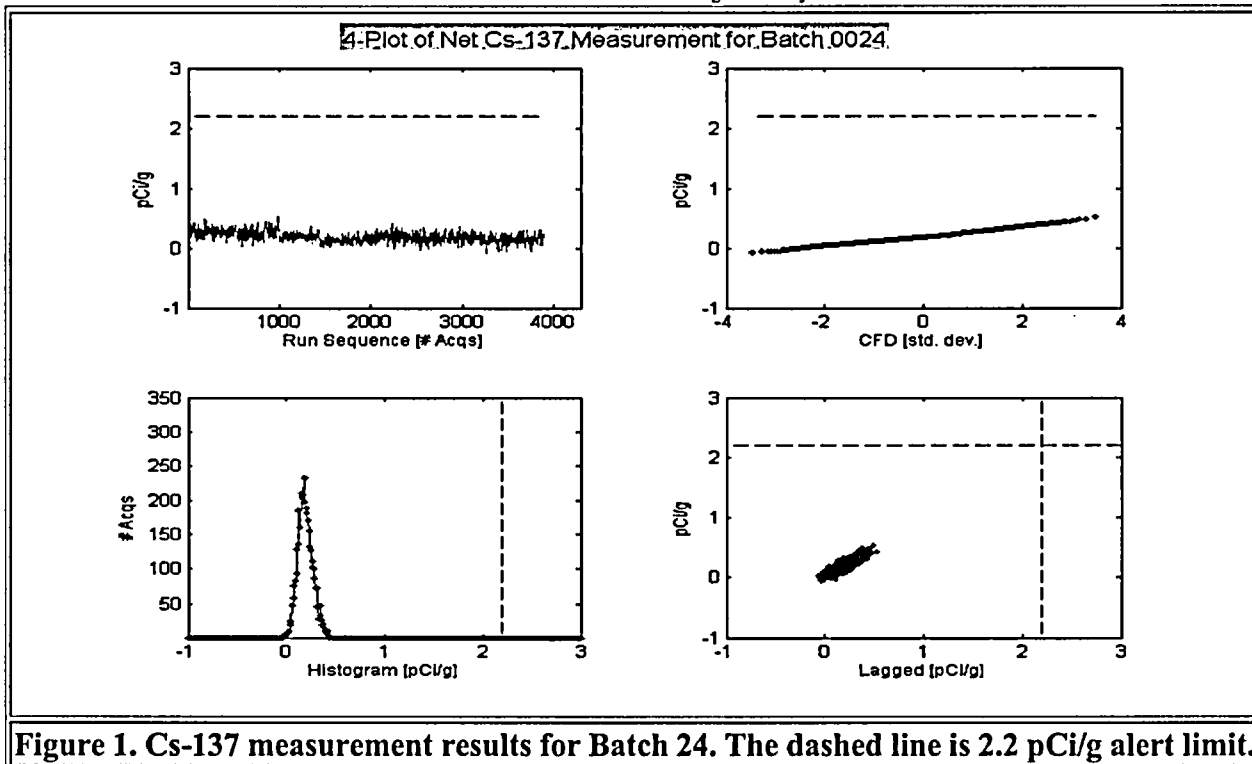
Date and Time	Filename	Acquisitions	Sum of Acquisitions
14-Apr-2003 16:18:08	23-01.N01	236	236
15-Apr-2003 10:56:02	23-02.N01	2191	2427
15-Apr-2003 11:39:36	23-02.N02	487	2914
15-Apr-2003 14:15:58	23-03.N01	973	3887

Survey Release Record

Survey Location Code	SR-55, Batch 0024		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 16-Apr-2003 11:20:28		
Surveyor	M. Marcial		
Tons Surveyed	301		
Moisture Content [%]	13.7	Dry Density [lbs/ft ³]	70
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.19	0.19	0.53	-0.06	0.16
K-40	9.69	9.53	15.02	6.58	1.87
Bi-214	1.80	1.75	3.09	0.41	0.47
Tl-208	0.43	0.42	0.63	0.28	0.24
Marinelli Sample					
Cs-137	0.06	Sample Log Number 1-13380			0.03
K-40	9.49				1.12
Bi-214	0.82				0.10
Tl-208	0.31				0.05

* No Cs-137 was detected during the survey.



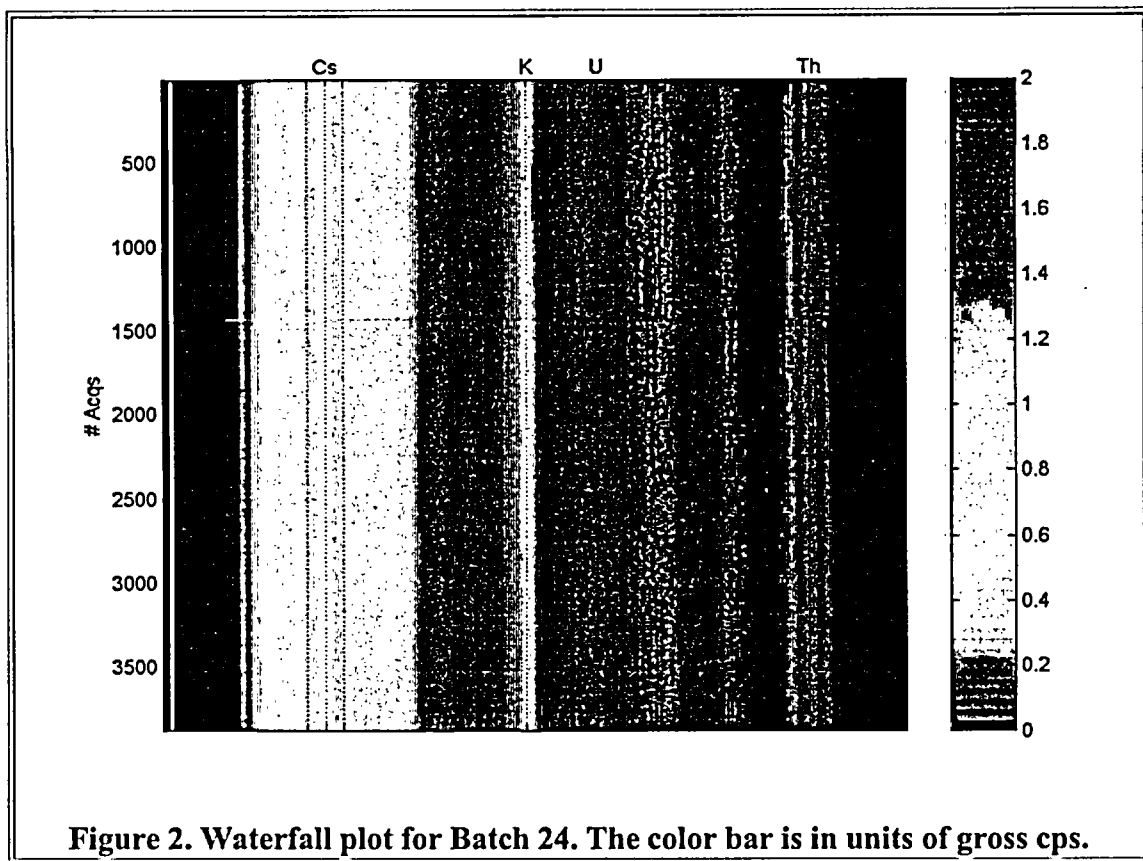


Figure 2. Waterfall plot for Batch 24. The color bar is in units of gross cps.

Table 2. Filenames for Batch 24.

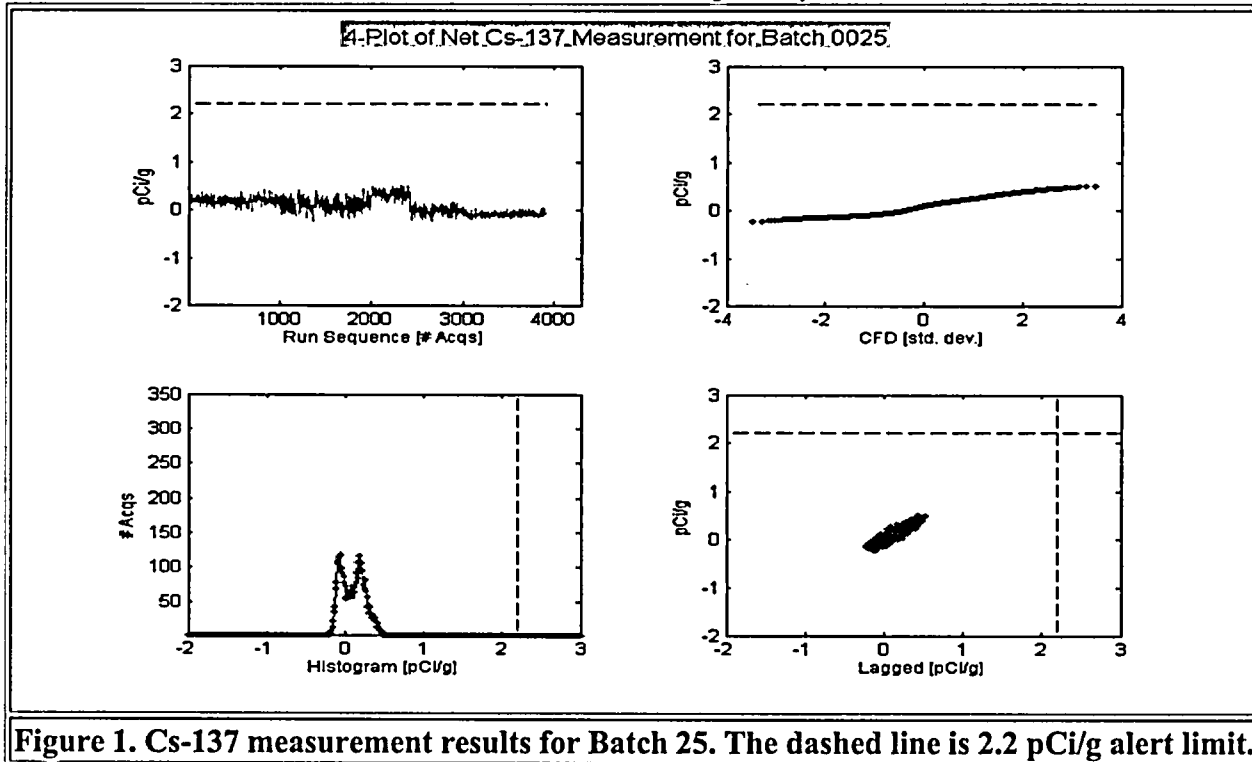
Date and Time	Filename	Acquisitions	Sum of Acquisitions
15-Apr-2003 15:40:30	24-01.N01	974	974
15-Apr-2003 16:02:00	24-01.N02	243	1217
15-Apr-2003 16:21:26	24-02.N01	219	1436
16-Apr-2003 11:20:28	24-03.N01	2459	3895

Survey Release Record

Survey Location Code	SR-55, Batch 0025		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 17-Apr-2003 09:41:48		
Surveyor	M. Marcial		
Tons Surveyed	302		
Moisture Content [%]	13.5	Dry Density [lbs/ft ³]	72
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	0.10	0.10	0.52	-0.21	0.30
K-40	9.39	9.29	14.08	6.05	1.70
Bi-214	1.69	1.68	2.89	0.49	0.39
Tl-208	0.43	0.43	0.71	0.27	0.23
Marinelli Sample					
Cs-137	0.07	Sample Log Number 5-13386			0.03
K-40	9.49				1.18
Bi-214	0.89				0.10
Tl-208	0.32				0.06

*No Cs-137 was detected during the survey.



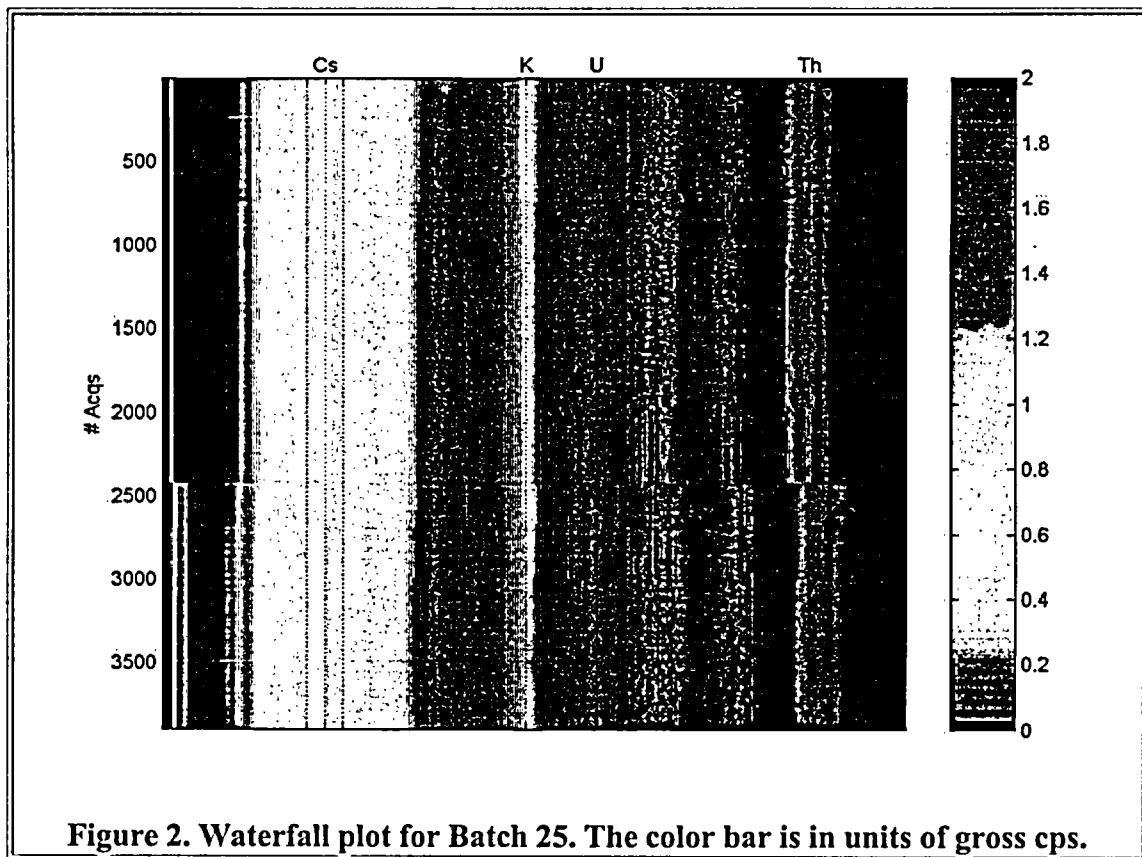


Figure 2. Waterfall plot for Batch 25. The color bar is in units of gross cps.

Table 2. Filenames for Batch 25.

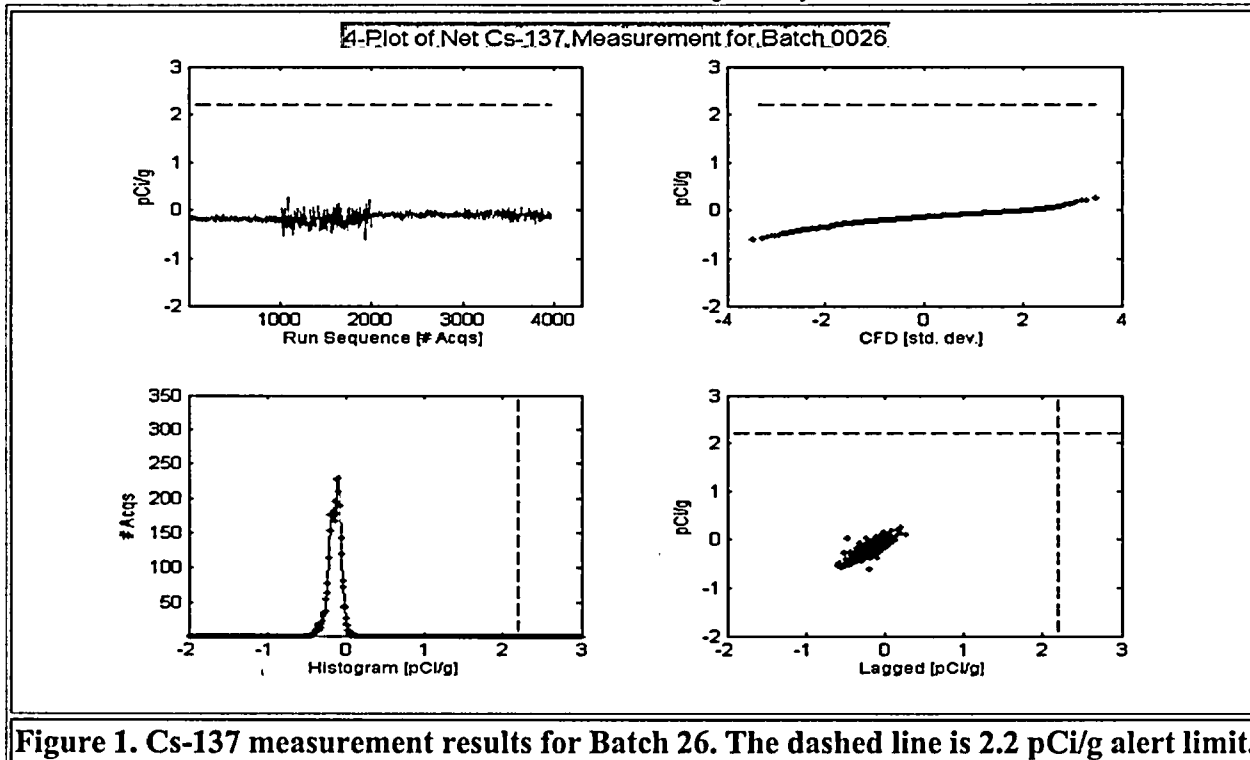
Date and Time	Filename	Acquisitions	Sum of Acquisitions
16-Apr-2003 11:41:52	25-01.N01	235	235
16-Apr-2003 13:23:02	25-02.N01	501	736
16-Apr-2003 15:54:22	25-02.N02	1694	2430
17-Apr-2003 07:52:50	25-04.N01	259	2689
17-Apr-2003 09:19:30	25-05.N01	972	3661
17-Apr-2003 09:41:48	25-06.N01	248	3909

Survey Release Record

Survey Location Code	SR-55, Batch 0026		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 17-Apr-2003 16:18:54		
Surveyor	M. Marcial		
Tons Surveyed	307		
Moisture Content [%]	13.7	Dry Density [lbs/ft ³]	70
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.14	-0.13	0.26	-0.60	0.17
K-40	9.01	8.95	12.02	5.00	1.39
Bi-214	1.63	1.62	2.84	0.41	0.29
Tl-208	0.43	0.43	0.53	0.28	0.14
Marinelli Sample					
Cs-137	0.09	Sample Log Number 5-13389			0.04
K-40	9.36				1.21
Bi-214	0.83				0.11
Tl-208	0.33				0.06

* No Cs-137 was detected during the survey.



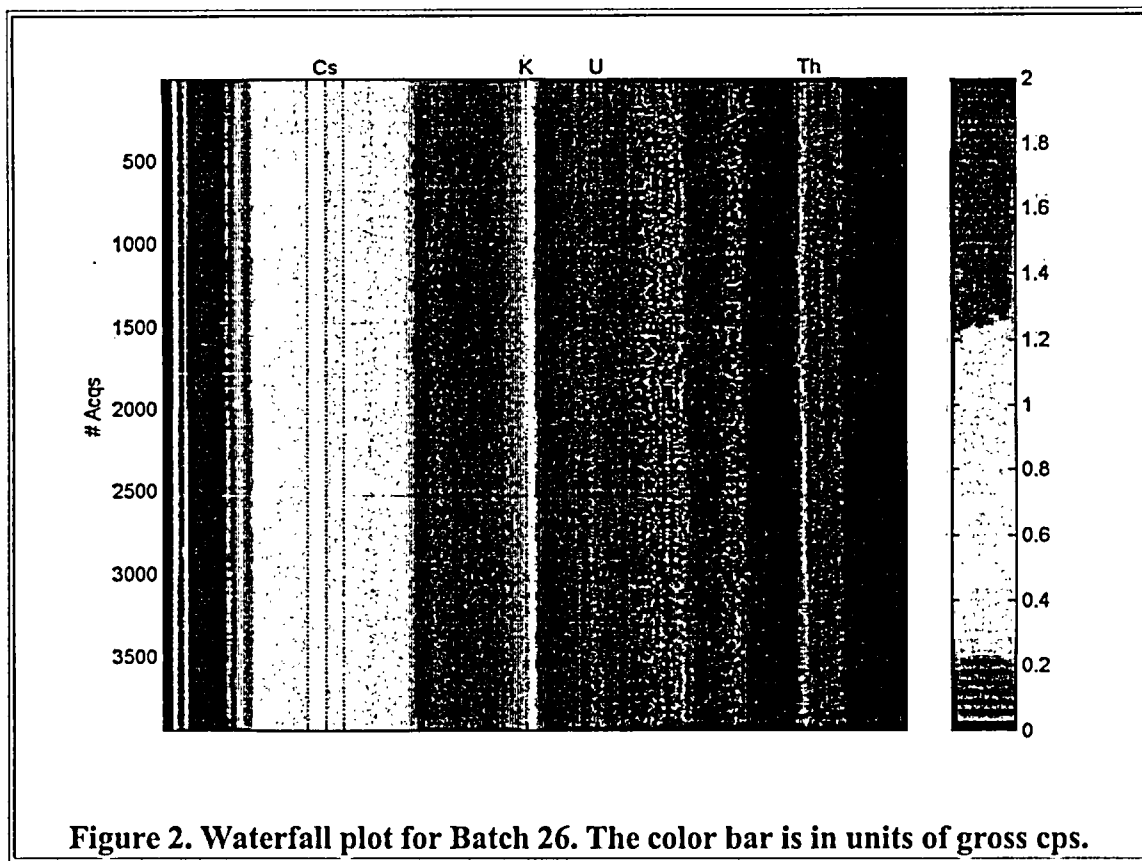


Table 2. Filenames for Batch 26.

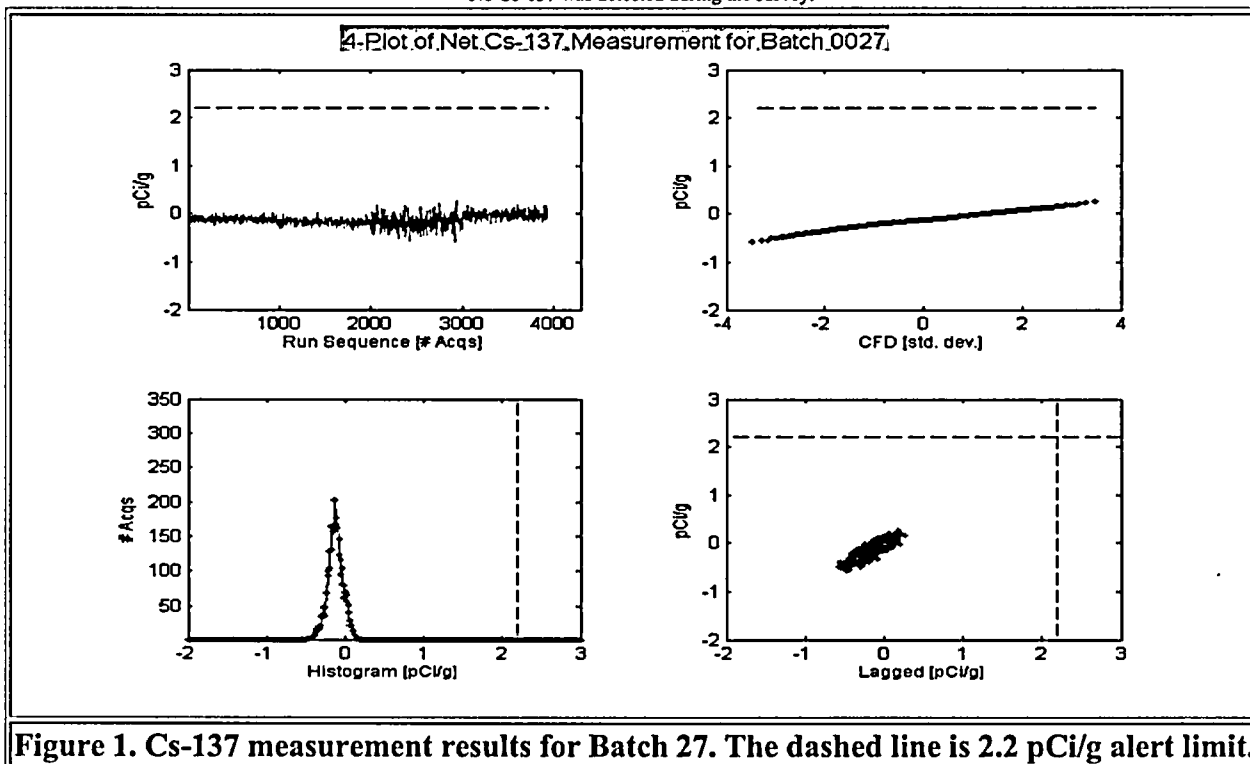
Date and Time	Filename	Acquisitions	Sum of Acquisitions
17-Apr-2003 11:48:38	26-01.N01	1477	1477
17-Apr-2003 15:56:44	26-02.N01	2252	3729
17-Apr-2003 16:18:54	26-03.N01	238	3967

Survey Release Record

Survey Location Code	SR-55, Batch 0027		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 21-Apr-2003 14:48:20		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	13.7	Dry Density [lbs/ft ³]	65
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.12	-0.12	0.25	-0.56	0.21
K-40	9.22	9.09	14.35	5.68	1.55
Bi-214	1.71	1.70	2.86	0.67	0.39
Tl-208	0.43	0.43	0.70	0.27	0.24
Marinelli Sample					
Cs-137	0.07	Sample Log Number 1-13400			0.03
K-40	9.46				1.13
Bi-214	0.80				0.09
Tl-208	0.31				0.05

* No Cs-137 was detected during the survey.



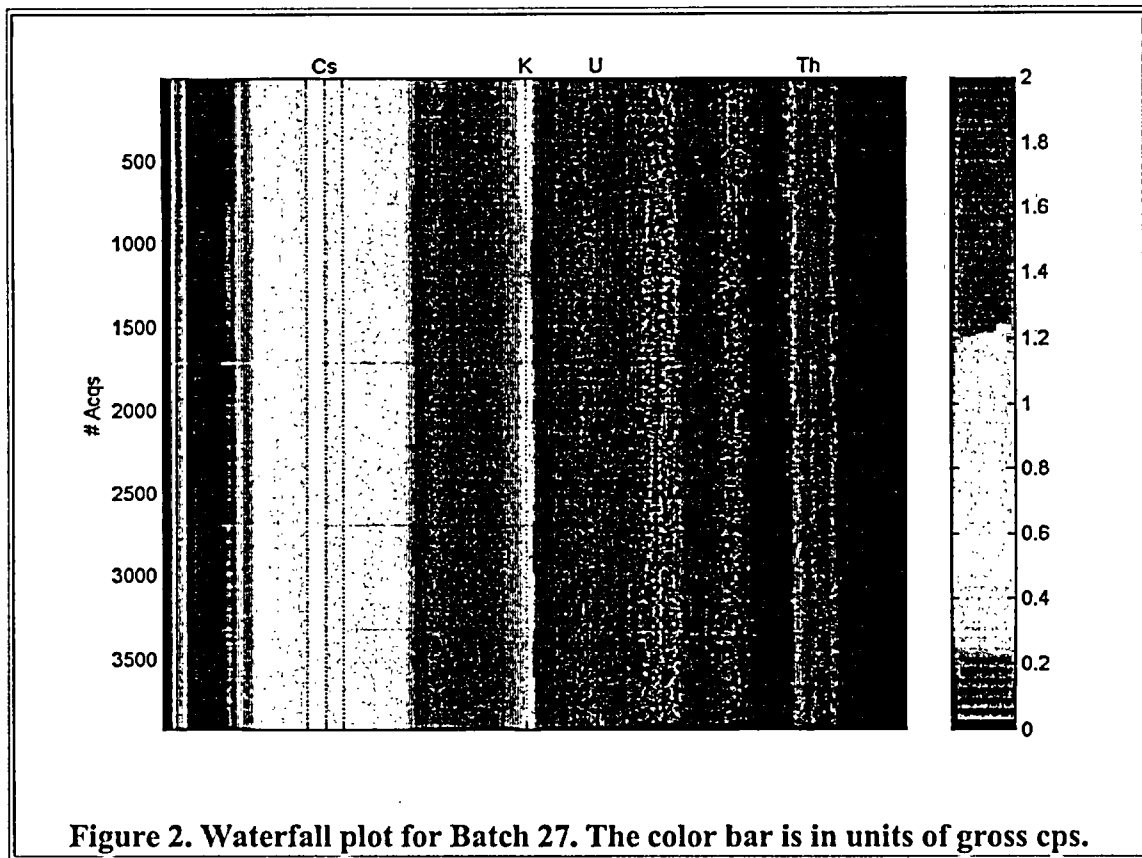


Table 2. Filenames for Batch 27.

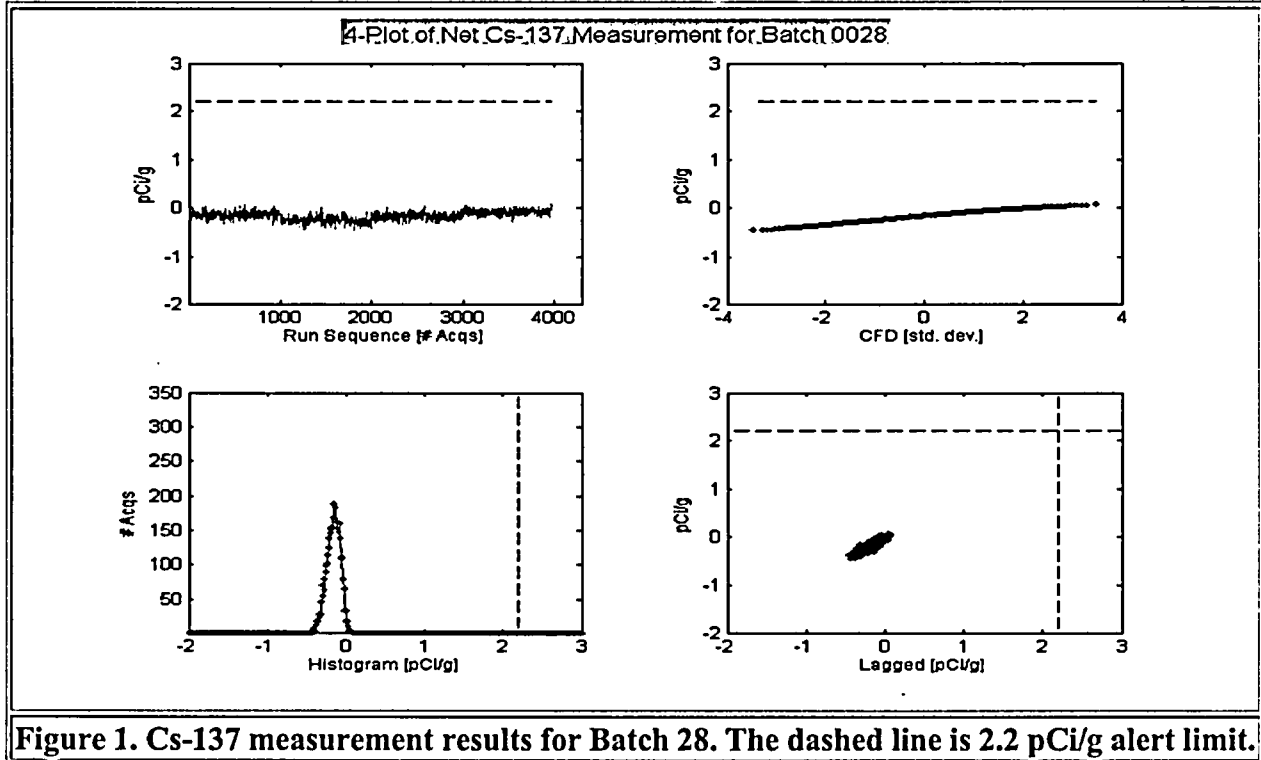
Date and Time	Filename	Acquisitions	Sum of Acquisitions
21-Apr-2003 08:56:24	27-01.N01	748	748
21-Apr-2003 11:48:46	27-01.N02	1952	2700
21-Apr-2003 14:48:20	27-02.N01	1238	3938

Survey Release Record

Survey Location Code	SR-55, Batch 0028		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 22-Apr-2003 12:58:52		
Surveyor	M. Marcial		
Tons Surveyed	307		
Moisture Content [%]	13.7	Dry Density [lbs/ft ³]	70
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.16	-0.15	0.07	-0.46	0.17
K-40	9.24	9.10	13.01	5.66	1.63
Bi-214	1.71	1.70	2.37	0.88	0.30
Tl-208	0.43	0.43	0.66	0.28	0.22
Marinelli Sample					
Cs-137	0.08	Sample Log Number 5-13413			0.03
K-40	9.03				1.17
Bi-214	0.72				0.08
Tl-208	0.30				0.06

* No Cs-137 was detected during the survey.



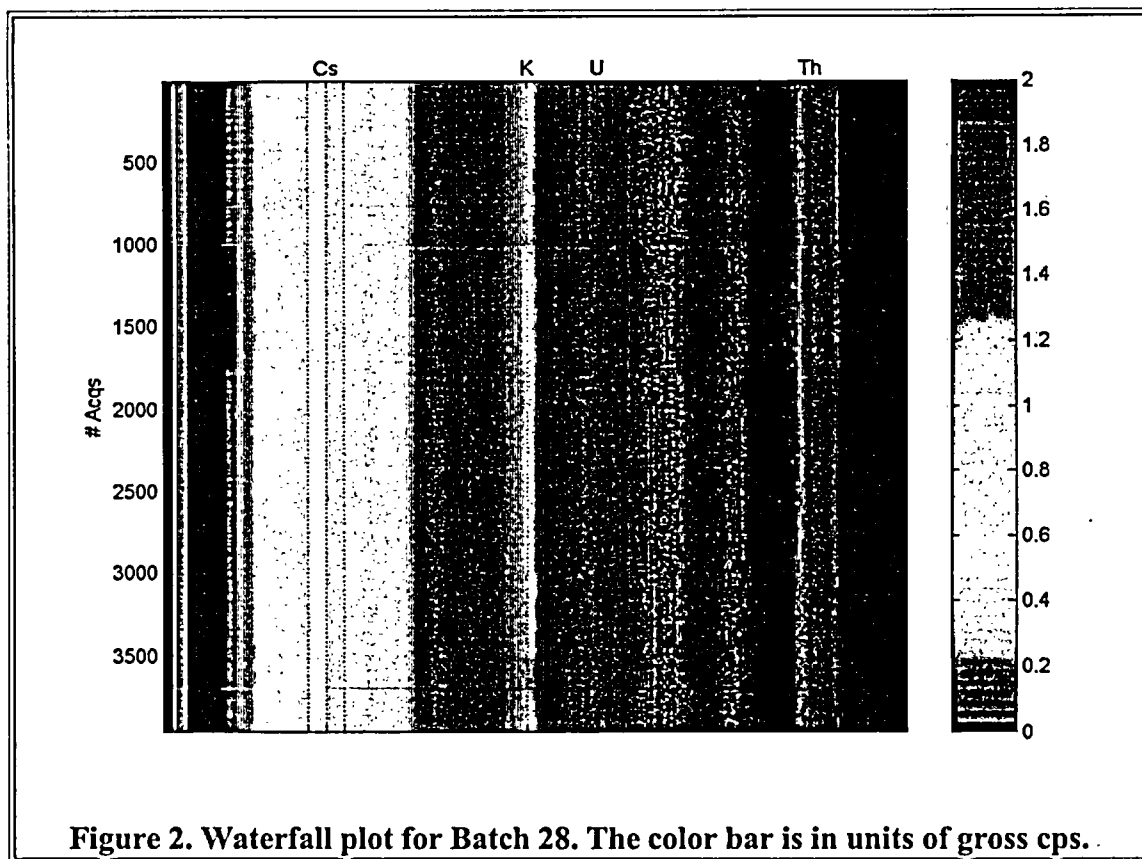


Table 2. Filenames for Batch 28.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
21-Apr-2003 15:53:32	28-01.N01	750	750
21-Apr-2003 16:16:24	28-02.N01	257	1007
22-Apr-2003 08:48:44	28-03.N01	745	1752
22-Apr-2003 09:31:22	28-03.N02	488	2240
22-Apr-2003 11:39:26	28-03.N03	1465	3705
22-Apr-2003 12:58:52	28-04.N01	267	3972

Survey Release Record

Survey Location Code	SR-55, Batch 0029		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 23-Apr-2003 10:22:10		
Surveyor	M. Marcial		
Tons Surveyed	305		
Moisture Content [%]	10.1	Dry Density [lbs/ft ³]	71
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.10	-0.11	0.20	-0.37	0.14
K-40	8.80	8.67	11.98	5.50	1.56
Bi-214	1.58	1.58	2.34	0.60	0.29
Tl-208	0.43	0.42	0.67	0.27	0.25
Marinelli Sample					
Cs-137	0.10	Sample Log Number 5-13428			0.04
K-40	9.28				1.18
Bi-214	0.82				0.10
Tl-208	0.33				0.06

*No Cs-137 was detected during the survey.

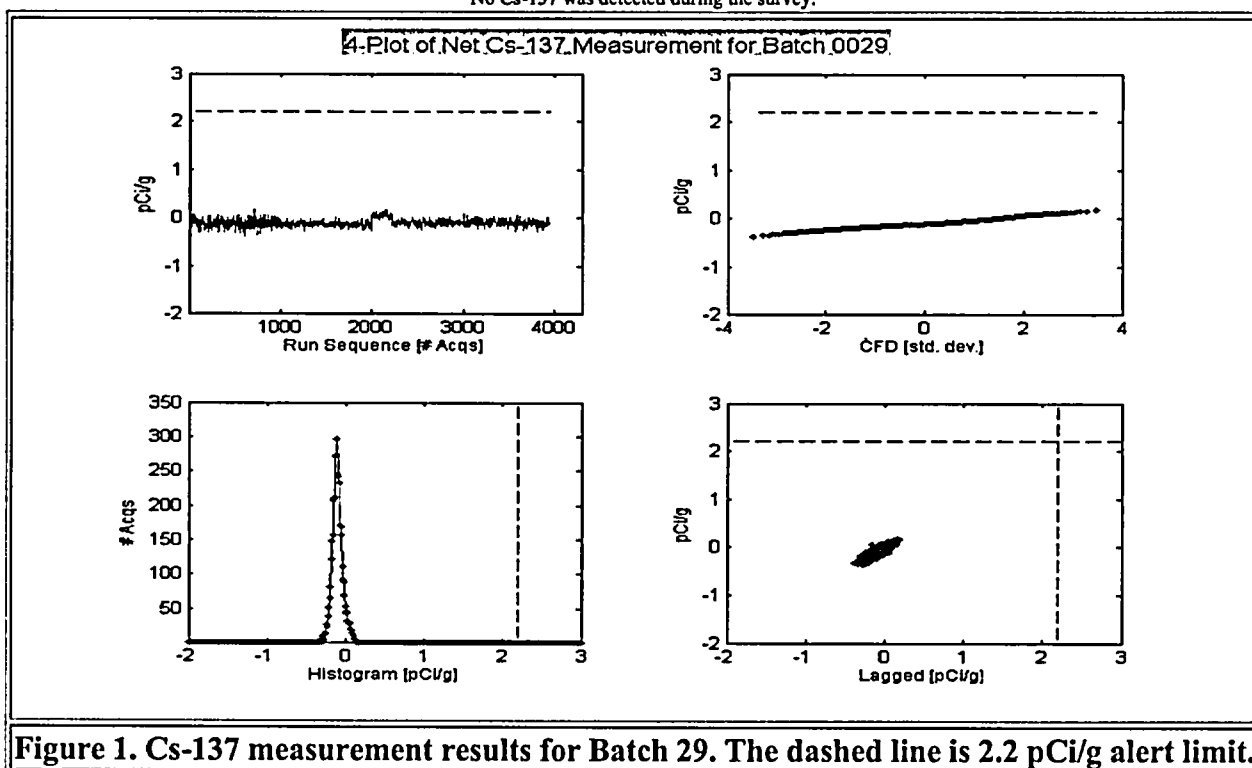


Figure 1. Cs-137 measurement results for Batch 29. The dashed line is 2.2 pCi/g alert limit.

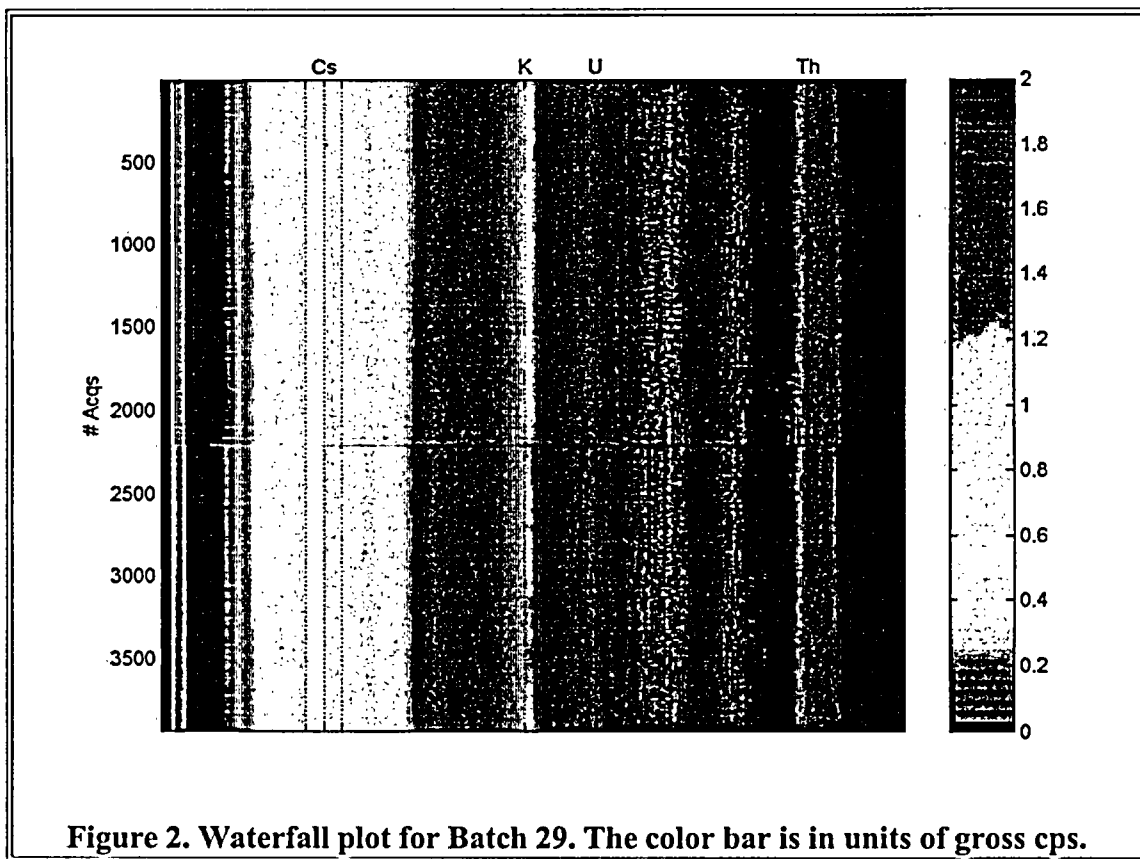


Figure 2. Waterfall plot for Batch 29. The color bar is in units of gross cps.

Table 2. Filenames for Batch 29.

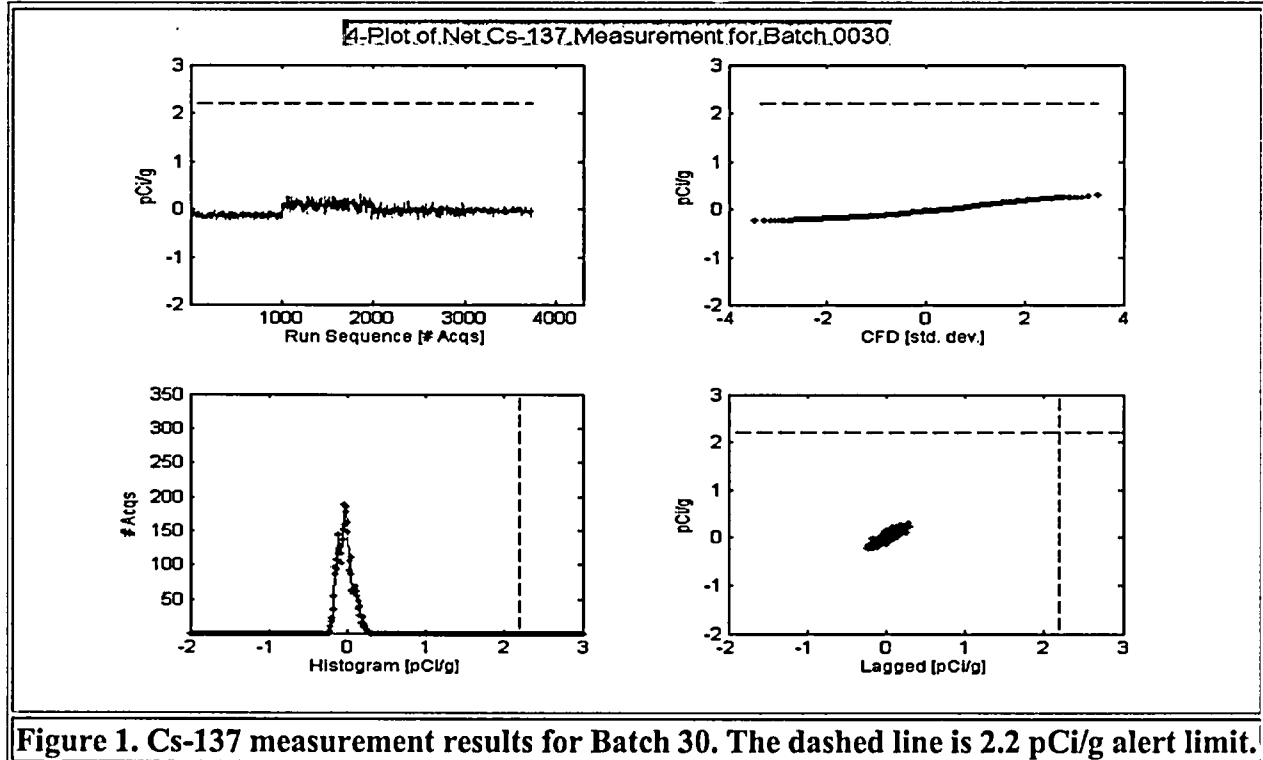
Date and Time	Filename	Acquisitions	Sum of Acquisitions
22-Apr-2003 13:49:58	29-01.N01	545	545
22-Apr-2003 15:55:04	29-02.N01	1420	1965
22-Apr-2003 16:18:16	29-03.N01	249	2214
23-Apr-2003 08:55:54	29-04.N01	745	2959
23-Apr-2003 10:22:10	29-04.N02	988	3947

Survey Release Record

Survey Location Code	SR-55, Batch 0030		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 24-Apr-2003 08:38:54		
Surveyor	M. Marcial		
Tons Surveyed	289		
Moisture Content [%]	14.3	Dry Density [lbs/ft ³]	88
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.02	-0.03	0.31	-0.23	0.19
K-40	9.10	8.94	13.99	5.66	1.64
Bi-214	1.61	1.61	2.40	0.47	0.29
Tl-208	0.44	0.43	0.66	0.28	0.22
Marinelli Sample					
Cs-137	0.04	Sample Log Number 1-13459			0.03
K-40	9.59				1.09
Bi-214	0.81				0.08
Tl-208	0.30				0.05

*No Cs-137 was detected during the survey.



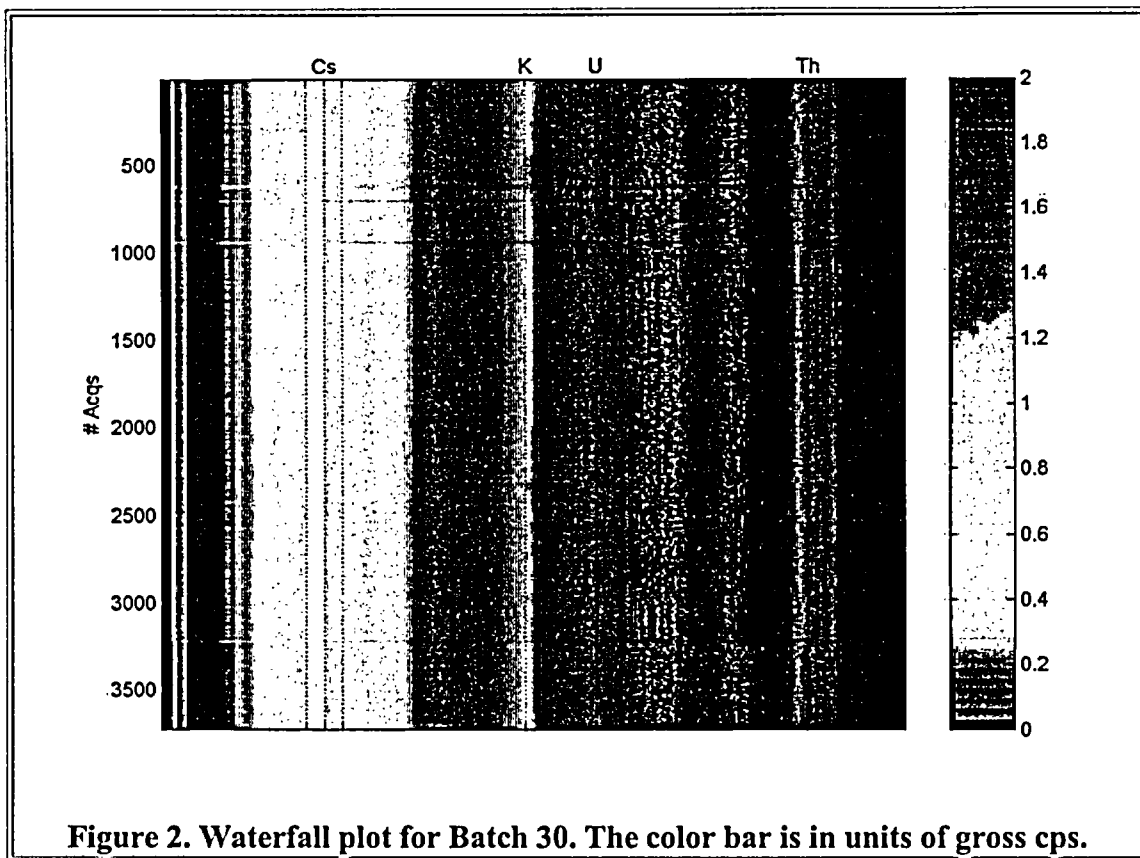


Figure 2. Waterfall plot for Batch 30. The color bar is in units of gross cps.

Table 2. Filenames for Batch 30.

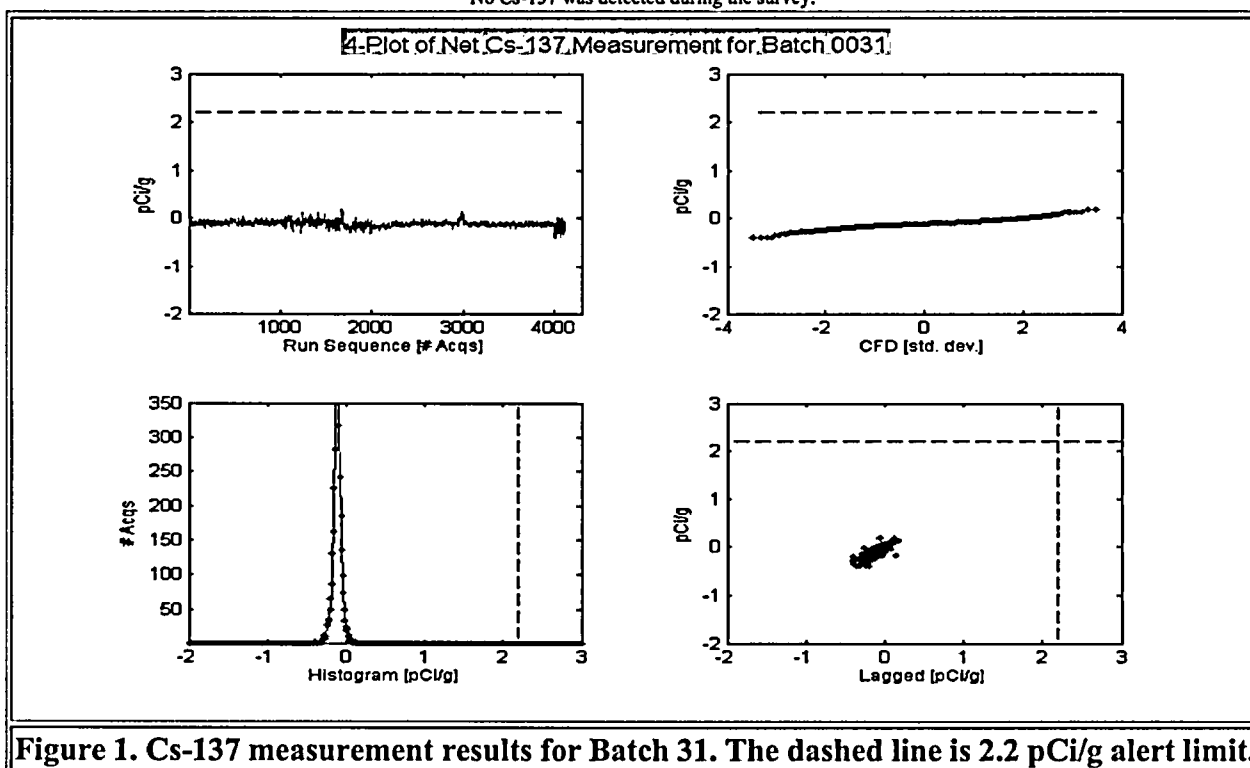
Date and Time	Filename	Acquisitions	Sum of Acquisitions
23-Apr-2003 11:26:58	30-01.N01	704	704
23-Apr-2003 11:49:22	30-02.N01	235	939
23-Apr-2003 14:30:02	30-03.N01	1238	2177
23-Apr-2003 15:37:20	30-03.N02	591	2768
23-Apr-2003 15:59:02	30-03.N03	245	3013
23-Apr-2003 16:18:38	30-04.N01	217	3230
24-Apr-2003 08:38:54	30-05.N01	509	3739

Survey Release Record

Survey Location Code	SR-55, Batch 0031		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 24-Apr-2003 15:39:52		
Surveyor	M. Marcial		
Tons Surveyed	319		
Moisture Content [%]	12.8	Dry Density [lbs/ft ³]	81
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.11	-0.11	0.19	-0.41	0.11
K-40	9.25	9.06	15.67	4.22	1.77
Bi-214	1.62	1.60	2.58	0.09	0.39
Tl-208	0.44	0.42	0.65	0.27	0.30
Marinelli Sample					
Cs-137	0.07	Sample Log Number 5-13456			0.03
K-40	9.59				1.18
Bi-214	0.77				0.09
Tl-208	0.33				0.06

*No Cs-137 was detected during the survey.



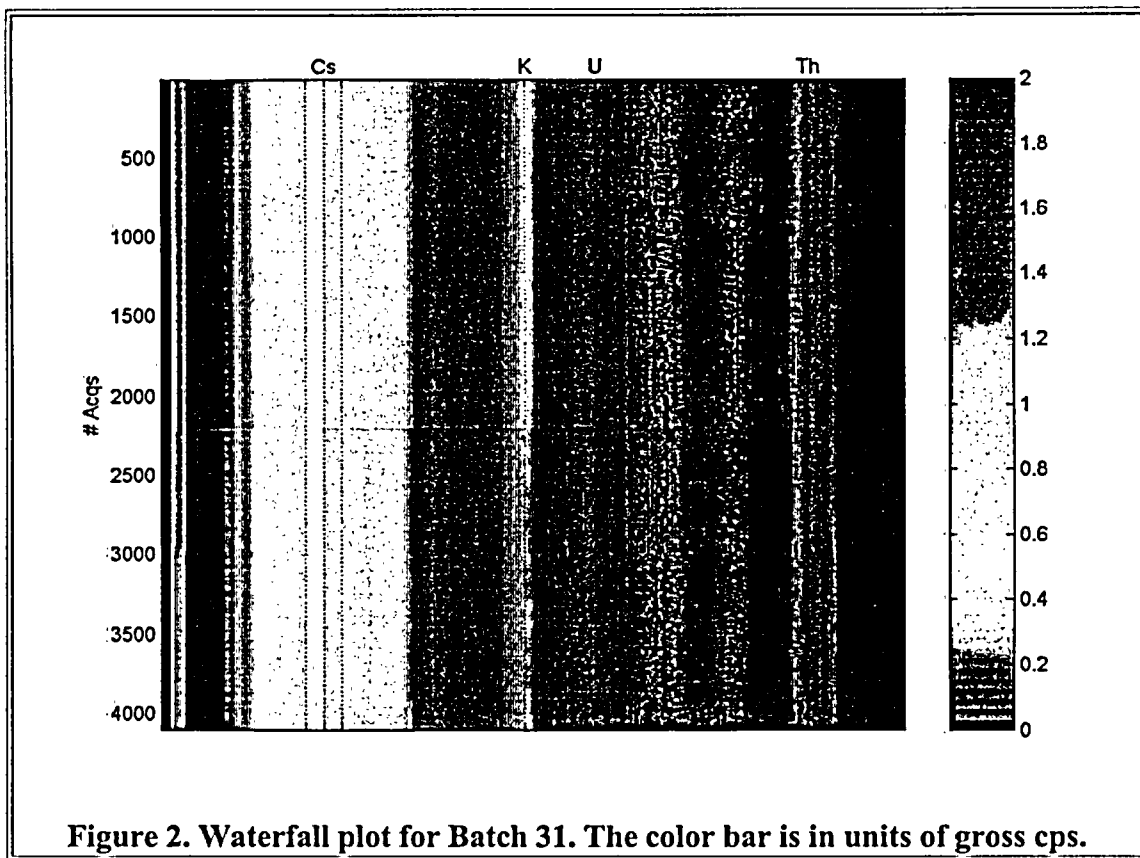


Figure 2. Waterfall plot for Batch 31. The color bar is in units of gross cps.

Table 2. Filenames for Batch 31.

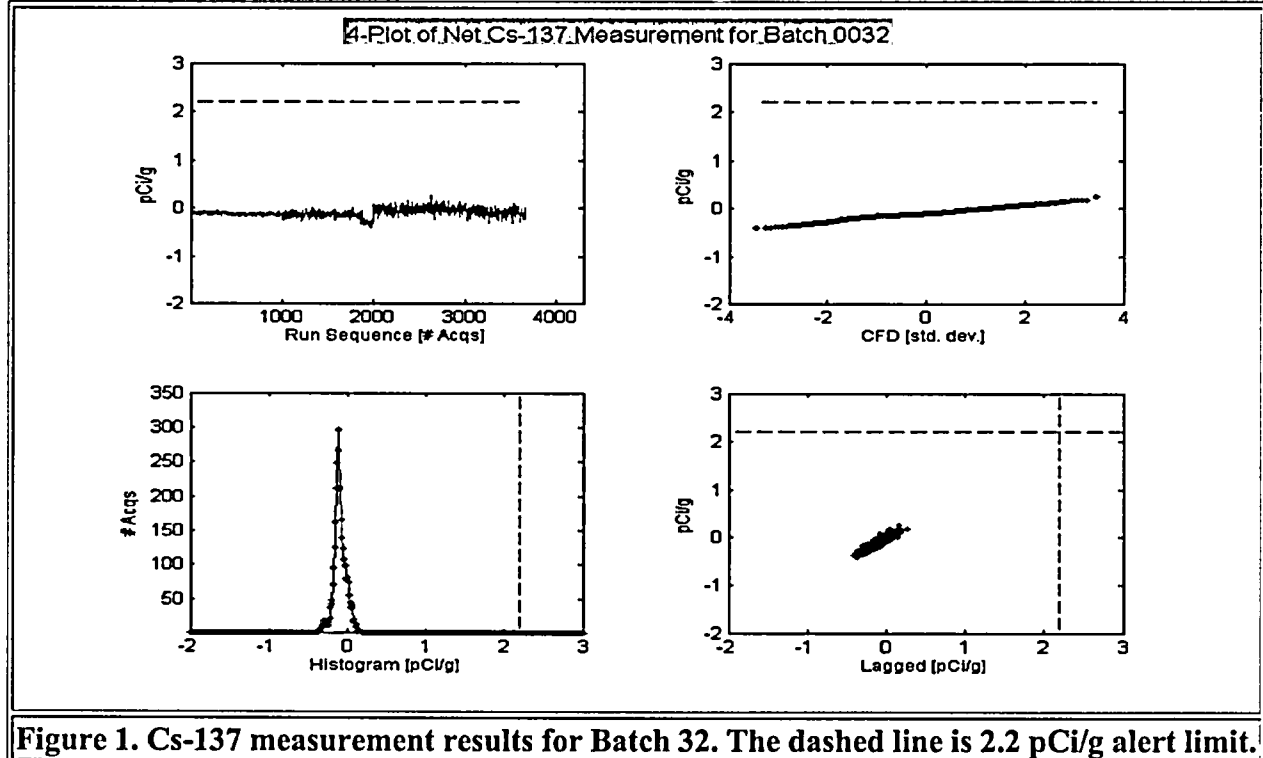
Date and Time	Filename	Acquisitions	Sum of Acquisitions
24-Apr-2003 11:51:48	31-01.N01	2215	2215
24-Apr-2003 15:39:52	31-02.N01	1907	4122

Survey Release Record

Survey Location Code	SR-55, Batch 0032		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 28-Apr-2003 14:07:18		
Surveyor	M. Marcial		
Tons Surveyed	283		
Moisture Content [%]	9.8	Dry Density [lbs/ft ³]	86
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.09	-0.10	0.25	-0.40	0.16
K-40	9.20	9.04	12.99	5.36	1.82
Bi-214	1.67	1.63	2.94	0.53	0.40
Tl-208	0.43	0.41	0.68	0.27	0.33
Marinelli Sample					
Cs-137	0.08	Sample Log Number 4-13477			0.05
K-40	8.23				1.41
Bi-214	0.70				0.12
Tl-208	0.31				0.07

*No Cs-137 was detected during the survey.



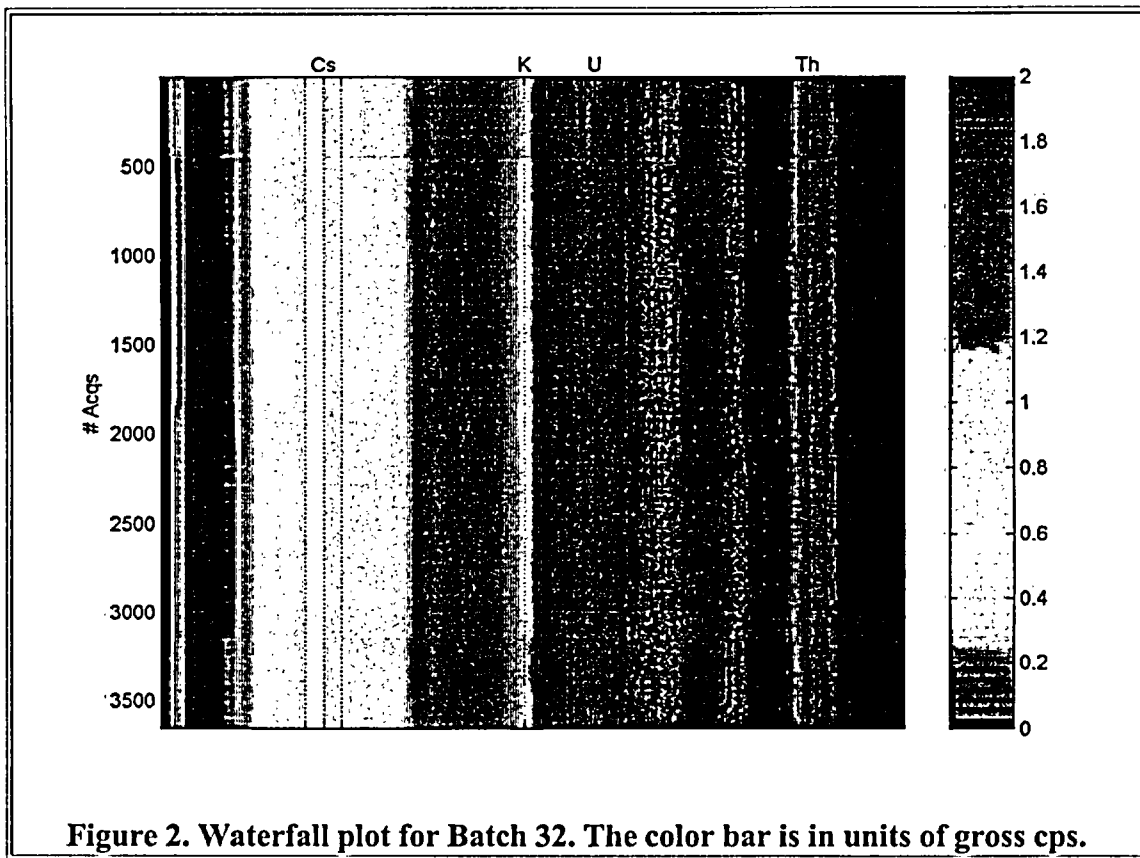


Figure 2. Waterfall plot for Batch 32. The color bar is in units of gross cps.

Table 2. Filenames for Batch 32.

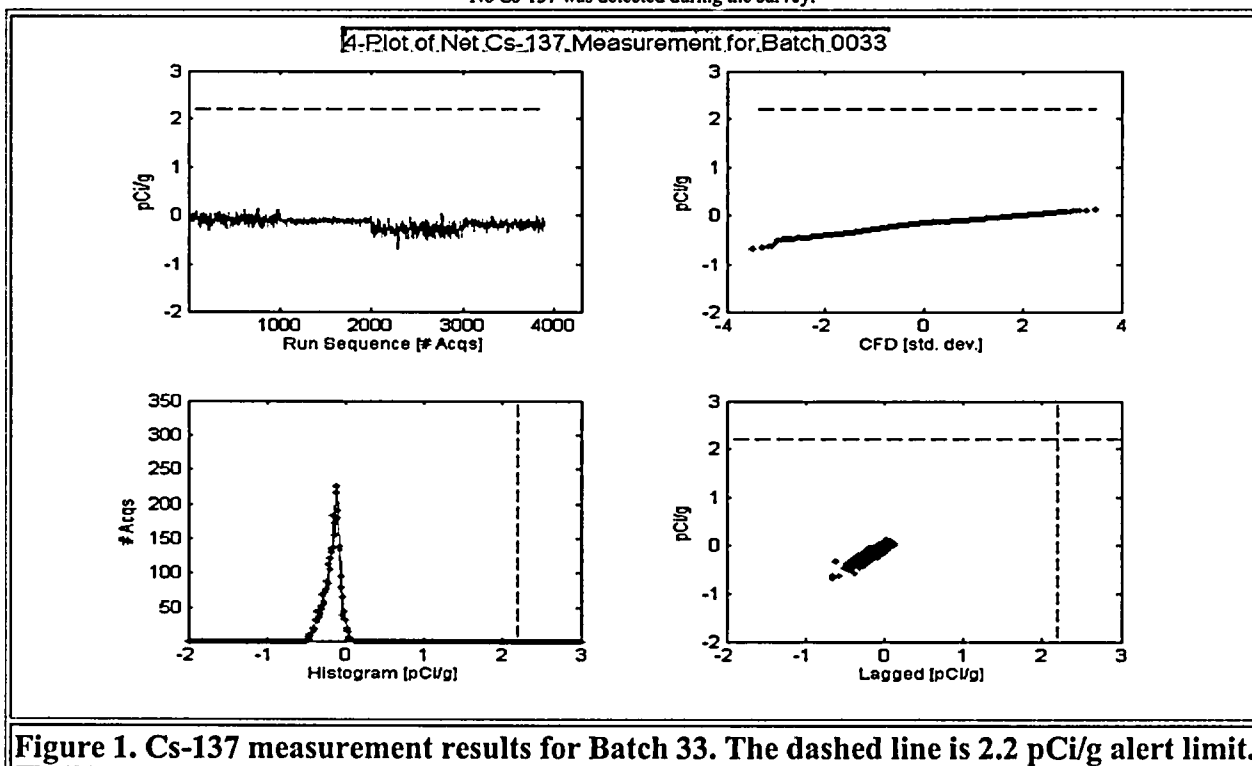
Date and Time	Filename	Acquisitions	Sum of Acquisitions
24-Apr-2003 16:00:08	32-01.N01	229	229
24-Apr-2003 16:19:34	32-02.N01	218	447
28-Apr-2003 11:41:44	32-03.N01	2714	3161
28-Apr-2003 14:07:18	32-04.N01	504	3665

Survey Release Record

Survey Location Code	SR-55, Batch 0033		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 29-Apr-2003 11:09:34		
Surveyor	M. Marcial		
Tons Surveyed	301		
Moisture Content [%]	3.6	Dry Density [lbs/ft ³]	87
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.17	-0.15	0.13	-0.67	0.21
K-40	8.76	8.56	12.63	5.85	1.93
Bi-214	1.73	1.68	3.00	0.98	0.59
Tl-208	0.40	0.39	0.60	0.23	0.30
Marinelli Sample					
Cs-137	0.10	Sample Log Number 5-13496			0.03
K-40	8.68				1.06
Bi-214	0.74				0.09
Tl-208	0.25				0.05

* No Cs-137 was detected during the survey.



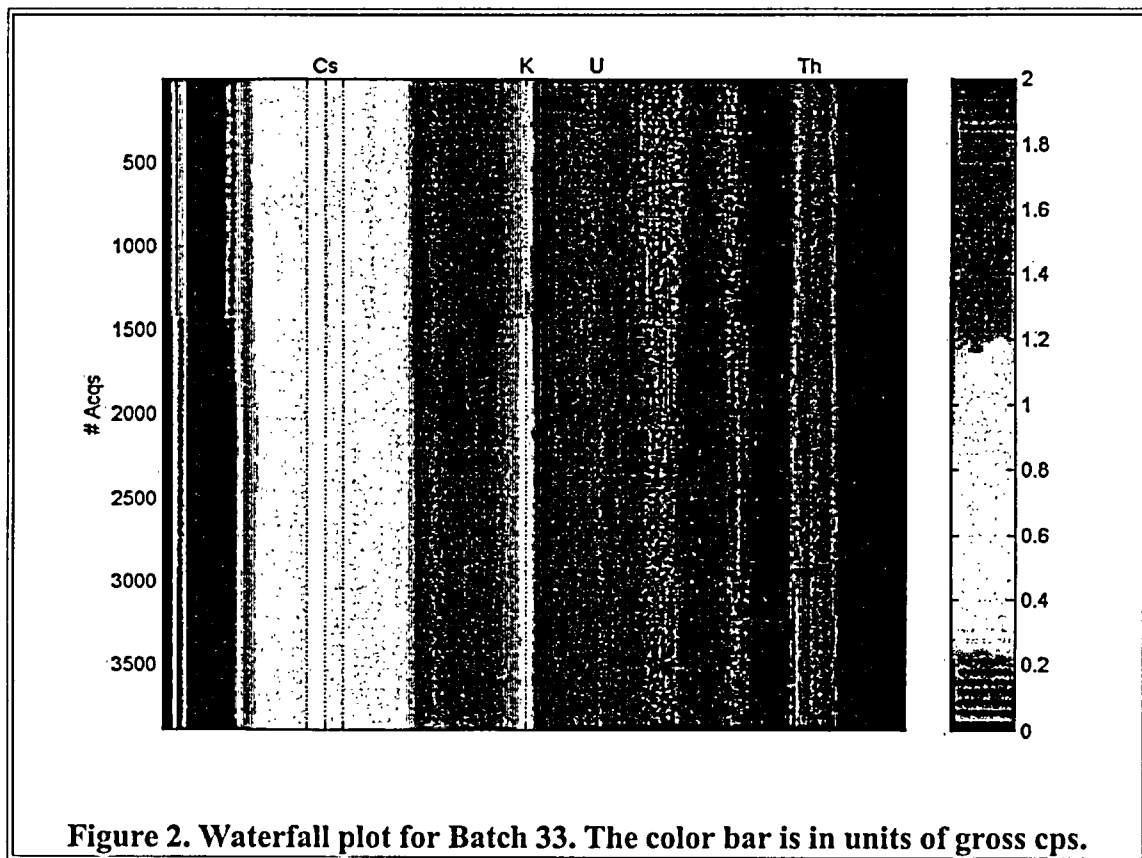


Figure 2. Waterfall plot for Batch 33. The color bar is in units of gross cps.

Table 2. Filenames for Batch 33.

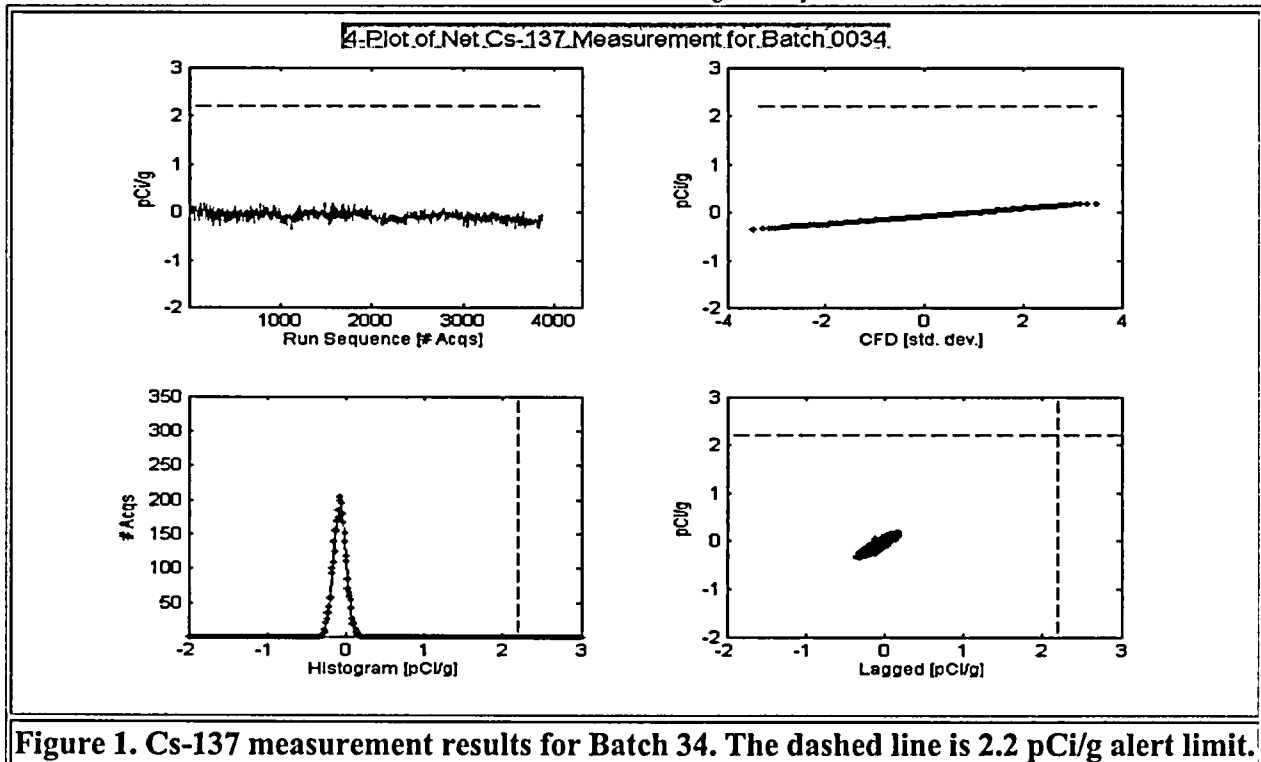
Date and Time	Filename	Acquisitions	Sum of Acquisitions
28-Apr-2003 15:33:34	33-01.N01	975	975
28-Apr-2003 15:54:40	33-02.N01	247	1222
28-Apr-2003 16:14:08	33-03.N01	206	1428
29-Apr-2003 10:48:04	33-04.N01	2219	3647
29-Apr-2003 11:09:34	33-04.N02	250	3897

Survey Release Record

Survey Location Code	SR-55, Batch 0034		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 30-Apr-2003 11:37:02		
Surveyor	M. Marcial		
Tons Surveyed	299		
Moisture Content [%]	14.4	Dry Density [lbs/ft ³]	78
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.07	-0.07	0.19	-0.35	0.16
K-40	9.56	9.28	14.37	5.35	2.13
Bi-214	1.75	1.71	2.94	0.69	0.43
Tl-208	0.45	0.43	0.67	0.26	0.34
Marinelli Sample					
Cs-137	0.07	Sample Log Number 5-13510			0.03
K-40	9.92				1.21
Bi-214	0.80				0.09
Tl-208	0.30				0.05

*No Cs-137 was detected during the survey.



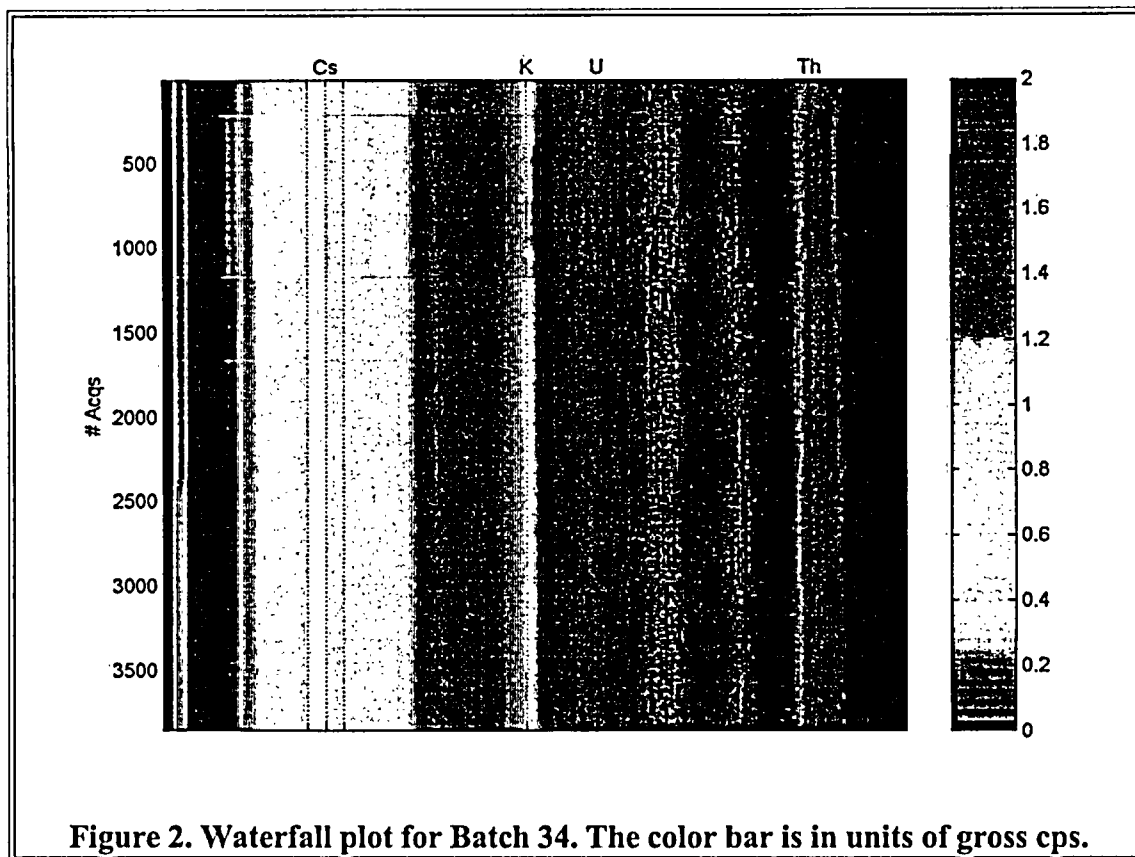


Figure 2. Waterfall plot for Batch 34. The color bar is in units of gross cps.

Table 2. Filenames for Batch 34.

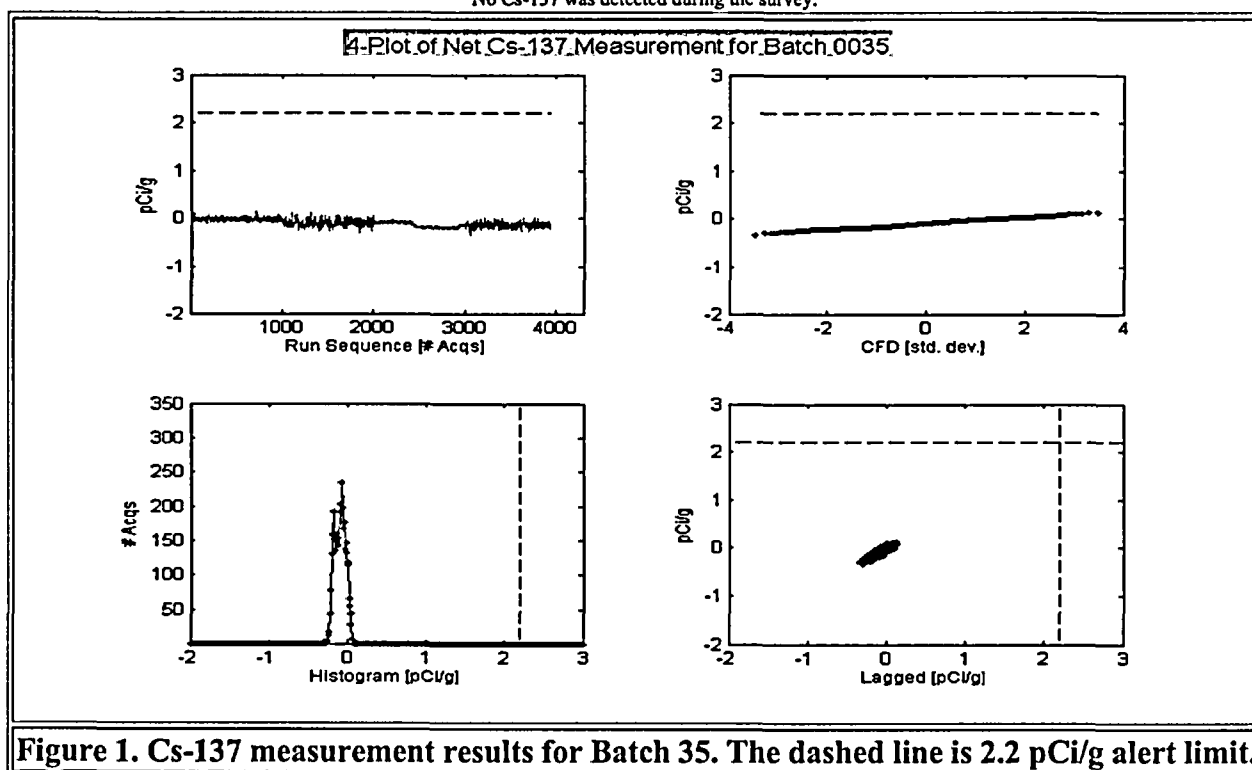
Date and Time	Filename	Acquisitions	Sum of Acquisitions
29-Apr-2003 11:29:44	34-01.N01	212	212
29-Apr-2003 15:01:52	34-02.N01	263	475
29-Apr-2003 15:32:38	34-02.N02	243	718
29-Apr-2003 15:53:30	34-03.N01	242	960
29-Apr-2003 16:13:12	34-04.N01	219	1179
30-Apr-2003 11:37:02	34-05.N01	2691	3870

Survey Release Record

Survey Location Code	SR-55, Batch 0035		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 01-May-2003 09:59:36		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	13.2	Dry Density [lbs/ft ³]	87
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.09	-0.09	0.14	-0.33	0.14
K-40	9.44	9.35	13.58	5.72	1.91
Bi-214	1.69	1.66	2.92	0.74	0.36
Tl-208	0.45	0.43	0.64	0.28	0.34
Marinelli Sample					
Cs-137	0.07	Sample Log Number 1-13547			0.03
K-40	9.02				1.04
Bi-214	0.81				0.09
Tl-208	0.33				0.05

*No Cs-137 was detected during the survey.



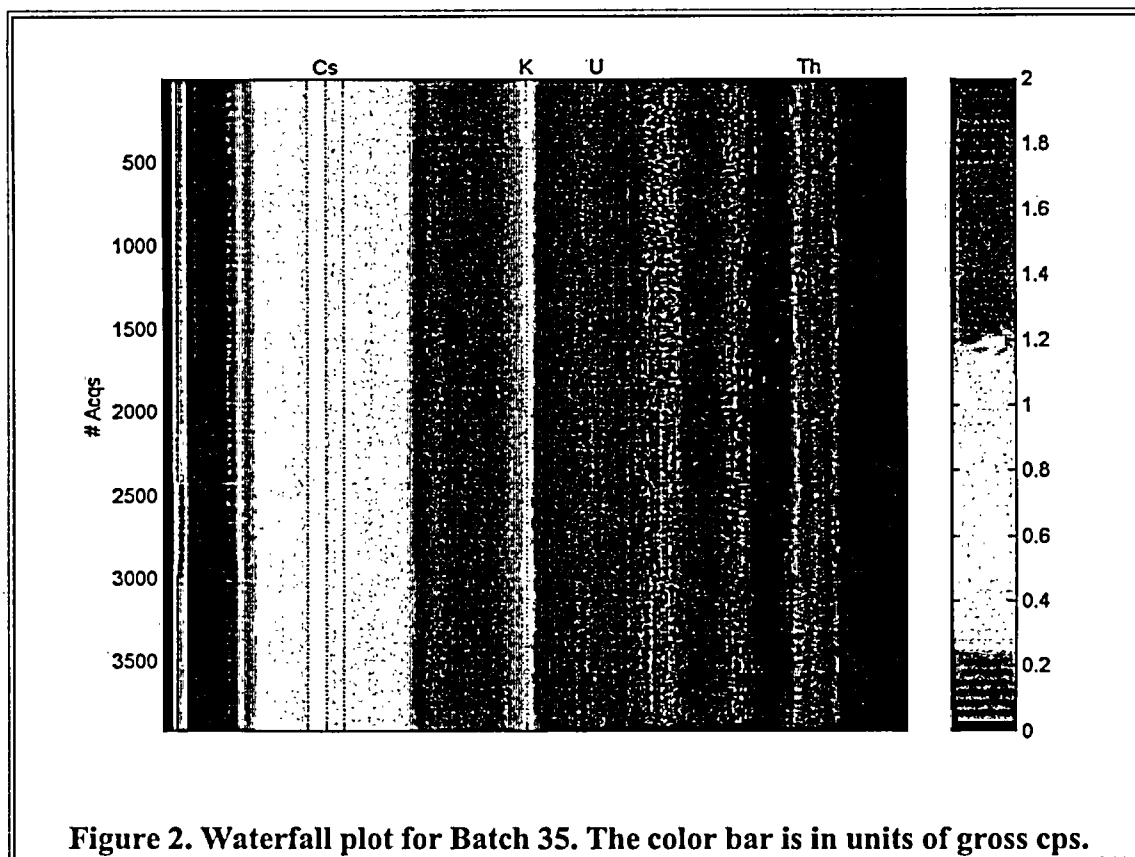


Table 2. Filenames for Batch 35.

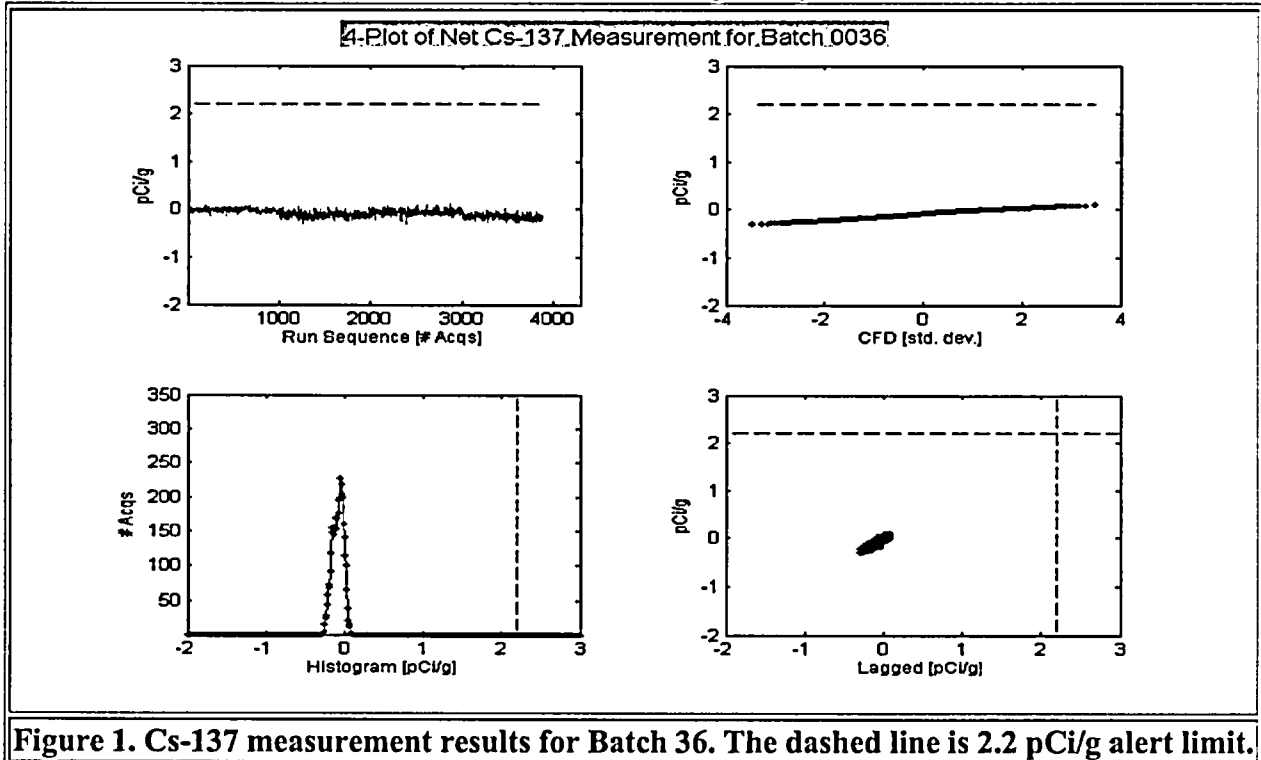
Date and Time	Filename	Acquisitions	Sum of Acquisitions
30-Apr-2003 15:50:34	35-01.N01	2209	2209
30-Apr-2003 16:11:08	35-02.N01	227	2436
01-May-2003 09:59:36	35-03.N01	1502	3938

Survey Release Record

Survey Location Code	SR-55, Batch 0036		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 05-May-2003 08:08:54		
Surveyor	M. Marcial		
Tons Surveyed	300		
Moisture Content [%]	11.7	Dry Density [lbs/ft ³]	83
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.08	-0.08	0.11	-0.30	0.14
K-40	8.85	8.73	15.44	5.41	1.64
Bi-214	1.64	1.64	2.37	0.85	0.34
Tl-208	0.43	0.43	0.65	0.25	0.24
Marinelli Sample					
Cs-137	0.06	Sample Log Number 1-13585			0.03
K-40	8.48				1.01
Bi-214	0.75				0.09
Tl-208	0.26				0.04

*No Cs-137 was detected during the survey.



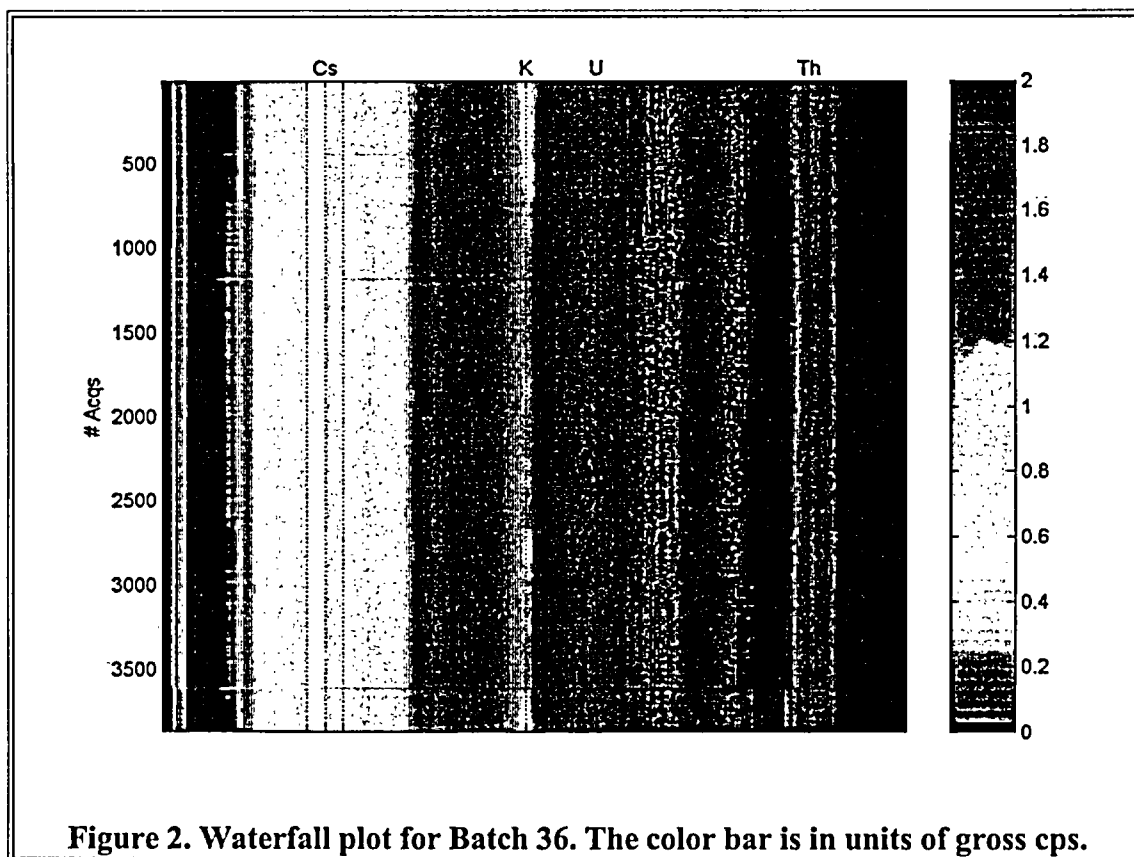


Figure 2. Waterfall plot for Batch 36. The color bar is in units of gross cps.

Table 2. Filenames for Batch 36.

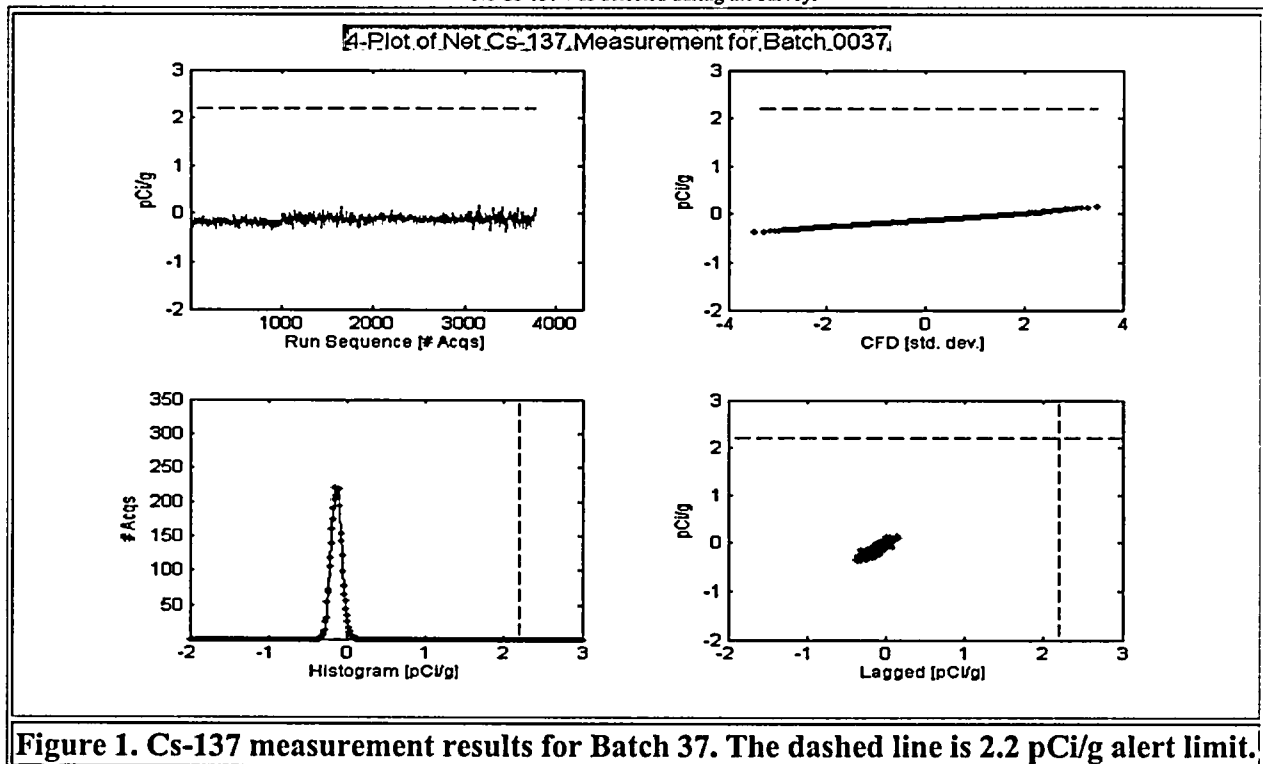
Date and Time	Filename	Acquisitions	Sum of Acquisitions
01-May-2003 11:04:38	36-01.N01	728	728
01-May-2003 11:47:02	36-01.N02	458	1186
01-May-2003 15:30:48	36-02.N01	1931	3117
01-May-2003 15:54:32	36-02.N02	275	3392
01-May-2003 16:17:40	36-03.N01	234	3626
05-May-2003 08:08:54	36-04.N01	258	3884

Survey Release Record

Survey Location Code	SR-55, Batch 0037		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 05-May-2003 14:47:00		
Surveyor	M. Marcial		
Tons Surveyed	292		
Moisture Content [%]	13.9	Dry Density [lbs/ft ³]	75
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.13	-0.13	0.16	-0.38	0.14
K-40	9.23	9.07	13.59	6.06	1.70
Bi-214	1.91	1.89	2.89	1.07	0.41
Tl-208	0.44	0.43	0.66	0.26	0.29
Marinelli Sample					
Cs-137	0.07	Sample Log Number 5-13584			0.03
K-40	9.62				1.17
Bi-214	0.85				0.10
Tl-208	0.33				0.06

*No Cs-137 was detected during the survey.



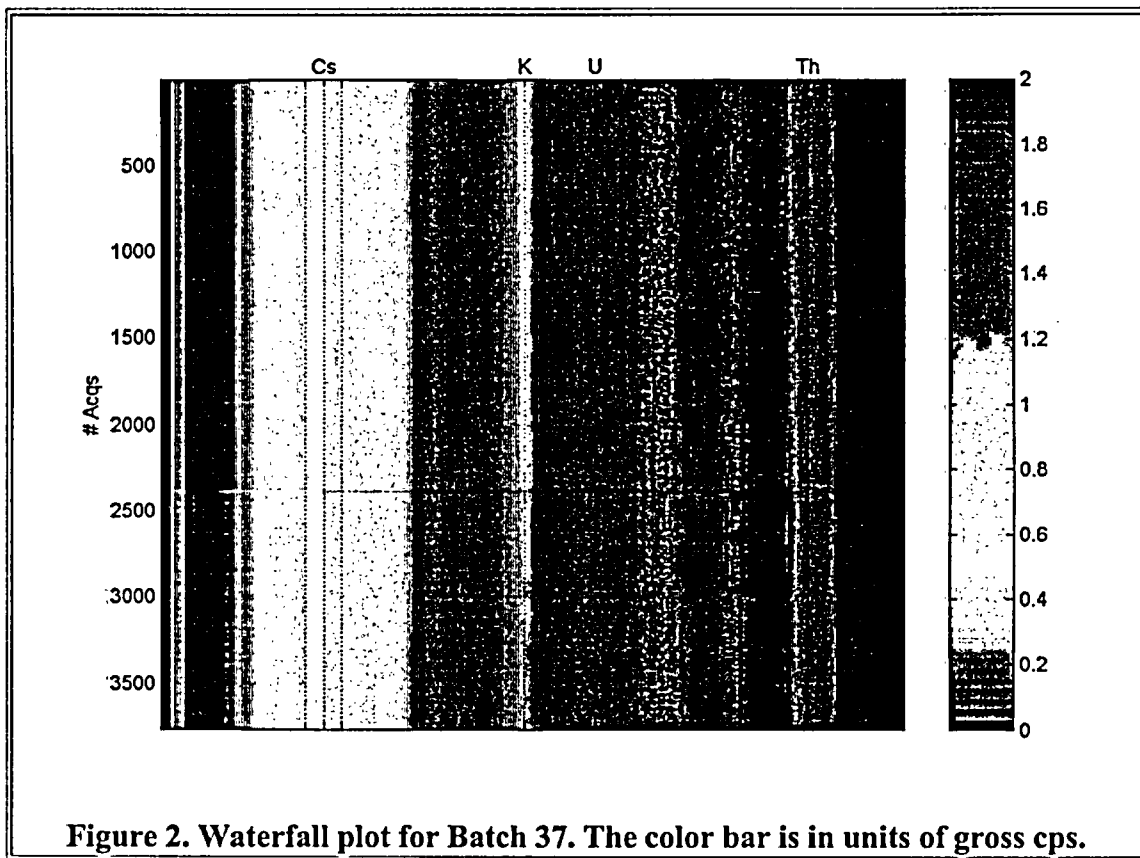


Figure 2. Waterfall plot for Batch 37. The color bar is in units of gross cps.

Table 2. Filenames for Batch 37.

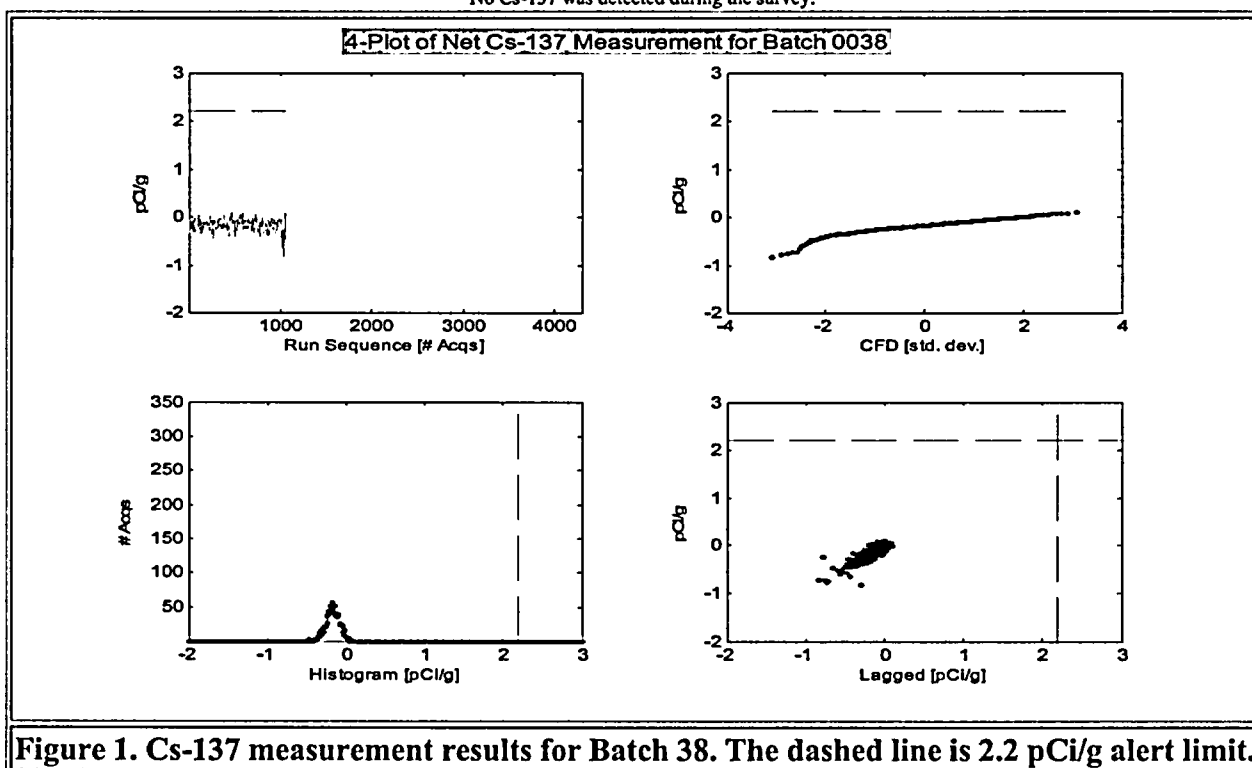
Date and Time	Filename	Acquisitions	Sum of Acquisitions
05-May-2003 11:41:40	37-01.N01	2392	2392
05-May-2003 14:47:00	37-02.N01	1389	3781

Survey Release Record

Survey Location Code	SR-55, Batch 0038		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-Mar-2003 14:22:12, 05-May-2003 16:28:48		
Surveyor	M. Marcial		
Tons Surveyed	82		
Moisture Content [%]	14.8	Dry Density [lbs/ft ³]	71
Surveyed Material	Crushed Brick, Concrete, Tile and Grout		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	-0.17	-0.17	0.10	-0.83	0.21
K-40	9.36	9.20	14.78	4.92	1.53
Bi-214	1.77	1.76	4.33	0.99	0.31
Tl-208	0.44	0.43	0.54	0.27	0.17
Marinelli Sample					
Cs-137	0.06	Sample Log Number 1-13603			0.02
K-40	9.71				1.14
Bi-214	0.81				0.09
Tl-208	0.27				0.04

*No Cs-137 was detected during the survey.



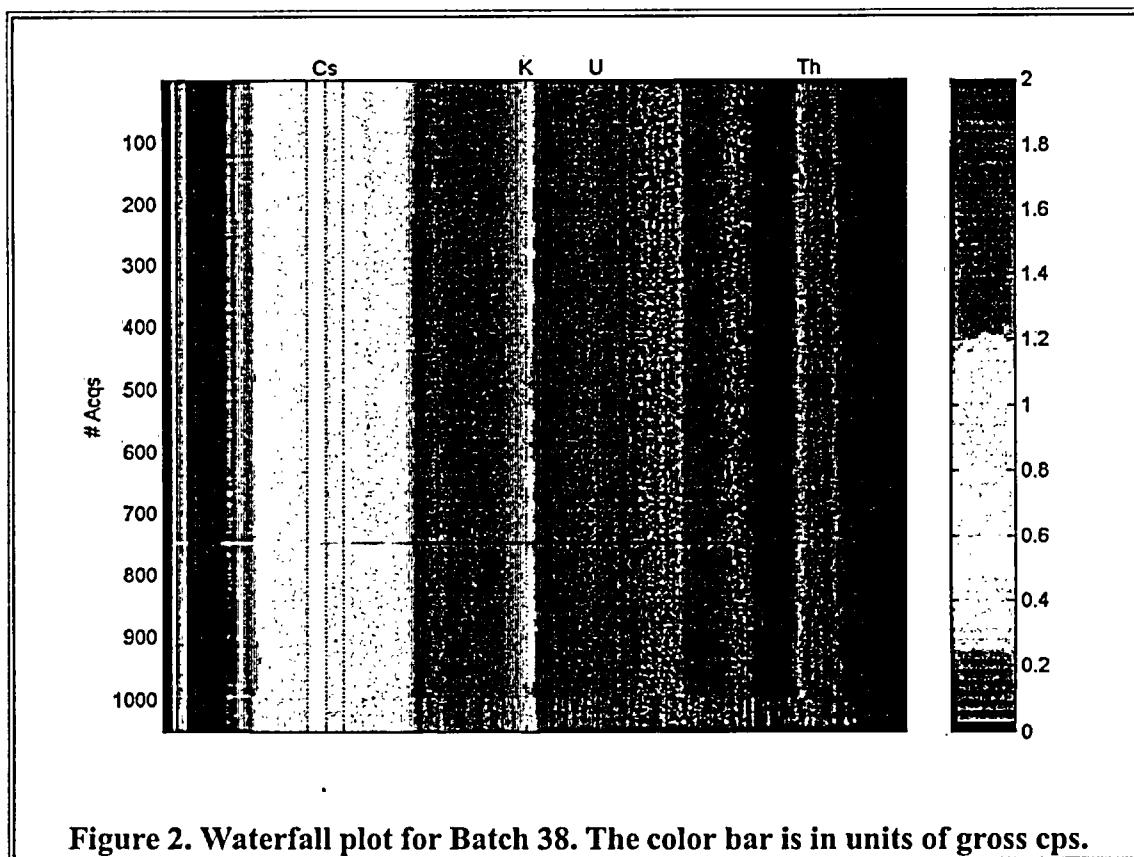


Table 2. Filenames for Batch 38.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
05-May-2003 16:28:48	38-01.N01	1059	1059

Survey Release Record

Survey Location Code	SR-62, Batch 0001, (SRA Batch 0039)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	13-May-2003 09:05:32, 14-May-2003 15:00:52		
Surveyor	M. Marcial		
Tons Surveyed	209		
Moisture Content [%]	14.7	Dry Density [lbs/ft ³]	58
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.73	1.72	2.08	0.24	0.23
K-40	11.63	11.68	18.43	5.86	2.08
Bi-214	1.82	1.82	3.42	0.78	0.37
Tl-208	0.42	0.42	0.66	0.26	0.21
Marinelli Sample					
Cs-137	0.70	Sample Log Number 5-13734			0.12
K-40	11.61				1.50
Bi-214	1.11				0.14
Tl-208	0.41				0.08
Cs-137	0.57	Sample Log Number 1-13752			0.10
K-40	13.80				1.73
Bi-214	0.97				0.12
Tl-208	0.40				0.07

*Four alarms during survey. Suspect material removed.

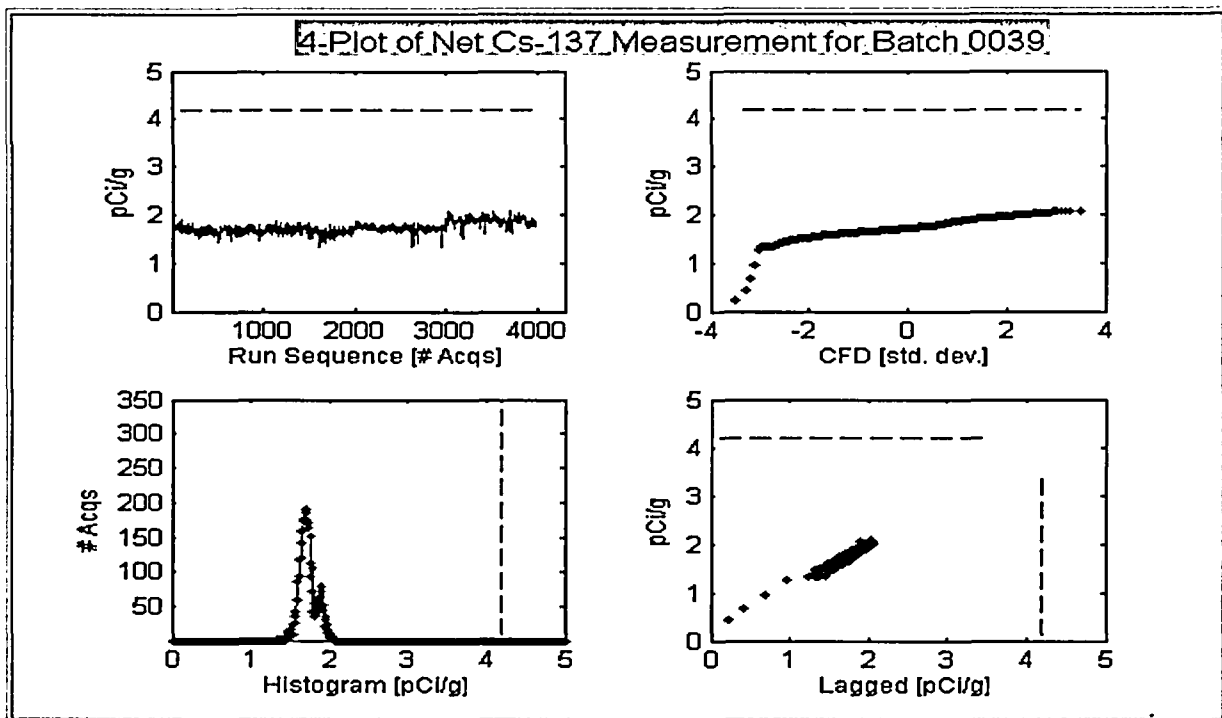


Figure 1. Cs-137 measurement results for Batch 39. The dashed line is 4.2 pCi/g limit.

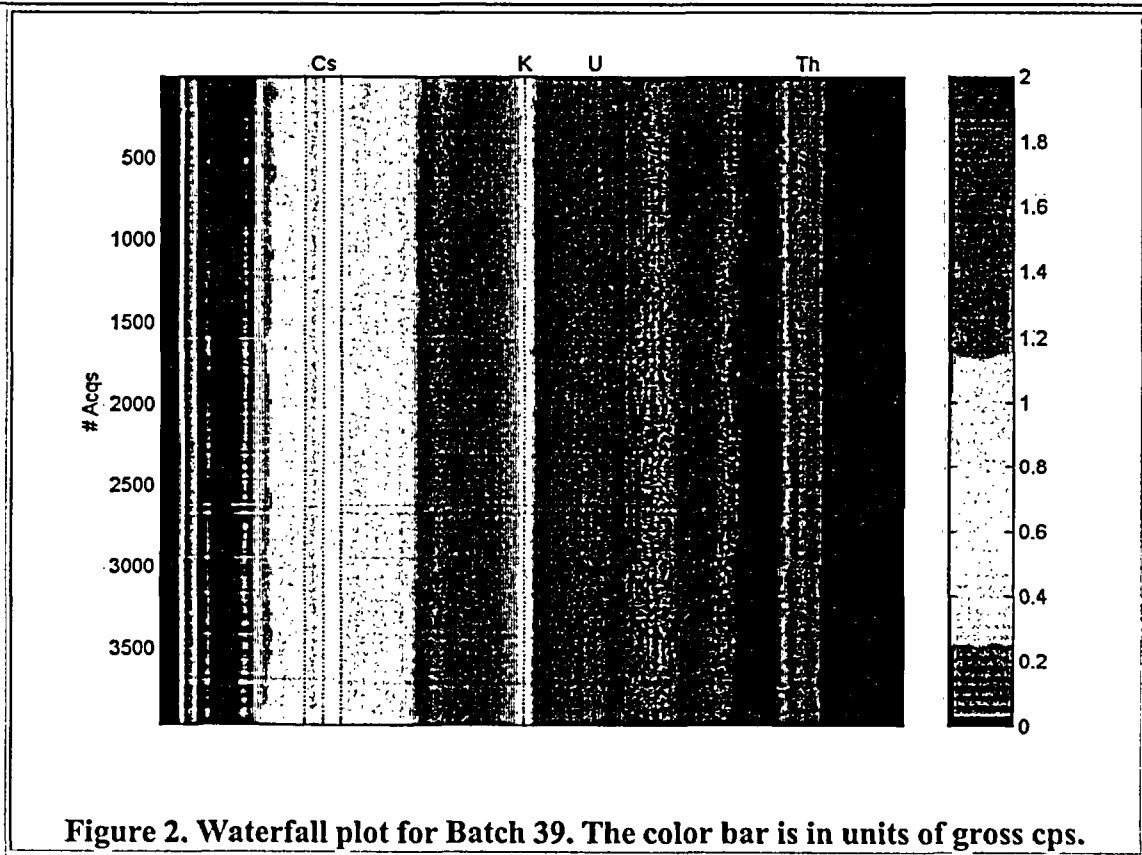


Figure 2. Waterfall plot for Batch 39. The color bar is in units of gross cps.

Table 2. Filenames for Batch 39.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
13-May-2003 09:05:32	39-01.N01	167	167
13-May-2003 09:13:54	39-01.N02	66	233
13-May-2003 09:44:58	39-02.N01	237	470
13-May-2003 10:08:28	39-03.N01	236	706
13-May-2003 10:33:58	39-04.N01	242	948
13-May-2003 10:56:36	39-05.N01	235	1183
13-May-2003 11:19:36	39-06.N01	256	1439
13-May-2003 11:33:40	39-07.N01	157	1596
13-May-2003 12:56:24	39-07.N02	4	1600
13-May-2003 14:12:52	39-08.N01	258	1858
13-May-2003 15:46:42	39-09.N01	827	2685
13-May-2003 16:16:48	39-09.N02	265	2950
14-May-2003 08:14:48	39-10.N01	68	3018
14-May-2003 08:22:58	39-10.N02	3	3021
14-May-2003 08:39:36	39-10.N03	3	3024
14-May-2003 09:15:58	39-10.N04	147	3171
14-May-2003 13:14:58	39-11.N01	242	3413
14-May-2003 13:41:18	39-11.N03	4	3417
14-May-2003 13:44:52	39-11.N04	4	3421
14-May-2003 14:12:20	39-12.N01	247	3668
14-May-2003 14:18:26	39-12.N02	32	3700
14-May-2003 14:32:30	39-12.N05	5	3705
14-May-2003 15:00:52	39-12.N06	276	3981

Survey Release Record

Survey Location Code	SR-62, Batch 0002, (SRA Batch 0040)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	14-May-2003 15:48:50, 20-May-2003 07:59:32		
Surveyor	M. Marcial		
Tons Surveyed	210		
Moisture Content [%]	13.1	Dry Density [lbs/ft ³]	75
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.76	1.77	2.32	0.38	0.48
K-40	12.31	12.28	17.47	1.49	2.29
Bi-214	1.79	1.77	4.87	-0.00	0.40
Tl-208	0.41	0.40	0.59	0.24	0.21
Marinelli Sample					
Cs-137	1.00	Sample Log Number 5-13757			0.12
K-40	16.37				1.83
Bi-214	0.84				0.11
Tl-208	0.38				0.07
Cs-137	0.58	Sample Log Number 1-13774			0.09
K-40	16.25				1.81
Bi-214	0.85				0.11
Tl-208	0.40				0.06

*One alarm during survey. Suspect material removed.

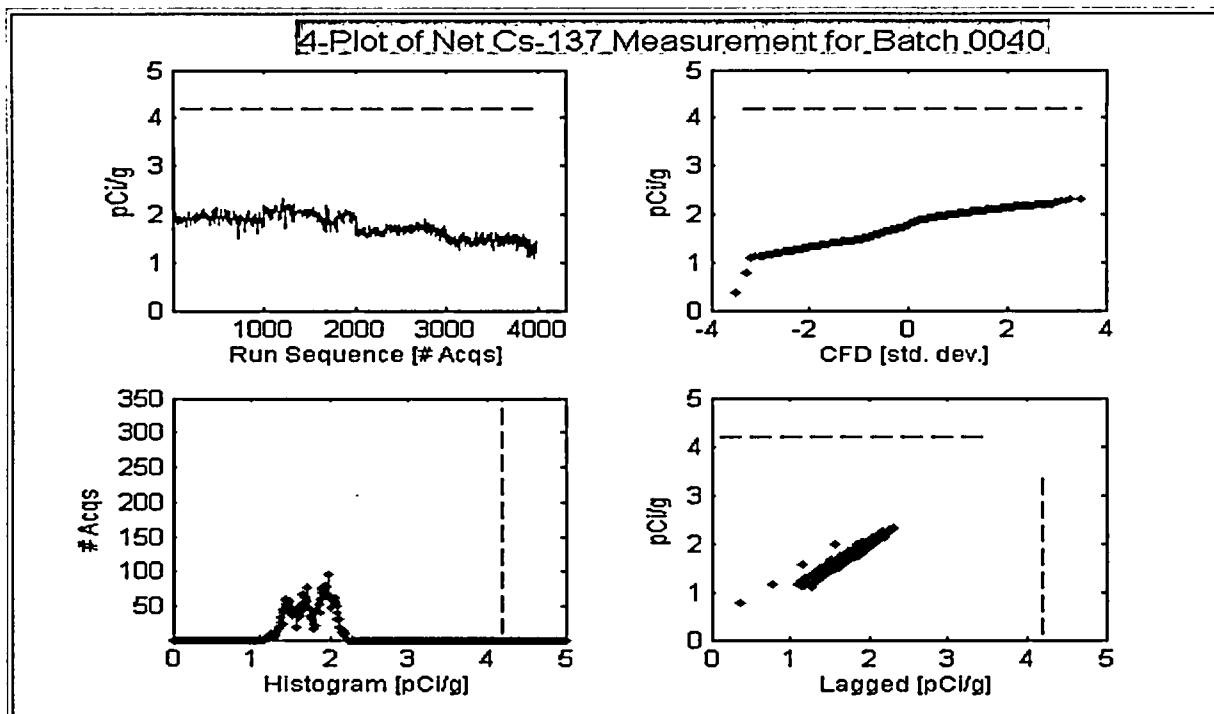


Figure 1. Cs-137 measurement results for Batch 40. The dashed line is 4.2 pCi/g limit.

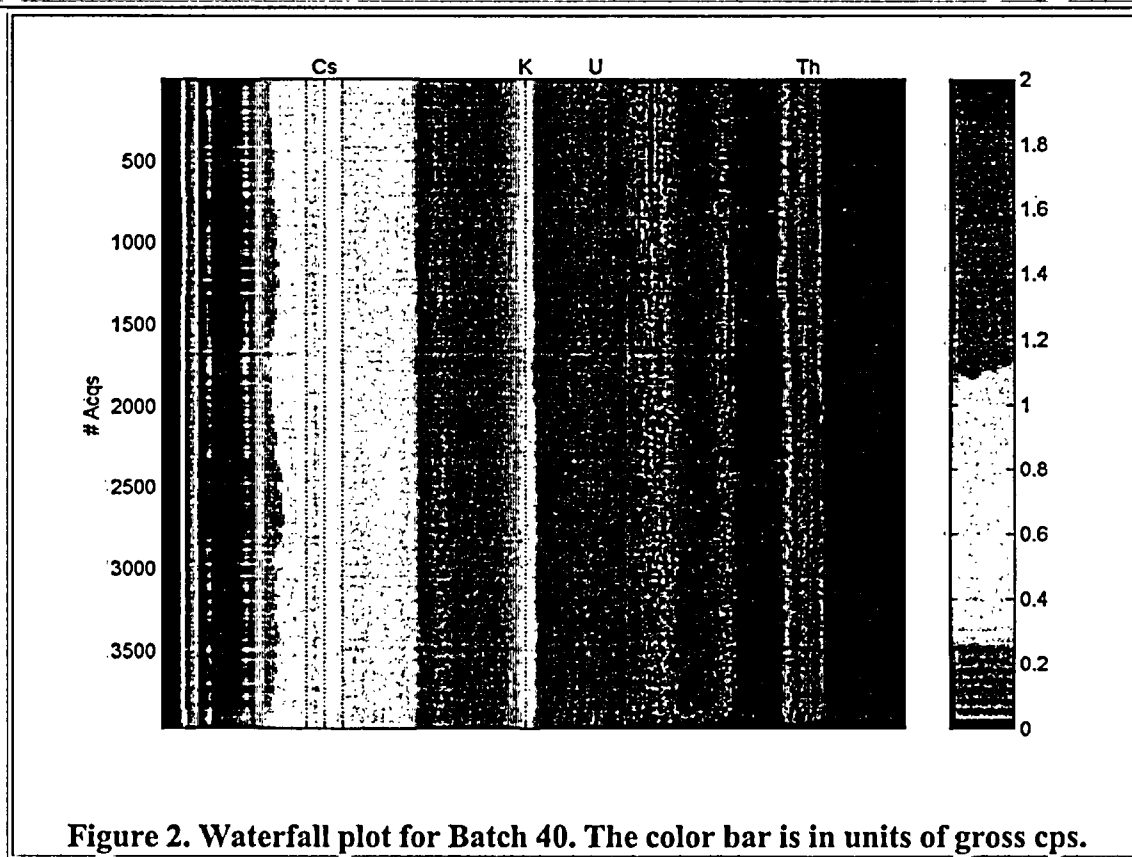


Figure 2. Waterfall plot for Batch 40. The color bar is in units of gross cps.

Table 2. Filenames for Batch 40.

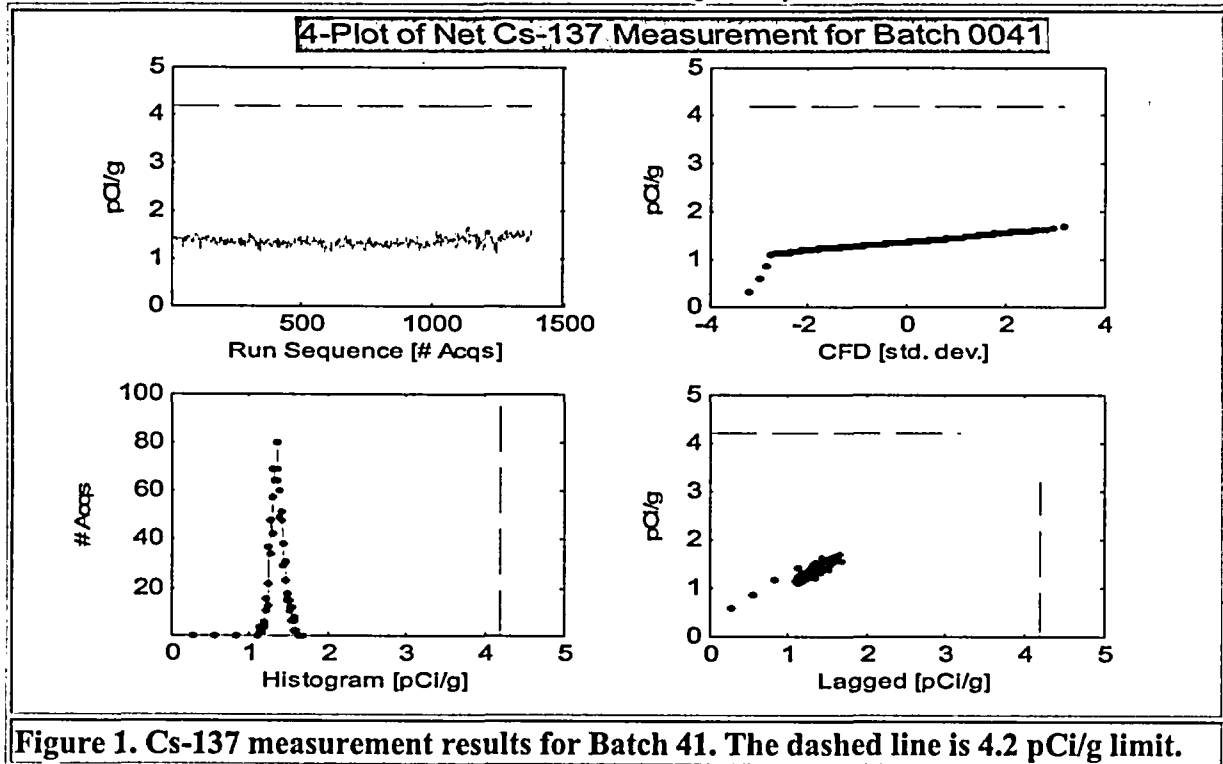
Date and Time	Filename	Acquisitions	Sum of Acquisitions
14-May-2003 15:48:50	40-01.N01	484	484
14-May-2003 16:24:30	40-01.N02	238	722
15-May-2003 10:09:52	40-03.N01	500	1222
15-May-2003 10:19:32	40-03.N02	8	1230
15-May-2003 10:28:26	40-03.N03	4	1234
15-May-2003 10:39:32	40-03.N04	71	1305
15-May-2003 10:50:10	40-03.N05	26	1331
15-May-2003 11:23:46	40-03.N06	260	1591
15-May-2003 11:45:38	40-03.N07	77	1668
15-May-2003 15:19:38	40-04.N01	1527	3195
15-May-2003 15:54:50	40-05.N01	329	3524
15-May-2003 16:28:40	40-06.N01	354	3878
20-May-2003 07:59:32	40-07.N01	114	3992

Survey Release Record

Survey Location Code	SR-62, Batch 0003, (SRA Batch 0041)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	20-May-2003 09:53:46, 20-May-2003 13:08:52		
Surveyor	M. Marcial		
Tons Surveyed	72		
Moisture Content [%]	39.4	Dry Density [lbs/ft ³]	59
Surveyed Material	Sediment Pumped from the SSGS Tunnels		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.36	1.35	1.67	0.30	0.19
K-40	10.50	10.40	15.93	6.97	2.05
Bi-214	2.06	2.04	3.35	0.89	0.50
Tl-208	0.47	0.45	0.70	0.34	0.37
Marinelli Sample					
Cs-137	0.42	Sample Log Number 4-13809			0.08
K-40	7.86				1.20
Bi-214	0.83				0.12
Tl-208	0.34				0.07

*No Cs-137 was detected during the survey.



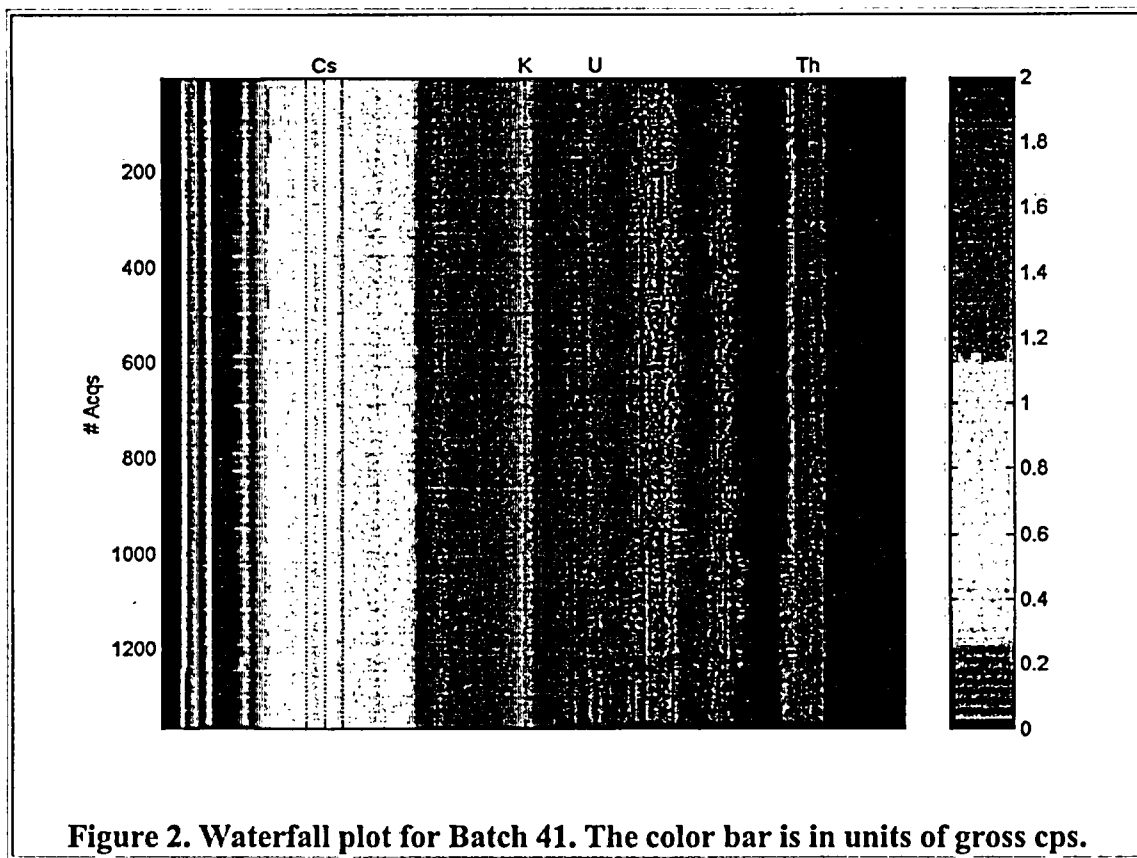


Figure 2. Waterfall plot for Batch 41. The color bar is in units of gross cps.

Table 2. Filenames for Batch 41.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
20-May-2003 09:53:46	41-01.N01	622	622
20-May-2003 10:51:44	41-01.N02	378	1000
20-May-2003 11:23:48	41-01.N03	249	1249
20-May-2003 12:58:34	41-02.N01	74	1323
20-May-2003 13:08:52	41-02.N02	54	1377

Survey Release Record

Survey Location Code	SR-62, Batch 0004, (SRA Batch 0042)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	23-Jun-2003 11:30:28, 25-Jun-2003 08:45:56		
Surveyor	M. Marcial		
Tons Surveyed	292		
Moisture Content [%]	10.8	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.29	1.29	1.56	0.20	0.15
K-40	10.59	10.52	15.54	5.79	1.92
Bi-214	1.62	1.60	2.90	0.78	0.34
Tl-208	0.39	0.39	0.60	0.22	0.20
Marinelli Sample					
Cs-137	0.55	Sample Log Number 5-14128			0.10
K-40	15.63				2.01
Bi-214	0.79				0.13
Tl-208	0.24				0.06
Cs-137	0.46	Sample Log Number 5-14143			0.08
K-40	15.29				1.87
Bi-214	0.77				0.13
Tl-208	0.39				0.07

*No Cs-137 was detected during the survey.

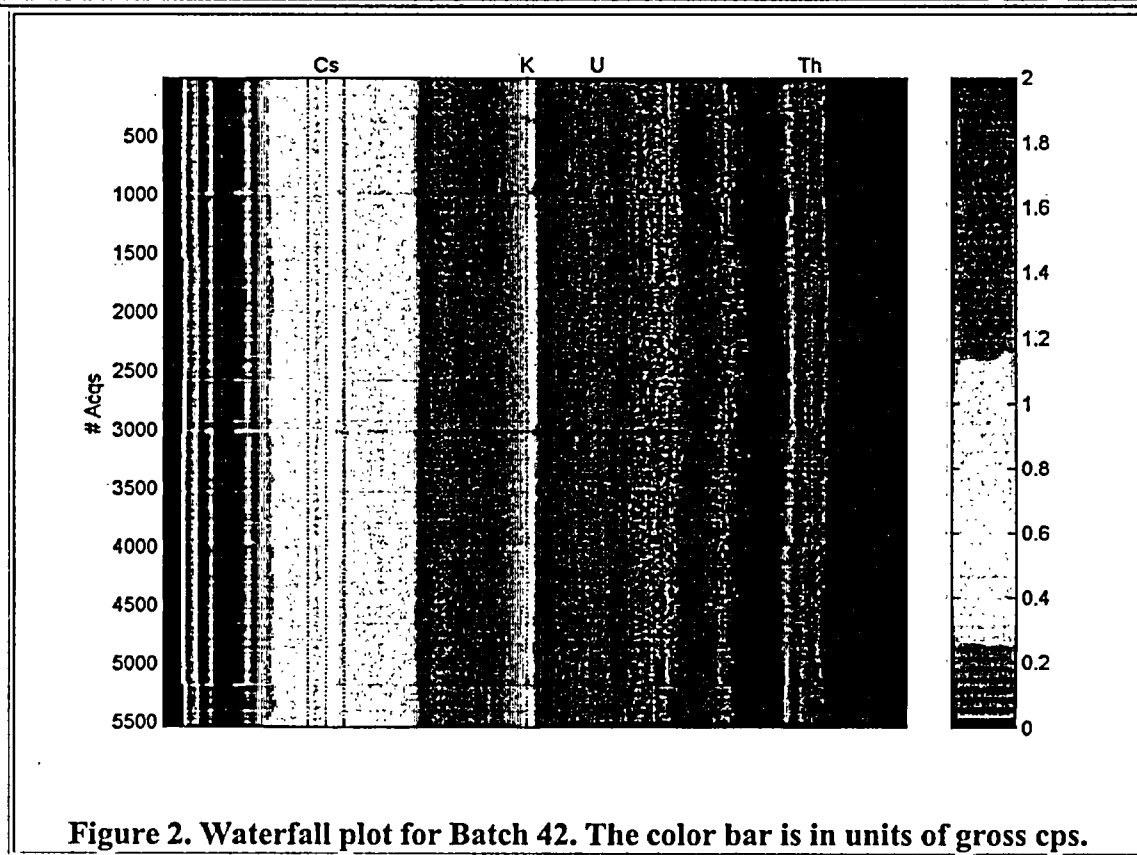
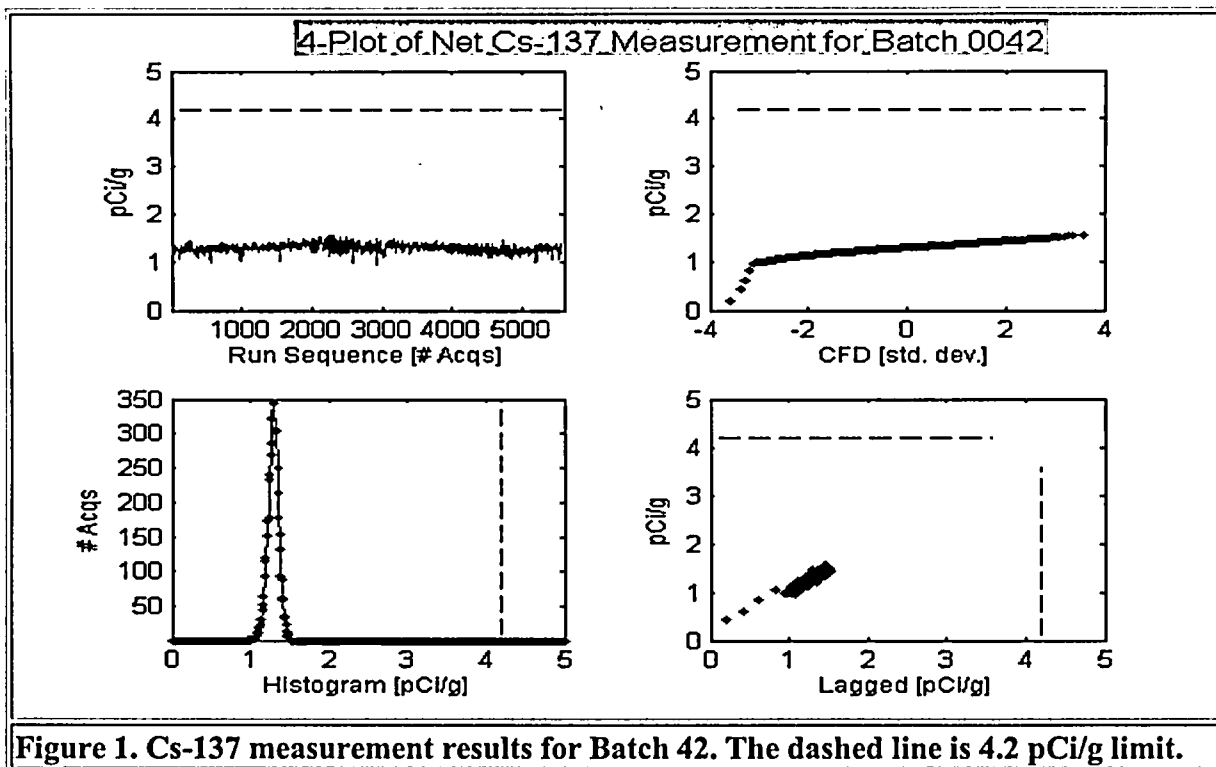


Table 2. Filenames for Batch 42.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
23-Jun-2003 11:30:28	42-01.N01	306	306
23-Jun-2003 12:05:08	42-01.N02	244	550
23-Jun-2003 13:25:26	42-02.N01	351	901
23-Jun-2003 15:00:54	42-03.N01	325	1226
23-Jun-2003 15:57:10	42-03.N02	321	1547
24-Jun-2003 09:40:50	42-04.N01	321	1868
24-Jun-2003 11:30:54	42-04.N03	714	2582
24-Jun-2003 12:02:46	42-04.N04	346	2928
24-Jun-2003 13:27:20	42-05.N01	379	3307
24-Jun-2003 13:59:04	42-05.N02	370	3677
24-Jun-2003 14:31:20	42-05.N03	374	4051
24-Jun-2003 15:36:26	42-05.N04	751	4802
24-Jun-2003 16:10:38	42-05.N05	397	5199
25-Jun-2003 08:45:56	42-06.N01	365	5564

Survey Release Record

Survey Location Code	SR-62, Batch 0005, (SRA Batch 0043)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	25-Jun-2003 08:50:10, 26-Jun-2003 11:51:16		
Surveyor	M. Marcial		
Tons Surveyed	311		
Moisture Content [%]	12.3	Dry Density [lbs/ft ³]	79
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.52	1.52	1.83	0.29	0.20
K-40	11.37	11.28	16.80	0.00	2.04
Bi-214	1.69	1.69	2.79	0.00	0.38
Tl-208	0.40	0.40	0.63	0.00	0.21
Marinelli Sample					
Cs-137	0.56	Sample Log Number 1-14165			0.09
K-40	17.47				2.17
Bi-214	0.82				0.12
Tl-208	0.35				0.07
Cs-137	0.61	Sample Log Number 1-14170			0.10
K-40	16.23				2.09
Bi-214	0.85				0.12
Tl-208	0.38				0.08

*Two alarms during survey. Suspect material removed.

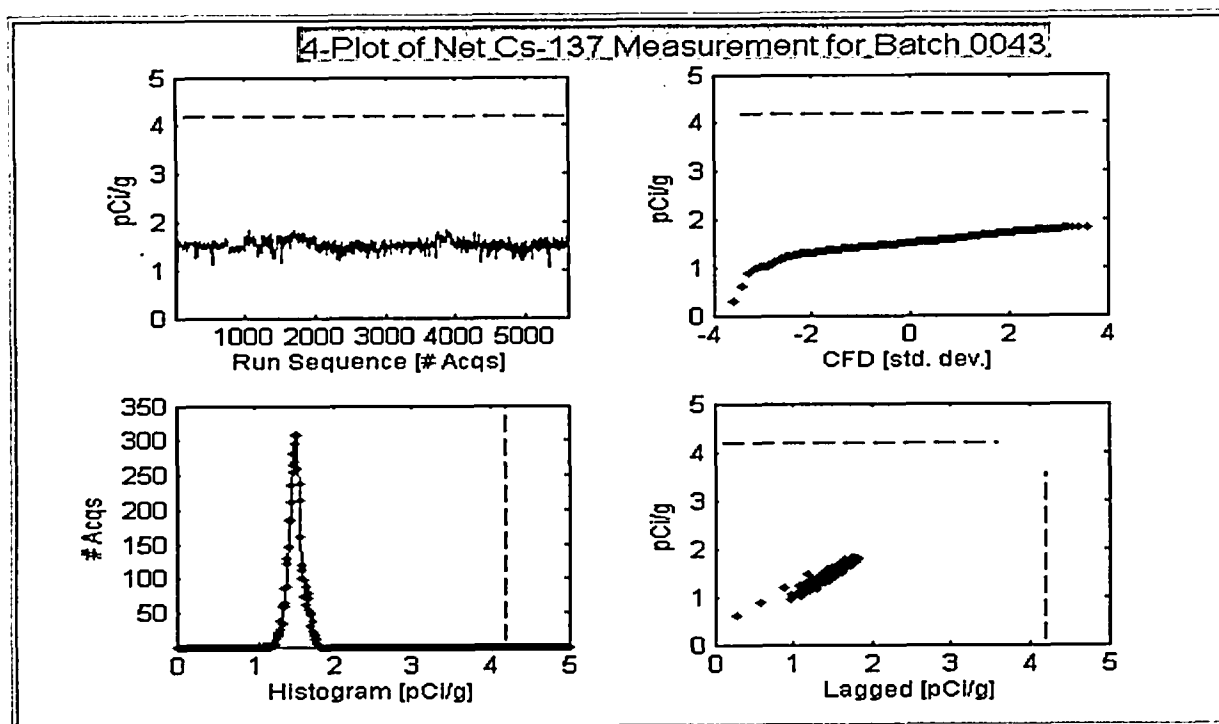


Figure 1. Cs-137 measurement results for Batch 43. The dashed line is 4.2 pCi/g limit.

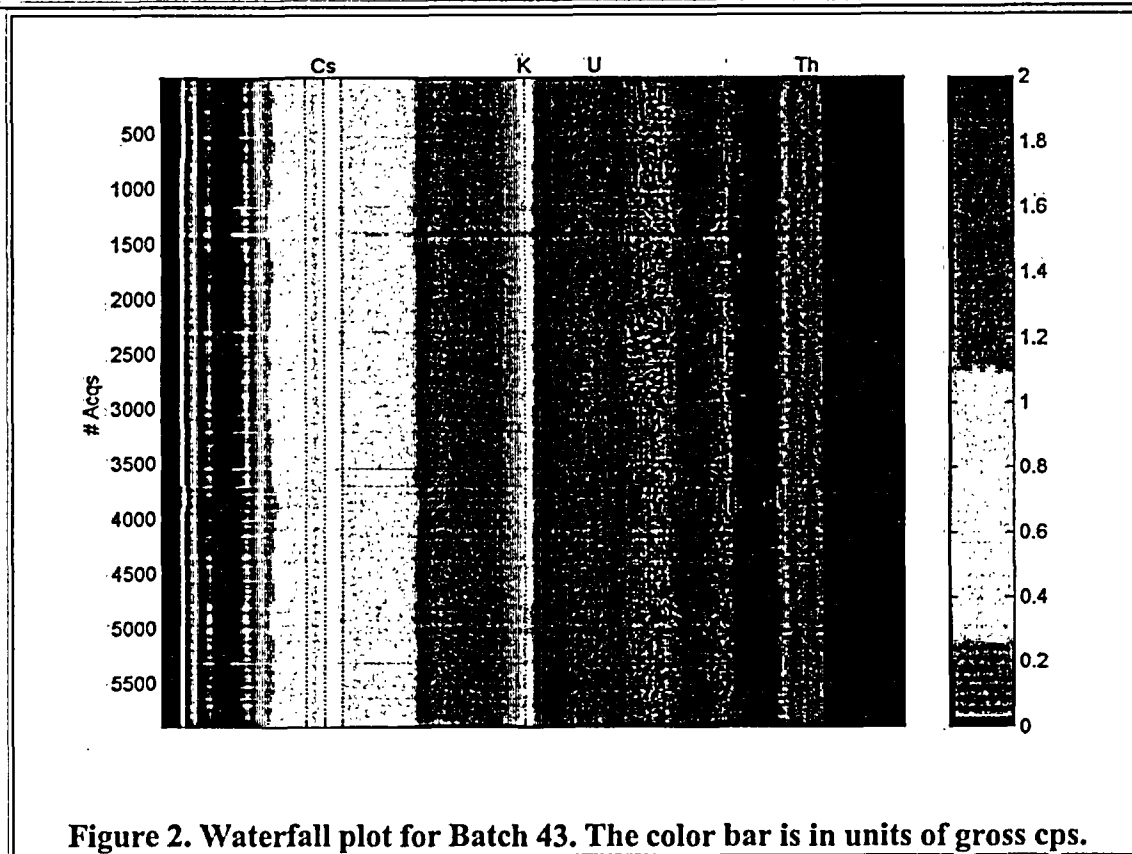


Figure 2. Waterfall plot for Batch 43. The color bar is in units of gross cps.

Table 2. Filenames for Batch 43.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
25-Jun-2003 08:50:10	43-01.N01	36	36
25-Jun-2003 09:00:02	43-01.N02	4	40
25-Jun-2003 10:00:40	43-01.N03	483	523
25-Jun-2003 10:42:28	43-01.N04	219	742
25-Jun-2003 10:45:22	43-02.N01	20	762
25-Jun-2003 11:52:46	43-02.N02	761	1523
25-Jun-2003 13:53:28	43-03.N01	768	2291
25-Jun-2003 14:25:08	43-03.N02	344	2635
25-Jun-2003 14:32:54	43-03.N03	76	2711
25-Jun-2003 15:34:38	43-03.N04	636	3347
25-Jun-2003 16:07:34	43-04.N01	373	3720
26-Jun-2003 08:50:12	43-05.N01	199	3919
26-Jun-2003 08:53:24	43-05.N02	6	3925
26-Jun-2003 09:08:36	43-05.N03	160	4085
26-Jun-2003 11:18:04	43-06.N01	1456	5541
26-Jun-2003 11:51:16	43-06.N02	381	5922

Survey Release Record

Survey Location Code	SR-62, Batch 0006, (SRA Batch 0044)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	26-Jun-2003 15:39:00, 01-Jul-2003 09:32:30		
Surveyor	M. Marcial		
Tons Surveyed	308		
Moisture Content [%]	8.7	Dry Density [lbs/ft ³]	82
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.64	1.60	2.04	0.21	0.36
K-40	11.61	11.67	15.30	6.52	2.24
Bi-214	1.63	1.64	2.32	0.64	0.29
Tl-208	0.40	0.40	0.50	0.23	0.16
Marinelli Sample					
Cs-137	0.62	Sample Log Number 1-14177			0.94
K-40	16.31				2.06
Bi-214	0.78				0.13
Tl-208	0.39				0.07
Cs-137	0.66	Sample Log Number 1-14182			0.08
K-40	16.81				1.88
Bi-214	0.78				0.10
Tl-208	0.34				0.05

*Two alarms during survey. Suspect material removed.

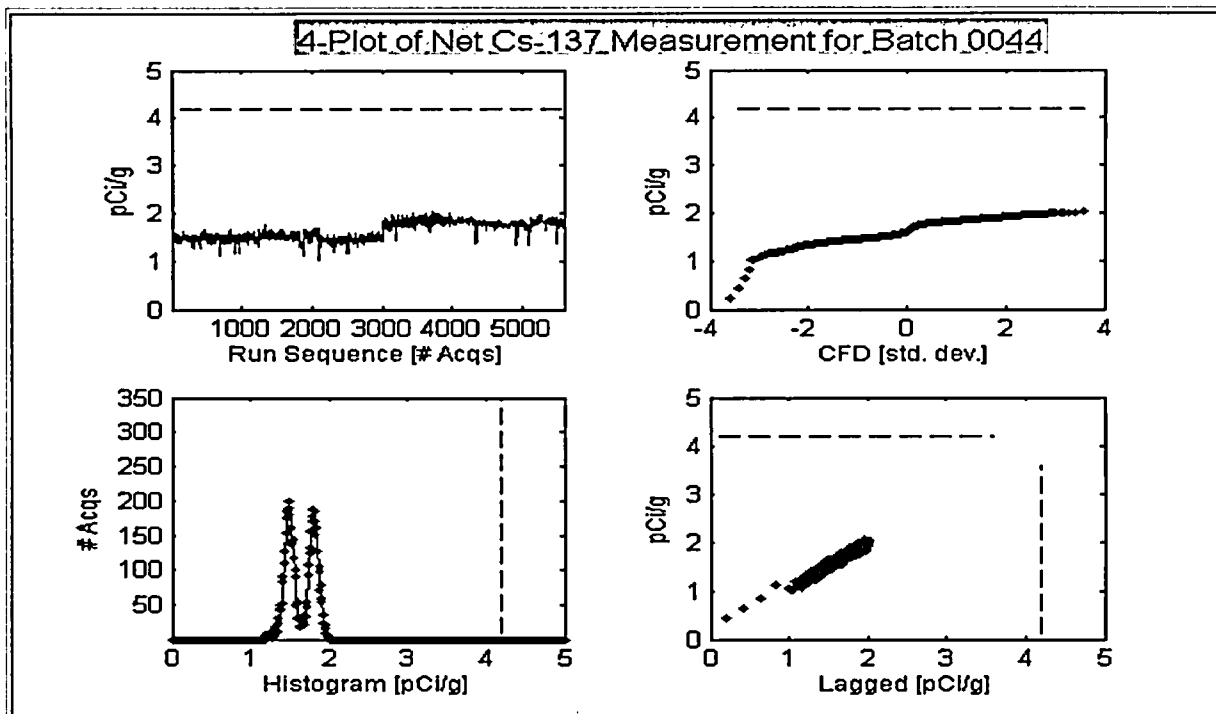


Figure 1. Cs-137 measurement results for Batch 44. The dashed line is 4.2 pCi/g limit.

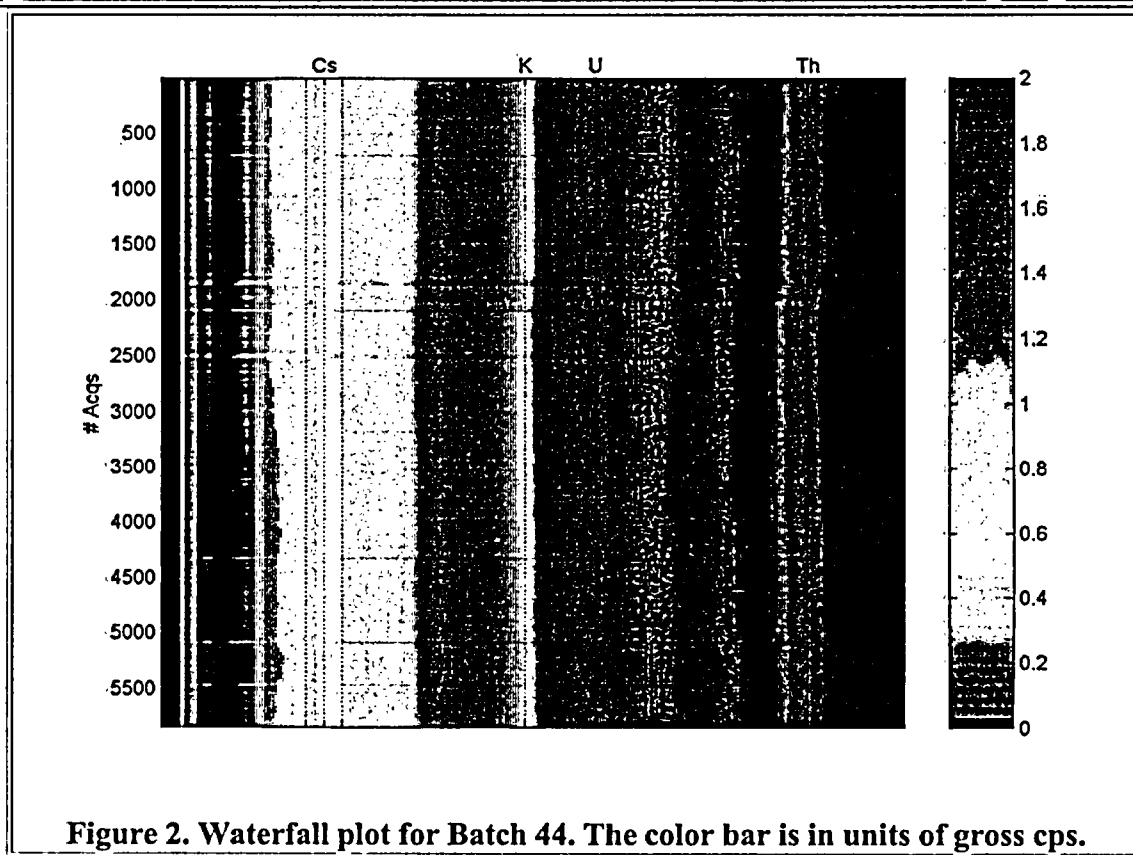


Figure 2. Waterfall plot for Batch 44. The color bar is in units of gross cps.

Table 2. Filenames for Batch 44.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
26-Jun-2003 15:39:00	44-01.N01	1762	1762
26-Jun-2003 16:12:18	44-01.N02	344	2106
30-Jun-2003 09:56:22	44-02.N02	746	2852
30-Jun-2003 12:05:18	44-02.N03	1490	4342
30-Jun-2003 13:06:14	44-03.N01	52	4394
30-Jun-2003 13:57:00	44-03.N02	522	4916
30-Jun-2003 14:24:30	44-03.N03	188	5104
01-Jul-2003 08:48:56	44-04.N01	376	5480
01-Jul-2003 08:58:20	44-04.N02	10	5490
01-Jul-2003 09:32:30	44-04.N03	381	5871

Survey Release Record

Survey Location Code	SR-62, Batch 0007, (SRA Batch 0045)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	01-Jul-2003 09:53:08, 03-Jul-2003 09:59:48		
Surveyor	M. Marcial		
Tons Surveyed	306		
Moisture Content [%]	9.6	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.89	1.87	2.29	0.35	0.36
K-40	11.88	11.83	20.15	2.41	1.87
Bi-214	1.69	1.69	2.83	0.42	0.31
Tl-208	0.40	0.40	0.64	0.09	0.16
Marinelli Sample					
Cs-137	0.72	Sample Log Number 4-14197			0.11
K-40	15.56				2.01
Bi-214	0.80				0.12
Tl-208	0.37				0.07
Cs-137	0.86	Sample Log Number 4-14207			0.13
K-40	15.52				2.09
Bi-214	0.87				0.13
Tl-208	0.40				0.07

*Nine alarms during survey. Suspect material removed.

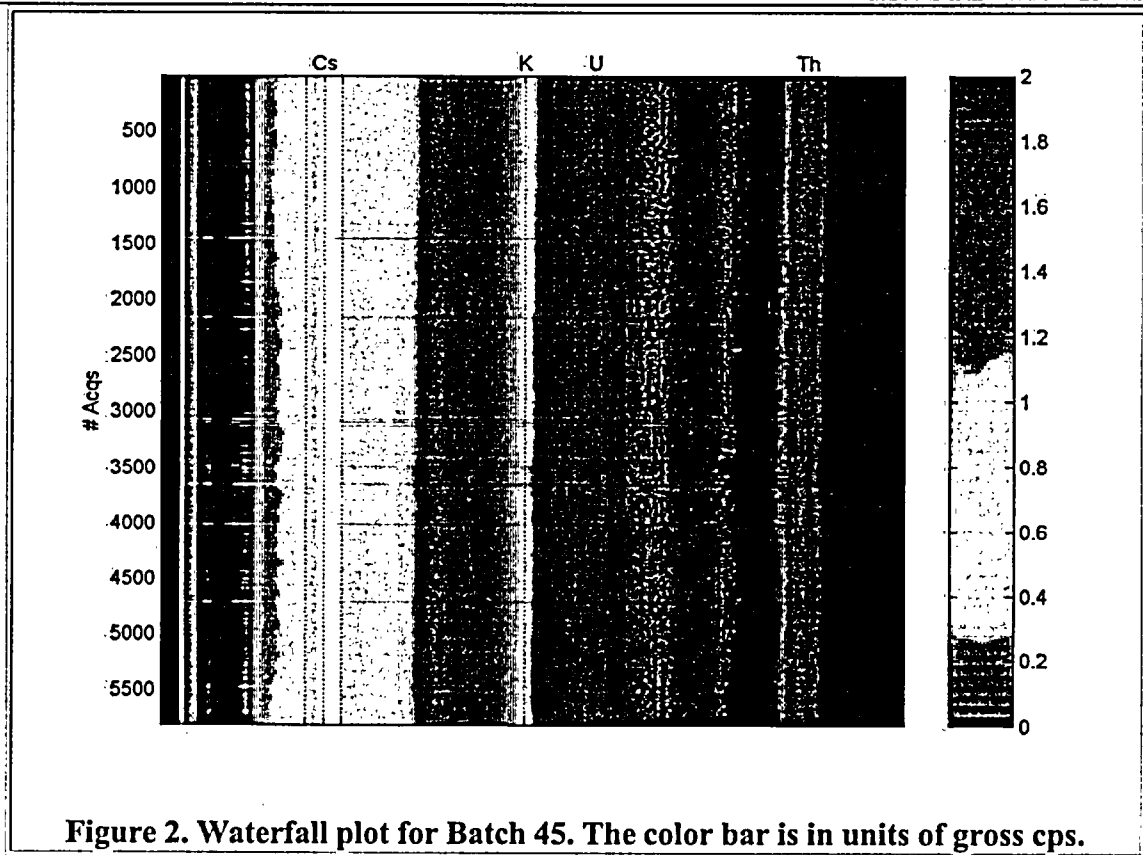
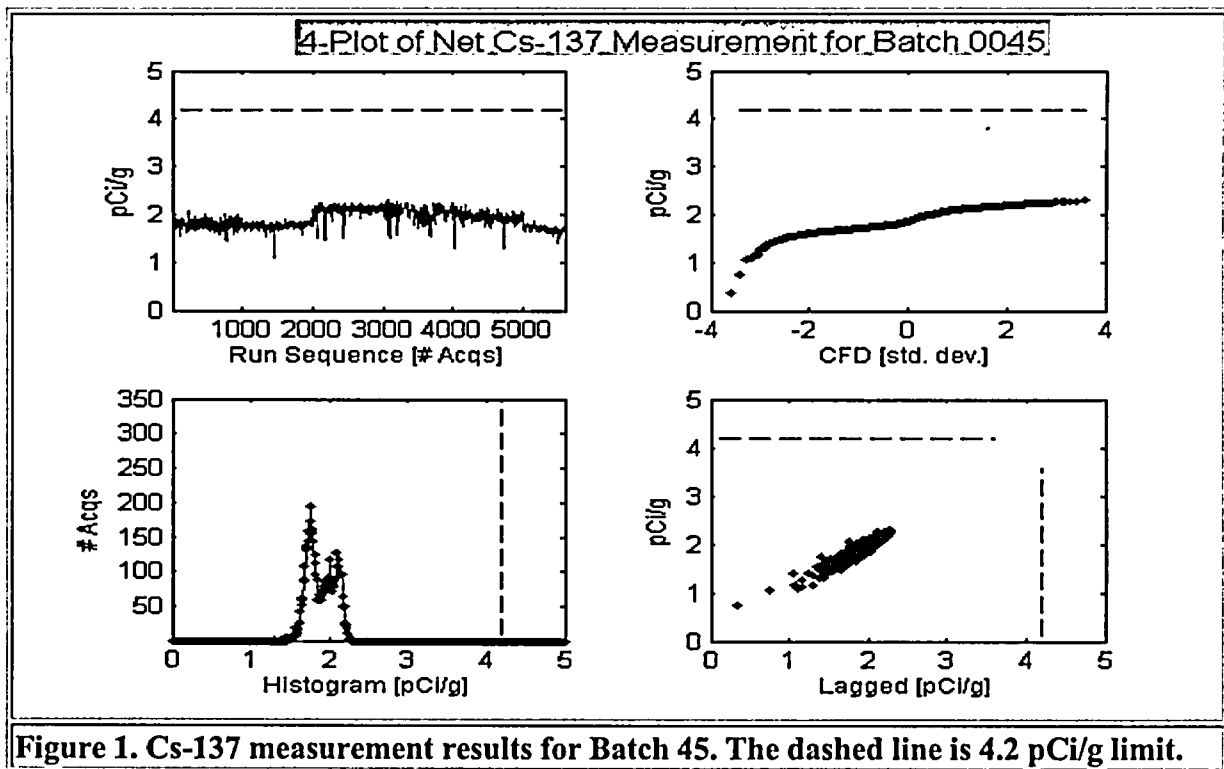


Table 2. Filenames for Batch 45.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
01-Jul-2003 09:53:08	45-01.N01	226	226
01-Jul-2003 10:16:54	45-01.N02	148	374
01-Jul-2003 10:51:22	45-02.N01	381	755
01-Jul-2003 11:18:40	45-02.N02	187	942
01-Jul-2003 11:30:02	45-02.N03	126	1068
01-Jul-2003 12:03:30	45-02.N04	388	1456
01-Jul-2003 14:18:14	45-03.N01	375	1831
01-Jul-2003 14:14:04	45-04.N01	340	2171
02-Jul-2003 08:51:58	45-05.N01	265	2436
02-Jul-2003 08:56:46	45-05.N02	7	2443
02-Jul-2003 09:06:44	45-05.N03	106	2549
02-Jul-2003 09:54:12	45-06.N01	525	3074
02-Jul-2003 10:01:02	45-06.N02	24	3098
02-Jul-2003 10:13:48	45-06.N03	96	3194
02-Jul-2003 10:17:48	45-06.N04	4	3198
02-Jul-2003 10:24:56	45-06.N05	27	3225
02-Jul-2003 10:36:44	45-06.N06	86	3311
02-Jul-2003 10:53:28	45-07.N01	175	3486
02-Jul-2003 11:19:20	45-07.N02	199	3685
02-Jul-2003 11:28:26	45-08.N01	84	3769
02-Jul-2003 11:56:40	45-08.N02	253	4022
02-Jul-2003 12:45:36	45-09.N01	42	4064
02-Jul-2003 12:56:20	45-09.N02	51	4115
02-Jul-2003 13:10:42	45-09.N03	101	4216
02-Jul-2003 13:20:30	45-09.N04	65	4281
02-Jul-2003 13:32:56	45-09.N05	85	4366
02-Jul-2003 13:36:50	45-10.N01	20	4386
02-Jul-2003 13:53:54	45-10.N02	42	4428
02-Jul-2003 14:27:34	45-10.N03	298	4726
03-Jul-2003 09:28:04	45-11.N01	749	5475
03-Jul-2003 09:59:48	45-11.N02	363	5838

Survey Release Record

Survey Location Code	SR-62, Batch 0008, (SRA Batch 0046)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	03-Jul-2003 11:41:24, 07-Jul-2003 15:24:54		
Surveyor	M. Marcial		
Tons Surveyed	306		
Moisture Content [%]	20.5	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.84	1.85	2.21	0.35	0.24
K-40	12.40	12.35	20.90	6.66	2.19
Bi-214	1.76	1.76	3.36	0.77	0.33
Tl-208	0.43	0.43	0.62	0.25	0.18
Marinelli Sample					
Cs-137	0.70	Sample Log Number 1-14218			0.11
K-40	17.82				2.22
Bi-214	0.67				0.11
Tl-208	0.43				0.08
Cs-137	0.73	Sample Log Number 5-14245			0.10
K-40	16.93				1.85
Bi-214	0.72				0.09
Tl-208	0.37				0.06

*One alarm during survey. Suspect material removed.

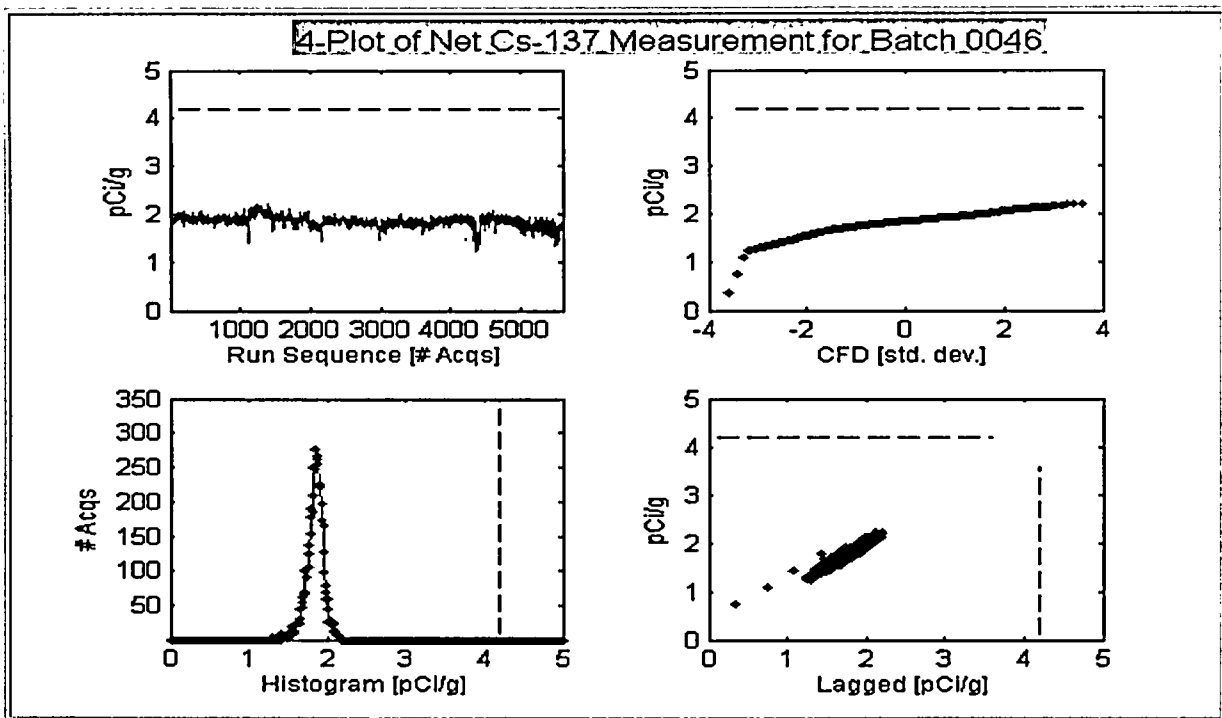


Figure 1. Cs-137 measurement results for Batch 46. The dashed line is 4.2 pCi/g limit.

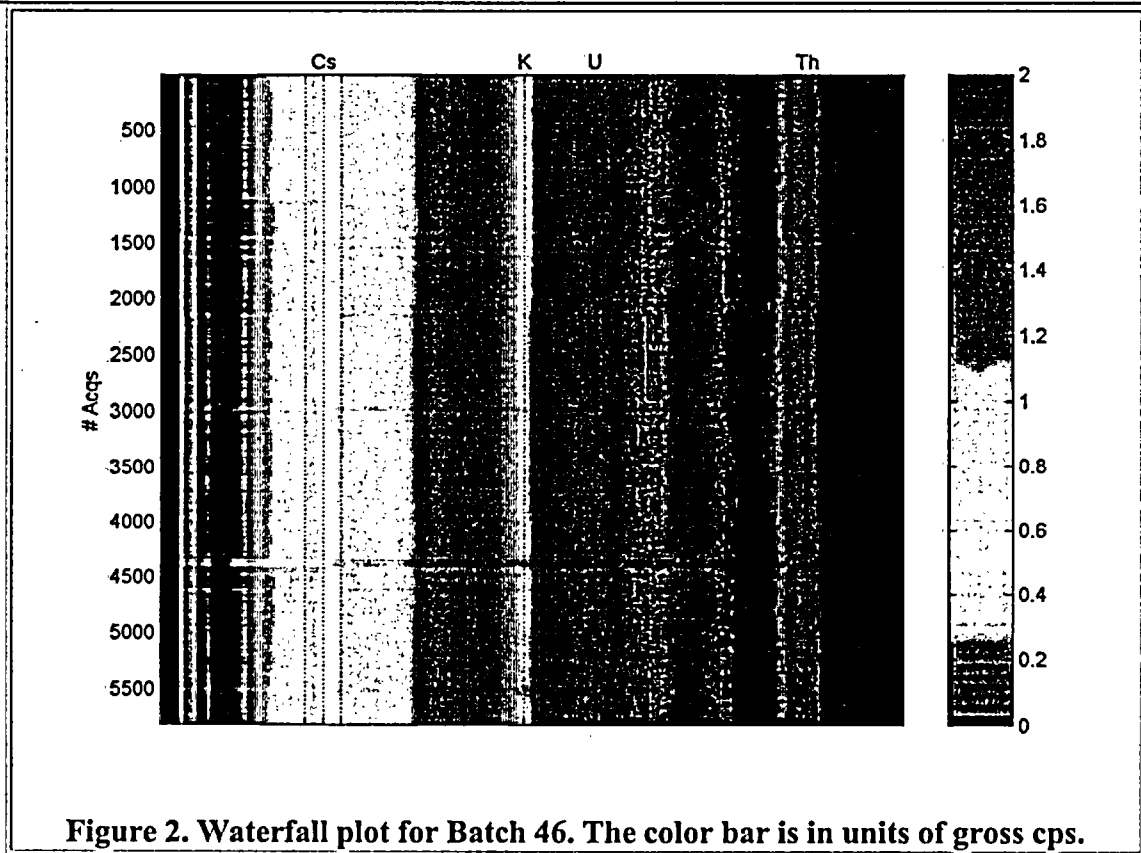


Figure 2. Waterfall plot for Batch 46. The color bar is in units of gross cps.

Table 2. Filenames for Batch 46.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
03-Jul-2003 11:41:24	46-01.N01	1108	1108
03-Jul-2003 13:08:06	46-02.N01	324	1432
03-Jul-2003 13:24:08	46-02.N02	54	1486
03-Jul-2003 13:55:12	46-03.N01	361	1847
03-Jul-2003 13:58:56	46-04.N01	28	1875
03-Jul-2003 14:28:24	46-04.N03	275	2150
07-Jul-2003 11:33:36	46-05.N01	2178	4328
07-Jul-2003 12:54:10	46-06.N01	39	4367
07-Jul-2003 13:27:00	46-06.N02	247	4614
07-Jul-2003 14:20:58	46-06.N03	490	5104
07-Jul-2003 15:24:54	46-06.N04	732	5836

Survey Release Record

Survey Location Code	SR-62, Batch 0009, (SRA Batch 0047)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	07-Jul-2003 15:53:46, 09-Jul-2003 09:08:08		
Surveyor	M. Marcial		
Tons Surveyed	295		
Moisture Content [%]	19.8	Dry Density [lbs/ft ³]	79
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.83	1.85	2.19	0.36	0.27
K-40	12.44	12.35	16.81	7.52	2.00
Bi-214	1.75	1.75	3.00	0.52	0.31
Tl-208	0.43	0.43	0.73	0.24	0.18
Marinelli Sample					
Cs-137	0.73	Sample Log Number 5-14245			0.10
K-40	16.93				1.85
Bi-214	0.72				0.09
Tl-208	0.37				0.06
Cs-137	0.75	Sample Log Number 4-14270			0.13
K-40	14.92				2.21
Bi-214	0.87				0.14
Tl-208	0.37				0.08

*No Cs-137 was detected during the survey.

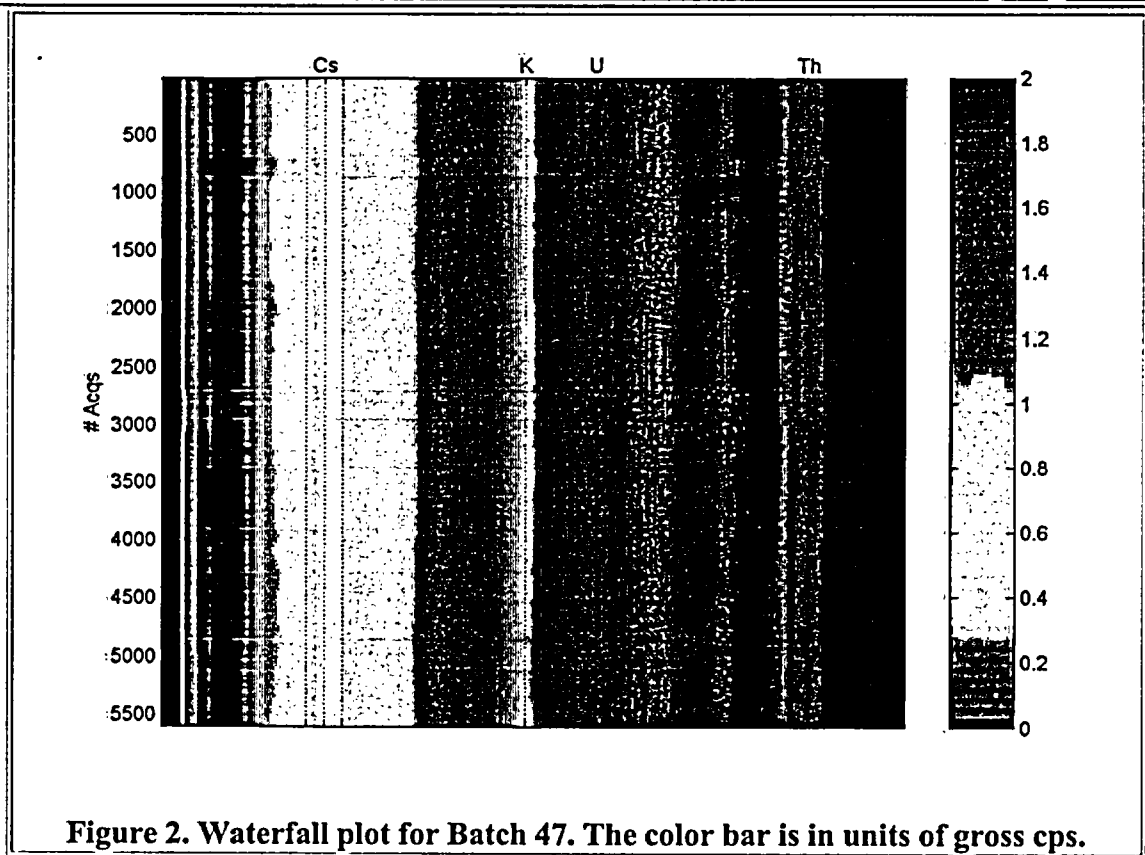
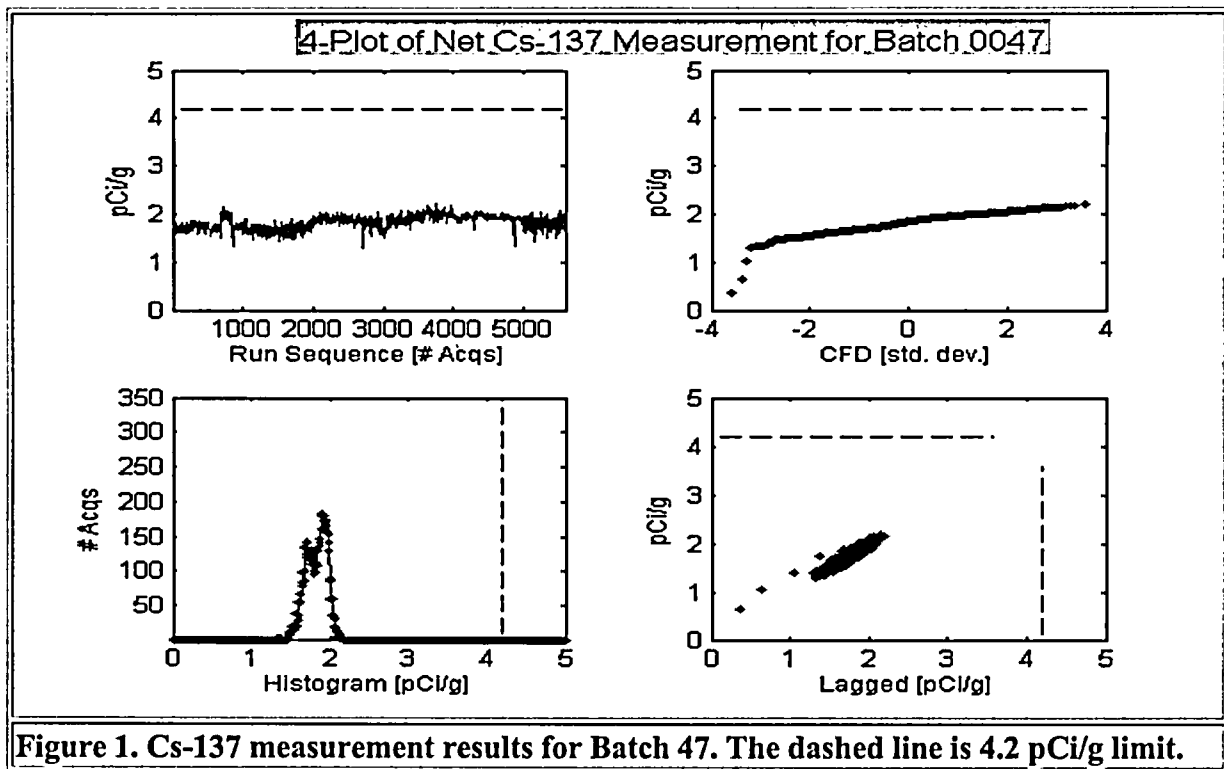


Table 2. Filenames for Batch 47.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
07-Jul-2003 15:53:46	47-01.N01	330	330
07-Jul-2003 16:24:34	47-02.N01	358	688
08-Jul-2003 08:55:10	47-03.N02	168	856
08-Jul-2003 10:36:32	47-04.N01	1128	1984
08-Jul-2003 11:08:00	47-04.N02	366	2350
08-Jul-2003 11:39:56	47-04.N03	359	2709
08-Jul-2003 13:09:52	47-05.N01	367	3076
08-Jul-2003 13:41:44	47-05.N02	357	3433
08-Jul-2003 14:01:10	47-06.N01	157	3590
08-Jul-2003 14:26:08	47-06.N02	214	3804
08-Jul-2003 15:30:16	47-07.N01	736	4540
08-Jul-2003 16:01:16	47-08.N01	330	4870
09-Jul-2003 09:08:08	47-09.N01	756	5626

Survey Release Record

Survey Location Code	SR-62, Batch 0010, (SRA Batch 0048)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	09-Jul-2003 09:59:02, 10-Jul-2003 11:43:32		
Surveyor	M. Marcial		
Tons Surveyed	283		
Moisture Content [%]	28.0	Dry Density [lbs/ft ³]	77
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	2.00	2.00	2.40	0.45	0.23
K-40	13.39	13.33	18.73	7.91	1.95
Bi-214	1.87	1.87	3.14	0.35	0.35
Tl-208	0.46	0.46	0.60	0.26	0.18
Marinelli Sample					
Cs-137	0.81	Sample Log Number 1-14269			0.10
K-40	17.01				1.93
Bi-214	0.78				0.09
Tl-208	0.35				0.05
Cs-137	0.72	Sample Log Number 4-14283			0.12
K-40	14.25				1.97
Bi-214	0.73				0.12
Tl-208	0.36				0.06

*Two alarms during survey. Suspect material removed.

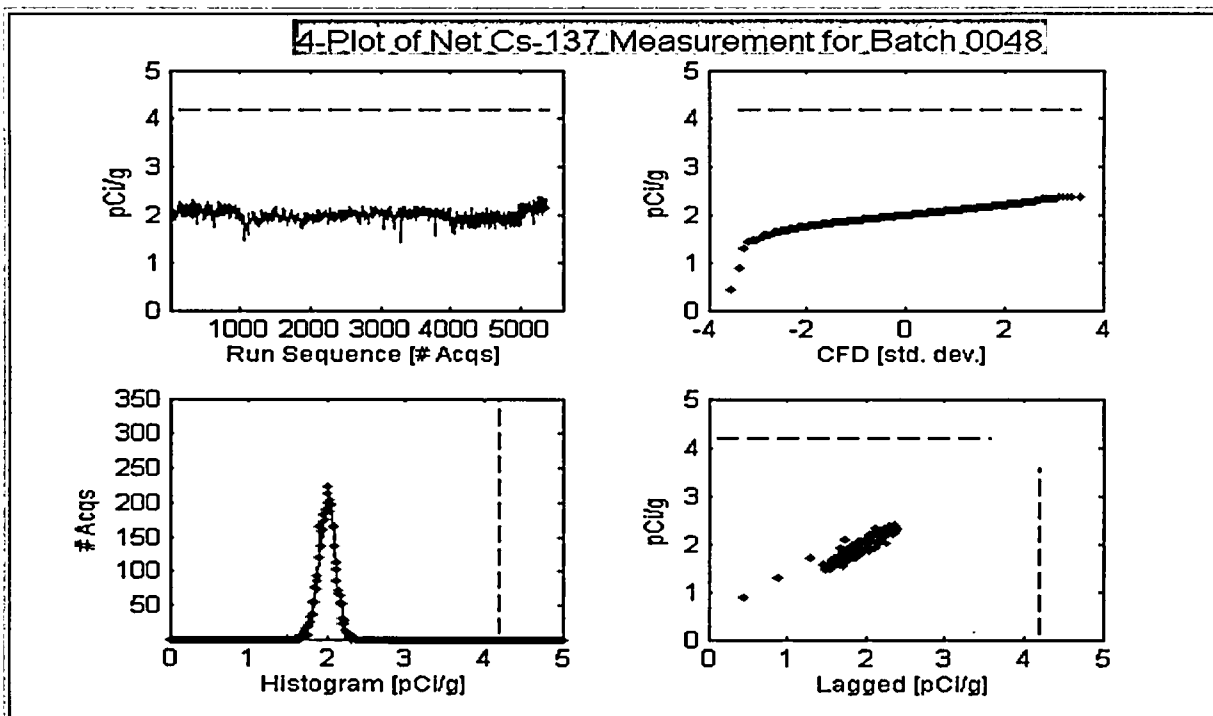


Figure 1. Cs-137 measurement results for Batch 48. The dashed line is 4.2 pCi/g limit.

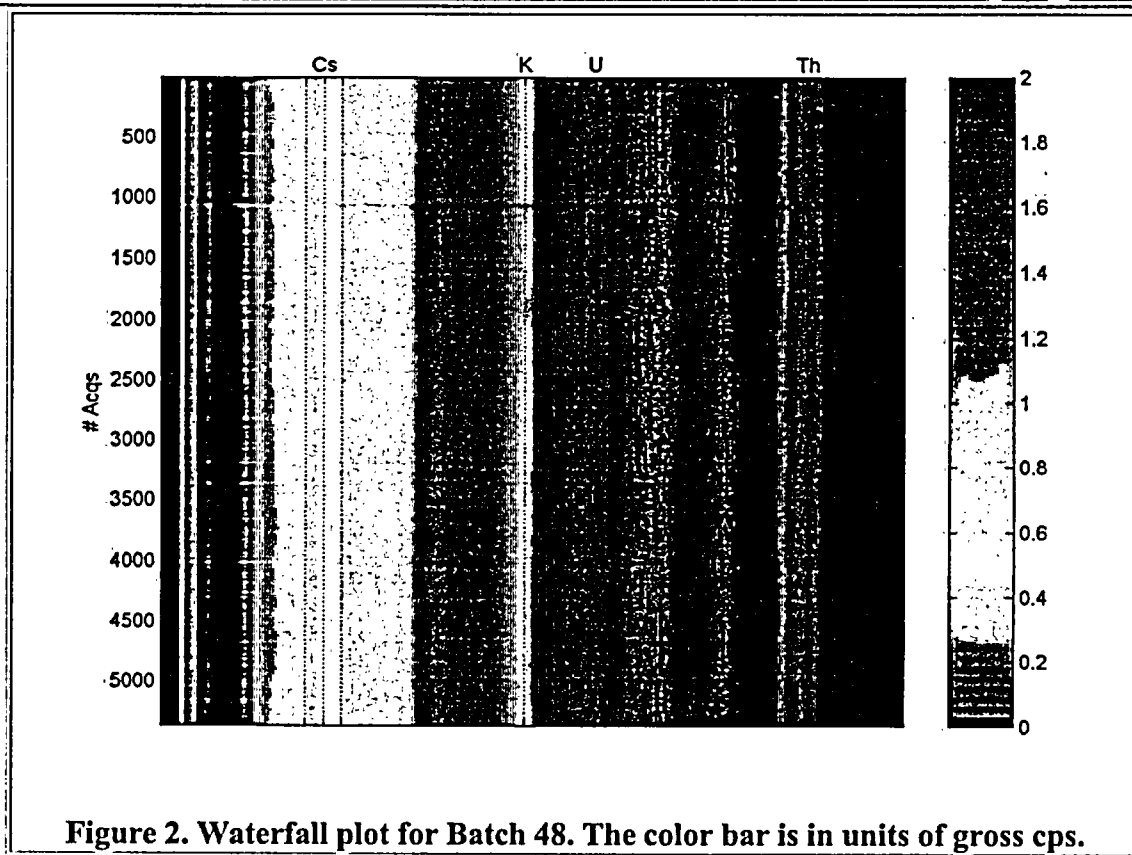


Figure 2. Waterfall plot for Batch 48. The color bar is in units of gross cps.

Table 2. Filenames for Batch 48.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
09-Jul-2003 09:59:02	48-01.N01	531	531
09-Jul-2003 11:05:34	48-02.N01	178	709
09-Jul-2003 11:37:32	48-02.N02	356	1065
09-Jul-2003 14:18:36	48-03.N01	1141	2206
09-Jul-2003 14:47:24	48-03.N02	324	2530
09-Jul-2003 14:55:32	48-03.N03	5	2535
09-Jul-2003 14:59:44	48-03.N04	44	2579
09-Jul-2003 15:30:20	48-04.N01	351	2930
09-Jul-2003 16:03:06	48-05.N01	348	3278
10-Jul-2003 09:03:58	48-06.N01	471	3749
10-Jul-2003 09:51:50	48-06.N02	429	4178
10-Jul-2003 10:43:02	48-06.N03	523	4701
10-Jul-2003 11:43:32	48-07.N01	690	5391

Survey Release Record

Survey Location Code	SR-62, Batch 0011, (SRA Batch 0049)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	10-Jul-2003 13:16:22, 14-Jul-2003 14:59:22		
Surveyor	M. Marcial		
Tons Surveyed	312		
Moisture Content [%]	11.0	Dry Density [lbs/ft ³]	76
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.78	1.78	2.39	0.22	0.25
K-40	11.45	11.44	16.55	-0.59	2.13
Bi-214	1.66	1.66	4.21	0.45	0.34
Tl-208	0.39	0.40	0.59	-0.04	0.21
Marinelli Sample					
Cs-137	0.77	Sample Log Number 1-14302			0.09
K-40	15.70				1.79
Bi-214	0.71				0.09
Tl-208	0.35				0.06
Cs-137	0.91	Sample Log Number 5-14297			0.11
K-40	15.74				1.77
Bi-214	0.80				0.11
Tl-208	0.33				0.05

*One alarms during survey. Suspect material removed.

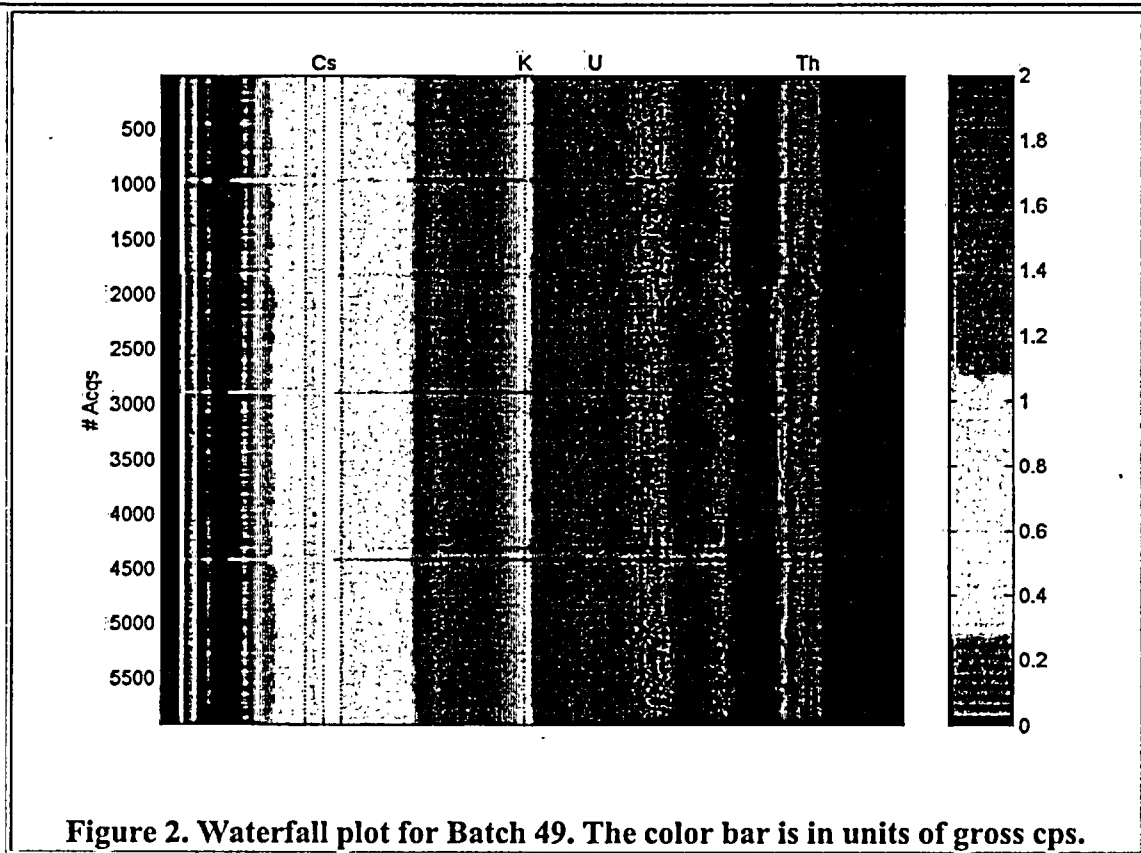
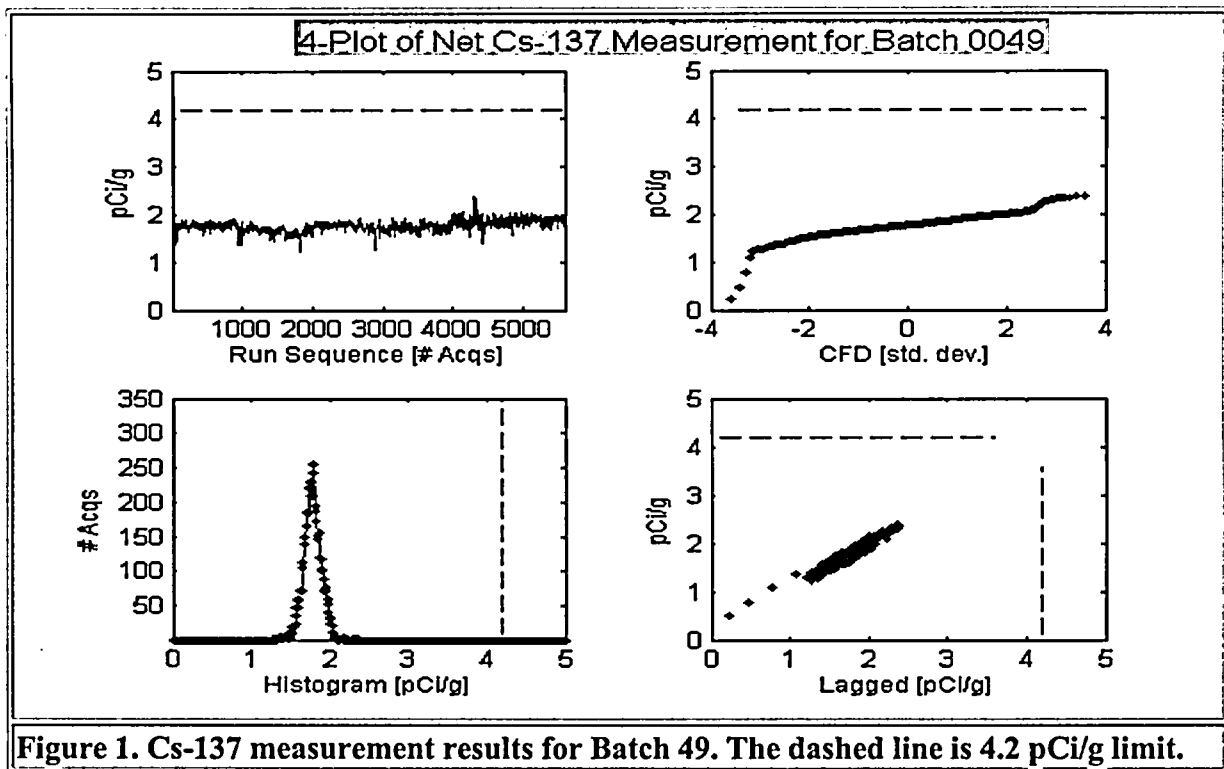


Table 2. Filenames for Batch 49.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
10-Jul-2003 13:16:22	49-01.N01	402	402
10-Jul-2003 13:50:06	49-01.N02	367	769
10-Jul-2003 14:26:14	49-01.N03	318	1087
10-Jul-2003 14:58:28	49-02.N01	365	1452
10-Jul-2003 16:20:04	49-04.N01	366	1818
14-Jul-2003 07:46:44	49-05.N01	136	1954
14-Jul-2003 08:10:48	49-05.N02	253	2207
14-Jul-2003 08:46:40	49-05.N04	347	2554
14-Jul-2003 09:29:16	49-05.N05	404	2958
14-Jul-2003 10:12:38	49-06.N01	454	3412
14-Jul-2003 10:38:18	49-06.N02	272	3684
14-Jul-2003 11:43:46	49-06.N03	747	4431
14-Jul-2003 13:08:02	49-07.N02	330	4761
14-Jul-2003 14:59:22	49-07.N03	1174	5935

Survey Release Record

Survey Location Code	SR-62, Batch 0012, (SRA Batch 0050)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	14-Jul-2003 15:18:36, 15-Jul-2003 16:04:38		
Surveyor	M. Marcial		
Tons Surveyed	305		
Moisture Content [%]	10.1	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.80	1.81	2.08	0.37	0.18
K-40	12.13	12.08	16.48	4.29	1.84
Bi-214	1.68	1.68	2.64	0.60	0.30
Tl-208	0.41	0.41	0.52	0.15	0.15
Marinelli Sample					
Cs-137	0.72	Sample Log Number 1-14305			0.09
K-40	15.88				1.80
Bi-214	0.75				0.09
Tl-208	0.33				0.05
Cs-137	1.00	Sample Log Number 1-14306			0.11
K-40	16.26				1.84
Bi-214	0.69				0.09
Tl-208	0.35				0.06

* Two alarms during survey. Suspect material removed.

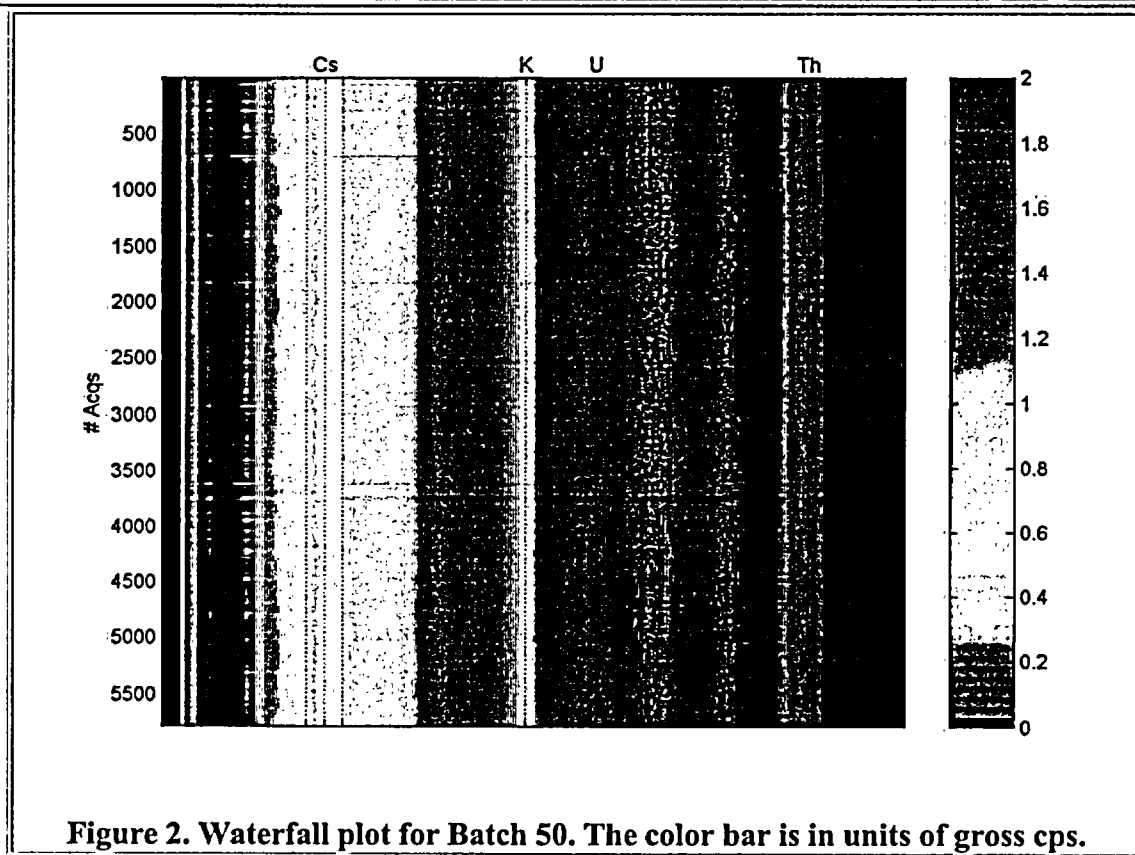
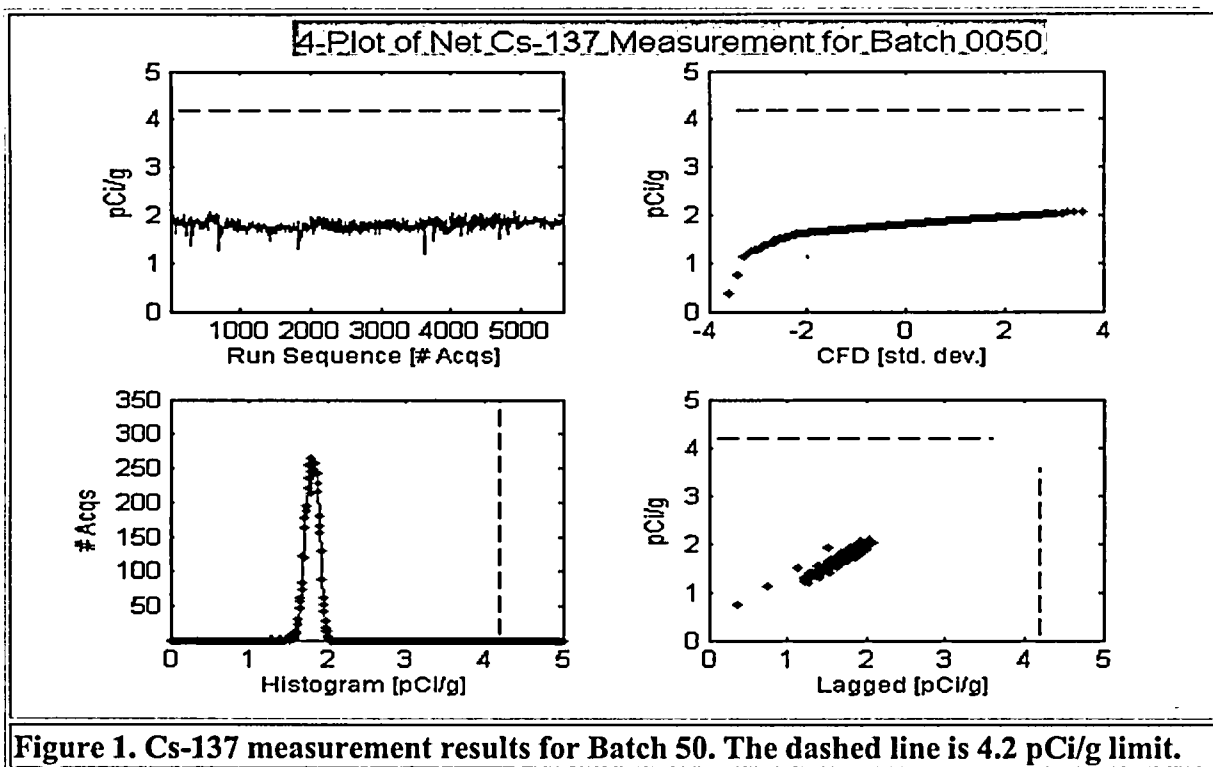


Table 2. Filenames for Batch 50.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
14-Jul-2003 15:18:36	50-01.N01	204	204
14-Jul-2003 16:09:54	50-01.N02	495	699
15-Jul-2003 08:20:24	50-02.N01	513	1212
15-Jul-2003 08:44:20	50-02.N02	227	1439
15-Jul-2003 09:17:34	50-02.N03	386	1825
15-Jul-2003 09:50:24	50-02.N04	368	2193
15-Jul-2003 11:28:16	50-02.N05	1079	3272
15-Jul-2003 11:59:34	50-03.N01	354	3626
15-Jul-2003 13:12:58	50-04.N01	371	3997
15-Jul-2003 13:25:24	50-04.N02	130	4127
15-Jul-2003 14:58:56	50-04.N03	1005	5132
15-Jul-2003 15:33:06	50-04.N04	310	5442
15-Jul-2003 16:04:38	50-04.N05	364	5806

Survey Release Record

Survey Location Code	SR-62, Batch 0013, (SRA Batch 0051)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	16-Jul-2003 08:38:00, 17-Jul-2003 09:09:24		
Surveyor	M. Marcial		
Tons Surveyed	300		
Moisture Content [%]	9.7	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.87	1.89	2.23	0.24	0.22
K-40	12.17	12.11	18.74	0.18	2.05
Bi-214	1.69	1.70	2.39	0.16	0.31
Tl-208	0.43	0.43	0.62	-0.01	0.19
Marinelli Sample					
Cs-137	0.73	Sample Log Number 1-14317			0.10
K-40	16.27				1.91
Bi-214	0.72				0.10
Tl-208	0.33				0.06
Cs-137	0.71	Sample Log Number 5-14319			0.10
K-40	16.16				1.95
Bi-214	0.78				0.11
Tl-208	0.31				0.06

* Two alarms during survey. Suspect material removed.

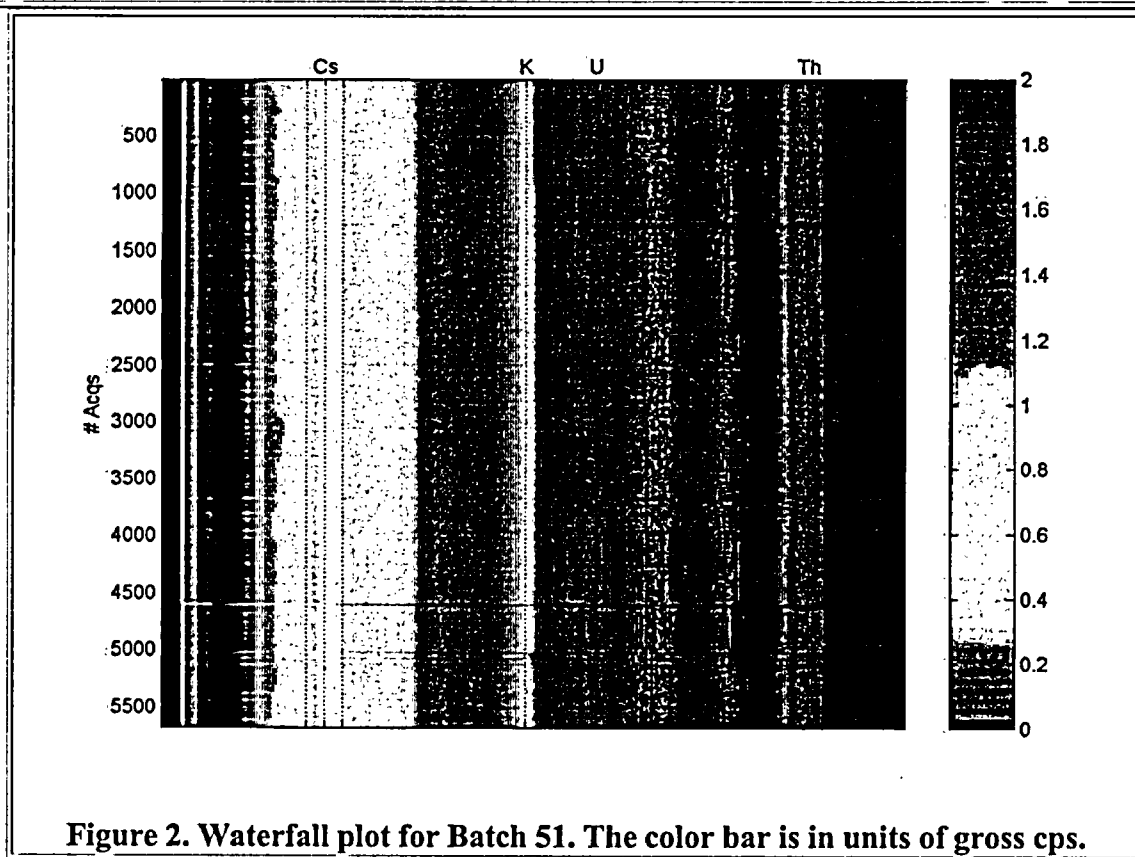
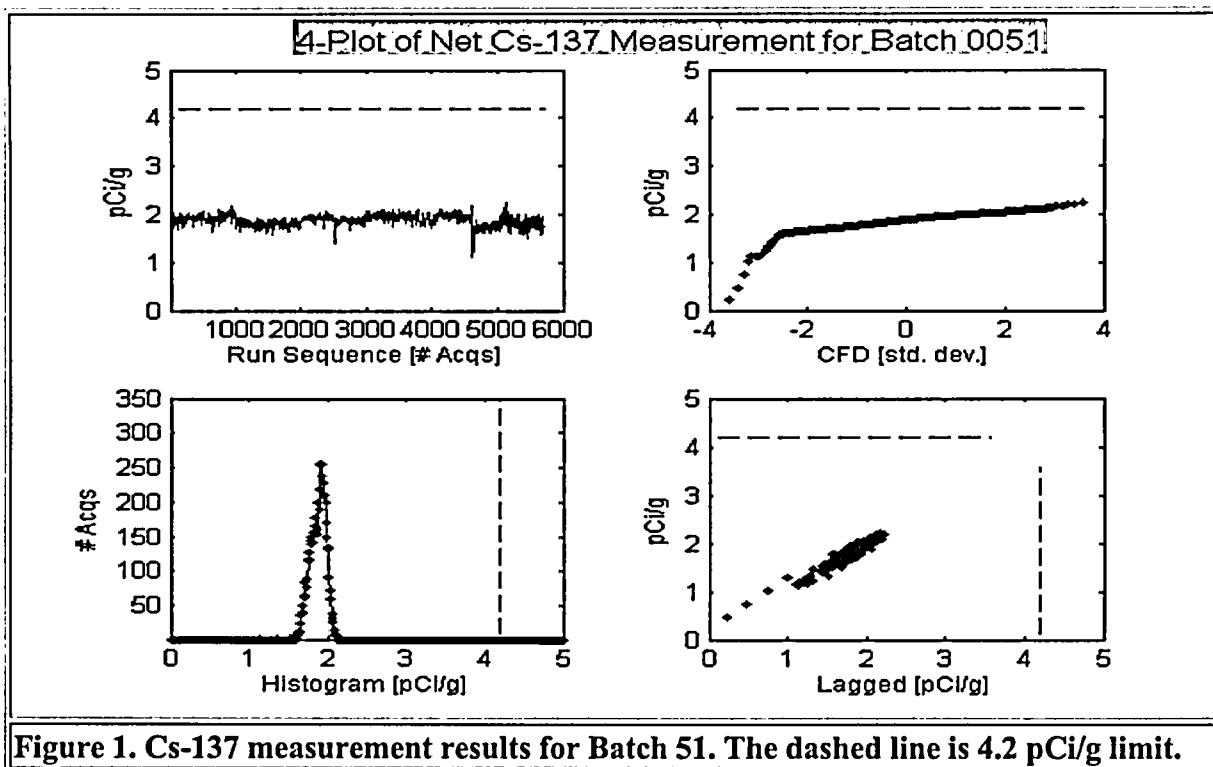


Table 2. Filenames for Batch 51.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
16-Jul-2003 08:38:00	51-01.N01	438	438
16-Jul-2003 09:10:52	51-01.N02	277	715
16-Jul-2003 11:17:20	51-01.N03	1466	2181
16-Jul-2003 11:25:52	51-01.N04	80	2261
16-Jul-2003 11:55:00	51-01.N05	242	2503
16-Jul-2003 13:53:54	51-02.N01	635	3138
16-Jul-2003 15:34:44	51-02.N02	1117	4255
16-Jul-2003 15:48:34	51-02.N03	146	4401
16-Jul-2003 16:14:26	51-02.N04	212	4613
17-Jul-2003 08:38:30	51-03.N01	735	5348
17-Jul-2003 09:09:24	51-03.N02	361	5709

Survey Release Record

Survey Location Code	SR-62, Batch 0014, (SRA Batch 0052)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	17-Jul-2003 10:45:00, 22-Jul-2003 15:35:26		
Surveyor	M. Marcial		
Tons Surveyed	296		
Moisture Content [%]	13.2	Dry Density [lbs/ft ³]	76
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.74	1.79	2.62	0.37	0.70
K-40	11.99	12.21	18.82	-0.38	3.27
Bi-214	1.79	1.79	2.84	0.22	0.33
Tl-208	0.43	0.44	0.66	0.02	0.21
Marinelli Sample					
Cs-137	0.77	Sample Log Number 1-14318			0.10
K-40	16.49				1.93
Bi-214	0.81				0.11
Tl-208	0.35				0.06
Cs-137	0.82	Sample Log Number 1-14341			0.10
K-40	15.42				1.85
Bi-214	0.83				0.11
Tl-208	0.37				0.06

*No Cs-137 was detected during the survey.

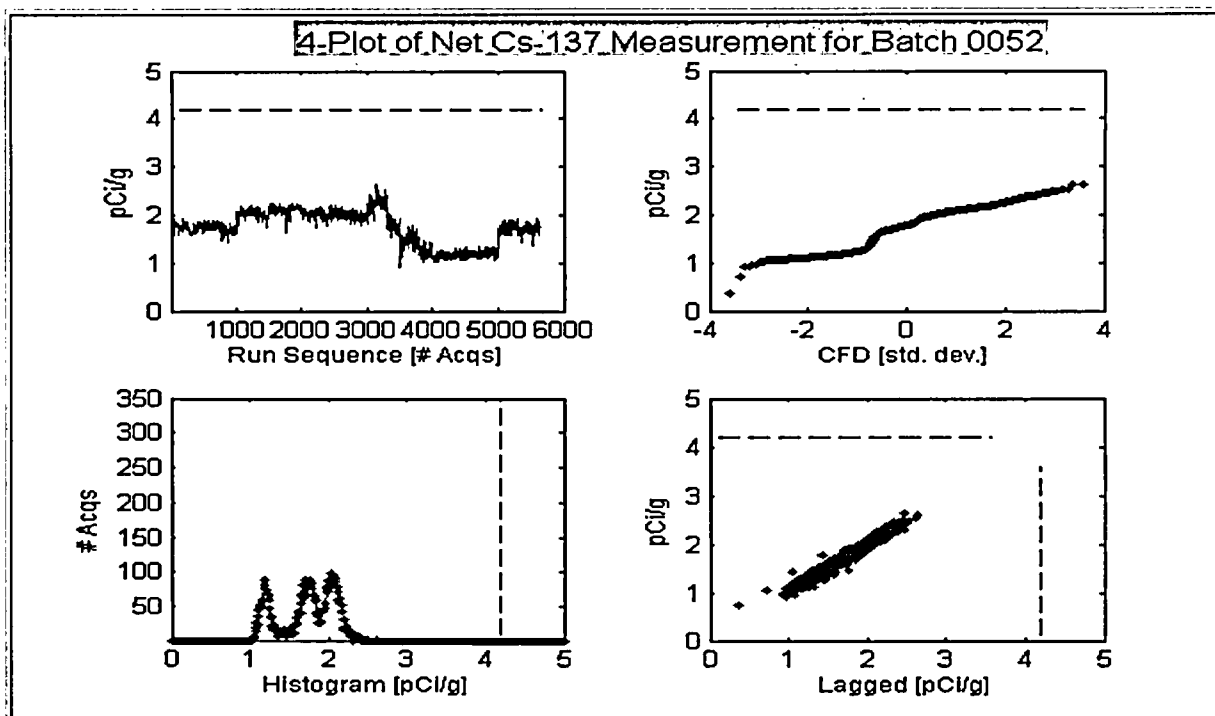


Figure 1. Cs-137 measurement results for Batch 52. The dashed line is 4.2 pCi/g limit.

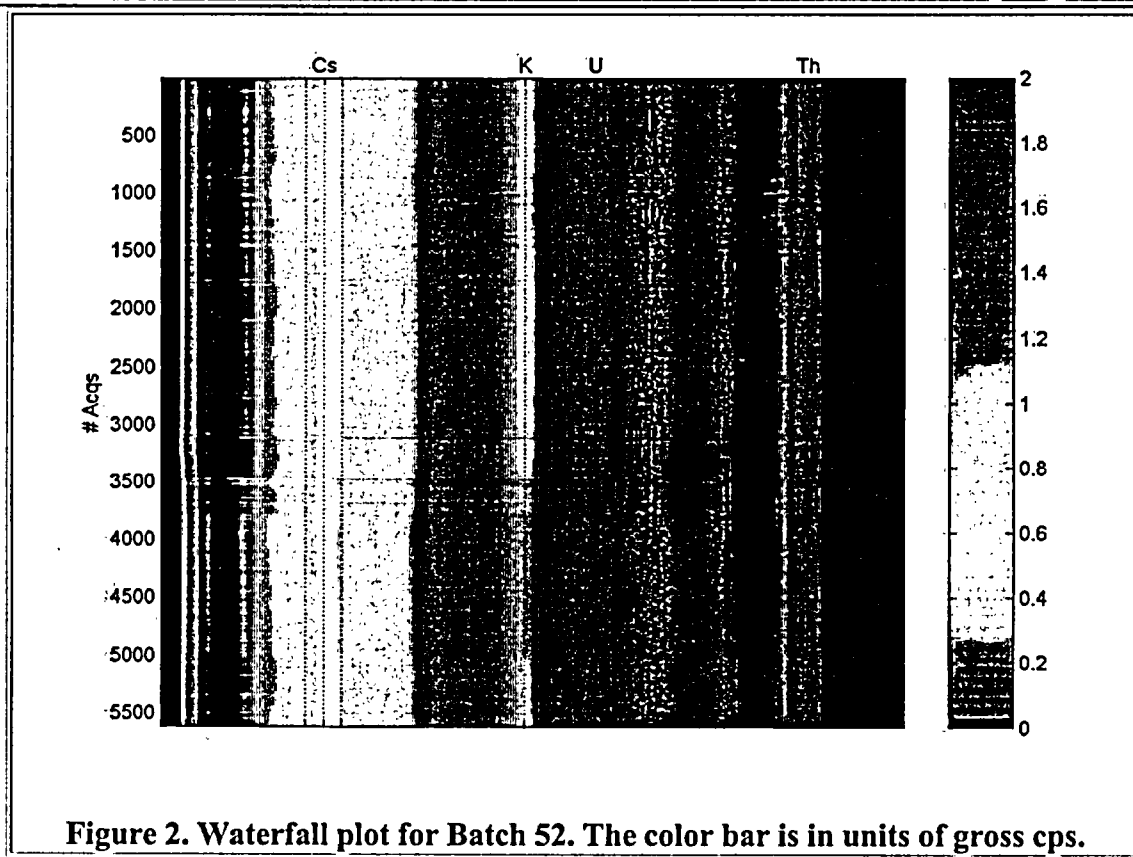


Figure 2. Waterfall plot for Batch 52. The color bar is in units of gross cps.

Table 2. Filenames for Batch 52.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
17-Jul-2003 10:45:00	52-01.N01	1084	1084
17-Jul-2003 11:30:00	52-01.N02	502	1586
17-Jul-2003 11:48:20	52-01.N03	179	1765
17-Jul-2003 13:32:46	52-02.N01	632	2397
17-Jul-2003 14:00:26	52-02.N02	272	2669
17-Jul-2003 14:13:50	52-02.N03	130	2799
17-Jul-2003 14:42:36	52-02.N04	324	3123
17-Jul-2003 14:45:08	52-02.N05	6	3129
22-Jul-2003 15:35:26	52-03.N01	1	3130
17-Jul-2003 15:50:10	52-03.N02	170	3300
17-Jul-2003 16:08:58	52-03.N03	184	3484
21-Jul-2003 08:13:40	52-04.N01	336	3820
21-Jul-2003 10:52:16	52-04.N02	1823	5643

Survey Release Record

Survey Location Code	SR-62, Batch 0015, (SRA Batch 0053)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	21-Jul-2003 11:23:24, 22-Jul-2003 13:42:46		
Surveyor	M. Marcial		
Tons Surveyed	303		
Moisture Content [%]	8.2	Dry Density [lbs/ft ³]	78
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.63	1.64	1.89	0.30	0.22
K-40	12.09	12.01	16.61	7.27	1.90
Bi-214	1.70	1.71	2.70	0.92	0.30
Tl-208	0.43	0.43	0.59	0.26	0.16
Marinelli Sample					
Cs-137	0.67	Sample Log Number 1-14363			0.89
K-40	15.71				1.85
Bi-214	0.77				0.98
Tl-208	0.33				0.06
Cs-137	0.79	Sample Log Number 5-14364			0.10
K-40	16.51				1.92
Bi-214	0.72				0.09
Tl-208	0.35				0.06

* Two alarms during survey. Suspect material removed.

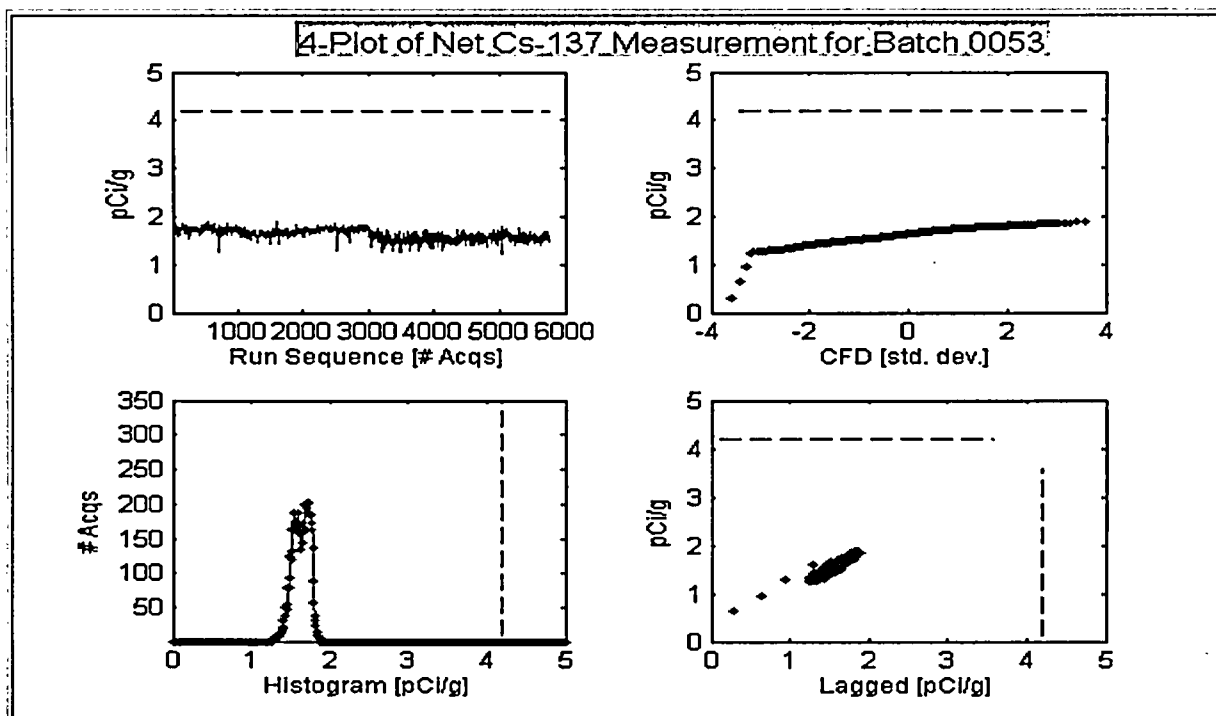


Figure 1. Cs-137 measurement results for Batch 53. The dashed line is 4.2 pCi/g limit.

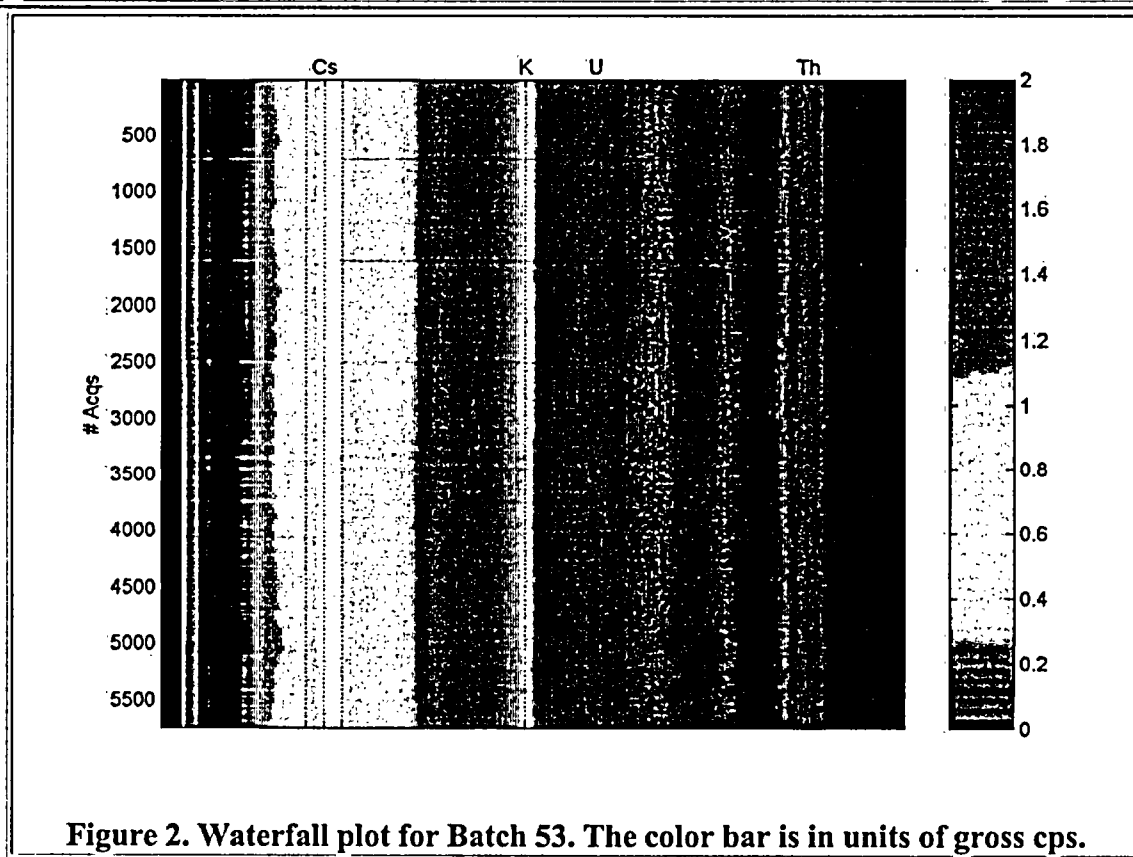


Figure 2. Waterfall plot for Batch 53. The color bar is in units of gross cps.

Table 2. Filenames for Batch 53.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
21-Jul-2003 11:23:24	53-01.N01	355	355
21-Jul-2003 11:53:48	53-01.N02	352	707
21-Jul-2003 14:19:24	53-02.N01	892	1599
21-Jul-2003 14:57:16	53-02.N02	315	1914
21-Jul-2003 15:19:20	53-02.N03	212	2126
21-Jul-2003 15:52:00	53-02.N04	373	2499
22-Jul-2003 08:00:48	53-03.N01	156	2655
22-Jul-2003 08:57:24	53-03.N02	555	3210
22-Jul-2003 09:07:08	53-03.N03	93	3303
22-Jul-2003 10:36:22	53-03.N04	992	4295
22-Jul-2003 11:40:56	53-03.N05	733	5028
22-Jul-2003 13:42:46	53-04.N01	741	5769

Survey Release Record

Survey Location Code	SR-62, Batch 0016, (SRA Batch 0054)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	22-Jul-2003 14:14:10, 23-Jul-2003 15:27:24		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	7.2	Dry Density [lbs/ft ³]	77
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.45	1.42	1.84	0.32	0.42
K-40	11.24	11.37	15.42	5.84	2.72
Bi-214	1.69	1.70	3.27	0.44	0.35
Tl-208	0.42	0.42	0.54	0.23	0.19
Marinelli Sample					
Cs-137	0.69	Sample Log Number 1-14370			0.09
K-40	15.27				1.75
Bi-214	0.80				0.10
Tl-208	0.37				0.06
Cs-137	0.62	Sample Log Number 5-14371			0.08
K-40	16.49				1.90
Bi-214	0.69				0.10
Tl-208	0.32				0.06

*No Cs-137 was detected during the survey.

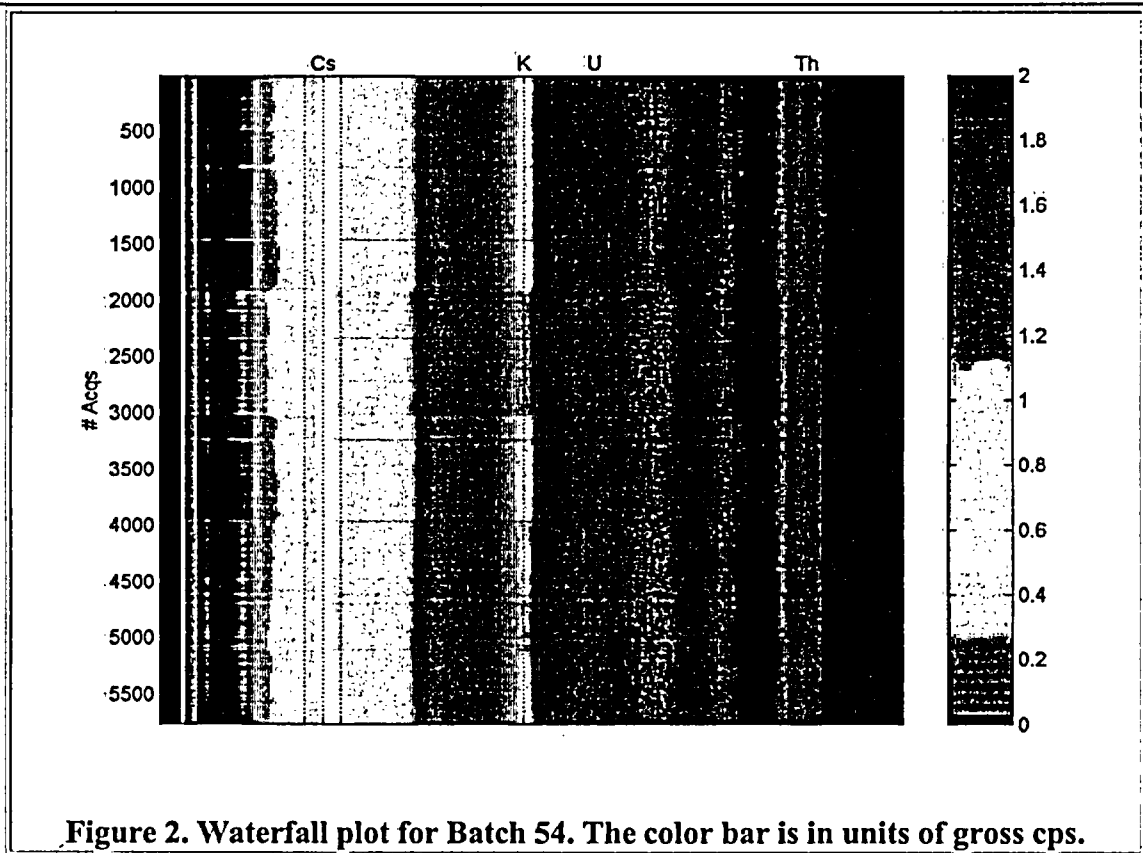
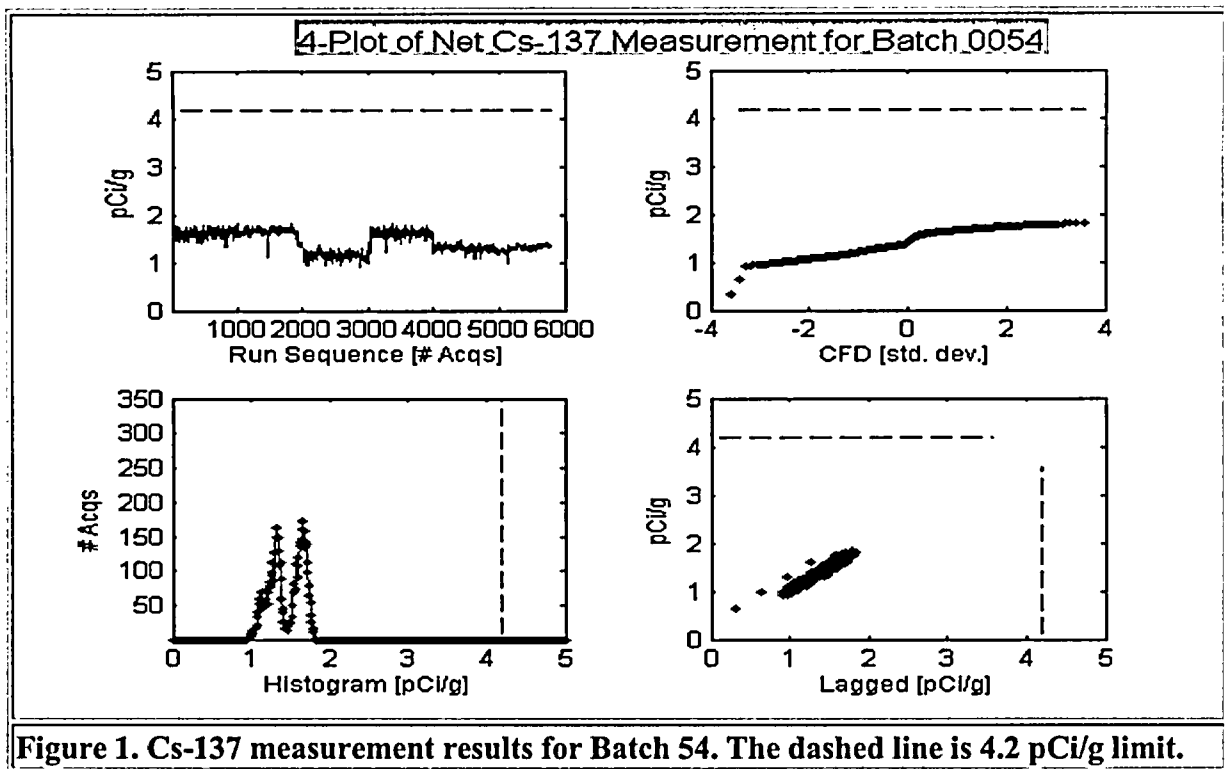


Table 2. Filenames for Batch 54.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
22-Jul-2003 14:14:10	54-01.N01	354	354
22-Jul-2003 15:24:48	54-01.N02	797	1151
22-Jul-2003 15:56:34	54-01.N03	311	1462
23-Jul-2003 08:19:26	54-02.N01	374	1836
23-Jul-2003 09:25:38	54-02.N02	713	2549
23-Jul-2003 10:16:10	54-02.N03	562	3111
23-Jul-2003 11:05:22	54-02.N04	507	3618
23-Jul-2003 11:37:22	54-02.N05	353	3971
23-Jul-2003 13:46:08	54-03.N01	719	4690
23-Jul-2003 15:27:24	54-03.N02	1097	5787

Survey Release Record

Survey Location Code	SR-62, Batch 0017, (SRA Batch 0055)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	23-Jul-2003 15:59:26, 28-Jul-2003 10:33:52		
Surveyor	M. Marcial		
Tons Surveyed	304		
Moisture Content [%]	8.7	Dry Density [lbs/ft ³]	83
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.60	1.59	1.89	0.27	0.24
K-40	12.57	12.59	16.71	7.19	2.16
Bi-214	1.68	1.68	2.70	0.69	0.31
Tl-208	0.44	0.44	0.57	0.23	0.16
Marinelli Sample					
Cs-137	0.64	Sample Log Number 5-14413			0.09
K-40	15.96				1.84
Bi-214	0.77				0.10
Tl-208	0.35				0.06
Cs-137	0.66	Sample Log Number 5-14414			0.09
K-40	16.06				1.85
Bi-214	0.73				0.10
Tl-208	0.30				0.06

*No Cs-137 was detected during the survey.

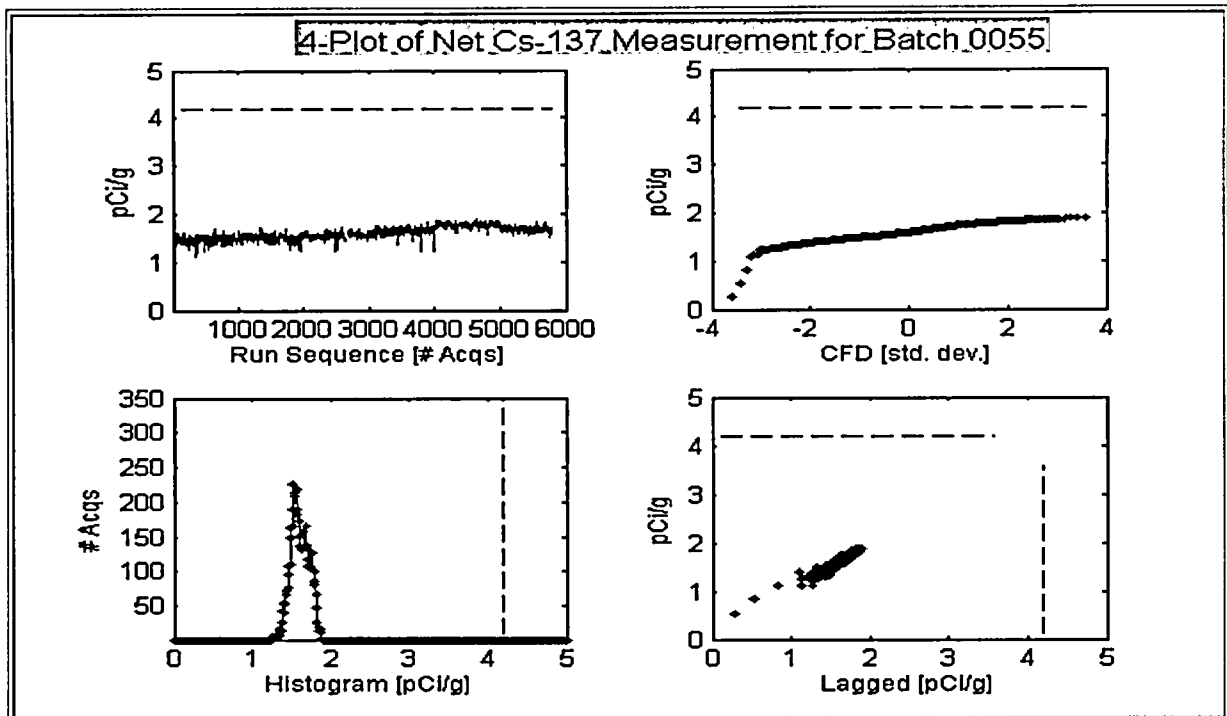


Figure 1. Cs-137 measurement results for Batch 55. The dashed line is 4.2 pCi/g limit.

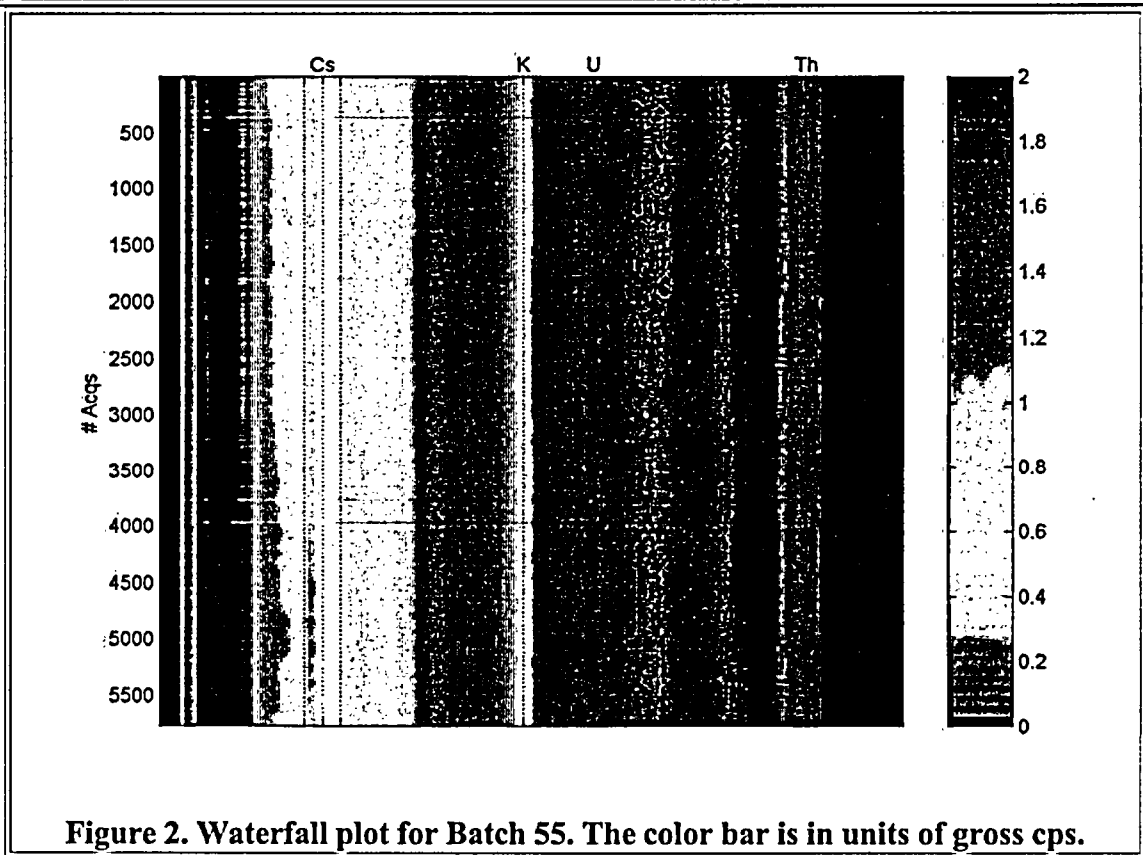


Figure 2. Waterfall plot for Batch 55. The color bar is in units of gross cps.

Table 2. Filenames for Batch 55.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
23-Jul-2003 15:59:26	55-01.N01	358	358
24-Jul-2003 09:28:00	55-02.N01	742	1100
24-Jul-2003 10:01:04	55-02.N02	311	1411
24-Jul-2003 10:49:38	55-02.N04	364	1775
24-Jul-2003 11:24:18	55-02.N05	355	2130
24-Jul-2003 12:00:32	55-02.N06	360	2490
24-Jul-2003 14:52:44	55-03.N01	1286	3776
24-Jul-2003 15:41:48	55-03.N02	199	3975
28-Jul-2003 08:09:40	55-04.N01	365	4340
28-Jul-2003 08:45:08	55-04.N02	356	4696
28-Jul-2003 09:16:24	55-04.N03	328	5024
28-Jul-2003 10:33:52	55-04.N04	772	5796

Survey Release Record

Survey Location Code	SR-62, Batch 0018, (SRA Batch 0056)		
Survey Equipment	Sub-Surface Multi-Spectral Contamination Monitor		
Survey Date	28-Jul-2003 11:44:34, 29-Jul-2003 15:24:08		
Surveyor	M. Marcial		
Tons Surveyed	296		
Moisture Content [%]	7.9	Dry Density [lbs/ft ³]	86
Surveyed Material	Red Clay and Soil		

Table 1. SMCM and lab concentrations reported in pCi/g.					
Isotope	Mean	Median	Maximum	Minimum	2-Sigma
Cs-137*	1.68	1.71	2.05	0.33	0.33
K-40	12.86	12.87	17.23	7.99	2.20
Bi-214	1.71	1.71	2.88	0.50	0.32
Tl-208	0.44	0.44	0.57	0.26	0.18
Marinelli Sample					
Cs-137	0.70	Sample Log Number 1-14417			0.09
K-40	18.14				2.02
Bi-214	0.81				0.09
Tl-208	0.37				0.05
Cs-137	0.62	Sample Log Number 5-14418			0.08
K-40	15.73				1.80
Bi-214	0.73				0.09
Tl-208	0.29				0.05

*No Cs-137 was detected during the survey.

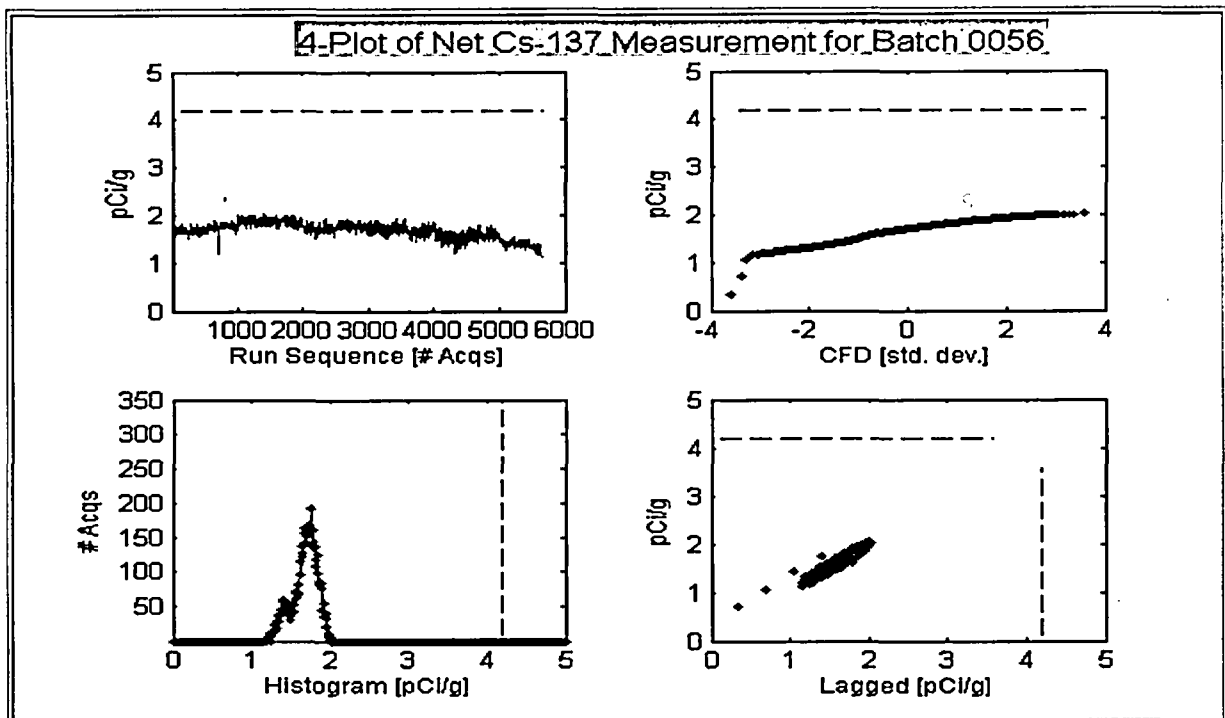


Figure 1. Cs-137 measurement results for Batch 56. The dashed line is 4.2 pCi/g limit.

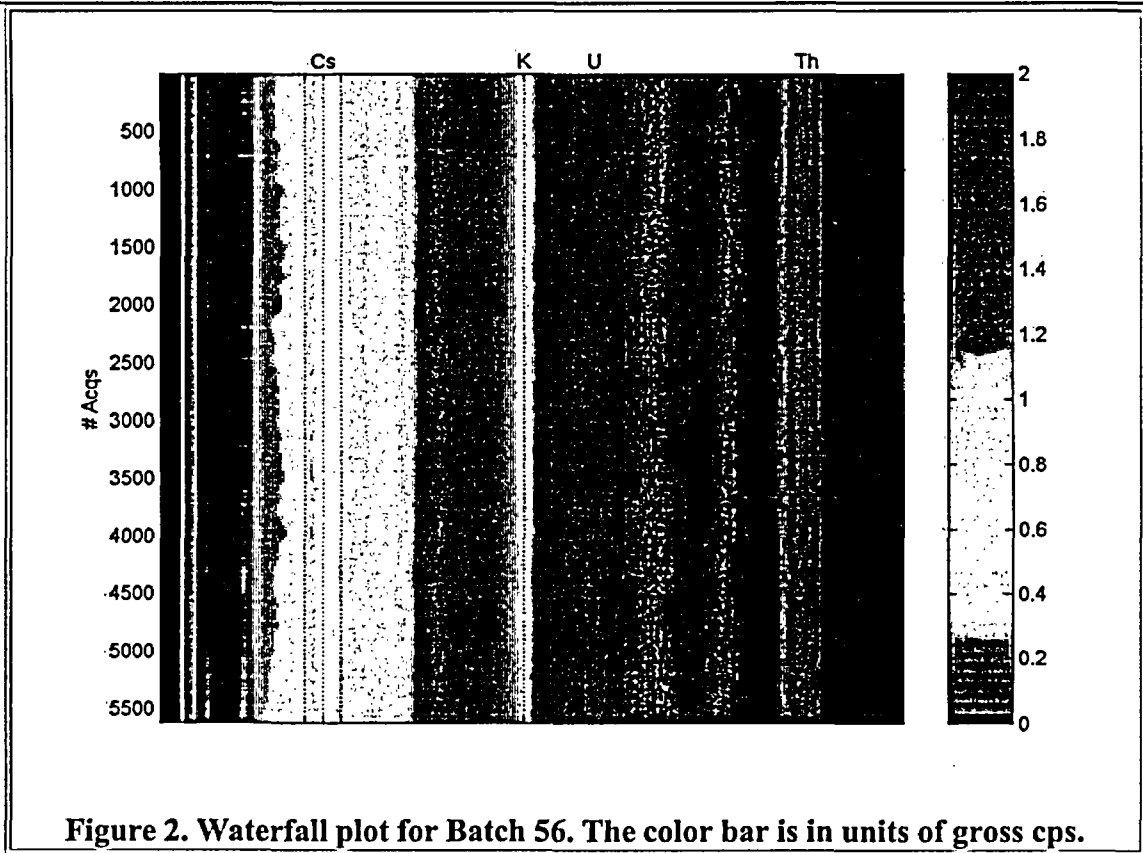


Figure 2. Waterfall plot for Batch 56. The color bar is in units of gross cps.

Table 2. Filenames for Batch 56.

Date and Time	Filename	Acquisitions	Sum of Acquisitions
28-Jul-2003 11:44:34	56-01.N01	706	706
28-Jul-2003 13:25:54	56-02.N01	368	1074
28-Jul-2003 14:39:04	56-02.N02	683	1757
28-Jul-2003 15:13:56	56-02.N03	363	2120
28-Jul-2003 15:51:20	56-02.N04	358	2478
29-Jul-2003 08:50:06	56-03.N01	370	2848
29-Jul-2003 09:20:36	56-03.N02	319	3167
29-Jul-2003 10:05:58	56-03.N03	425	3592
29-Jul-2003 10:41:30	56-04.N01	370	3962
29-Jul-2003 11:19:32	56-04.N02	355	4317
29-Jul-2003 13:38:58	56-05.N01	373	4690
29-Jul-2003 14:12:22	56-05.N02	371	5061
29-Jul-2003 15:02:04	56-05.N03	516	5577
29-Jul-2003 15:24:08	56-05.N04	66	5643