



L31458 R305
70-734

January 10, 2001
696/CAL-3311

VIA EXPRESS MAIL SERVICE

Ms. Mary Adams
Licensing Section 1/Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Docket No. 70-734; SNM-696: Request to Release Certain Portions of General Atomics' Facilities to Unrestricted Use and Delete them from License - Area 1 of Sorrento Valley West Land Area

and

ATTN: Mr. David Wesley (in Duplicate)
State of California
Department of Health Services
Radiologic Health Branch Mail Stop 178
601 North 7th Street
Sacramento, CA 95814-0208

Subject: Radioactive Materials License No. 0145-37: Request to Release Certain Portions of General Atomics' Facilities to Unrestricted Use and Delete them from License - Area 1 of Sorrento Valley West Land Area

Dear Ms. Adams and Mr. Wesley:

As you are aware, General Atomics is continuing its efforts directed at decontaminating, as appropriate, and obtaining the release to unrestricted use of selected facilities at General Atomics. GA has recently completed the Final Radiological Survey of a portion of the Sorrento Valley West Land Area. This portion is referred to as "Area 1" of the Sorrento Valley West land area. The total area of Area 1 is about 19,000 ft².

The Sorrento Valley West (SVW) Land Area is located in GA's Sorrento Valley Site. (See Figure 1). There was no history of use of radioactive materials in this area other than storage of packaged radioactive waste in a south fenced area which is located outside of Area 1. Area 1 is classified as an unaffected area.

This report documents the results of extensive and comprehensive radiological measurements completed in Area 1 of the SVW Land Area. These results are summarized in the enclosed report titled, "General Atomics' Final Radiological Survey Report for Area 1 of the

NMSS/RLIC

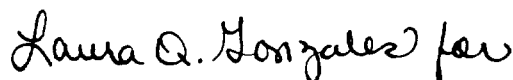
Sorrento Valley West Land Area," dated January 2001. This area is needed in advance of the rest of the SVW area due to GA's urgent need to begin construction of a trench needed for an important government project. A future report will provide the results of surveys performed within the remainder of the SVW land area.

In response to GA's request, Mr. Emilio Garcia from NRC's Region IV office performed a radiological survey of the Sorrento Valley West Area 1 land area on January 10, 2001. A copy of the enclosed report was provided to Mr. Emilio Garcia from NRC's Region IV prior to his surveying Area 1 of Sorrento Valley West land area.

Accordingly, GA hereby requests that its Area 1 of Sorrento Valley West Land Area, as described in the enclosed report, be released to unrestricted use and deleted from its NRC and State radioactive material licenses. Because of the history of use of of this area for both State and NRC licensed materials, and consistent with the GA/NRC/State coordination meetings, it is GA's understanding that the NRC will take the lead in coordinating this release; including regulatory agency confirmatory surveys, as needed.

If you should have any questions regarding this information, please contact Laura Q. Gonzales at (858) 455-2758, or me at (858) 455-2823. Your assistance in responding to our request is very much appreciated.

Very truly yours,



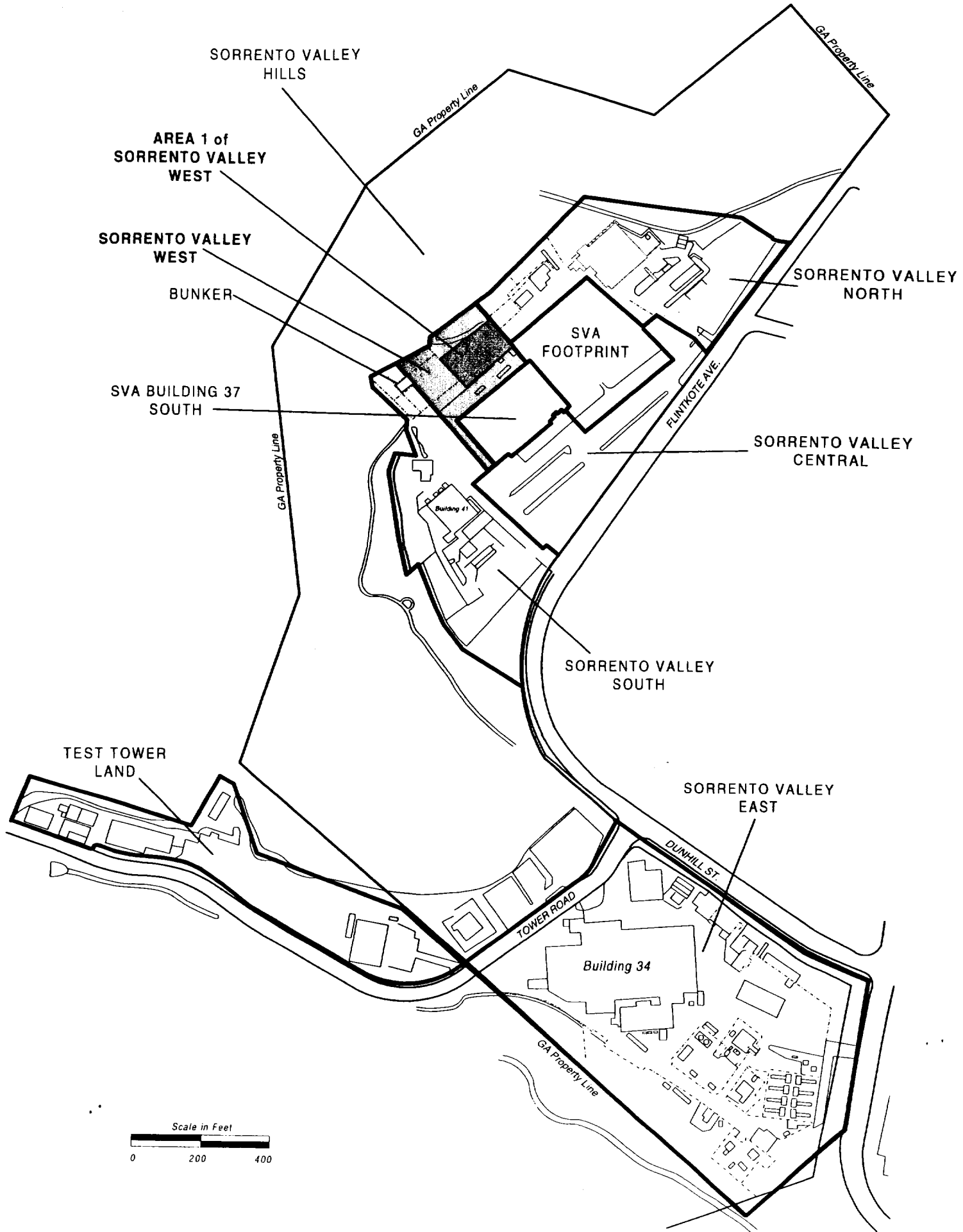
Keith E. Asmussen, Ph.D., Director
Licensing, Safety and Nuclear Compliance

Figure 1: Sorrento Valley West Land Area showing the location of Area 1

Enclosure: Report titled "General Atomics' Final Radiological Survey Report for *Area 1* of The Sorrento Valley West Land Area," dated January 2001.

cc: Dr. D. Blair Spitzberg, Chief, NMSS Branch 3, Region IV
Mr. Wayne L. Britz, Fuel Cycle Inspector, NRC Region IV
Mr. Emilio Garcia, Fuel Cycle Inspector, NRC Region IV
Ms. Kathleen Henner, State, Brea, CA
Dr. Ron Rogus, State, Sacramento, CA

Figure 1: Sorrento Valley West Land Area showing location of Area 1





**FINAL RADIOLOGICAL SURVEY REPORT FOR AREA 1 OF
THE SORRENTO VALLEY WEST LAND AREA**

Prepared by: Richard Stowell, Cornelius Stanley, Joseph Sullivan, Laura Gonzales,
Jeff Vassett and Michael Dupray

January 2001

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Figure 2: Alpha and Beta Scans

Figure 3: Exposure Rate Scans (Micro R Scans)

Figure 4: Fixed Measurements

Figure 5: Smear and Soil Sample Locations

Figure 6: Exposure Rate Measurements (Micro R Readings)

Figure CS 1: Confirmatory Survey Gamma Scans

Figure CS 2: Confirmatory Survey Beta Scans

Appendix A: Confirmatory Survey Plan for Sorrento Valley West Land Area

Introduction

General Atomics is continuing its efforts directed at decontaminating, as appropriate, and obtaining the release to unrestricted use of selected facilities at General Atomics. GA has recently completed the Final Radiological Survey of a portion of the Sorrento Valley West Land Area. This portion is referred to as "Area 1" of the Sorrento Valley West land area.

The Sorrento Valley West (SVW) Land Area is located in GA's Sorrento Valley Site. (See Figure 1). There was no history of use of radioactive materials in this area other than storage of packaged radioactive waste in a south fenced area which is located outside of Area 1. Area 1 is classified as an unaffected area.

This report documents the results of extensive and comprehensive radiological measurements completed in Area 1 of the SVW Land Area. This area is needed in advance of the rest of the SVW area due to GA's urgent need to begin construction of a trench needed for an important government project.

The total area of Area 1 is about 19,000 ft². The surveys performed in Area 1 of the SVW land area demonstrate that this area meets the approved criteria for release to unrestricted use. A summary of the results is provided in this report. Note: Another report will provide the results of surveys performed within the remainder of the SVW land area.

Site Description

The Sorrento Valley West (SVW) Land Area is located within GA's Sorrento Valley Site as shown in Figure 1.

Criteria For Release to Unrestricted Use

Exposure Rate Guideline

The guideline value for exposure rates measured at 1 m above the surface, is 10 μ R/hr above background levels. Normal background is 15 μ R/hr measured at 1 meter up from the surface.

Acceptable Surface Contamination Levels

The potential contaminants of concern for this site were Cs-137 and Co-60. This is based upon the types of contamination found in the nearby former radioactive waste storage area which is part of the Sorrento Valley West Land Area, but outside Area 1.

Beta/Gamma Emitters

The applicable guidelines for residual contamination on surfaces for Cs-137 and Co-60 are:

- 5,000 dpm/100 cm² (averaged over a 1m² area)
- 15,000 dpm/100 cm² (maximum in a 100 cm² area if the average over 1m² is met)
- 1000 dpm/100 cm² (removable activity)

Soil Release Criteria

The soil release criteria in pCi/g is provided below:

Thorium (Th-228 + Th-232)	10 pCi/g
Enriched Uranium (U-234 + U-235)	30 pCi/g
Depleted Uranium	35 pCi/g

If more than one radio nuclide exists, the sum of the fractions of the concentrations is calculated as follows:

$$\sum_{i=1}^n \frac{C_i}{L_i} < 1$$

Where C_i = The average concentration of radionuclides I in the soil above background levels.
 L_i = The release criteria for radio nuclides I .

The sum of the fractions must be less than or equal to one in order for the soil to meet the release criteria.

Alert Levels

The alert levels (levels for which additional investigation is needed) for each type of instrument used in the surveys were as follows:

Beta Alert Levels

- >300 cpm beta above background using the large area (434 cm²) probe
- >150 cpm above background using the 100 cm² probe

Alpha Alert Levels

- >150 cpm alpha using the large area (434 cm²) probe
- >75 cpm using a hand-held 50 cm² alpha probe (~ 750 dpm/100 cm²)

Exposure Rate Alert Levels

- > 25 μR/hr on the surface
- > 20 μR/hr at one meter from the surface

Survey Plan For Area 1 of SVW Land Area

Type of Survey	Unaffected Area
Gridding	Not Required , however the area was gridded, 10' X 10', to facilitate surveying
Exposure Rate Measurements (μ R/hr)	Take readings at 1m from surface and contact readings (at surface) every 3m
Scans α - Using the 434 cm ² floor monitor	10% of the concrete or asphalt-surfaces.
Scans β -Using the 434 cm ² floor monitor	25% the concrete and/or asphalt-covered areas.
Radiation Measurements	<p>One measurement every 7m (with a minimum of 30 measurements)</p> <p>One every other grid block, on concrete or asphalt alternate between:</p> <p>(a) 1. Direct alpha fixed measurement, (b) 2. Direct beta fixed measurement, (c) 3. A 100 cm² smear.</p>
Soil Samples	5 soil samples within Area 1

- (a) For α measurements use the 50 cm² hand-held detector and count for 10 seconds. Record readings in cpm and mark locations on drawings.
- (b) For β measurements use 100 cm² beta gas flow proportional counter. Count for 2 minutes. Record readings in cpm and mark locations on drawings.
- (c) For removable measurements, take a 100 cm² wipe at each location and send to HP lab for counting

Note: If radiation readings are above alert levels, continue surveying area until the entire area of contamination is identified and outlined (i.e. marked with paint or chalk).

Radiation Survey Documentation

Every survey conducted will be documented on a daily basis to a worksheet/drawing showing the approximate locations surveyed/sampled. The documentation must include the results of the measurements (including units), the technician's signature, date, instrument(s) used (including the model and serial number of both the rate meter and detector), calibration due date, % efficiency, background readings (if applicable) and any other pertinent information.

Results of the Final Surveys

Instrumentation

The instruments used during the radiological surveys including (1) a brief description of the instrument, the model and serial numbers, (2) a description of the detector (if applicable) and its serial number, (3) calibration due dates and efficiencies and (4) typical background count rates and minimum detectable activities (MDA's) are provided in the figures. All instruments used were calibrated semiannually and after repair except for exposure rate meters which were calibrated quarterly.

Scanning

The results and locations of the alpha and beta scans taken in Area 1 are provided in Figure 2.

The Survey Plan required that at least 25% of the area be scanned. However, scans of approximately 100% of the accessible surface area were scanned due to Cs-137 contamination found in the adjacent Radioactive Materials Storage area (also within the Sorrento Valley West area but outside Area 1). The scans were conducted using 434 cm² gas-flow proportional beta detectors (floor monitors) were conducted in order to identify elevated areas of activity. No elevated areas were noted within *Area 1*. Readings ranged from 1300-2400 cpm. Background readings using this instrument ranged from cpm to 1900-2460 cpm.

Scans of approximately 10% of the accessible surface area with the 434 cm² gas-flow proportional alpha detector (floor monitor) were conducted in order to identify elevated areas of activity. Readings ranged from 13-60 cpm. Background readings using this instrument ranged from 0-20 cpm.

Exposure Rate Scans

The results and locations of the exposure rate (in $\mu\text{R/hr}$) scans taken in Area 1 are provided in Figure 3. This scan was not required by the Survey Plan but was conducted due to Cs-137 contamination detected in the adjacent radioactive materials area.

Scans of approximately 100% of the accessible surface were conducted using NaI μR detectors. No contamination was found in these scans. The results range from 18 to 24 $\mu\text{R/hr}$. Normal background readings range from 17-21 $\mu\text{R/hr}$.

Fixed Measurements

A total of 95 fixed beta measurements were performed during the final survey on the asphalt of Area 1 of Sorrento Valley West Land Area. The measurements were taken using a beta gas-proportional counter having a 100 cm² detector. No contamination was detected.

Since no contamination was found during scanning and the contamination identified in the nearby radioactive waste storage yard was Cs-135, one (1) minute fixed measurements were taken instead of two (2) minute measurements. An appropriate background was determined for each type of

surface and subtracted from the survey readings. The readings were converted from cpm to dpm/100 cm² using the appropriate count time, the efficiency of the detector and the geometry of the detector. The results and locations of these measurements are provided in Figure 4. All results were < 459 dpm/100 cm². No contamination was detected.

A total of 95 fixed alpha measurements were performed during the final survey on the asphalt of Area 1 of Sorrento Valley West Land Area. The measurements were taken using an alpha scintillator having a 50 cm² detector. An appropriate background was determined and subtracted from the survey readings. The readings were converted from cpm to dpm/100 cm² using the appropriate count time, the efficiency of the detector and the geometry of the detector. The results and locations of these measurements are provided in Figure 4. All results were ≤ 139 dpm/100 cm². All results were at or near normal background levels. No contamination was detected.

Removable Contamination Surveys

Removable contamination measurements (smears) were performed on all asphalt surfaces in Area 1 in accordance with the Survey Plan. A total of 81 smears were taken during the final survey.

Smears consisted of using a Whatman Filter Paper (4.7 cm² diameter) and wiping an area of ~ 100 cm². The smears were counted in GA's Health Physics Laboratory using a Canberra 2400 low level alpha/beta counting system. The maximum result for these smears was 37 dpm/100 cm² alpha and 34 dpm/100 cm² beta; well below the release criteria of 1000 dpm/100 cm² (Cs-137 limit). The approximate locations of these smears are shown in Figure 5.

Soil Sampling

A total of 5 soil samples were collected in accordance with the survey plan inside Area 1. No soil contamination was detected. The approximate locations where these soil samples were taken are shown in Figure 5. The results of these samples are provided in Table 1 below. All results are at or near natural background levels.

Table 1: Soil Samples Collected from Area 1 of Sorrento Valley West Land Area

Radionuclide Concentration (pCi/gm) - Results ± 2σ - Backgrounds <u>not</u> Subtracted - 30 Minute counts								
Sample ID	Figure #	Grid	²²⁸ Th 238 keV peak	²²⁸ Ra (²³² Th) 911 keV peak	Total Thorium ²²⁸ Th + ²³² Th	²³⁸ U 63 keV peak	²³⁵ U 186 (144) keV peak	Evaluation and Comments
SVW-56	5	F,11	1.29 ± 0.11	1.46 ± 0.32	2.75	ND	0.08 ± 0.07	Below Release Criteria
SVW-57	5	J,13	1.41 ± 0.11	2.02 ± 0.41	3.43	1.58 ± 1.04	0.13 ± 0.09	Below Release Criteria
SVW-59	5	N,15	1.29 ± 0.12	1.76 ± 0.32	3.05	ND	0.11 ± 0.06	Below Release Criteria
SVW-62	5	O,23	1.27 ± 0.09	1.38 ± 0.31	2.65	1.76 ± 0.84	0.15 ± 0.05	Below Release Criteria
SVW-63	5	G,26	1.54 ± 0.13	2.05 ± 0.36	3.59	1.58 ± 1.23	0.16 ± 0.08	Below Release Criteria

Exposure Rate Measurements

Exposure rate measurements were taken with 2" X 2" NaI detectors on contact and at 1 meter above the surface at 190 locations. The 190 contact readings ranged from 18 to 23 $\mu\text{R/hr}$. Normal background ranges are from 17 to 21 $\mu\text{R/hr}$ and generally higher on asphalt surfaces. The 190 readings taken at 1 meter ranged from 17 to 23 $\mu\text{R/hr}$. Although some of these exceeded the alert level of 20 $\mu\text{R/hr}$ no action was taken since normal background ranges are from 16 to 20 $\mu\text{R/hr}$ and Cs-137 was the radionuclide found in the adjacent Radioactive Materials Area. No contamination was found. Locations of the exposure rate measurements are provided in Figure 6.

GA Internal Confirmatory Survey

GA conducted an Internal Confirmatory Survey to ensure that the results of the Final Survey are indeed below the State of California RHB and NRC release criteria. This survey was conducted in accordance with a written survey plan, by Health Physics Technicians not assigned to perform the Final Survey (i.e., an independent survey).

See Appendix A for a copy of the GA Internal Confirmatory Survey Plan for the SVW area

Results of the GA Internal Confirmatory Survey

Beta Scans

Scans using a 434 cm^2 gas-flow proportional beta detectors (floor monitors) were conducted on the asphalt surface as shown in Figure CS 1. Results of these scans range from 1500 to 2500 cpm. All were at or near background levels of 1900-2400 cpm. No contamination was detected

Gamma Scans

Scans using μR meters (2" X 2" NaI detectors) were also conducted on the asphalt surface as shown in Figure CS 2. Results of these scans range from 16 to 23 $\mu\text{R/hr}$. All were at or near background levels of 17-21 $\mu\text{R/hr}$. No contamination was detected.

No soil samples were collected as part of this confirmatory survey since there was no contamination found in Area 1 of SVW Land Area.

Conclusion

Final contamination and radiation surveys as well as soil sample results provided in this report for the Sorrento Valley West Land Area 1, demonstrate that the area meets the approved guidelines for release to unrestricted use.

Figure 1: Sorrento Valley West Land Area showing location of Area 1

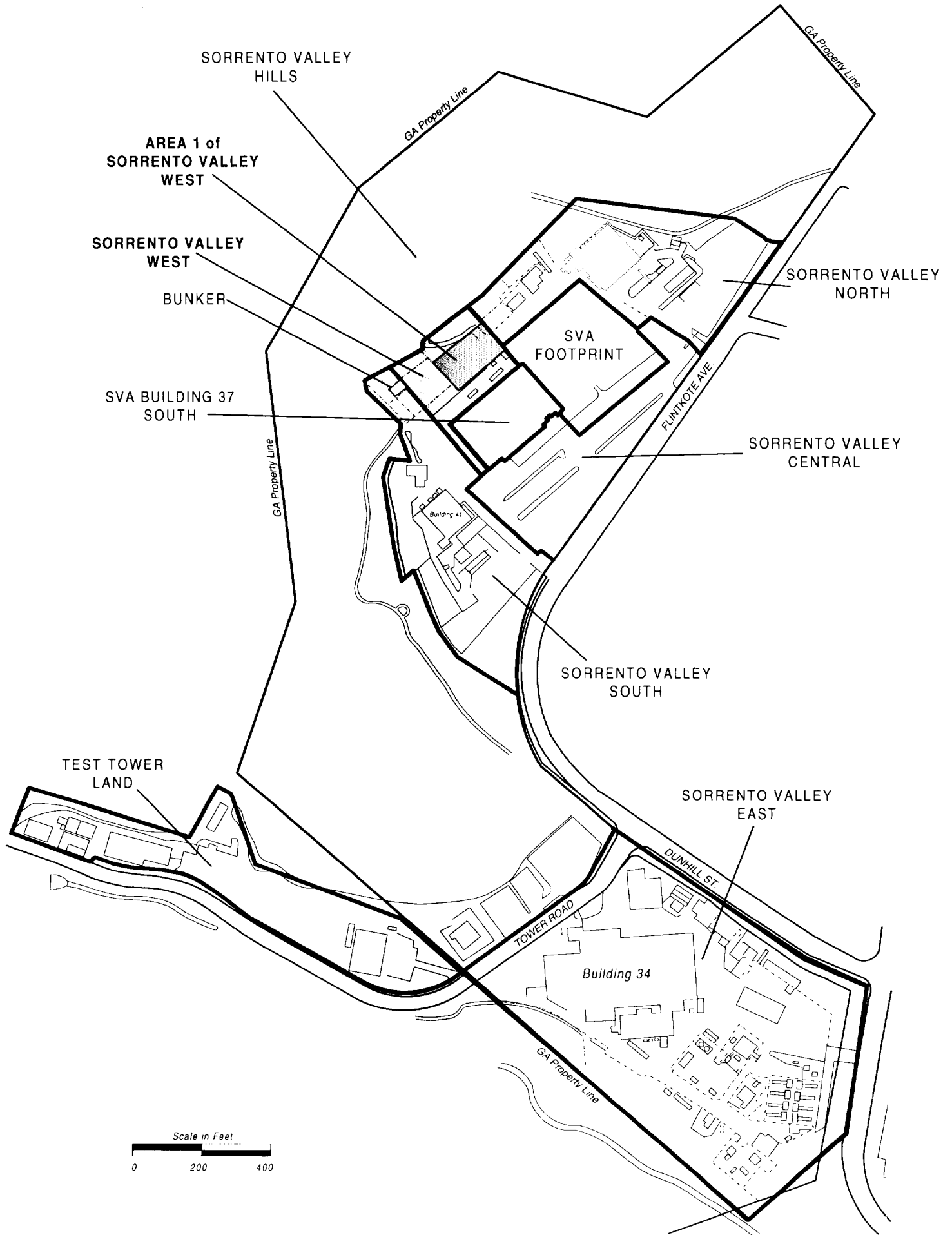
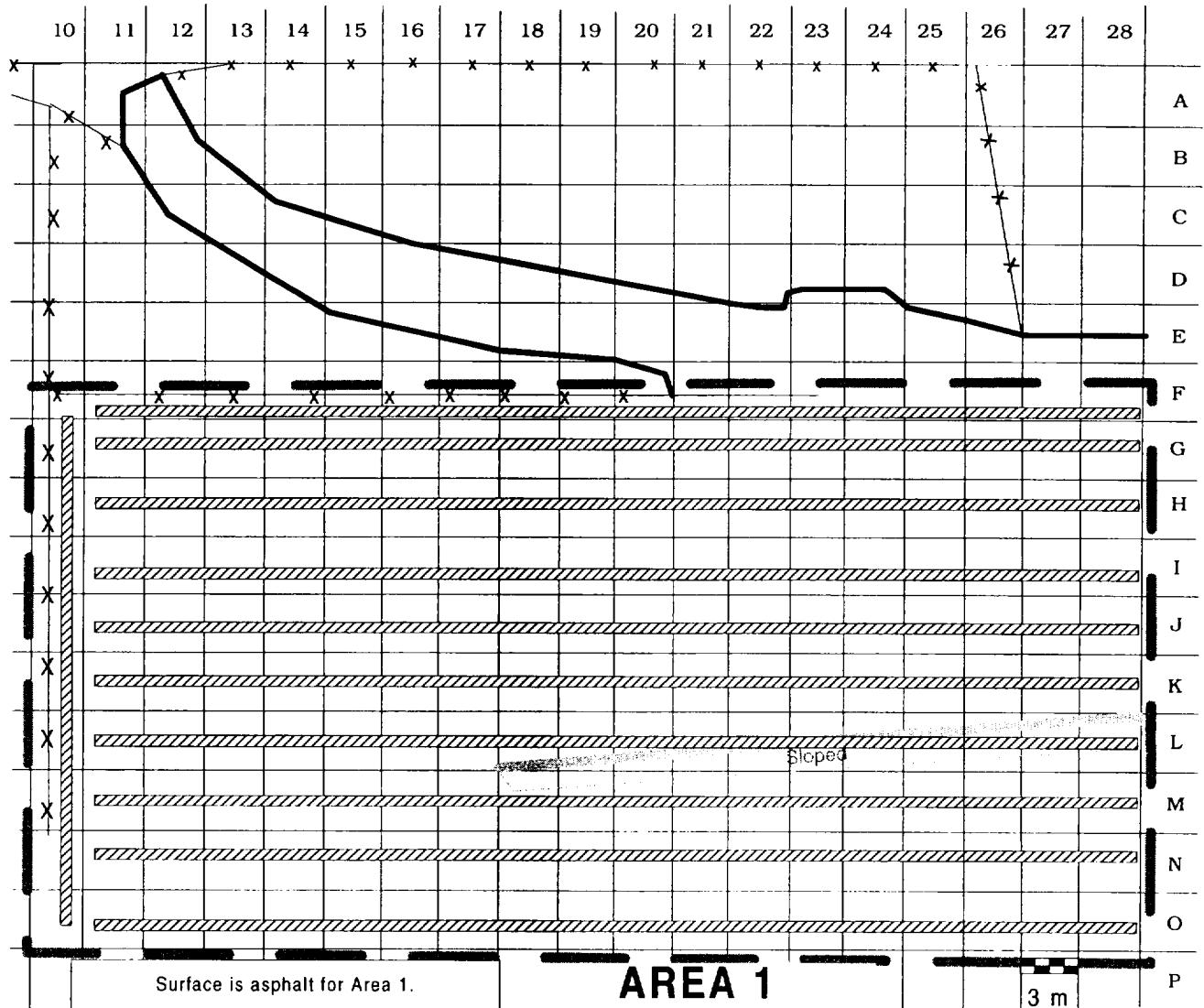
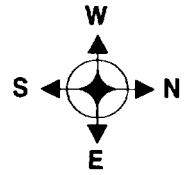


Figure 2: Alpha and Beta Scans

Sorrento Valley West Area 1



Notes:

1. Denotes area scanned for alpha ~ 10% .
2. Alpha scan results range from 13 to 60 cpm.
3. ~100% of the accessible surface of Area 1 scanned for beta.
4. Beta scan results range from 1300 to 2400 cpm.

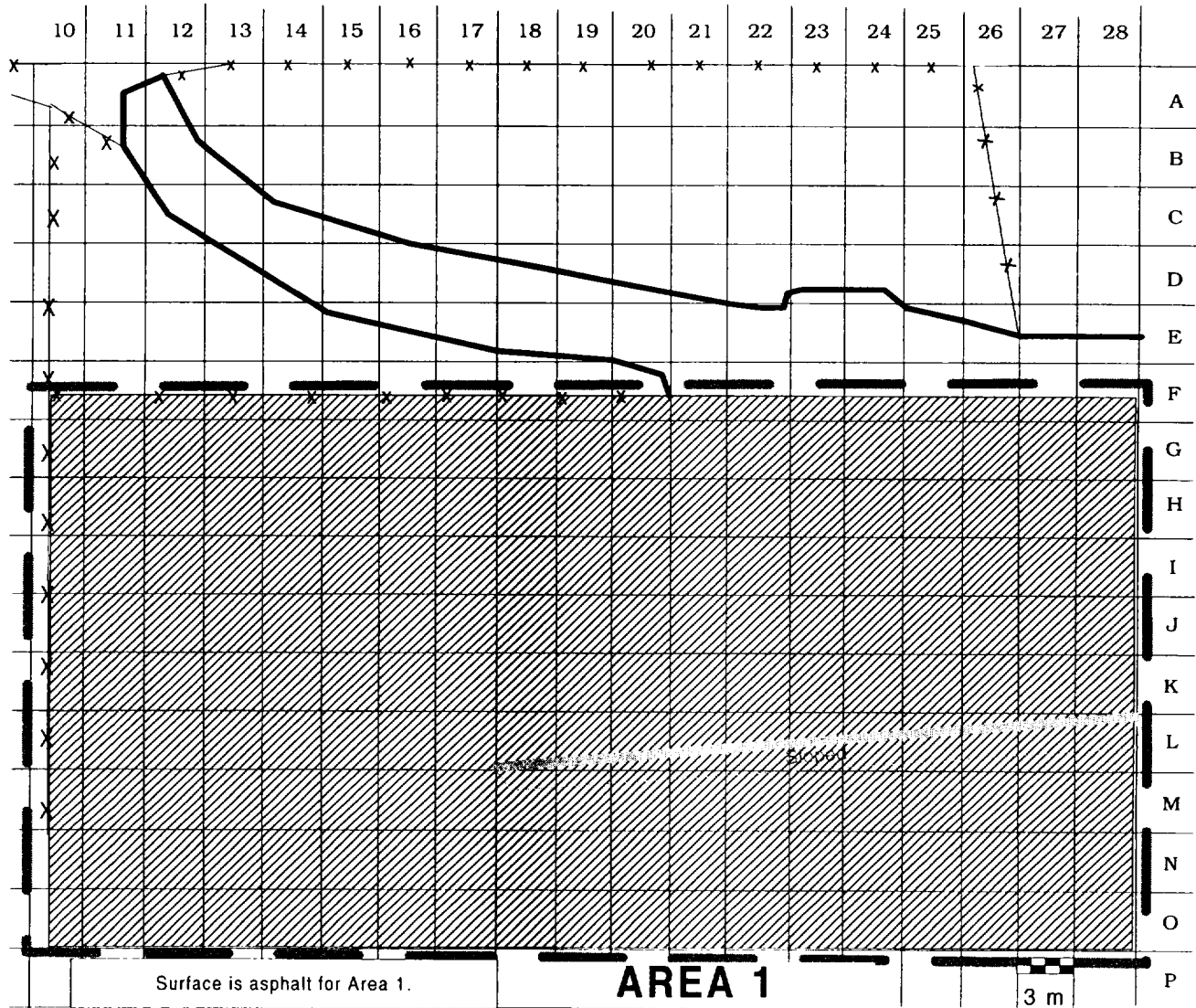
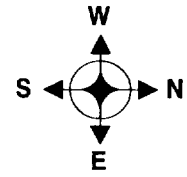
Surveys Conducted by: P. Poole, C. Stanley, J. Vassett & S. Cowan

Dates: 12-08-00 to 01-04-01

INSTRUMENTS				
MODEL	Ludlum 2221	Ludlum 2221	Ludlum 2221	Ludlum 2221
SERIAL #	97287	154202	86302	97817
CAL DUE DATE	02-26-01	04-09-01	07-03-01	07-03-01
EFFICIENCY %	21.25	22.72	20.13	20.42
PROBE	43-37 434 cm ² α	43-37 434 cm ² β	43-37 434 cm ² β	43-37 434 cm ² β
PROBE SER. #	148926	149017	092451	094119
BACKGROUND asphalt	0-20 cpm	2175-2460 cpm	1900-2300 cpm	1900-2400 cpm

Figure 3 : Micro R Scans

Sorrento Valley West Area 1



Notes:

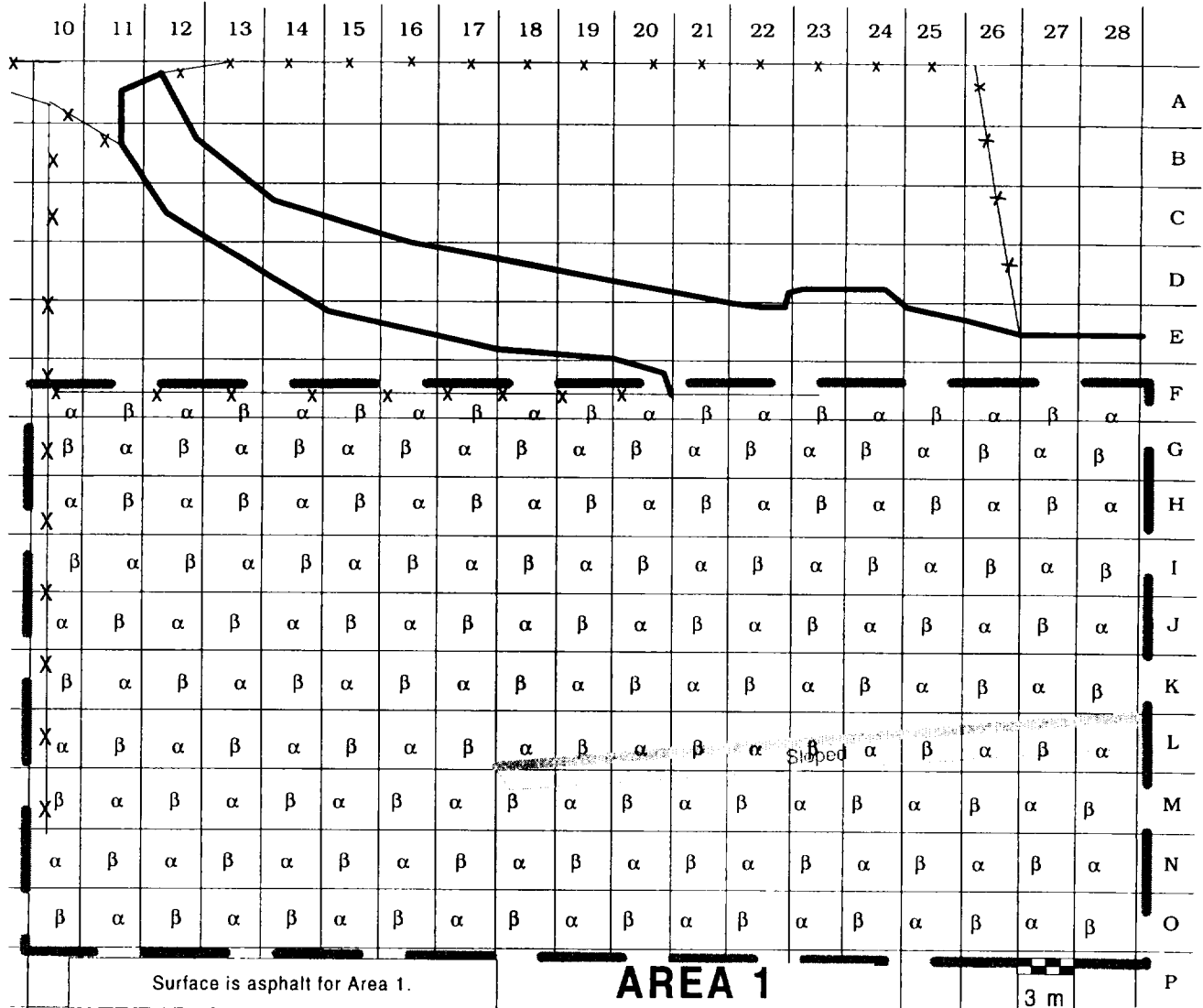
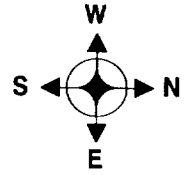
1. Denotes area scanned, ~ 100% of surface.
2. Results of surface scan range from 18 to 24 µR/hr.

Surveys conducted by: J. Vasselt, M. Dupray, J. Sullivan
& C. Stanley.
Date: 19-09-00 TO 01-04-01

INSTRUMENTS				
MODEL	Ludlum 3	Ludlum 3	Ludlum 3	Ludlum 3
SERIAL #	153590	153551	151348	147819
CAL DUE DATE	03-08-01	04-04-01	04-06-01	01-31-01
EFFICIENCY %	NA	NA	NA	NA
PROBE	2" X 2" NaI 44-10	2" X 2" NaI 44-10	2" X 2" NaI 44-10	2" X 2" NaI 44-10
PROBE SER. #	155190	155109	154618	153765
BACKGROUND asphalt	19-21 µR/hr	17-20 µR/hr	20-21 µR/hr	18-19 µR/hr

Figure 4: Fixed Measurements

Sorrento Valley West Area 1



Notes:

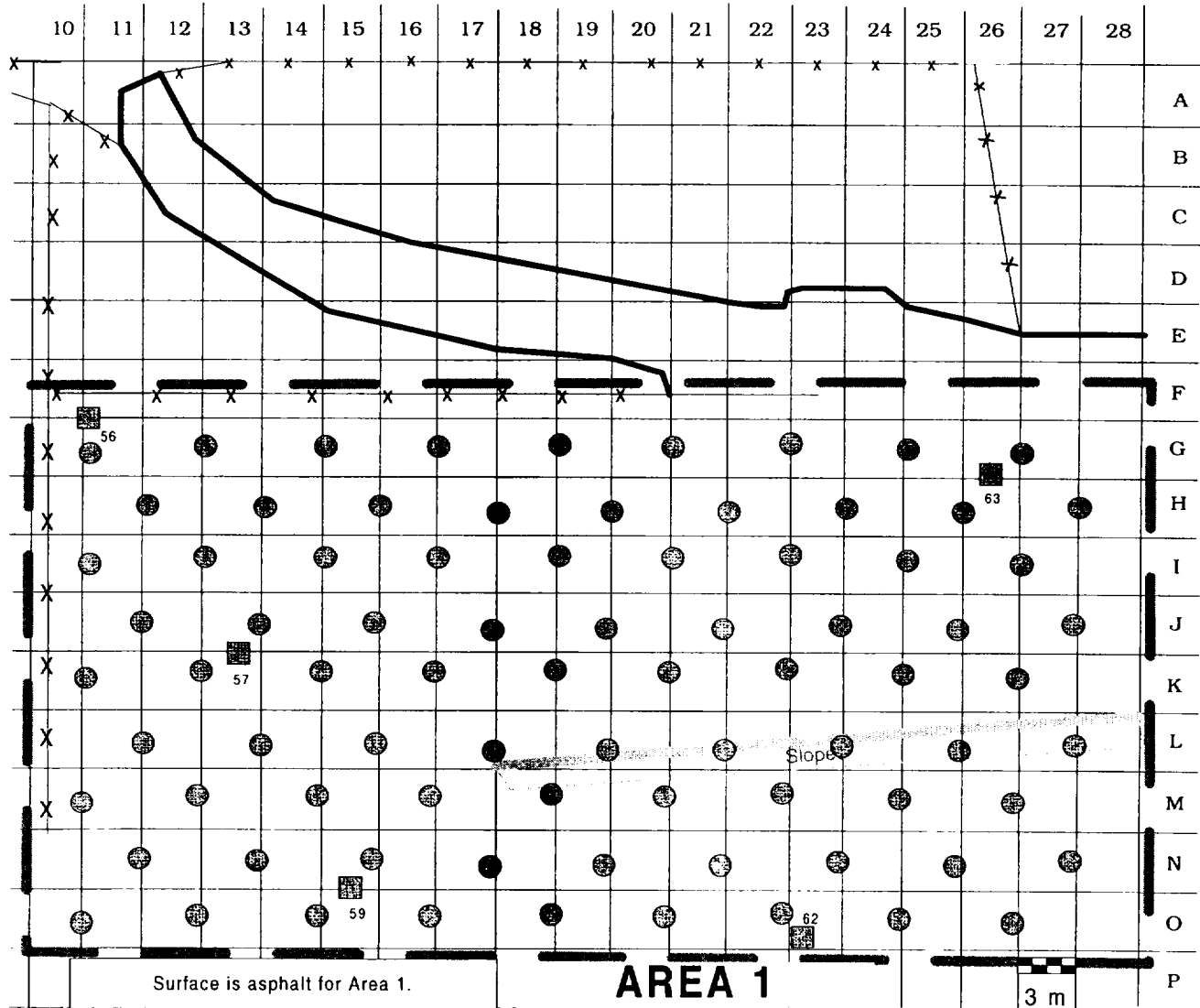
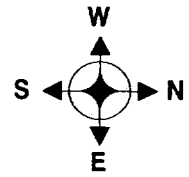
1. α Denotes location of fixed alpha measurement.
2. All alpha measurements were 0-20 cpm, ≤ 139 dpm/100 cm².
3. β Denotes location of fixed beta measurement.
4. All fixed beta measurements were 467 - 659 cpm, ≤ 459 dpm/100 cm².

INSTRUMENTS		
Model	Ludlum 2221	Ludlum 12
Serial #	148436	91103
Cal Due	06-06-01	03-26-01
Efficiency %	27.12	21.58
Probe	100 cm ² β	50 cm ² α
Probe #	120477	89916
Background (asphalt)	644 cpm	5 cpm
MDA	459 dpm/100 cm ²	121 dpm/100 cm ²

Surveys Conducted by: J.Sullivan, S.Cowan, C. Stanley
Date: 12-09-00

Figure 5: Smear and Soil Sample Locations

Sorrento Valley West Area 1



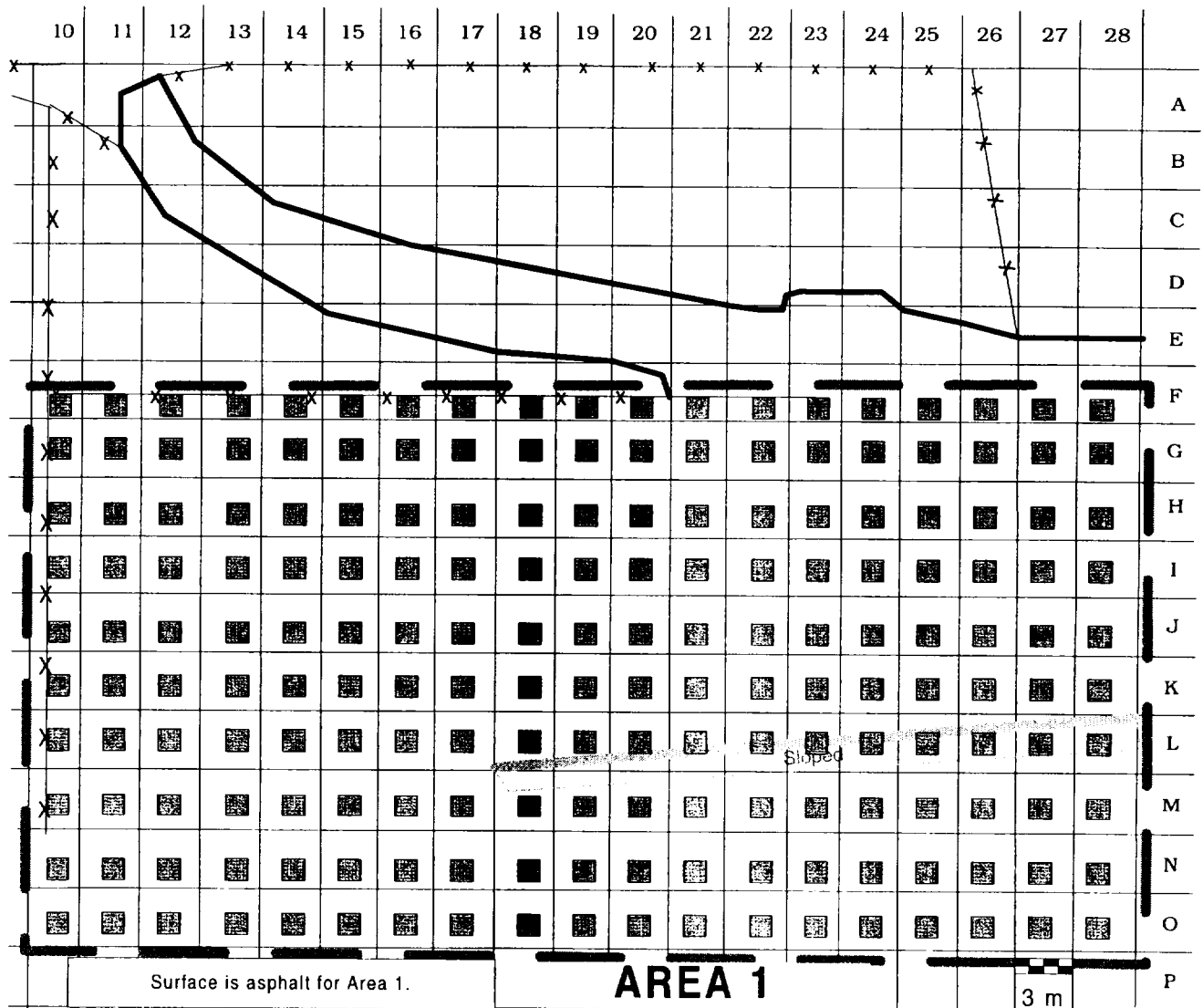
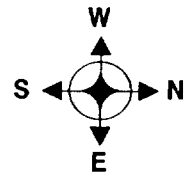
Notes:

1. Soil sample results are provided in Table 1.
2. XX Denotes a soil sample location, SVW-XX.
3. Denotes smear location.
4. Maximum result for the 81 smears collected is 37 dpm/100 cm² alpha and 34 dpm/100 cm² beta.


Survey Conducted by: J. Sullivan, S. Cowan & J. Vassett
 Dates: 12-09-00 to 12-18-00

Figure 6 : Micro R Readings

Sorrento Valley West Area 1



Notes:

1.  denotes location of micro R contact and @ 1m readings.
2. Results of the contact readings range from 17 to 23 $\mu\text{R/hr}$.
3. Results of the @ 1m readings range from 18 to 23 $\mu\text{R/hr}$.

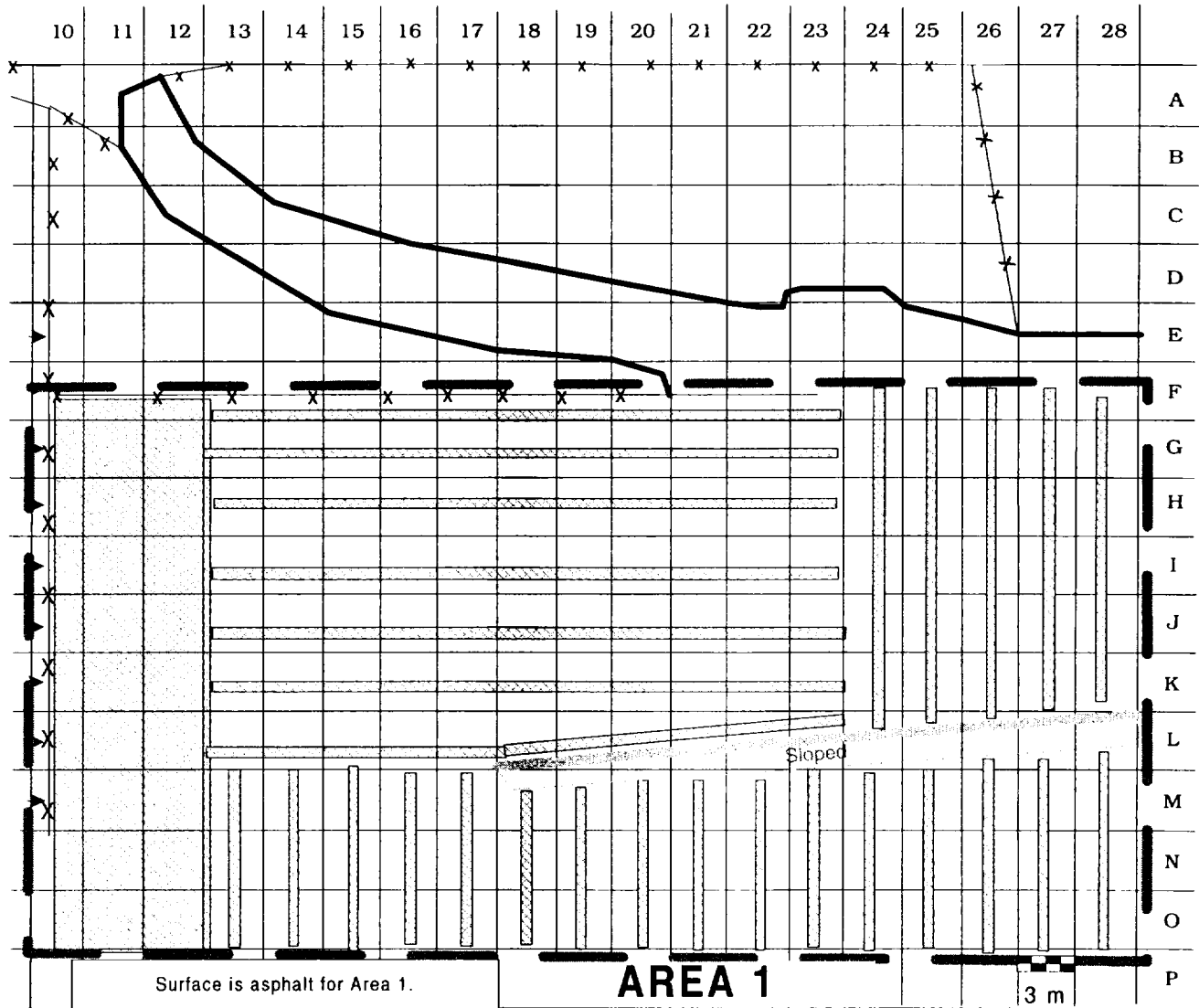
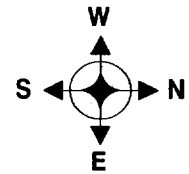
Surveys Conducted by: J. Vassett, J. Sullivan,
M. Dupray & C. Stanley.

Dates: 01-08-01

INSTRUMENTS				
MODEL	Ludlum 3	Ludlum 3	Ludlum 3	Ludlum 3
SERIAL #	153590	153551	151348	147819
CAL DUE DATE	03-08-01	04-04-01	04-06-01	01-31-01
EFFICIENCY %	NA	NA	NA	NA
PROBE	2" X 2" NaI 44-10	2" X 2" NaI 44-10	2" X 2" NaI 44-10	2" X 2" NaI 44-10
PROBE SER. #	155190	155109	154618	153765
BACKGROUND asphalt	19-21 $\mu\text{R/hr}$ Cont. 18-20 $\mu\text{R/hr}$ @ 1m	17-20 $\mu\text{R/hr}$ Cont. 17-19 $\mu\text{R/hr}$ @ 1m	20-21 $\mu\text{R/hr}$ Cont. 19-20 $\mu\text{R/hr}$ @ 1m	18-19 $\mu\text{R/hr}$ Cont. 16-18 $\mu\text{R/hr}$ @ 1m

Figure CS1: Confirmatory Survey Gamma Scans

Sorrento Valley West Area 1



Notes:

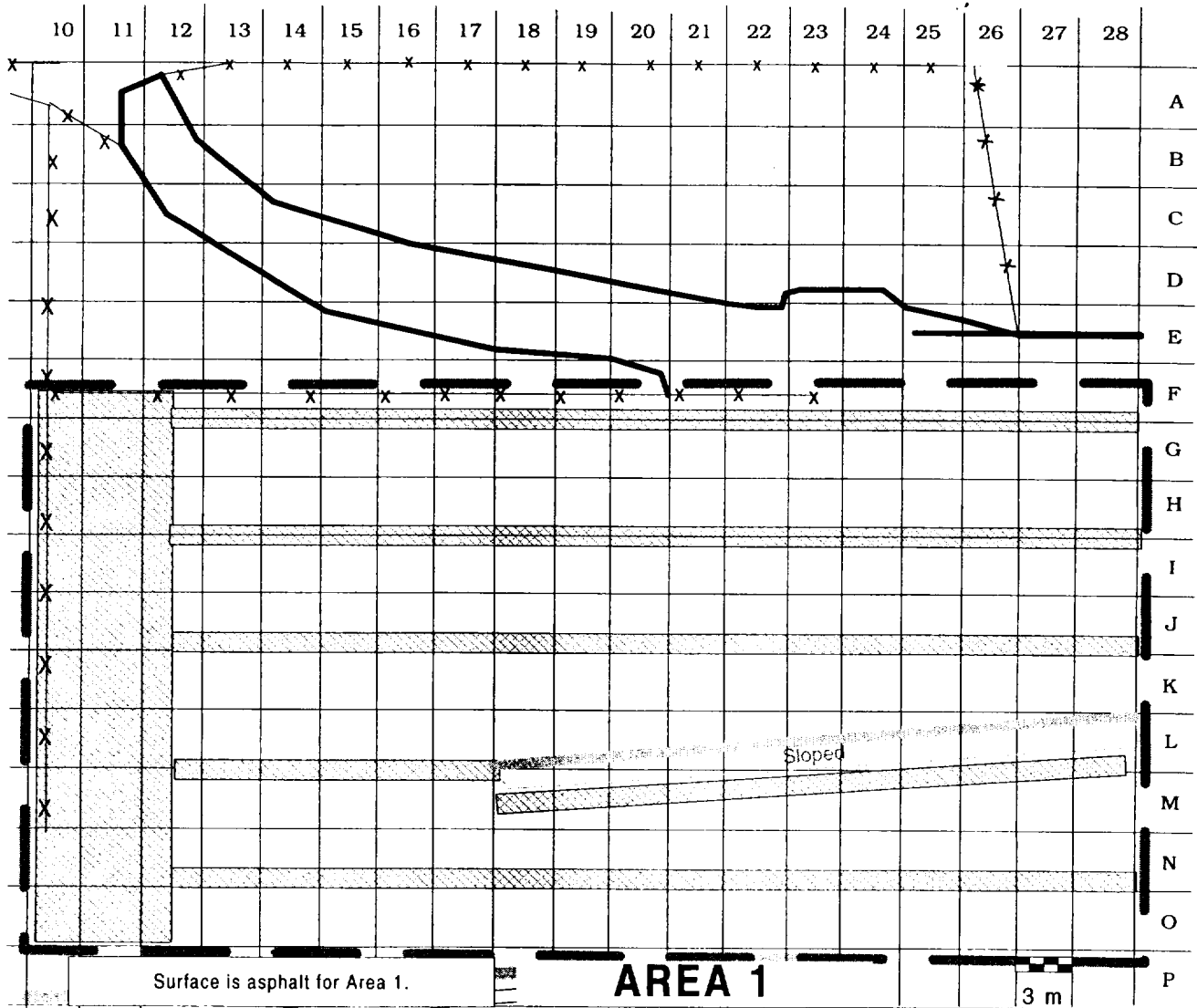
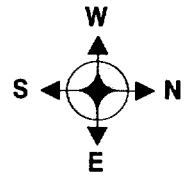
1. Denotes area scanned.
2. Scan results ranged from 16 to 23 $\mu\text{R/hr}$.

INSTRUMENT	
Model	Ludlum 3 (γ)
Serial #	147819
Cal Due	01-31-01
Efficiency %	NA
Probe	44-10
Probe #	153768
Background	18-19 $\mu\text{R/hr}$

Survey Conducted By B. Hunter
 Dates: 12-21-00 to 12-22-00

Figure CS2: Confirmatory Survey Beta Scans

Sorrento Valley West Area 1



Notes:

1. Denotes area scanned.
2. Scan results ranged from 1500 to 2500 CPM.

INSTRUMENTS		
Model	Ludlum 2221	Ludlum 2221
Serial #	86302	97817
Cal Due	07-03-01	07-03-01
Efficiency %	20.13	20.42
Probe	434 cm ² β	434 cm ² β
Probe #	092451	094119
Background (asphalt)	1900-2300 cpm	1900-2400 cpm

Survey Conducted By: R. Stowell
 Dates: 01-03-01 to 01-04-01

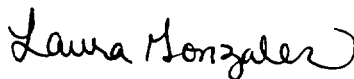
Appendix A to Final Radiological Survey Report for Area 1 of The Sorrento Valley West Land Area

December 19, 2000

Prepared by: Richard Stowell



Approved by: Laura Gonzales



GA Confirmatory Radiological Survey Plan for Sorrento Valley West

This confirmatory survey covers "Building 37 West Land Area" located in GA's Sorrento Valley Site. This area consists of the land west of Building 37 to the GA boundary.

Background and Classification

The area inside the fenced Radioactive Material Area and a 6 meter buffer on the west, north and east sides was reclassified as a Suspect Affected Area following previous surveys. The remainder of the Sorrento Valley West area remains an Unaffected Area. Figure 1 shows these areas.

Survey Objectives and Responsibility

The purpose of performing an internal confirmatory survey is to double check that the radiological conditions in Sorrento Valley West satisfy the NRC and Stat of CA guidelines for release for unrestricted use.

Surveys will be taken only by qualified Health Physics Technicians having a minimum of three years Health Physics Technician experience not assigned to perform the Final Survey, i.e. an independent survey. The survey and final report documenting the survey will be performed by GA's Health Physics Group.

Release Criteria (per GA Decommissioning Plan)

As per "Final Survey Plan for the Sorrento Valley West Land Area" approved: 11/21/00.

Alert Levels

If the following "alert levels" are exceeded notify HP Management so an evaluation can be performed to determine if increased survey coverage is required or to evaluate if decontamination is required.

Beta Monitoring

>300 cpm above the appropriate background using the 434 cm² probe.

>200 cpm above the appropriate background using the 100 cm² probe.

>150 cpm above the appropriate background using the 15 cm² probe.

Exposure Rate Measurements

>25 μR/hr at surface

>20 μR/hr at 1m

Appendix A to Final Radiological Survey Report for Area 1 of The Sorrento Valley West Land Area

Confirmatory Survey Plan for The Sorrento Valley West Land Area

Type of Survey	Suspect Affected Area (inside fenced RMA and 6 meters north and east outside the fence and 6 meters west of the blacktop inside the RMA)
Direct μR/hr Readings	100% surface scan of the area using 2" x 2" NaI probe.
Beta Scans Using 434 probe	100% of accessible flat surface areas (asphalt).
Soil Samples	Collect under asphalt where contamination was found on previous survey.
Type of Survey	Unaffected Area (remaining area outside Suspect Affected)
Direct μR/hr Readings	10% surface scan to include all depressions and low-lying areas.
Beta Scans Using 434 probe	10% of accessible flat surface areas (asphalt).
Soil Samples	None

Documentation

Radiation Surveys

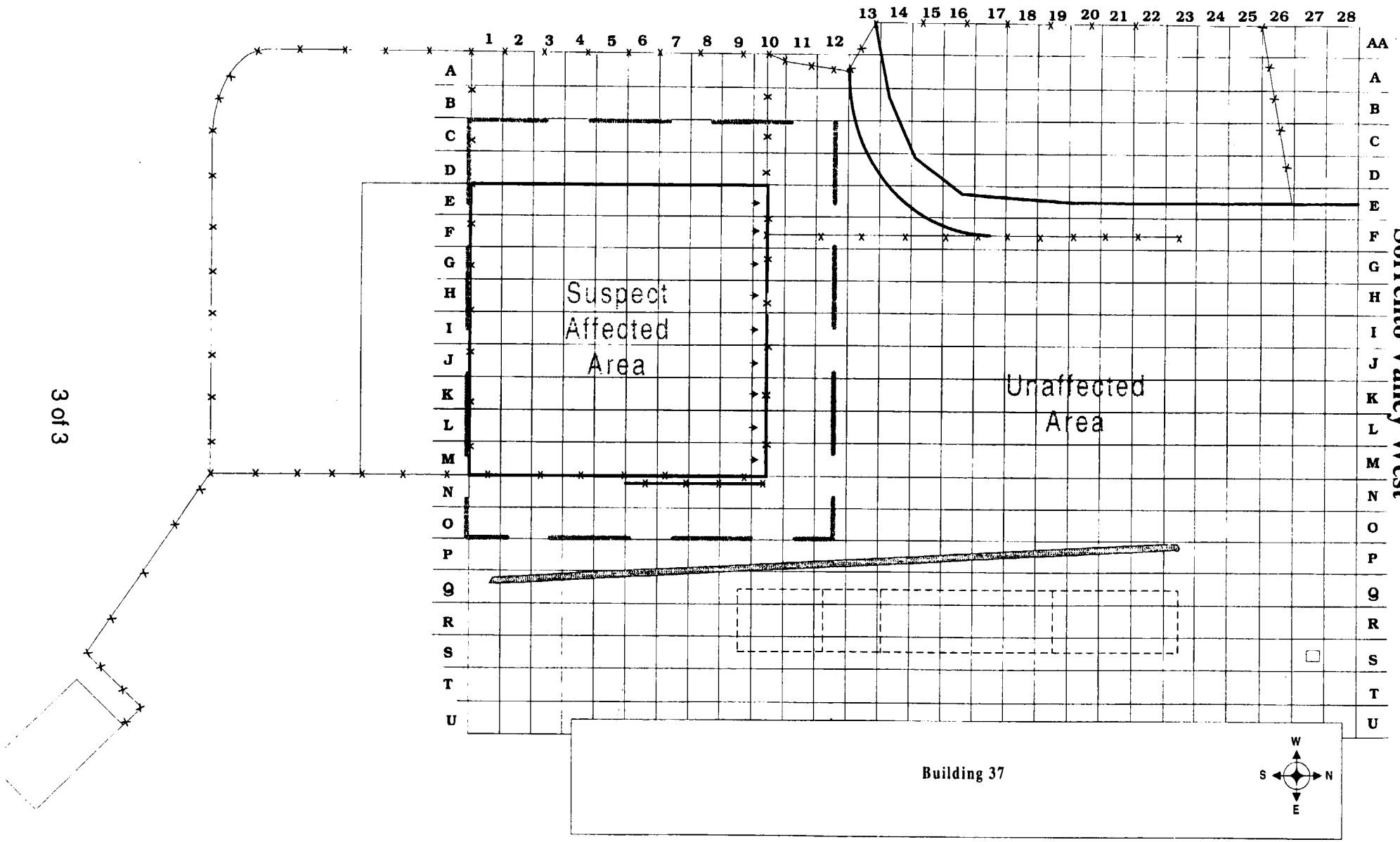
Every survey conducted will be documented on a daily basis to a worksheet/drawing showing the approximate locations surveyed/sampled. The documentation must include the results of the measurements (including units), the technician's signature, date, instrument(s) used (including the model and serial number of both the rate meter and detector), calibration due date, % efficiency, background readings (if applicable) and any other pertinent information.

Soil Samples

Mark exact locations of the soil samples on a map or drawing and refer to the grid locations. Each soil sample must also be properly labeled and tracked.

The label should include:

Date; Sample ID, Tare Weight (gms); Net Weight (gms); HP Technician's Name.



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