Private Fuel Storage, L.L.C.

Mr. Mark Delligatti   April 8, 1999
Senior Project Manager
Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBMITTAL OF COMMITMENT RESOLUTION #3 INFORMATION
DOCKET NO. 72-22 / TAC NO. L22462
PRIVATE FUEL STORAGE FACILITY
PRIVATE FUEL STORAGE L.L.C.

Reference: 1. PFSLLC Letter, Donnell to Delligatti, Commitment Resolution Letter
                 #3, dated April 2, 1999
             2. Geomatrix Consultants, Inc., Fault Evaluation Study and Seismic Hazard
                 Assessment, Private Fuel Storage Facility, February 1999
             3. PFSLLC Letter, Parkyn to Delligatti, Request for Exemption to 10 CFR
                 72.102(f)(1)

Please find below Private Fuel Storage responses to NRC Commitment Resolution #3
comments (Reference 1).

RAI's 2-5 and 2-7 (first round), Seismic Program

NRC Comment – The PFSF SAR (Appendix 2A) discusses a gravity survey that was
performed by Dr. James Baer, BYU. The NRC requested that PFS provide data from this
gravity survey. Also, gravity data that was used to support the Geomatrix Report was
requested.

PFS Response – As noted in Reference 1, the Baer gravity data were not directly utilized
by Geomatrix in their recent seismic analysis (Reference 2), but the profiles do show
similar gradients to the EDCON data set that was used (Reference 2, Appendix E). A
copy of the applicable pages from Baer's report is enclosed. Geomatrix has submitted a
copy of the Bouguer Gravity Map (Plate E-1 of Reference 2) and supporting digitized
data directly to the CNWRA on April 7, 1999. A copy of the cover letter dated April 7,

1999 is enclosed. Distribution to the NRC Spent Fuel Project Office will be made after PFS receives the information from Geomatrix. This distribution to the NRC will include the EDCON affidavit for the proprietary information.

NRC Comment – The NRC requested more information concerning near field effects and directivity and how they are included in the probabilistic seismic hazards analysis.

PFS Resolution – As noted in Reference 1, this information was addressed in the Geomatrix attachment to the PFS 10CFR72.102 exemption request (Reference 3).

NRC Comment – The recent PFS response to RAIs 2-5 and 2-7 only included seismic accelerations based on the probabilistic hazards analysis approach. The staff suggested that PFS also submit PGA values using the deterministic approach that includes the effects of the recently identified faults in the vicinity of the PFSF.

PFS Resolution – Geomatrix Report entitled "Update of Deterministic Ground Motion Assessments" (enclosed) provides deterministic seismic accelerations based on the recent geologic information (submitted in Reference 2).

If you have any questions regarding this response, please contact me at 303-741-7009.

Sincerely,

John L. Donnell
Project Director
Private Fuel Storage L.L.C.

Enclosure

cc: John Parkyn
        Jay Silberg
        Sherwin Turk
        Asadul Chowdhury
        Murray Wade
        Scott Northard
        Denise Chancellor
        Richard E. Condit
        John Paul Kennedy
        Joro Walker

APPLICABLE PAGES FROM THE BENSON AND BAER GRAVITY REPORT

(Pages E-1 through E-8 and Figures 2 through 8)

INTRODUCTION

A gravity survey of the Skull Valley - Ripple Valley, Tooele County, Utah was conducted during the months of May and June, 1987. During this time 432 stations were read and plotted on 1:24,000 topographic maps. The data was processed to give reduced Bouguer values (Fig. 1). This data was then contoured at a 2 milligal interval (Fig. 2) and 16 gravity profiles (Figs. 4, 5) were constructed. This data base then served as a means to interpret the location of the main faults in the area (Fig. 6). In addition, a close-spaced gravity survey was done on part of Ripple Valley to characterize the surface and near surface bedrock features (Figs. 7, 8).

As the terrain and weather conditions permitted, the stations were positioned at a density that would allow for good approximations of the main fault locations. Because most of the stations were located on orthographic and topographic maps the position of each station was very accurate. Further, most of the stations were located on known spot elevations thereby giving the data greater certainty. While there are a few spots where more data would be of value, the number of stations, 432, the location, and density of the stations provides a very good base for interpreting the presence and probable location of the main faults. However, even with this good gravity-station base, there remains some uncertainty as to the precise location of these faults, most of which are buried and therefore have no surface indication of their presence. Some of the faults interpreted on

figure 6 have surface indicators such as scarps or spring alignments. All of the faults depicted on figure 6 are interpreted on the basis of gravity indicators. If a surface lineament or spring alignment showed no corresponding gravity gradient anomaly then no fault was interpreted.

In discussing the area it is convenient to divide it into three parts, Skull Valley on the east, Ripple - Puddle Valleys on the west and the connecting Pass Area where the railroad and interstate cross the northern end of the Cedar Mountains. Each area will be discussed in turn emphasizing the nature of the faults in that particular area. A summary for the entire surveyed area will be given at the end of the discussion for the three parts.

Skull Valley Area

Skull Valley lies between the two north 15 degree east trending mountain ranges, the Stansbury Mountains on the east and the Cedar Mountains on the west. The valley is relatively flat with a couple of wetland areas in the north-east portion of the valley. These wetlands precluded readings being taken within them for two reasons, one was trafficability and the other is that government wildlife regulations prohibited access during our survey times. Nevertheless, the gravity net was such as to get good coverage along the bordering base of each of the mountain ranges, and 2 complete lines and 2 partial lines gave fair coverage of the valley proper (Fig. 1).

Based upon the contour data of figure 2 and profiles 1, 2,

3, 4, 5 and 6, nine fault segments are depicted on figure 6. Three of the faults trend parallel to the ranges, S-1, S-2, and S-3.   S-1 is the main boundary fault of the Stanbury Mountains and runs west of and roughly parallel to the road to Dugway. This fault appears to be a normal fault with the down side on the west.   This fault has several springs and some scarp features along it.   S-2 is a buried fault with no apparent surface features along it.   Its presence is based upon the abrupt gravity gradient along two survey lines.   S-3 is the boundary fault along the east side of the Cedar Mountains.   It is less distinctive than S-1 but does have isolated scarp and spring features as well as an abrupt gravity gradient change.   This fault has less offset than S-1 and may be less steep.   This fault has areas where it has been overridden by mudflows and late Tertiary sedimentation and is therefore more obscure.

Faults S-4, S-5, S-6 appear to be relatively minor faults and may be the result of bedrock adjustments caused by movement on S-3.

S-7, S-8, S-9 are east-west or northwest-southeast trending faults.   Each is characterized by a change in gravity gradient and change in strike of gravity gradient.   These faults may be strike-slip faults and may be steep.   These suspected faults may be related to a number of suspected faults in the Pass Area that have similar gravity signatures.

Skull Valley appears to be an asymmetric valley with the deepest portions of the valley having 6,000 to 8,000 feet of Tertiary and younger sedimentary fill.   There may be some buried

mudflows along the western margin of the valley.   North 15 degrees east striking faults dominate the structure.   The east-west, northwest-southeast faults show subtle, but persistent, gravity gradient changes that indicate their probable presence.

Ripple-Puddle Valley Area

Topography of the Ripple - Puddle Valley area is more dissected than Skull Valley.   The southern extremity of the Grassy Mountains divides the two valleys and the resistant Tertiary volcanic rocks of the Grayback Hills is the moderately prominent western edge of the Ripple Valley.   There is a half-mile wide four mile long, north 15 degrees west striking ridge in the south central portion of the area.   East of this ridge is a variety of isolated bedrock outcrops whose strikes are somewhat chaotic.   Much of this rock is severely brecciated.   There are a number of isolated outcrops south and west of the southern end of the Grassy Mountains.   These outcrops are more coherent and less brecciated than their counterparts to the south.

Interpretation of the gravity data indicated at least 15 fault segments are present in the area (Fig. 6).   Parts of profiles 3, 4, 7, 8, and 9, and profiles 10, 11, 12, 13, 14, 15, and 16 deal with this area.

Faults R-1, R-2, R-3, R-9, and R-10 are the most prominent faults in this area.   R-1 is the most pronounced as witnessed by the gravity signature and the scarps.   In places the fault is overridden by landslides, with faulted Tertiary volcanic rocks making up part of the scarp face in the southern part of the

fault.   This fault appears to be ranging in angle from steep to moderate and may well have different amounts of displacement along its strike.

R-3 appears to be the western partner of R-1 as it parallels it along much of its trace.   R-3 apparently does not have a great amount of displacement, probably less than half that of R-1.   A prominent scarp can be found along parts of R-3.

R-9 is suspected to be near the western base of the four mile long ridge.   This fault is projected northward into the area parallel to R-10.   R-9 and R-10 may be one fault but appear to be present just west of a subtle rock ridge that occurs in the southwestern part of Ripple Valley (Figs. 7, 8).

R-4 and R-5 appear to be small faults that could be the boundary features for a small bedrock block that was rotated out into the valley and subsequently buried.

R-6, R-7, and R-8 all strike northwest-southeast with R-6 and R-7 having relatively steep sides.   They appear to be the boundary faults for a small graben.

R-11, R-13, and R-15 are northwest-southeast or southwest-northeast striking faults that are interpreted from changes in gravity gradient strike.   R-11 is particularly well documented. These faults may be ancient strike-slip faults and may have later normal movement along some of them.

This area differs from Skull Valley in that it is more structurally segmented.   The valleys are also filled with far less sediment than Skull Valley, perhaps as little as 2000 to 3000 feet maximum.   Many areas have less than 1000 feet and some

E-5

areas are covered by less than 200 feet of sediment (Fig. 7, 8).

Pass Area

It appears that the Pass Area is that because of the faults that underlie the area. Nine faults were interpreted from the data (Fig. 6). Parts of profiles 2, 4, 6 and 7 all show the probable presence of these faults.

Faults P-1, P-2, P-3, P-4, P-5, P-6 and P-7 have very little surface indicators, except for fault P-6, which appears on the state geologic map. P-3 and P-4 appear to be the main faults in the pass. Because these faults parallel fault P-6 it is suspected that these faults have a strong strike-slip component movement. P-6 is postulated to be a right-lateral fault. P-4 may continue over to S-9, that is just south of Lone Rock.

P-1 and P-2 appear to be parallel faults to P-3 and P-4 but are of much smaller magnitude. The space between these faults apparently is the site for sediment influx as there appears to be thicker lower density sediment infill between the faults.

Faults P-8 and P-9 strike nearly north-south and may be faults with small displacement and may owe their presence to gravitational adjustments along the main strike-slip faults. P-8 and P-9 are interpreted mainly upon the presence of scarps and strike changes in the gravity gradient.

The Pass Area appears to be the locus of several strike-slip faults that broke up the bedrock; and then subsequently, the intervening valleys were filled with sediment thereby allowing the "Pass" to develop.

Ripple Valley Bedrock Character

A portion of Ripple Valley was surveyed with lines that had stations approximately 500 feet apart (Fig. 7, 8). This was done to detect the nature of a near surface to exposed rib of bedrock. In general Ripple Valley has a ridge that strikes north 75 degrees east about three to four miles north of the interstate (Fig. 2). This ridge appears to be the result of north 15 degrees west striking rocks that are present at a variety of depths. North of the ridge is a shallow basin that has an average of 600 to 1000 feet of fill. South of the ridge is a basin that is a few hundred feet deeper. On the ridge itself rock was encountered in borings at a depth of 40 feet in well B-7 (Fig. 7). But no rock was encountered in well P-8 to a depth of 110 feet. Well P-8 is just about one mile north and a little east of well B-7.

Examination of the gravity data indicates that the rock encountered in well B-7 is part of a partially buried resistant rock layer. This rock rib is exposed about 1.5 miles northwest of the well. The rock is within 50-70 feet of the surface just about one-half mile northwest of the well. It appears that this rock rib is about 300 to 500 feet (maybe up to 1000') thick at its widest part but much less thick along most of its strike. The rib gives a prominent positive gravity signature for over two miles but is thought to be within 100 feet of the surface along less than a quarter-mile (Profile E, Fig. 8).

Summary

The gravity survey was able to locate 31 fault segments in the area. Some of the faults are prominent and occur in already suspected areas or have already been mapped. Many, however, are completely buried and are not indicated on previously published maps. Skull Valley is a relatively simple valley with respect to faults. However, Ripple Valley and the Pass Area appear to be complexly faulted.
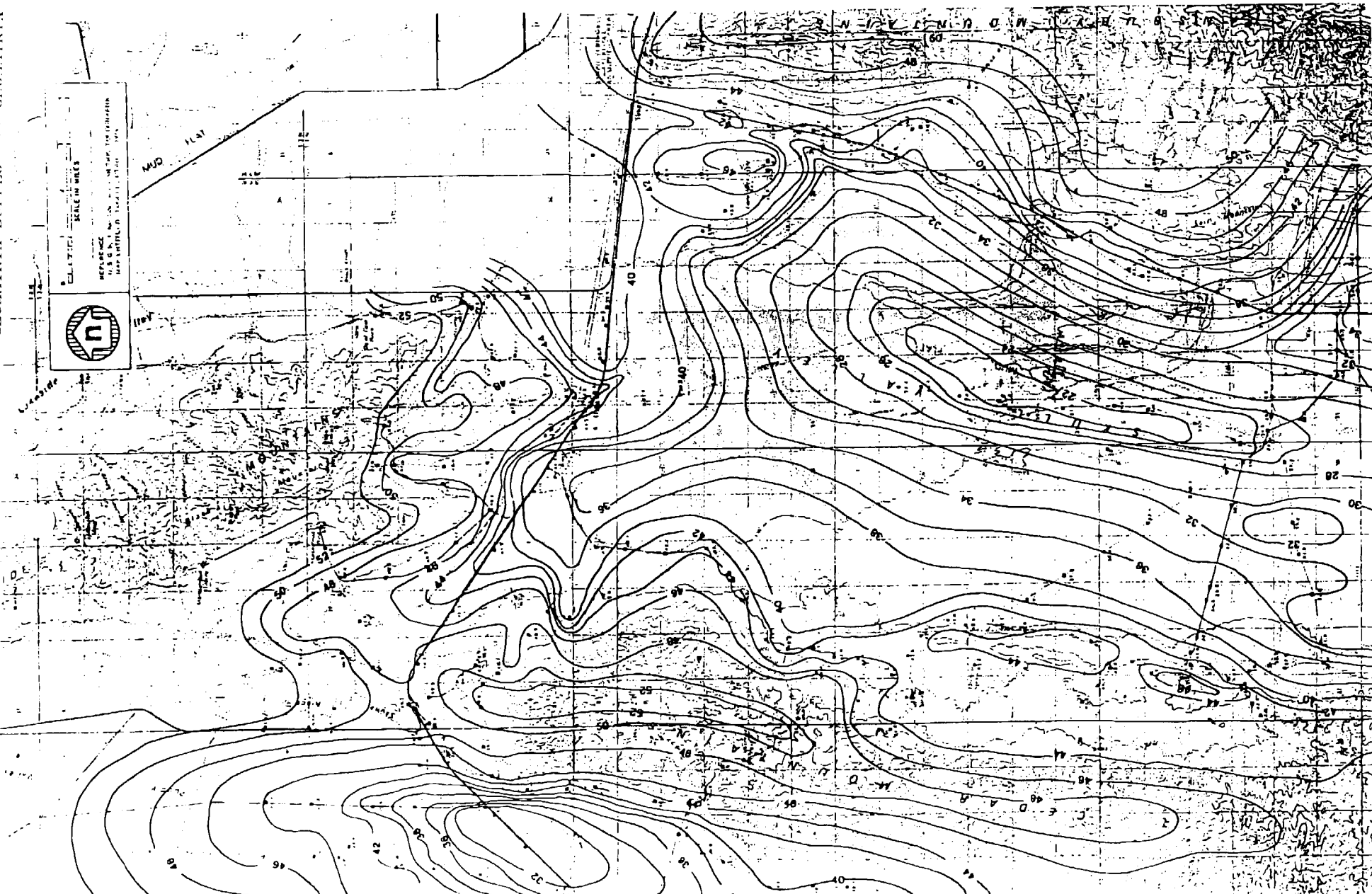
In all of the area and during the entire time of our survey there was no indication of Recent fault movements. It is suspected that the area experienced two major periods of fault production. One that was associated with the 30+ million year old volcanic flow activity. This was probably the strike-slip faulting that produced the northwest-southeast and southwest-northeast faults, like those prevalent in the Pass Area. Subsequently the Basin and Range faulting episode, deformed the area. This episode apparently ceased a few million years ago. No evidence was found to indicate any young faulting in the area; in fact, all the faulting appears to be very old, millions of years old.

Fig 2
(Reduced)
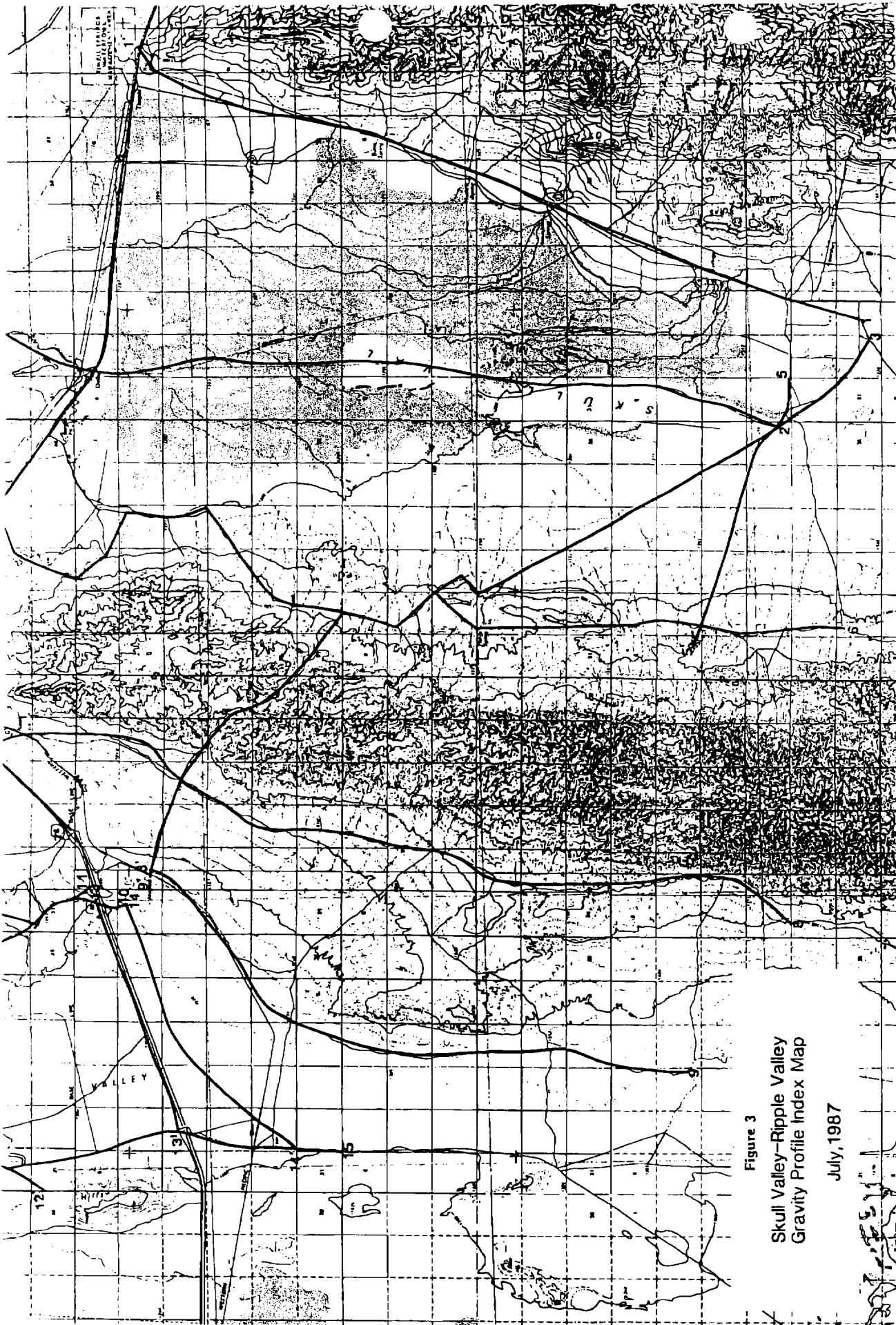
Figure 3

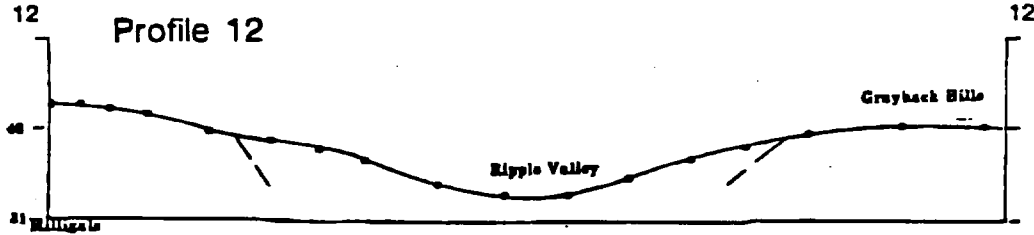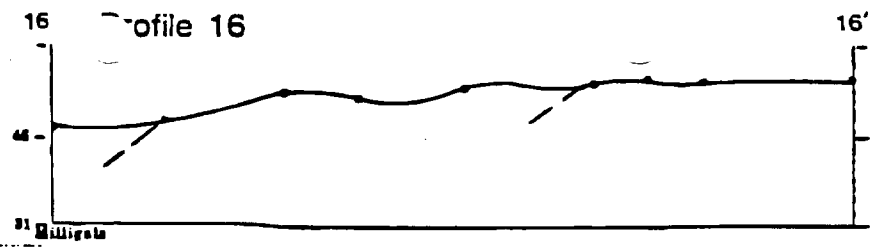Skull Valley–Ripple Valley
Gravity Profile Index Map

July, 1987

Profile 1

Profile 2

Profile 6

Profile 8

Profile 9

Profile 7

Profile 4

Profile 3

Profile 5

SCALE IN FEET

Skull Valley-Ripple Valley
Gravity Profiles
July, 1987

Figure 4

Profile 16

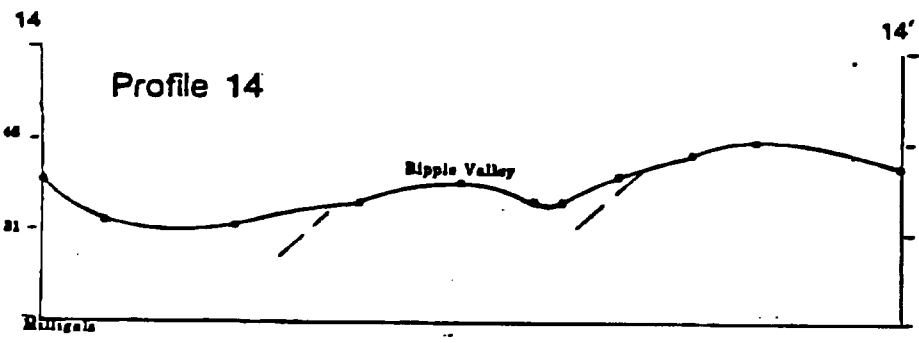Profile 12

Grayback Hills

Ripple Valley
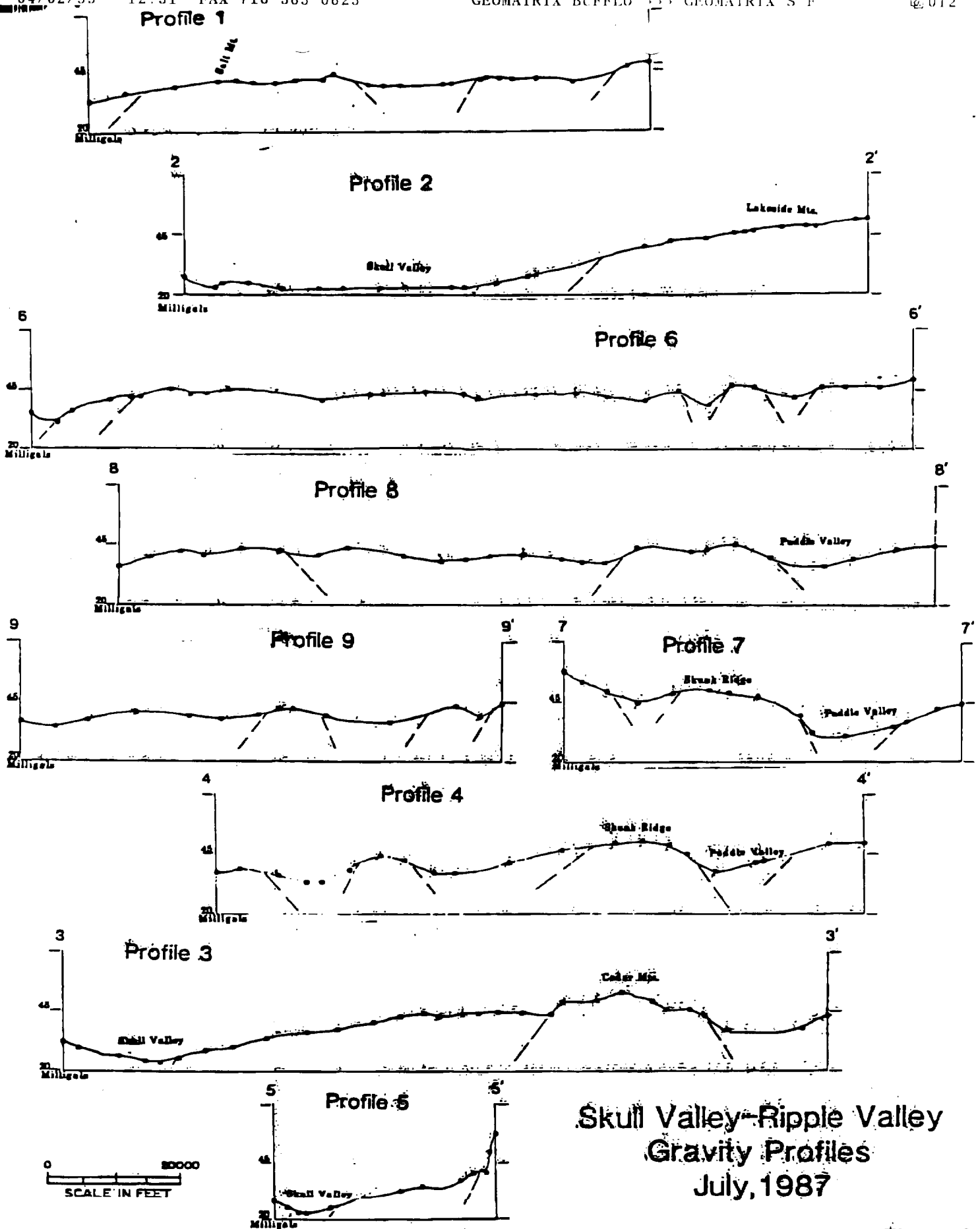
Profile 13
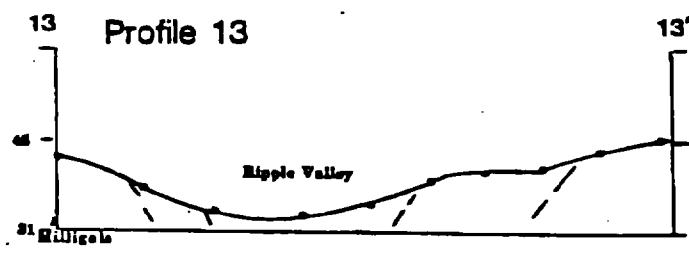
Ripple Valley

0   4000
SCALE IN FEET
(PROFILES 12-12', 13-13'
AND 14-14')

Profile 14

Ripple Valley

0   6000
SCALE IN FEET
(PROFILES 10-10', 11'-11'
AND 15-15')

Profile 10

Grassy Mtn.

Profile 11

Grassy Mtn.
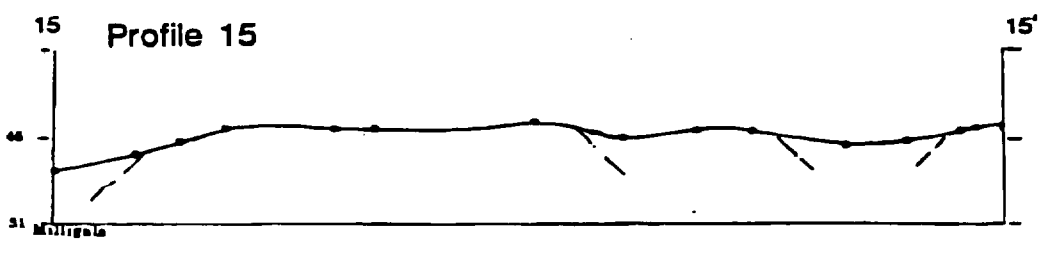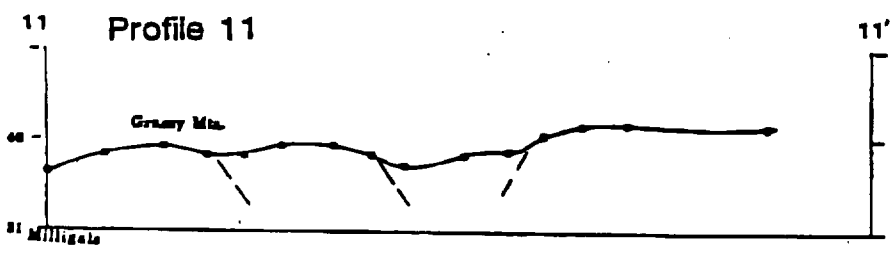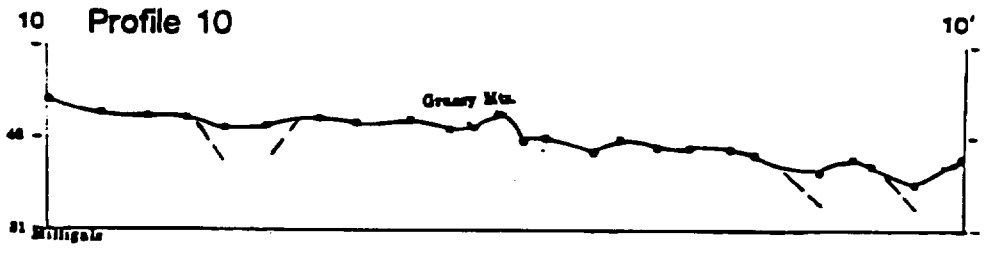
Profile 15

**Skull Valley–
Ripple Valley
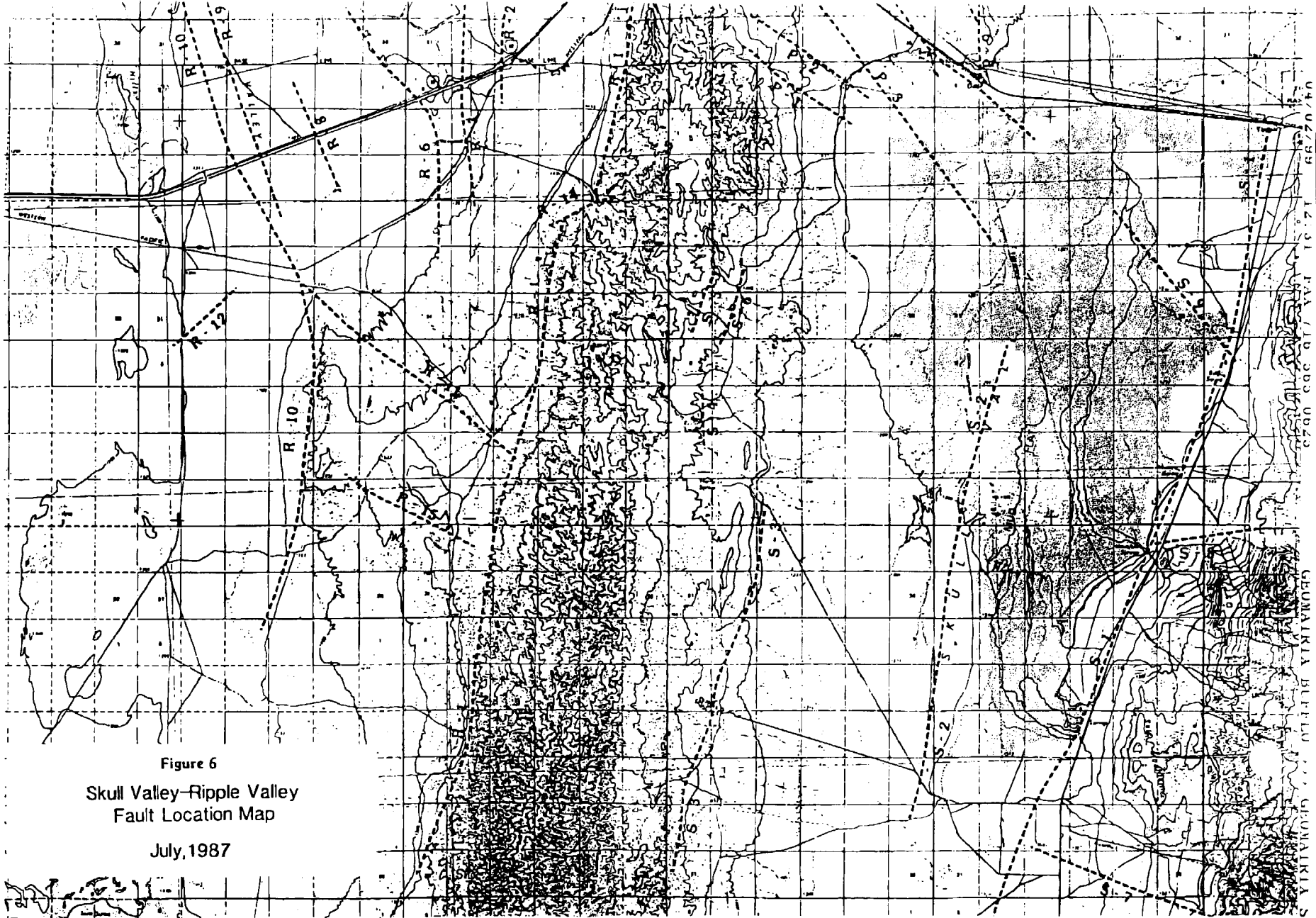Gravity Profiles**

July, 1987

Figure 5

Figure 6

Skull Valley–Ripple Valley
Fault Location Map
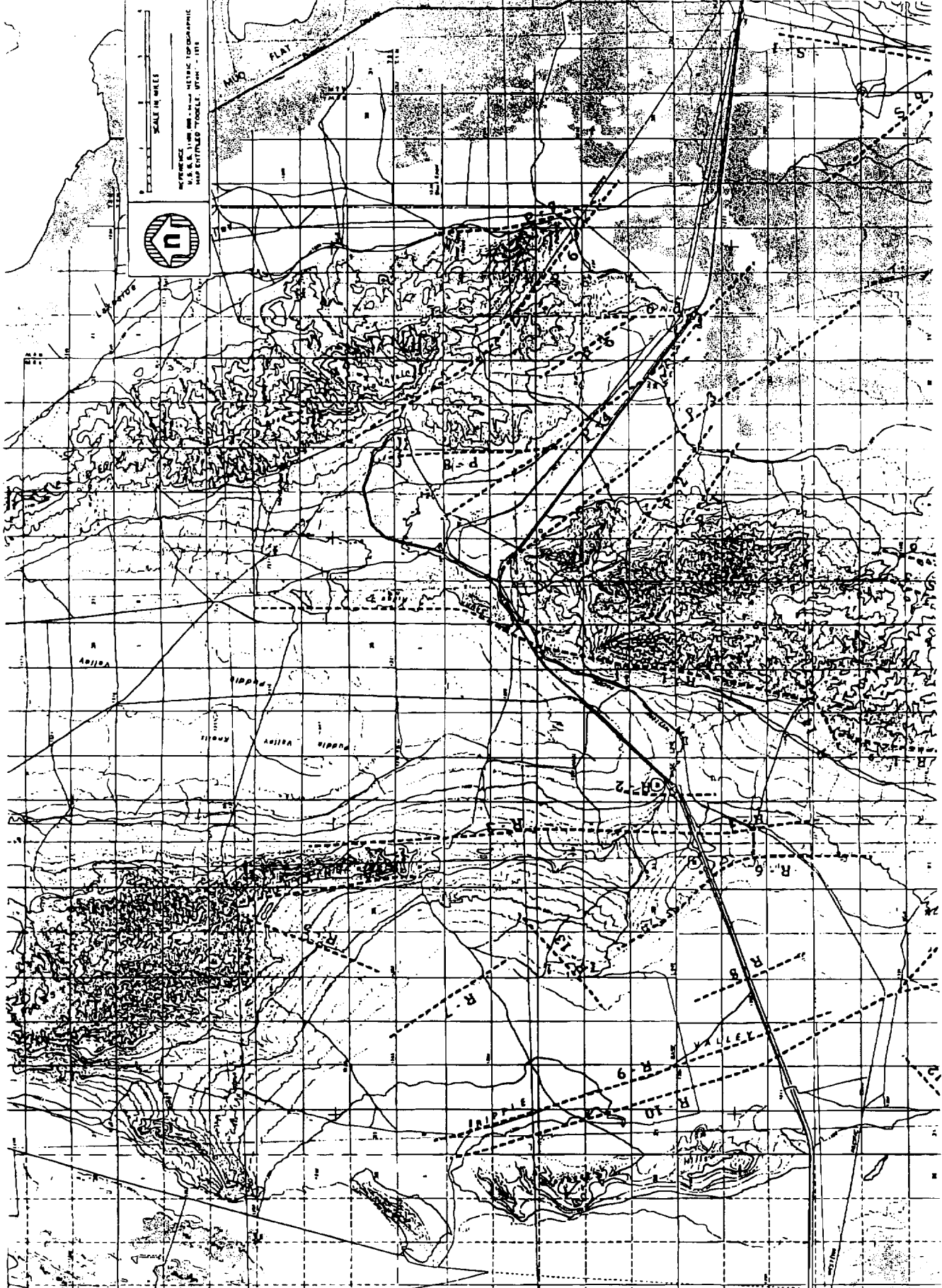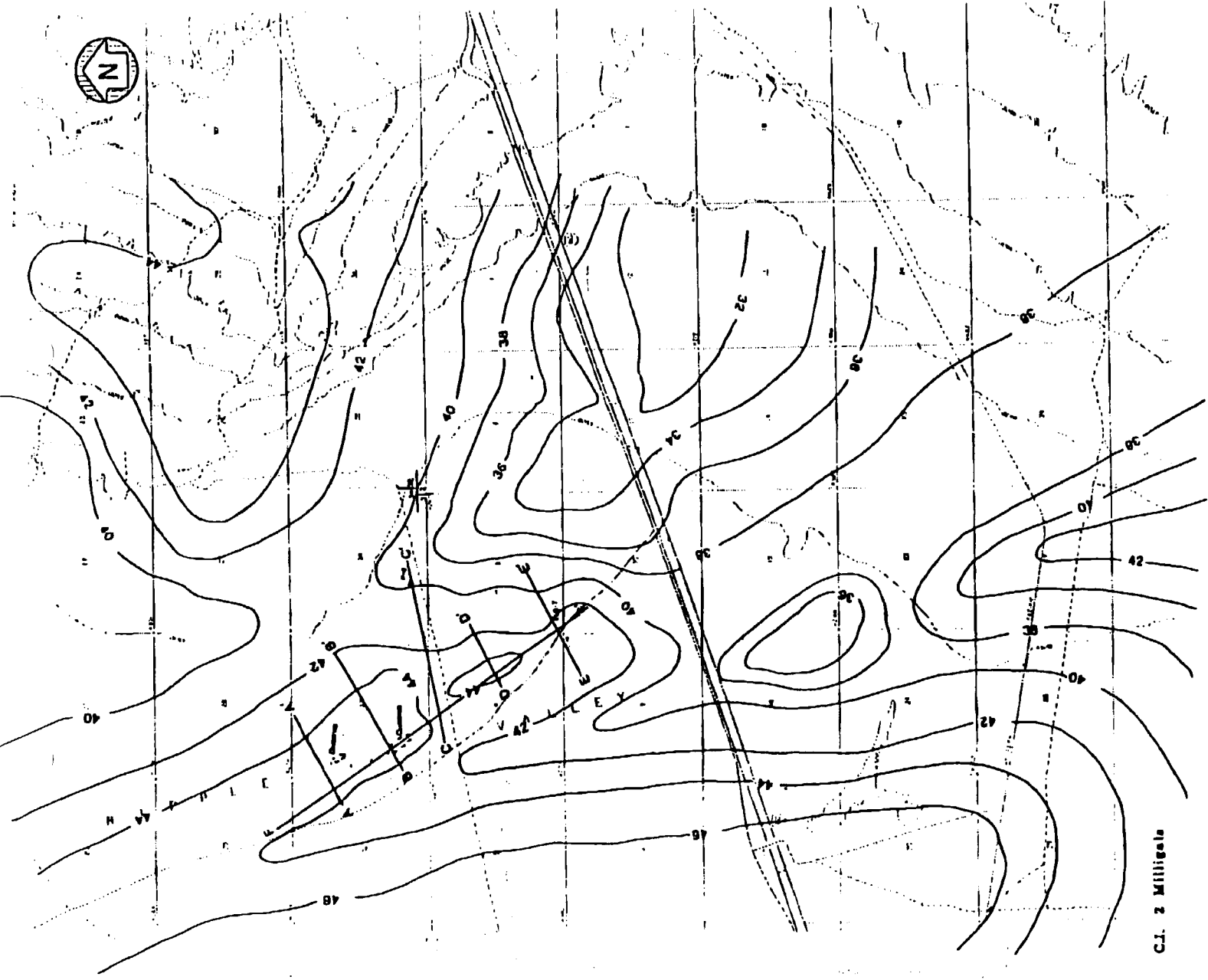
July, 1987

Fig 6 Bottom half

Reduced

Fig 6 Top half
Reduced

Ripple Valley Gravity Map
July, 1987

C.I. 2 Milligals

SCALE IN MILES
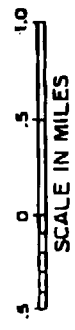
REFERENCE.
TOPOGRAPHIC BASE ADAPTED FROM
U.S.G.S. QUADRANGLES ENTITLED
"ARAGONITE, UTAH" AND "RIPPLE
VALLEY, UTAH" — BOTH SHEETS
DATED 1973.

Figure 7
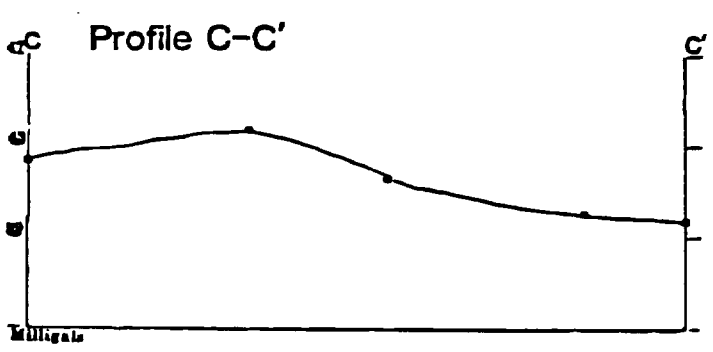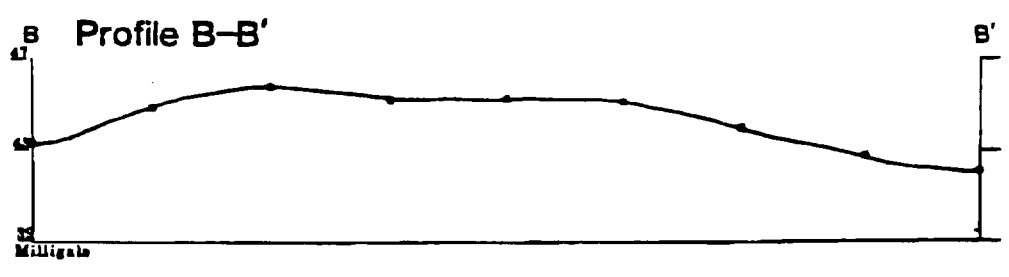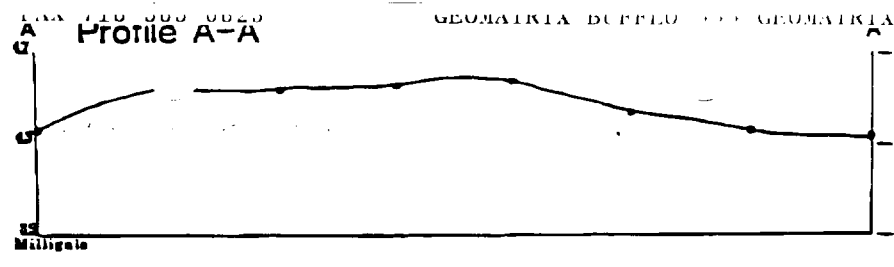
Profile A–A'

Profile B–B'

Profile C–C'

SCALE IN FEET
(UNLESS OTHERWISE INDICATED)

Profile D–D'

Profile E–E'

Profile F–F'

0   4000 FEET
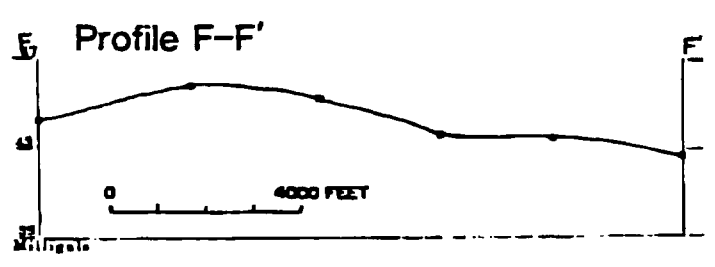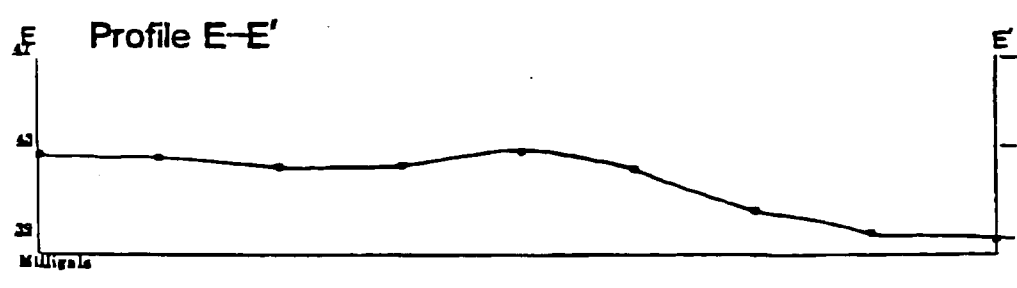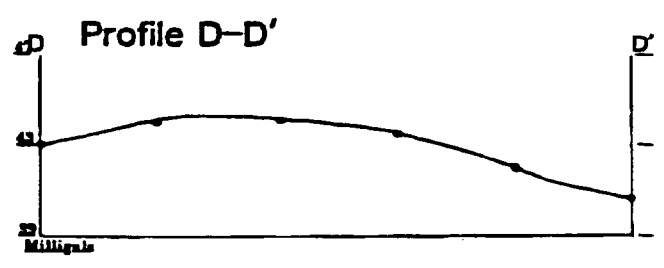
**Ripple Valley
Gravity Profiles**

July, 1987

Figure 8

COVER LETTER

To Dr. Asadul H. Chowdhury from Frank H. Swan of Geomatrix dated 4-7-99

(1 page)

GEOMATRIX

100 Pine Street, 10th Floor
San Francisco, CA 94111
(415) 434-9400 • FAX (415) 434-1365

April 7, 1999
Project 4790.01

Dr. Asadul H. Chowdhury, Manager
Repository Design, Construction and Operations
Southwest Research Institute
Center for Nuclear Waste Regulatory Analysis
6220 Culebra Road
San Antonio, Texas 78238

Subject: Fault Evaluation Study and Seismic Hazard Assessment
                 Private Fuel Storage Facility
                 Skull Valley, Utah

Dear Dr. Chowdhury:

At the request of Mr. William Hennessy of Stone and Webster Engineering Corporation I am providing you with a copy of Appendix E of Geomatrix Consultants February 1999 report on the subject site. Appendix E consists of a gravity contour map of part of Skull Valley, Utah that Geomatrix produced base on proprietary gravity data owned by EDCOM. Geomatrix has permission to use these data under a license agreement (July 1, 1998) that precluded us from making these data public or providing the raw data to third parties.. We have arranged with EDCON to extend the license agreement to the USNRC's use of these data provided that the data are not made public or passed on to third parties as per the understanding set forth in the enclosed affidavit from EDCON.

Enclosed with this transmittal are:

1. Appendix E of Geomatrix Consultants, Inc (February, 1999) report;

2. A "floppy" disk containing two ascii files: File "Format.dat" provides the format of the second file; File "Skull.dat" provides the principal facts of the gravity survey.

3. A letter and affidavit from EDCON (April 7, 1999) that explain the proprietary nature of these data and the terms of the extended agreement governing the USNRC's use of these data.

Please acknowledge receipt of the enclosed materials by return fax. If you have any questions regarding the enclosed information, feel free to contact me.

Sincerely yours,
GEOMATRIX CONSULTANTS, INC.

Frank H. Swan
Vice President and Principal Geologist

H:\Doc_Safe\4000s\4790\Correspondence\Chowdhury-1.doc

Enclosures

cc: William Hennessy, SWEC

Geomatrix Consultants, Inc.
Engineers, Geologists, and Environmental Scientists

GEOMATRIX REPORT

UPDATE OF DETERMINISTIC GROUND MOTION ASSESSMENTS

(3 pages of text plus Figures 1 through 4)

UPDATE OF DETERMINISTIC GROUND MOTION ASSESSMENTS
Private Fuel Storage Facility
Skull Valley, Utah

1.0 INTRODUCTION

This report presents updated deterministic ground motion assessments for the Private Fuel Storage Facility site located in Skull Valley, Utah. These assessments are based on the seismic source and ground motion characterization presented in Geomatrix Consultants, Inc. (1999a and 1999b).

2.0 APPROACH

The approach used to assess deterministic ground motions for the Skull Valley site follows the methodology described in Geomatrix (1997). The standard approach used for deterministic ground motion assessments for nuclear facilities is to use the 84th percentile of the empirical distribution of peak motions predicted for the maximum earthquake on each seismic source occurring at the minimum source-to-site distance. We have extended this approach to include the uncertainty in maximum magnitude, minimum source-to-site distance, and selecting appropriate attenuation relationships in the estimation of the 84th percentile ground motion levels. The formulation used is given by the relationship:

$$P(Z > z) = \sum_m p(m_i) \cdot \sum_r p(r_j | m_i) \cdot \sum_A p(A_k) \cdot P(Z > z \, | m_i, r_j, A_k) \qquad (1)$$

where $p(m_i)$ is the discrete probability density function for maximum magnitude, $p(r_j)$ is the discrete probability density function for minimum distance given a maximum magnitude, $p(A_k)$ is the discrete probability density (weight) assigned to a particular attenuation relationship and $P(Z > z \, | \, m_i, r_j, A_k)$ is the probability that ground motion parameter Z exceeds level z given maximum magnitude m_i, minimum distance r_j, and attenuation relationship A_k. Assuming that ground motions are log normally distributed about the median attenuation relationship A_k, $P(Z > z \, | \, m_i, r_j, A_k)$ is given by the standard log-normal distribution using the standard error specified for A_k. Equation (1) is solved iteratively for the value of z that results in $P(Z > z)$ equal to 0.8416.

3.0   SEISMIC SOURCES AND MAXIMUM MAGNITUDES

Deterministic ground motion assessments were made for the four nearby faults, the Stansbury, East, West, and East Cedar Mountains faults. The characteristics of these sources are described in Geomatrix Consultants, Inc. (1999a). Distributions for maximum magnitude are developed for each source and are shown on Figure 6-6 of Geomatrix Consultants, Inc. (1999a). The mean maximum magnitudes are **M** 7.0, 6.5, 6.4, and 6.5 for the Stansbury, East, West, and East Cedar Mountains faults, respectively. The Canister Transfer Building lies 9, 0.9, 2.0, and 9 km from the surface traces of the Stansbury, East, West, and East Cedar Mountains faults, respectively. The distance to the rupture depends upon the assigned dip. Following the assessment used for the probabilistic seismic hazard analysis (PSHA), dips of 45°, 55°, and 65° were used, with equal weight assigned to each dip angle. An assessment was also made for the occurrence of a random earthquake in the site vicinity using the methodology discussed by Kimball (1983). The magnitude of the random event was assumed to be the maximum magnitude for the areal source zone in which the site lies (uniform distribution from **M** 5.5 to 6.5) and the event is assumed to occur at a random location within 25 km of the site.

4.0   GROUND MOTION MODELS

The ground motion models used in this assessment are the set of 17 horizontal and 7 vertical attenuation relationships used in the PSHA (Geomatrix Consultants, Inc., 1999a, Appendix F). These relationships are empirical ground motion models that have been adjusted for source, path and site effects. In addition, the attenuation relationships were adjusted for near-source effects using the empirical model developed by Somerville and others (1997). Two effects are represented, one resulting from directivity of rupture (a Doppler effect) and one representing a systematic difference between fault-normal and fault-parallel motions (the horizontal response spectral attenuation relationships used in the PSHA represent the geometric mean of the two horizontal components). The effects first become significant at a spectral frequency of 1.67 (0.6-second period) and increase with decreasing spectral frequency (increasing period).

The magnitude of these effects is related to the size of the earthquake and to the geometric relationship between the site, the length of the rupture, and the location of the point of rupture initiation. For dip-slip faults, these are parameterized by the term $y\cos(\phi)$, where ϕ is the angle between the rupture surface and a line drawn from the point of rupture initiation and the site and y is the distance from the point of rupture initiation to the site measured along the fault divided by the length of rupture measured in the direction of slip (for dip slip faults, the rupture width). Because most large normal faulting earthquakes appear to initiate near the base of the
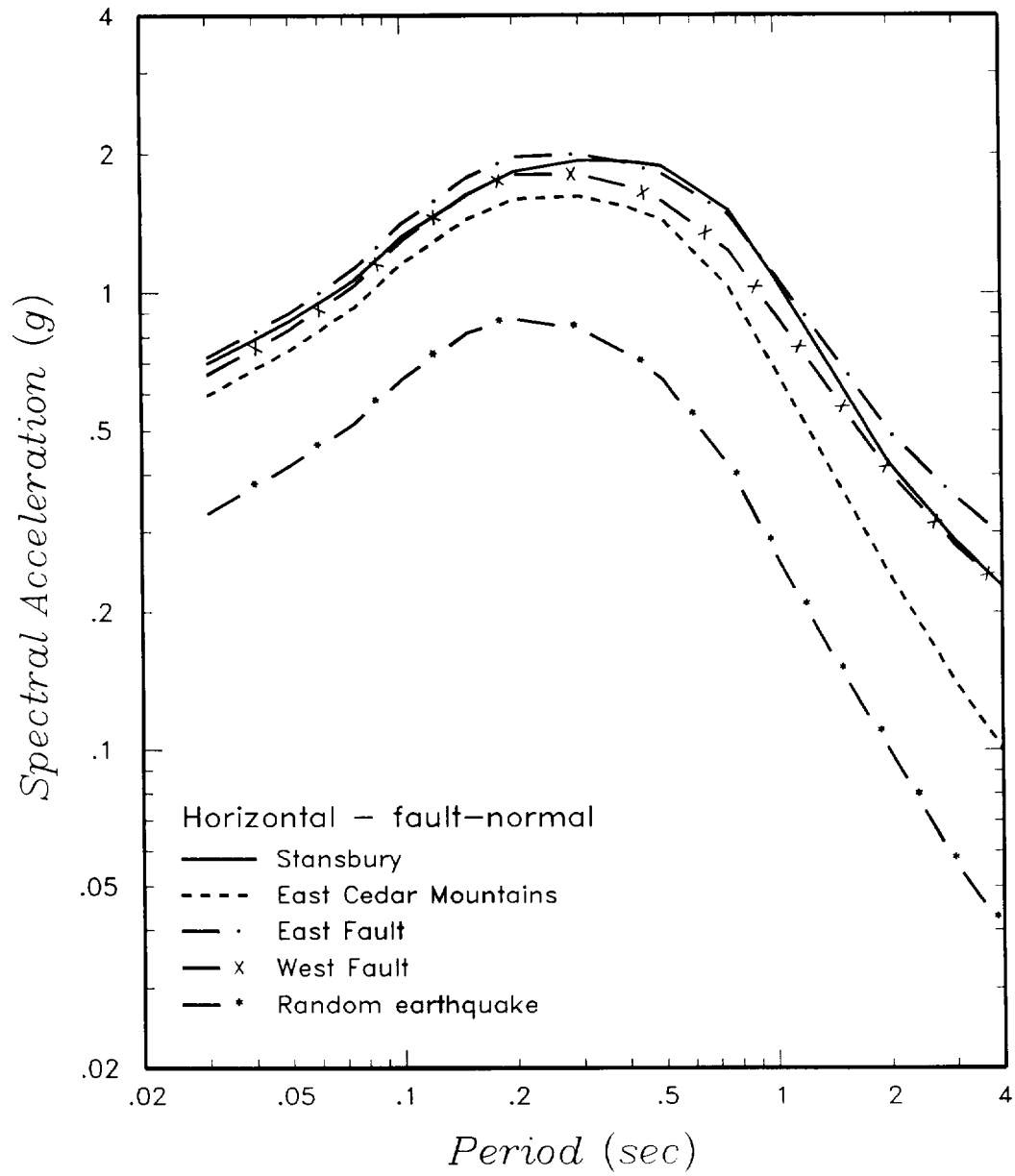
seismogenic crust, sites located on the fault trace will have $\phi = 0$ and y near 1.0, and will thus experience the maximum effect of both directivity and systematic fault-normal-to-fault-parallel differences in ground motion. The values of ϕ and y were computed for each fault geometry assuming that the maximum earthquake initiates at the base of the seismogenic crust. It was assumed that the effect of rupture directivity affects vertical motions by the same amount as horizontal motions.

5.0   RESULTS

Figure 1 compares the 84th-percentile response spectra for the five seismic sources for the fault-normal component of motion. The ground motions from the East fault generally envelop those for the other sources. The 84th-percentile peak horizontal acceleration for this source is 0.72 g and the corresponding 84th-percentile peak vertical acceleration is 0.80 g. Figures 2, 3, and 4 compare the 84th-percentile response spectra for the East fault with equal-hazard response spectra for return periods ranging from 1,000 to 10,000 years. The equal-hazard spectra have been adjusted for near-source ground motion effects as described in Geomatrix Consultants, Inc. (1999b). The controlling deterministic spectra generally lie between the 5,000-yr and 10,000-yr return period equal-hazard response spectra.
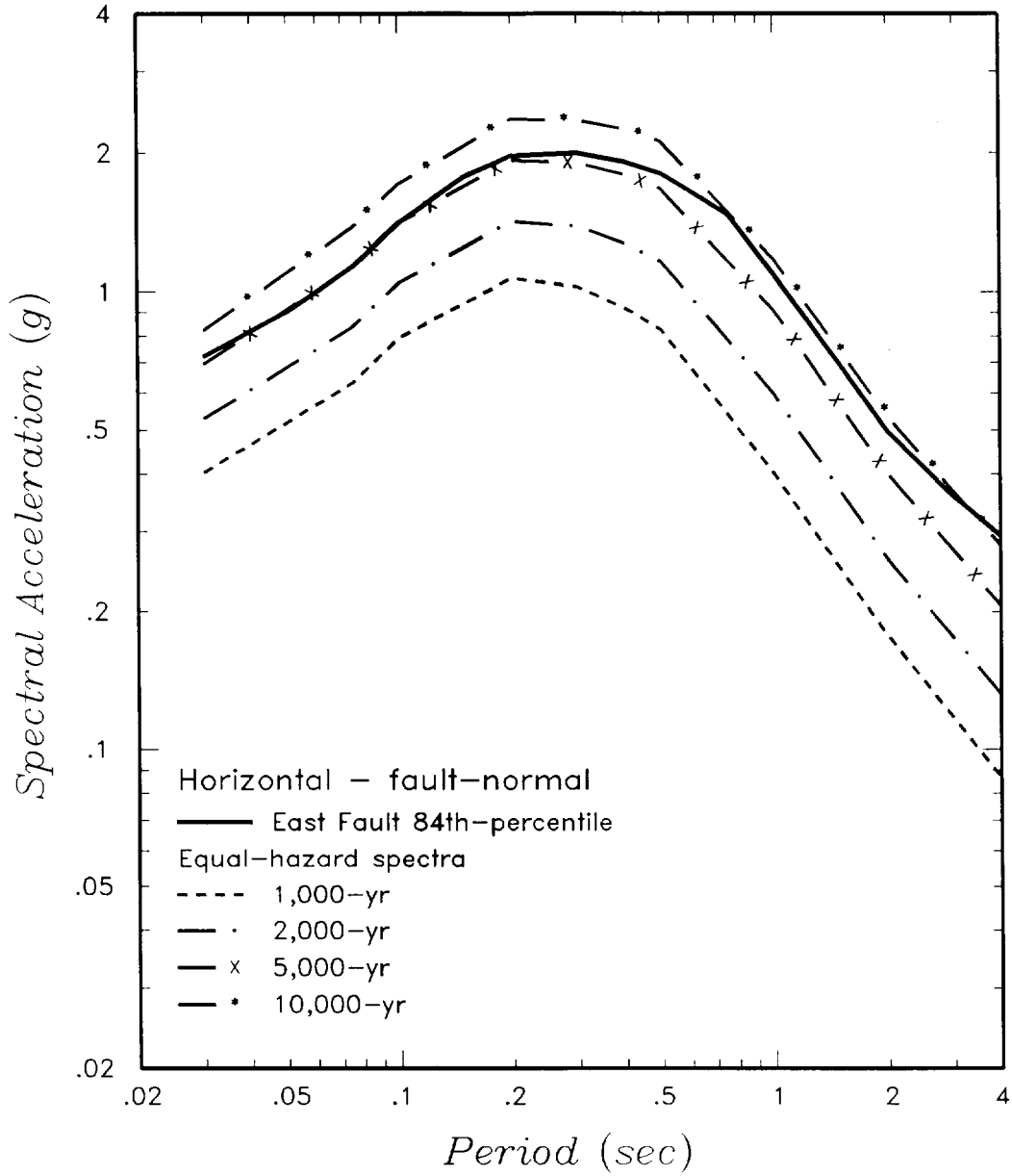
6.0   REFERENCES

Geomatrix Consultants, Inc., 1997, Deterministic earthquake ground motions analysis, Private Fuel Storage Facility, Skull Valley, Utah: report prepared for Stone & Webster Engineering Corporation, P.O. No. CS-028233, J.O. No. 05996.01.

Geomatrix Consultants, Inc., 1999a, Fault evaluation study and seismic hazard assessment, Private Fuel Storage Facility, Skull Valley, Utah: report prepared for Stone & Webster Engineering Corporation, February, 3 vols.

Geomatrix Consultants, Inc., 1999b, Development of design ground motions for the private fuel storage facility, Skull Valley, Utah: report prepared for Stone & Webster Engineering Corporation, March 29, 6 p.

Kimball, J.K., 1983, The use of site dependent spectra: Proceedings of the U.S. Geological Survey Workshop on Site Specific Effects of Soil and Rock on Ground Motions and the Implications for Earthquake-Resistant Design: U.S. Geological Survey Open File Report 83-845, p. 401-422.

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Spectral Acceleration (g) (vertical axis)

4

2

1

.5

.2

.1

.05

.02

Horizontal — fault-normal

—————— Stansbury

- - - - East Cedar Mountains

— · East Fault

— x West Fault

— * Random earthquake

.02   .05   .1   .2   .5   1   2   4

Period (sec)

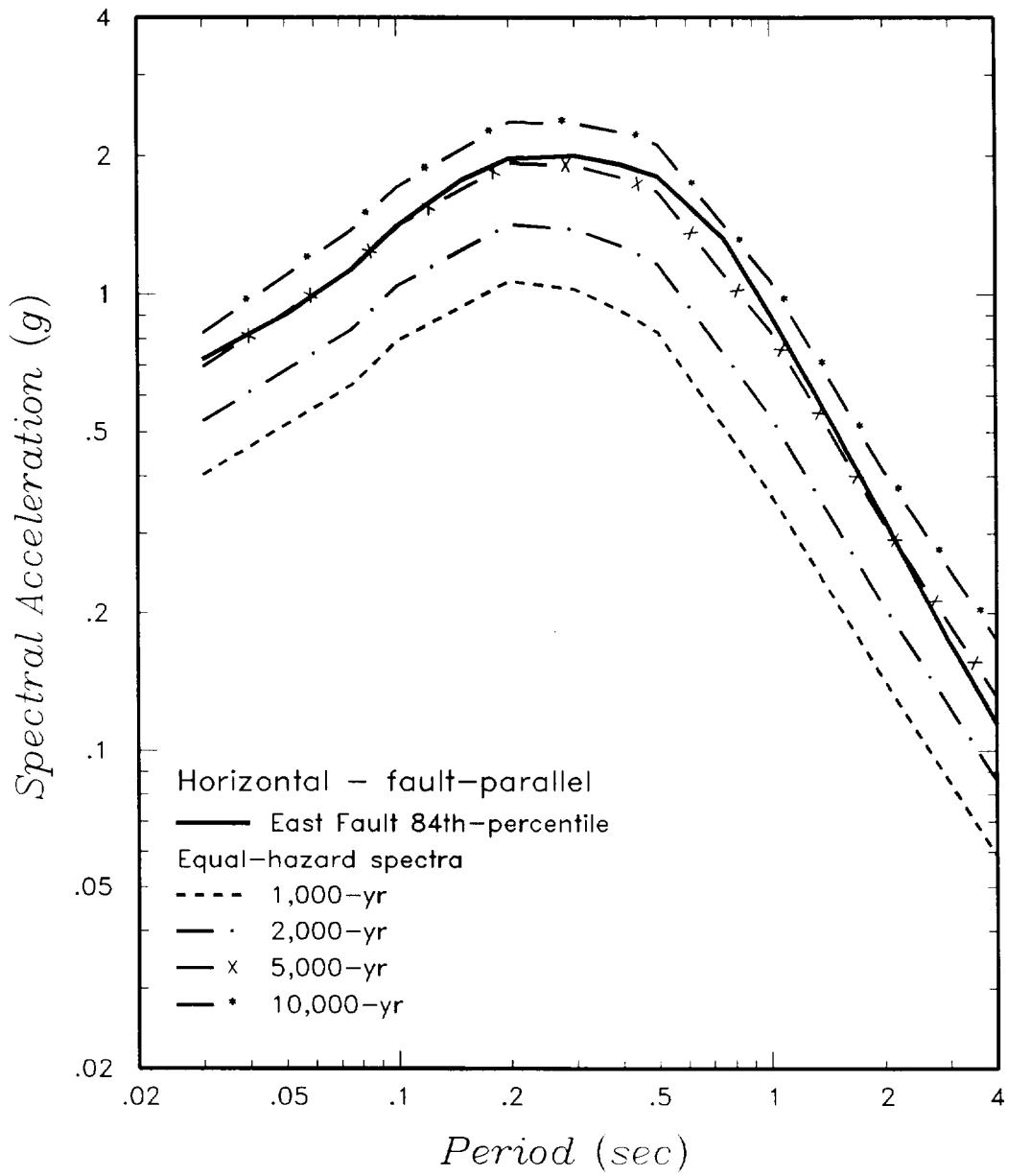| GEOMATRIX	COMPARISON OF 84th-PERCENTILE HORIZONTAL RESPONSE SPECTRA (5% DAMPING) FOR THE FIVE NEARBY SEISMIC SOURCES. THE RESPONSE SPECTRA HAVE BEEN ADJUSTED FOR DIRECTIVITY AND REPRESENT THE FAULT-NORMAL COMPONENT **Private Fuel Storage Facility** Skull Valley, Utah	Project No. 4790.01
		Figure **1**

GEOMATRIX

COMPARISON OF THE 84th-PERCENTILE HORIZONTAL RESPONSE SPECTRA (5% DAMPING) FOR THE EAST FAULT WITH EQUAL-HAZARD RESPONSE SPECTRA BASED ON THE RESULTS PRESENTED IN GEOMATRIX CONSULTANTS, INC. (1999a). THE RESPONSE SPECTRA HAVE BEEN ADJUSTED FOR DIRECTIVITY AND REPRESENT THE FAULT-NORMAL COMPONENT.

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Figure
2

Horizontal — fault-parallel
East Fault 84th—percentile
Equal—hazard spectra
1,000-yr
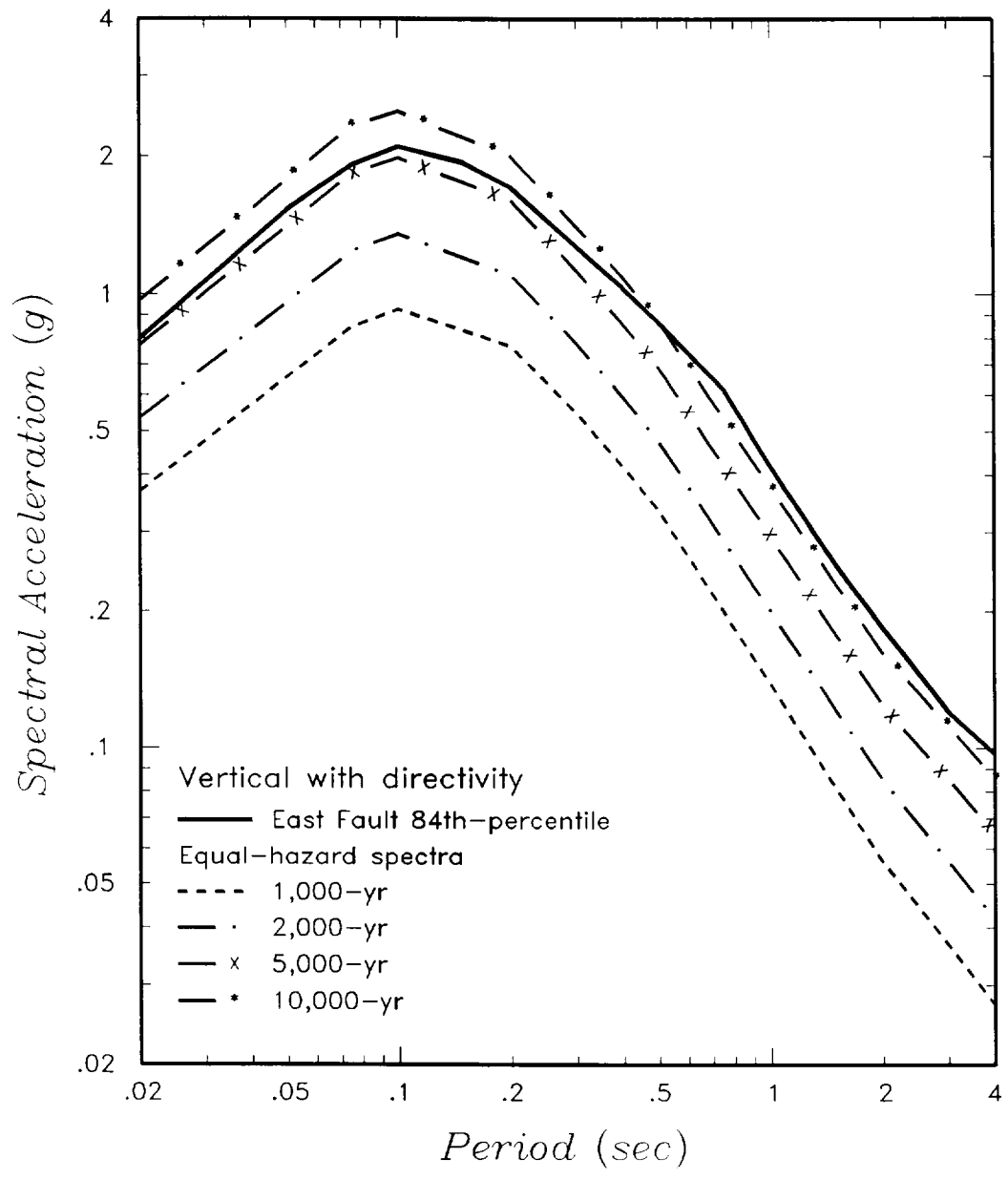2,000-yr
5,000-yr
10,000-yr

GEOMATRIX

COMPARISON OF THE 84th-PERCENTILE HORIZONTAL RESPONSE SPECTRA (5% DAMPING) FOR THE EAST FAULT WITH EQUAL-HAZARD RESPONSE SPECTRA BASED ON THE RESULTS PRESENTED IN GEOMATRIX CONSULTANTS, INC. (1999a). THE RESPONSE SPECTRA HAVE BEEN ADJUSTED FOR DIRECTIVITY AND REPRESENT THE FAULT-PARALLEL COMPONENT.
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Figure
3

Vertical with directivity

—————— East Fault 84th—percentile

Equal—hazard spectra

- - - - -   1,000—yr

—— ·   2,000—yr

—— x   5,000—yr

—— *   10,000—yr

Spectral Acceleration (g)

Period (sec)

COMPARISON OF THE 84th-PERCENTILE VERTICAL RESPONSE SPECTRA (5% DAMPING) FOR THE EAST FAULT WITH EQUAL-HAZARD RESPONSE SPECTRA BASED ON THE RESULTS PRESENTED IN GEOMATRIX CONSULTANTS, INC. (1999a). THE RESPONSE SPECTRA HAVE BEEN ADJUSTED FOR DIRECTIVITY.
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Figure
4