

Imagery from NAIP (2012).

N

0 2 4 mi.
0 2 4 km

Map projection and scale: NAD 83 State Plane CA Zone V, 1:180,000

EXPLANATION

- 2012 seismic-reflection survey extent boundary
- 2011 seismic-reflection survey extent boundary

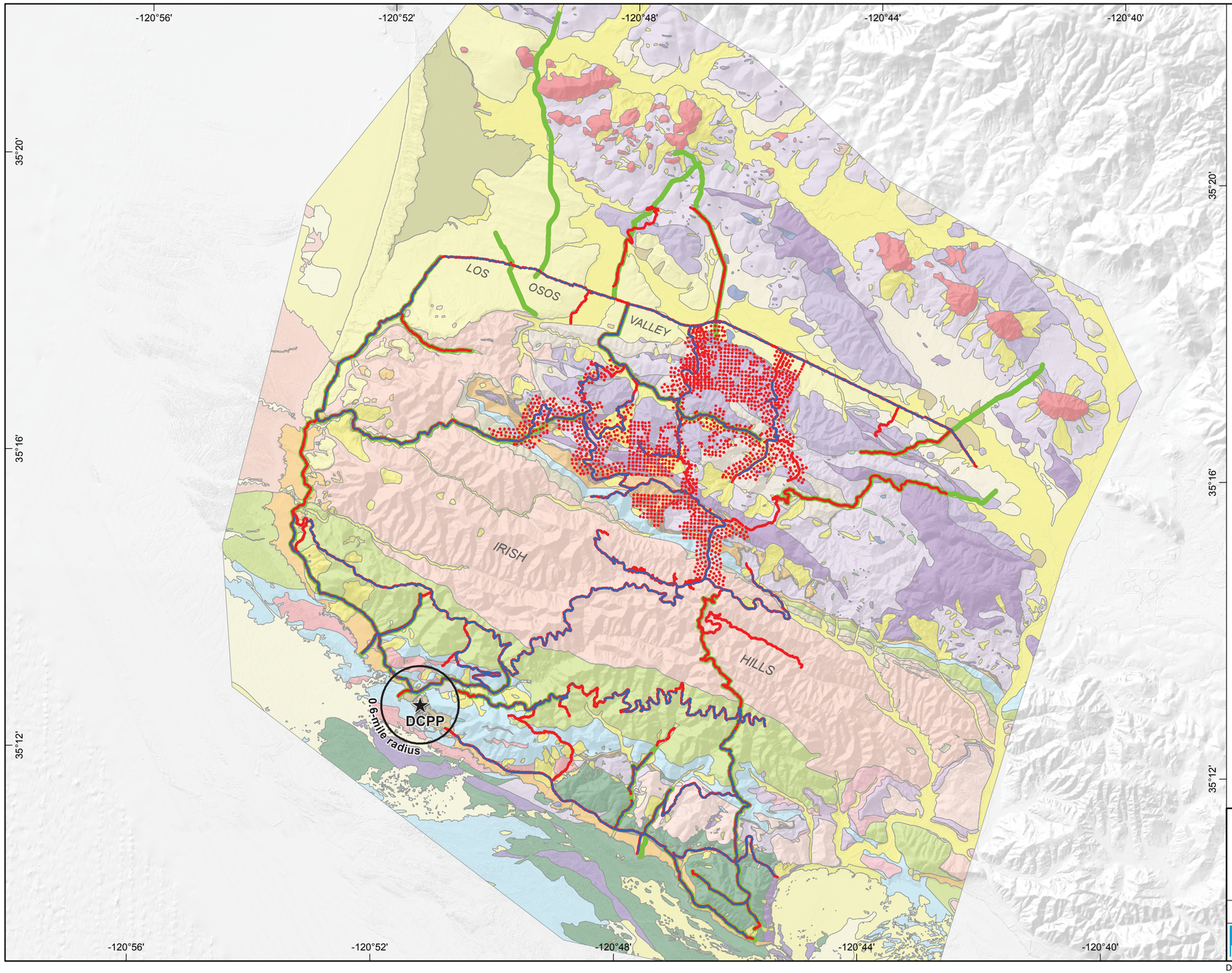
Location Map

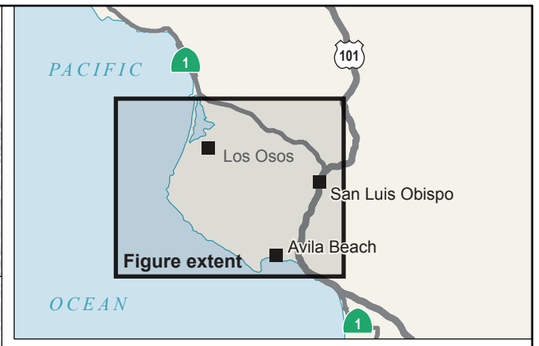
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **1-1**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-001 Location Map.ai





EXPLANATION

- Vibroseis source point
- Node
- Accelerated weight drop route

(See Figure 1-4 for explanation of geologic units)

Notes: Geologic data from PG&E (2014) Geologic Mapping Compilation, shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 1 2 mi.
0 1 2 km

Map projection and scale: NAD 83 State Plane CA Zone V, 1:100,000

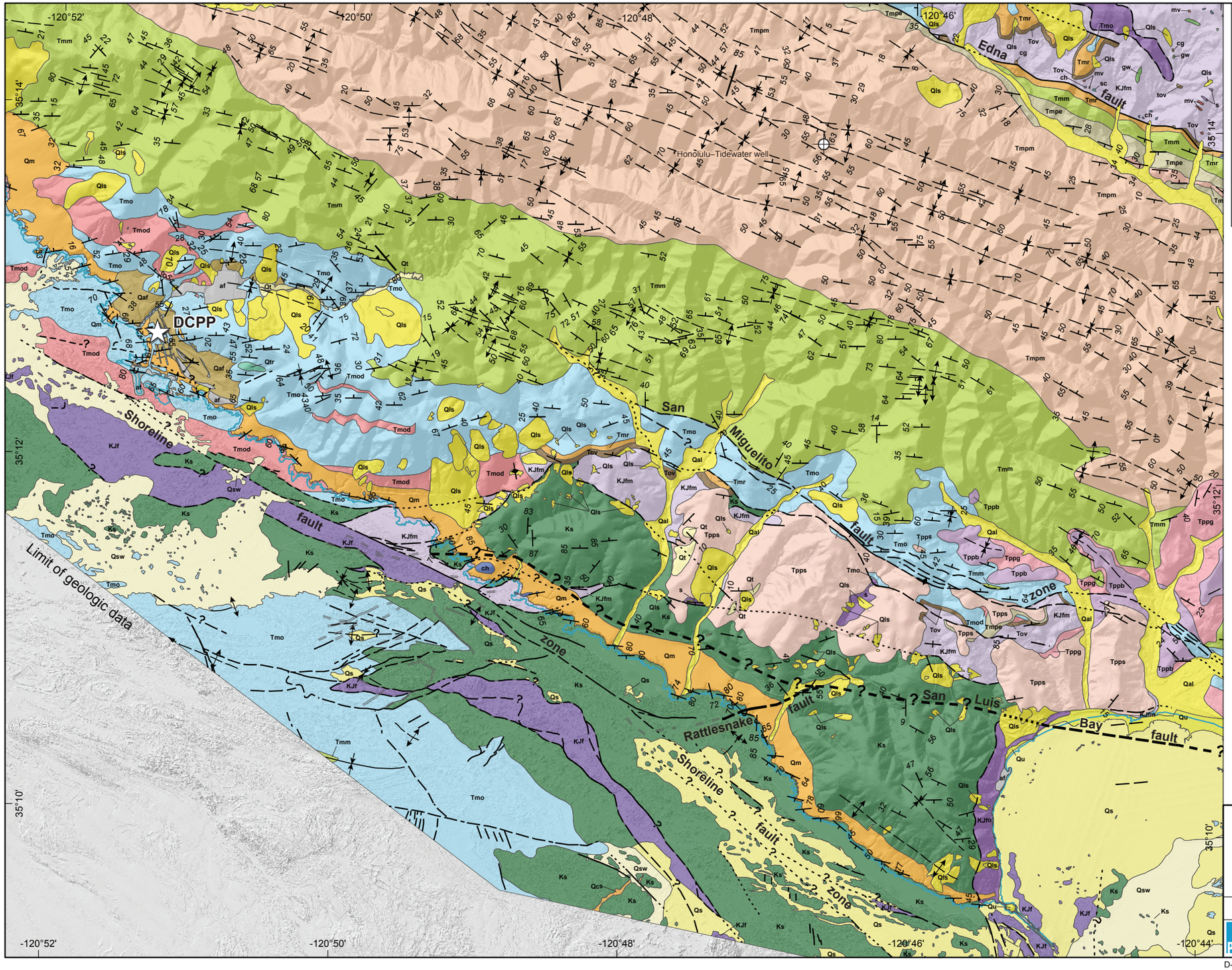
Irish Hills 2011 2D/3D Seismic Acquisition Geometry

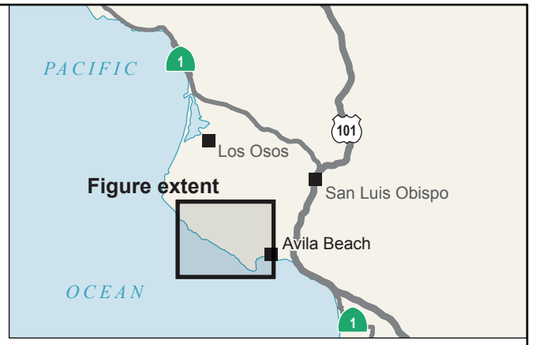
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **1-2**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-105 Irish Hills.ai





(See Figure 1-4 for explanation of geologic units and symbols)

Notes: Geologic data from PG&E (2014a, Plate 1), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 2,000 4,000 ft.
0 500 1,000 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:42,000

2014 Geologic Map and Data Compilation

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **1-3**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-005 Surface Geology.ai

EXPLANATION

Geologic Units

Quaternary

- **af** — **Artificial fill:** fill material emplaced locally during construction and improvement activities.
- **Qs** — **Marine sediments, offshore:** unlithified marine sand and silt with minor gravel mantling bedrock offshore.
- **Qsw** — **Sand wave deposits, offshore:** unlithified sheets of sand that form migrating marine dunes.
- **Qcs** — **Fluvial channel fill, offshore:** sediments filling paleo-stream channels cut into submerged bedrock platforms, inferred to be sand wave deposits (Qsw) over remnant alluvium and older marine sediment.
- **Qes** — **Estuarine deposits of Morro Bay:** unlithified mud, silt, and sand within intertidal zone and channels.
- **Qe** — **Eolian deposits:** unlithified sand deposited in dunes (may be active or inactive).
- **Qal** — **Alluvial deposits:** unlithified silt, sand, and gravel valley fill deposited during overbank flooding, channel backfilling, and construction of debris flow levees.
- **Qc** — **Colluvium:** unlithified poorly sorted silt, sand, and gravel mantling bedrock hillslopes.
- **Qt** — **Fluvial terrace deposits:** unlithified silt, sand, and gravel deposited in stream valleys.
- **Qaf** — **Alluvial fan deposits:** unlithified silt, sand, and gravel deposited in fans along valley margins.
- **Qls** — **Landslide deposits:** unlithified masses of displaced bedrock and/or soil, may be active or inactive.
- **Qm** — **Marine terrace deposits:** unlithified to weakly lithified marine sand and gravel deposited above wave-cut platforms in the Pleistocene and commonly overlain by alluvial fan and colluvial deposits.
- **Qoa** — **Older alluvial deposits:** weakly lithified siltstone, sandstone, and conglomerate deposited as valley fill in the Pleistocene.
- **Qu** — **Quaternary deposits, undifferentiated**

Neogene

Pliocene

Pismo Formation

- **Tpps** — **Squire Member:** unstratified white to tan, medium-to coarse-grained sandstone.
- **Tppb** — **Belleview Member:** sandy claystone, siltstone, claystone and fine-grained sandstone, diatomaceous horizons.
- **Tppg** — **Gragg Member:** fine- to medium-grained sandstone, rare diatomaceous siltstone, pebble conglomerate, and bituminous sandstone.

Miocene

Pismo Formation

- **Tmpm** — **Miguelito Member:** siltstone and claystone, brown, thinly bedded, moderately well-lithified, includes rare to common intervals of siliceous and and dolomitic siltstone, opaline and porcelaneous shale, and bituminous sandy siltstone.
- **Tmpe** — **Edna Member:** sandstone, brown, thinly bedded to unstratified, weakly to moderately well-lithified, includes intervals of bituminous sandstone.
- **Tmm** — **Monterey Formation:** tuffaceous, siliceous, and diatomaceous siltstone and shale, gray and brown (weathers to chalky white), thinly bedded and well-lithified, includes common chert laminations.

Obispo Formation

- **Tmod** — **Obispo Formation, diabase:** brown, aphanitic to phaneritic, intrusive in dikes and sills.
- **Tmo** — **Obispo Formation, undifferentiated:** tuffaceous, dolomitic siltstone and fine sandstone, rare diatomaceous siltstone, tuff, and resistant zeolitized tuff.
- **Tmr** — **Rincon Formation:** siltstone and silty claystone, dark brown, thinly bedded, includes intervals of dolomitic sandstone.

Paleogene

Oligocene

- **Tov** — **Vaqueros Sandstone:** conglomerate and sandstone, tan to gray, includes prominent coquina horizon.
- **Tocf** — **Cambria Felsite:** Hard rhyolite/dacite grayish-white crystalline felsite.
- **Tom** — **Morro Rock – Islay Hill Volcanic Intrusive Complex:** dacite volcanic plugs, lava domes, intrusive sheets, and felsic-rhyolite dacite.

Geologic Units (cont.)

Jurassic/Cretaceous

- **Ks** — **Cretaceous Sandstone:** arkosic to lithic sandstone, brown, bedded, well-lithified, fine- to course-grained, includes minor shale.
- **KJf** — **Franciscan Complex, undifferentiated**
- **KJfm** — **Franciscan Complex, melange:** sheared shale, mudstone and siltstone with small bodies of graywacke (gw), schist (sch), blueschist (bs), conglomerate (cg), metavolcanic rocks (mv), serpentinite (s), quartz silica carbonate (sc), shale (sh), and green, white, or red chert (ch).
  - **bs** — **Blueschist**
  - **cg** — **Conglomerate**
  - **ch** — **Chert**
  - **gw** — **Greywacke**
  - **mv** — **Metavolcanic rocks**
  - **s** — **Serpentine**
  - **sc** — **Silica-carbonate rocks**
  - **sch** — **Schist**
  - **sh** — **Shale**
- **KJg** — **Franciscan Complex, graywacke sandstone**
- **KJfmv** — **Franciscan Complex, metavolcanic rocks**
- **KJfo** — **Franciscan Complex, ophiolite**

Geologic Structures

From previous mapping and GMP

- **Syncline:** solid where well located, dashed where approximate, dotted where concealed, queried where inferred. Arrow points in direction of plunge.
- **Anticline:** solid where well located, dashed where approximate, dotted where concealed, queried where inferred. Arrow points in direction of plunge.
- **Fault:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.
- **Lineament:** solid where well expressed, dashed where moderately expressed, tics indicate facing direction of scarps; possible fault..

From GMP

- 38 — Inclined bedding
- 70 — Overturned bedding
- 60 — Inclined fault
- Vertical fault
- Inclined shear or foliation
- Vertical shear or foliation

From previous studies

- 26 — Inclined bedding
- Vertical bedding
- 70 — Overturned bedding
- Horizontal bedding
- 60 — Inclined fault

Other

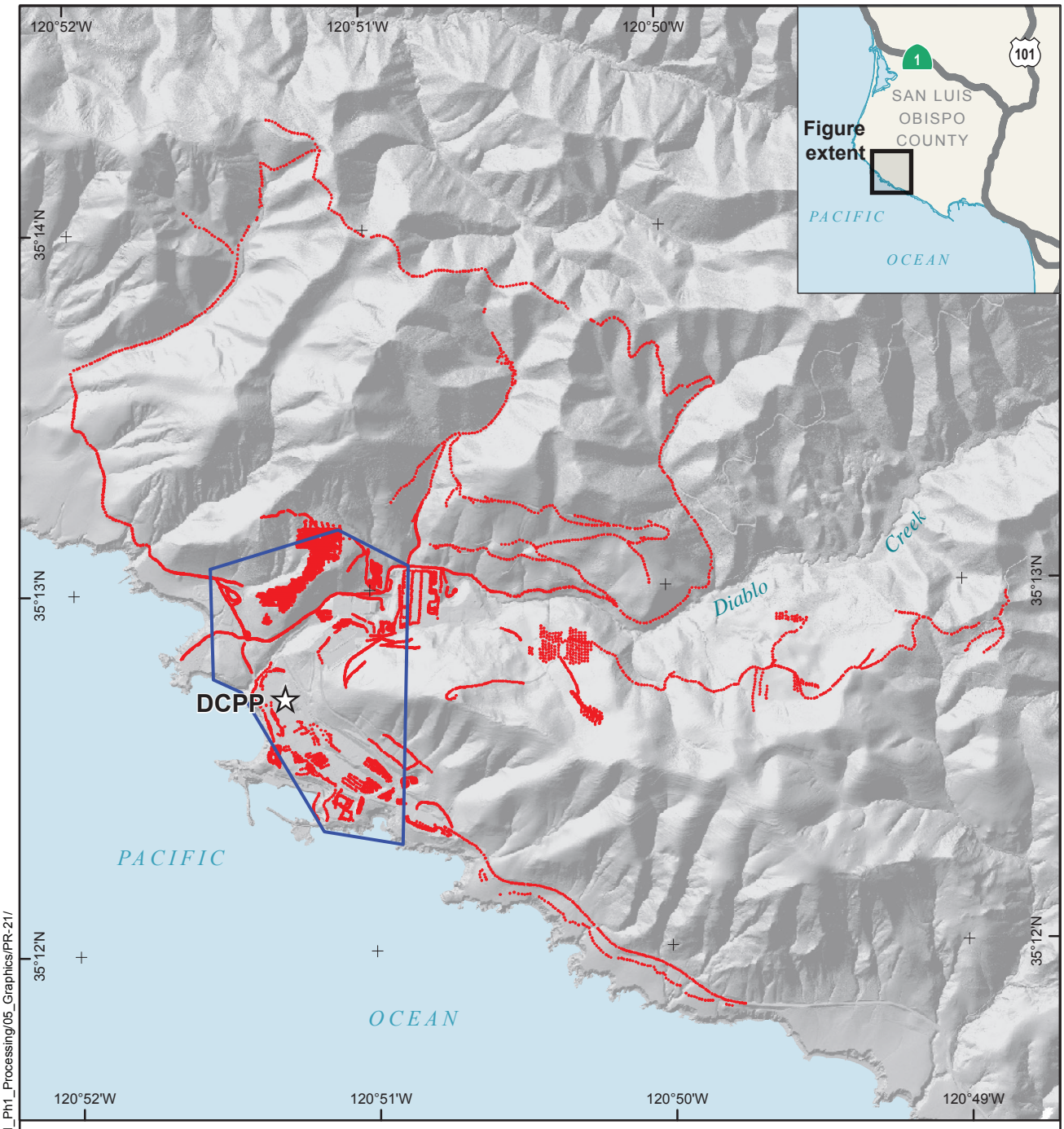
- Coastline (white line) at mean lower low water (approximate sea level)
- Oil and gas exploration well
- Hydrogeologic borehole/well
- Diablo Canyon Power Plant (DCPP)

Source: PG&E, 2014a, Plate 1 Explanation

Explanation of Geologic Units

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **1-4**



EXPLANATION

2012 Phase 1 Data

- Vibroseis source locations
- SigSeis 3D data coverage area boundary

N

0 0.5 1 mi.
0 0.5 1 km

Map projection and scale: NAD 83, UTM Zone 10N, 1:30,000

2012 Phase 1 DCPP 3D Survey Source Layouts

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-1**

fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/



EXPLANATION

2012 Phase 1 Data

- Live Sigma locations
- Live Seistronix locations
- SigSeis 3D data coverage area boundary

N

0 0.5 1 mi.
0 0.5 1 km

Map projection and scale: NAD 83, UTM Zone 10N, 1:30,000

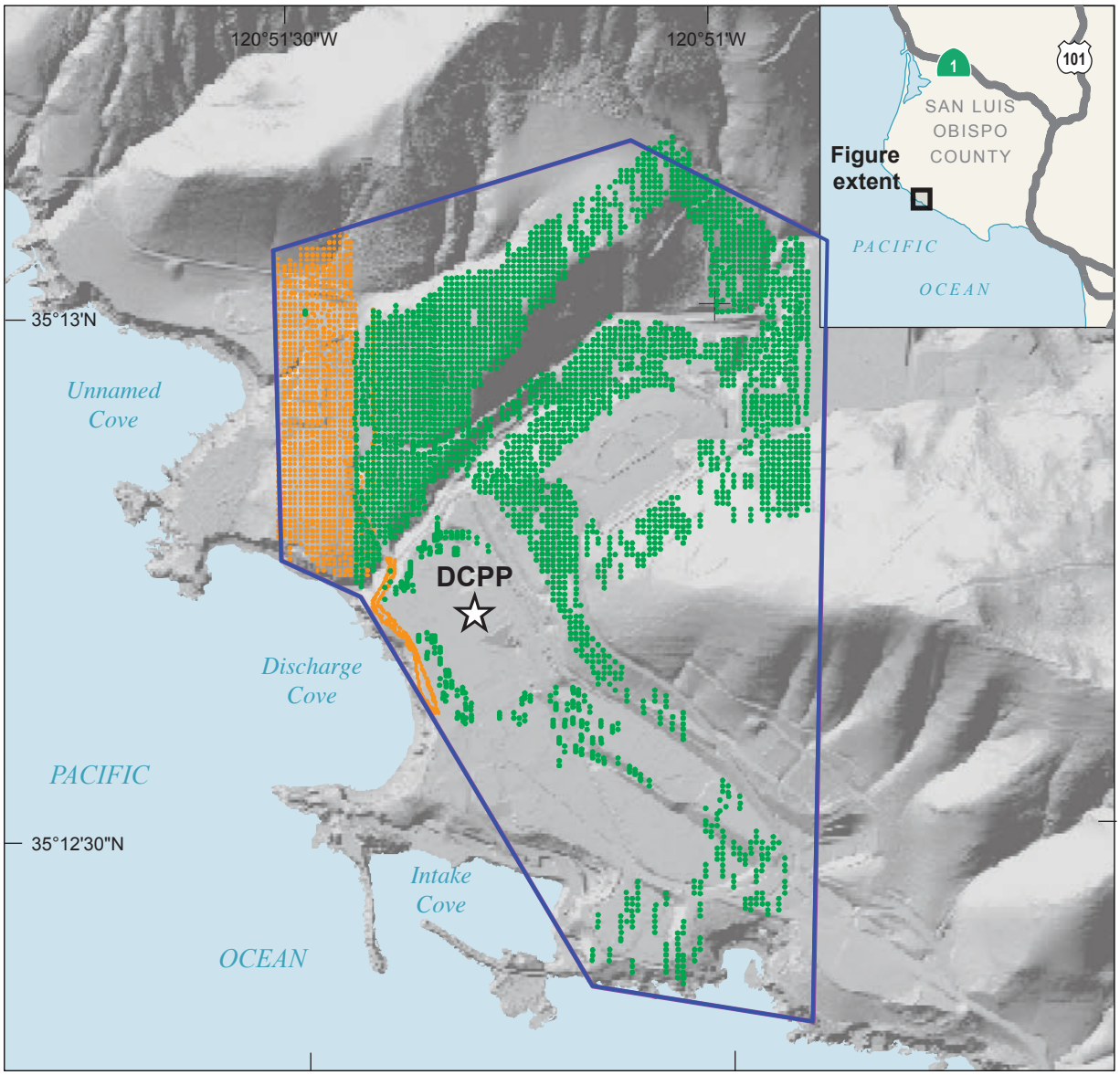
2012 Phase 1 DCPP 3D Survey
SigSeis Receiver Layouts

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-2**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-128 Phase 1 Receivers.ai



N

0 0.5 mi.
0 0.5 km

EXPLANATION

2012 Phase 1 Data

- Live Sigma locations
- Live Seistronix locations
- SigSeis 3D data coverage area boundary

Map projection and scale: NAD 83 UTM Zone 10N, 1:42,000

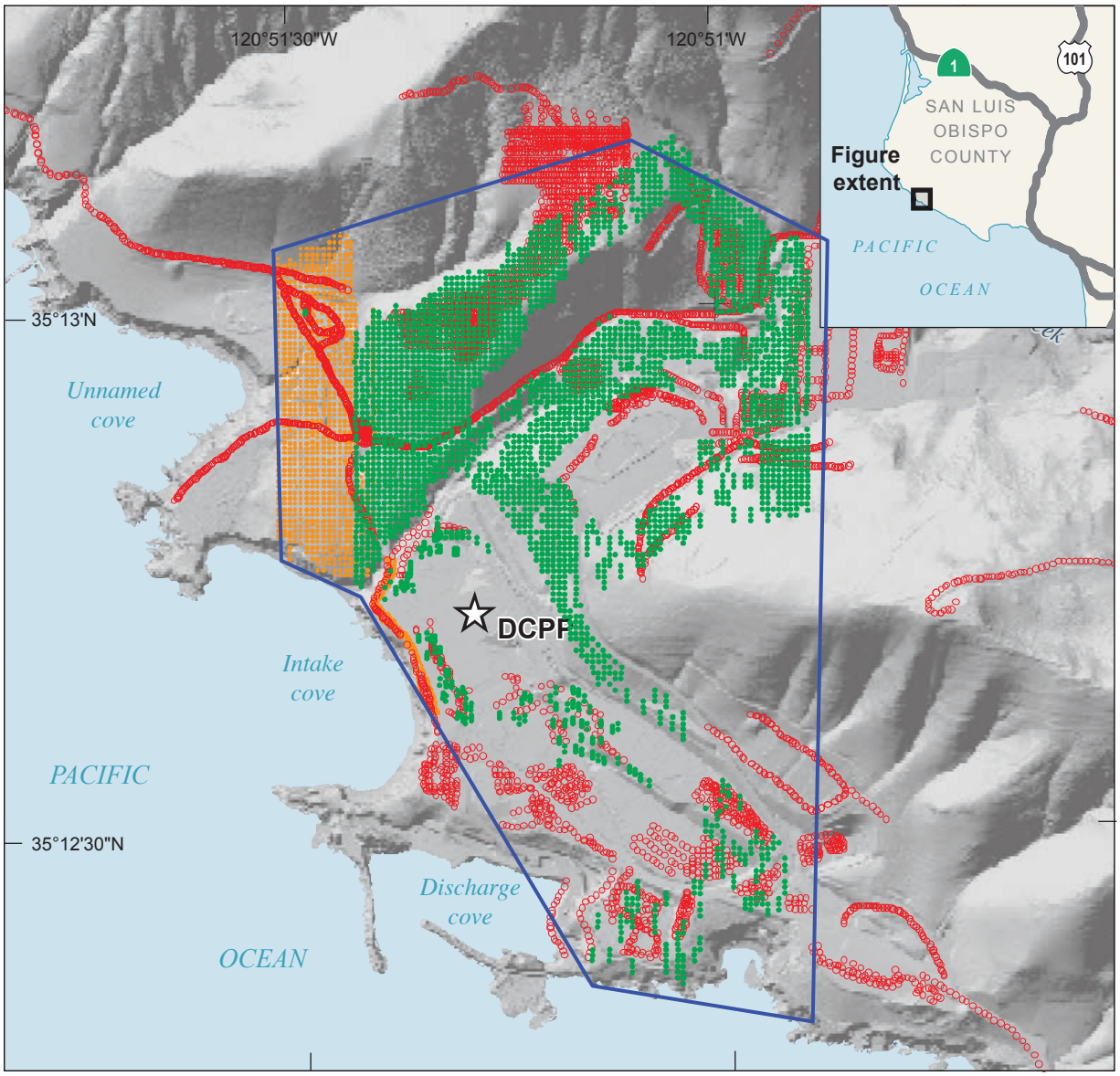
2012 Phase 1 DCPP 3D Survey Receiver SigSeis Layouts Detail

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-3**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-129 Phase 1 Receiver Layouts Detail.ai



EXPLANATION

2012 Phase 1 Data

- Sigma receiver locations
- Seistronix receiver locations
- Vibroseis source locations
- SigSeis 3D data coverage area boundary

N

0 0.5 mi.

0 0.5 km

Map projection and scale: NAD 83 UTM Zone 10N, 1:42,000

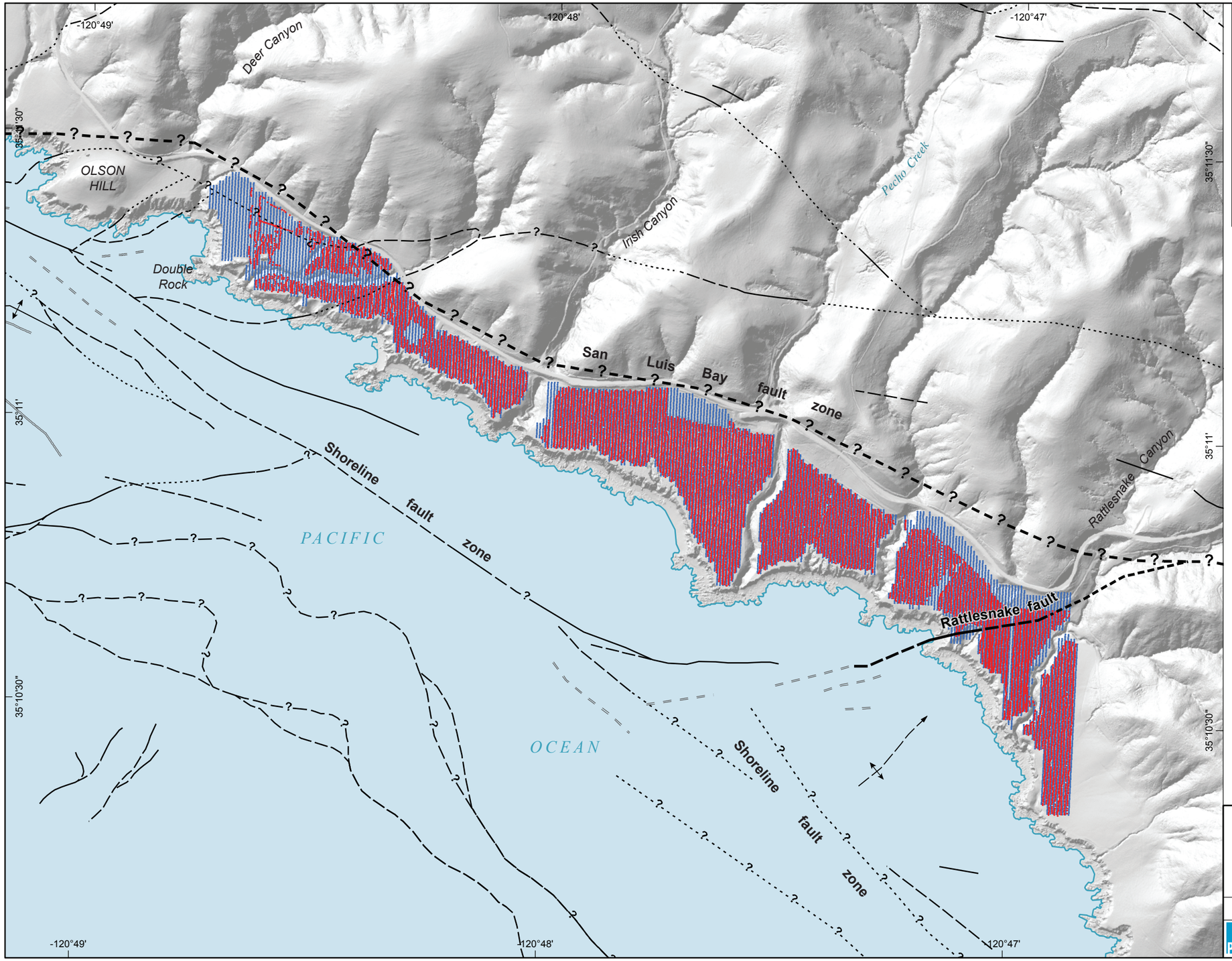
2012 Phase 1 DCPP 3D Survey Sources and Receiver Layouts Detail

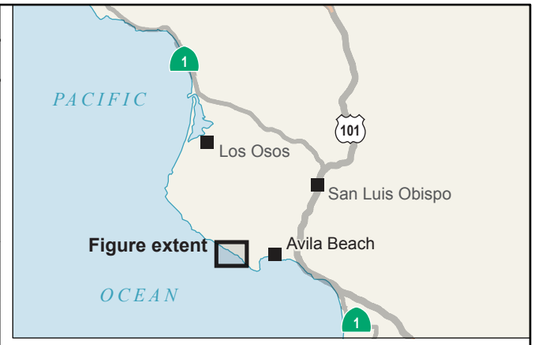
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-4**

fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/





EXPLANATION

2012 Phase 2 Acquisition Geometry

- Source location
- Receiver location

Coastline

Fault, solid where certain, dashed where approximate, short dash where inferred, dotted where concealed, queried where uncertain

Anticline, dashed where approximate

Syncline, dashed where approximate

Notes: Geologic data from PG&E (2014a) Geologic Mapping Compilation, shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 1,000 2,000 ft.

0 200 400 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:13,000

Phase 2 3D Seismic Acquisition Geometry

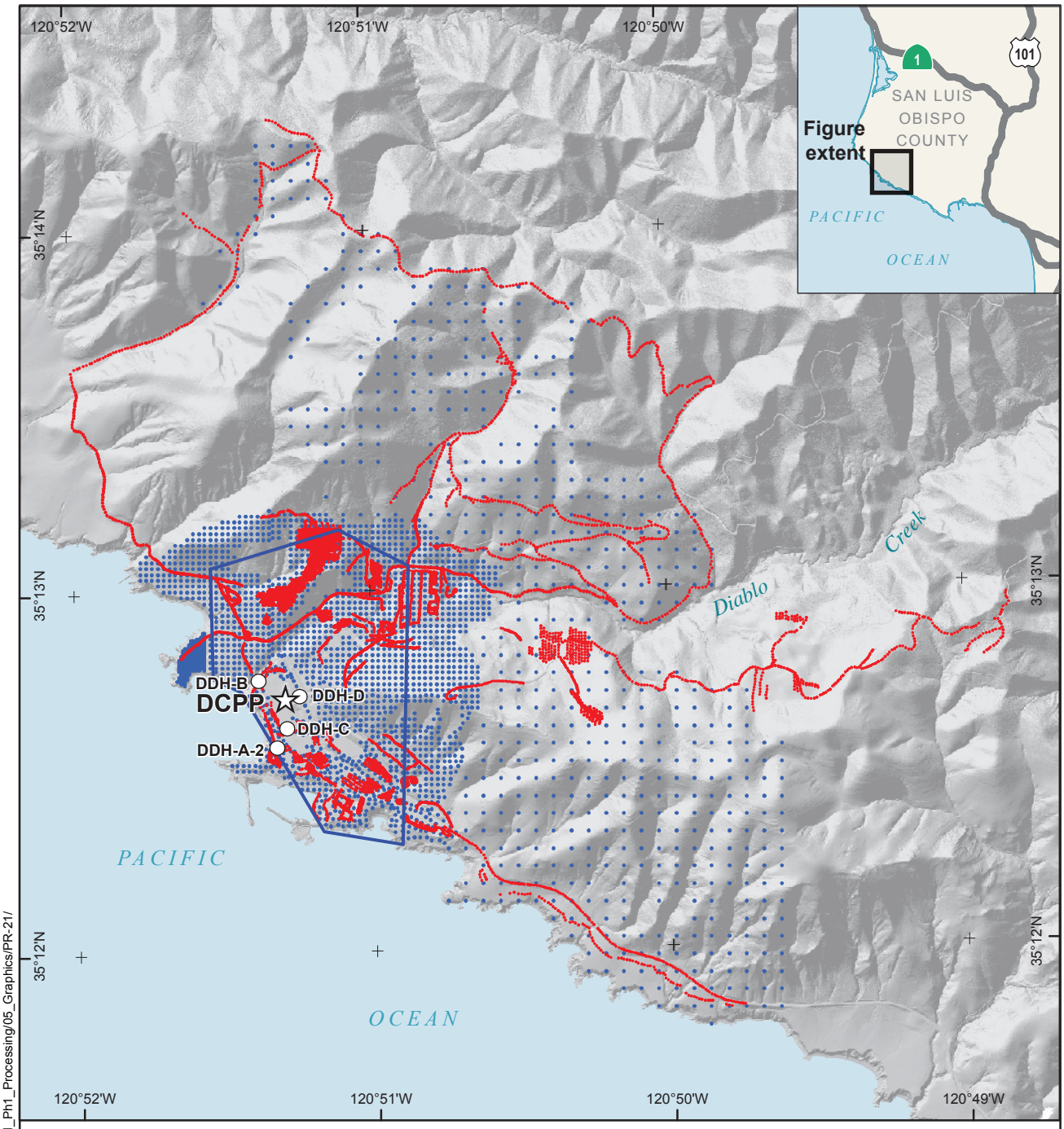
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-5**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-004 Phase 2 Source.ai

D-004



EXPLANATION

2012 Phase 1 Data

- Zland receiver locations
- Vibroseis source locations
- SigSeis 3D data coverage area boundary
- DDH-A-2 ○ Borehole location of the 1978 investigations

N

0 0.5 1 mi.
0 0.5 1 km

Map projection and scale: NAD 83, UTM Zone 10N, 1:30,000

2012 Zland Seismic Acquisition Geometry

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-6**

fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/

(a)



Steeply dipping Obispo Formation strata exposed in the foreground in Discharge Cove. More shallowly dipping Obispo Formation strata exposed in the background at Green Peak.

(b)



Isoclinal fold with steep and overturned bedding, Obispo Formation

Photographs of Obispo Formation Bedding in Discharge Cove

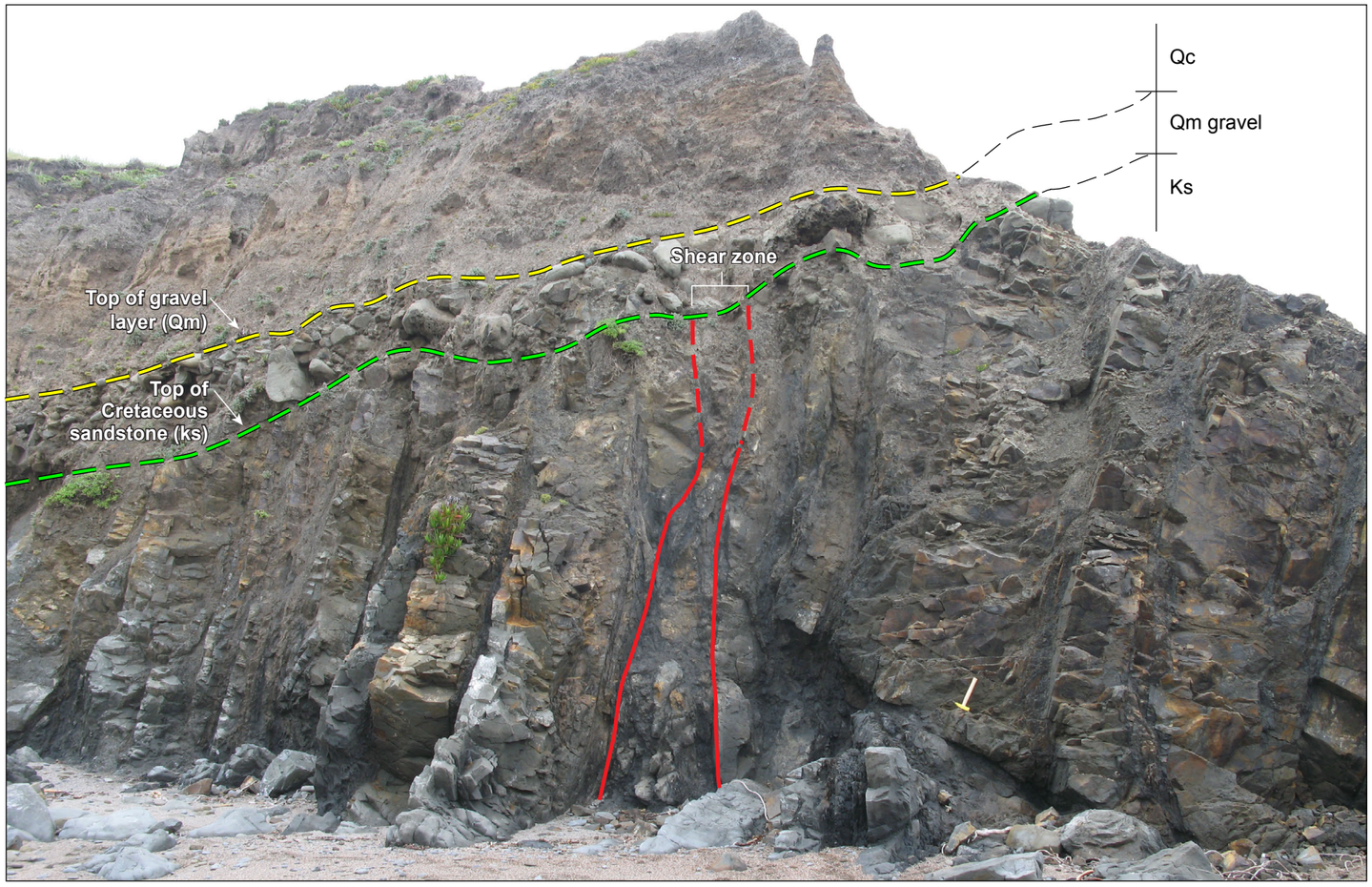
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **2-7**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-133 Discharge Bay Photos.ai

(a)



(b)



(c)



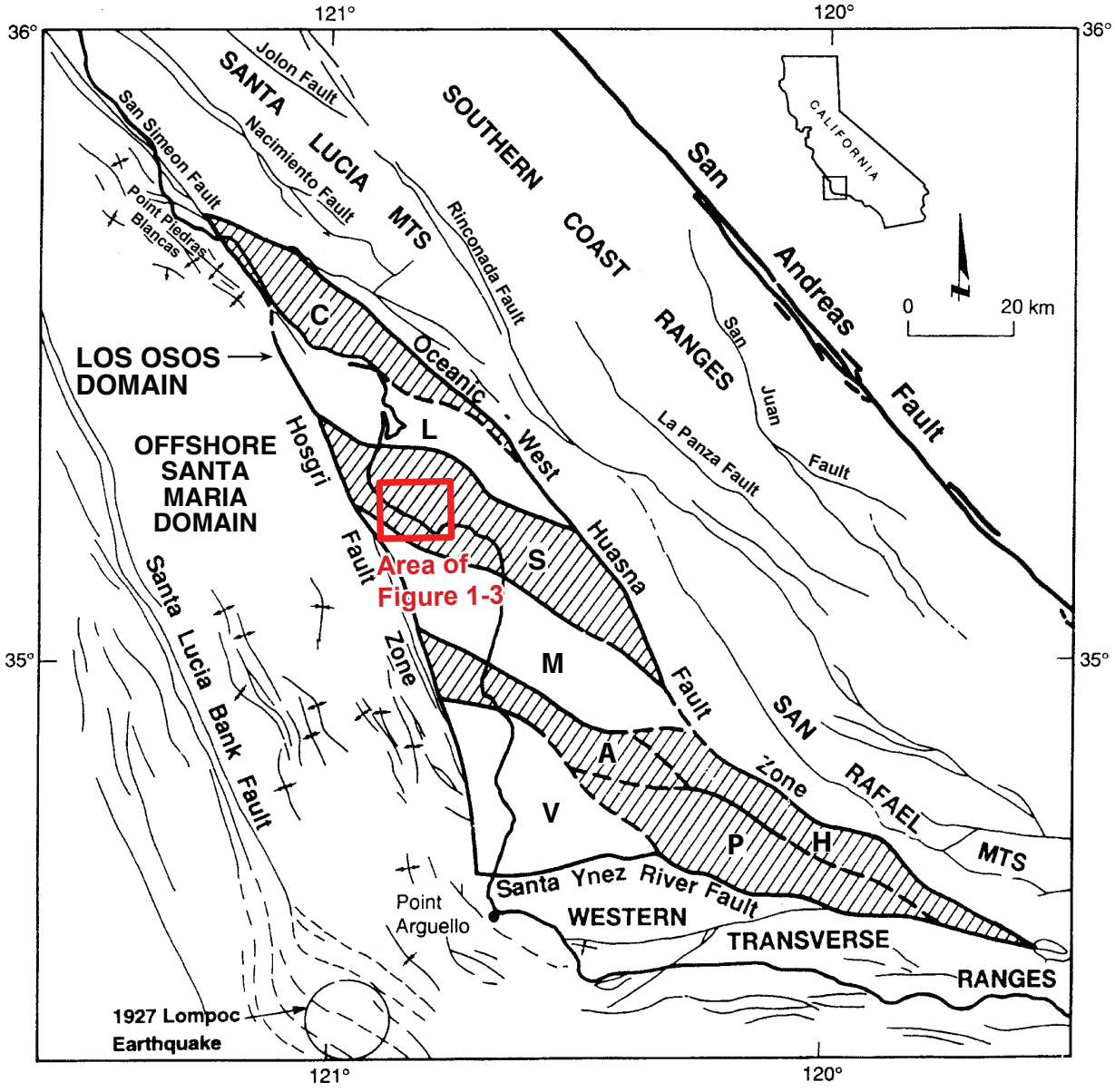
Photographs (a) and (b): The sea cliff exposes vertical beds of Cretaceous sandstone (Ks), truncated by the old wave-cut platform and overlain by late Quaternary terrace sediments. Photograph (c): Strong bedding and jointing in the Ks is typical, as are occasional shear zones.

Sea-cliff Exposure near the Rattlesnake Fault

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **2-8**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.15.14



Source: Lettis et al. (2004).

EXPLANATION

- Syncline
- Anticline
- Fault, dashed where uncertain

Notes: Hatchures denote an uplifted block, blocks within the Los Osos: C = Cambria, A = Casmalia, L = Los Osos Valley, S = San Luis/Pismo, M = Santa Maria Valley, H = Solomon Hills, V = Vandenberg/Lompoc, P = Purisima.

Tectonic Map of the Los Osos–Santa Maria Domain

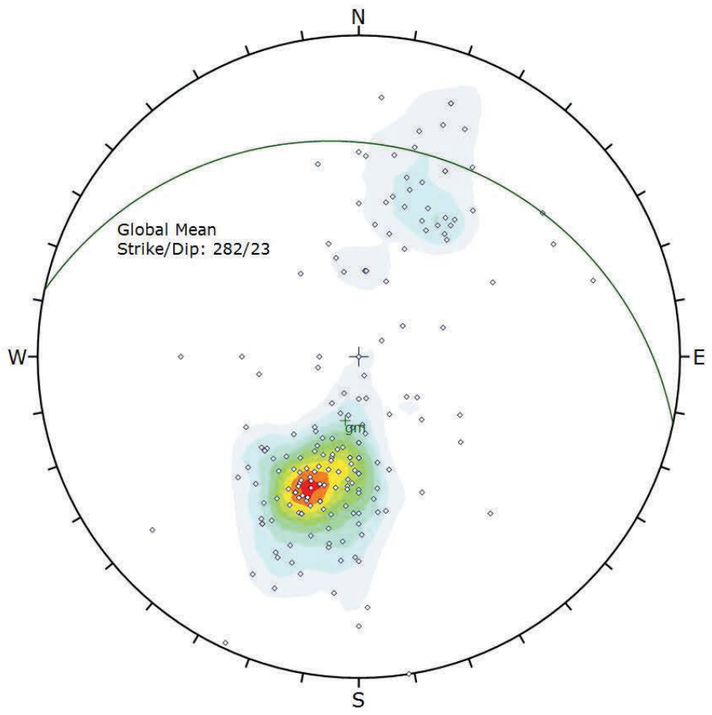
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-1**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-125 Los Osos Tectonic Map.ai

Monterey Formation



Symbol	COMP UNIT	Quantity
◇	Tmm	187

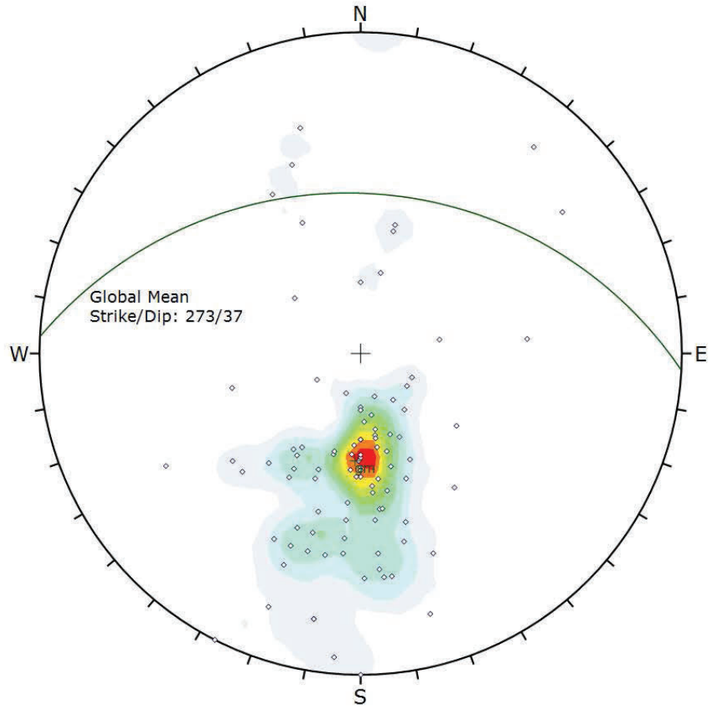
Color	Density Concentrations
	0.00 - 1.50
	1.50 - 3.00
	3.00 - 4.50
	4.50 - 6.00
	6.00 - 7.50
	7.50 - 9.00
	9.00 - 10.50
	10.50 - 12.00
	12.00 - 13.50
	13.50 - 15.00

Maximum Density	14.28%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	187 (187 Entries)
Hemisphere	Lower
Projection	Equal Angle

Tmm: Monterey Formation

Obispo Formation



Symbol	COMP UNIT	Quantity
◇	Tmo	97

Color	Density Concentrations
	0.00 - 1.60
	1.60 - 3.20
	3.20 - 4.80
	4.80 - 6.40
	6.40 - 8.00
	8.00 - 9.60
	9.60 - 11.20
	11.20 - 12.80
	12.80 - 14.40
	14.40 - 16.00

Maximum Density	15.59%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Plot Mode	Pole Vectors
Vector Count	97 (97 Entries)
Hemisphere	Lower
Projection	Equal Angle

Tmo: Obispo Formation

Note: Strike and dip data displayed for the south limb of the Pismo Syncline, taken from GMP Plate 1 GIS attribute table (PG&E, 2014). These stereoplots represent the "global" dips measured from each formation across the extent of the south Irish Hills, They do not include dip measurements from exposures in the south-dipping north limb of the Pismo syncline.

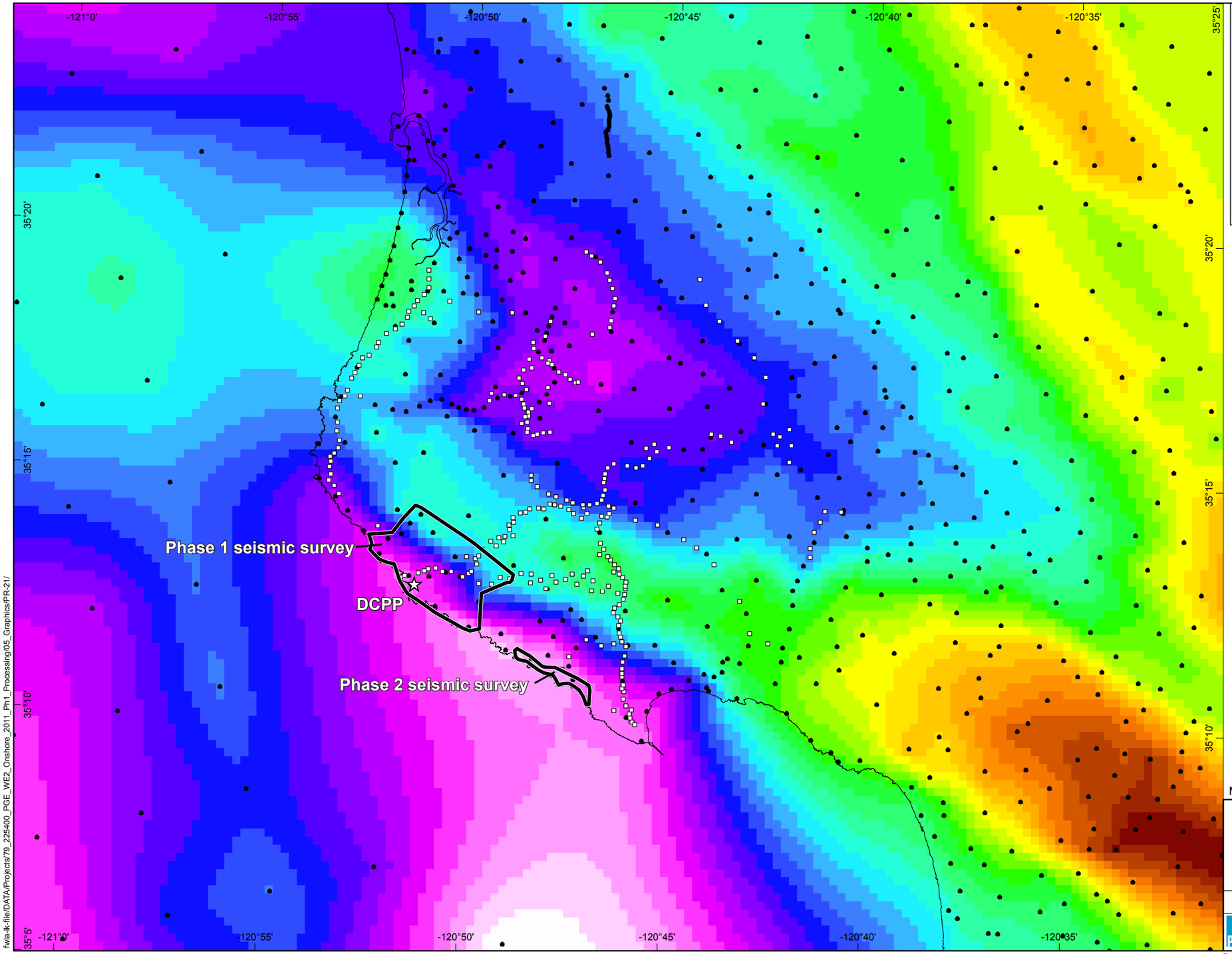
Strike and Dip Stereonet Plots for Obispo and Monterey Formations, South Limb Pismo Syncline

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-2**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-146 Stereonet Plots.ai





EXPLANATION

Complete Bouguer Gravity Anomaly (mGal)

- 17.202 - 19.231
- 15.171 - 17.201
- 13.141 - 15.17
- 11.111 - 13.14
- 9.081 - 11.11
- 7.051 - 9.08
- 5.02 - 7.05
- 2.99 - 5.019
- 0.96 - 2.989
- -1.07 - 0.959
- -3.1 - -1.071
- -5.131 - -3.101
- -7.161 - -5.132
- -9.191 - -7.162
- -11.221 - -9.192
- -13.252 - -11.222
- -15.282 - -13.253
- -17.312 - -15.283
- -19.342 - -17.313
- -21.372 - -19.343
- -23.403 - -21.373
- -25.433 - -23.404
- -27.463 - -25.434
- -29.493 - -27.464
- -31.523 - -29.494
- -33.554 - -31.524
- -35.584 - -33.555
- -37.614 - -35.585
- -39.644 - -37.615
- -41.675 - -39.645
- -43.705 - -41.676
- -45.736 - -43.706

Symbols

- Pre-2013 gravity measurement location
- 2013 USGS gravity measurement location

N

0 2 4 mi.
0 2 4 km

Note: Gravity data from Langenheim (2014).

Map projection and scale: NAD 83 State Plane CA Zone V, 1:150,000

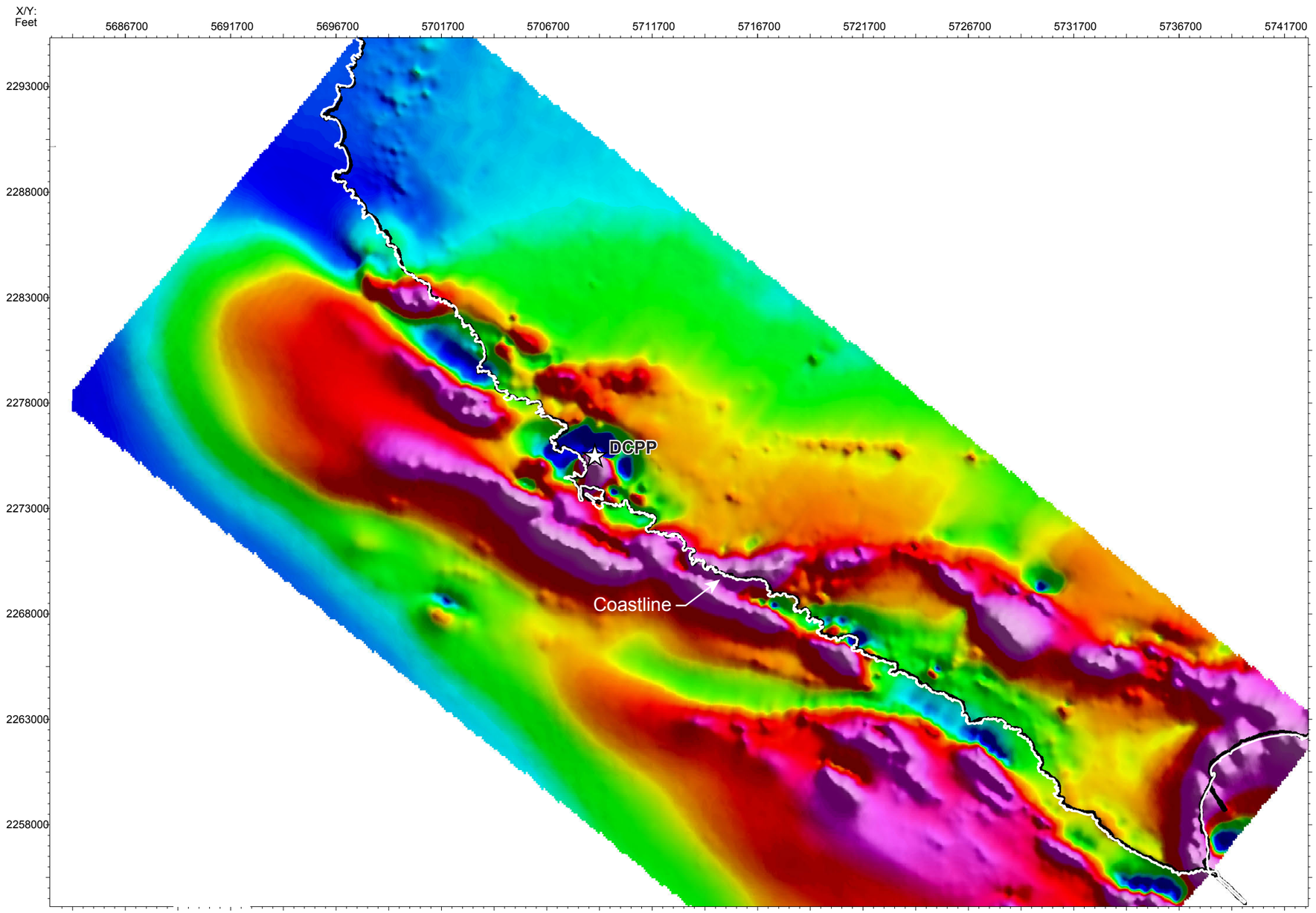
fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/

Complete Bouguer Gravity Anomaly Map

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-3**



EXPLANATION

Magnetic Intensity (nT)

47872
47834
47804
47789
47779
47767
47750
47731

N

0 3,000 6,000 9,000 ft.

Notes:
Group: US State Plane 1983
System: California Zone V
Datum: NAD 83
Ellipsoid: GRS 1980
X(Min,Max): 5683116.00 5742825.00
Y(Min,Max): 2254118.00 2295326.00
Latitude(Min,Max): 35.151011 35.268820
Longitude(Min,Max): -120.939364 -120.743461
Source: PG&E (2011)

Potential Field Total Magnetic Intensity Anomaly Map (Helicopter)

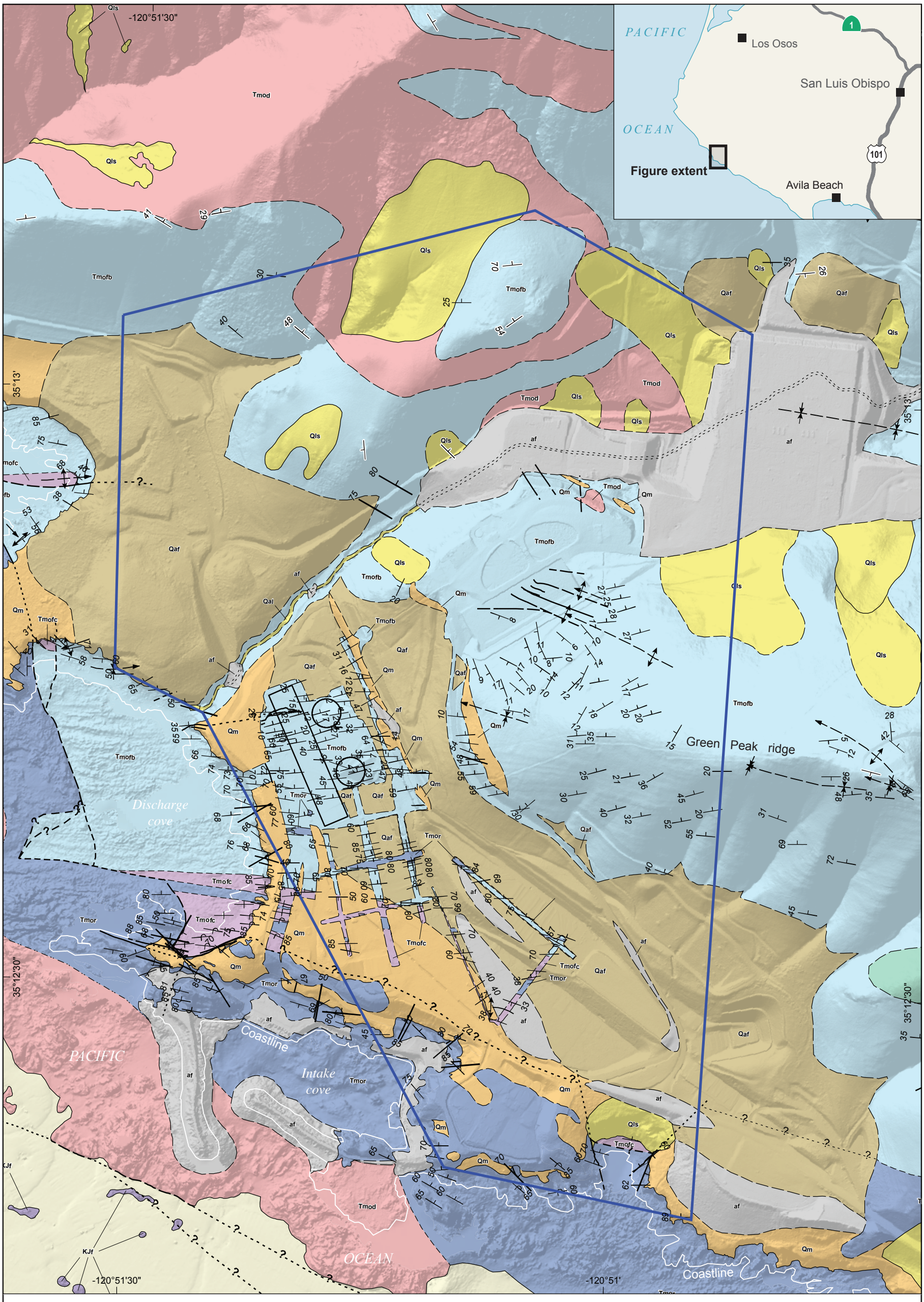
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-4**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-006 RTP Mag Intensity.ai

D-006



EXPLANATION

SigSeis 3D data coverage area boundary

DCPP footprint

Notes: Geology from PG&E (2014a, Plate 2), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

(See Figure 3-6 for explanation of geologic units and symbols)

N

0 500 1,000 ft.

0 100 200 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:6,000

Phase 1 Detailed Geologic Map

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-5**

EXPLANATION

Geologic Units

Quaternary

- **af** — **Artificial fill:** fill material emplaced locally during construction and improvement activities. Shallow fills not shown; bedrock with trenches and excavation for power block shown; filled with af.
- **Qsw** — **Sand wave deposits**, **offshore:** unlithified sheets of sand that form migrating marine dunes.
- **Qal** — **Alluvial deposits:** unlithified silt, sand, and gravel valley fill deposited during overbank flooding, channel backfilling, and construction of debris flow levees.
- **Qaf** — **Alluvial fan deposits:** unlithified silt, sand, and gravel deposited in fans along valley margins (only shown near DCPP).
- **Qls** — **Landslide deposits:** unlithified masses of displaced bedrock and/or soil; may be active or inactive.
- **Qt** — **Fluvial terrace deposits:** unlithified silt, sand, and gravel deposited in stream valleys.
- **Qm** — **Marine terrace deposits:** unlithified to weakly lithified marine sand and gravel deposited above wave-cut platforms in the Pleistocene and commonly overlain by alluvial fan and colluvial deposits.

Neogene / **Miocene**

- **Tmm** — **Monterey Formation:** tuffaceous, siliceous, and diatomaceous siltstone and shale, gray and brown (weathers to chalky white), thinly bedded and well-lithified, includes common chert laminations.
- **Tmo** — **Obispo Formation**, **undifferentiated:** tuffaceous, dolomitic siltstone and fine sandstone rare diatomaceous siltstone, tuff, and resistant zeolitized tuff.
- **Tmod** — **Obispo Formation**, **diabase:** brown, aphanitic to phaneritic, intrusive in dikes and sills.
- **Tmof** — **Obispo Formation, fine-grained member:** Bedded tuffaceous to diatomaceous, fine to medium-bedded siltstone, sandstone, and rare shale; commonly dolomitic. Locally includes tuff beds.
- **Tmofb** — **Obispo Formation, fine-grained sub-member b:** Bedded tuffaceous, dolomitic, fine to medium-bedded siltstone and fine sandstone.
- **Tmofc** — **Obispo Formation, fine-grained sub-member c:** Bedded shale and siltstone, very fine bedded silty shale with medium bedded, dolomitic siltstone interbeds.
- **Tmor** — **Obispo Formation, resistant member:** Bedded to massive zeolitic tuff, tuff breccia, and tuffaceous sandstone.

Jurassic/Cretaceous

- **Ks** — **Cretaceous Sandstone:** arkosic to lithic sandstone, brown, bedded, well-lithified, fine- to course-grained, includes minor shale.
- **KJf** — **Franciscan Complex, undifferentiated**

Geologic Structures

From previous mapping and GMP

- **Contact:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.
- Boundary (contact) between Obispo diabase and tuffaceous rocks interpreted from helicopter magnetic survey (PG&E, 2011). Line may not follow exact contact of rock at surface.
- **Syncline:** dashed where approximate, dotted where concealed. Arrow points in direction of plunge.
- **Anticline:** dashed where approximate, dotted where concealed. Arrow points in direction of plunge.
- **Fault:** solid where well located, long dash where approximate, short dash where inferred, dotted where concealed, queried where uncertain.

From GMP

- Inclined bedding

From previous mapping

- Inclined bedding
- Vertical bedding orientation
- Overturned bedding
- Inclined fault
- Vertical fault

Geographical Features

- Roads
- Buildings
- Coastline (white line) at mean lower low water (approximate sea level)

Source: PG&E, 2014a, Plate 2 Explanation

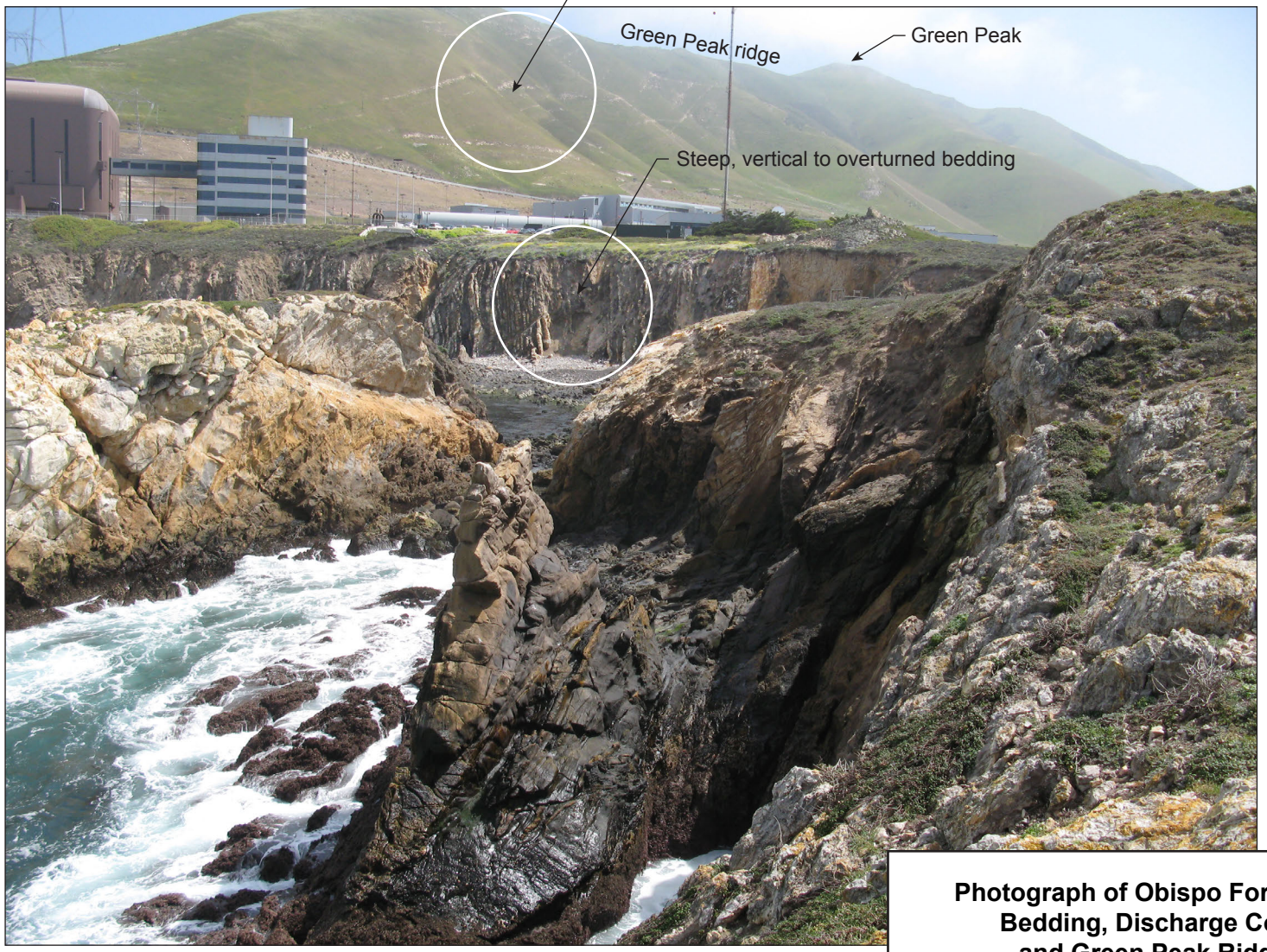
Explanation of the DCPP Site Specific Geologic Units

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-6**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21

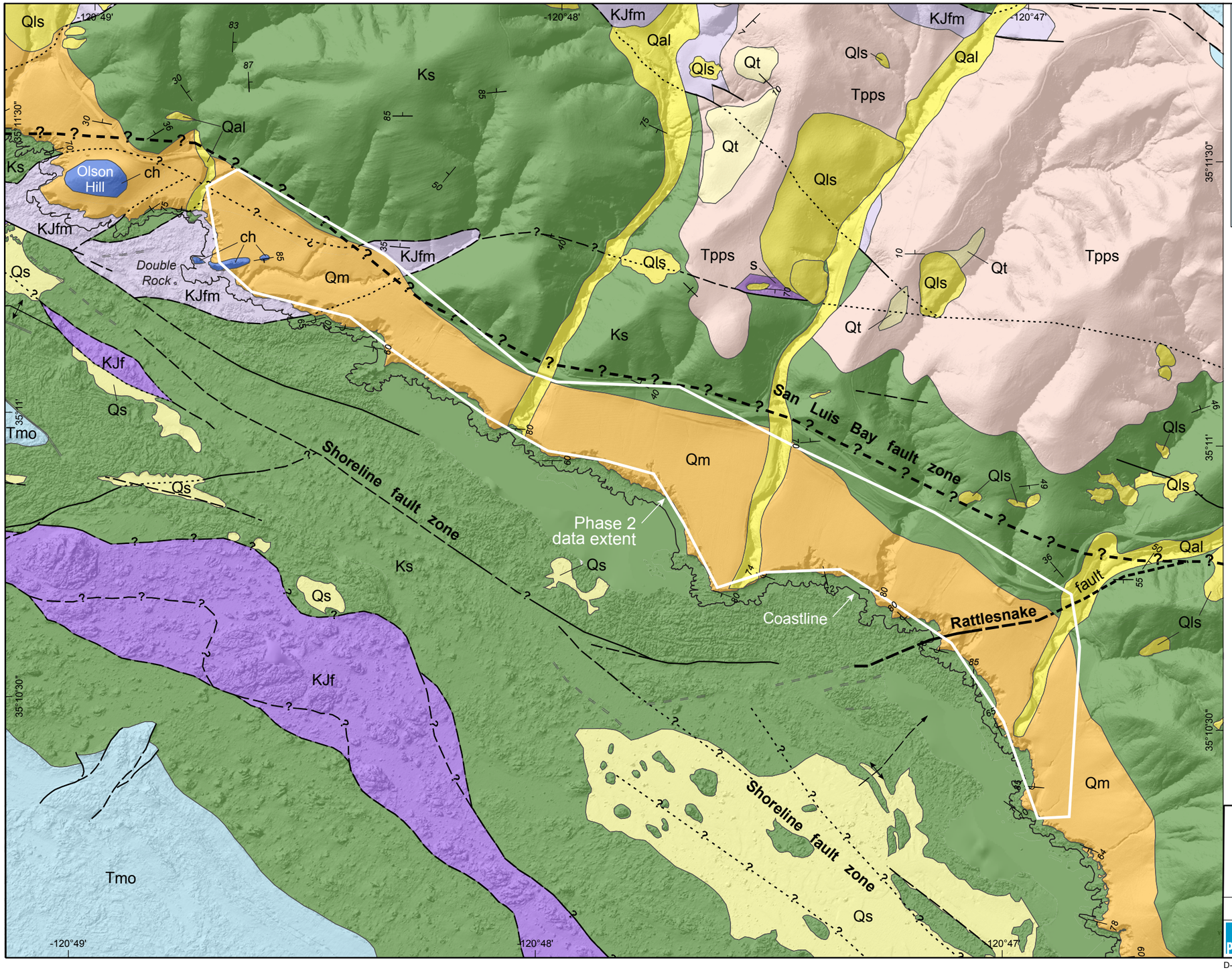


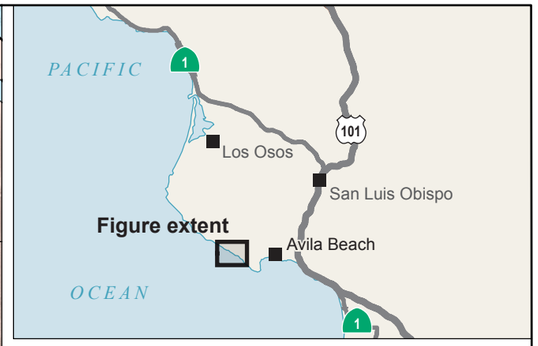
Photograph of Obispo Formation Bedding, Discharge Cove and Green Peak Ridge

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **3-7**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-136 Obispo Photo.ai





(See Figure 1-4 for explanation of geologic units and symbols)

Notes: Geologic data from PG&E (2014a, Plate 1), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 1,000 2,000 ft.

0 200 400 m

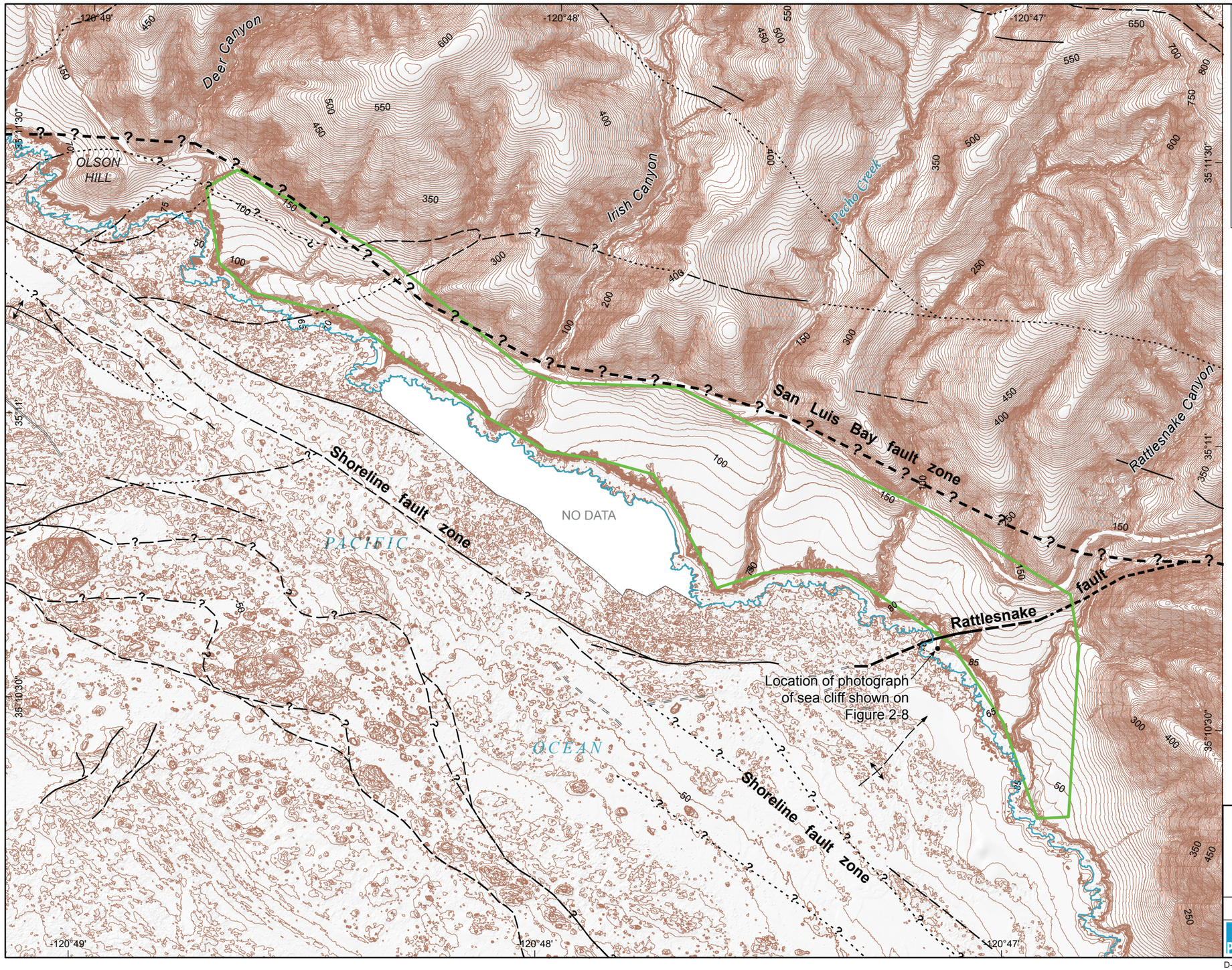
Map projection and scale: NAD 83 State Plane CA Zone V, 1:13,000

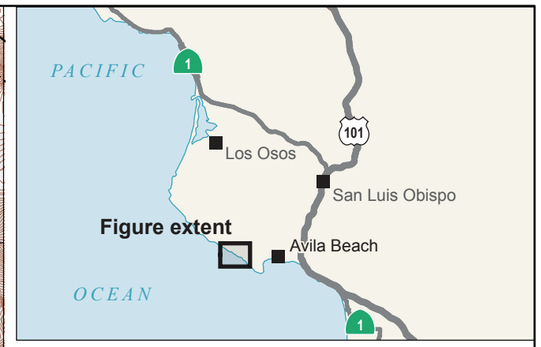
Phase 2 Geologic Map

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-8**





EXPLANATION

- Phase 2 seismic survey data extent boundary
- Coastline
- Fault, solid where certain, dashed where approximate, short dash where inferred,dotted where concealed, queried where uncertain
- Anticline, dashed where approximate
- Syncline, dashed where approximate
- 80 — Strike and dip of bedding

Notes: Contour interval is 5 feet with 50-foot index contours labeled, contours from LiDAR and bathymetric data compiled by PG&E (2014a).

N

0 1,000 2,000 ft.

0 200 400 m

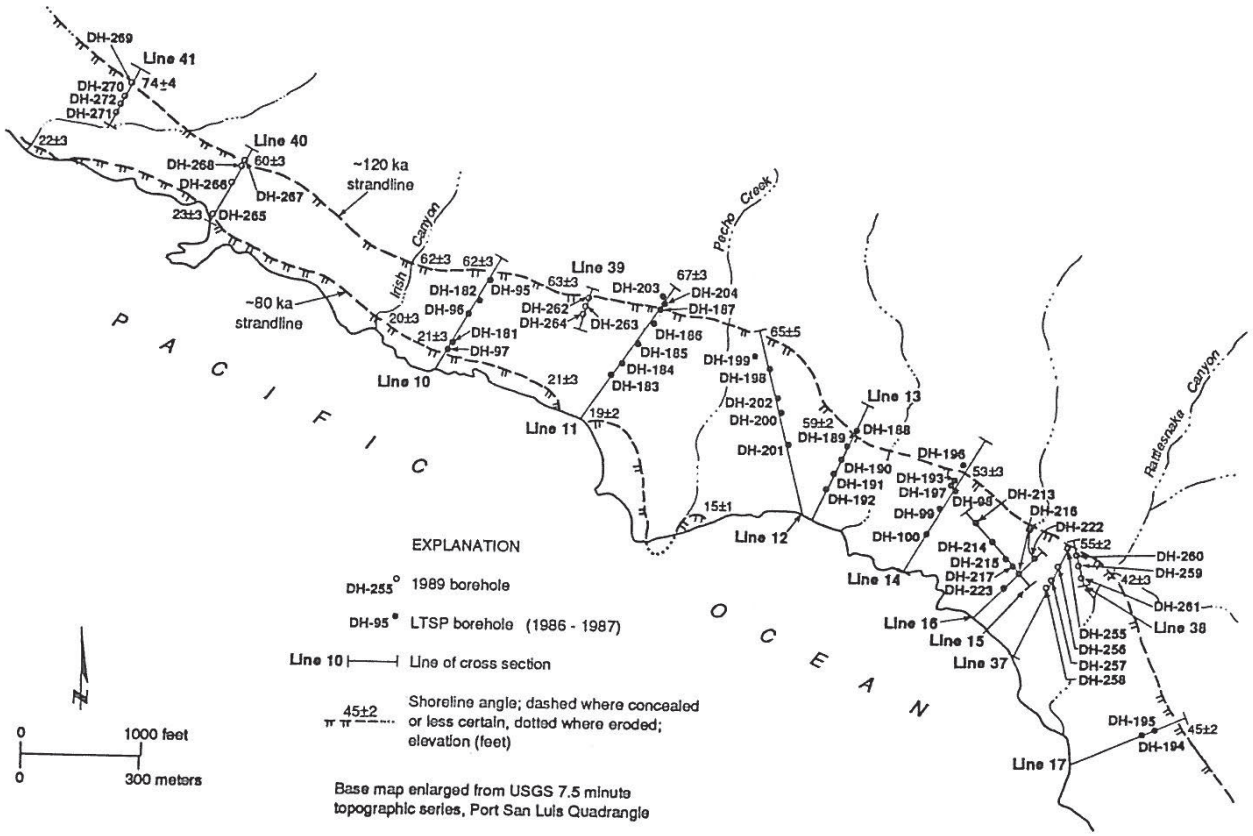
Map projection and scale: NAD 83 State Plane CA Zone V, 1:13,000

Topographic Map of the Phase 2 Area, Showing Faults

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **3-9**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-137 Phase 2 Topo.ai



Source: PG&E (1990), Figure GSG Q16-A.2.

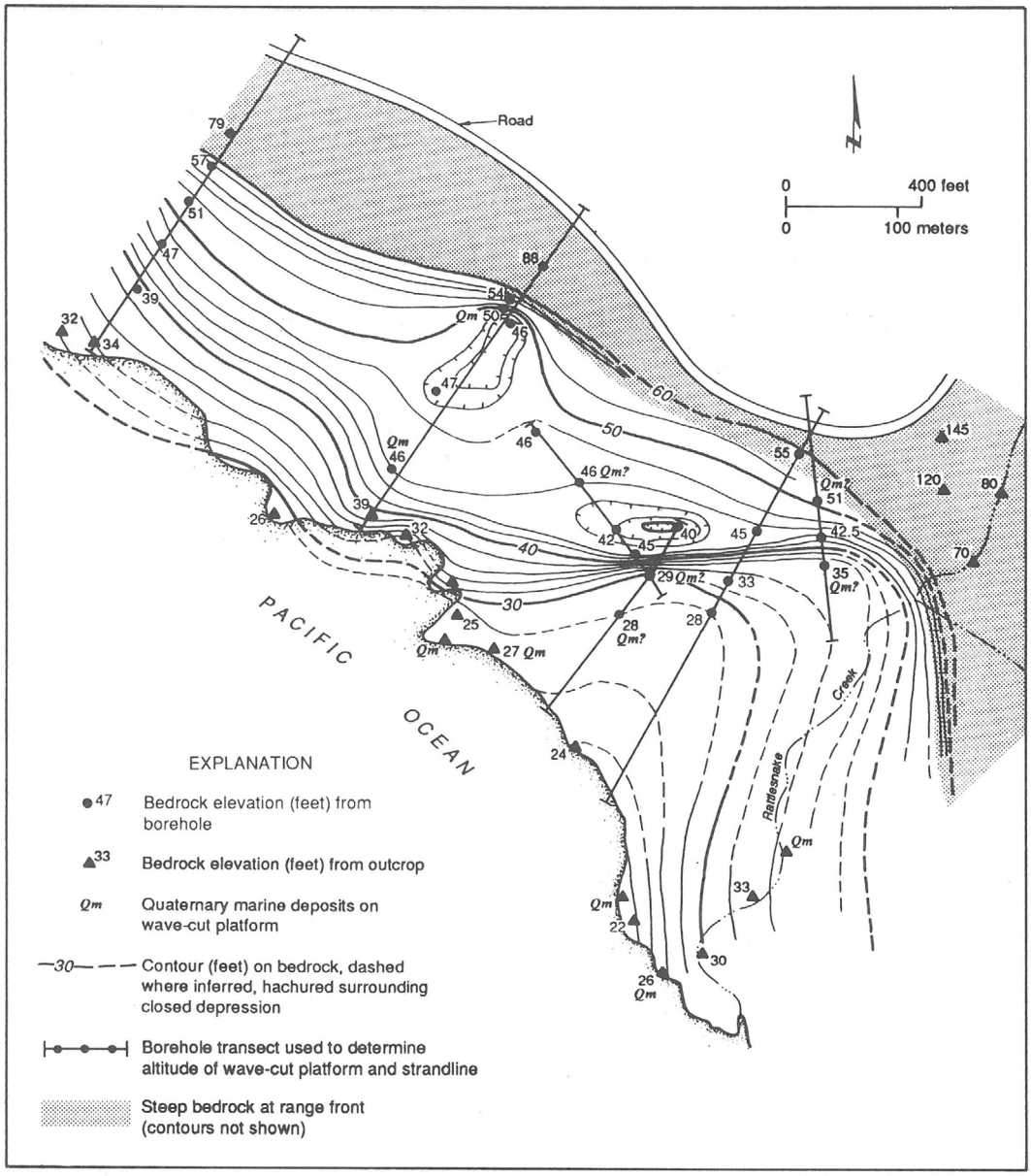
Location of Boreholes Drilled 1987–1989 in the Phase 2 Area

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-10**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-155 Borehole Location Map.ai



Structure contour map on the 120-ka wave-cut platform near the mouth of Rattlesnake Creek showing a south-facing step along the trace of the San Luis Bay fault. Contour interval, 2 ft (note: English units are used for conformity with existing topographic maps; metric conversion is 1 ft = 0.3048 m). The wave-cut platform is entirely covered by younger alluvium and the altitude of the platform is based on borehole data. We interpret the step in the platform to be brittle deformation along the fault.

Source: Lettis et al. (1994).

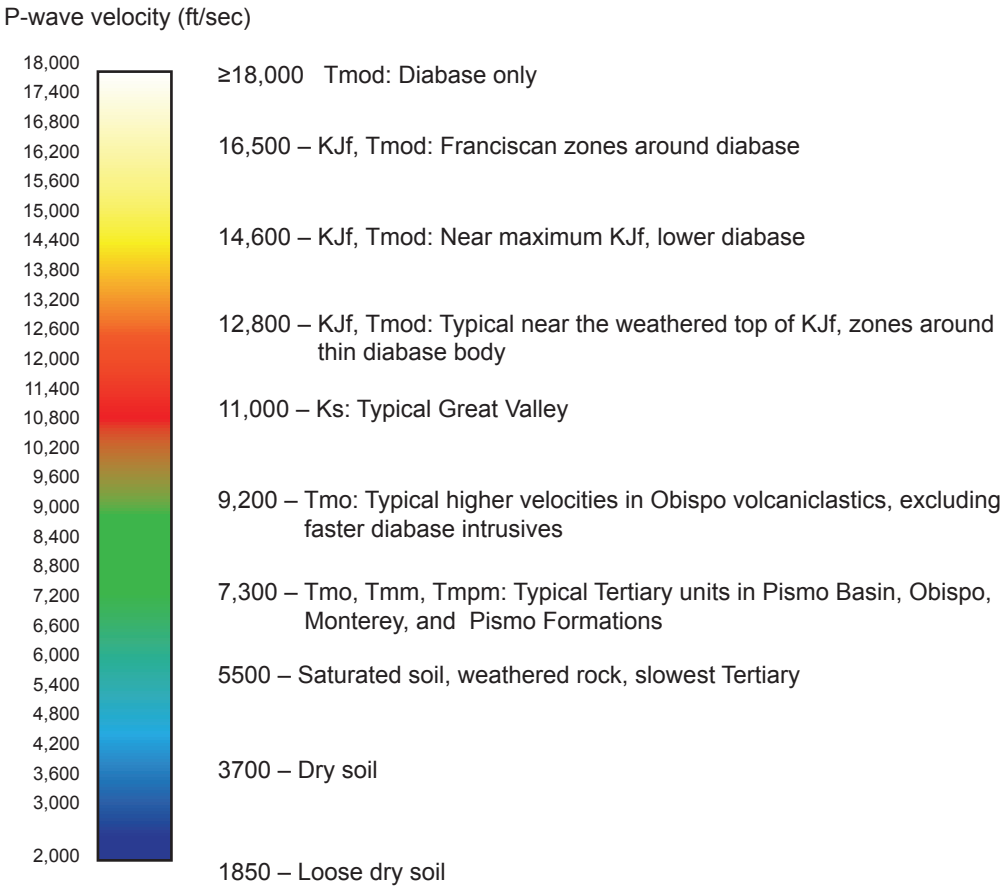
Contour Map of the Wave-Cut Platform from Borehole and Outcrop Data, Rattlesnake Creek Area

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **3-11**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-141 Contour Map Rattlesnake Creek.ai



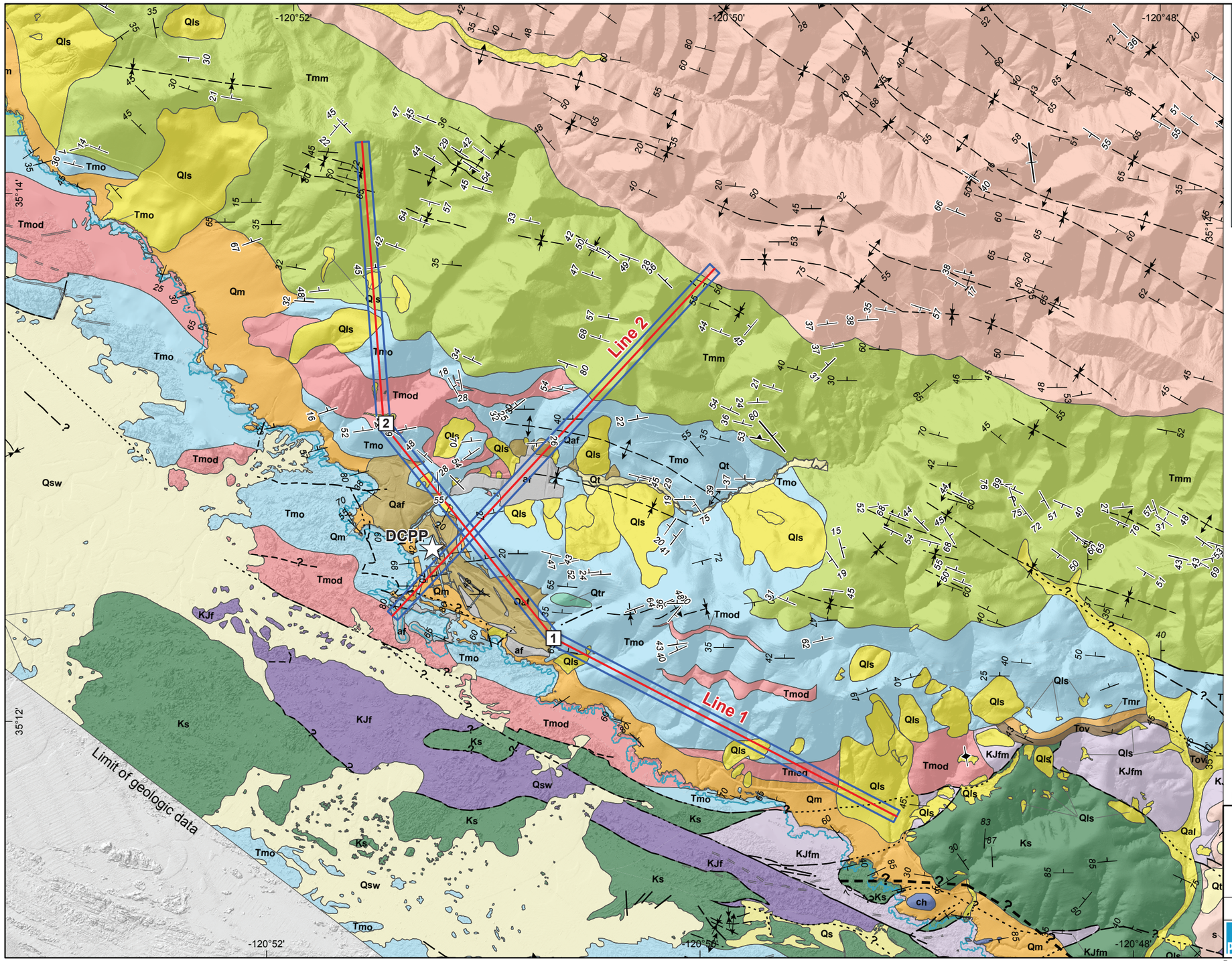
Characteristic Vp for Geologic Units in the South Irish Hills

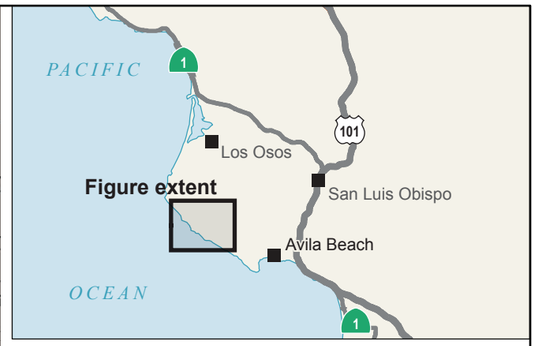
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-1**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-126 Characteristic Velocity.ai





EXPLANATION

Vertical seismic display (VSD) tomography lines

1 Line bend

Coastline

(See Figure 1-4 for explanation of geologic symbols and units)

Notes: Geologic data from PG&E (2014a, Plate 1), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 2,000 4,000 ft.

0 500 1,000 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:28,000

Location of Phase 1 VSD Tomography Lines

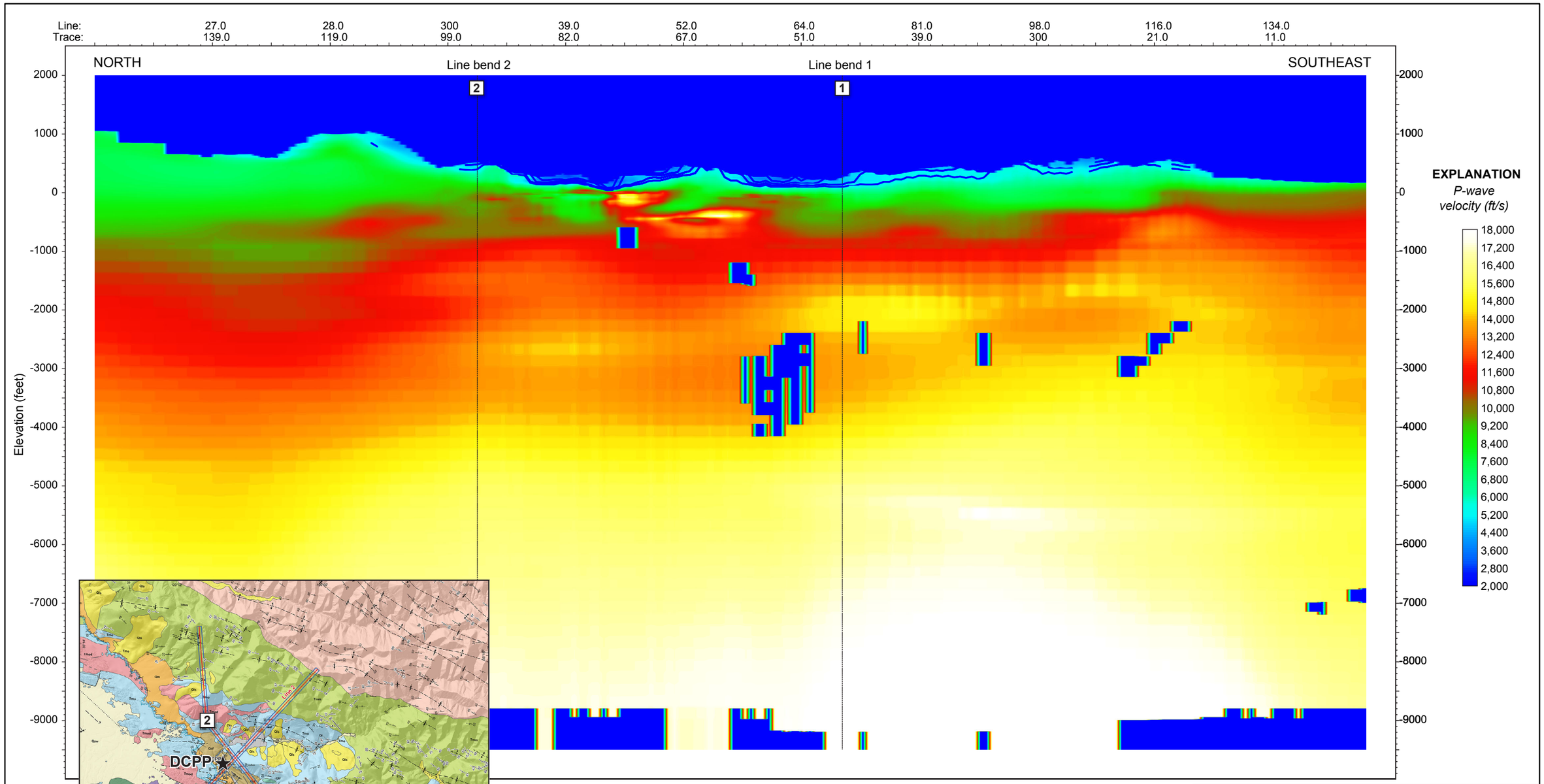
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-2**

D-061

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-061 Phase 1 Ray-censored Tomography Map.ai



Location of profile (see Figure 4-2)

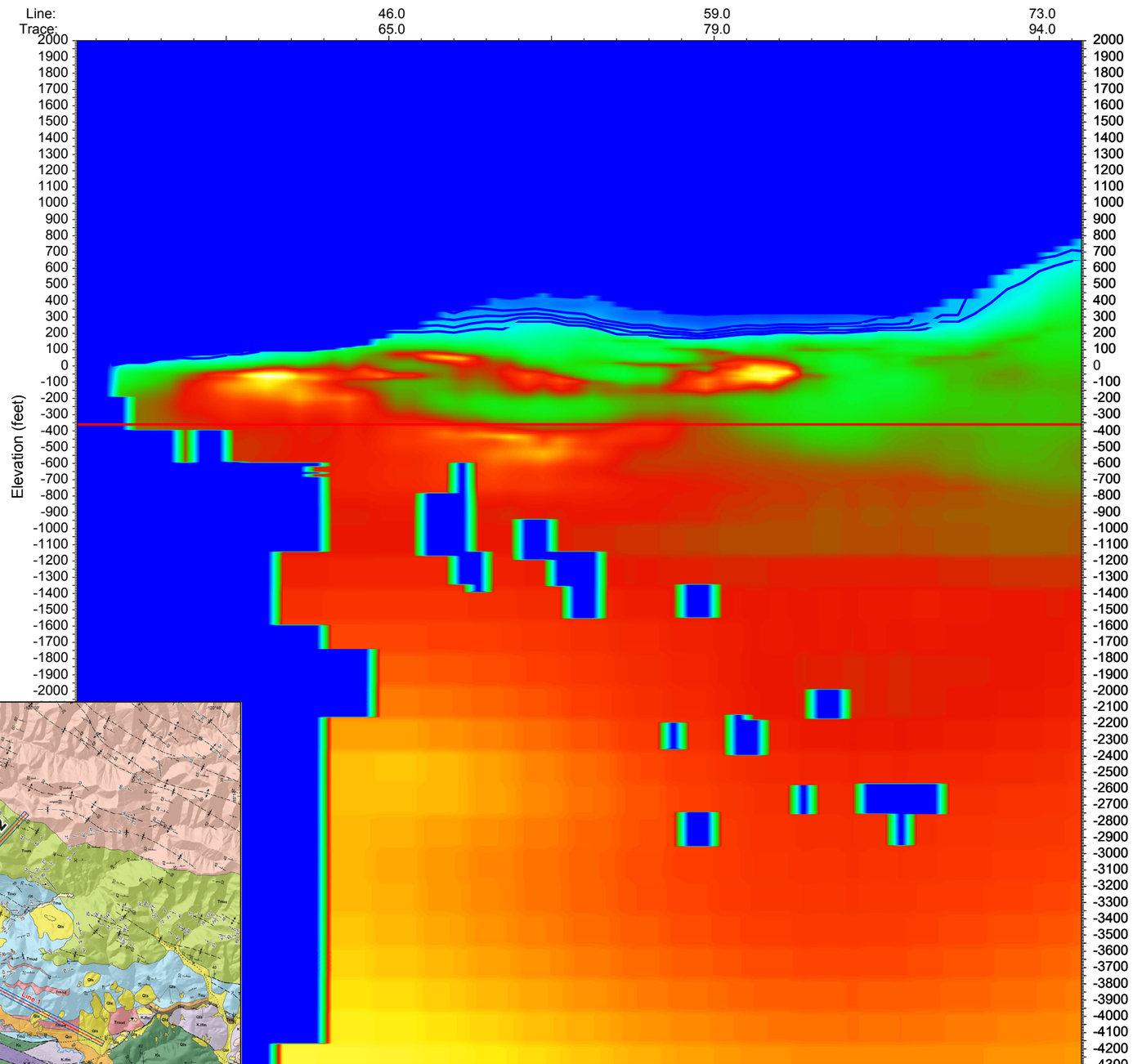
K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-060 Phase 1 Ray-censored Tomography Line VSD.ai

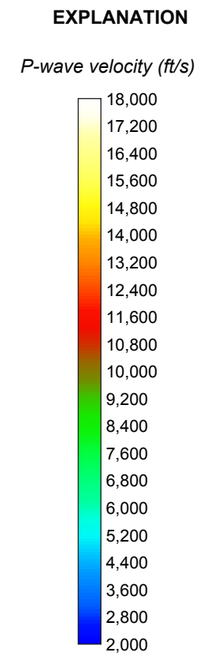
Phase 1 Ray-Censored Tomography
Line 1

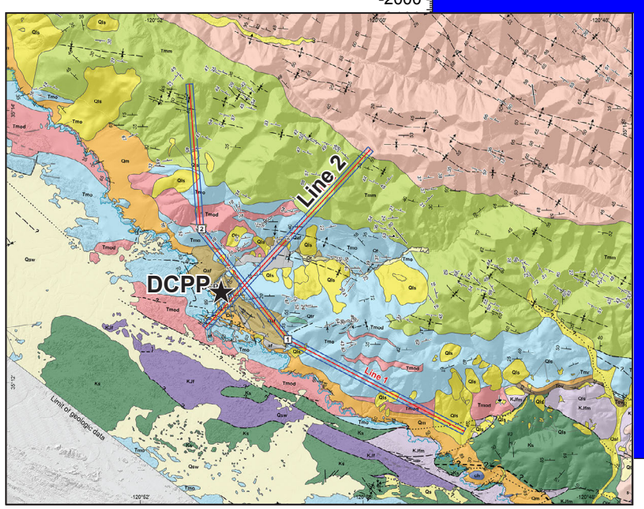
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-3**







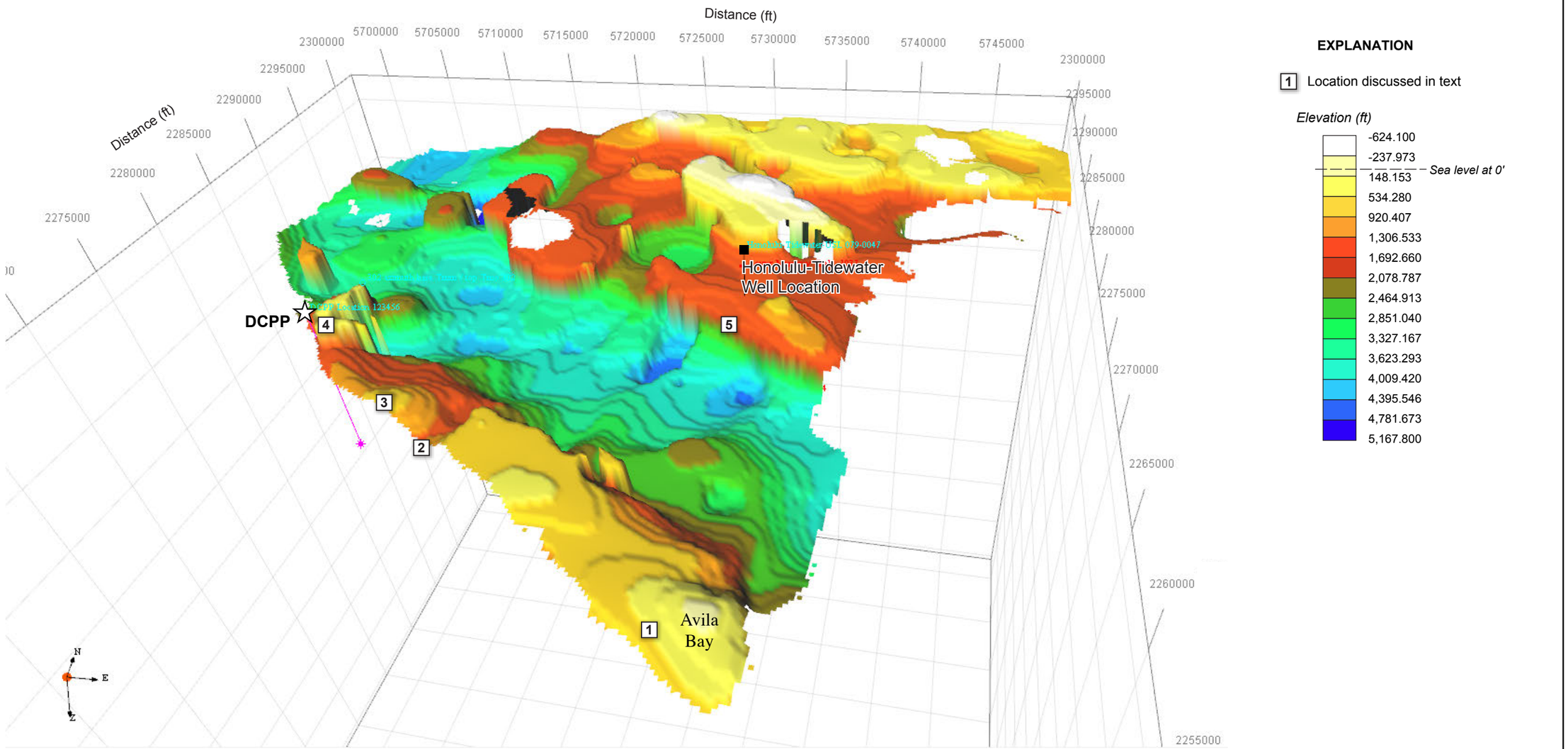
Location of profile (see Figure 4-2)

Phase 1 Ray-Censored Tomography
Line 2

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-4**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-063 Phase 1 Ray-censored Tomography Line 2 Data Extent.ai



Oblique View of the 12,500-Ft/s Isovelocity Surface, Irish Hills

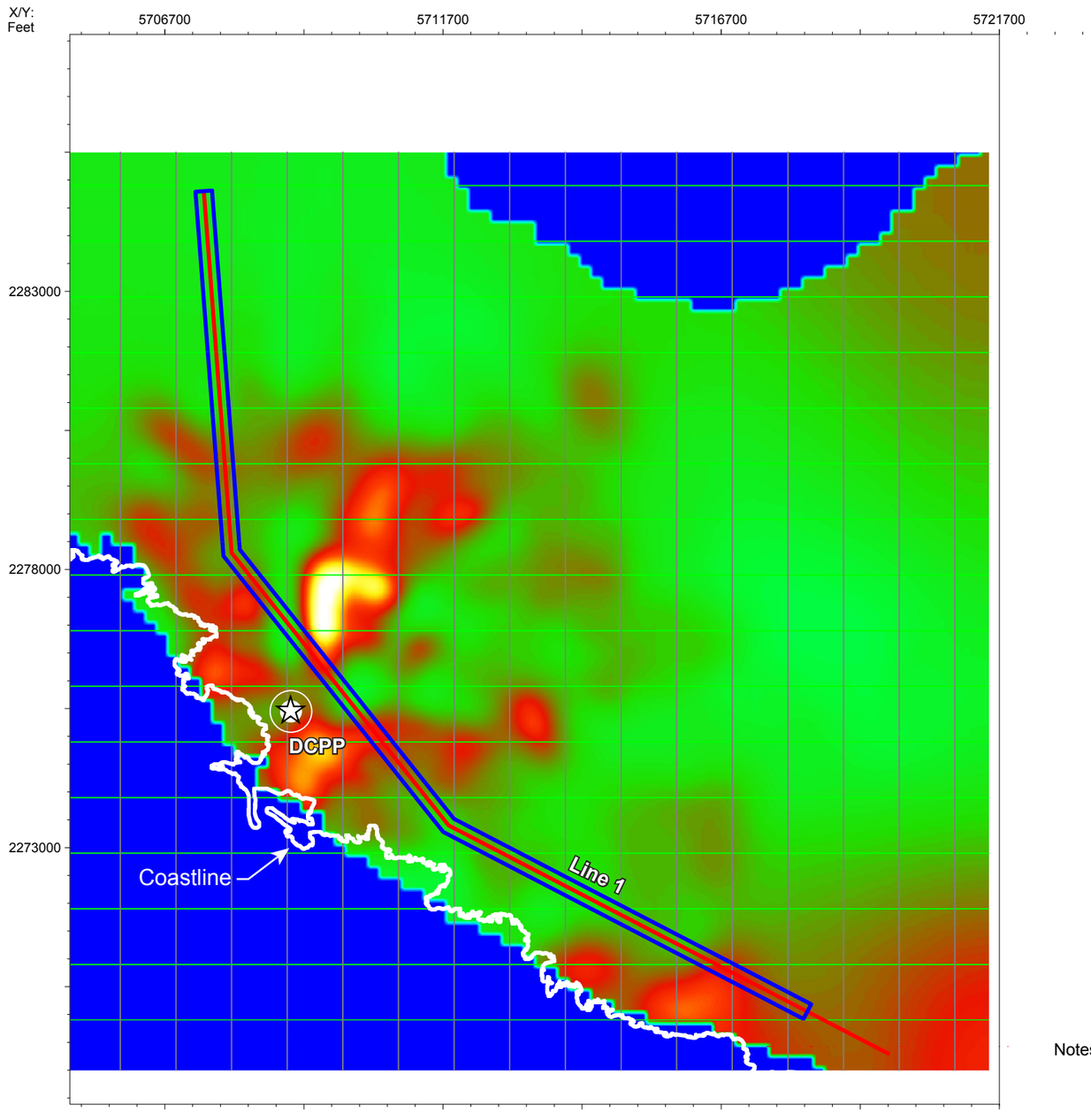
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

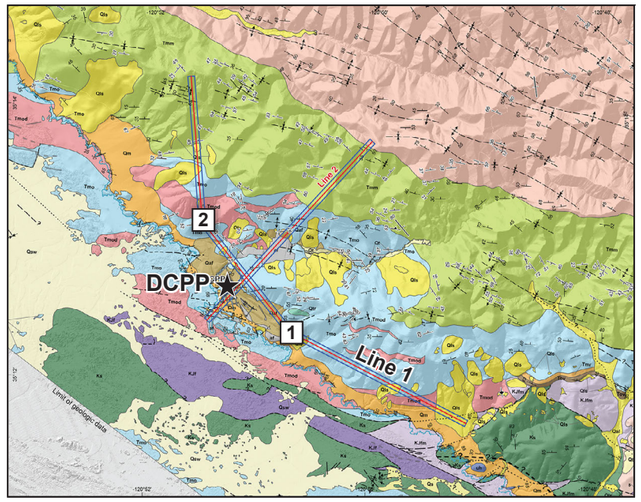
Pacific Gas and Electric Company

Figure **4-5**

D-067

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-067 Phase 1 VuPak Iso Velocity.ai





Location of profile (see Figure 4-2)

EXPLANATION

P-wave velocity (ft/s)

18,000
17,200
16,400
15,600
14,800
14,000
13,200
12,400
11,600
10,800
10,000
9,200
8,400
7,600
6,800
6,000
5,200
4,400
3,600
2,800
2,000

N

0 1,500 3,000 4,500 ft.

Notes:
Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min,Max): 5701596.00 5724201.00
Y (Min,Max): 2268389.00 2287617.50
Latitude (Min, Max): 35.191674 35.246238
Longitude (Min, Max): -120.878937 -120.805107

Phase 1 Ray-Censored Tomography
Depth Slice at 358 Feet Below Sea Level

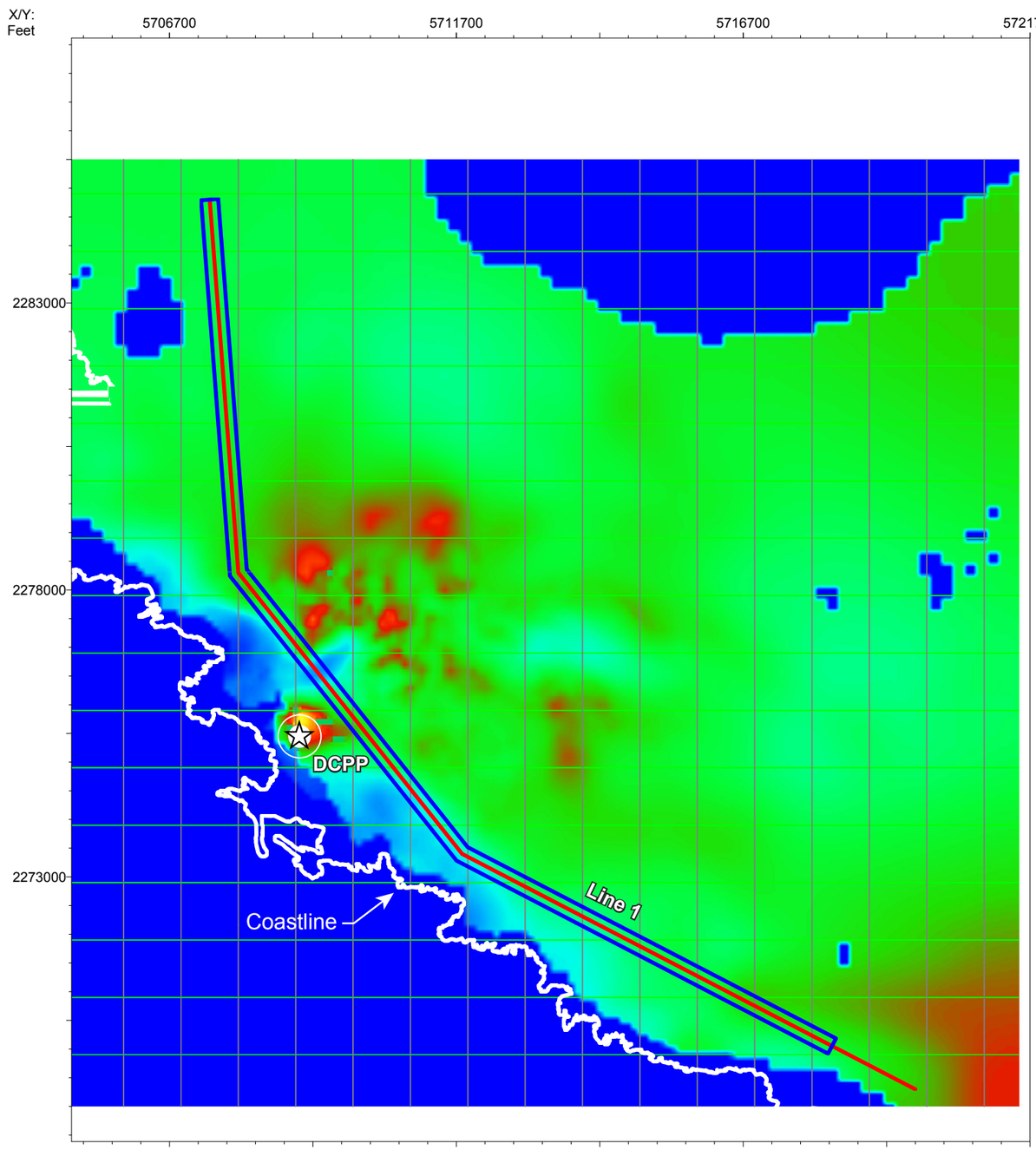
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

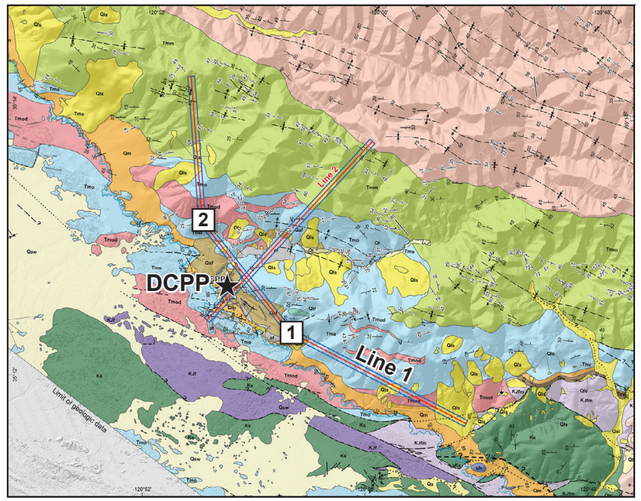
Pacific Gas and Electric Company

Figure **4-6**

D-065

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-065 Phase 1 Ray-censored Tomograephy Line 2 360 Feet.ai





Location of profile (see Figure 4-2)

EXPLANATION

P-wave velocity (ft/s)

18,000
17,200
16,400
15,600
14,800
14,000
13,200
12,400
11,600
10,800
10,000
9,200
8,400
7,600
6,800
6,000
5,200
4,400
3,600
2,800
2,000

N

0 1,500 3,000 4,500 ft.

Notes:
Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5701596.00 5724201.00
Y (Min, Max): 2268389.00 2287617.50
Latitude (Min, Max): 35.191674 35.246238
Longitude (Min, Max): -120.878937 -120.805107

Phase 1 Ray-Censored Tomography
Depth Slice at 3 Feet Above Sea Level

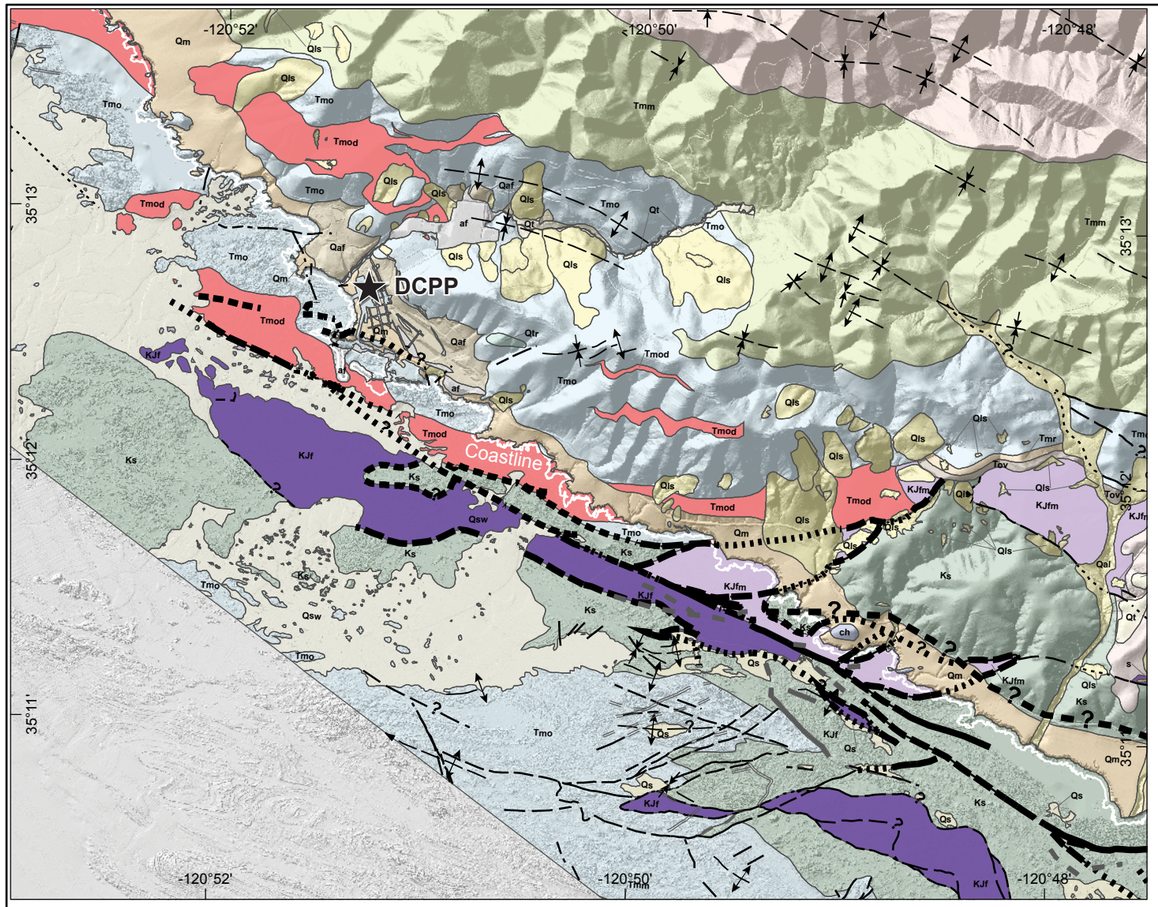
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

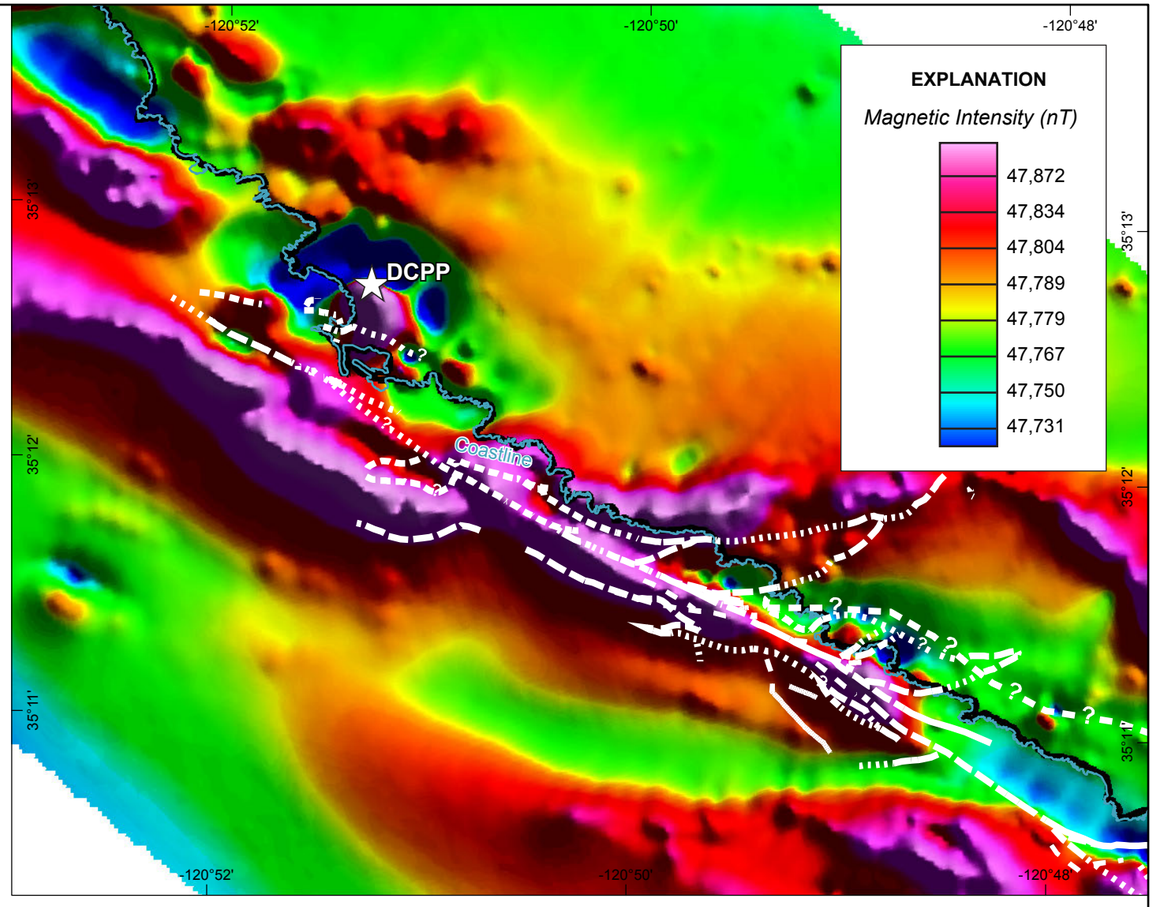
Pacific Gas and Electric Company

Figure **4-7**

D-066

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-066 Phase 1 Ray-censored Tomograephy Line 2 360 Feet.ai

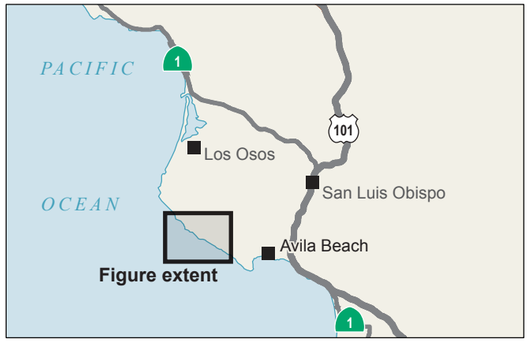




(See Figure 1-4 for explanation of geologic symbols and units)

Notes: Geologic data from PG&E (2014) Geologic Mapping Compilation, shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011); some fault lines are thicker to highlight them, and magnetic Obispo Formation diabase (pink) and Franciscan metavolcanic (purple) units are highlighted in the Geologic map to delineate magnetic rocks exposed at the surface.

Source: PG&E (2011)



N

0 0.5 1 mi.
0 0.5 1 km

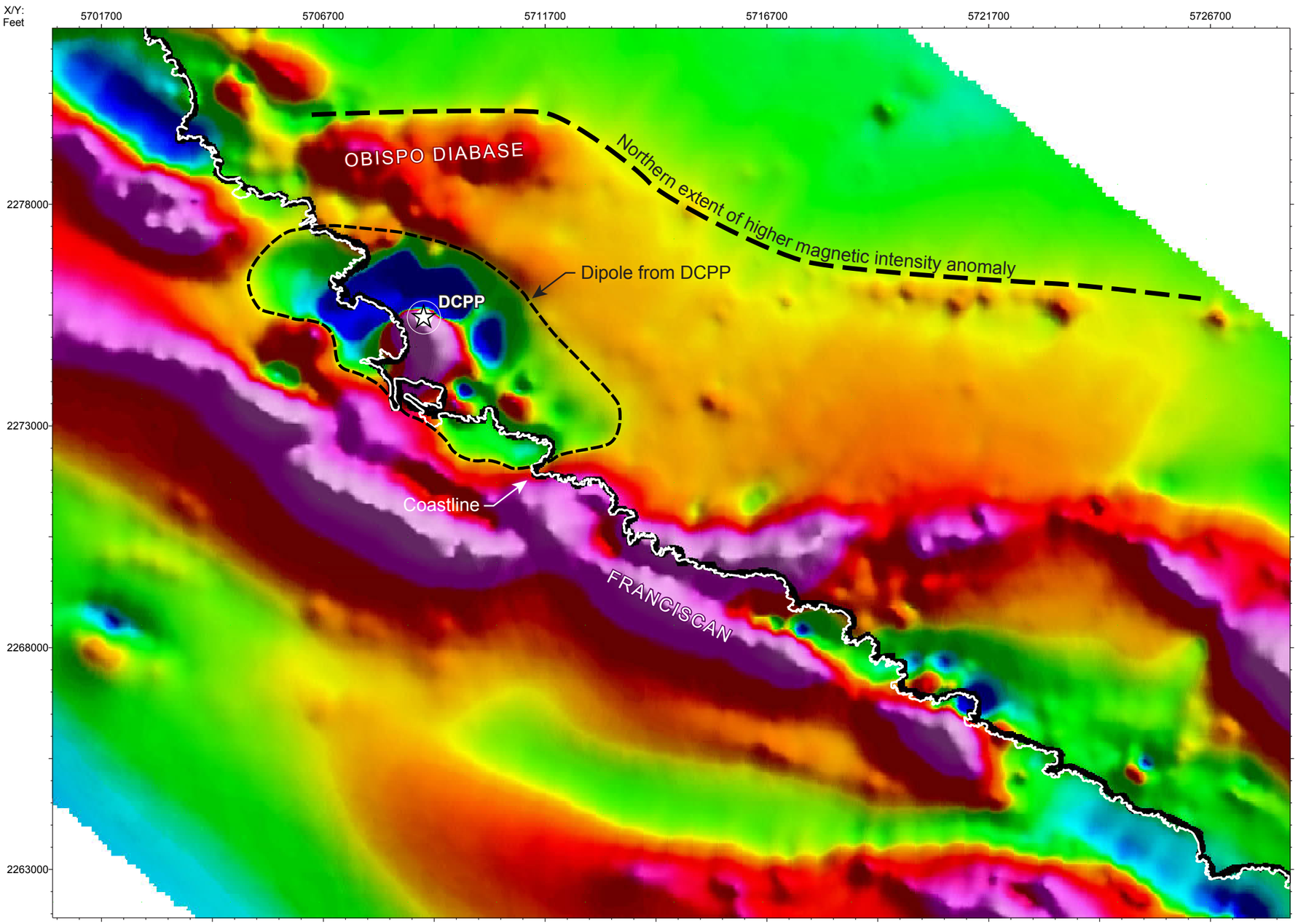
Map projection and scale: NAD 83 State Plane CA Zone V, 1:43,200

Comparison: Surface Geology and Total Magnetic Intensity Anomaly Helicopter Map

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-8**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-138 Comparison.ai



EXPLANATION

Magnetic Intensity (nT)

47872
47834
47804
47789
47779
47767
47750
47731

N

0 1500 3000 4500 ft.

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5700597.00 5728492.50
Y (Min, Max): 2261909.00 2281971.50
Latitude (Min, Max): 35.173799 35.231060
Longitude (Min, Max): -120.881658 -120.790215

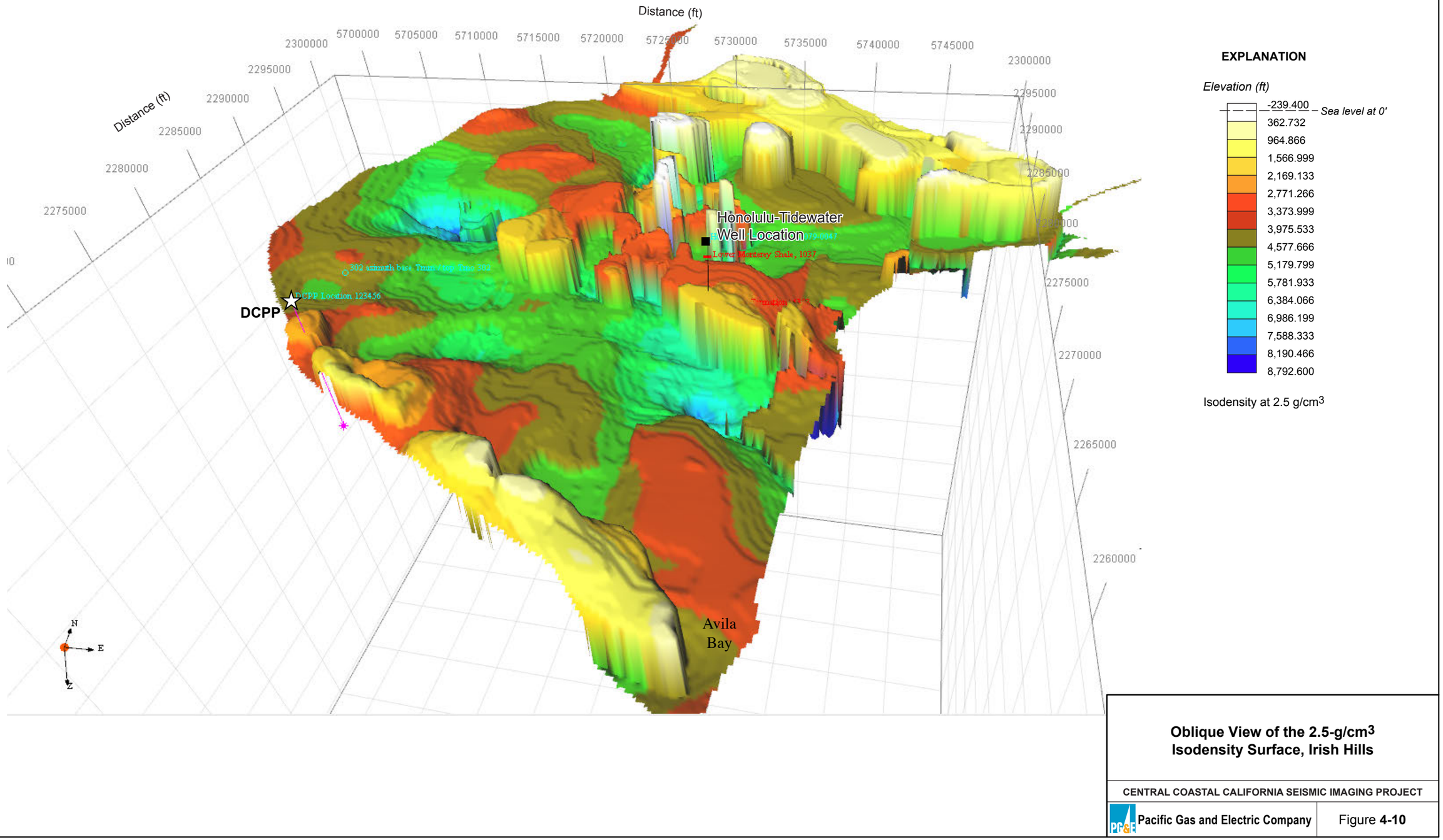
Source: PG&E (2011)

Phase 1 Potential Field Total Magnetic Intensity Anamoly (Helicopter Map)

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-9**



Oblique View of the 2.5-g/cm^3 Isodensity Surface, Irish Hills

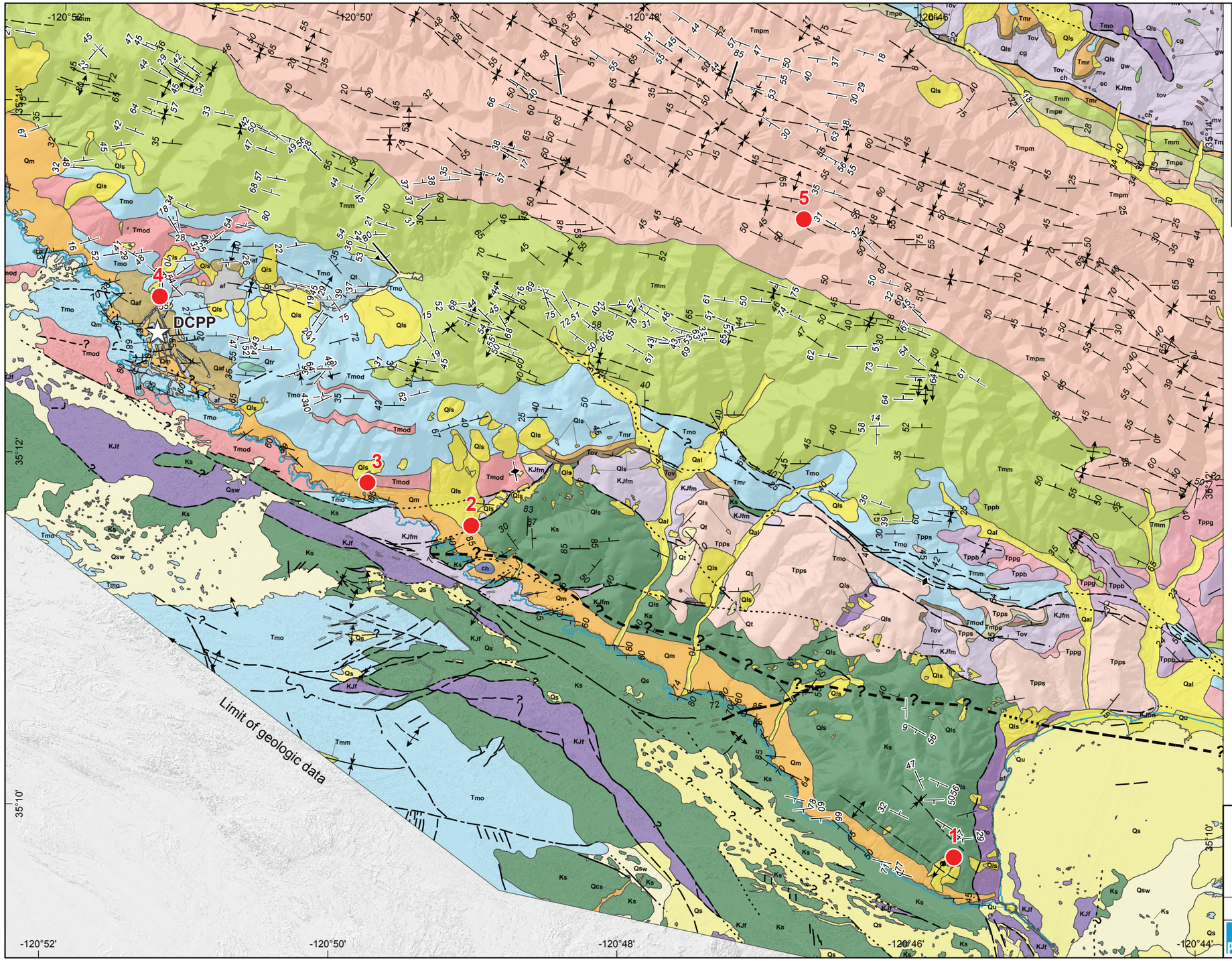
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

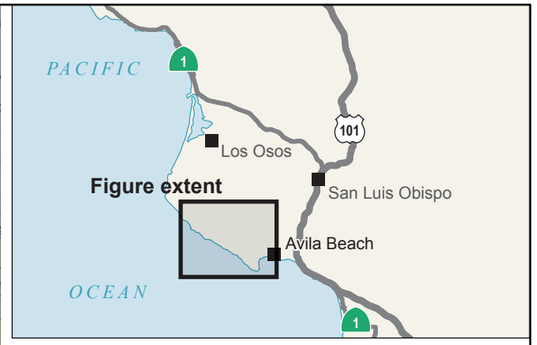
Pacific Gas and Electric Company

Figure **4-10**

D-068

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-068 Phase 1 VuPak IsoDensity.ai





EXPLANATION

Coastline

3 Location discussed in text

(See Figure 1-4 for explanation of geologic symbols and units)

Notes: Geologic data from PG&E (2014a, Plate 1), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 2,000 4,000 ft.

0 500 1,000 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:42,000

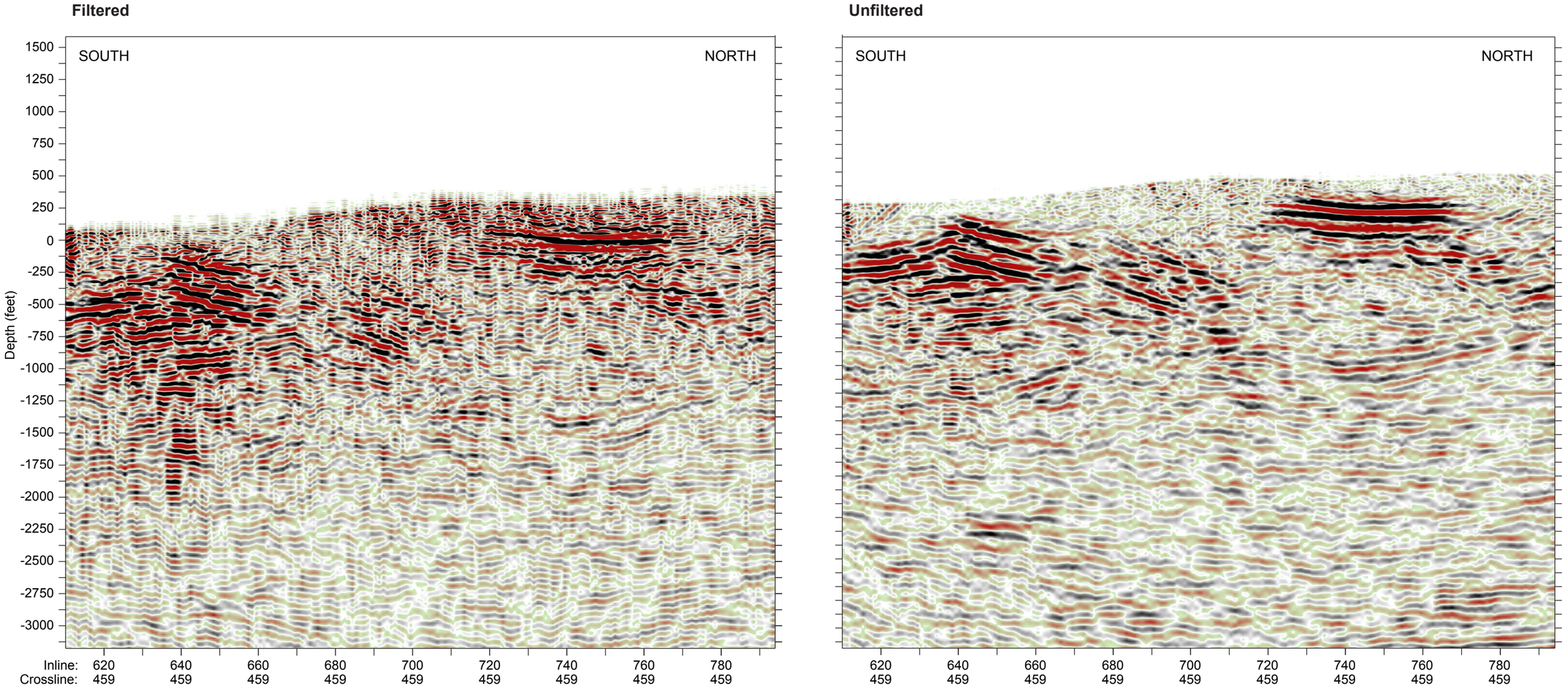
Location Map for Isovelocity Text Discussion

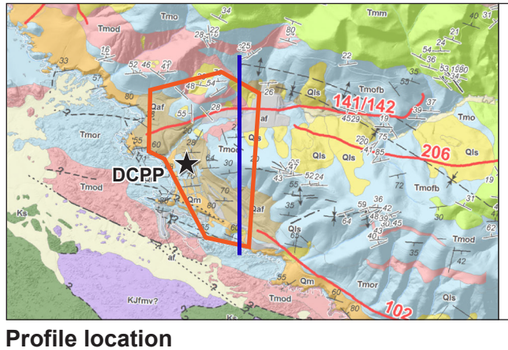
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-11**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-154 Text Locations.ai





Profile location

EXPLANATION

- Seismic profile alignment
- SigSeis 3D data quality extent boundary

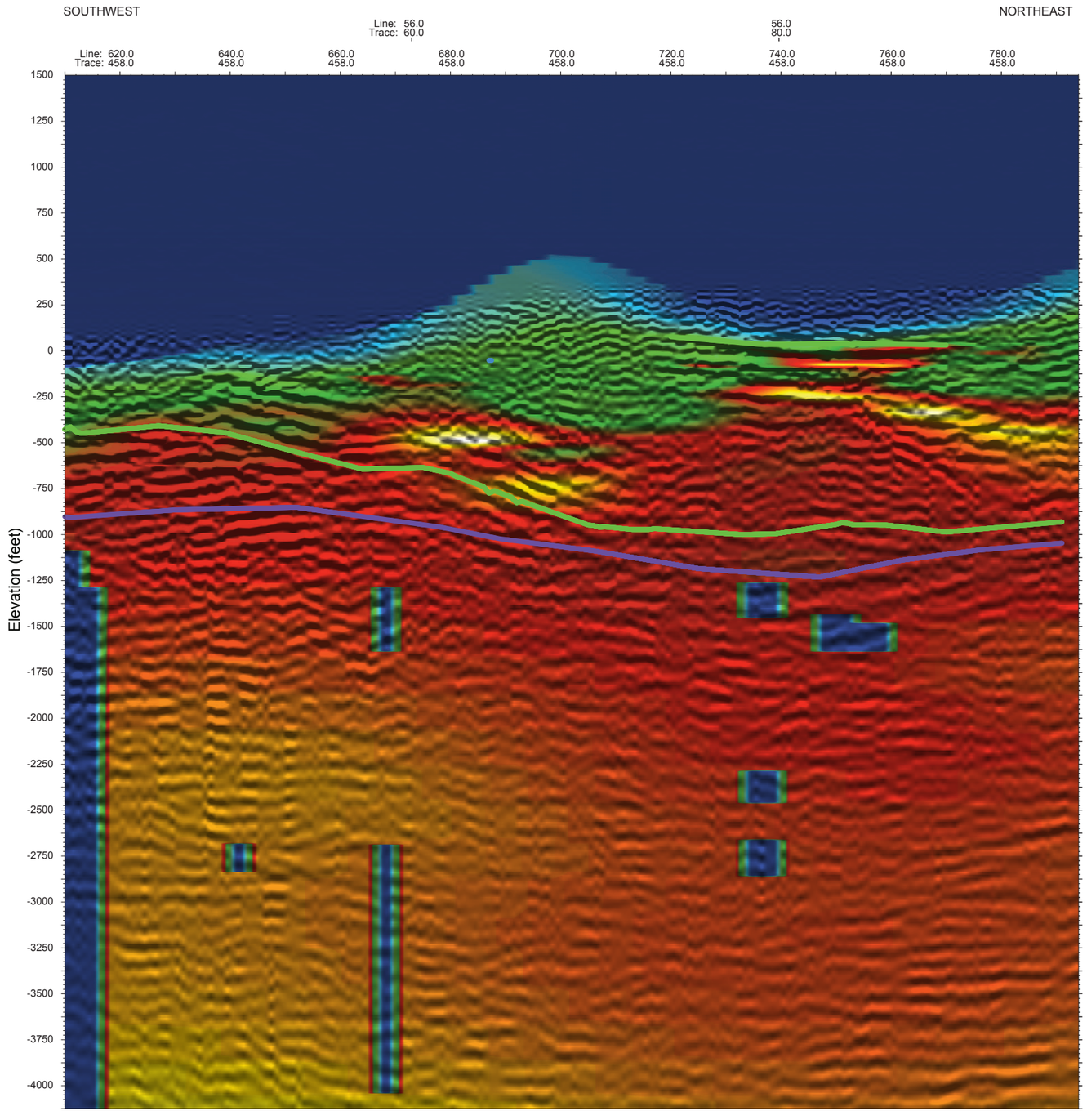
Uninterpreted Phase 1 Filtered and Unfiltered Seismic-Reflection Profile Crossline 459, North-South

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-12**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-134 Phase 1 Filtered Unfiltered.ai



Note: Colored lines depict top of geologic units.

EXPLANATION

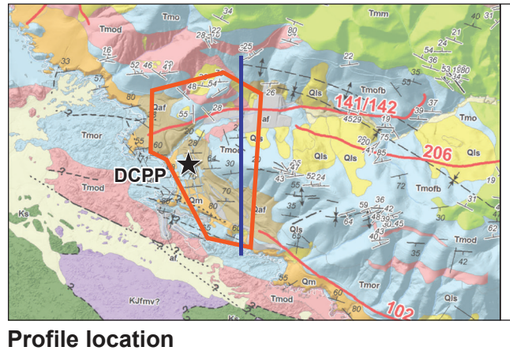
2,000 2,800 3,600 4,400 5,200 6,000 6,800 7,600 8,400 9,200 10,000 10,800 11,600 12,400 13,200 14,000 14,800 15,600 16,400 17,200 18,000

P-wave velocity (ft/s)

Seismic amplitude

Interpreted top of Cretaceous sandstone

Interpreted top of Franciscan Formation



Profile location

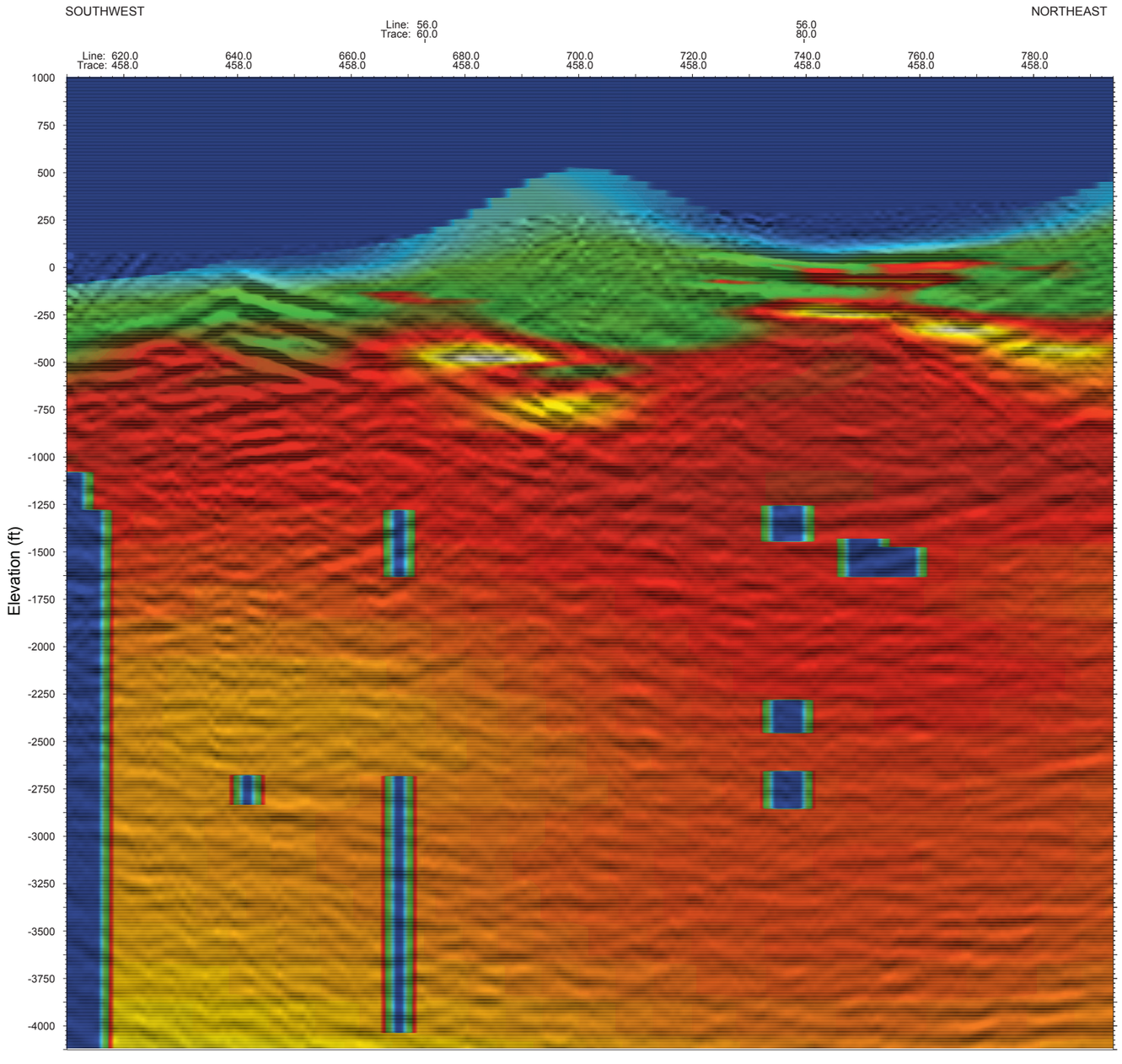
SigSeis Crossline 458
High-Pass Filter Seismic-Reflection Profile with Tomography Overlay

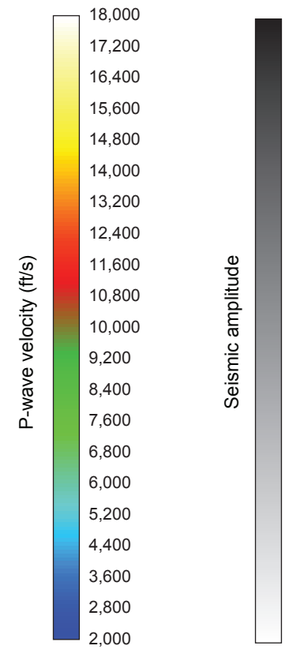
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

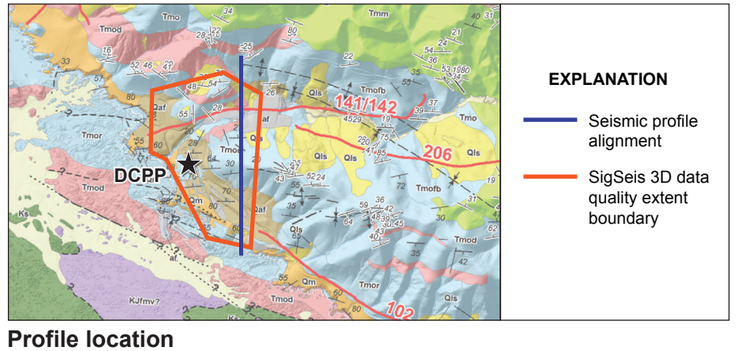
Pacific Gas and Electric Company

Figure **4-13**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-147 2D Reflection 1 2.ai







Profile location

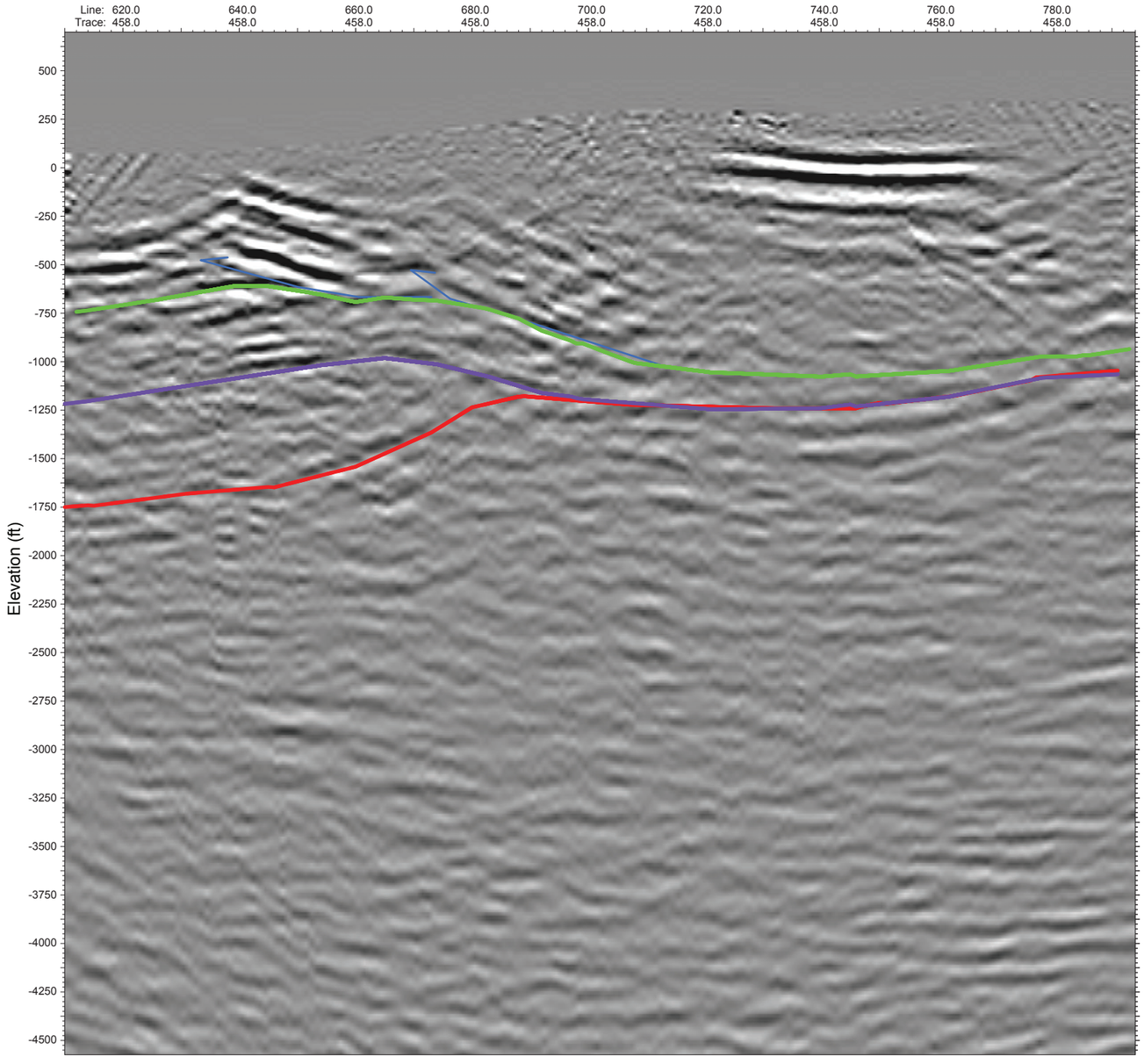
SigSeis Crossline 458 Rawstack Seismic-Reflection Profile with Tomography Overlay

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-14**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-147 2D Reflection 1 2.ai



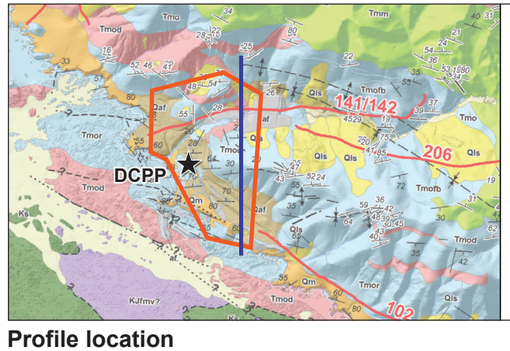
EXPLANATION

Seismic amplitude

Interpreted detachment with folded reflectors above

Base of bright reflectivity

Top of quiet acoustic basement



Profile location

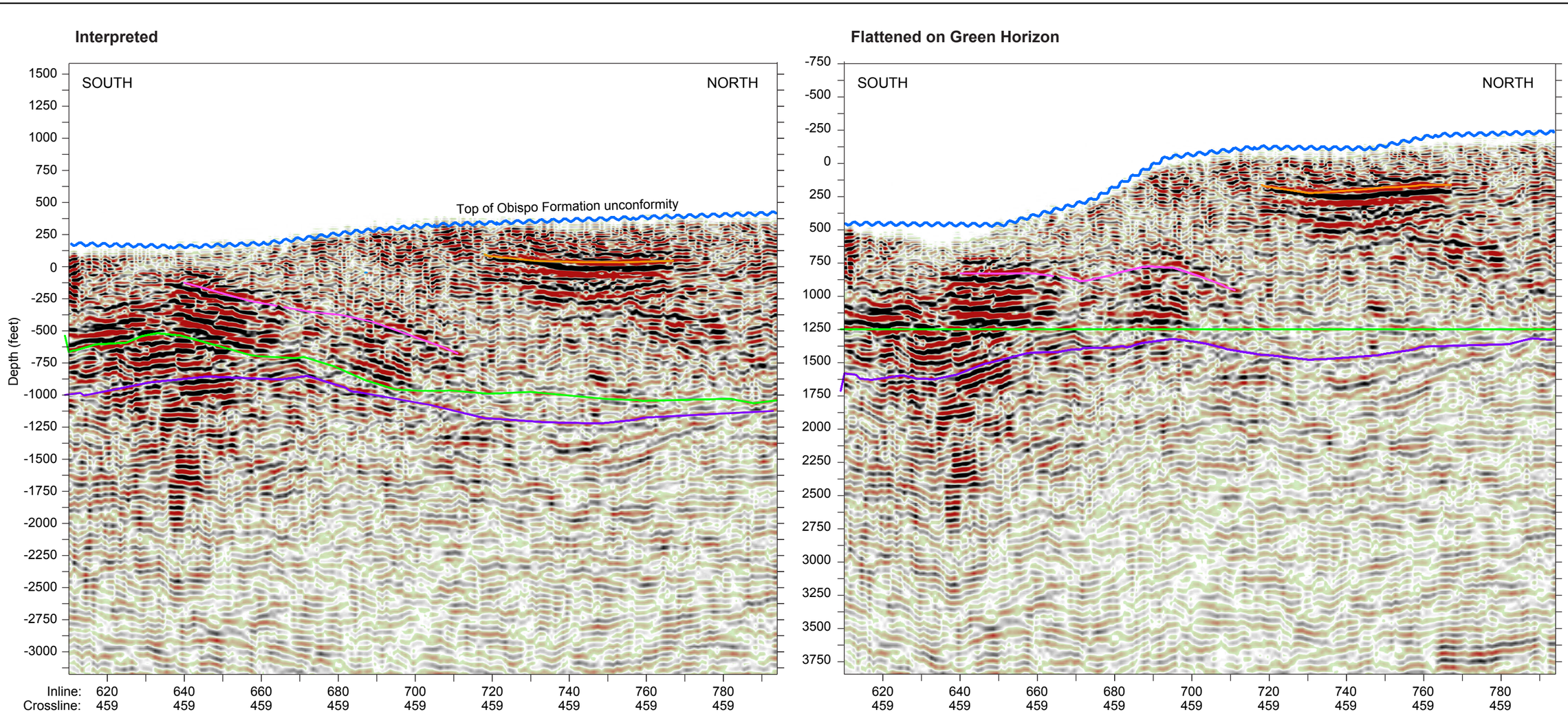
SigSeis Crossline 458 Rawstack Seismic-Reflection Panel, Interpreted

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-15**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-147 2D Reflection 1 2.ai

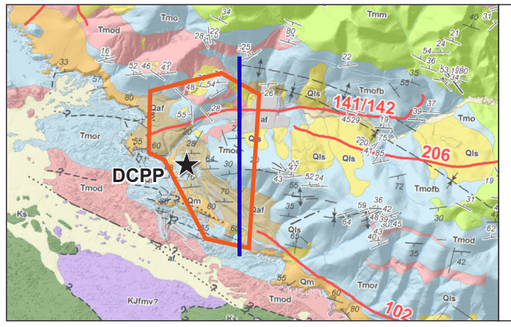


EXPLANATION

Peak — Trough

Amplitude

- Interpreted top of diabase
- Interpreted top of diabase
- Interpreted top of Cretaceous sandstone
- Interpreted top of Franciscan Formation



Profile location

EXPLANATION

- Seismic profile alignment
- SigSeis 3D data quality extent boundary

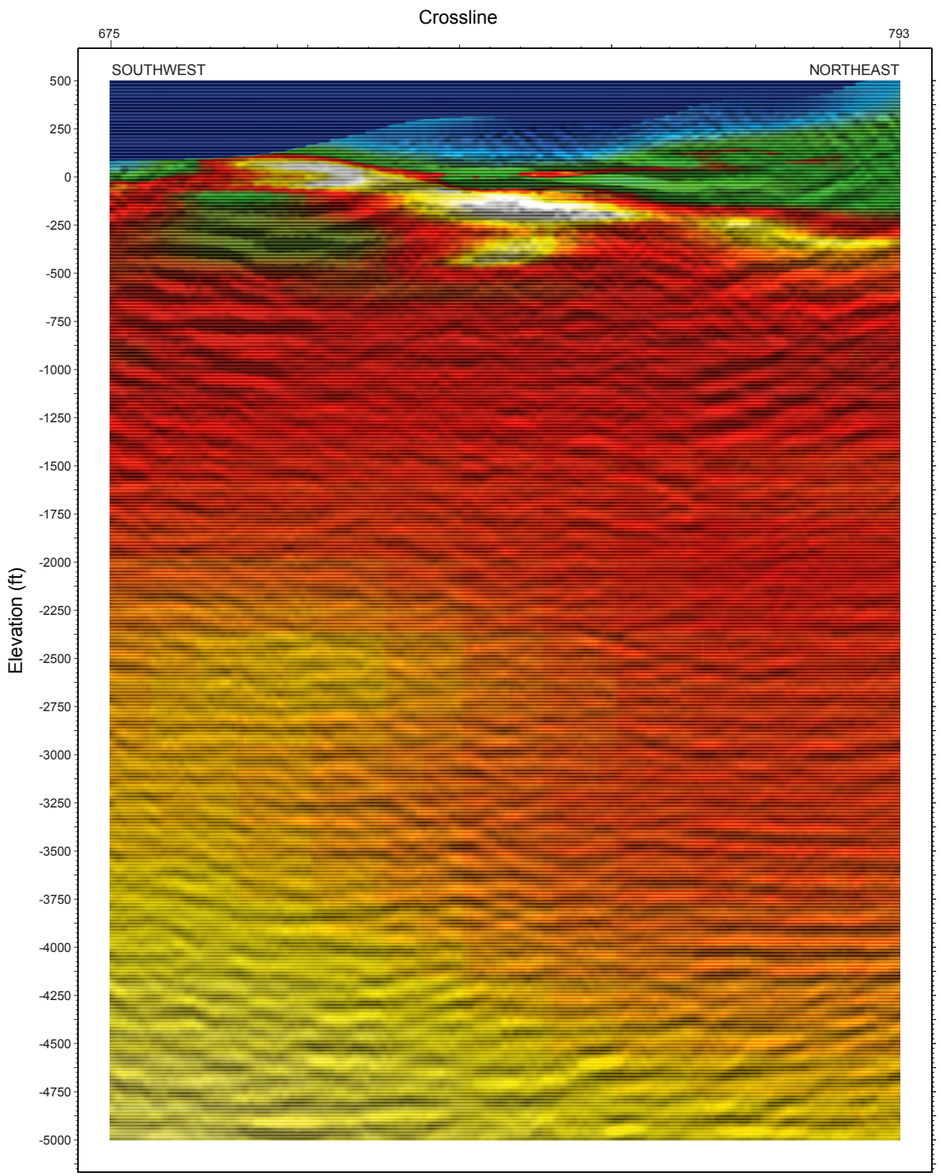
Interpreted and Flattened Phase 1 Filtered Seismic-Reflection Profile Crossline 459, North-South

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

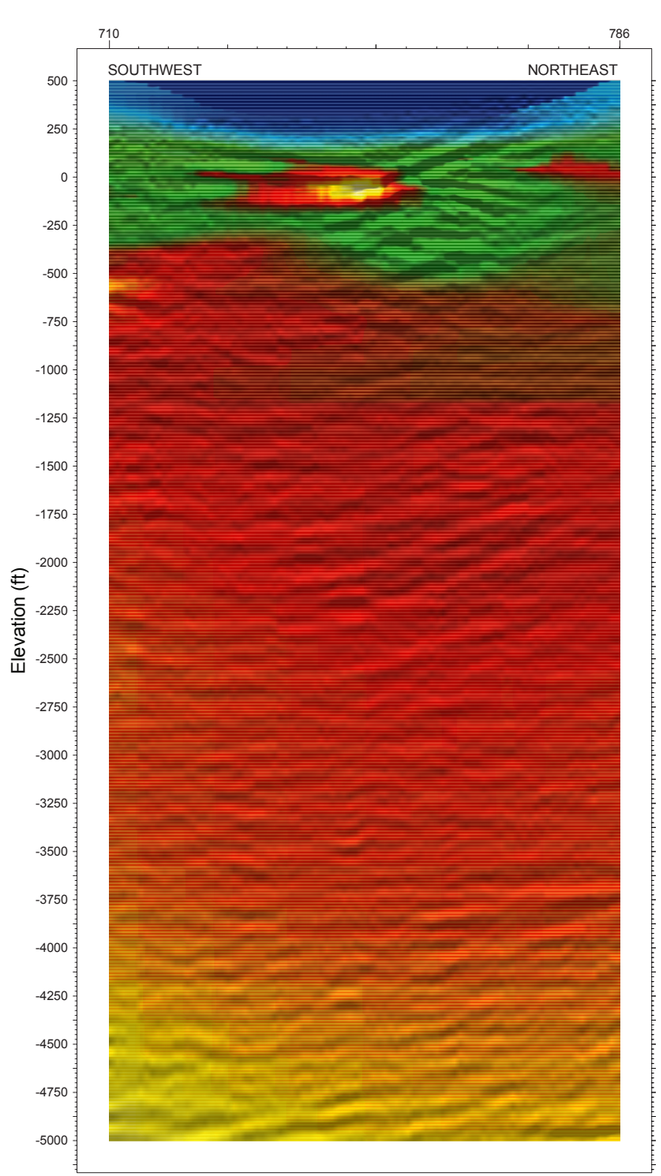
Pacific Gas and Electric Company

Figure **4-16**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-130 Phase 1 Interpreted.ai

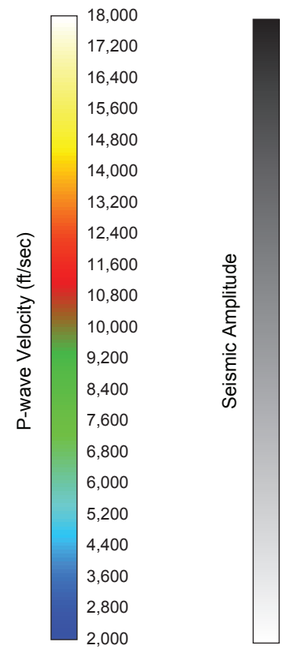


Line 1



Line 2

EXPLANATION



Note: Profile locations shown in Figure 4-18.

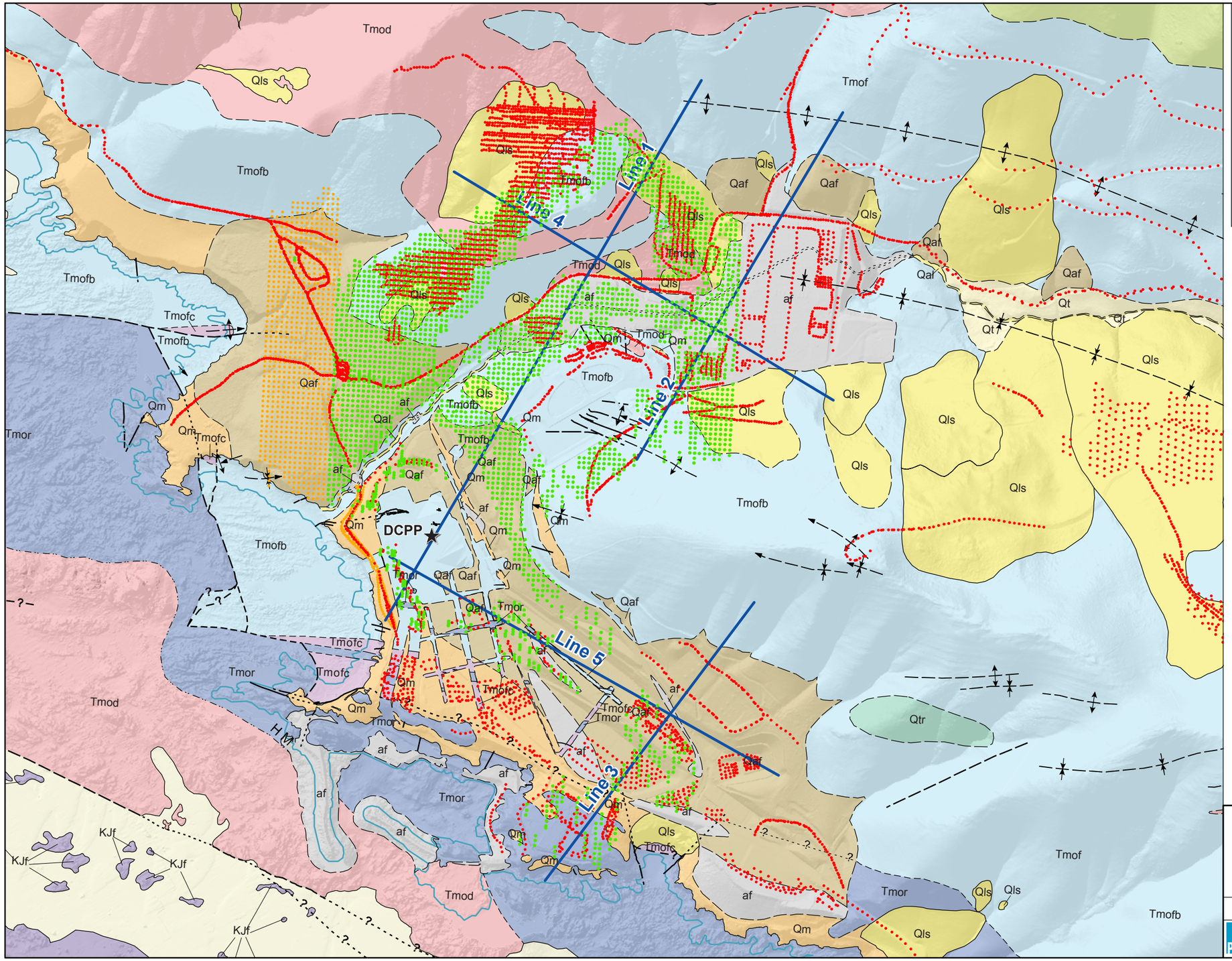
SigSeis 2D Reflection Profiles with Vp Tomography Overlay, Lines 1 and 2

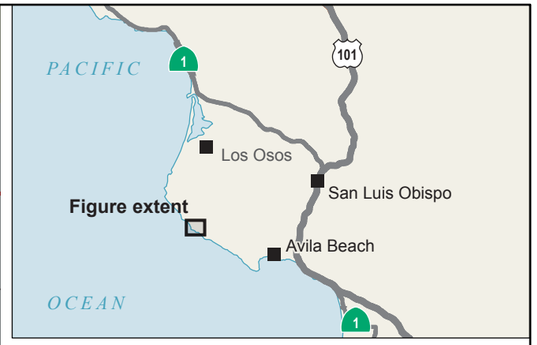
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-17**

D-147, D-148

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-147 2D Reflection 1 2.ai





EXPLANATION

- SigSeis line

2012 Phase 1 Acquisition Geometry

- Sigma receiver locations
- Seistronix receiver locations
- Vibe source locations
- Coastline

(See Figure 3-6 for explanation of geologic units and symbols)

Notes: Geology from PG&E (2014a, Plate 2), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 500 1,000 ft
0 200 400 m

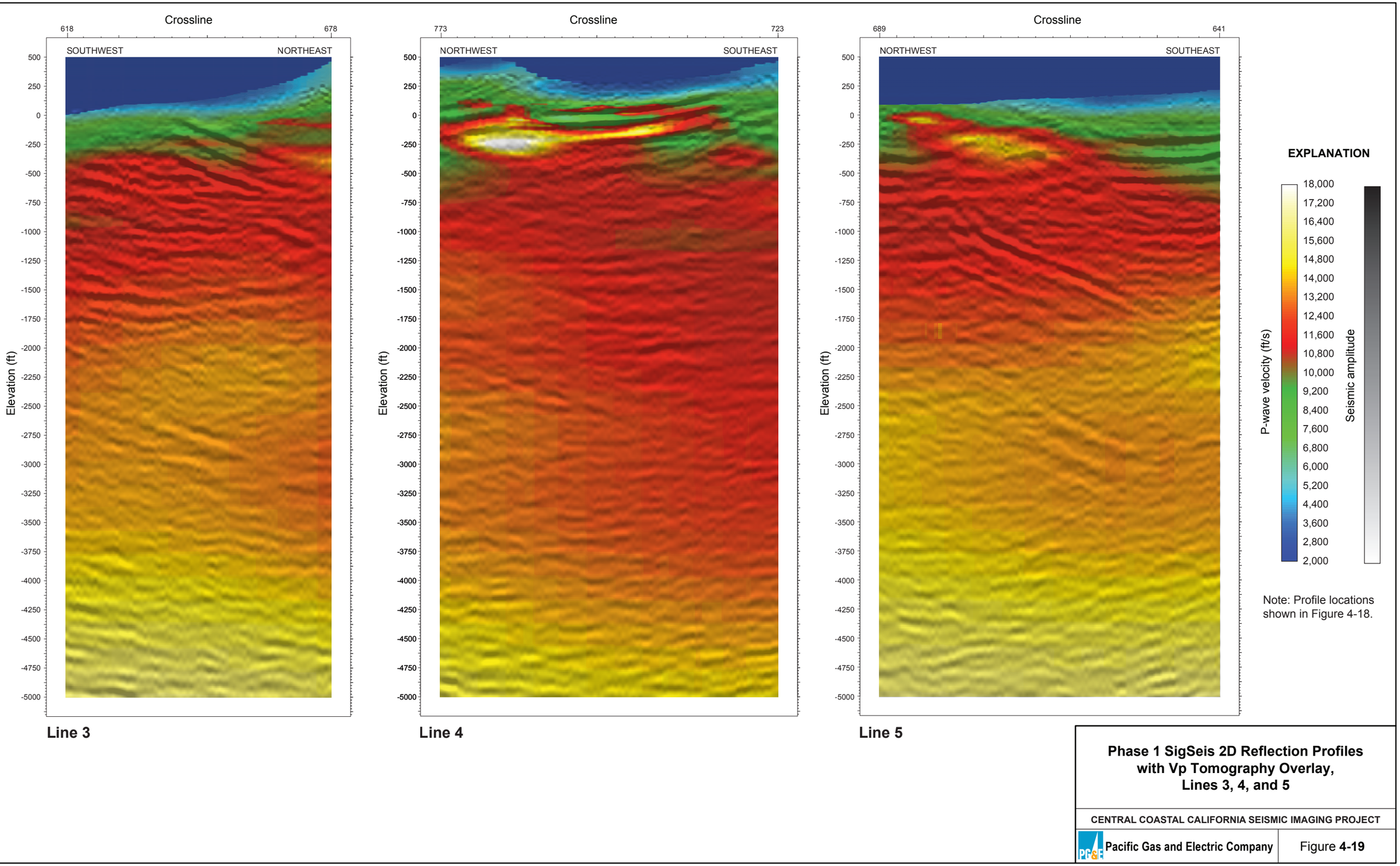
Map projection and scale: NAD 83 State Plane CA Zone V, 1:8,000

Location Map, Phase 1 Reflection and Tomography Profiles

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-18**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-152 SigSeis Arb Lines.ai



Phase 1 SigSeis 2D Reflection Profiles with Vp Tomography Overlay, Lines 3, 4, and 5

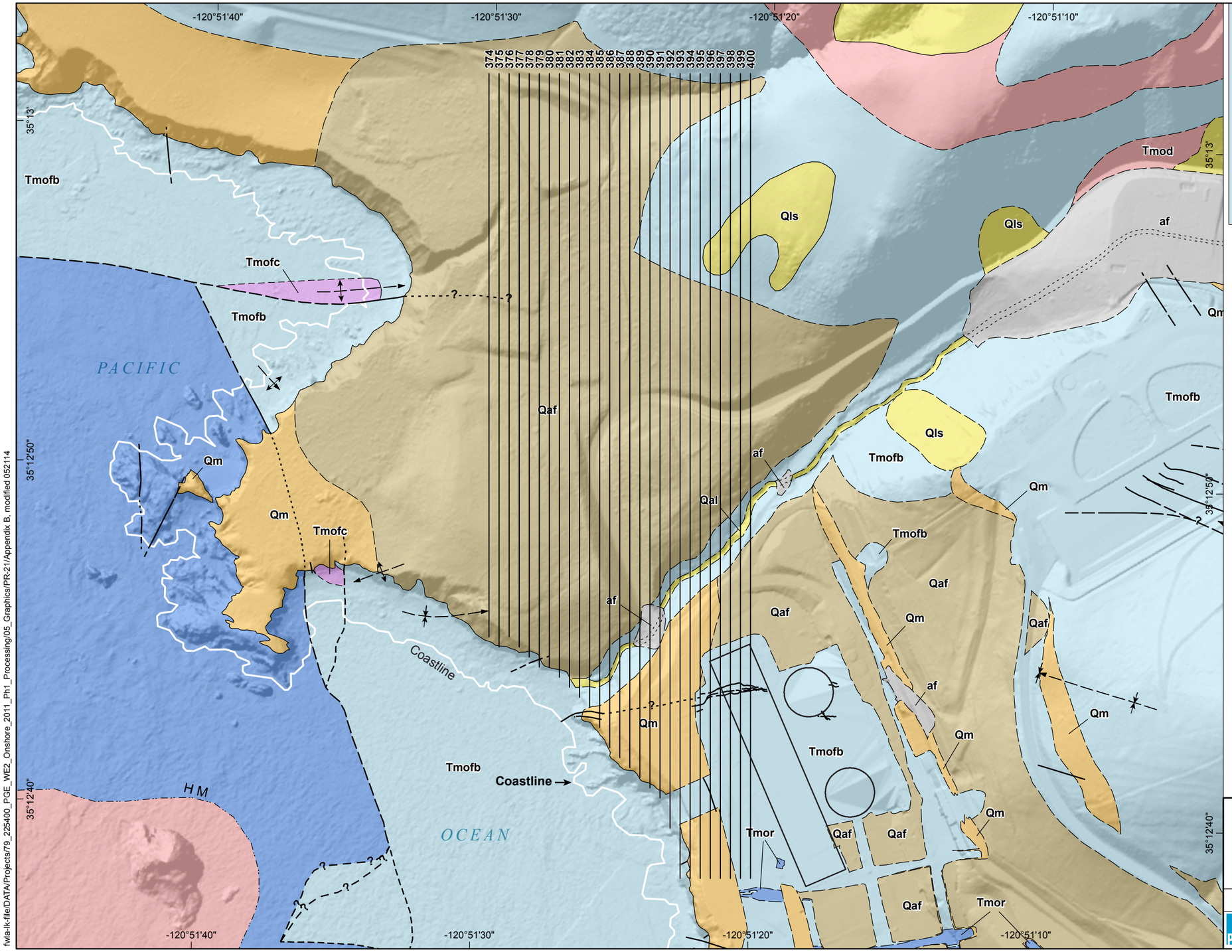
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-19**

D-149, D-150, D-151

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-147 2D Reflection 3 4 5.ai





EXPLANATION

374 — Phase 1 crossline

DCPP footprint

(See Figure 3-6 for explanation of geologic units and symbols)

Notes: Geology from PG&E (2014a, Plate 2), shaded relief from LiDAR and multibeam data (PG&E, 2010 and 2011).

N

0 300 600 ft

0 100 200 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:3,600

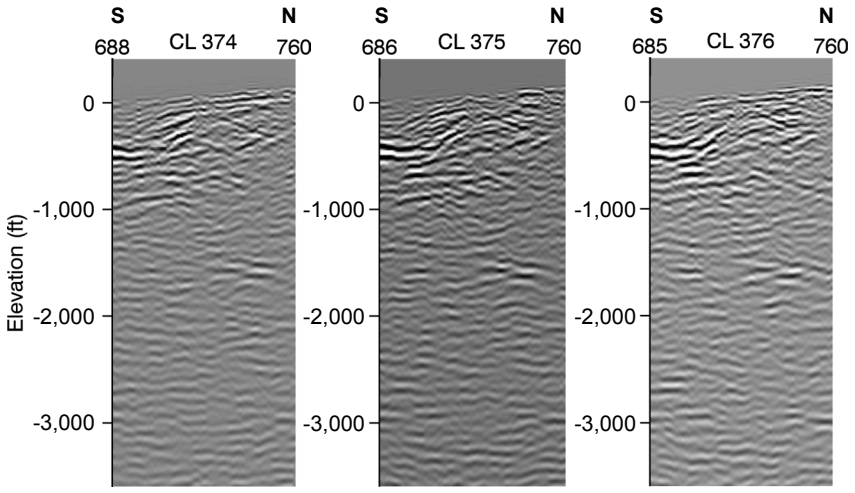
Location Map for DCPP Vicinity Seismic-Reflection and Tomography Profiles

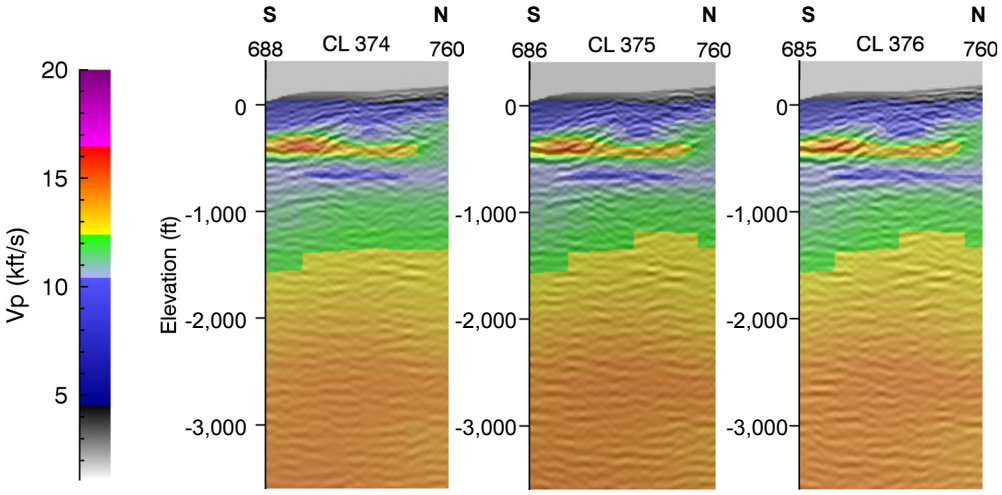
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

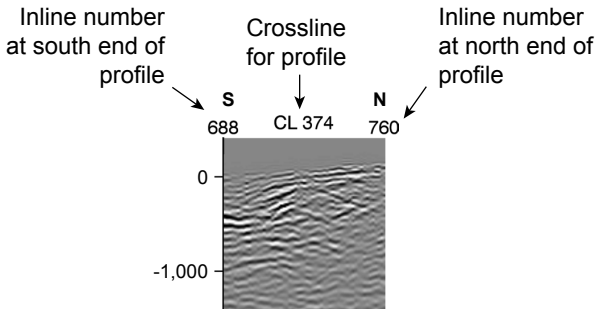
Figure **4-20**

fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/Appendix B, modified 052114





EXPLANATION



(See Figure 4-20 for location of profiles)

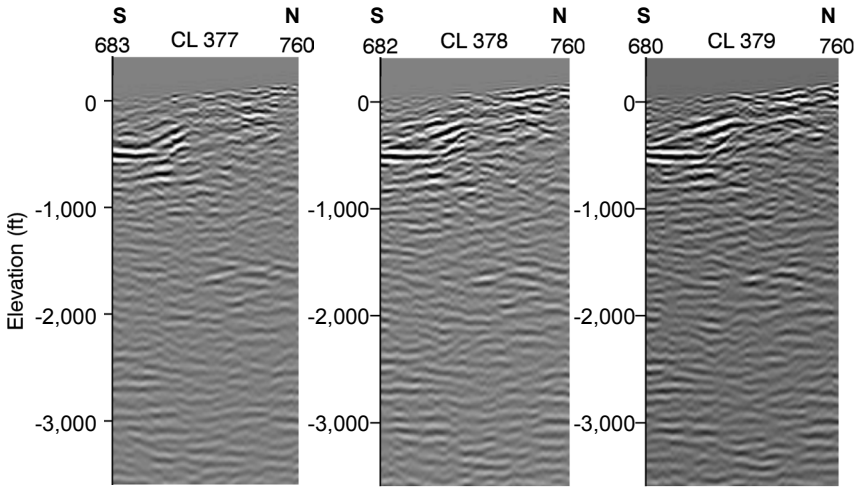
Phase 1 Reflection and Tomography Overlay Profiles 374, 375, and 376

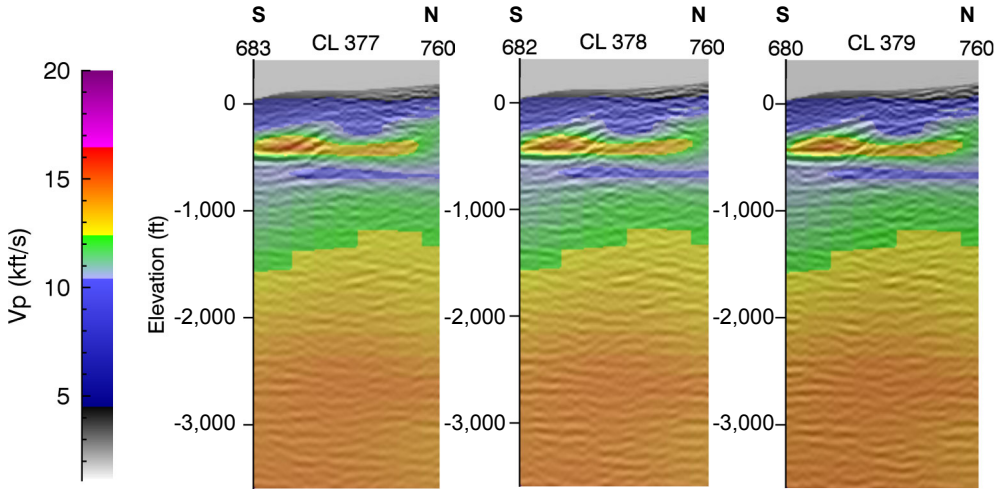
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

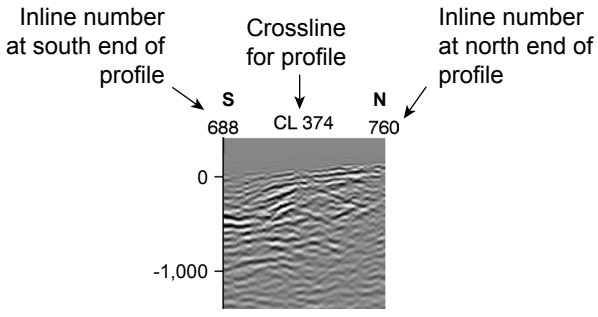
Figure **4-21**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514





EXPLANATION



(See Figure 4-20 for location of profiles)

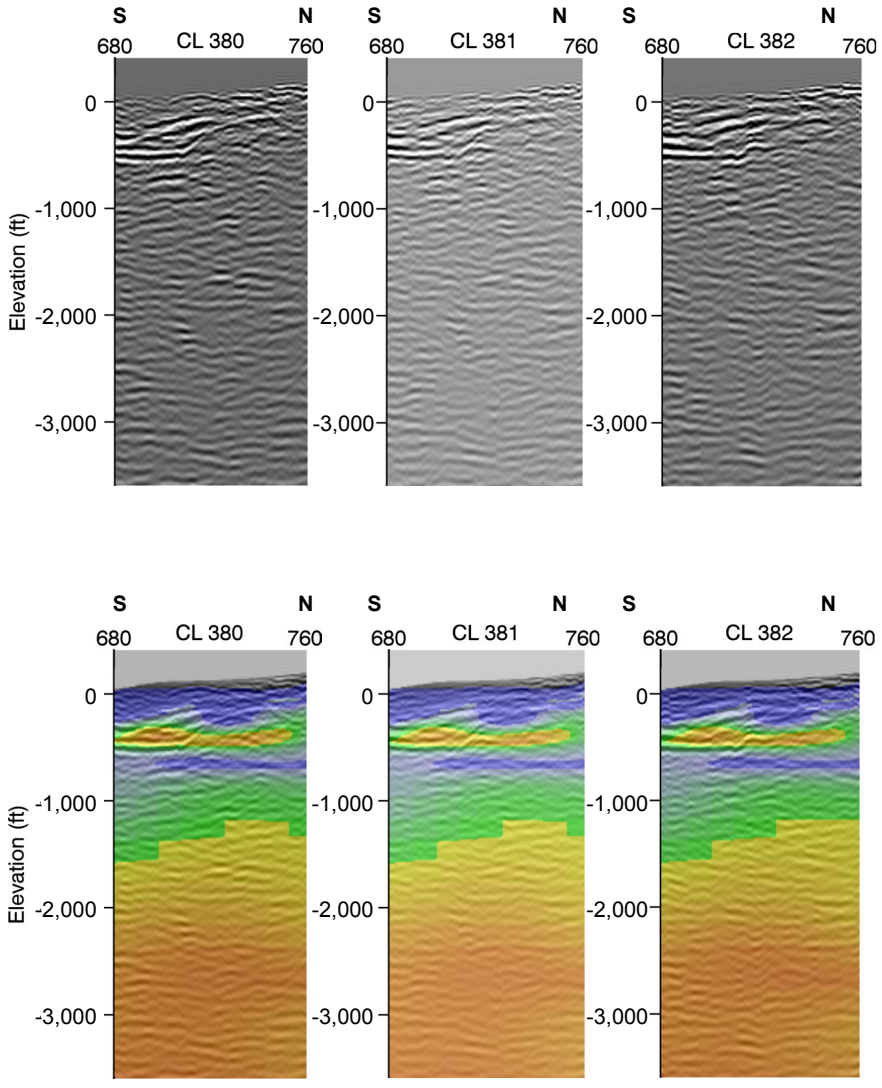
Phase 1 Reflection and Tomography Overlay Profiles 377, 378, and 379

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

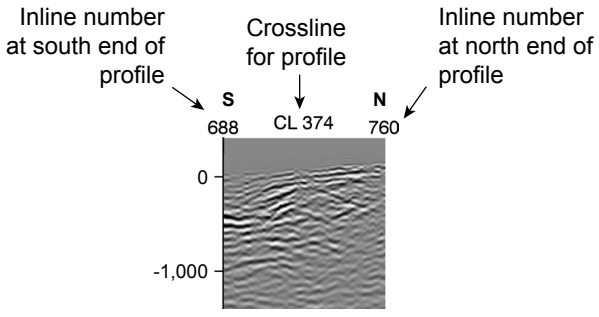
Pacific Gas and Electric Company

Figure **4-22**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

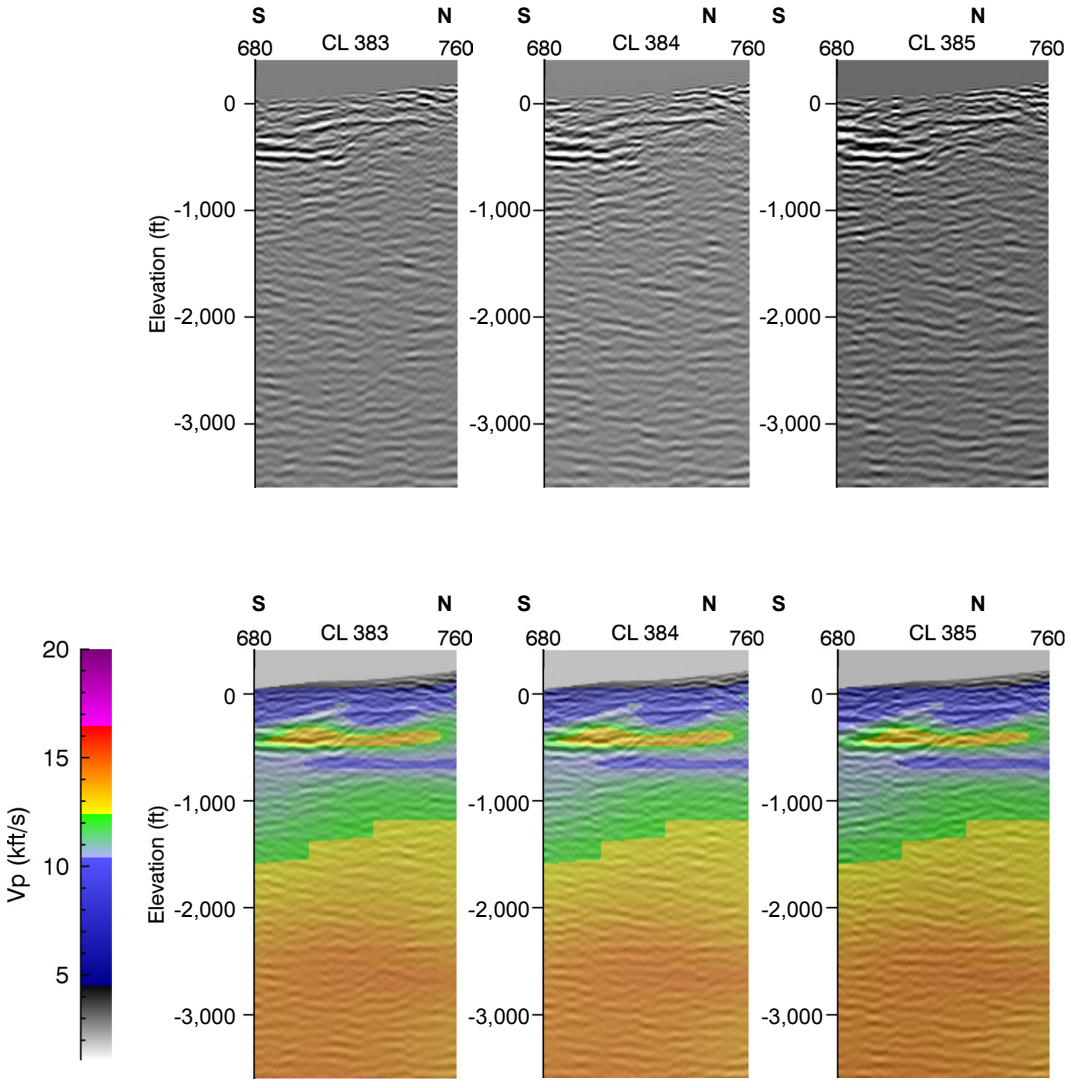
Phase 1 Reflection and Tomography Overlay Profiles 380, 381, and 382

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

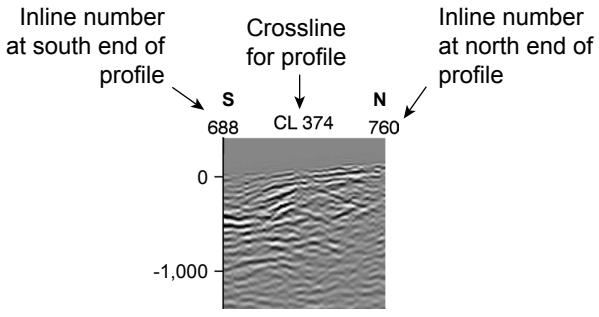
Pacific Gas and Electric Company

Figure **4-23**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

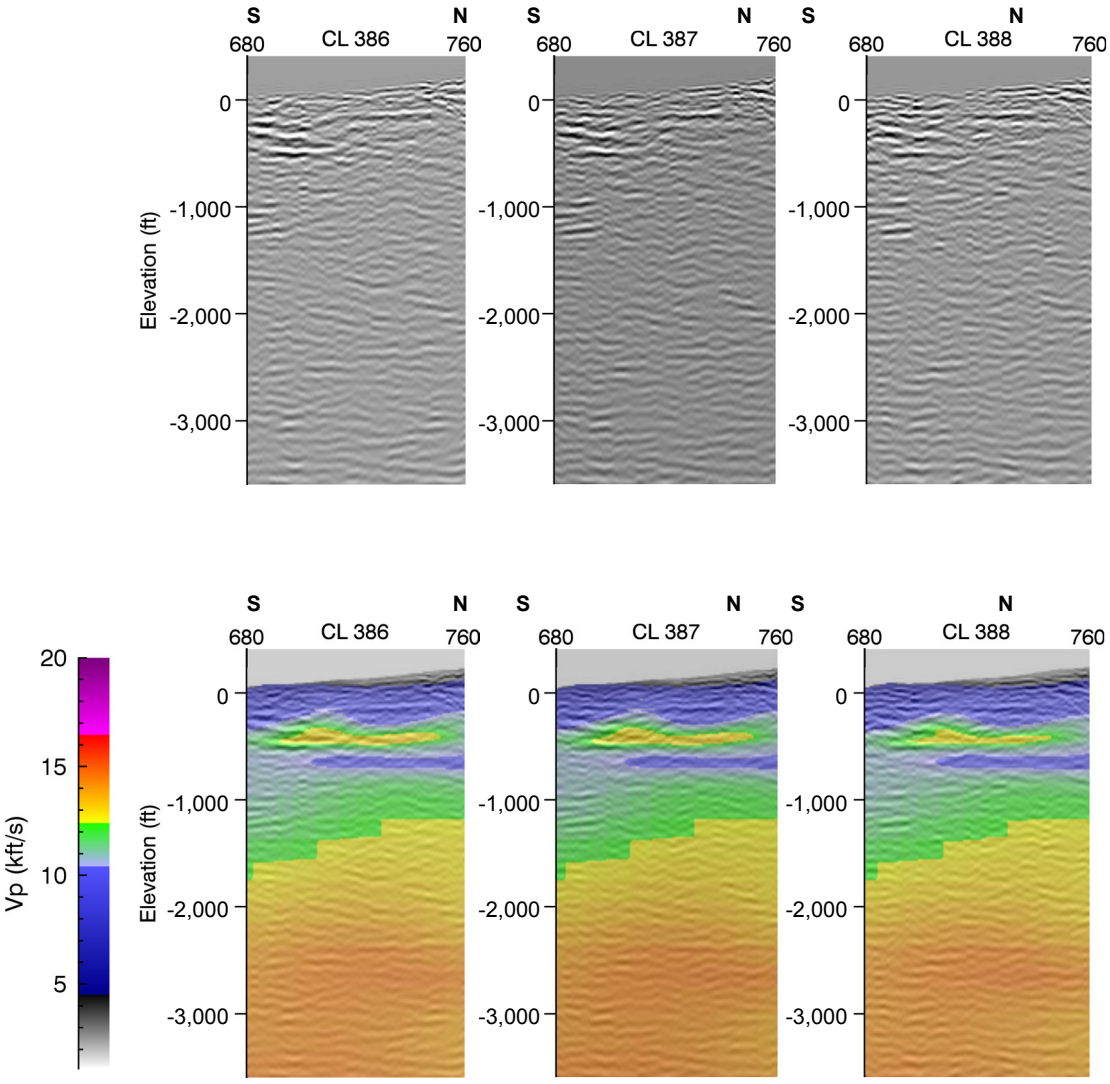
Phase 1 Reflection and Tomography Overlay Profiles 383, 384, and 385

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

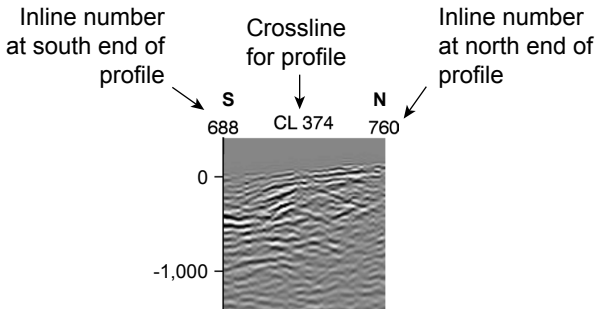
Pacific Gas and Electric Company

Figure **4-24**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

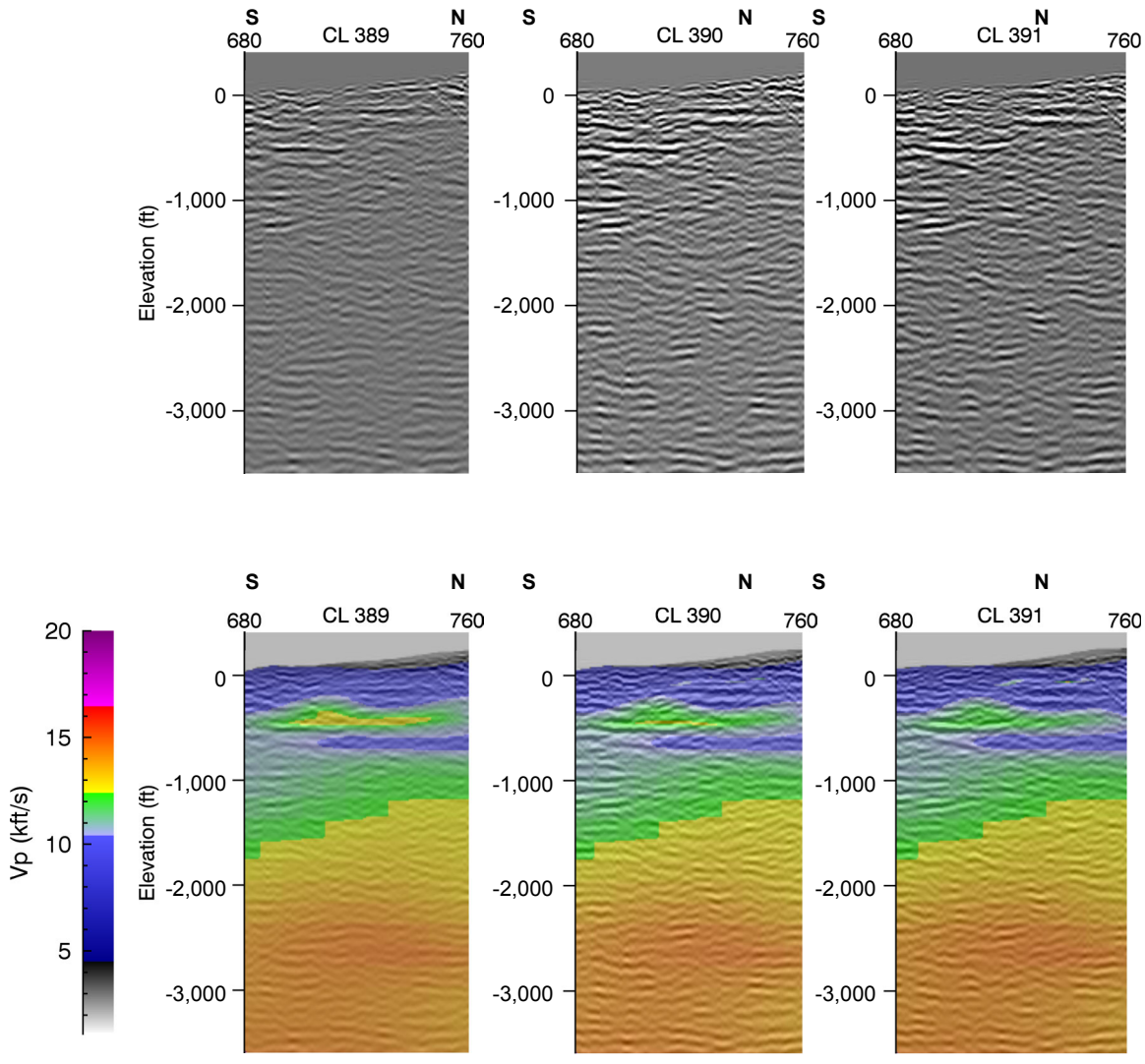
Phase 1 Reflection and Tomography Overlay Profiles 386, 387, and 388

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

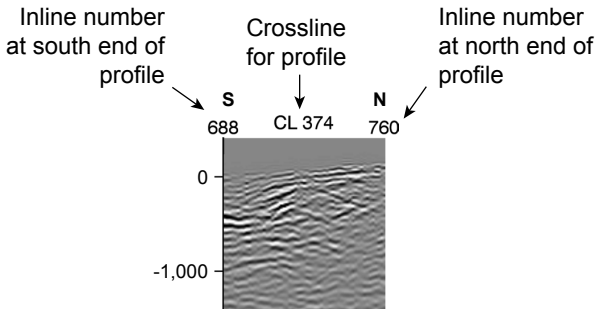
Pacific Gas and Electric Company

Figure **4-25**

fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

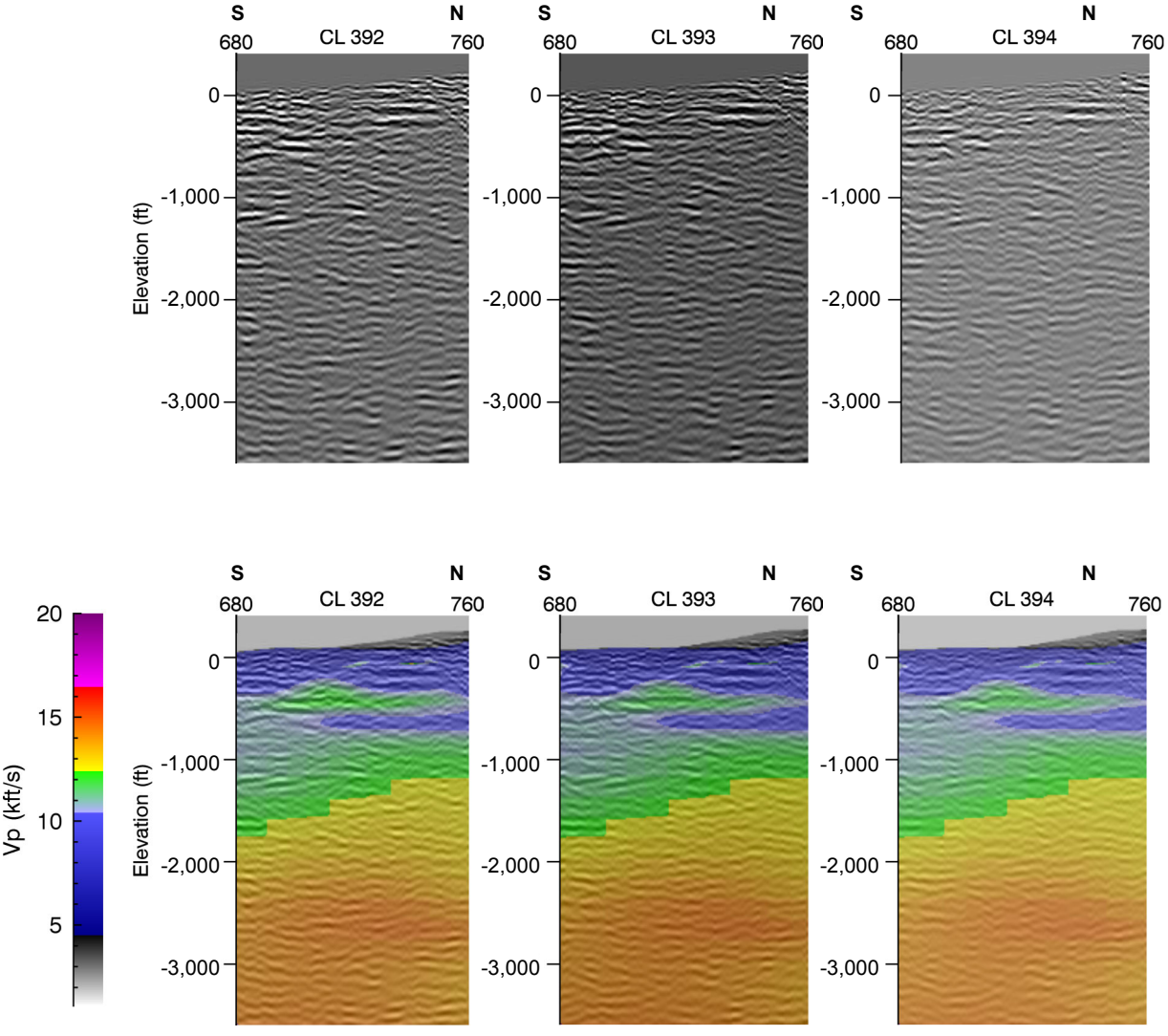
Phase 1 Reflection and Tomography Overlay Profiles 389, 390, and 391

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

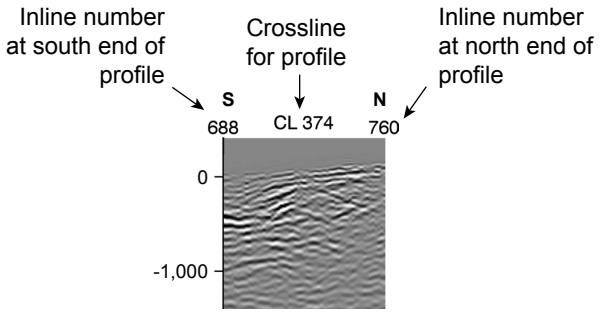
Pacific Gas and Electric Company

Figure **4-26**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

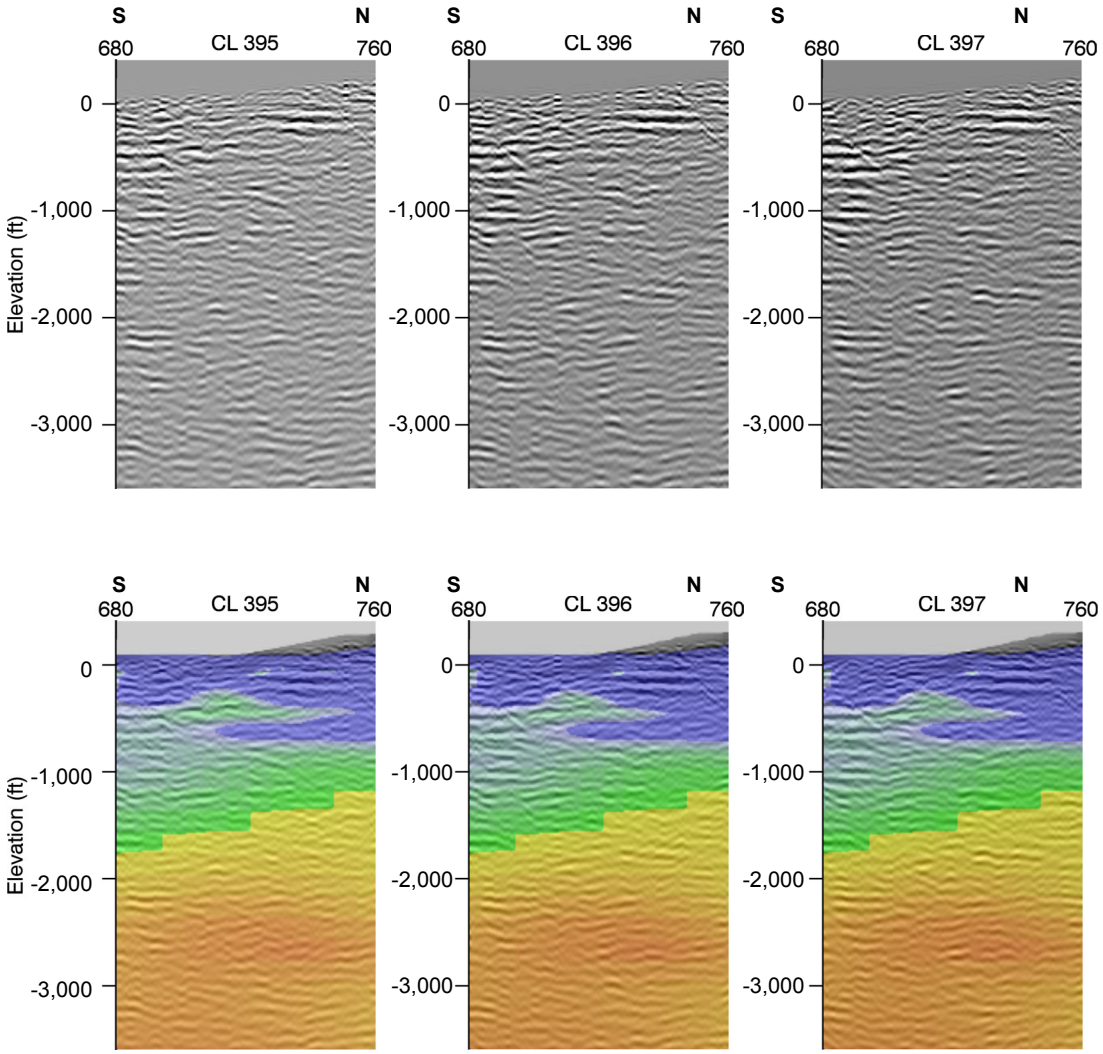
Phase 1 Reflection and Tomography Overlay Profiles 392, 393, and 394

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

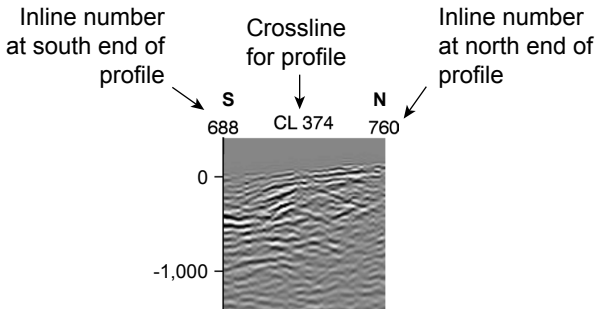
Pacific Gas and Electric Company

Figure **4-27**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

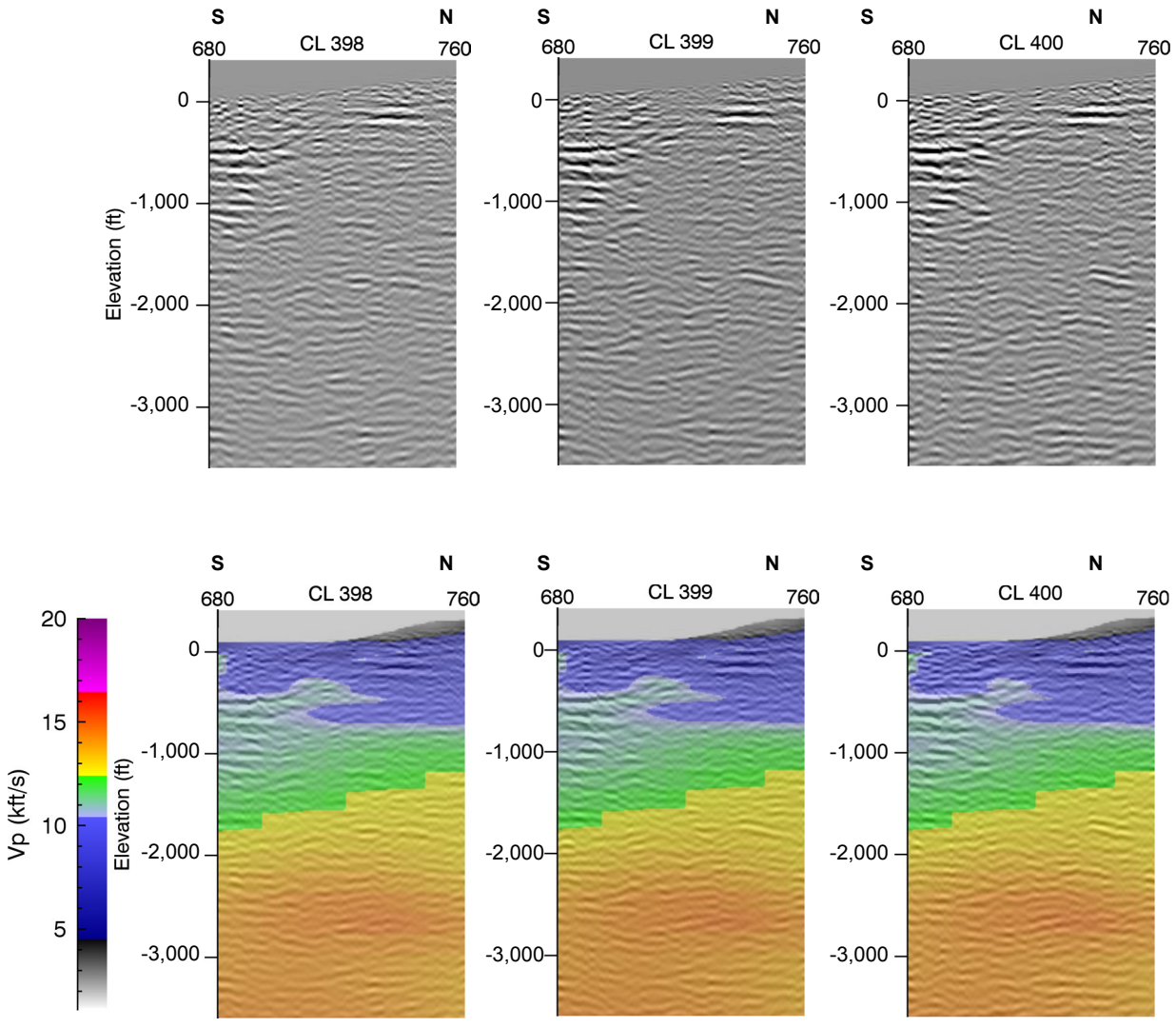
Phase 1 Reflection and Tomography Overlay Profiles 395, 396, and 397

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

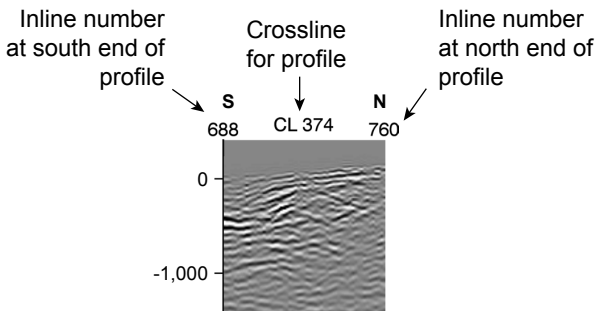
Pacific Gas and Electric Company

Figure **4-28**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514



EXPLANATION



(See Figure 4-20 for location of profiles)

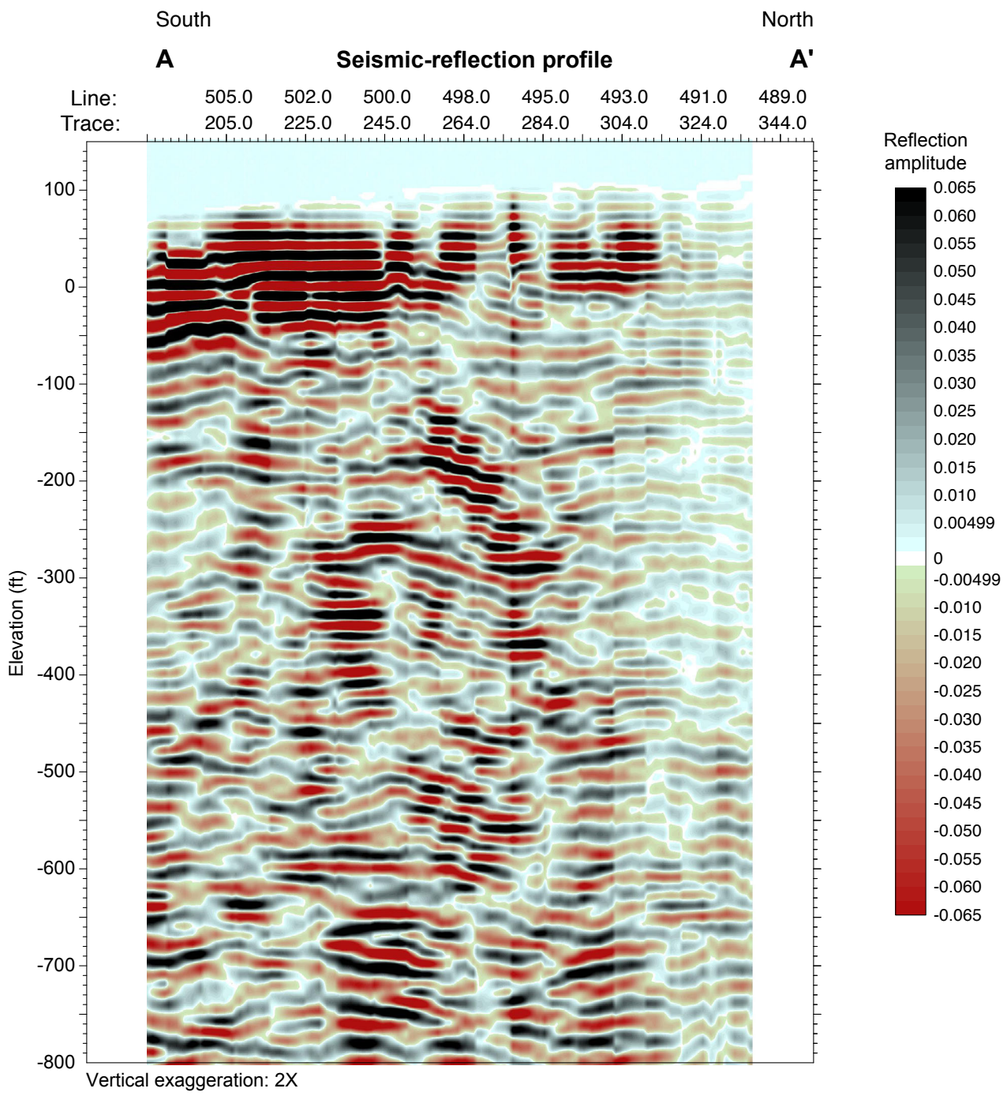
Phase 1 Reflection and Tomography Overlay Profiles 398, 399, and 400

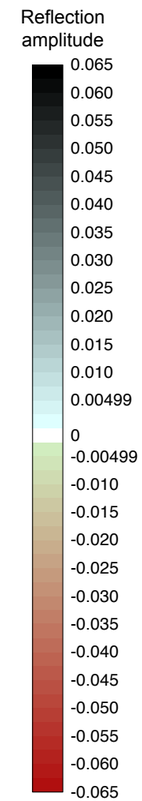
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

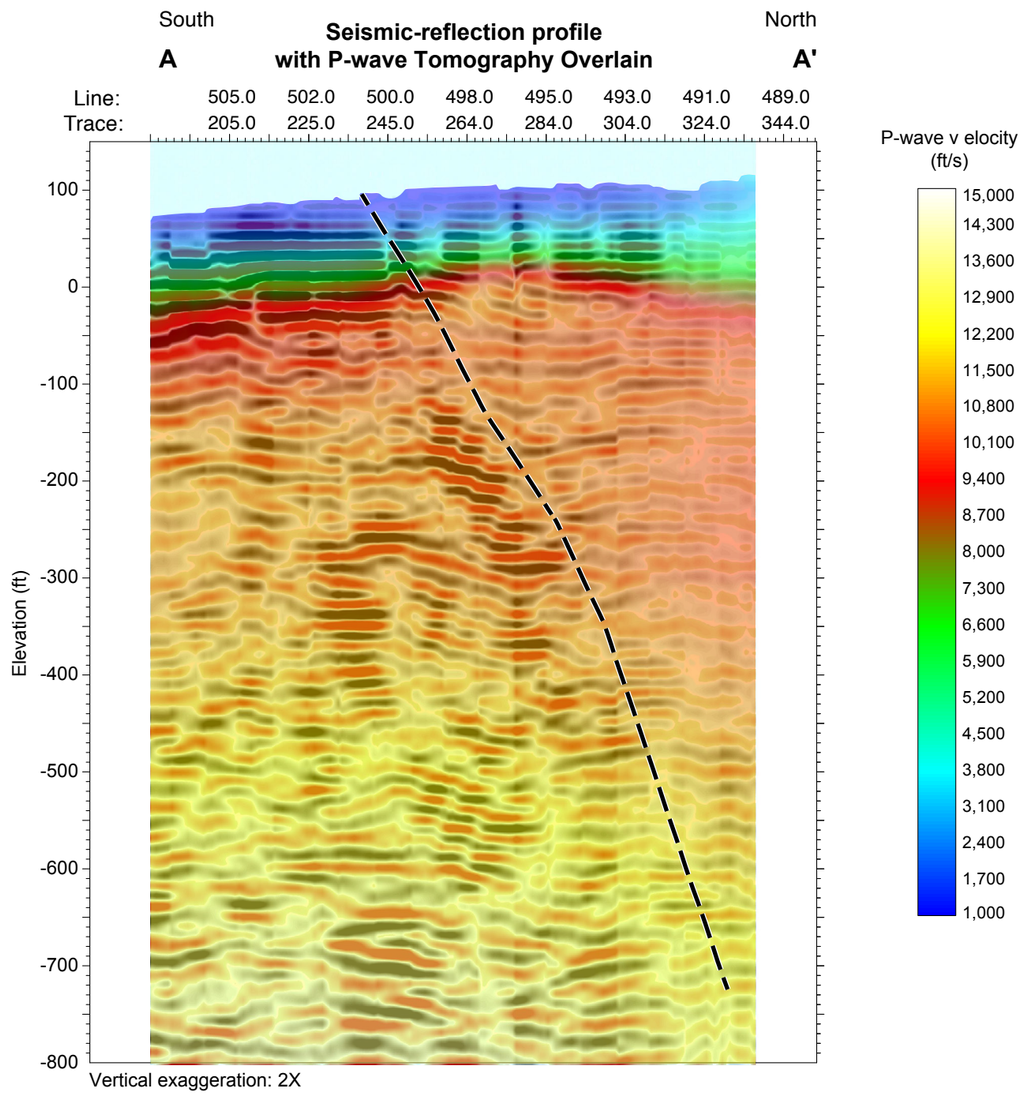
Pacific Gas and Electric Company

Figure **4-29**

fwla-ik-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 060514







EXPLANATION

Planar discontinuity, approximate

Note: Line = Inline value, trace = Crossline value.

(See Figure 4-32 for location of profile)

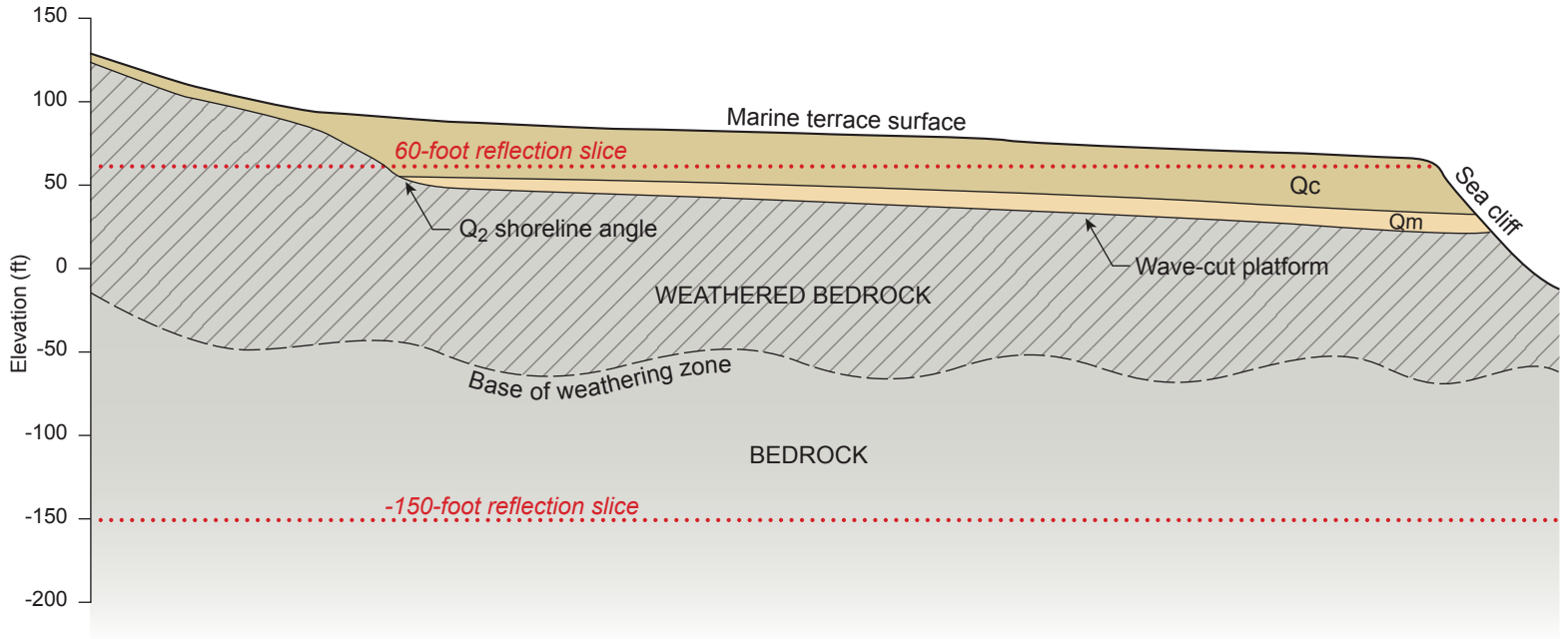
Phase 2 Reflection Amplitude with Vp Tomography Overlay, Profile A-A'

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-30**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.15.14

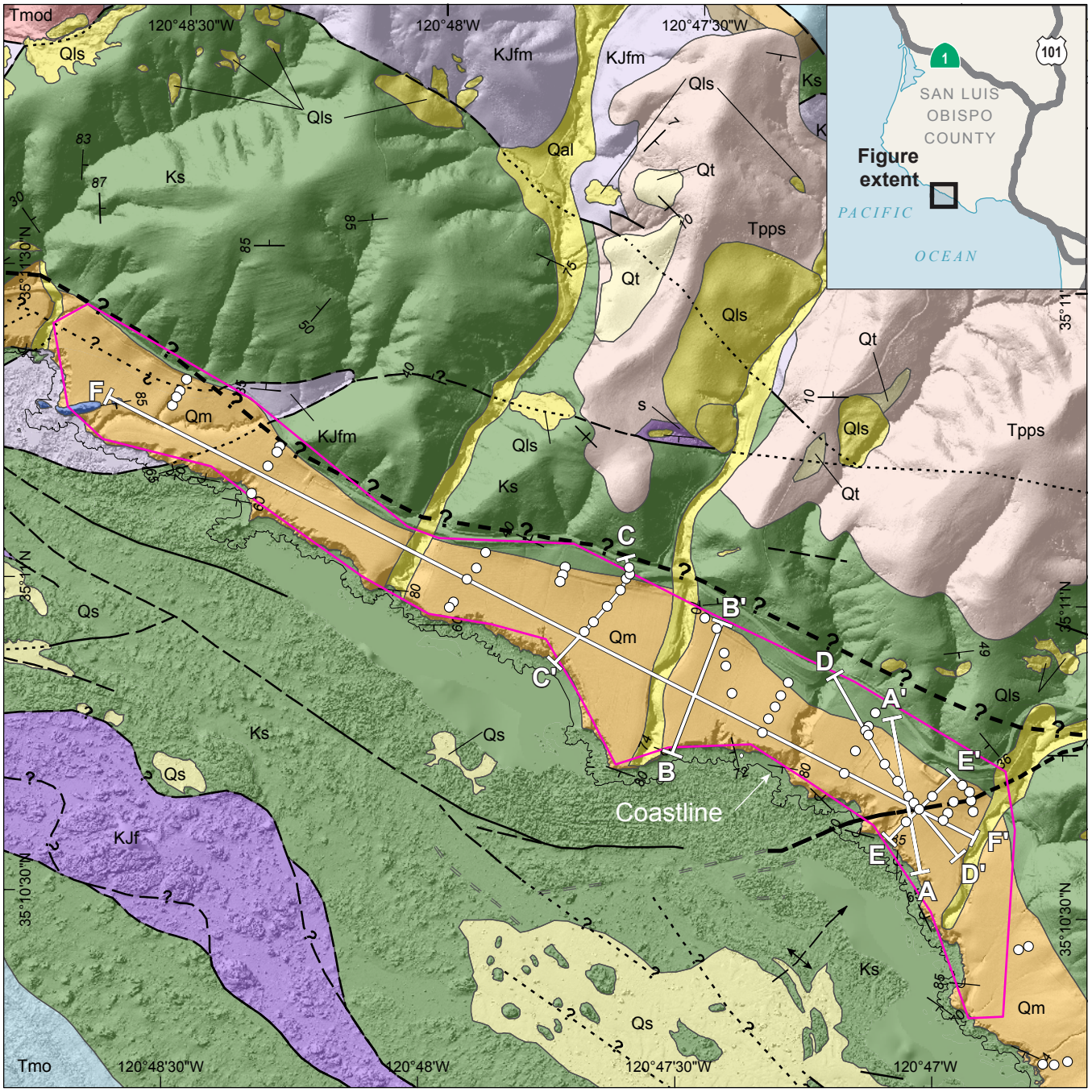


Schematic Cross Section of Marine Terrace Showing Depth of Reflection Slices

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-31**

K:\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\D-140 Cross Section.ai



EXPLANATION

- Location of reflection profile
- Location of boring (PG&E 1989, 1990)
- Phase 2 data extent boundary

N

0 1,000 2,000 ft.
0 500 1,000 m

Map projection and scale: NAD 83 State Plane CA Zone V, 1:18,000

Notes: Ellipsoid: GRS 1980
X (Min, Max): 5717955.00 5734530.00
Y (Min, Max): 2256685.00 2271545.00
Latitude (Min, Max): 35.160805 35.202883
Longitude (Min, Max): -120.823107 -120.769044

(See Figure 1-4 for explanation of geologic units)

Phase 2
Profile Location Map

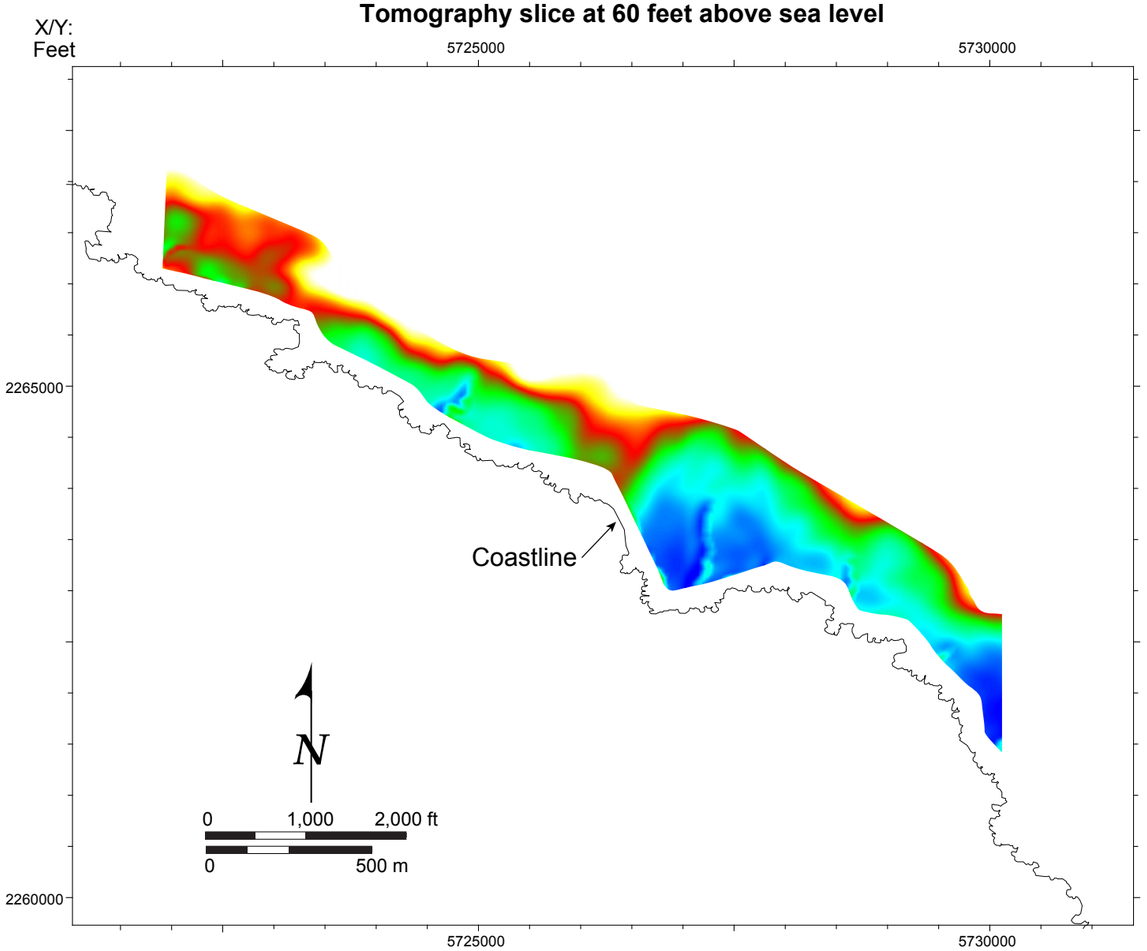
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

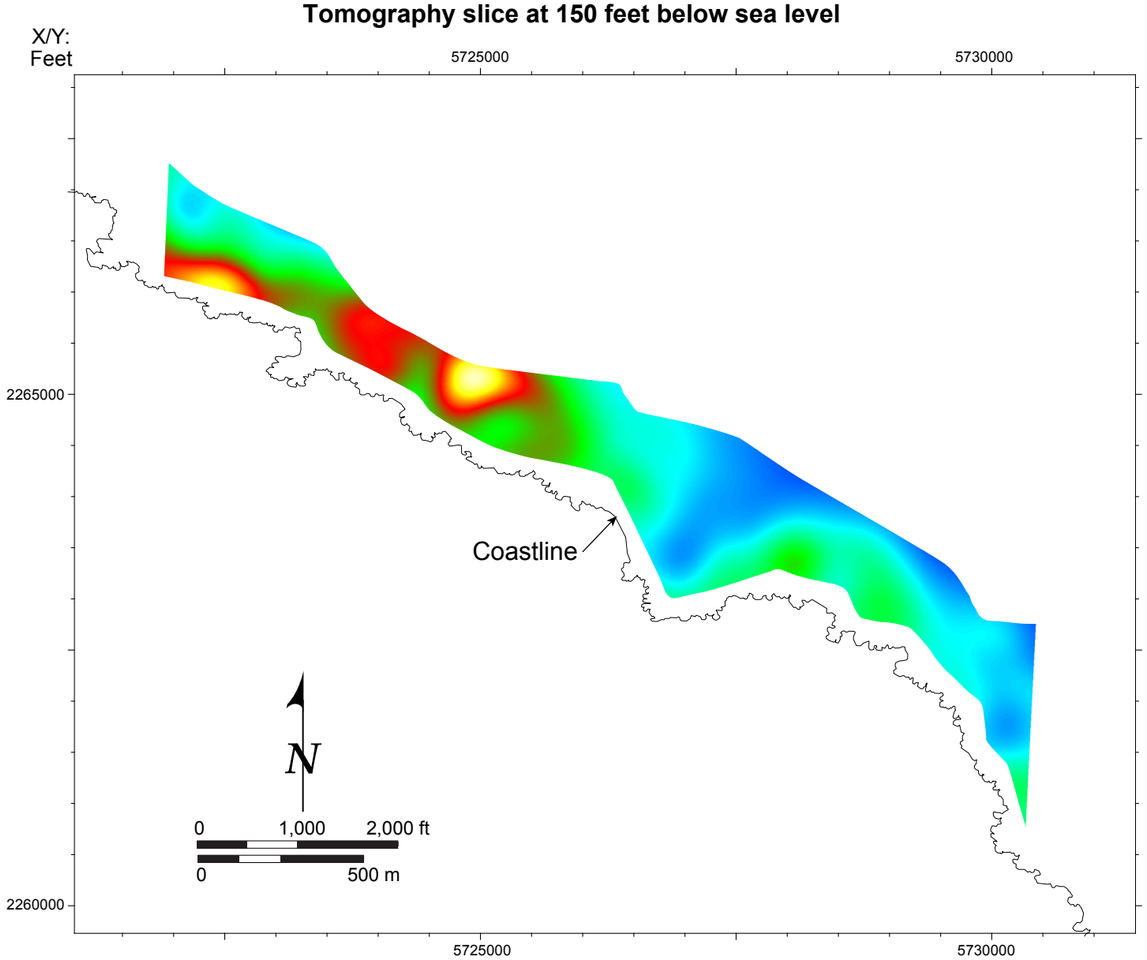
Figure **4-32**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14

Tomography slice at 60 feet above sea level

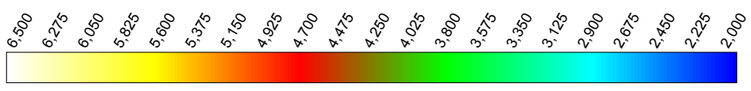


Tomography slice at 150 feet below sea level

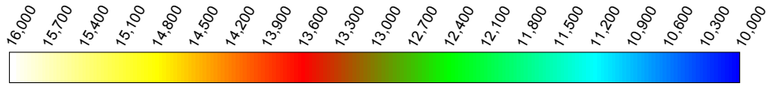


EXPLANATION

P-wave velocity (ft/s)



P-wave velocity (ft/s)



Please note the difference in the P-wave color scales between the left and right panels.

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184

(See Figure 4-32 for for location)

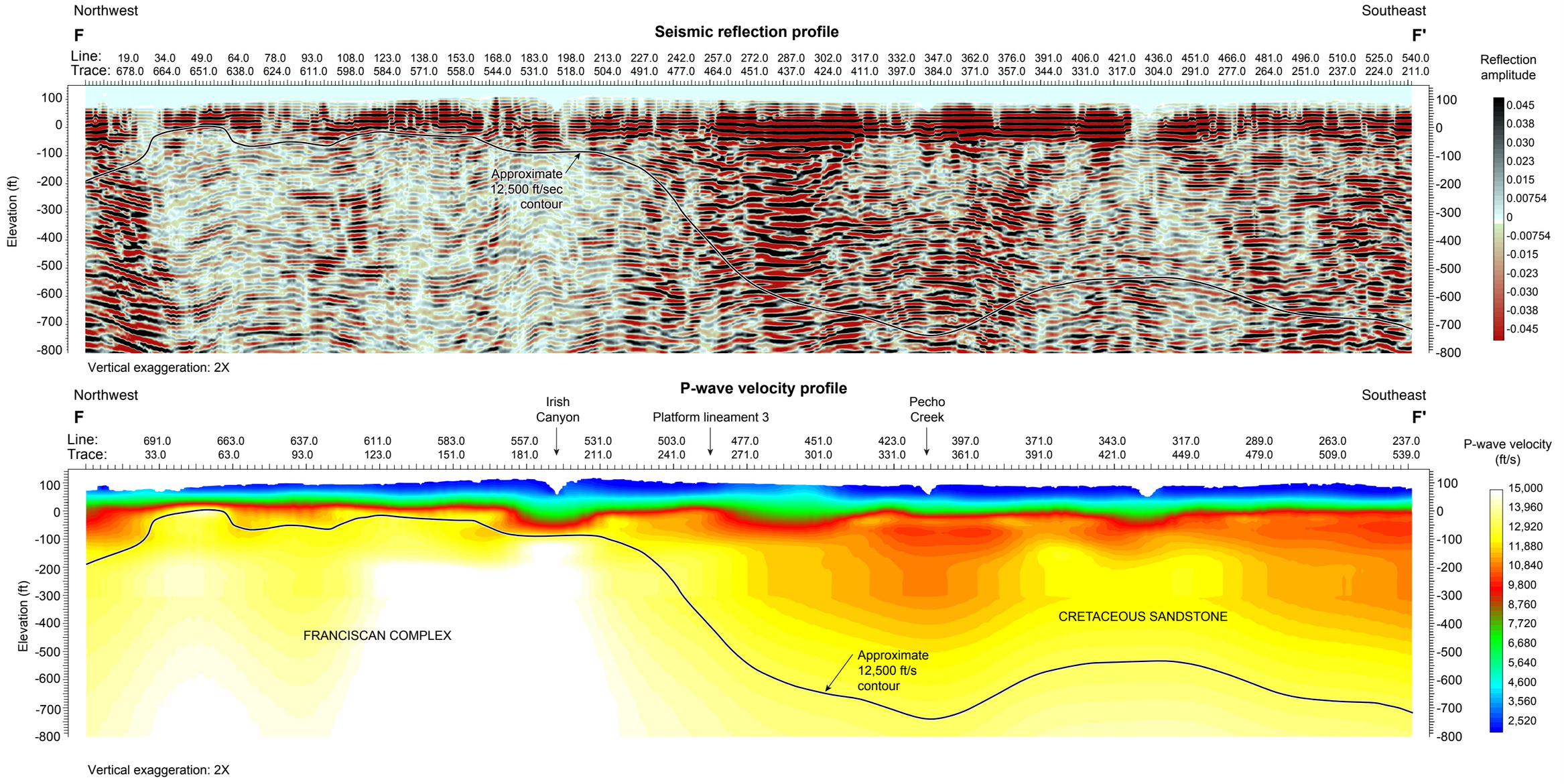
Phase 2 Tomography Slices at Elevations of 60 and -150 Feet

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-33**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.22.14



Note: The 12,500 ft/s isovelocity surface is thought to represent the top of Franciscan complex rocks, based on correlations between Vp and lithology where lithology is known.

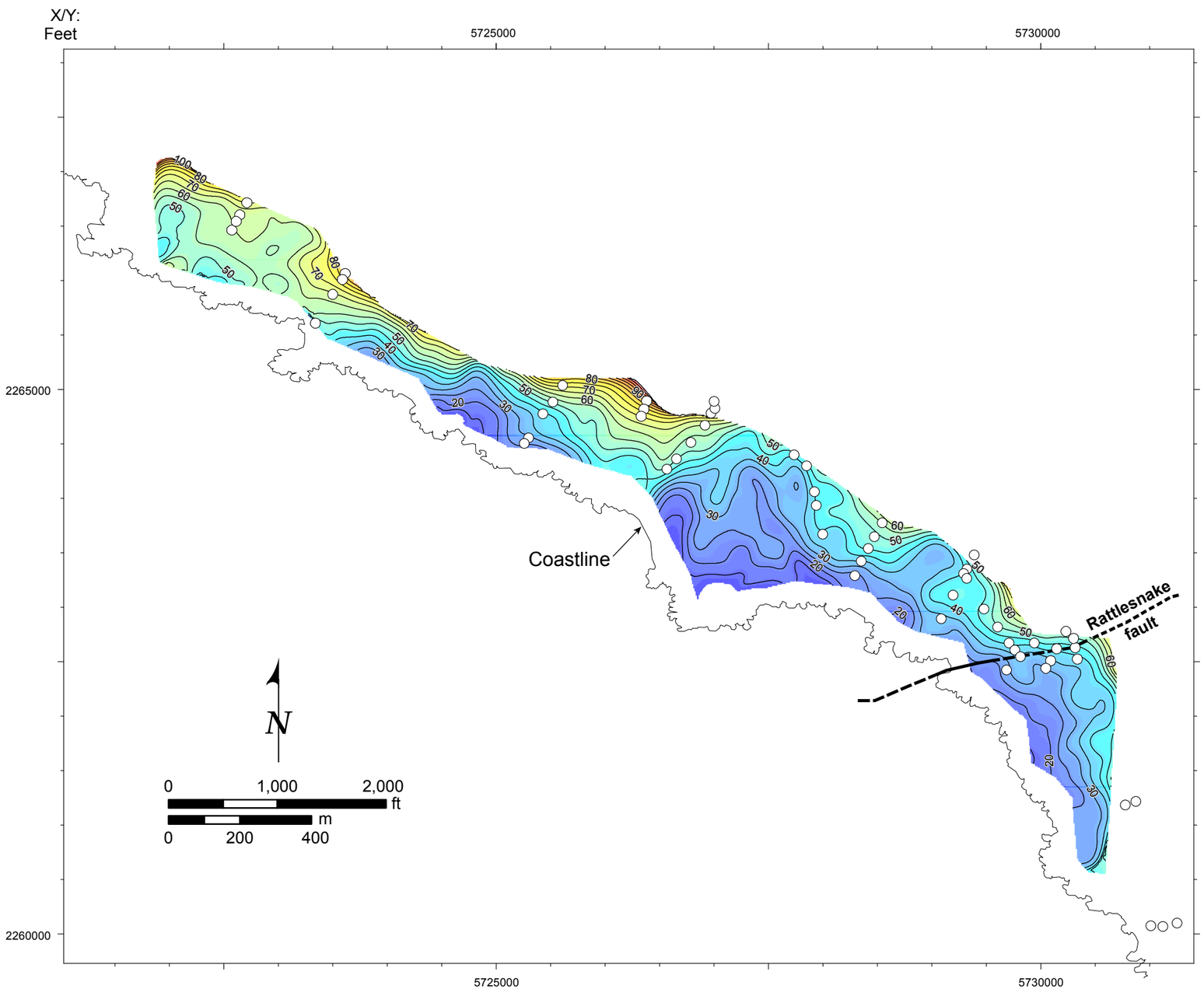
Phase 2 Seismic Reflection and Tomography, Profile F-F'

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-34**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14



EXPLANATION

Contours on the 4,900 ft/s isovelocity surface, 5-foot interval

Location of boring (PG&E 1989, 1990)

Elevation (ft)
High: 110
Low: 10

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184

(See Figure 4-32 for for location)

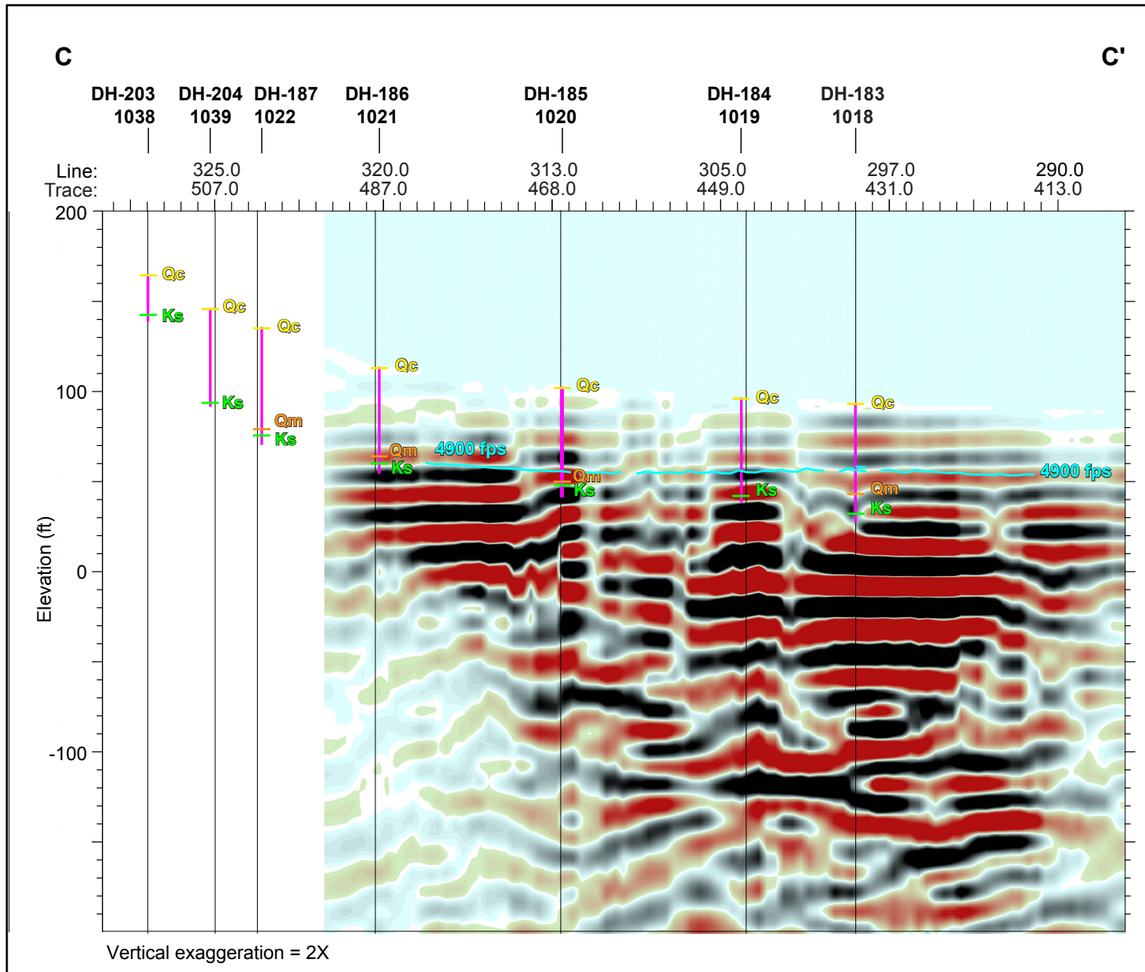
Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14

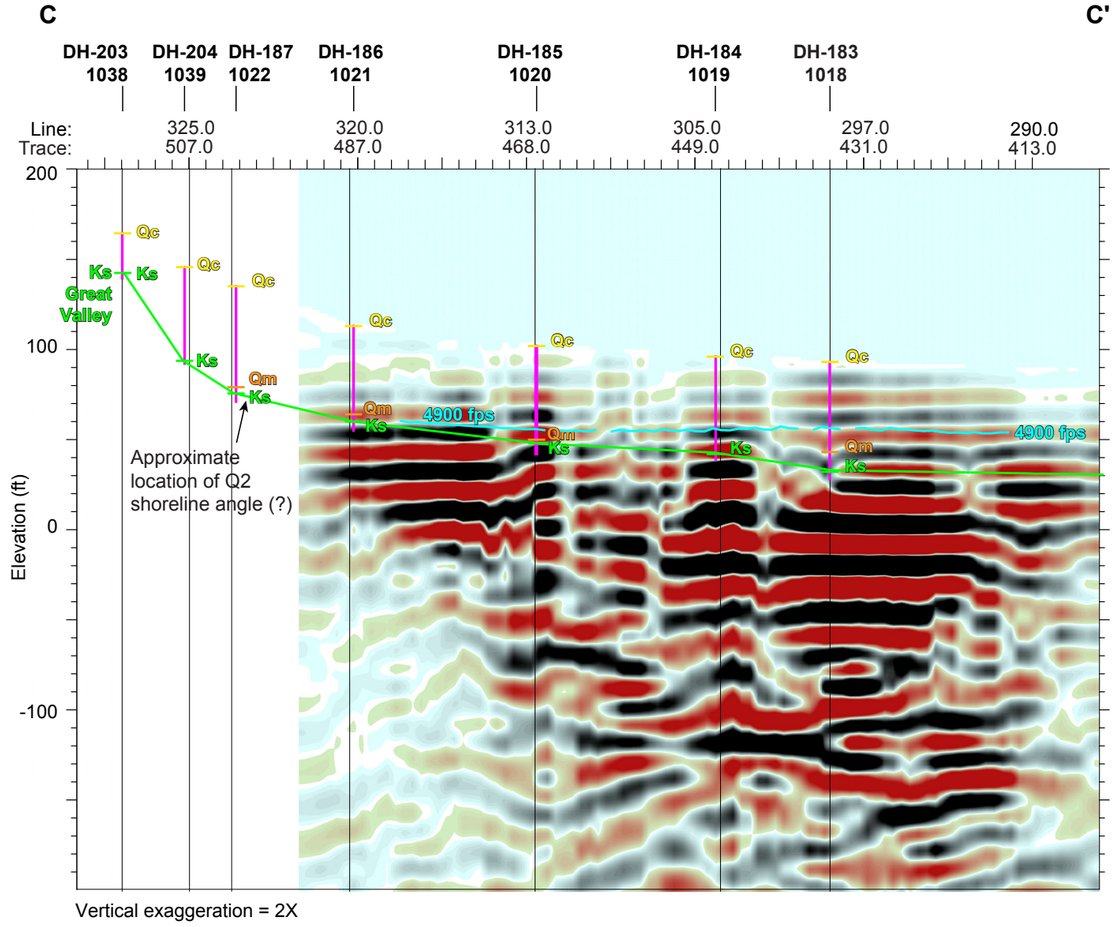
Phase 2
4,900 Ft/s Isovelocity Surface

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-35**

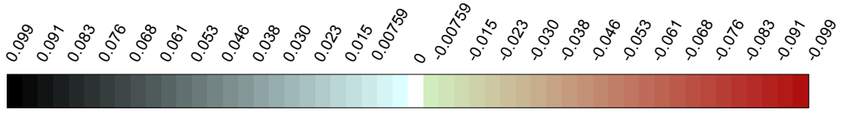




EXPLANATION

- 4,900 ft/s isovelocity horizon
- Linear interpolation between top of Ks called in boreholes
- DH-203 1038 — Location of boring
- Qc — Quaternary colluvium
- Qm — Quaternary marine terrace deposits
- Ks — Cretaceous sandstone (Great Valley sequence)

Reflection amplitude



Notes: Arbitrary Line C, Amplitudes Depth
Cross section through PG&E Q43i line 11.
Vertical gray bars in the data section indicate bends in profile.

(See Figure 4-32 for for location)

Phase 2 Boring Profile C-C'
Top of Ks and 4,900 Ft/s Isovelocity Horizon

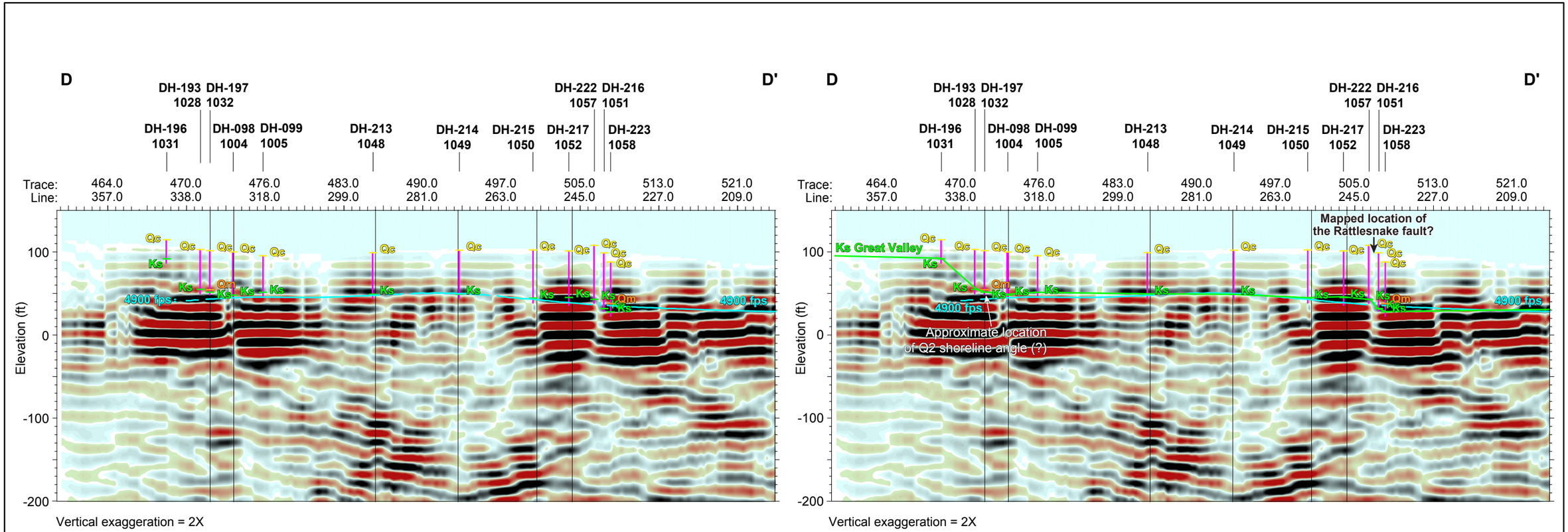
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-36**

D-96 D-97

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21, modified 05.21.14



EXPLANATION

- 4,900 ft/s isovelocity horizon
- Linear interpolation between top of Ks called in boreholes
- DH-196 1031 — Location of boring
- Qc — Quaternary colluvium
- Qm — Quaternary marine terrace deposits
- Ks — Cretaceous sandstone (Great Valley sequence)

Reflection amplitude

0.099 0.091 0.083 0.076 0.068 0.061 0.053 0.046 0.038 0.030 0.023 0.015 0.00759 0 -0.00759 -0.015 -0.023 -0.030 -0.038 -0.046 -0.053 -0.061 -0.068 -0.076 -0.083 -0.091 -0.099

Notes: Arbitrary Line C, Amplitudes Depth
Cross section through PG&E Q43i line 15 – extended through lines 14 and 17.
Vertical gray bars in the data section indicate bends in profile.

(See Figure 4-32 for for location)

Phase 2 Boring Profile D-D'
Top of Ks and 4,900 Ft/s Isovelocity Horizon

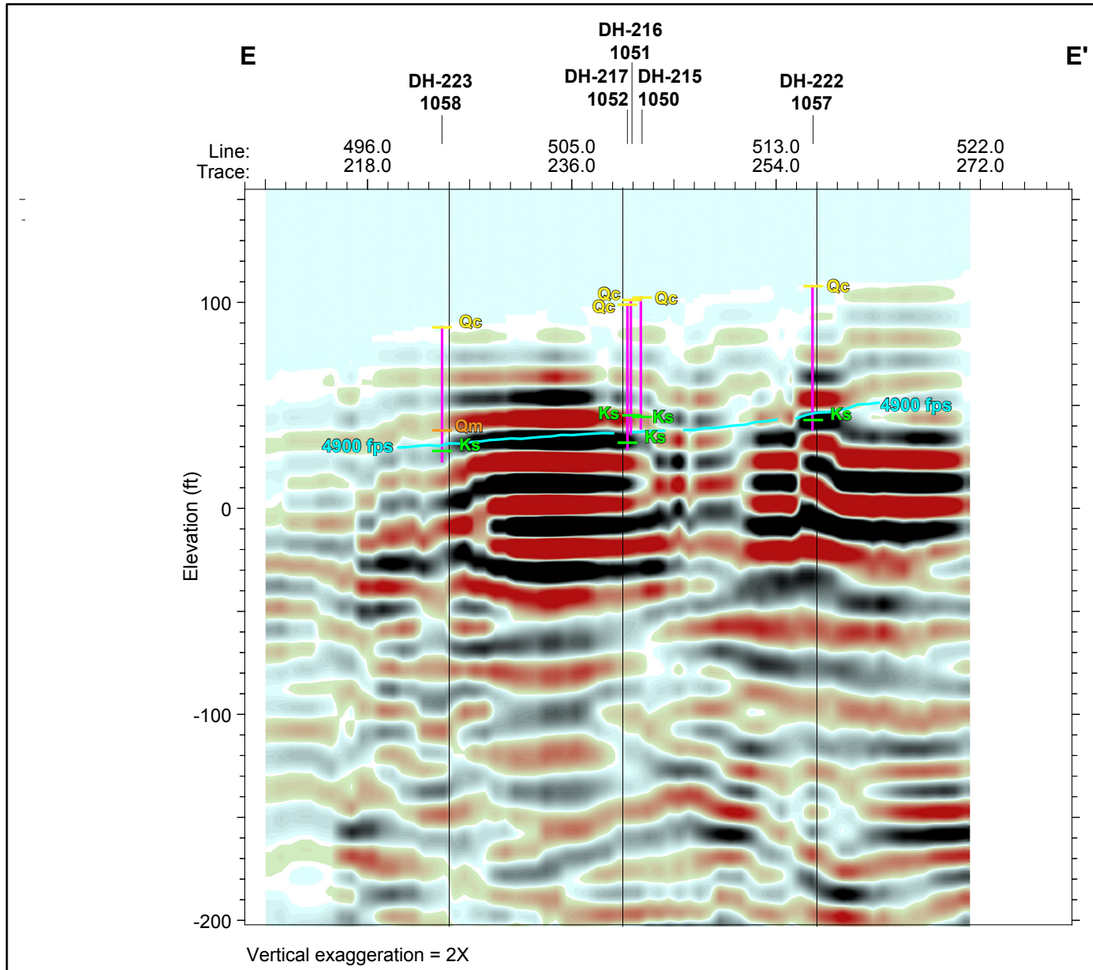
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

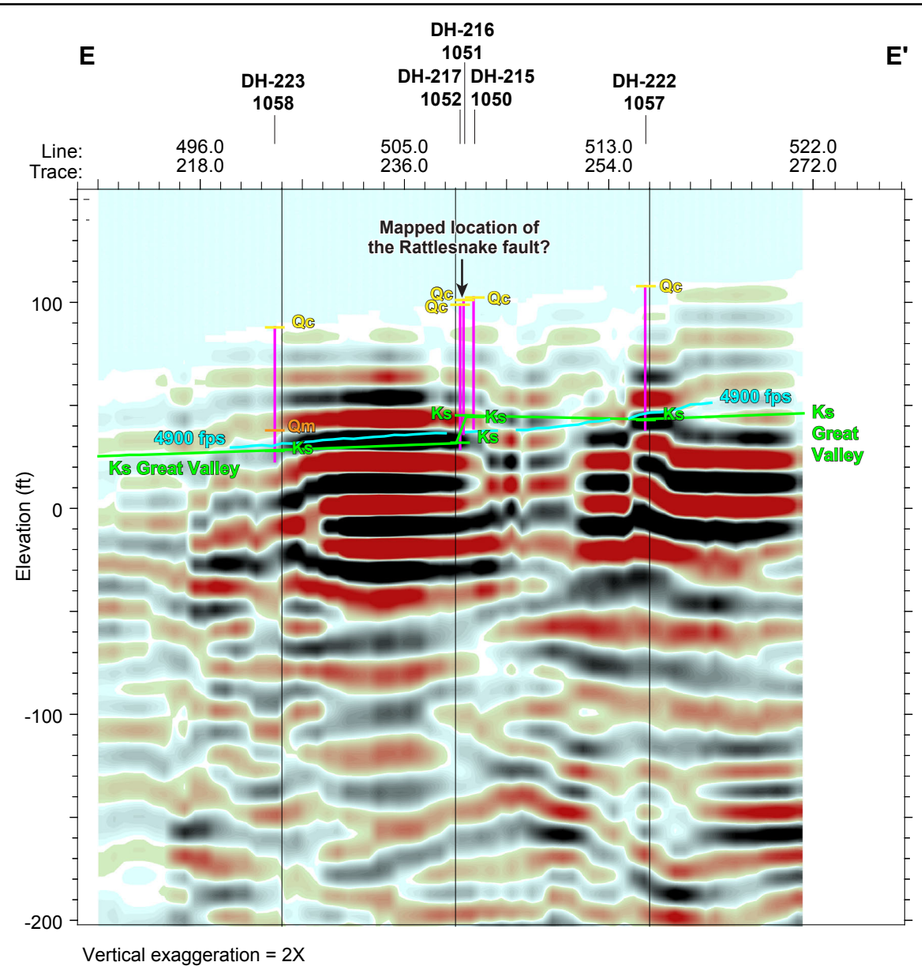
Pacific Gas and Electric Company

Figure **4-37**

D-100 D101

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14

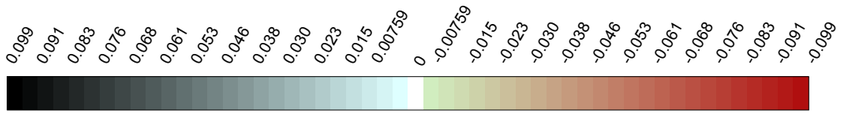




EXPLANATION

- 4,900 ft/s isovelocity horizon
- Linear interpolation between top of Ks called in boreholes
- DH-196 1031 — Location of boring
- Qc — Quaternary colluvium
- Qm — Quaternary marine terrace deposits
- Ks — Cretaceous sandstone (Great Valley sequence)

Reflection amplitude



Notes: Arbitrary Line B, Amplitudes Depth
Cross section through PG&E Q43i line 16.
Vertical gray bars in the data section indicate bends in profile.

(See Figure 4-32 for for location)

Phase 2 Boring Profile E-E'
Top of Ks and 4,900 Ft/s Isovelocity Horizon

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

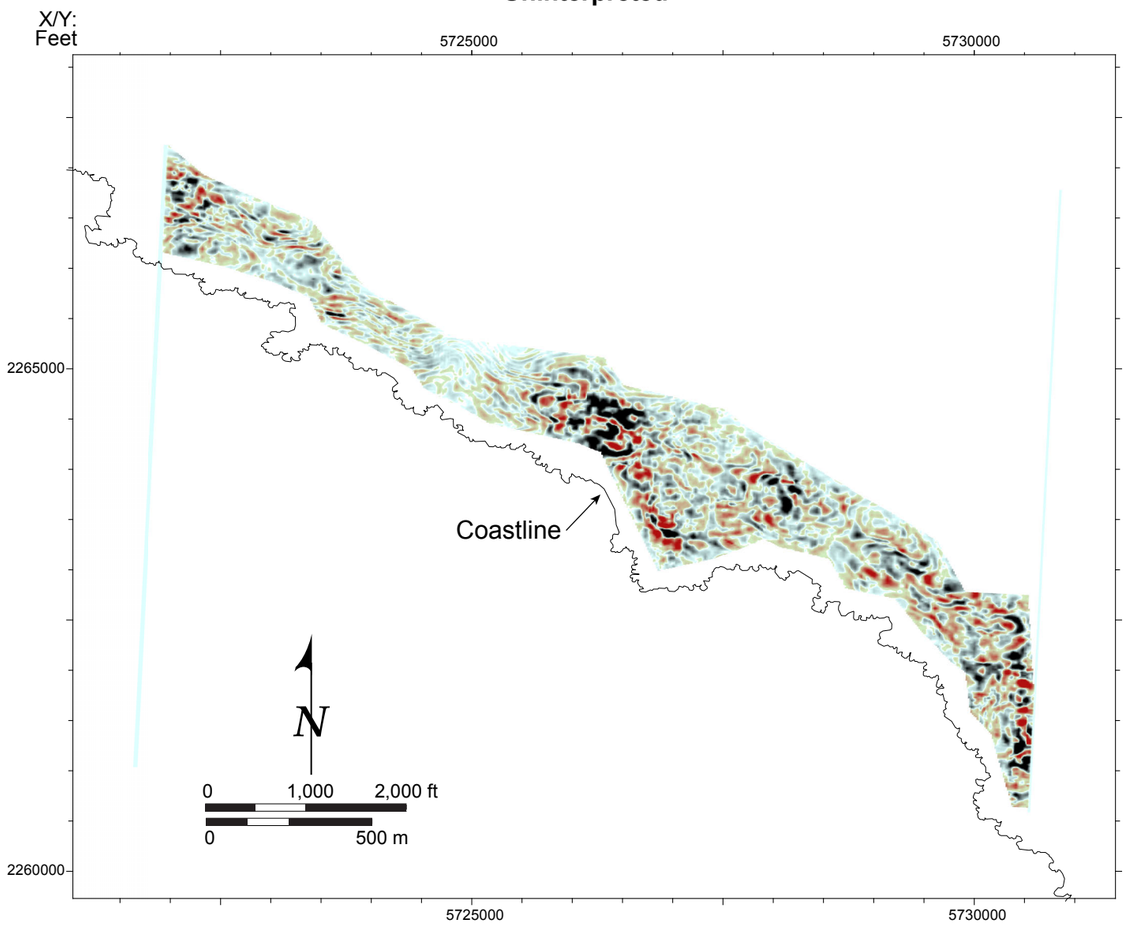
Pacific Gas and Electric Company

Figure **4-38**

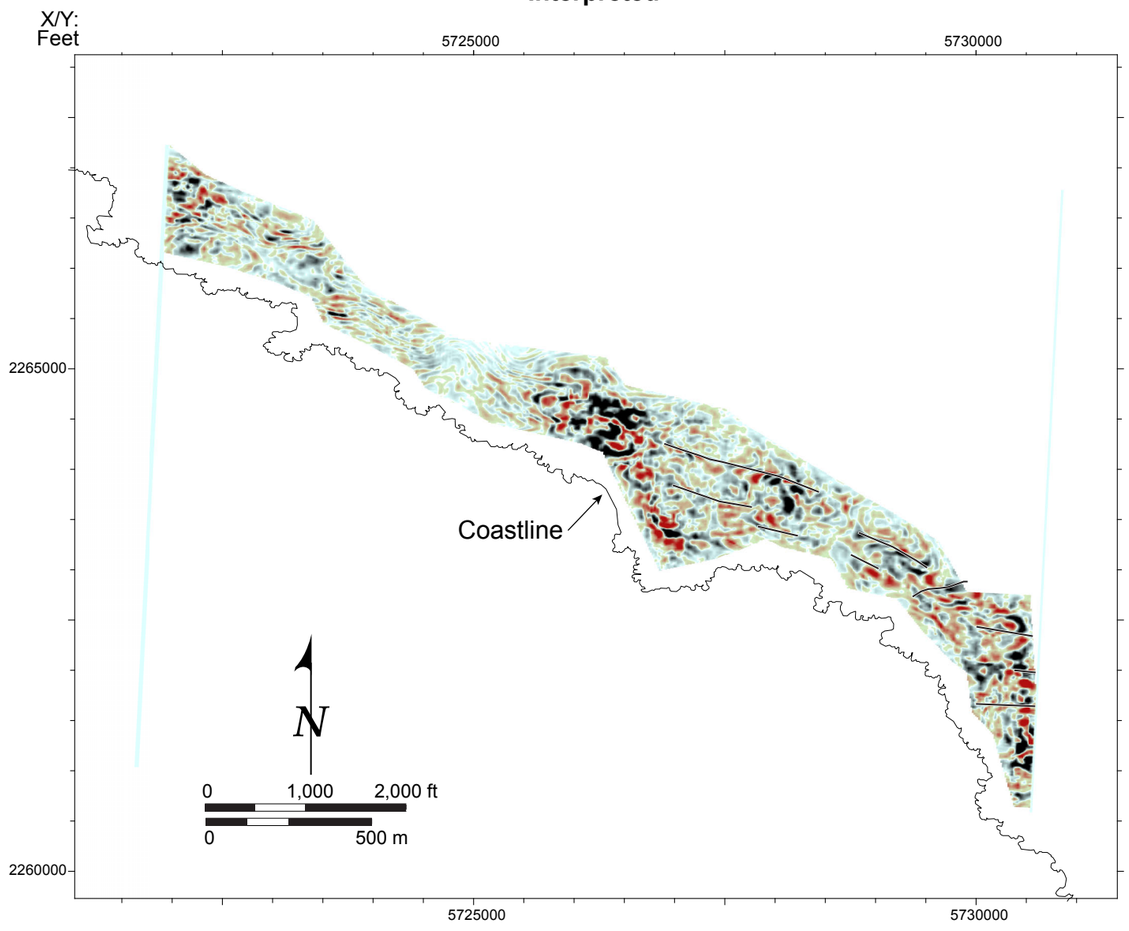
D-102 D103

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14

Uninterpreted



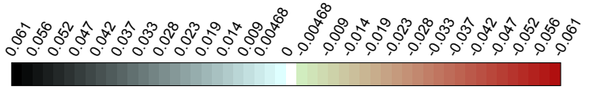
Interpreted



EXPLANATION

Trace of planar discontinuity compiled on reflection amplitude slice at 150 feet below sea level

Reflection amplitude



Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184
Depth slice -150.000, Amplitudes Depth

(See Figure 4-32 for for location)

Phase 2
Reflection Amplitude Slice 1
Depth Slice at 150 Feet Below Sea Level

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

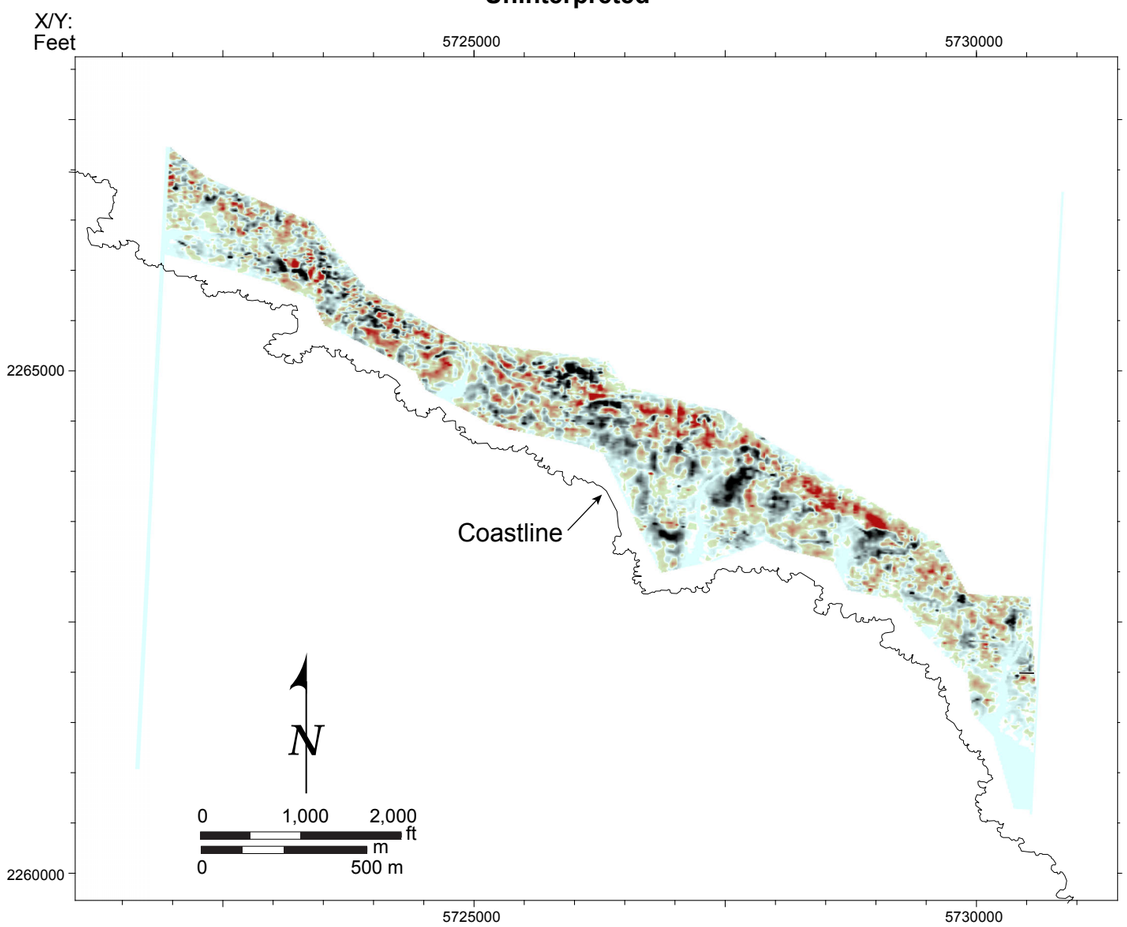
Pacific Gas and Electric Company

Figure **4-39**

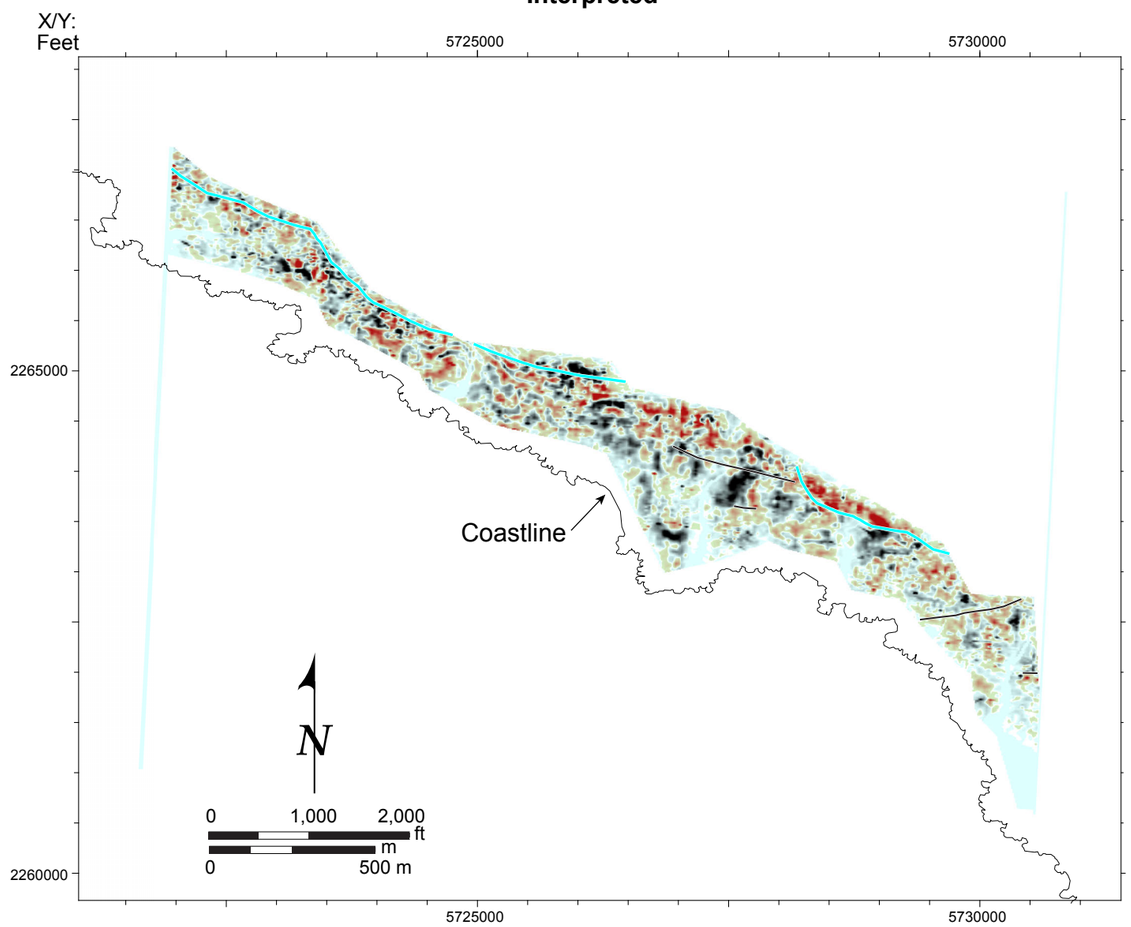
D-76 D-77

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.14.14

Uninterpreted



Interpreted

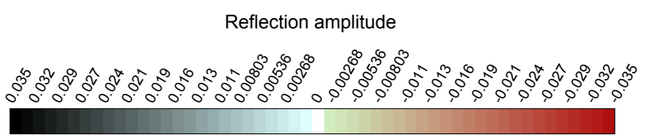


EXPLANATION

Trace of planar discontinuity compiled on reflection amplitude slice at 60 feet above sea level

Probable Q2 terrace riser

Reflection amplitude



Note: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184
Depth slice -60.000, Amplitudes Depth

(See Figure 4-32 for for location)

Phase 2
Reflection Amplitude Slice 2
Depth Slice at 60 Feet Above Sea Level

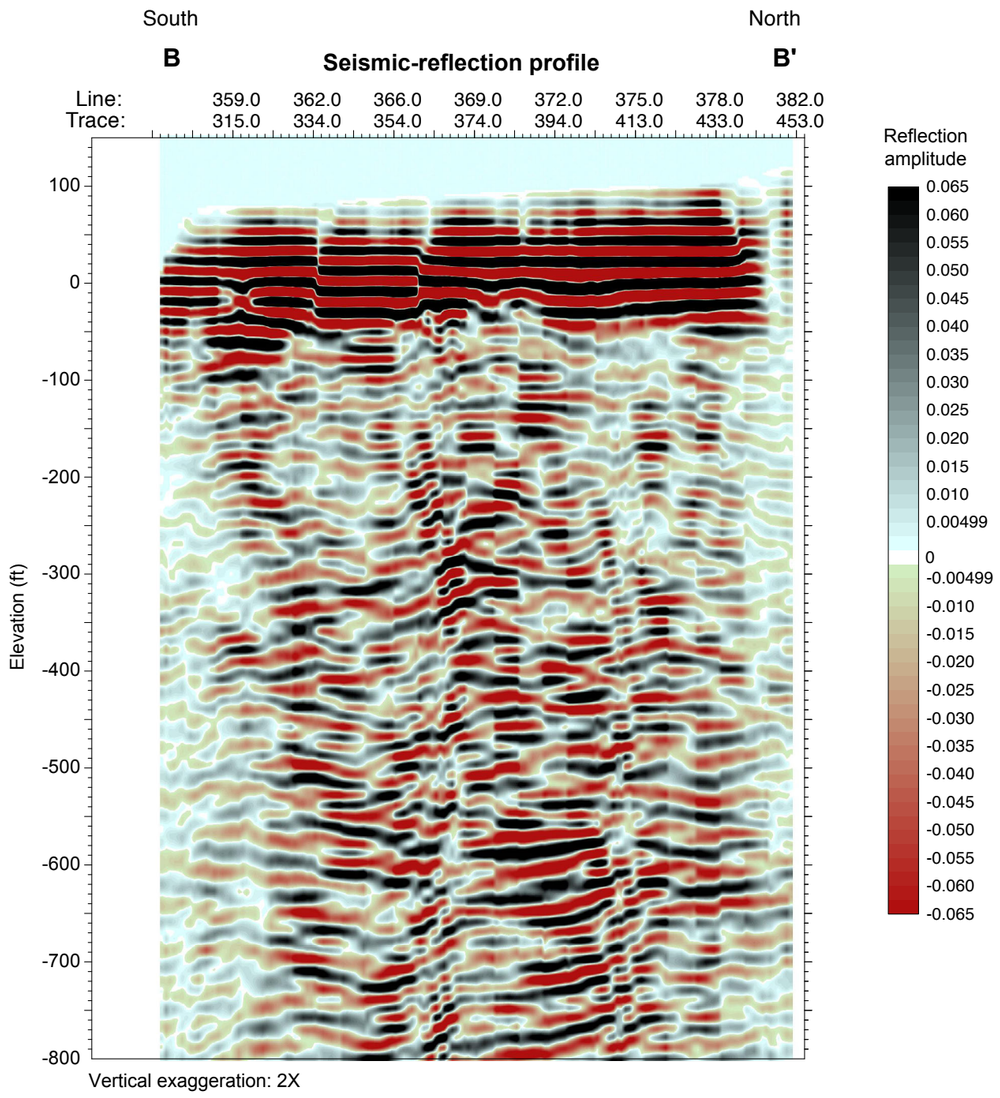
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

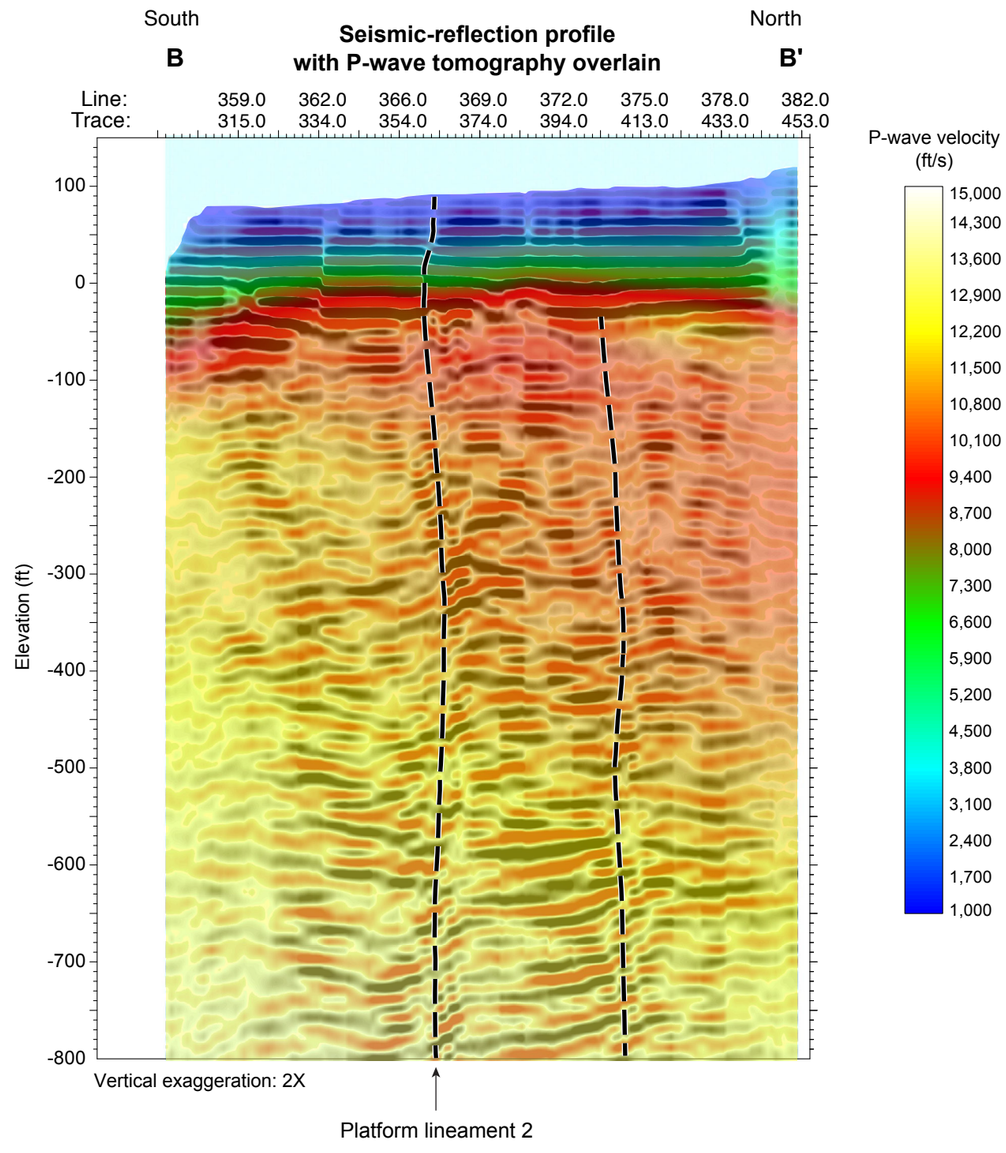
Pacific Gas and Electric Company

Figure **4-40**

D-78 D-79

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.14.14





EXPLANATION

Planar discontinuity, approximate

(See Figure 4-32 for location of profile)

Note: Line = Inline value, trace = Crossline value.

Phase 2 Reflection Amplitude with Vp Tomography Overlay, Profile B-B'

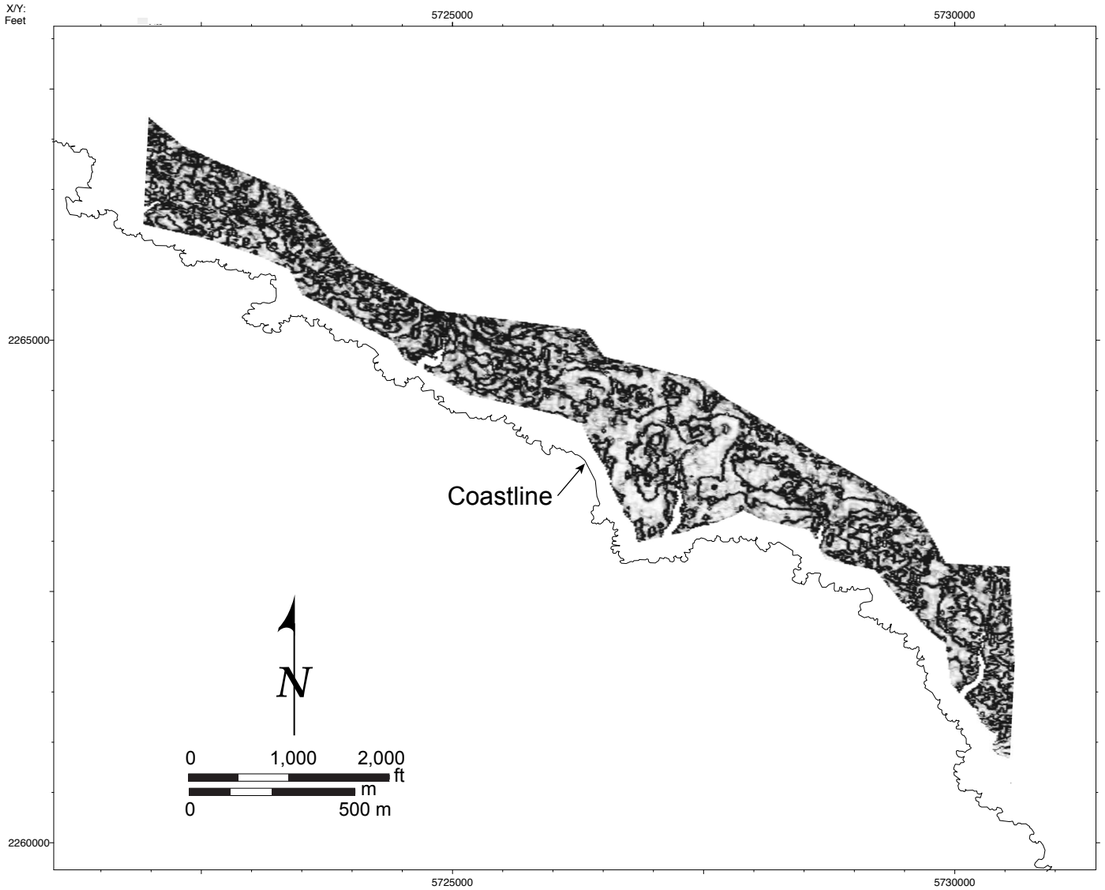
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

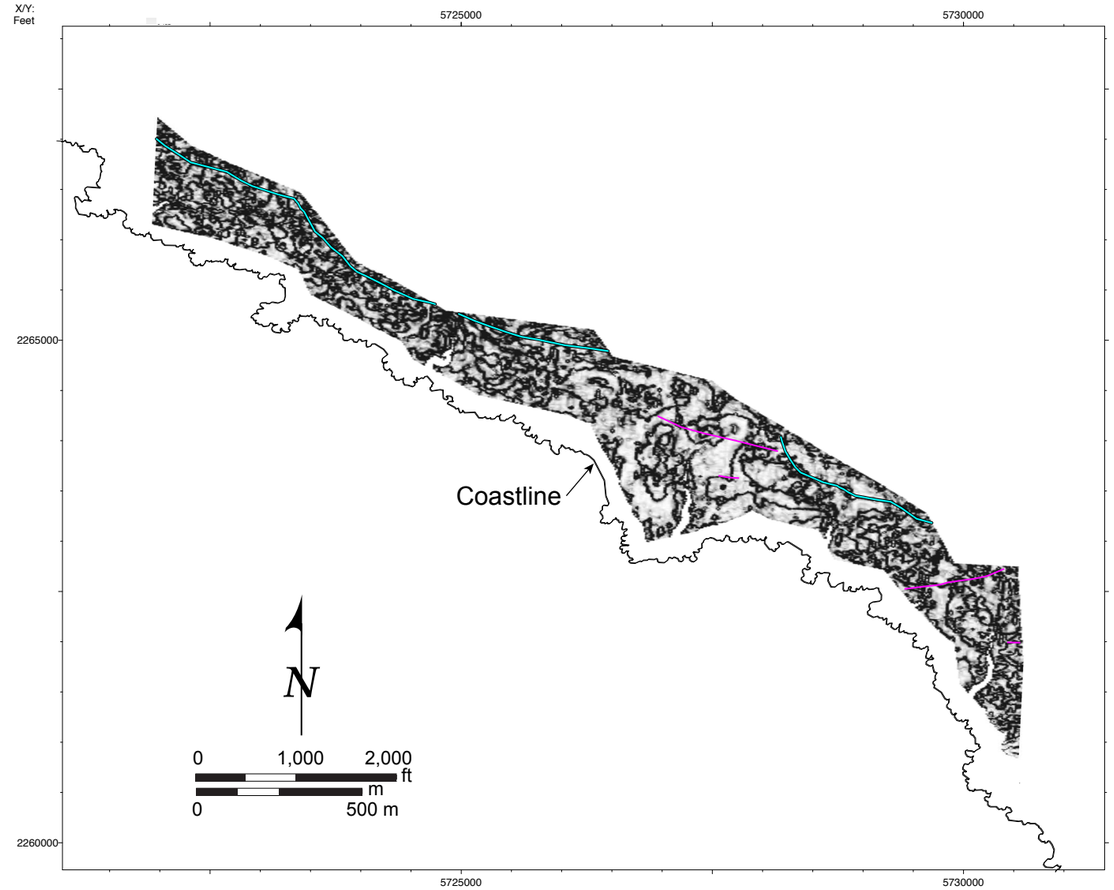
Figure **4-41**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14

Uninterpreted



Showing reflection discontinuities



EXPLANATION

Trace of planar discontinuity compiled on reflection amplitude slice at 150 feet below sea level

Marine terrace mapped in seismic data

Reflection amplitude (microseconds/meter)

6.903 6.558 6.213 5.868 5.523 5.178 4.832 4.487 4.142 3.797 3.452 3.107 2.761 2.416 2.071 1.726 1.381 1.036 0.690 0.345 1.23e-005

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184

(See Figure 4-32 for for location)

Phase 2
Dip of Maximum Similarity
Depth Slice at 60 Feet Above Sea Level

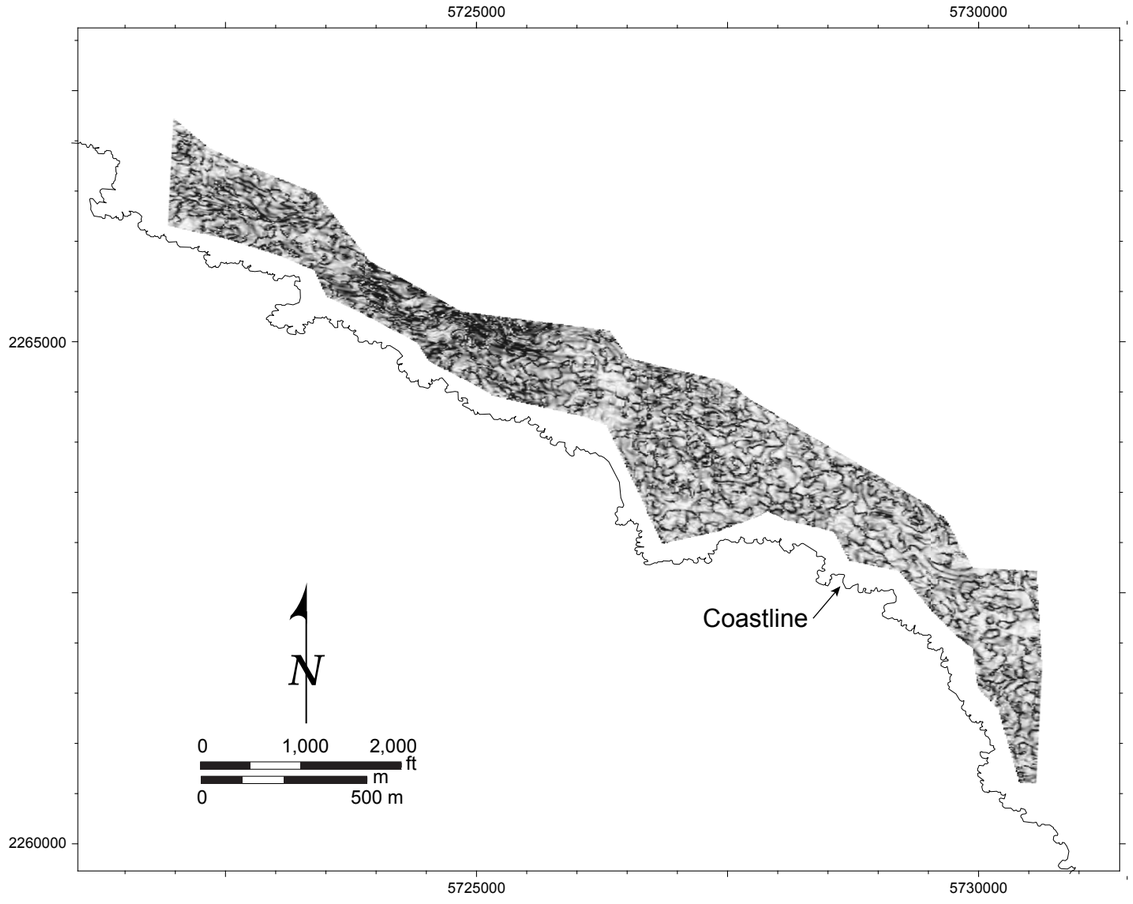
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-42**

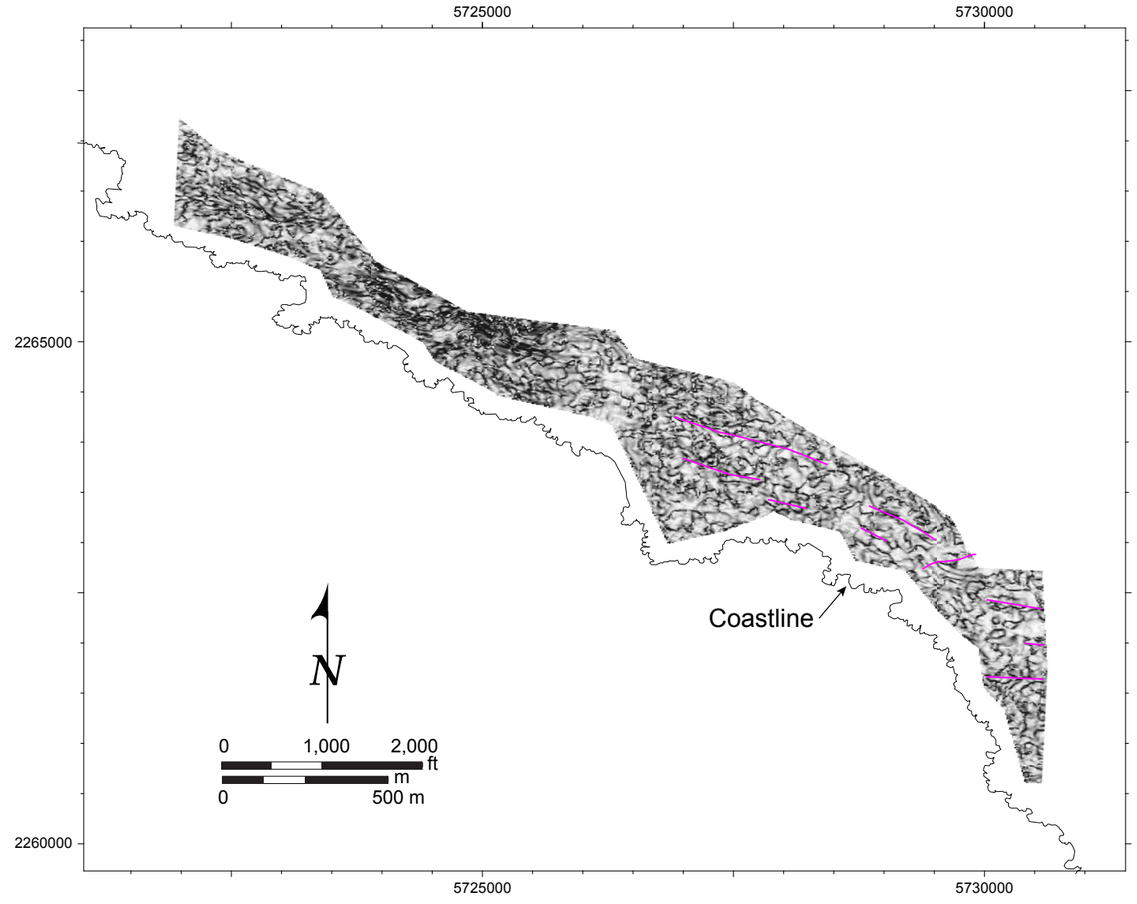
D-80, D81

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.14.14

Uninterpreted



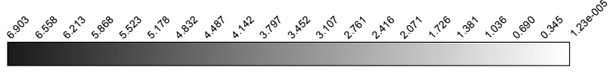
Showing reflection discontinuities



EXPLANATION

Trace of planar discontinuity compiled on reflection amplitude slice at 150 feet below sea level

Reflection amplitude (microseconds/meter)



Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184

(See Figure 4-32 for for location)

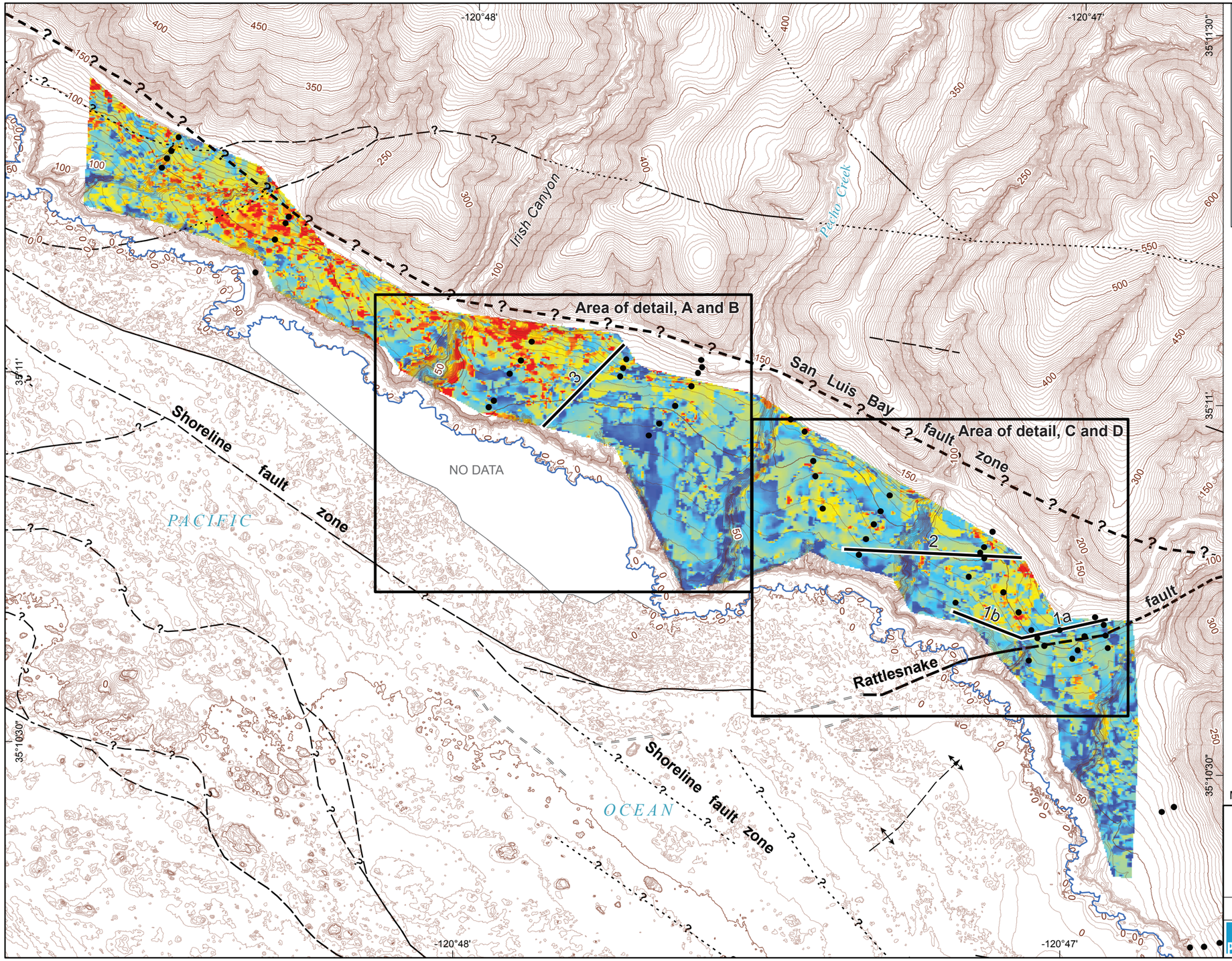
Phase 2
Dip of Maximum Similarity
Depth Slice at 150 Feet Below Sea Level

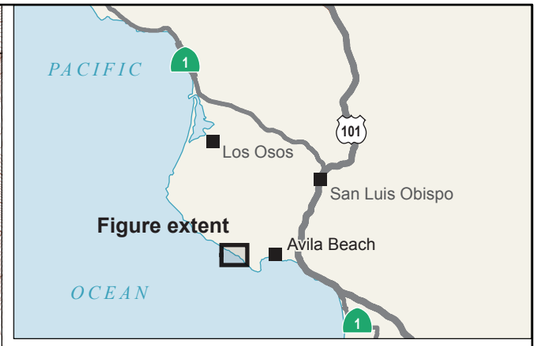
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-43**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.14.14





EXPLANATION

- Location of boring (PG&E, 1989a, 1990)
- 2 — Platform lineament with lineament number
- Coastline
- Topographic and bathymetric contour, 5-foot contour interval

Elevation of the highest strong reflector (ft)

High : 128

Low : 0

Note: Contours from LiDAR and bathymetric data compiled by PG&E (2014a)

N

0 500 1,000 ft

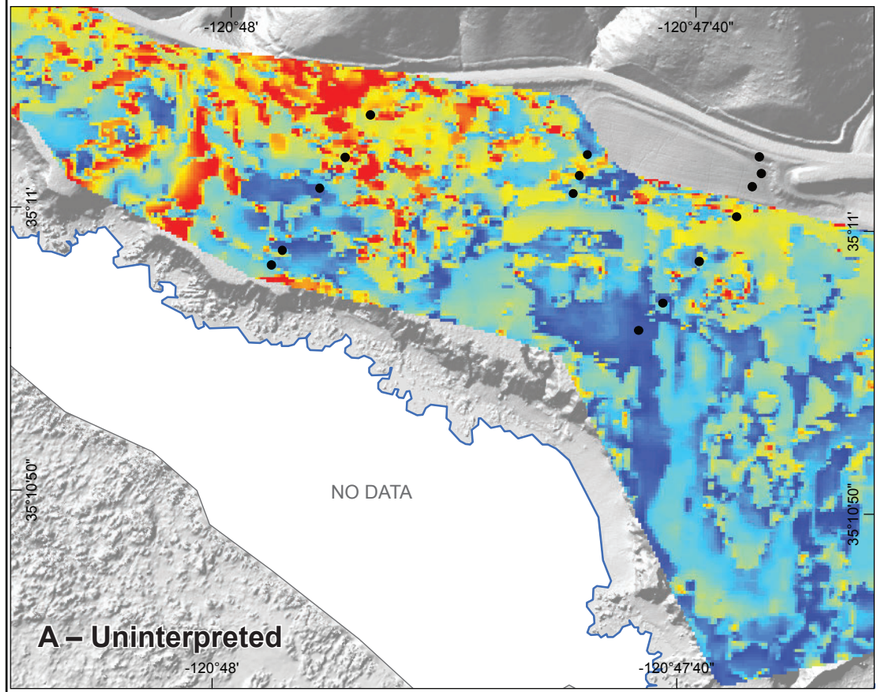
0 200 400 m

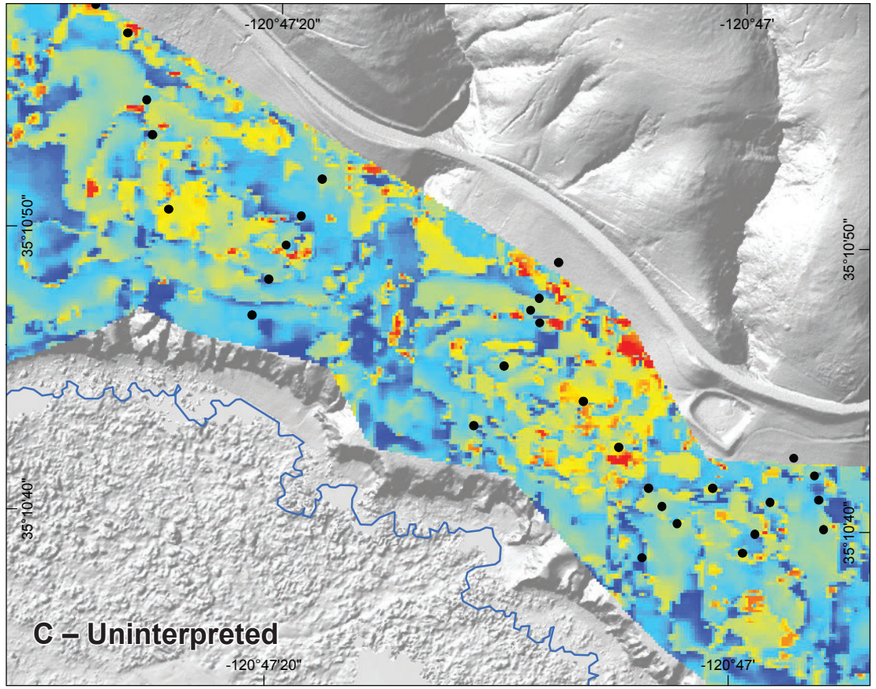
Map projection and scale: NAD 83 State Plane CA Zone V, 1:10,000

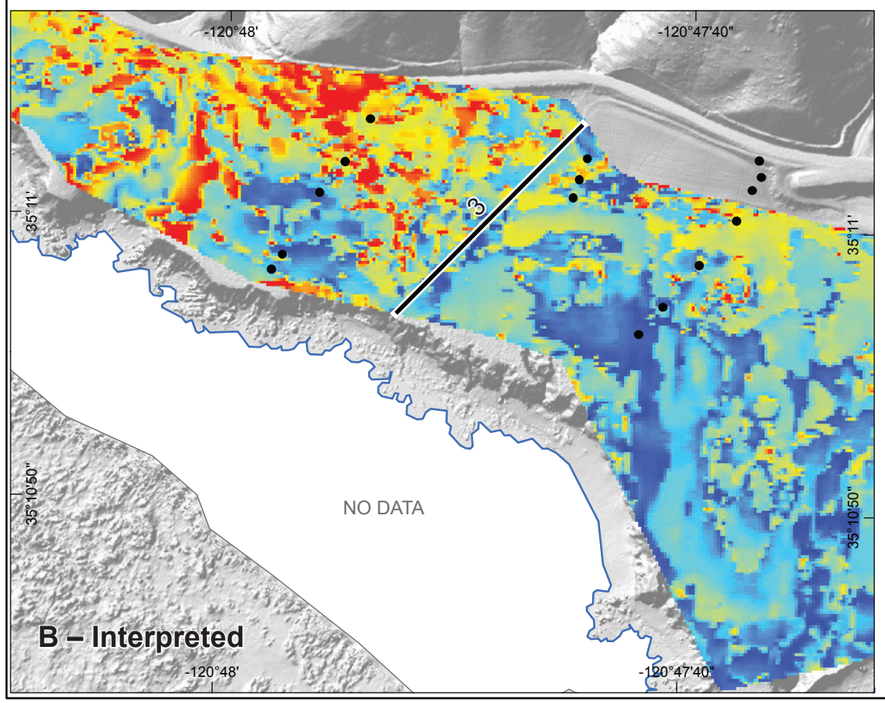
Phase 2 Bedrock Reflection Surface

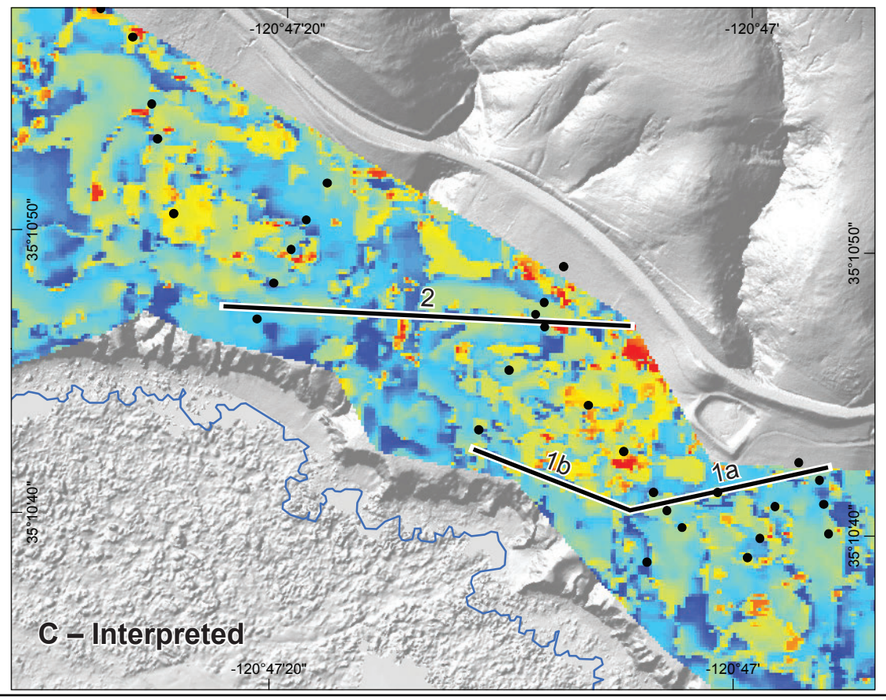
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-44**









EXPLANATION

- Location of boring (PG&E, 1989a, 1990)
- 2 — Platform lineament with lineament number
- Coastline

Elevation of the highest strong reflector (ft)

High : 128

Low : 0

Notes: Shaded relief from LiDAR and bathymetric data compiled by PG&E (2014a).

N

0 1 2 mi.

0 1 2 km

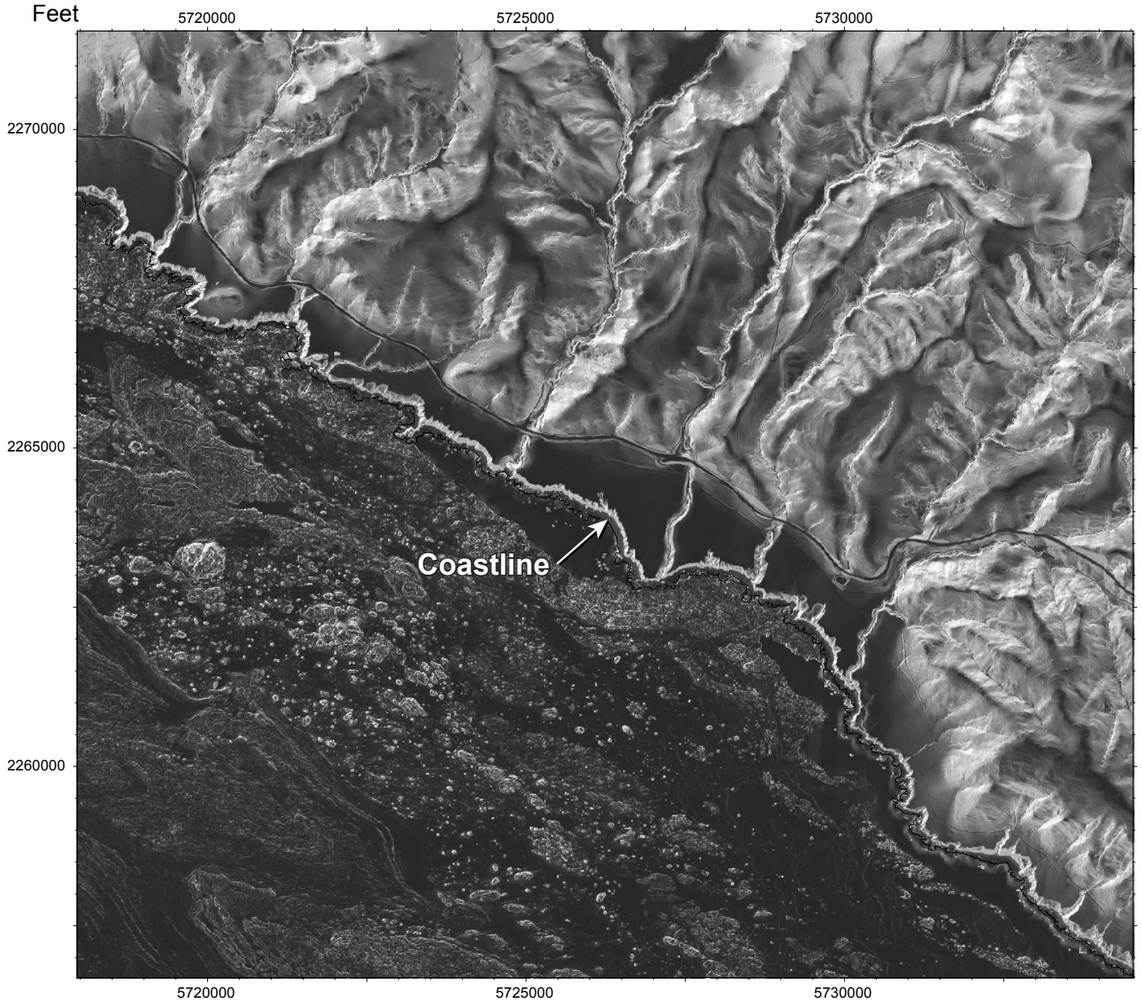
Map projection and scale: NAD 83 State Plane CA Zone V, 1:100,000

Phase 2 Bedrock Reflection Surface, Detail

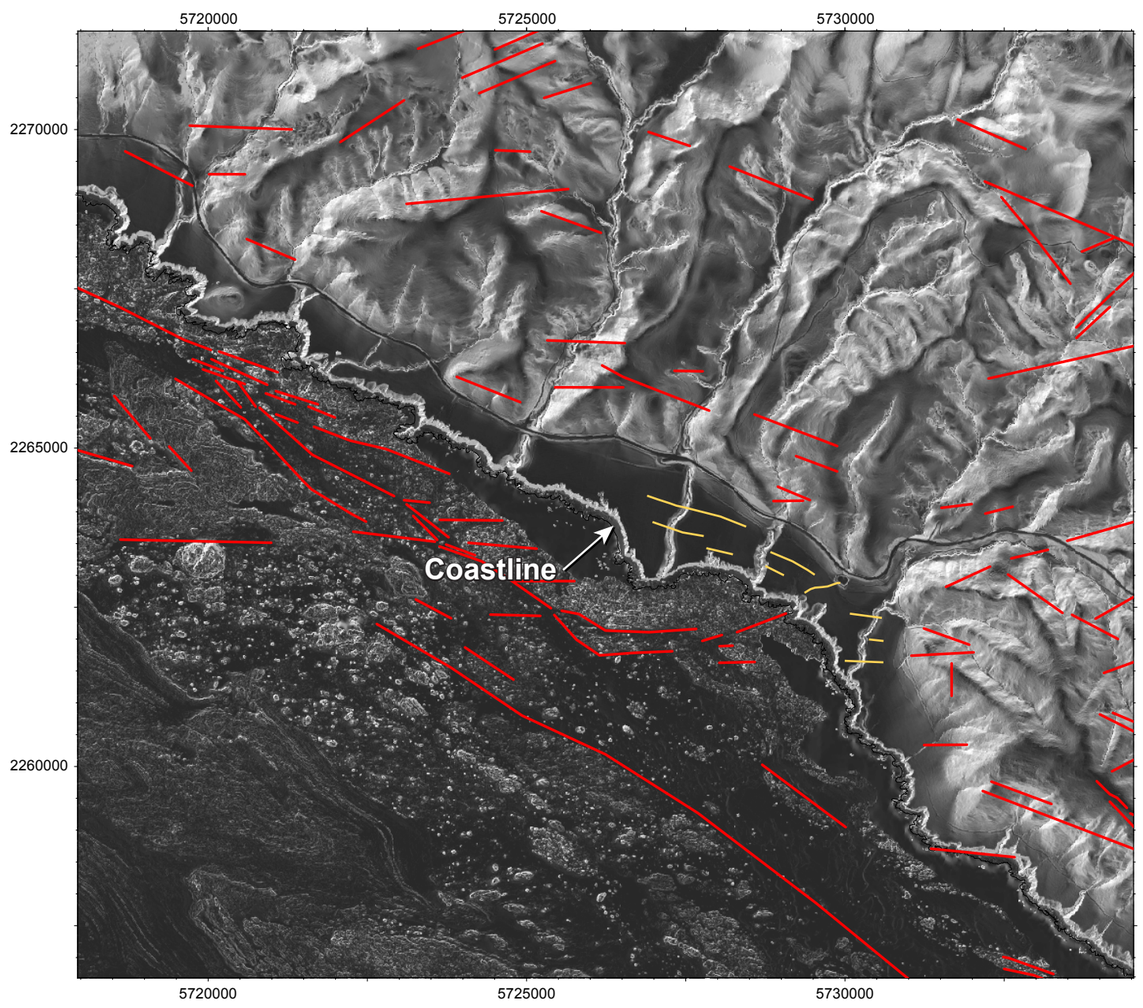
CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **4-45**

Slopeshade Image



Lineaments Overlain



EXPLANATION

Topographic lineament mapped on slope shade

Trace of planar discontinuity mapped in reflection slice at 150 feet below sea level

Slope (degrees)

High: 90

Low: 0

N

0 1,000 3,000 ft.

0 1000 m

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5721030.00 5731405.00
Y (Min, Max): 2259730.00 2268125.00
Latitude (Min, Max): 35.169404 35.193253
Longitude (Min, Max): -120.813109 -120.779184
Depth slice -150.000, Amplitudes Depth
Lineaments mapped at 150 feet below sea level

(See Figure 4-32 for for location)

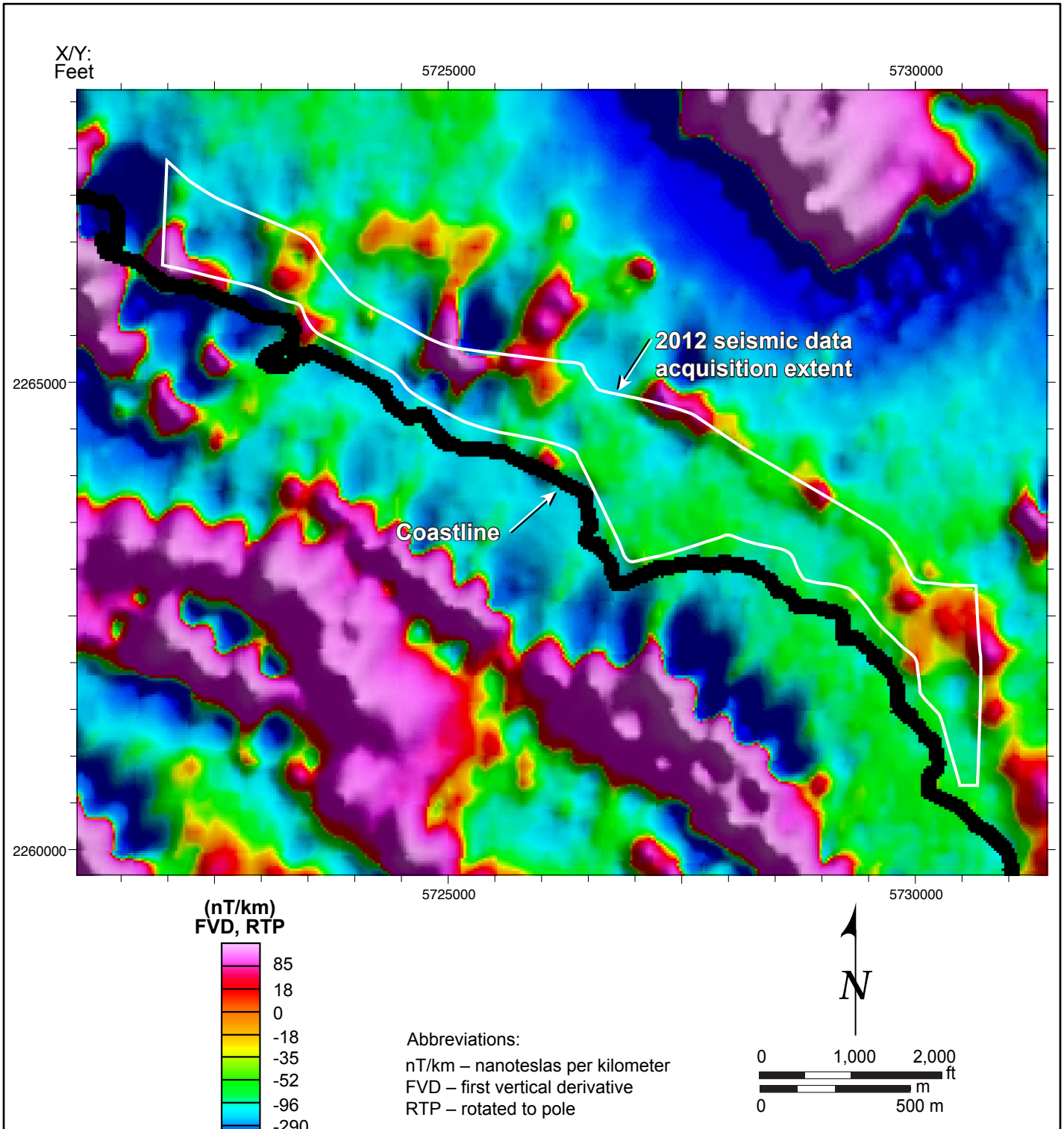
Phase 2
Topographic Lineaments

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-46**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.21.14



Abbreviations:
nT/km – nanoteslas per kilometer
FVD – first vertical derivative
RTP – rotated to pole

Notes: Group: US State Plane 1983
System: California Zone V
Datum: North American Datum 1983
Ellipsoid: GRS 1980
X (Min, Max): 5717955.00 5734530.00
Y (Min, Max): 2256685.00 2271545.00
Latitude (Min, Max): 35.160805 35.202883
Longitude (Min, Max): -120.823107 -120.769044
(See Figure 4-32 for for location)

Phase 2
RTP First Vertical Derivative of the Magnetic Field

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

Figure **4-47**

Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21, modified 05.20.14

Appendix A

Isovelocity and Isodensity Maps of the Irish Hills

Figure no.	Map	Page no.
A-1	Isovelocity Map, 7,500 fps	A2
A-2	Isovelocity Map, 8,000 fps	A3
A-3	Isovelocity Map, 8,500 fps	A4
A-4	Isovelocity Map, 9,000 fps	A5
A-5	Isovelocity Map, 9,500 fps	A6
A-6	Isovelocity Map, 10,000 fps	A7
A-7	Isovelocity Map, 10,500 fps	A8
A-8	Isovelocity Map, 11,000 fps	A9
A-9	Isovelocity Map, 12,500 fps	A10
A-10	Isovelocity Map, 13,000 fps	A11
A-11	Isovelocity Map, 14,000 fps	A12
A-12	Isovelocity Map, 14,500 fps	A13
A-13	Isovelocity Map, 15,000 fps	A14
A-14	Isovelocity Map, 15,500 fps	A15
A-15	Isovelocity Map, 16,000 fps	A16
A-16	Isovelocity Map, 16,500 fps	A17
A-17	Isovelocity Map, 17,000 fps	A18
A-18	Isodensity Map, 2.00 g/cm^3	A19

A-19 Isodensity Map, 2.05 g/cm^3 ..... A20

A-20 Isodensity Map, 2.10 g/cm^3 ..... A21

A-21 Isodensity Map, 2.15 g/cm^3 ..... A22

A-22 Isodensity Map, 2.20 g/cm^3 ..... A23

A-23 Isodensity Map, 2.25 g/cm^3 ..... A24

A-24 Isodensity Map, 2.30 g/cm^3 ..... A25

A-25 Isodensity Map, 2.35 g/cm^3 ..... A26

A-26 Isodensity Map, 2.40 g/cm^3 ..... A27

A-27 Isodensity Map, 2.45 g/cm^3 ..... A28

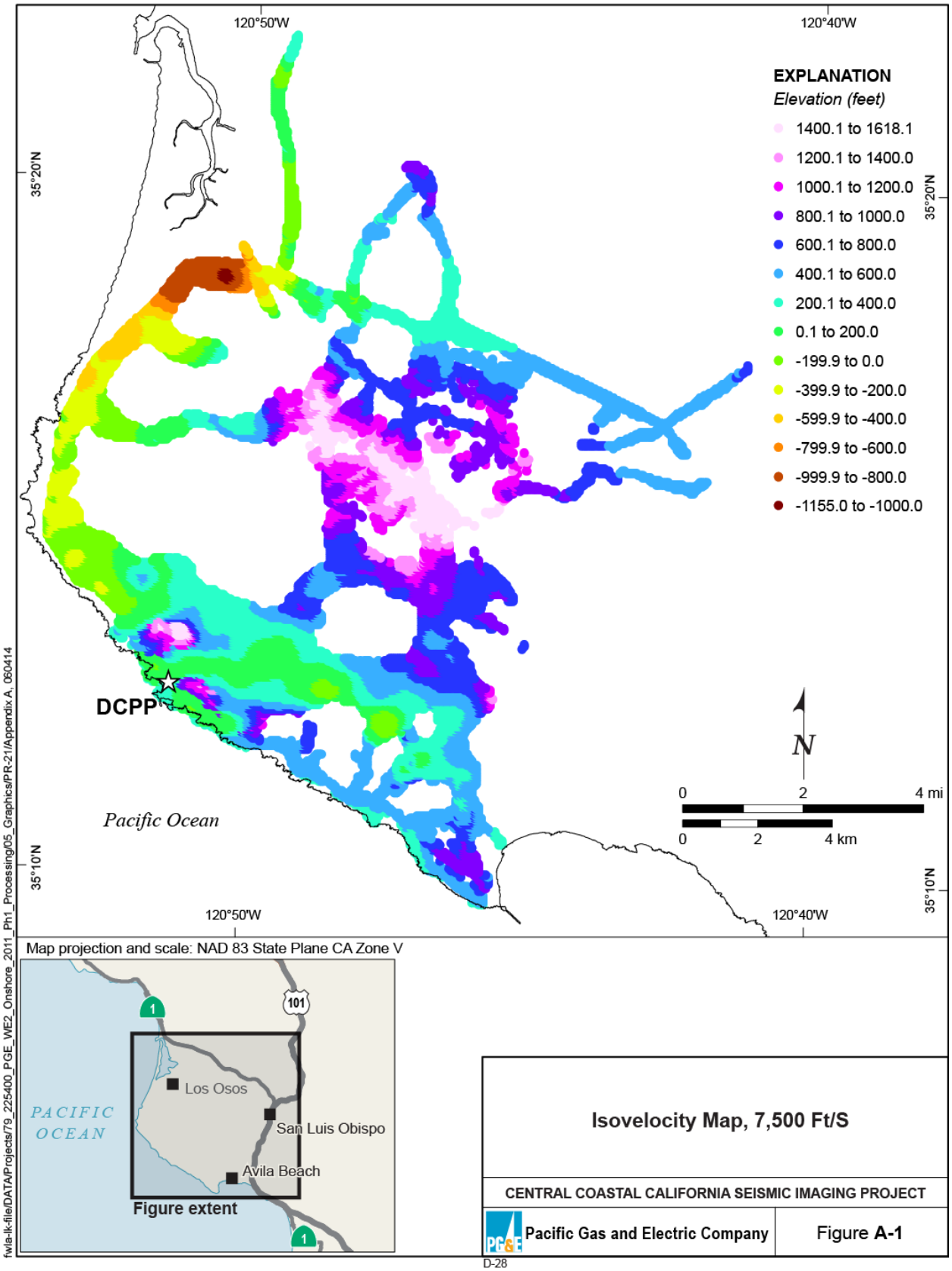
A-28 Isodensity Map, 2.50 g/cm^3 ..... A29

A-29 Isodensity Map, 2.55 g/cm^3 ..... A30

A-30 Isodensity Map, 2.60 g/cm^3 ..... A31

A-31 Isodensity Map, 2.65 g/cm^3 ..... A32

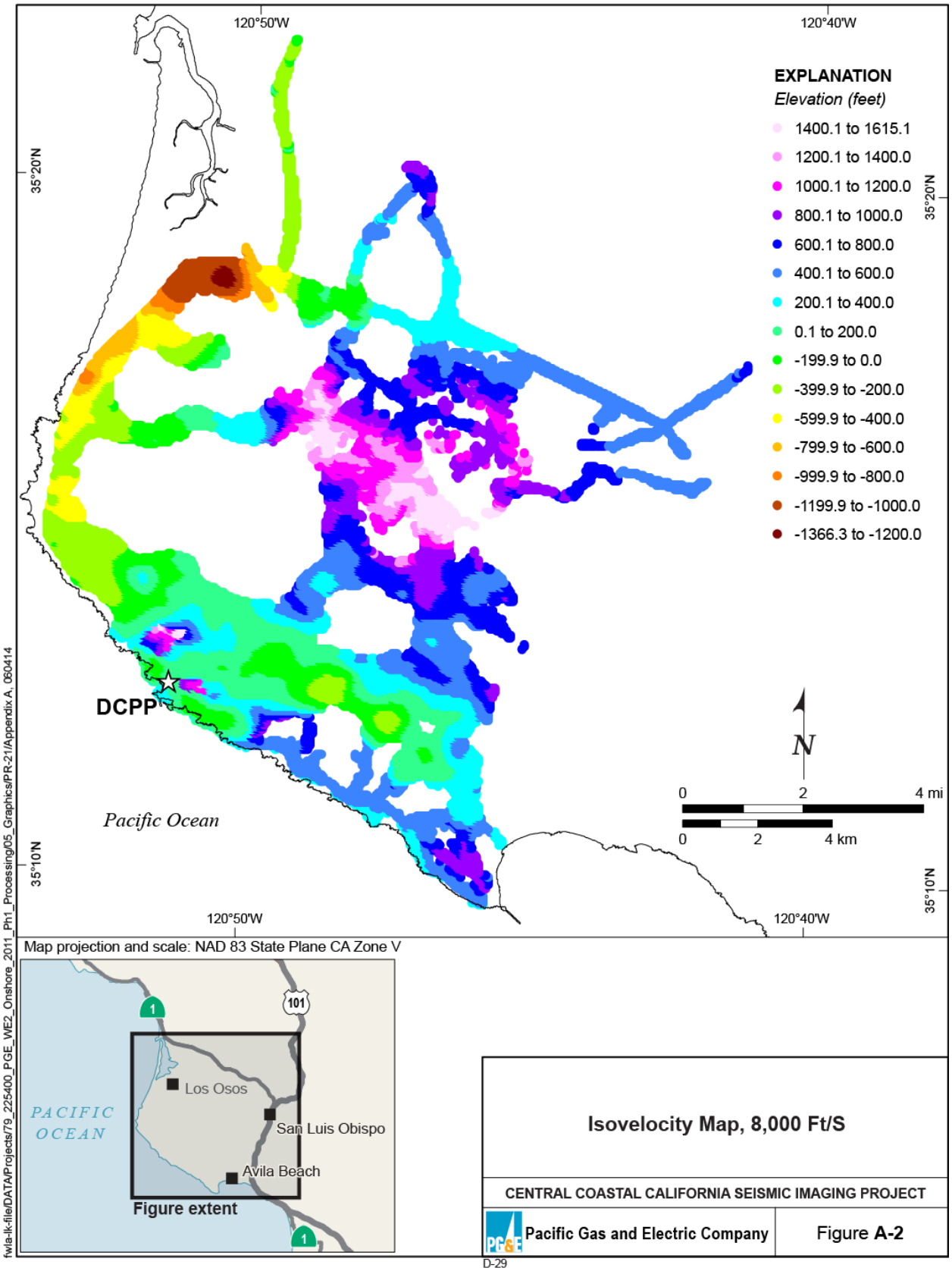
A-32 Isodensity Map, 2.7 g/cm^3 ..... A33



Isovelocity Map, 7,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

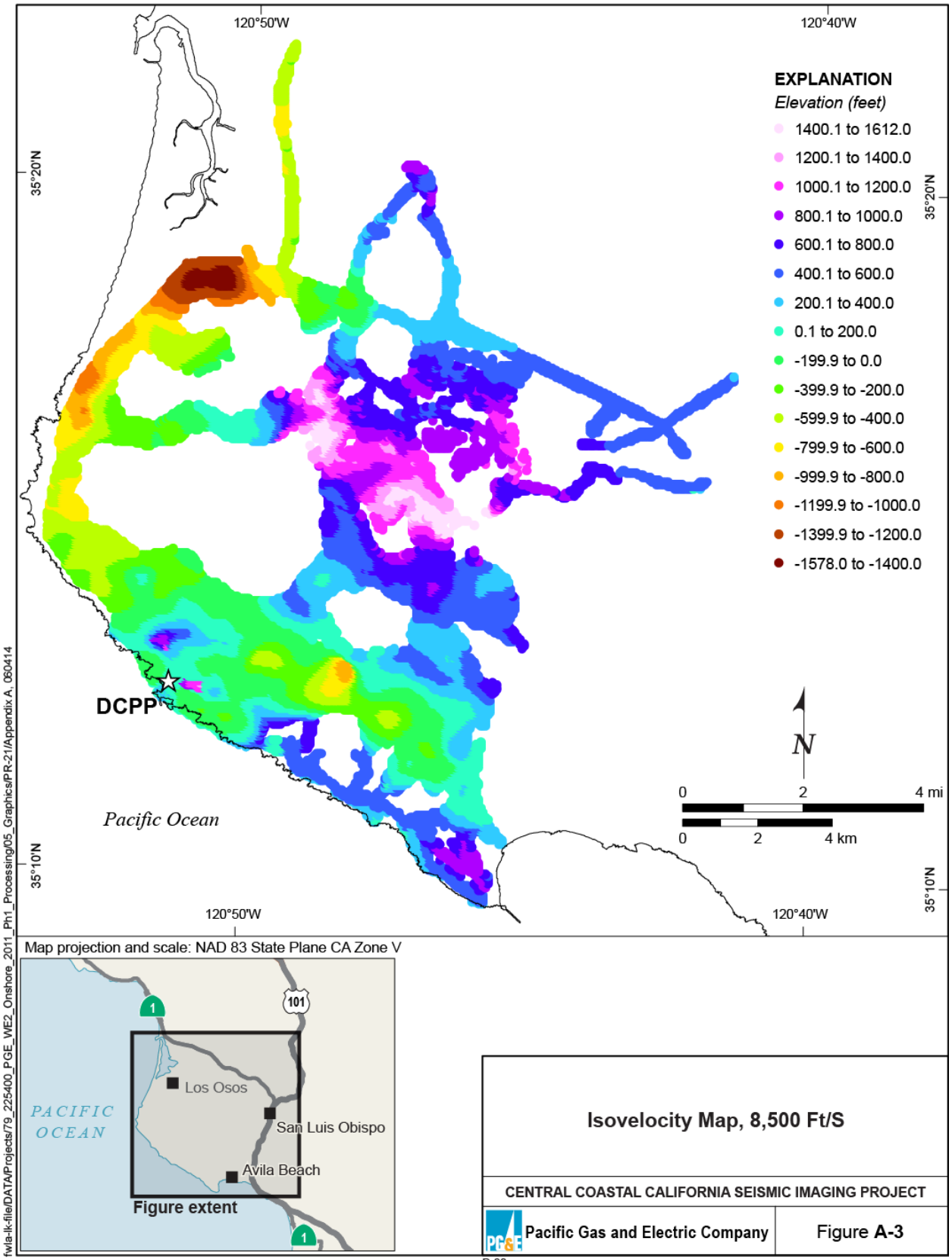
Pacific Gas and Electric Company | Figure **A-1**



Isovelocity Map, 8,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

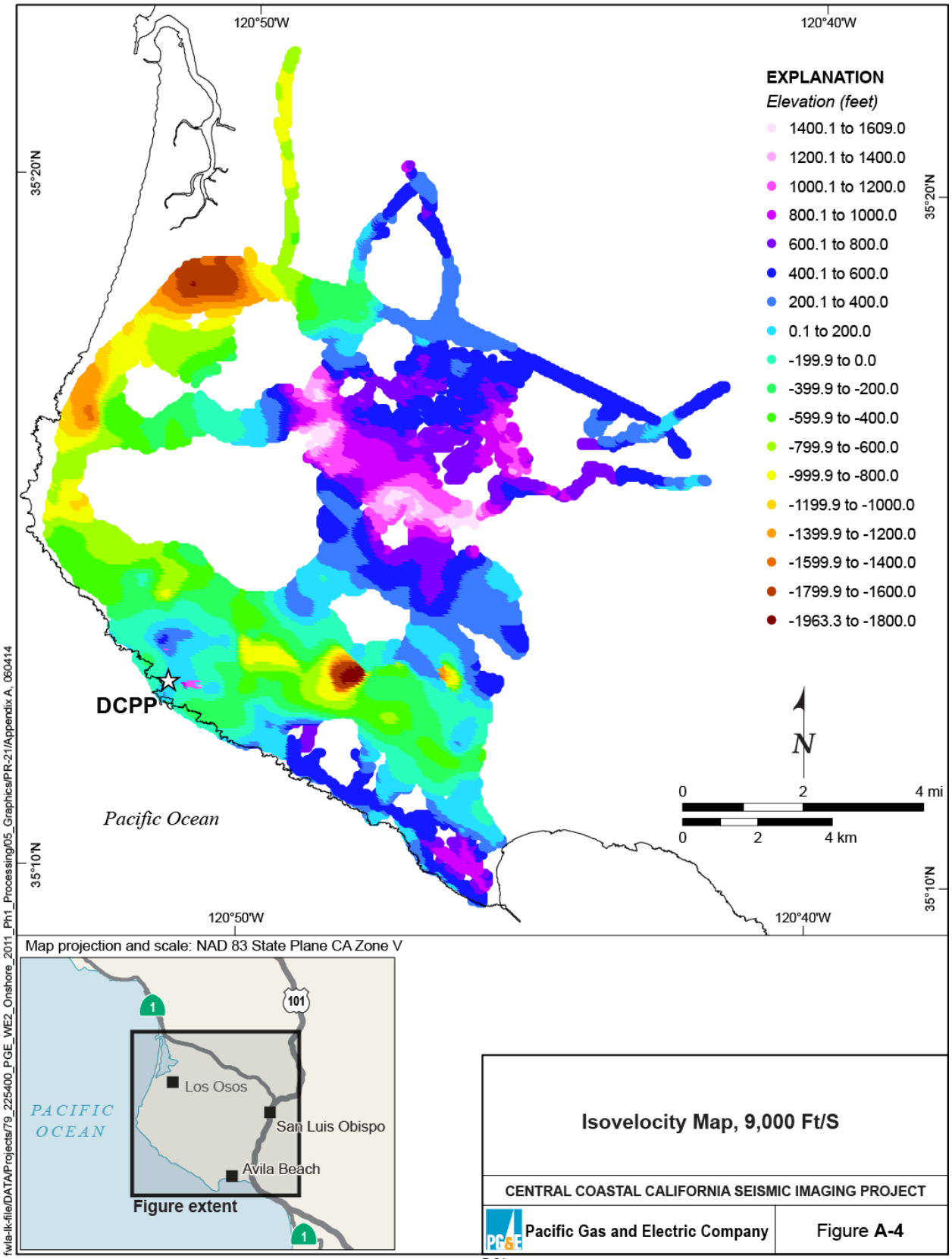
Pacific Gas and Electric Company | Figure **A-2**



Isovelocity Map, 8,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

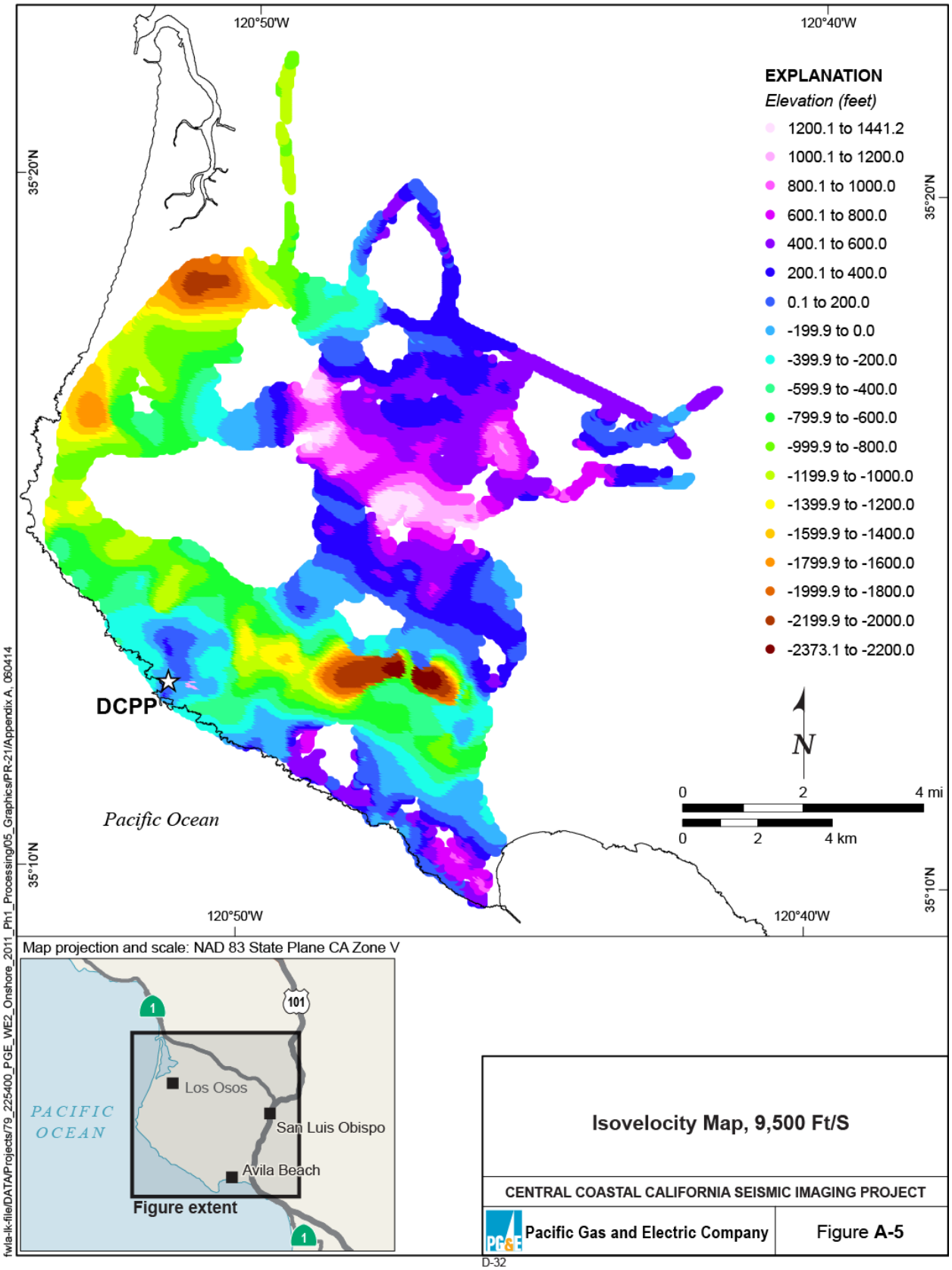
Pacific Gas and Electric Company | Figure **A-3**



Isovelocity Map, 9,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

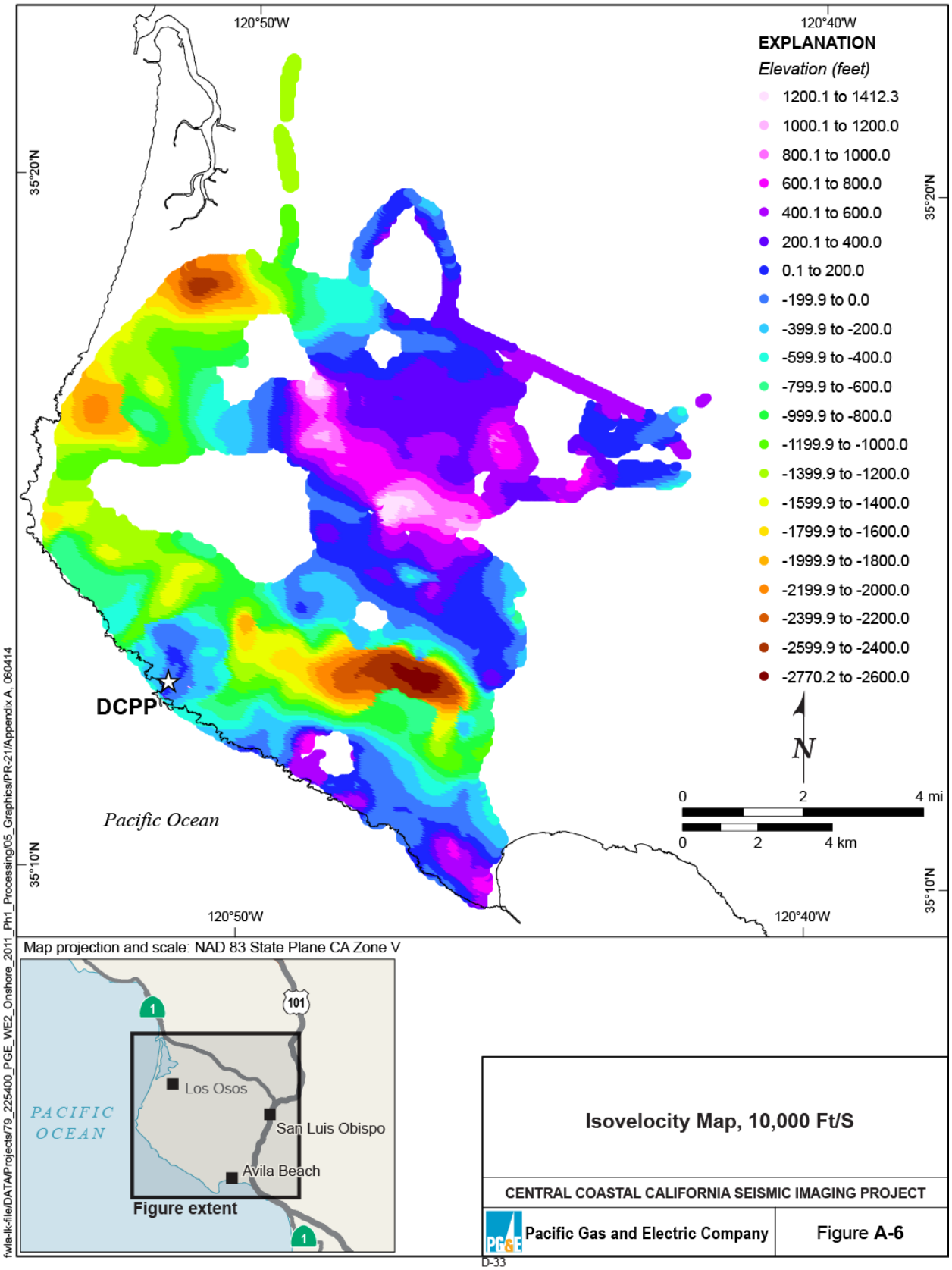
Pacific Gas and Electric Company | Figure **A-4**



Isovelocity Map, 9,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

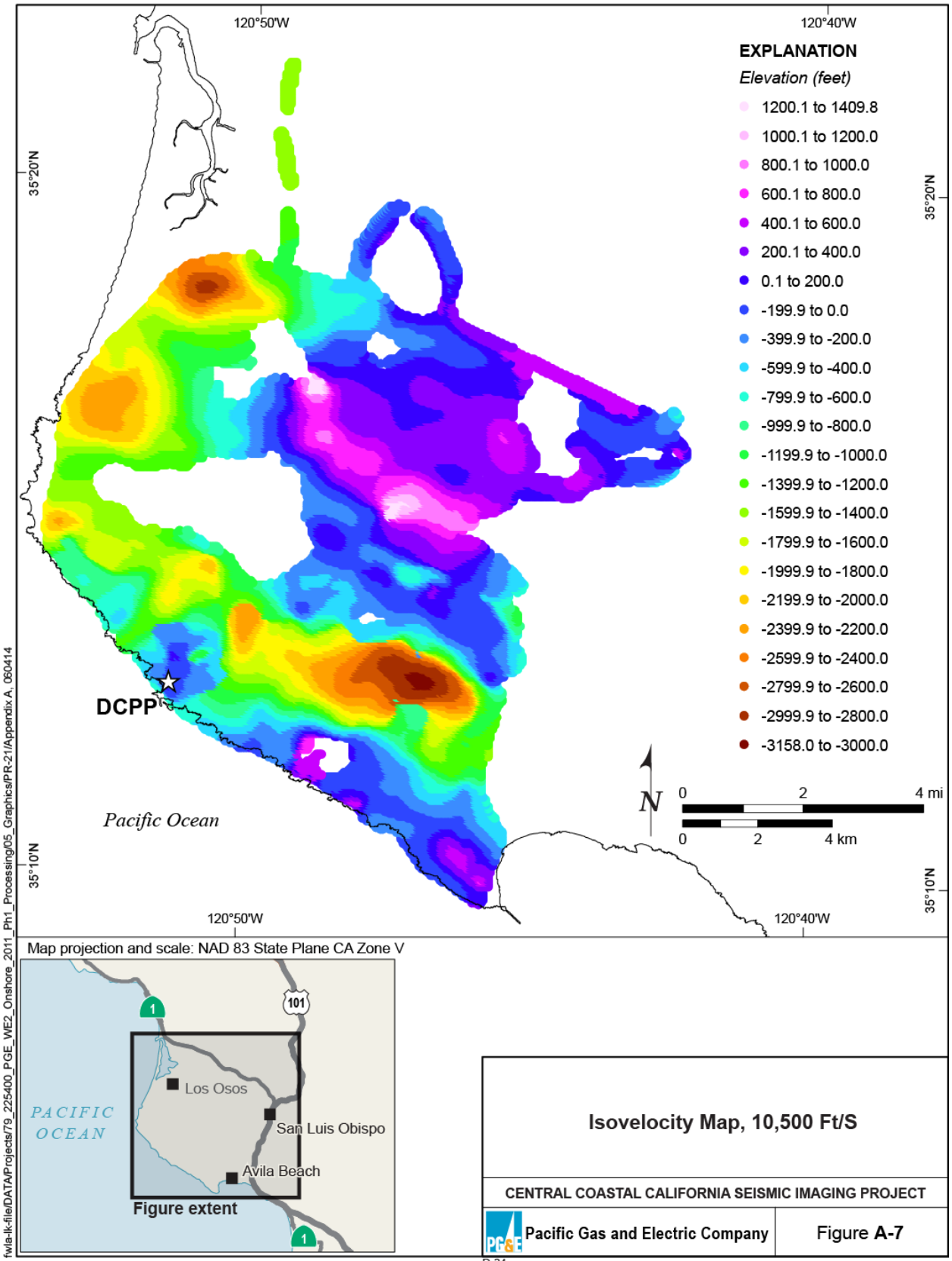
Pacific Gas and Electric Company | Figure **A-5**



Isovelocity Map, 10,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

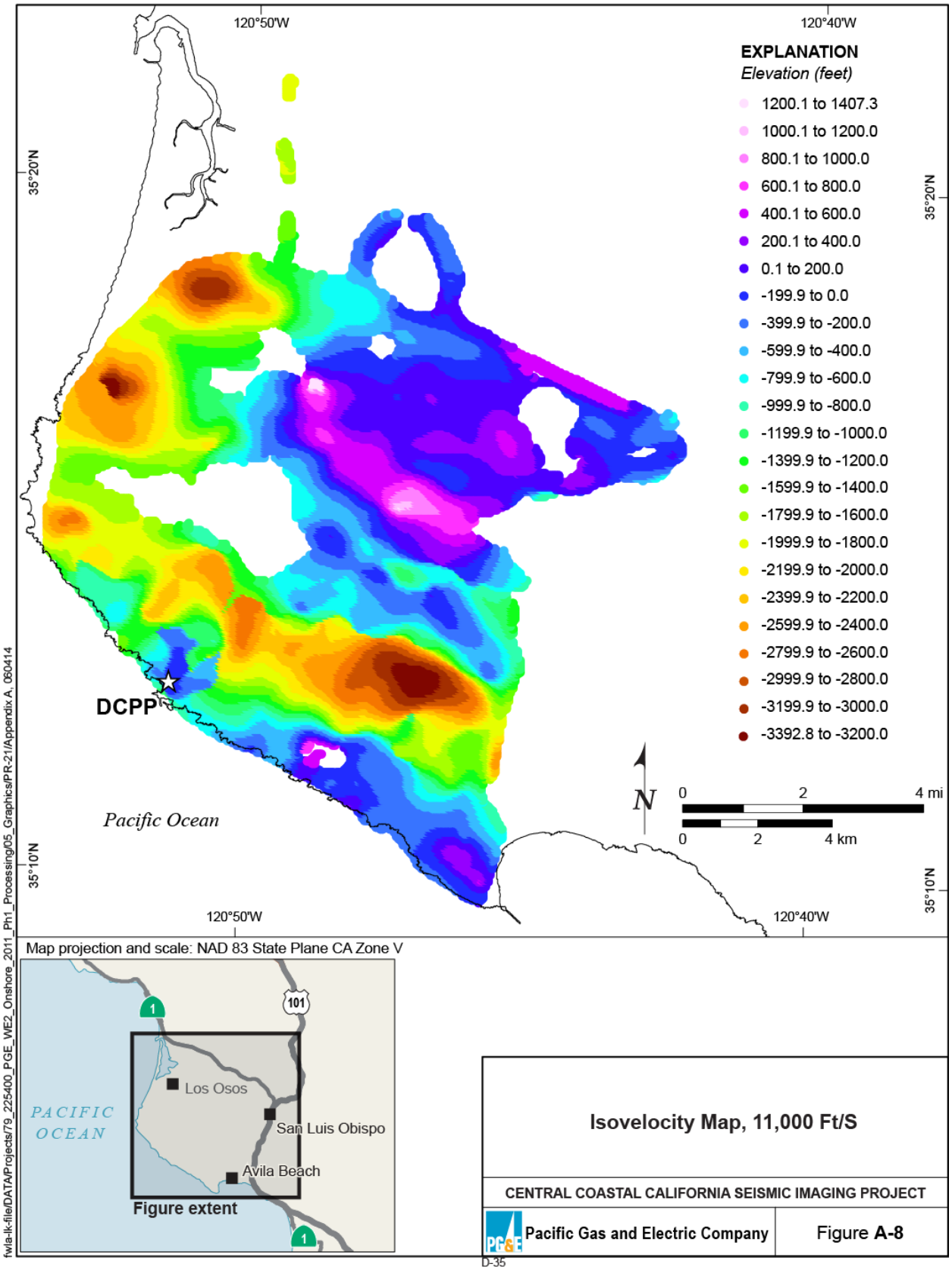
Pacific Gas and Electric Company | Figure **A-6**



Isovelocity Map, 10,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

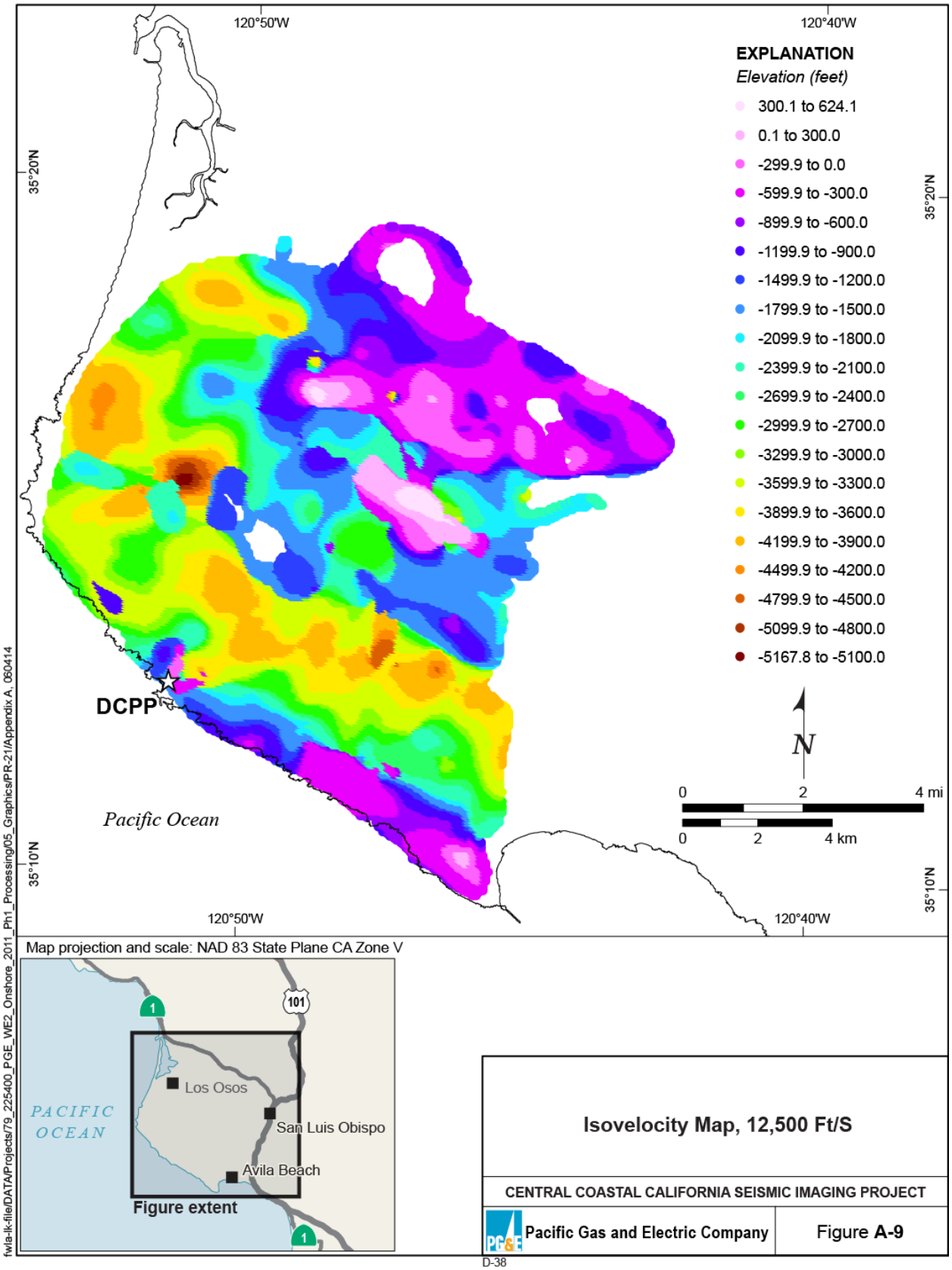
Pacific Gas and Electric Company | Figure **A-7**



Isovelocity Map, 11,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-8**

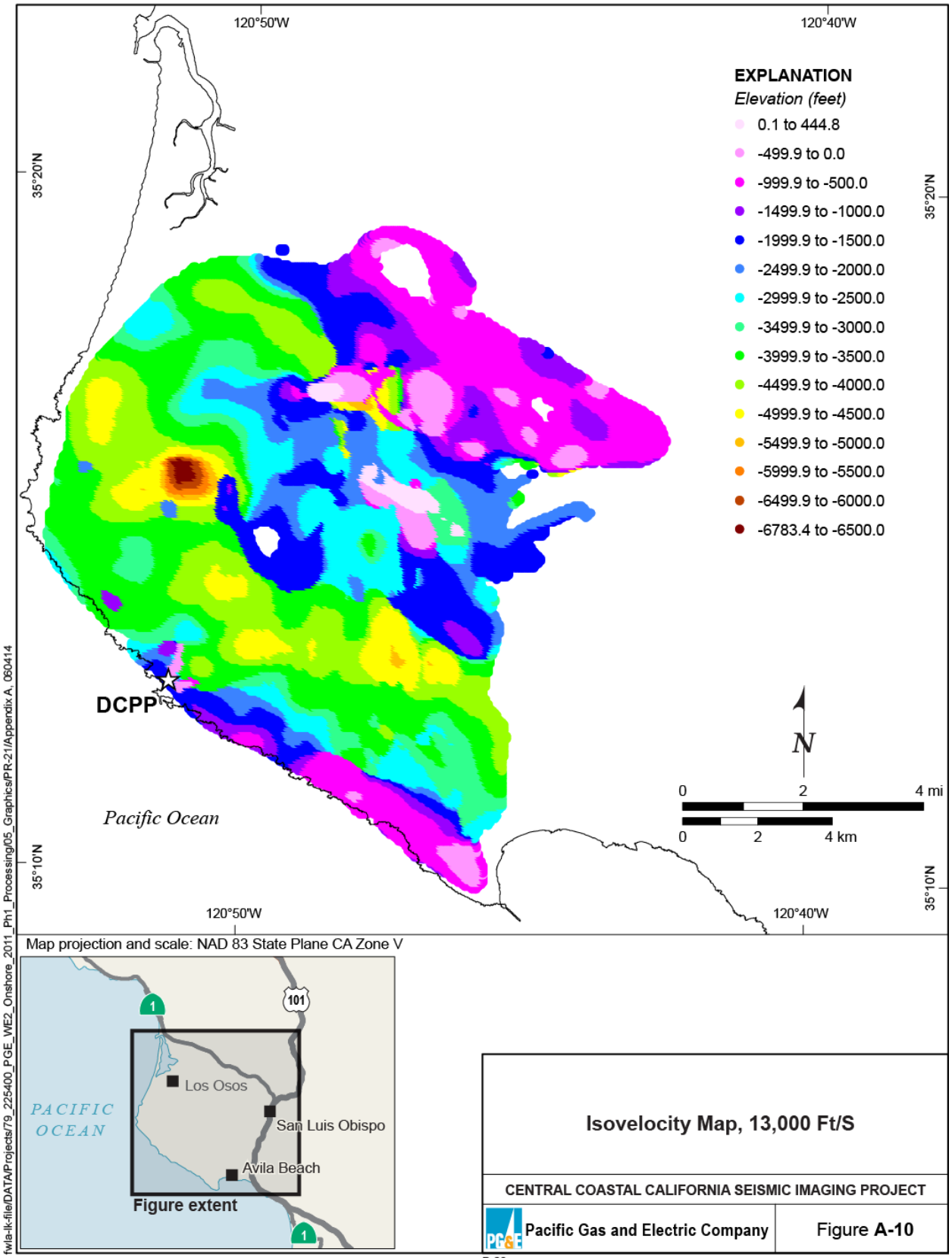


Isovelocity Map, 12,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

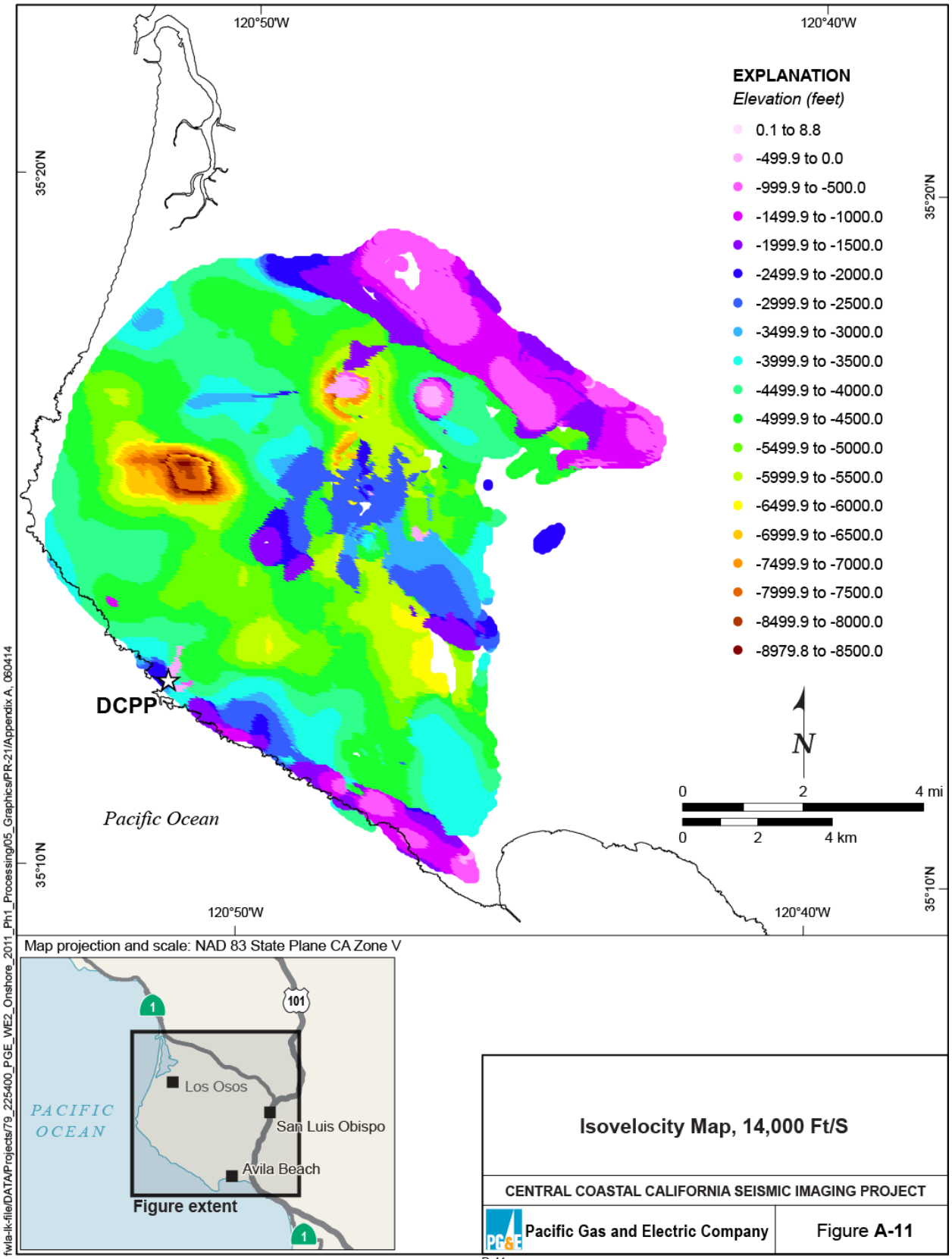
Figure **A-9**



Isovelocity Map, 13,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

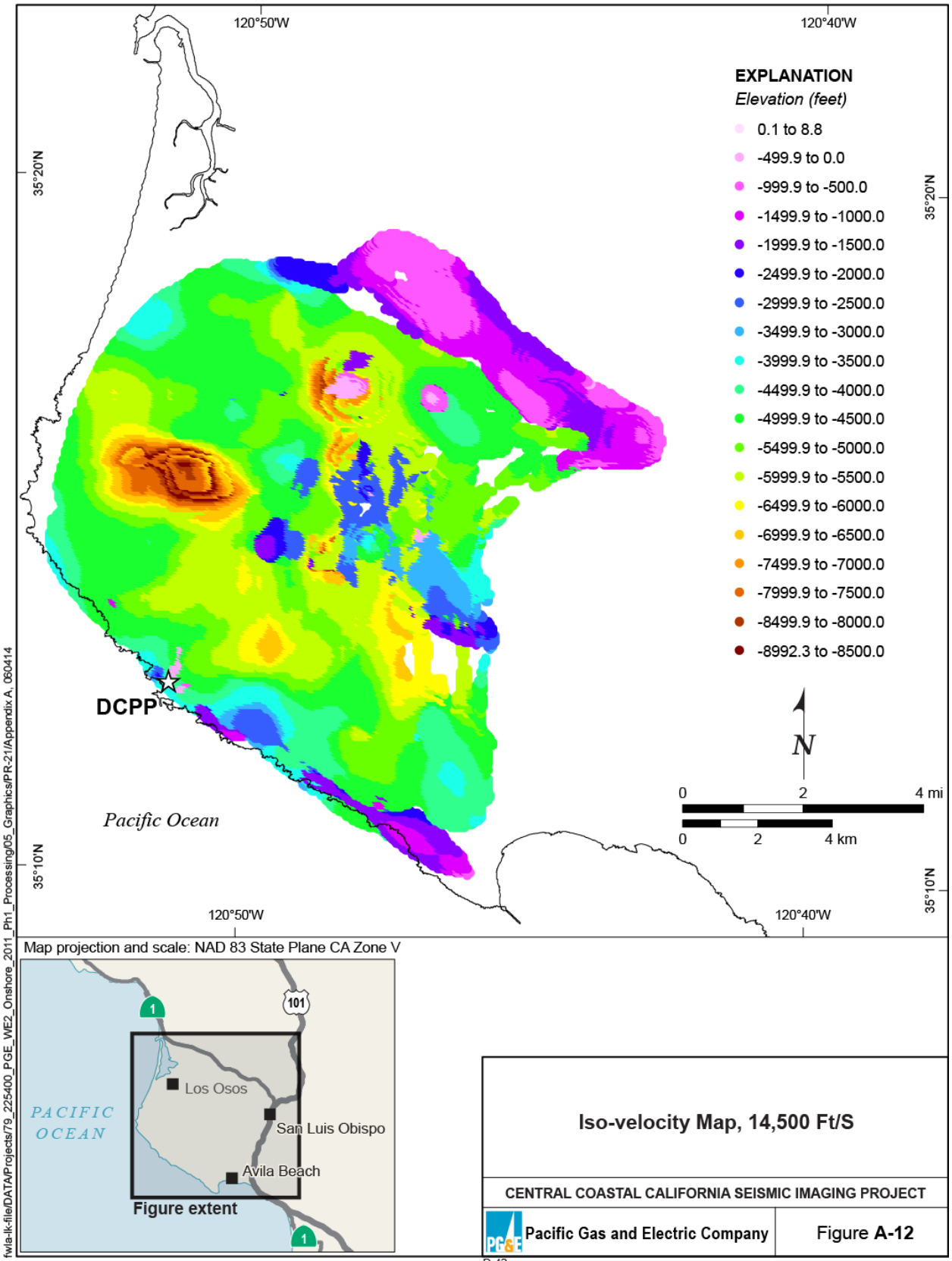
Pacific Gas and Electric Company | Figure **A-10**



Isovelocity Map, 14,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

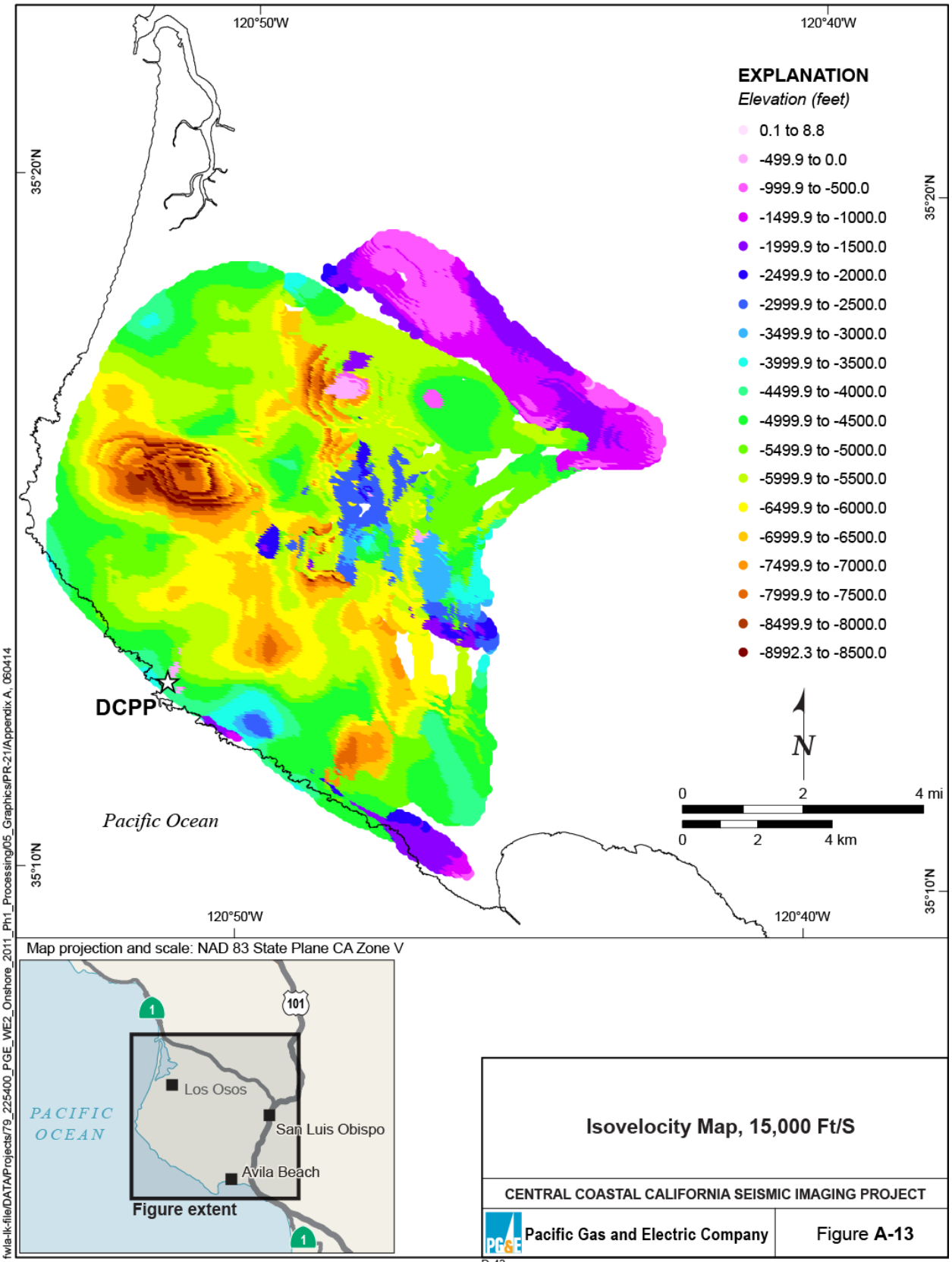
Pacific Gas and Electric Company | Figure **A-11**



Iso-velocity Map, 14,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-12**

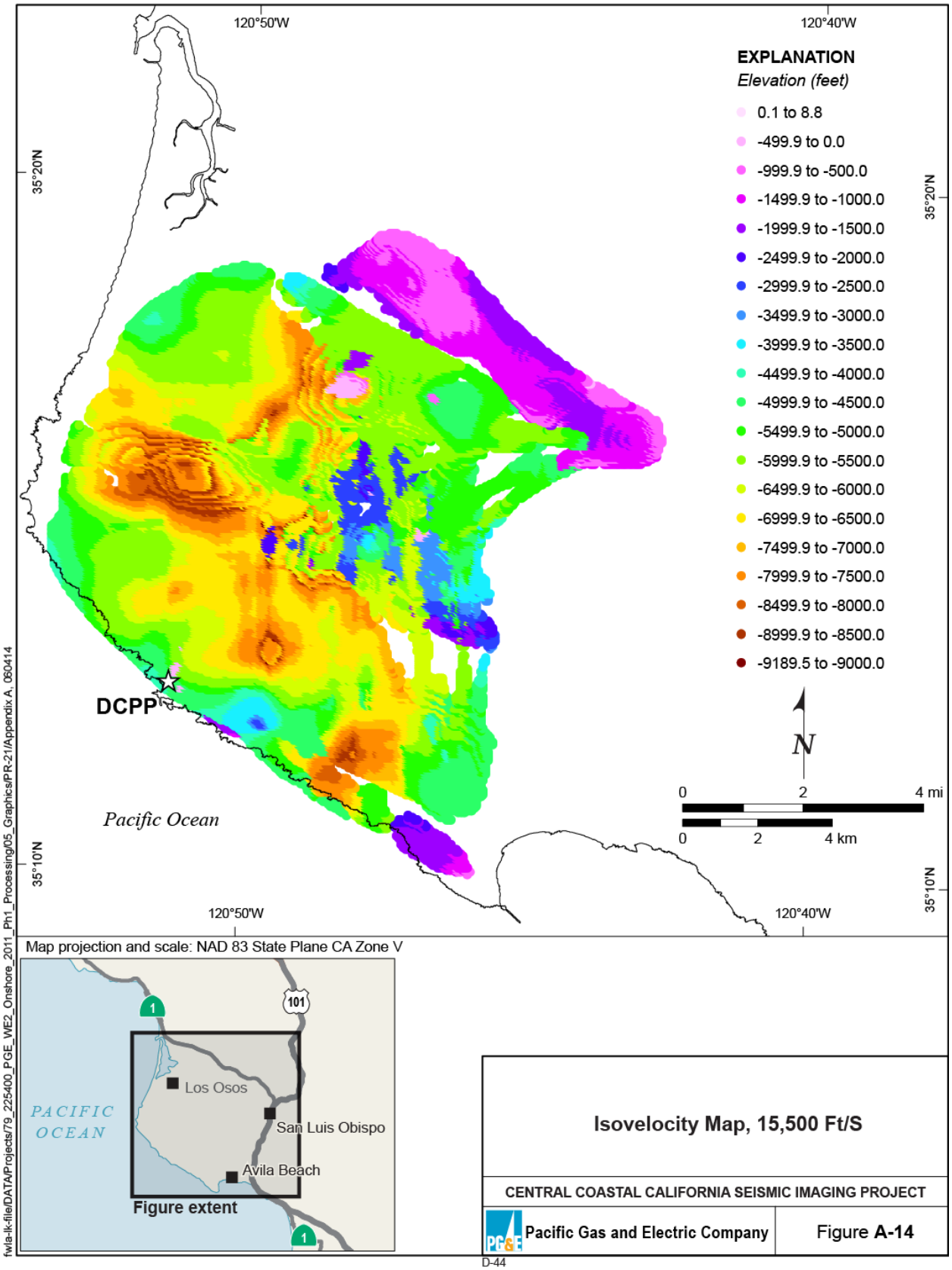


fwla-lk-file\DATA\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\Appendix A_060414

Isovelocity Map, 15,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-13**

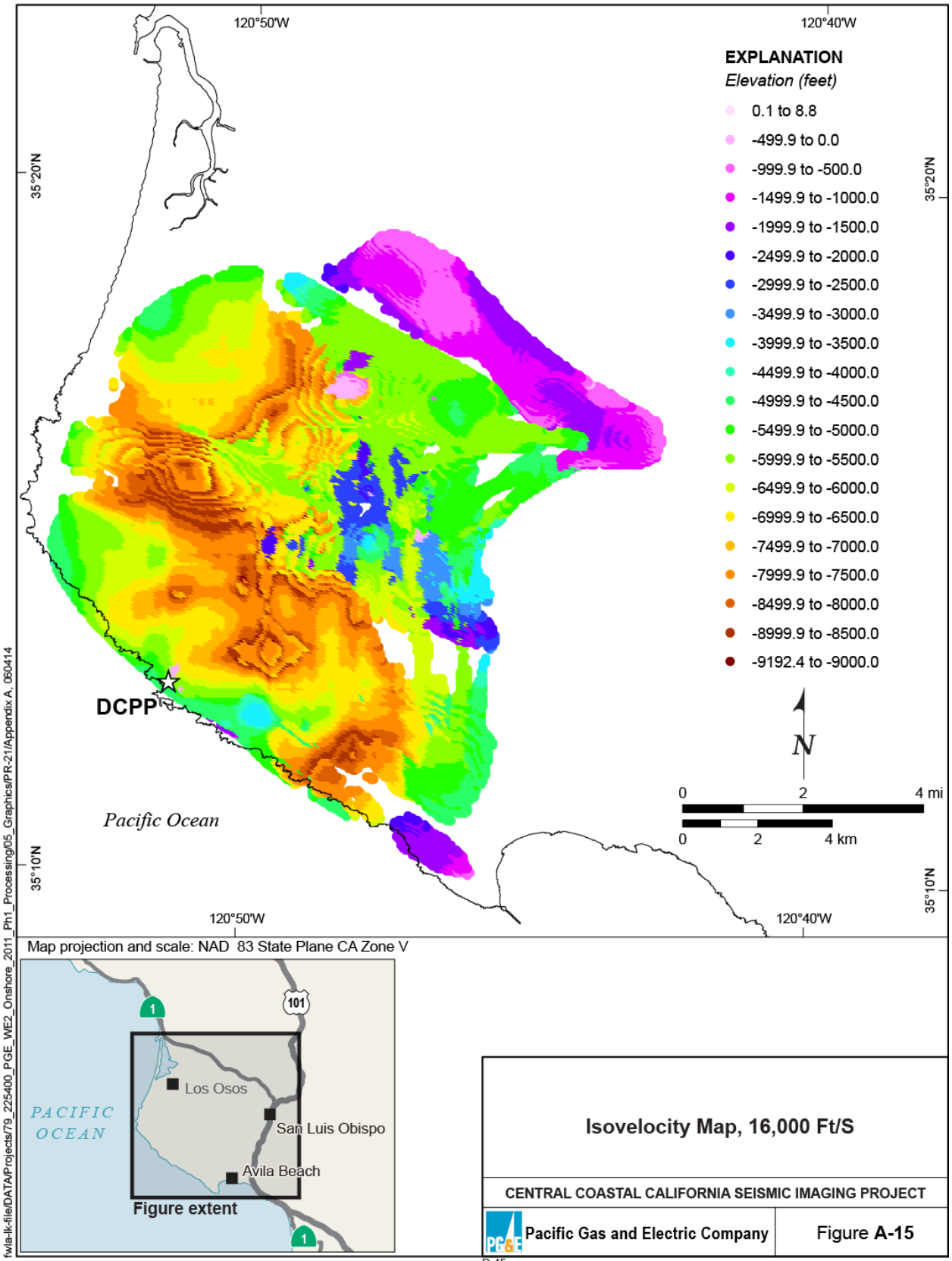


fwla-lk-file\DATA\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\Appendix A_060414

Isovelocity Map, 15,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

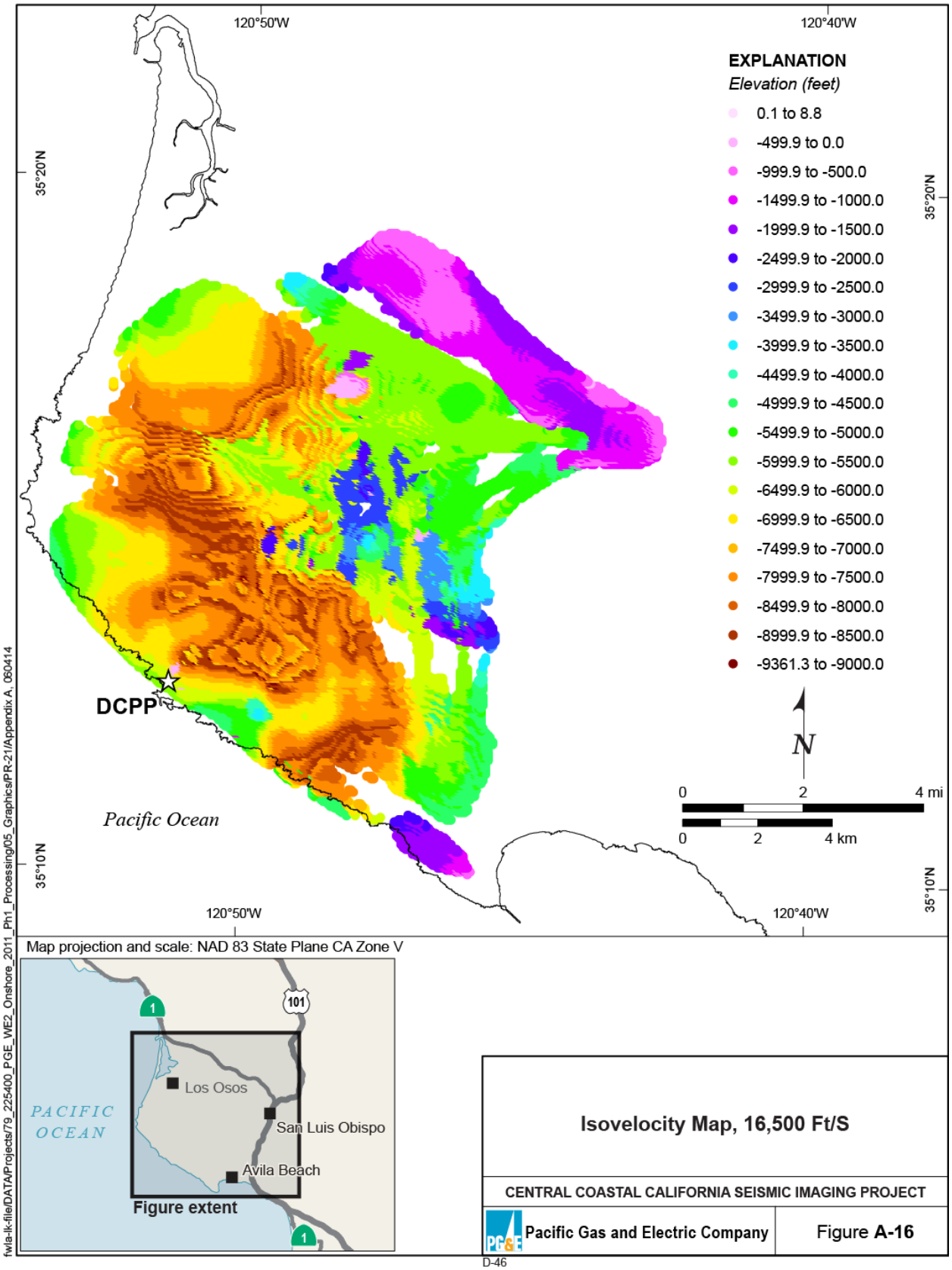
Pacific Gas and Electric Company | Figure **A-14**



Isovelocity Map, 16,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

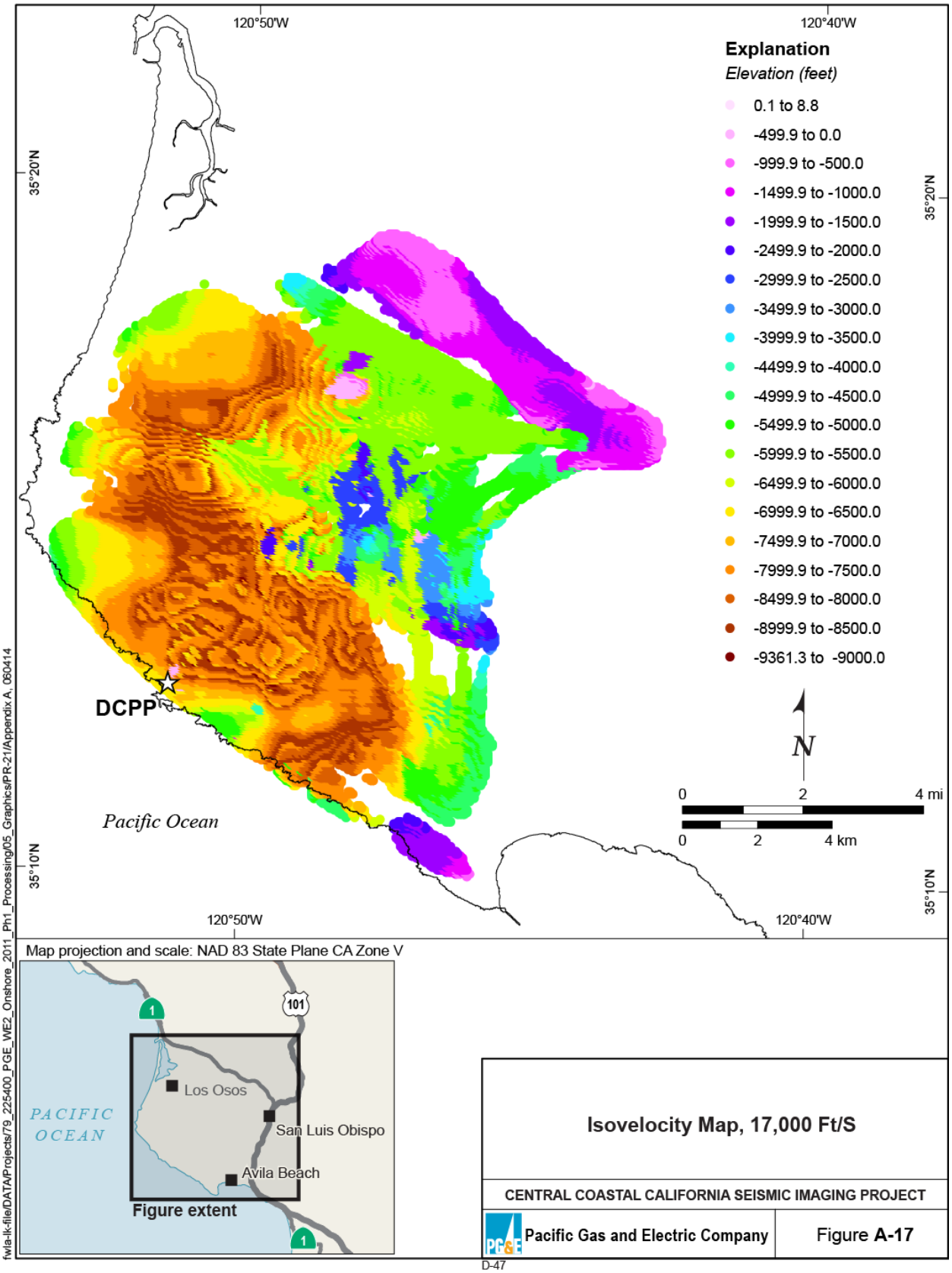
Pacific Gas and Electric Company | Figure **A-15**



Isovelocity Map, 16,500 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-16**



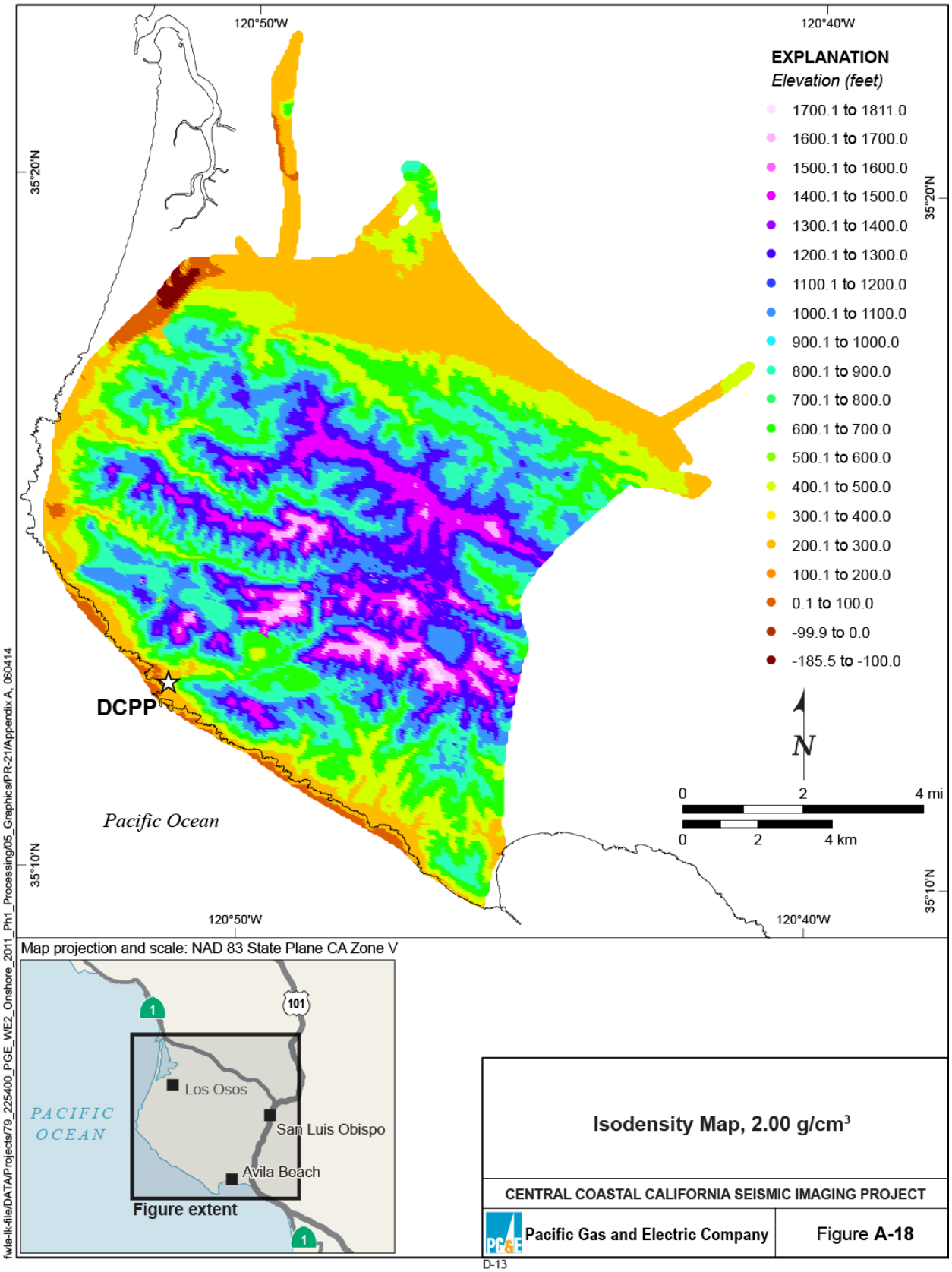
fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/Appendix A, 060414

Isovelocity Map, 17,000 Ft/S

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company

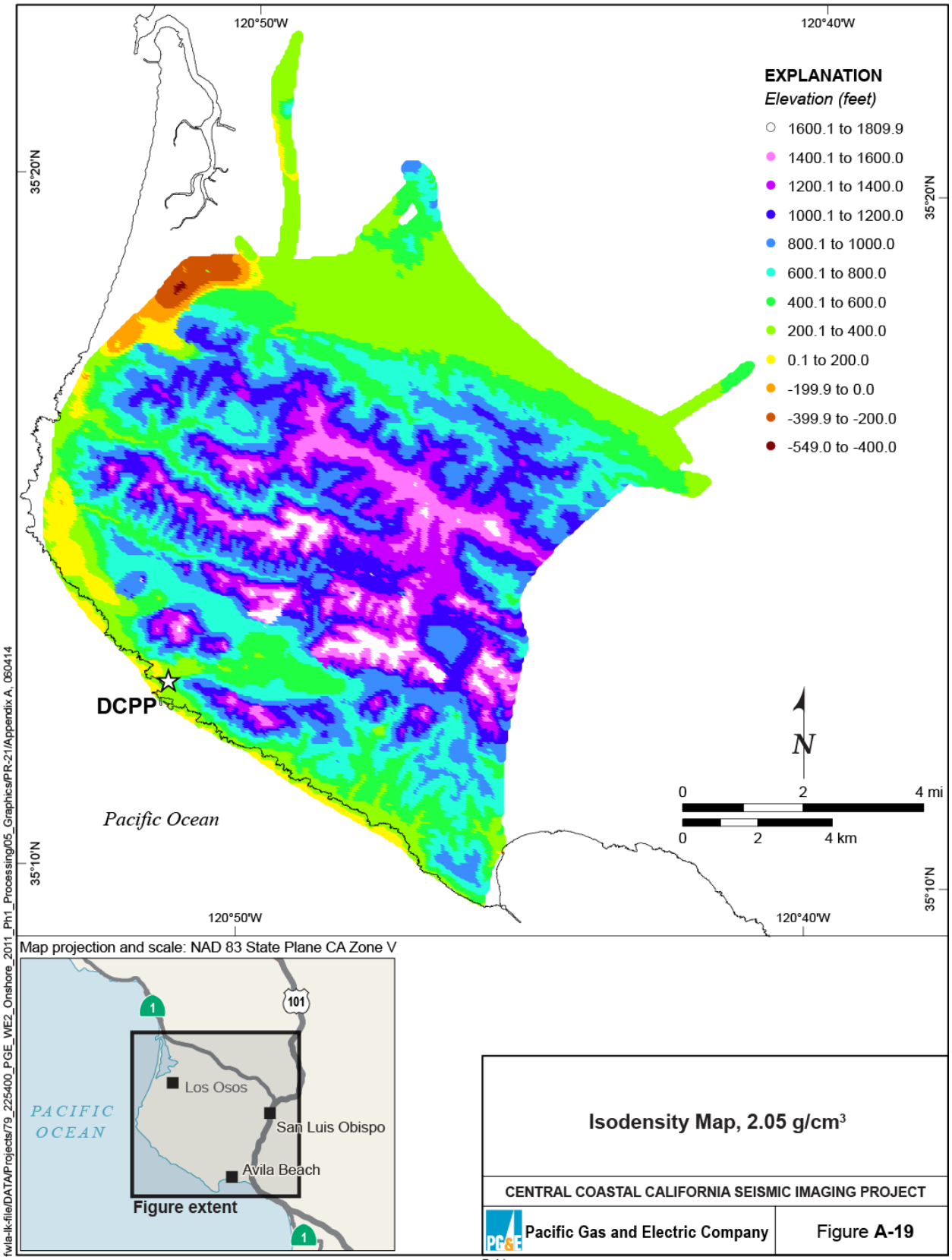
Figure **A-17**



Isodensity Map, 2.00 g/cm^3

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

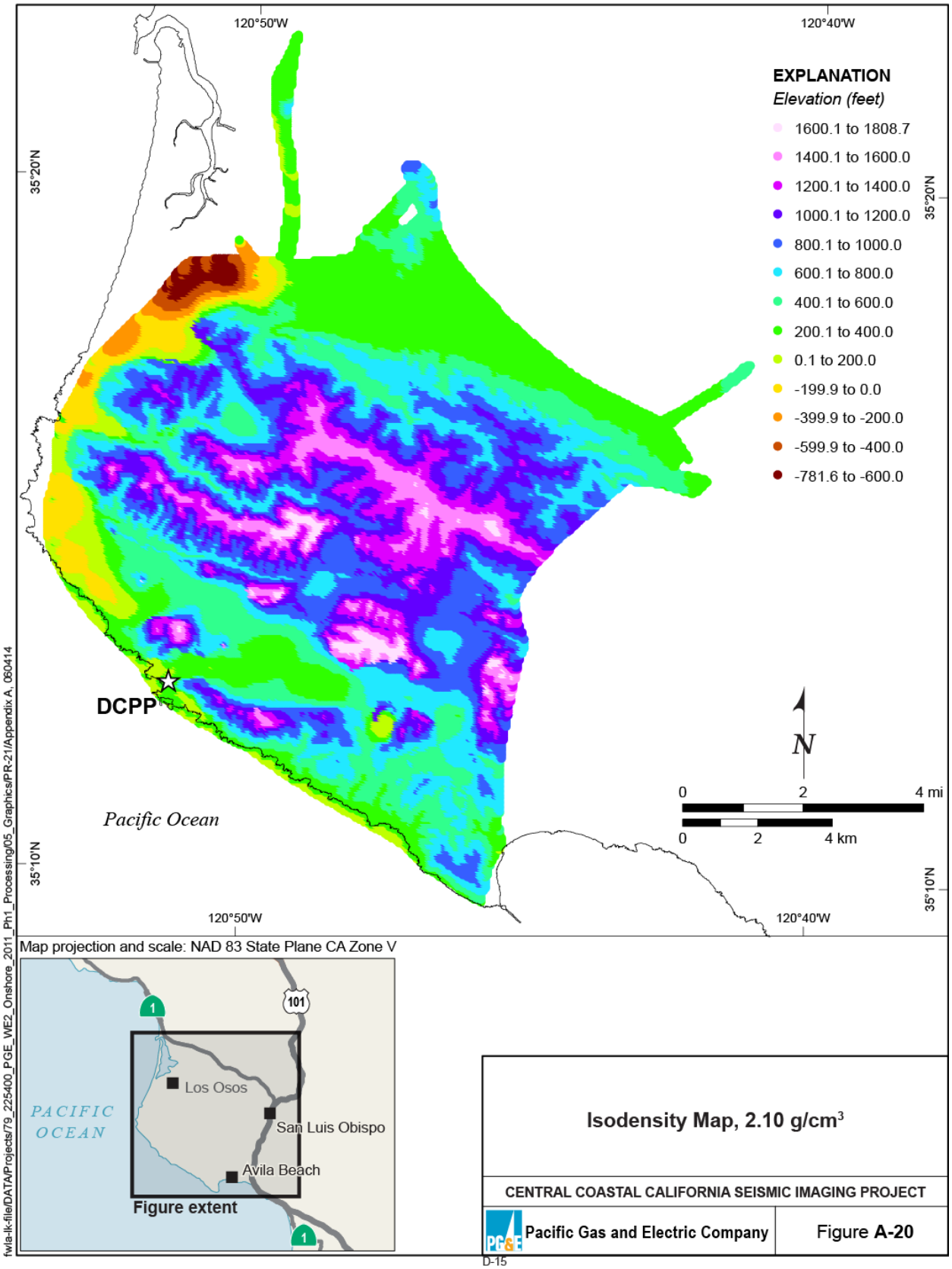
Pacific Gas and Electric Company | Figure **A-18**



Isodensity Map, 2.05 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

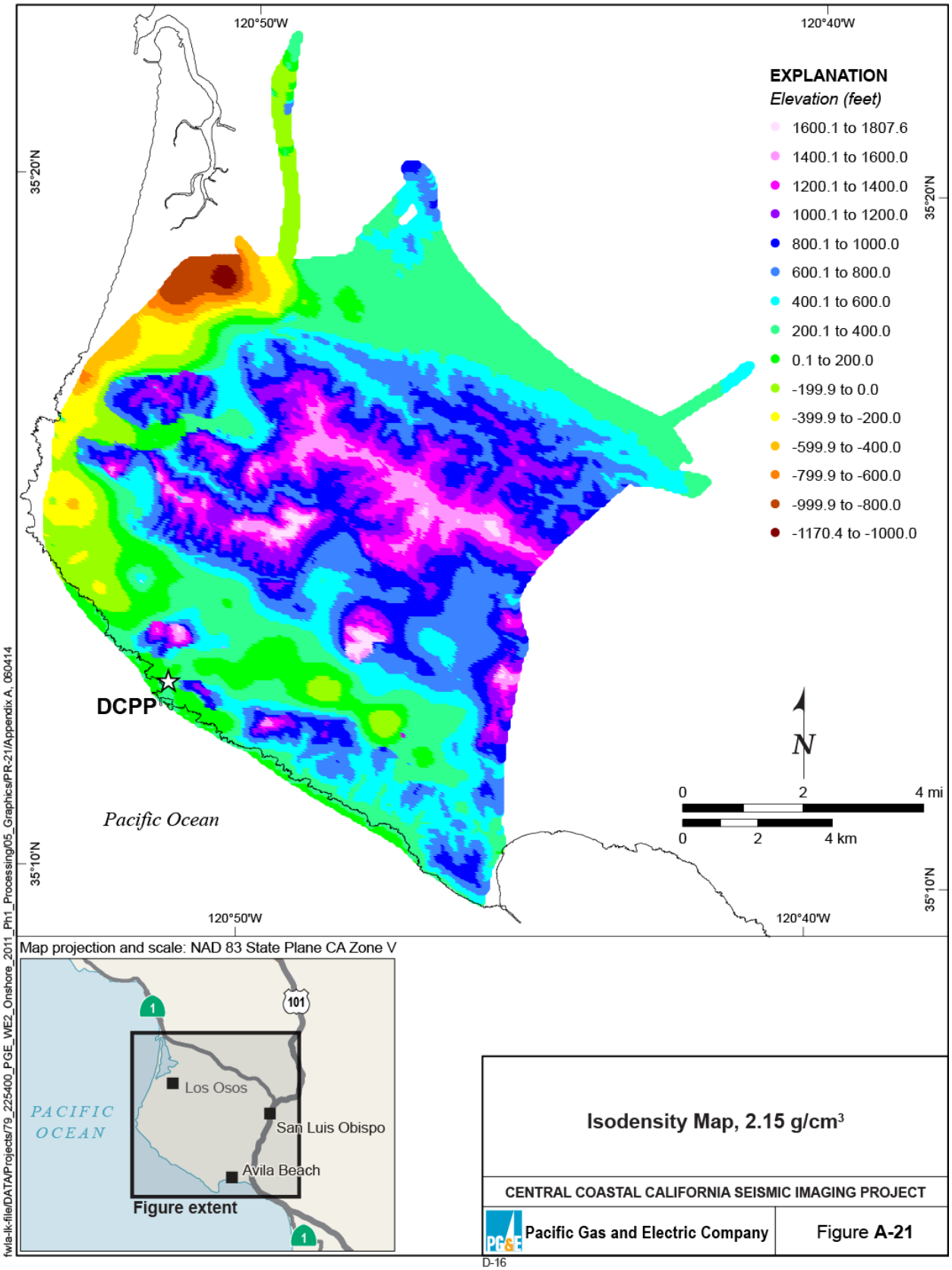
Pacific Gas and Electric Company | Figure **A-19**



Isodensity Map, 2.10 g/cm^3

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

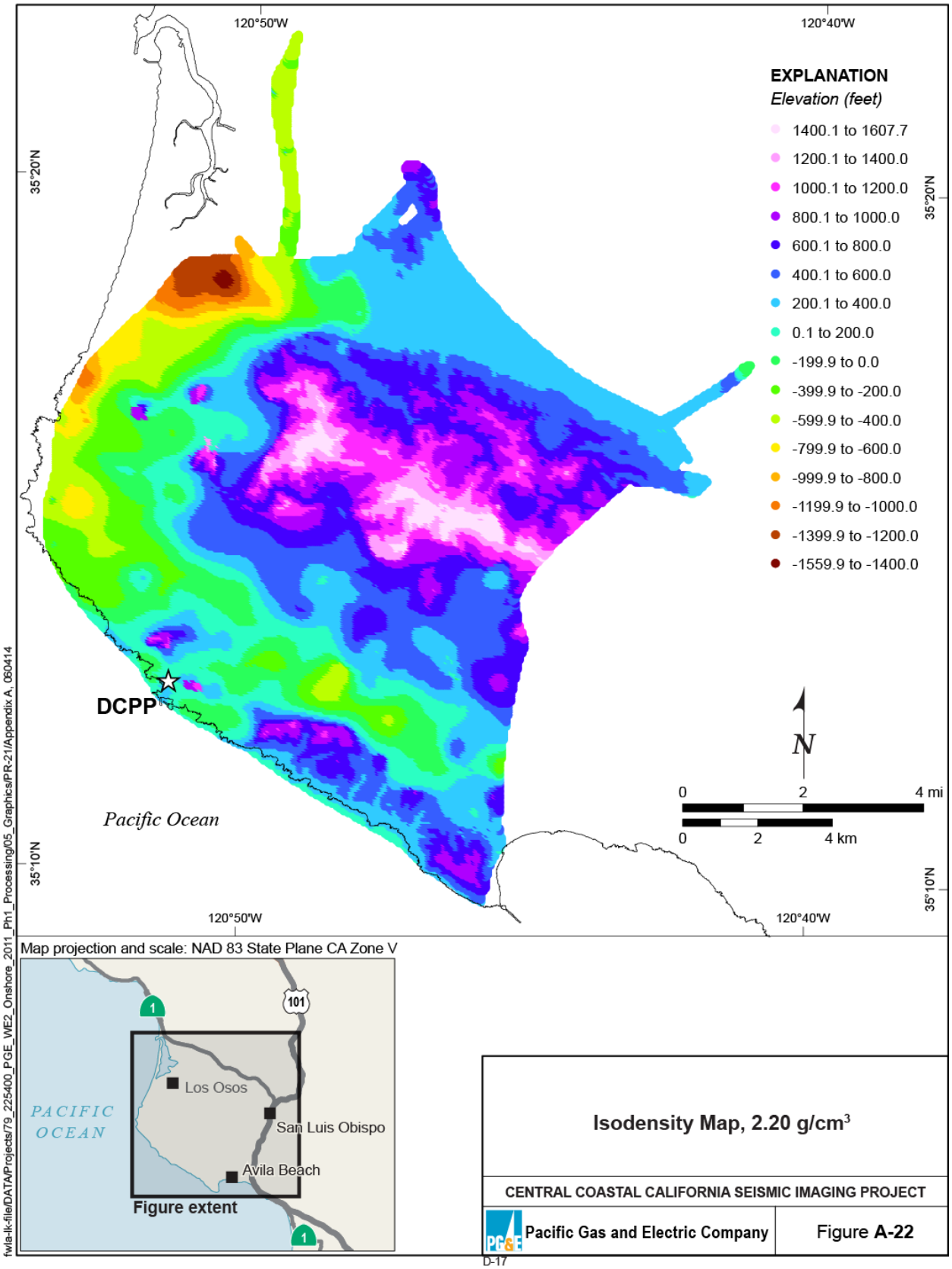
Pacific Gas and Electric Company | Figure **A-20**



Isodensity Map, 2.15 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

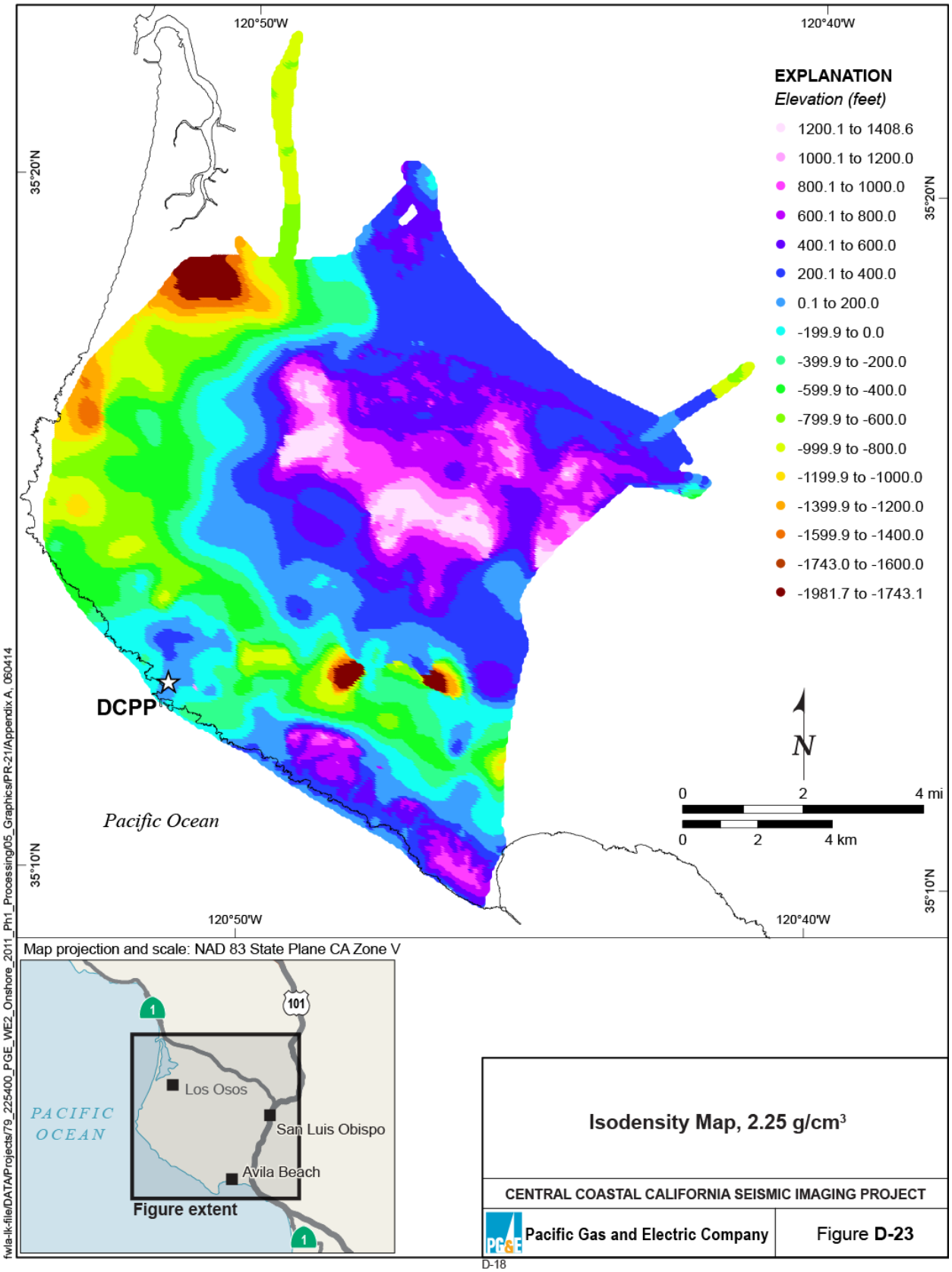
Pacific Gas and Electric Company | Figure **A-21**



Isodensity Map, 2.20 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

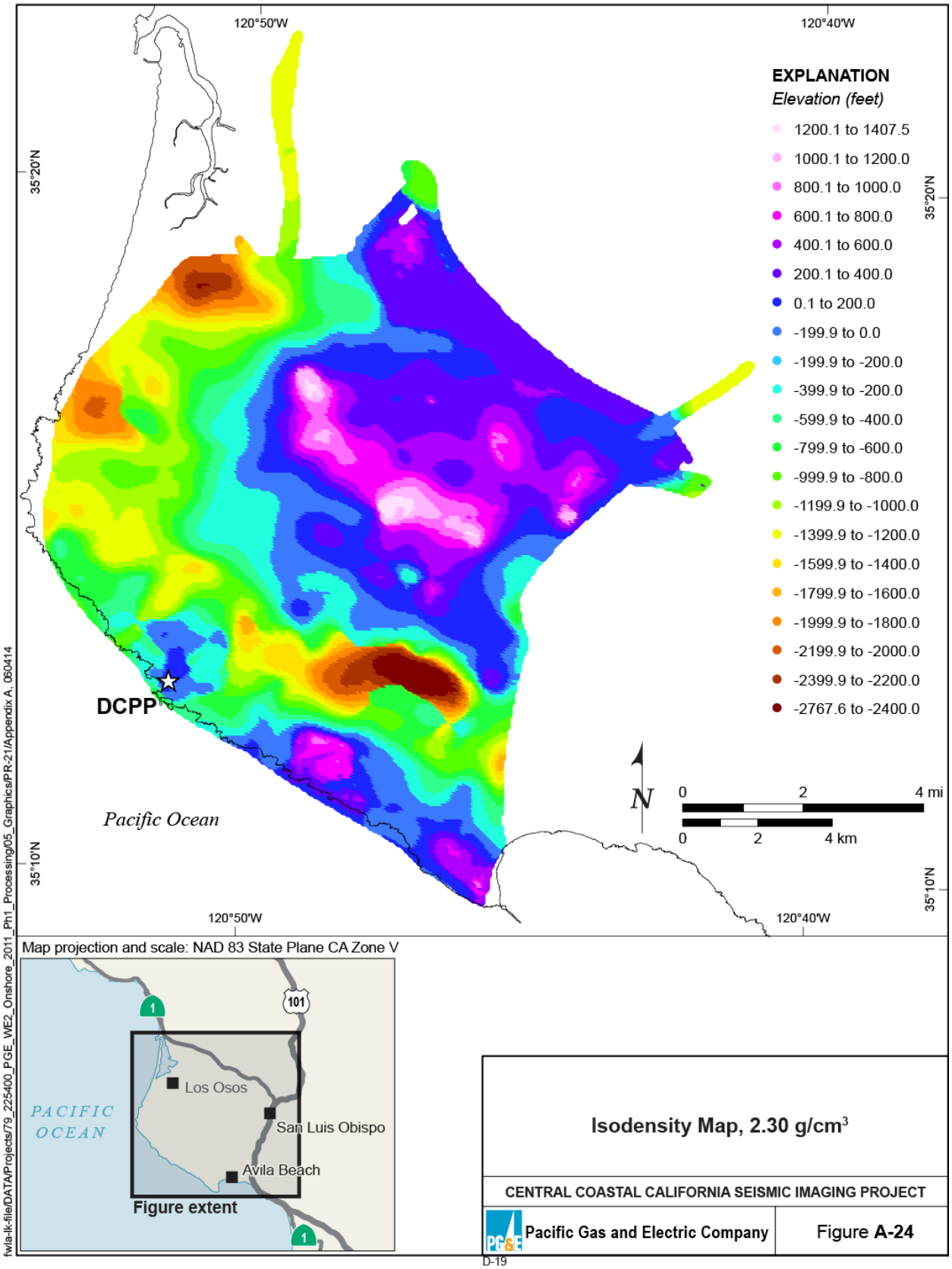
Pacific Gas and Electric Company | Figure **A-22**



Isodensity Map, 2.25 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

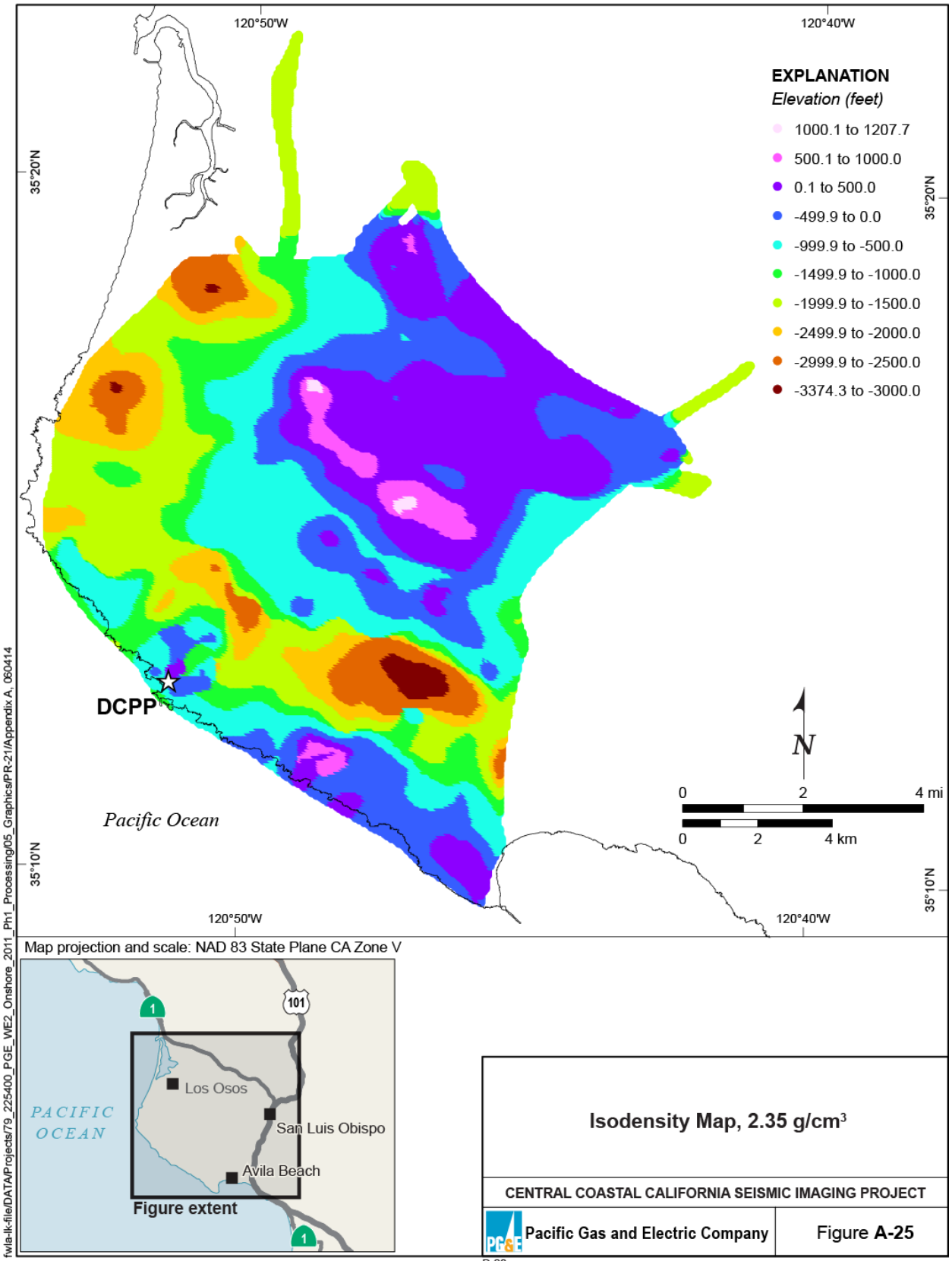
Pacific Gas and Electric Company | Figure **D-23**



Isodensity Map, 2.30 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

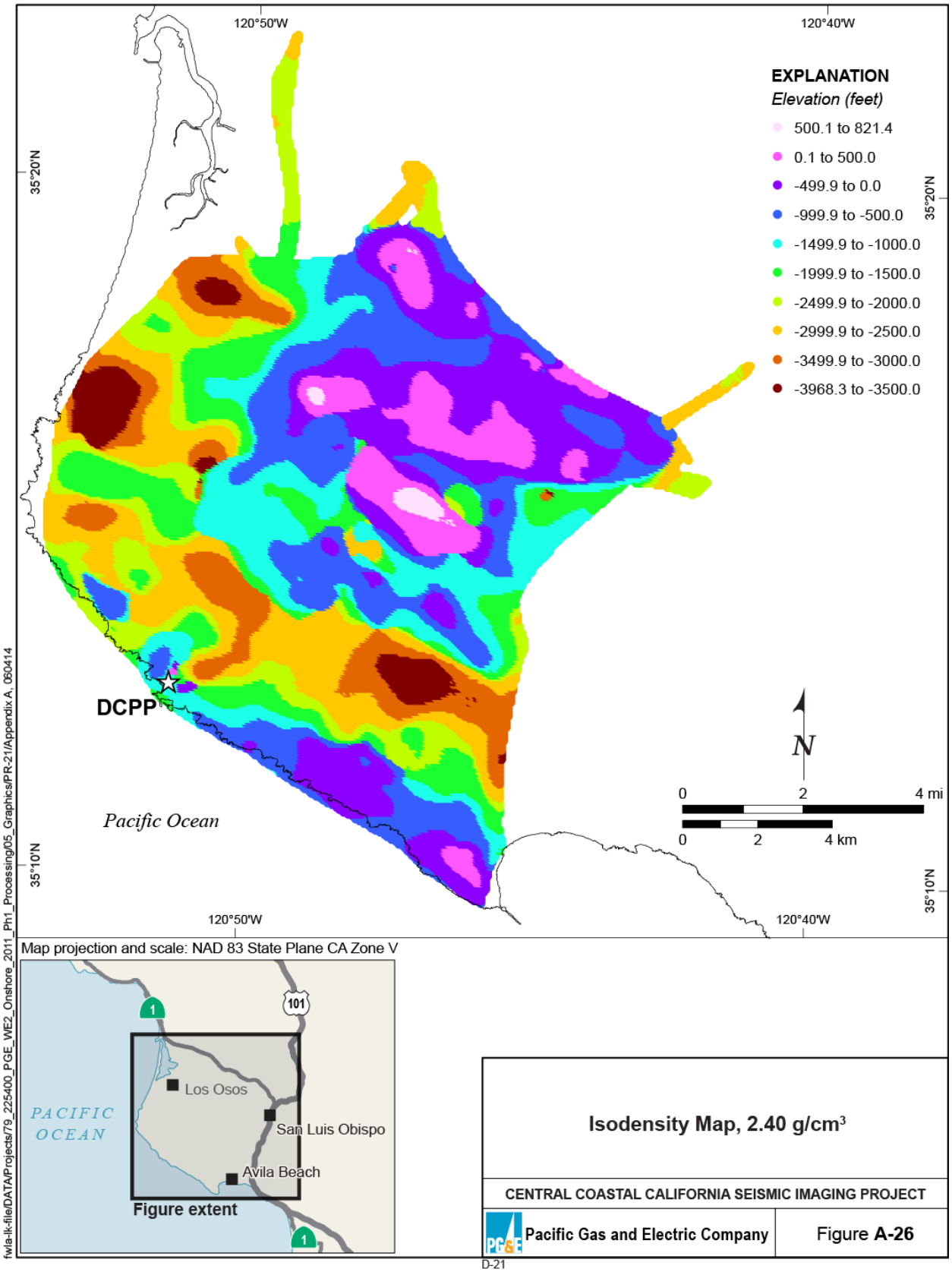
Pacific Gas and Electric Company | Figure **A-24**



Isodensity Map, 2.35 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

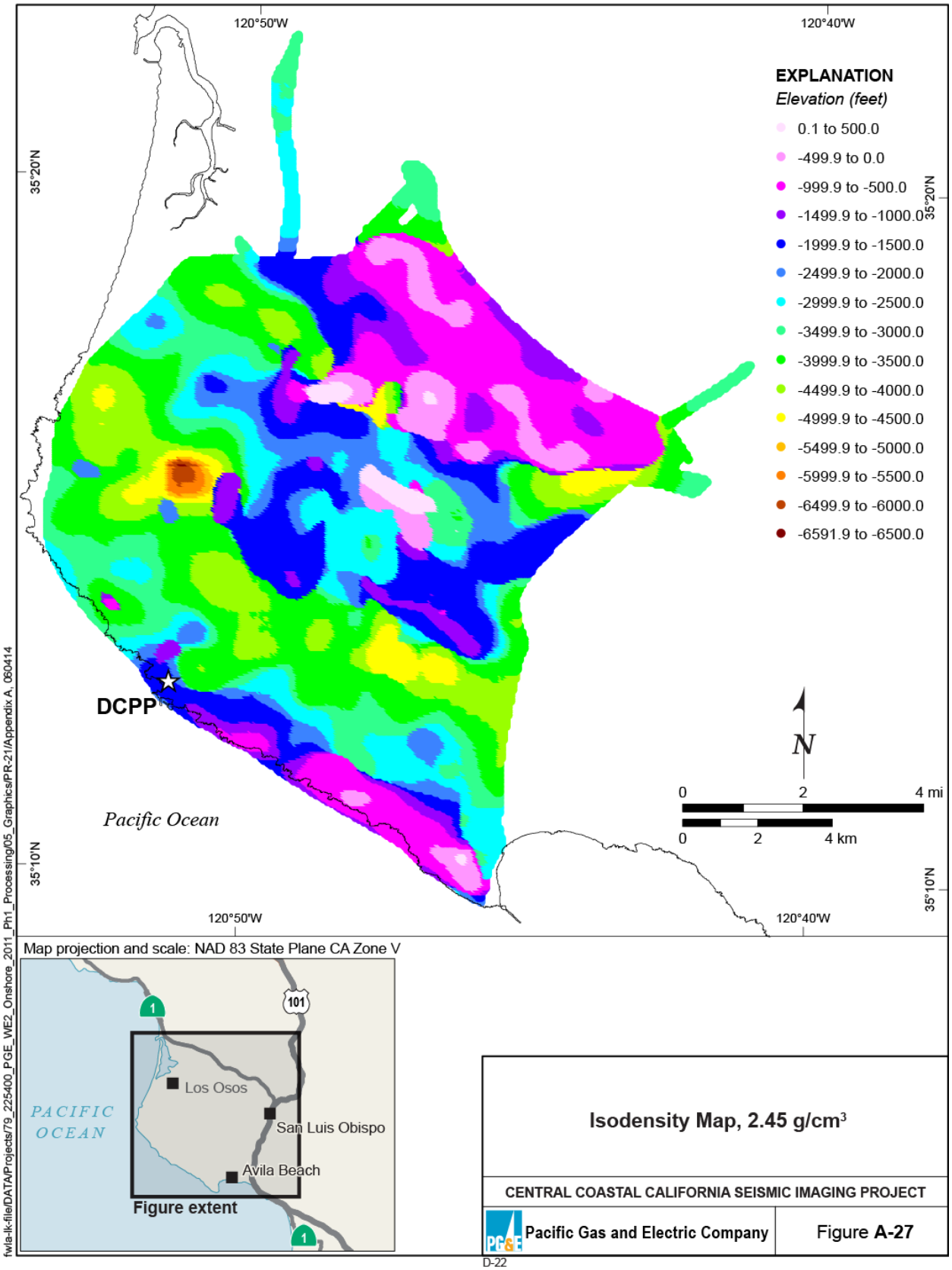
Pacific Gas and Electric Company | Figure **A-25**



Isodensity Map, 2.40 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

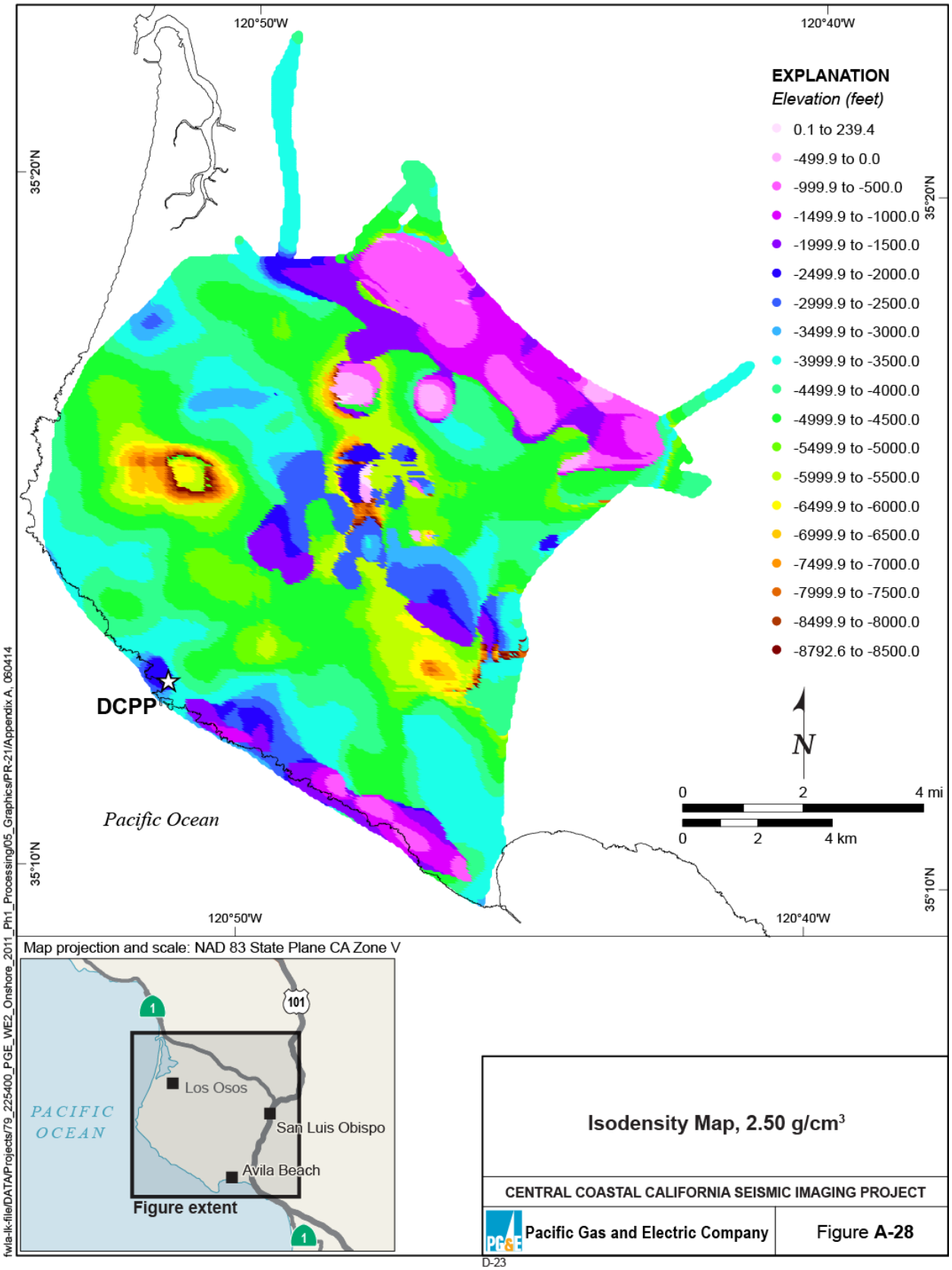
Pacific Gas and Electric Company | Figure **A-26**



Isodensity Map, 2.45 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

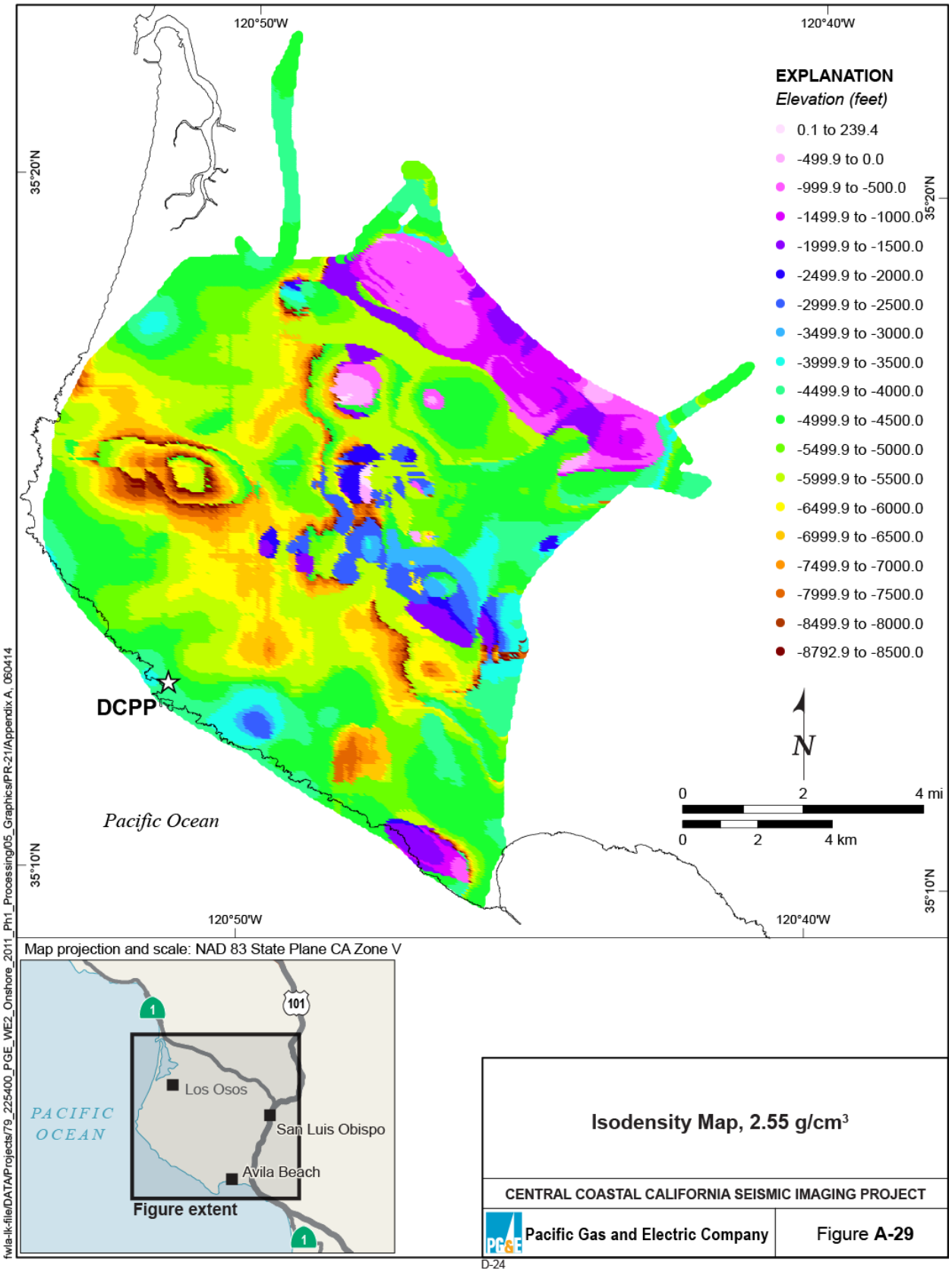
Pacific Gas and Electric Company | Figure **A-27**



Isodensity Map, 2.50 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-28**

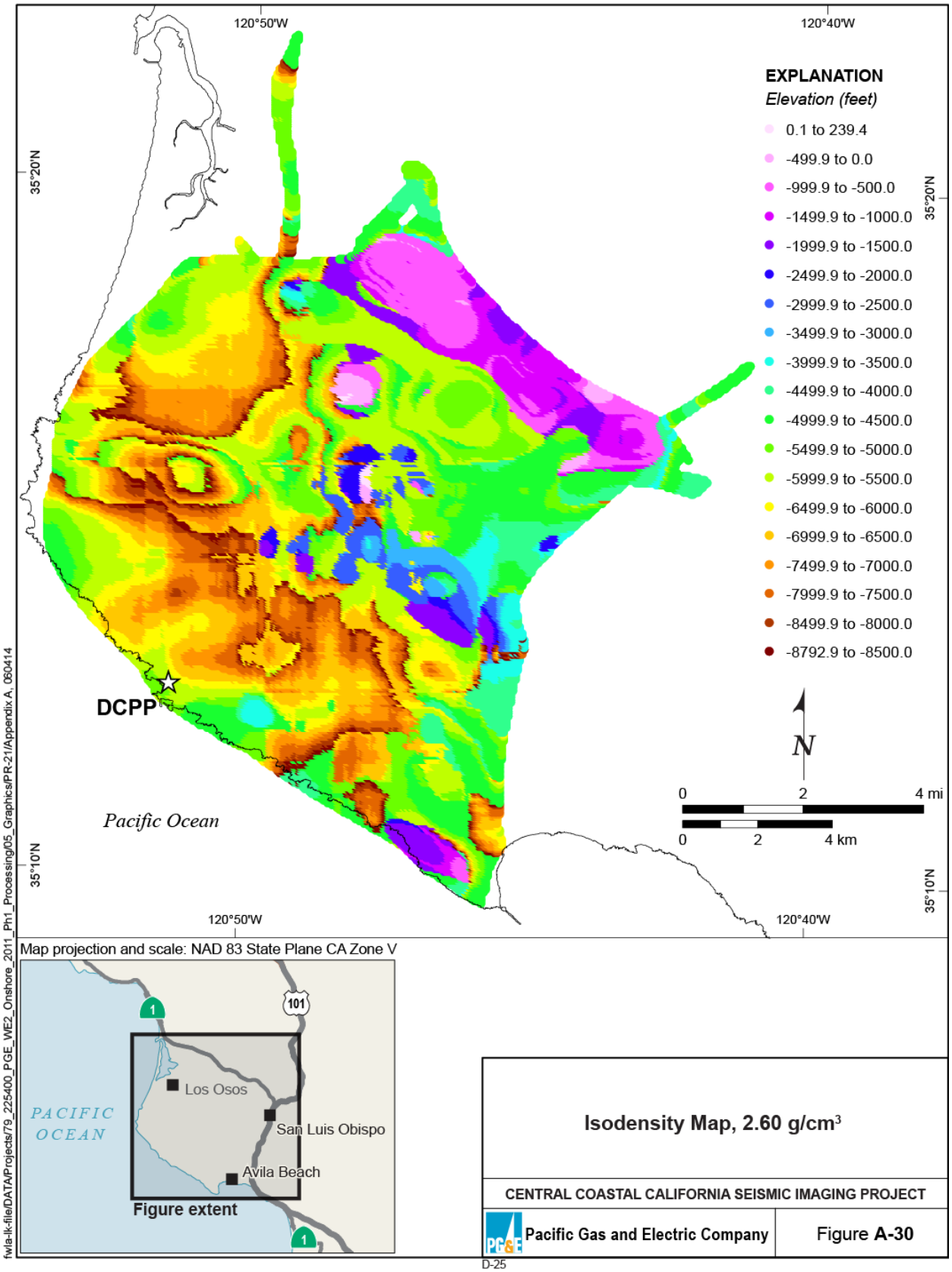


fwla-lk-file\DATA\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\Appendix A_060414

Isodensity Map, 2.55 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-29**

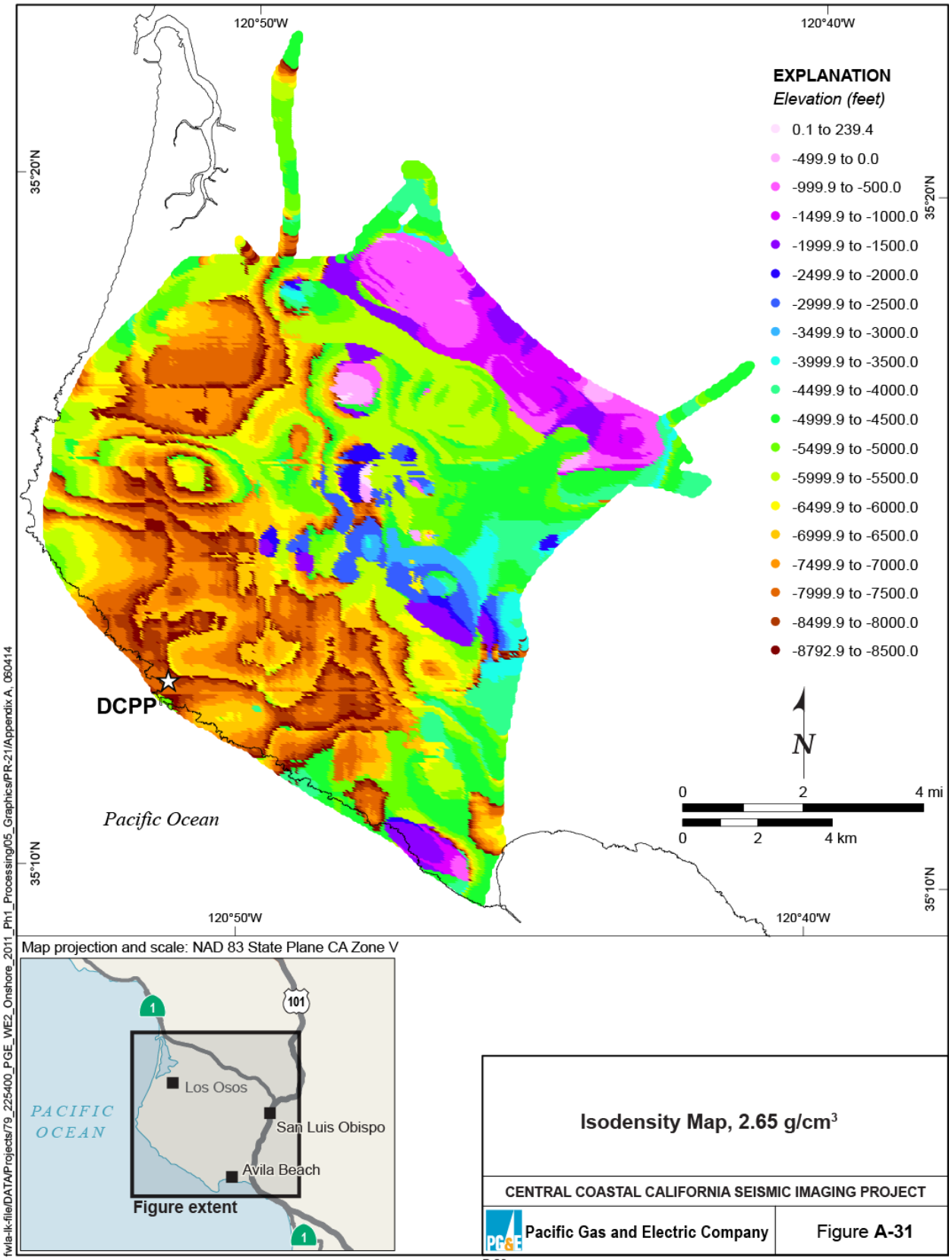


fwla-lk-file\DATA\Projects\79_225400_PGE_WE2_Onshore_2011_Ph1_Processing\05_Graphics\PR-21\Appendix A_060414

Isodensity Map, 2.60 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

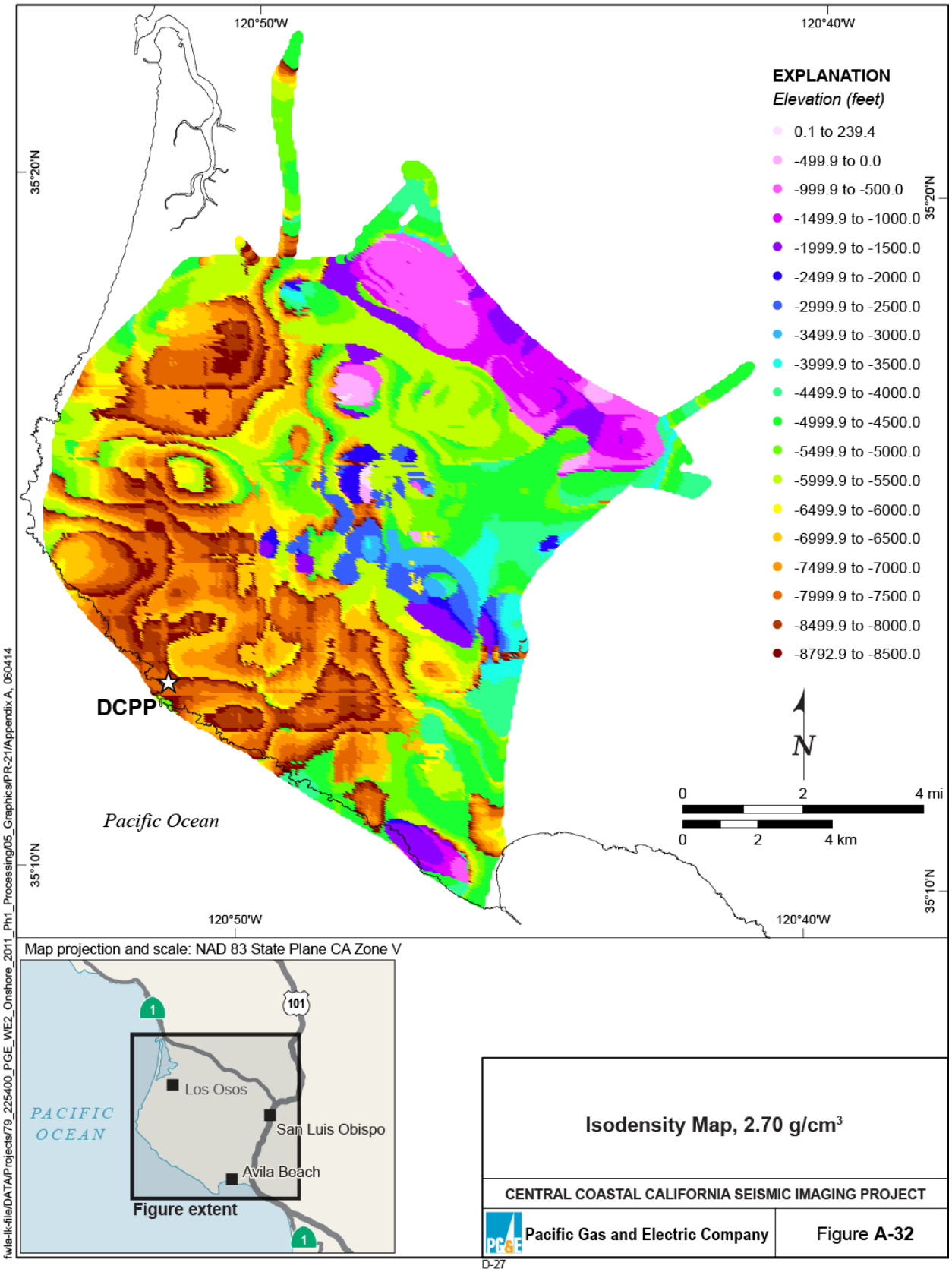
Pacific Gas and Electric Company | Figure **A-30**



Isodensity Map, 2.65 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-31**



fwla-lk-file/DATA/Projects/79_225400_PGE_WE2_Onshore_2011_Ph1_Processing/05_Graphics/PR-21/Appendix A_060414

Isodensity Map, 2.70 g/cm³

CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

Pacific Gas and Electric Company | Figure **A-32**