UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD PANEL
WASHINGTON, D.C. 20555

September 6, 2013

MEMORANDUM TO: Rebecca Giitter, Administrative and Litigation Analyst

FROM: Twana Ellis, Program Analyst

SUBJECT: PACIFIC GAS & ELECTRIC COMPANY
(DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2)
DOCKET NOS. 50-275-LR and 50-323-LR
ASLBP NO. 10-890-01-LR-BD01
WRITTEN LIMITED APPEARANCE STATEMENT

Dear Ms. Giitter,

The Atomic Safety and Licensing Board handling the above-captioned adjudication recently received the enclosed communication. While it does not constitute evidence, we deem it to be a limited appearance statement filed pursuant to 10 C.F.R. § 2.315(c).

On behalf of the Diablo Canyon Board, I request that you place the enclosed document in the electronic hearing docket for this proceeding.

Thank you.

Twana Ellis

Encl.: 08/15/13 Letter from J.A. Tony Fallin

CC: Judge Alex Karlin

To: *Allison Macfarlane, Chairman
U.S. Nuclear Regulatory Commission
Mail Stop 01664
Washington, D.C. 20555-0001

*Jeanne Hardebeck, Tom Brocher, et al.
U.S. Geological Survey M.S. 977
Earthquake Studies Group
345 Middlefield Road
Menlo Park, California 94025

*Sam Blakeslee, California Assemblyman
1104 Palm Street
San Luis Obispo, California 93401

*U.S.-N.R.C. Atomic Safety and
Licensing Board Panel
Two White Flint North
11545 Rockville Pike M.S. T-3F23
Rockville, Maryland 20852

*Sally Jewell, Secretary
U.S. Department of Interior
1849 "C" Street N.W.
Washington, D.C. 20240

*Roy Shlemon, CEO
Shlemon and Associates
P.O. Box 3066
Newport Beach, California 92659-0620

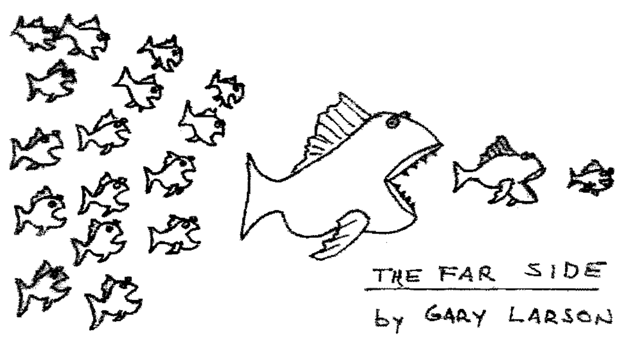
*Hab Boushey, M.D., and Family
Helen, Billy, Eleanor, Anna
U.C.S.F. Medical School
505 Parnassus Avenue
Room 0130 Box M-1292
San Francisco, California 94143

*Other Family, Friends and Associates

From: J.A. Tony Fallin
P.O. Box 1624
Boulder, Colorado 80306

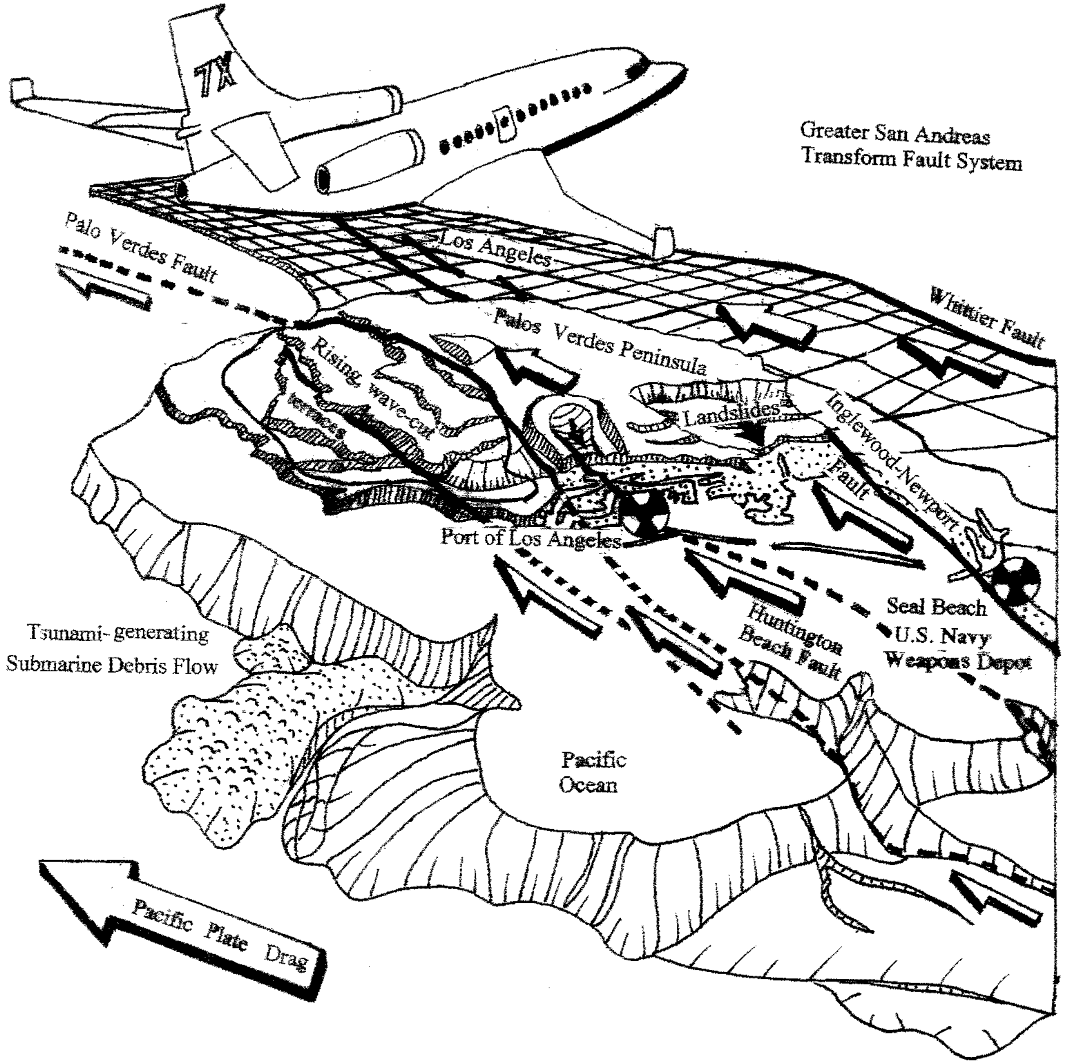
Subject: NRC review of PG&E's report on the Shoreline Fault offshore DCNPP, SOCAL

Date: August 15, 2013

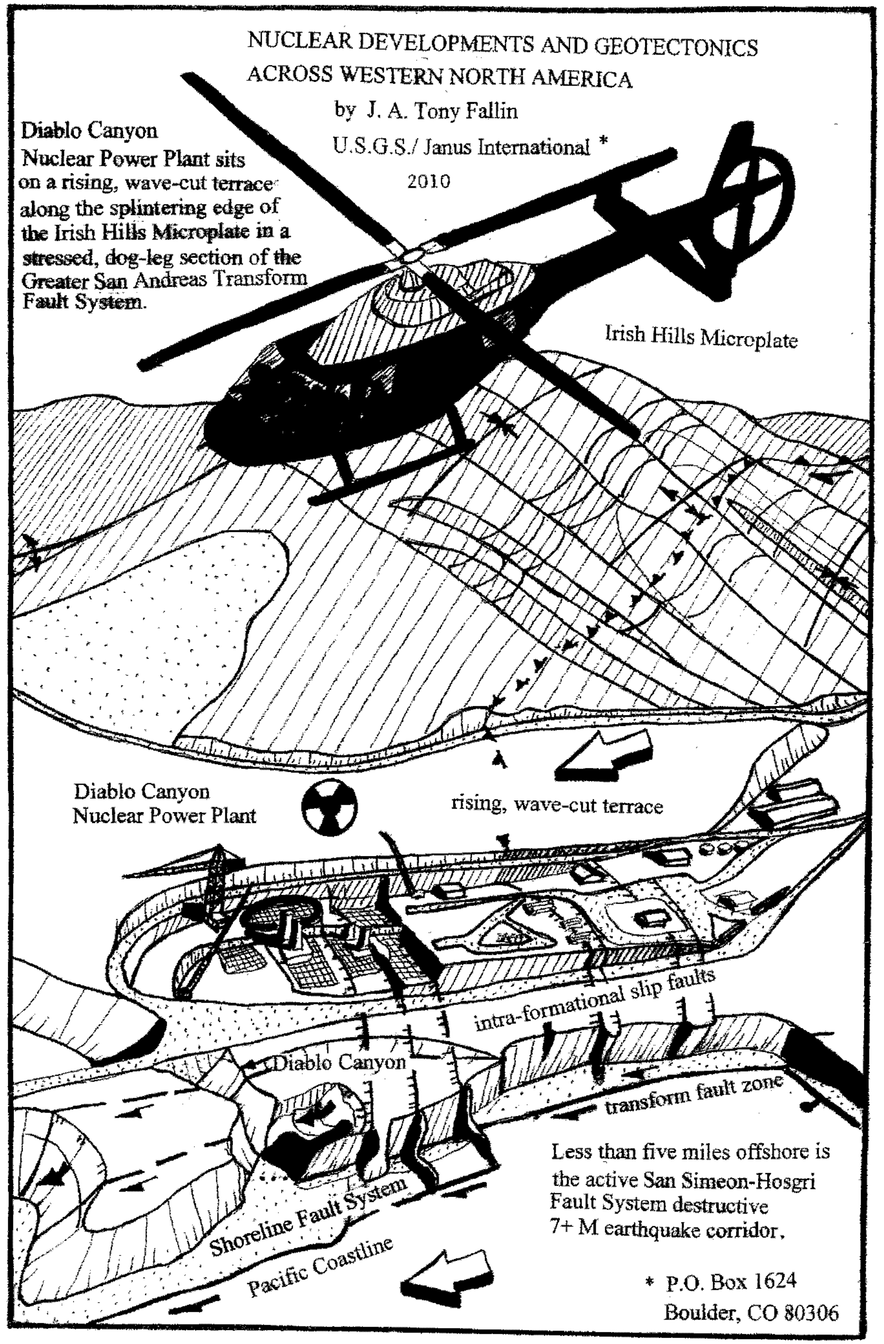


At-Risk, Nuclear Facilities Posing Clear and Present Dangers on Tsunami-Prone Coastlines of the U.S.

By J. A. Tony Fallin, U.S.G.S./Janus International – 2012



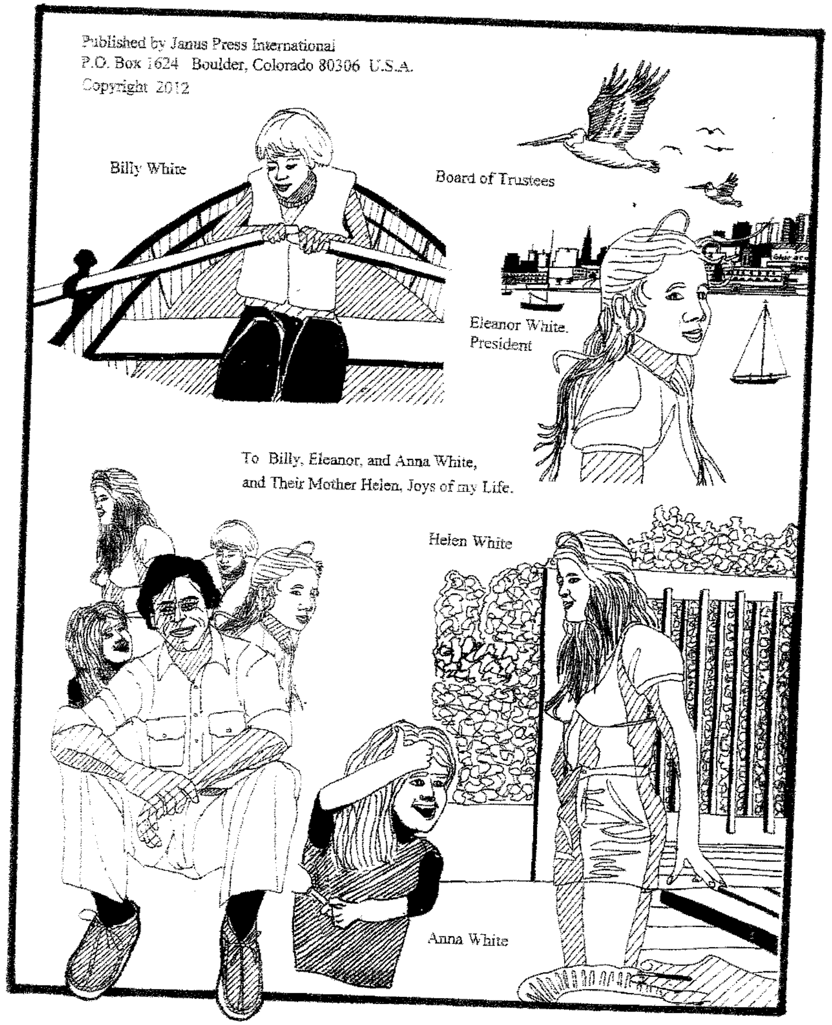
YET ANOTHER GEOLOGICAL CONSULTANT TRIES TO TALK COMMON SENSE INTO THE MINDS OF PG&E'S DEATH-WISH SUITS AT THE UTILITY'S CORPORATE HEADQUARTERS IN SAN FRANCISCO, CALIFORNIA



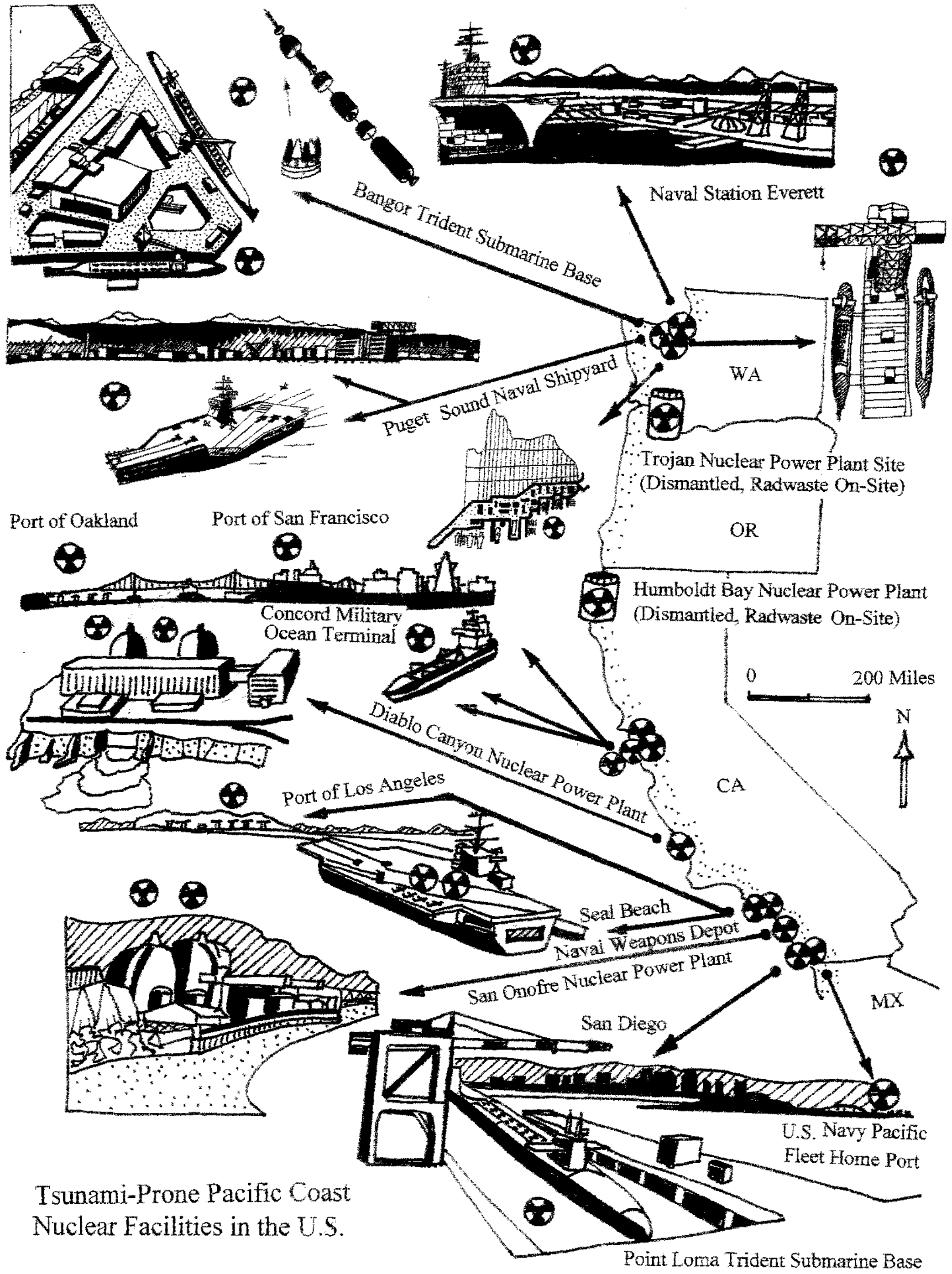
Thank you for your time and attention to this missive.

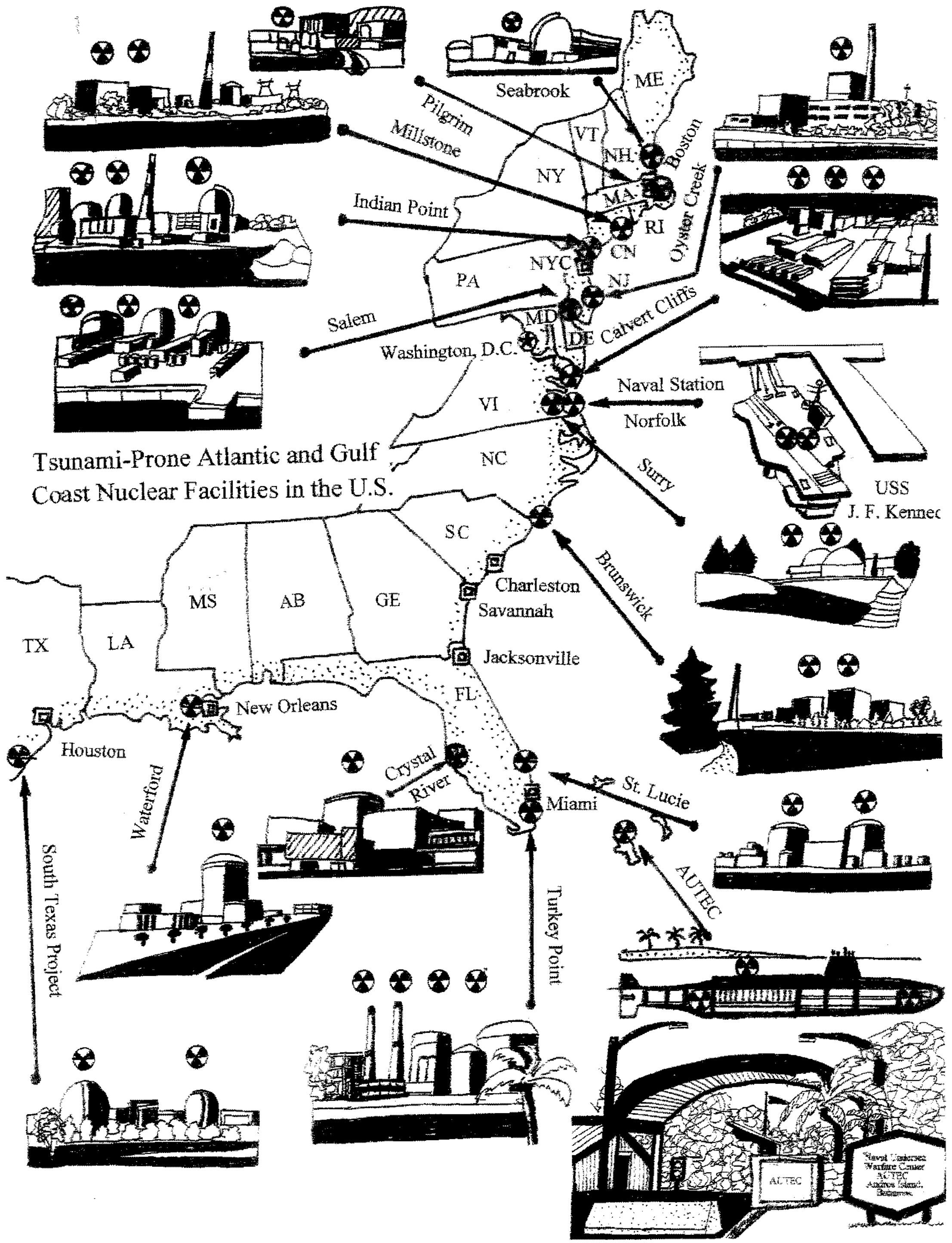
J. A. Fallin 8/15/13

J.A. Fallin



J. A. Tony Fallin, U.S.G.S./ Janus International

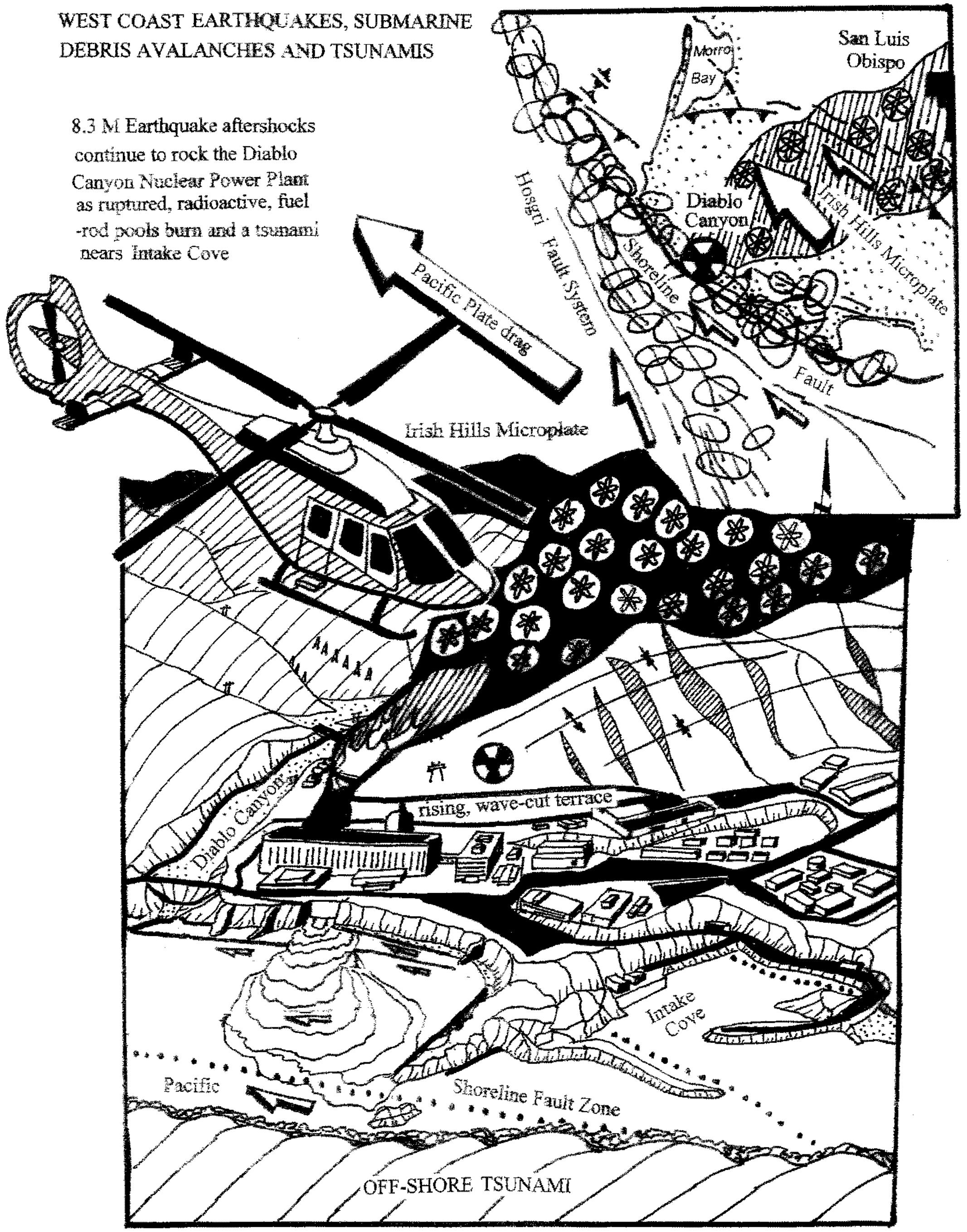

Bangor Trident Submarine Base
Naval Station Everett
Puget Sound Naval Shipyard
WA
Trojan Nuclear Power Plant Site
(Dismantled, Radwaste On-Site)
OR
Port of Oakland
Port of San Francisco
Humboldt Bay Nuclear Power Plant
(Dismantled, Radwaste On-Site)
Concord Military
Ocean Terminal
0
200 Miles
N
Diablo Canyon Nuclear Power Plant
CA
Port of Los Angeles
Seal Beach
Naval Weapons Depot
San Onofre Nuclear Power Plant
San Diego
MX
U.S. Navy Pacific
Fleet Home Port
Point Loma Trident Submarine Base
Tsunami-Prone Pacific Coast
Nuclear Facilities in the U.S.

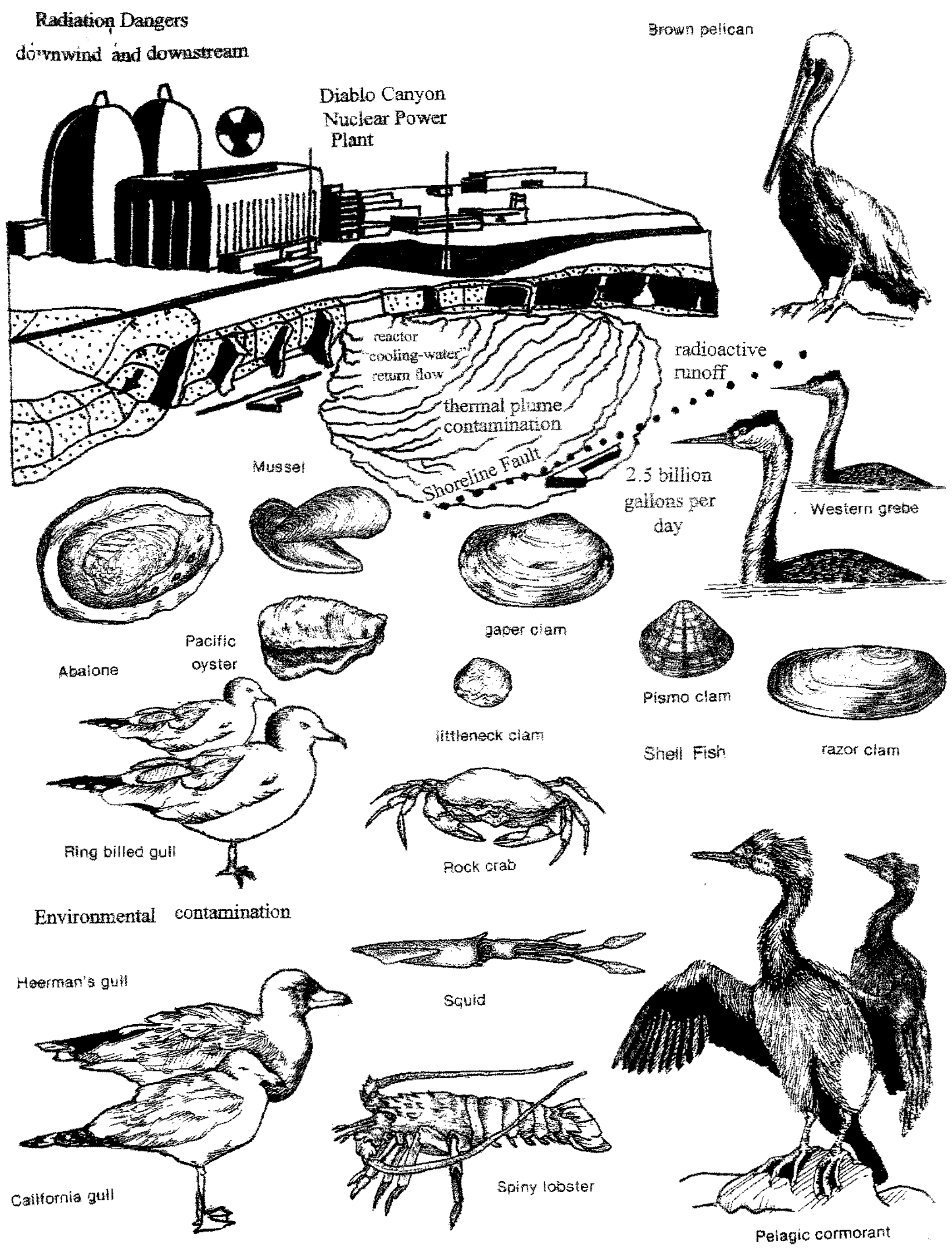

Seabrook
ME
Pilgrim
Millstone
VT
NH
Boston
NY
MA
Oyster Creek
Indian Point
RI
CN
NYC
PA
NJ
Salem
MD
DE
Calvert Cliffs
Washington, D.C.
Naval Station
Norfolk
VI
NC
Surry
USS
J. F. Kenne
Tsunami-Prone Atlantic and Gulf
Coast Nuclear Facilities in the U.S.
SC
Brunswick
Charleston
Savannah
MS
AB
GE
TX
LA
Jacksonville
New Orleans
FL
Houston
Crystal
River
St. Lucie
Miami
Waterford
South Texas Project
Turkey Point
AUTEC

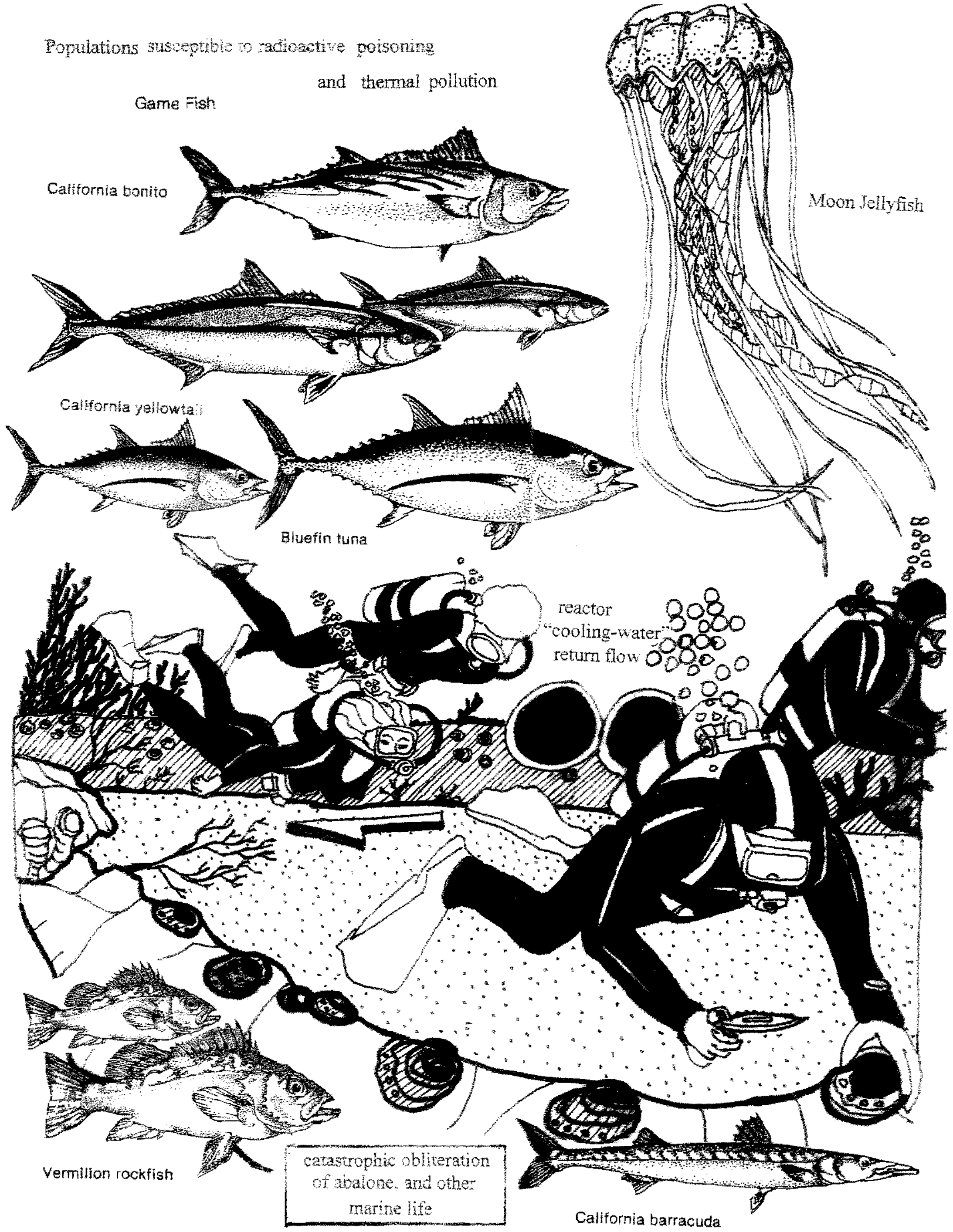
Cooling water intakes and outflow facilities at the Diablo Canyon Nuclear Power Plant are located at sealevel or lower, exposing them directly to the tsunami dangers.

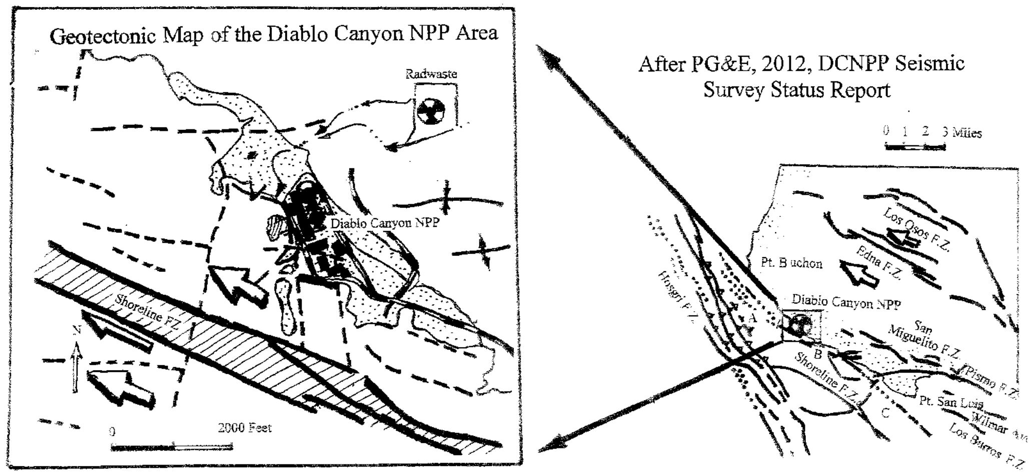
WEST COAST EARTHQUAKES, SUBMARINE DEBRIS AVALANCHES AND TSUNAMIS

8.3 M Earthquake aftershocks continue to rock the Diablo Canyon Nuclear Power Plant as ruptured, radioactive, fuel -rod pools burn and a tsunami nears Intake Cove

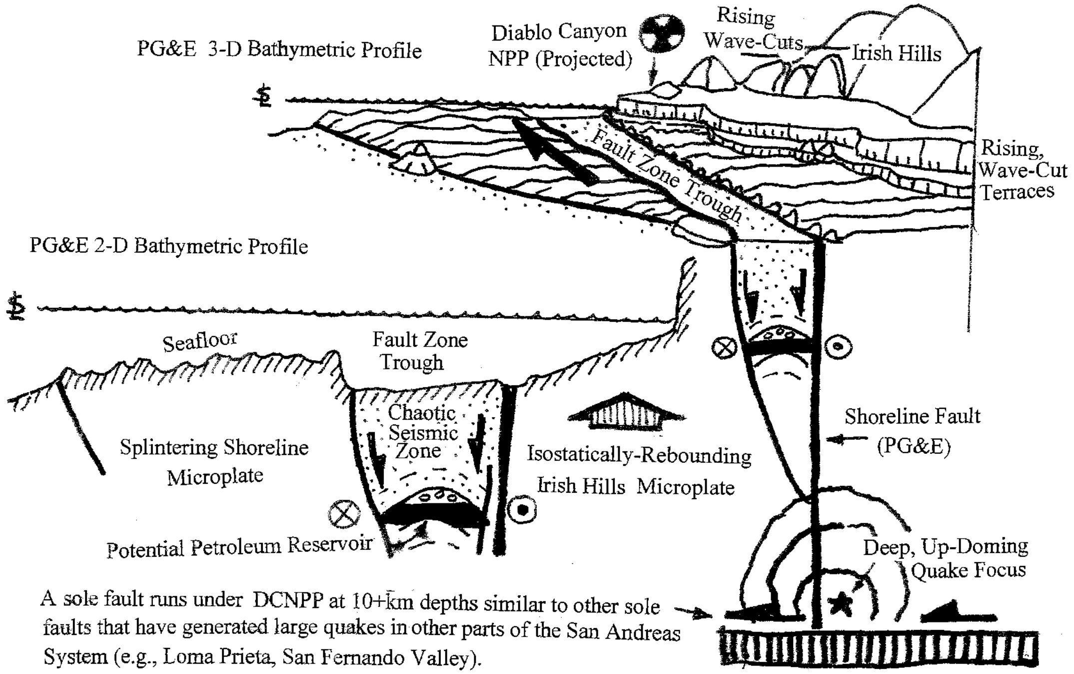


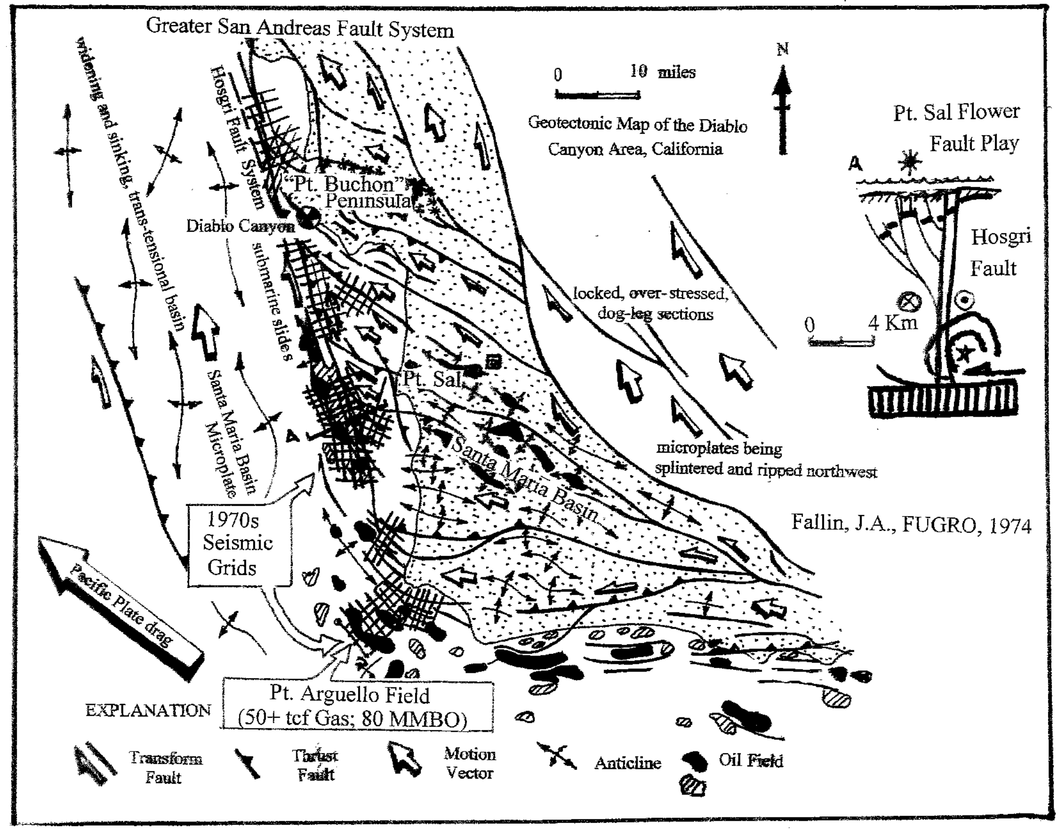

Radiation Dangers
downwind and downstream
Diablo Canyon
Nuclear Power
Plant
Brown pelican
reactor
"cooling-water"
return flow
thermal plume
contamination
radioactive
runoff
Shoreline Fault
2.5 billion
gallons per
day
Mussel
Western grebe
Abalone
Pacific
oyster
gaper clam
Pismo clam
littleneck clam
razor clam
Shell Fish
Ring billed gull
Rock crab
Environmental contamination
Heerman's gull
Squid
California gull
Spiny lobster
Pelagic cormorant


Populations susceptible to radioactive poisoning
and thermal pollution
Game Fish
California bonito
Moon Jellyfish
California yellowtail
Bluefin tuna
reactor
"cooling-water"
return flow
Vermilion rockfish
catastrophic obliteration
of abalone, and other
marine life
California barracuda



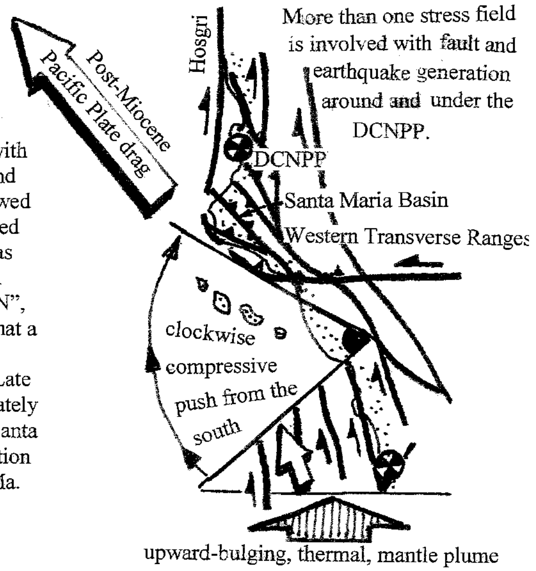
PG&E's 2012 bathymetric profiles of the Pacific seafloor around Diablo Canyon Nuclear Power Plant (DCNPP) suggest that up to a quarter-mile-wide trough borders what the utility company labels as the Shoreline Fault. Such troughs occur often over upward-flowering offsets in the Greater San Andreas Fault System, with some even flagging "pinched" or "torqued", anticlinal, petroleum traps at depth immediately south and southeast of the DCNPP along the Hosgri and other fault traces, including ones in Santa Maria Basin. Geochemical signatures suggest that thermally-mature, organic-rich,





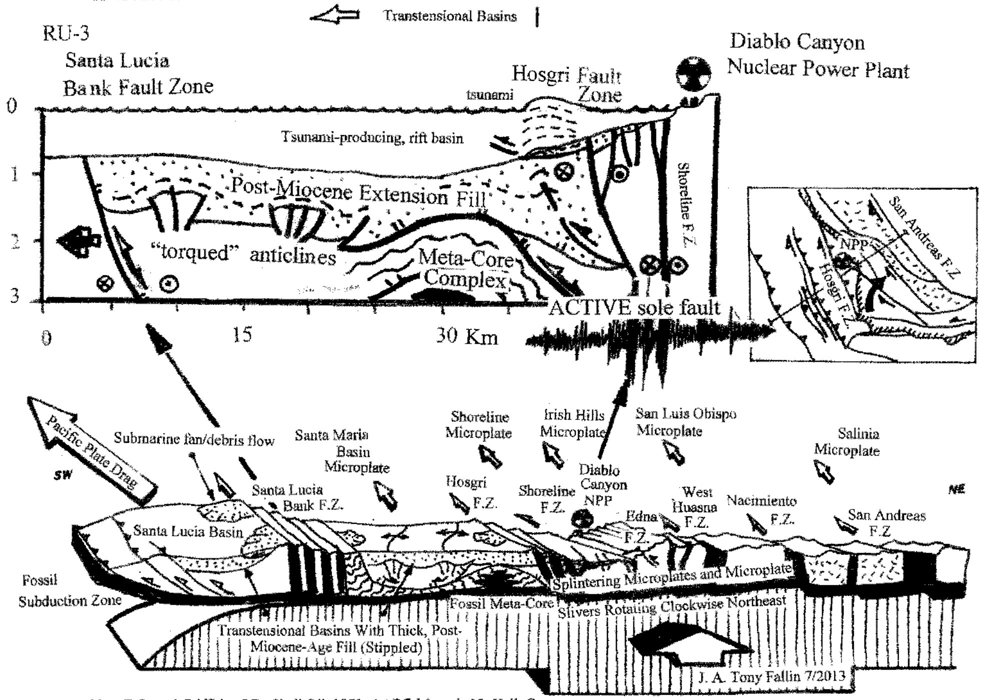
turbidites in the Monterrey Formation "sourced" much of the 25 ° API, sulfurous oil and methane-dominated gas.

During the 1970s when I was working with FUGRO, International, Consulting Engineers and Geologists, Stanford's Ben Page and others viewed many of the oil-bearing anticlines, plus associated thrusts and reverse faults in Santa Maria Basin as compressional structures. This led to the region being labeled as "TRANSPRESSIVE TERRAIN", especially when paleo-magnetic data revealed that a number of microplates in the Western Traverse Ranges were rotated clockwise during Mid- to Late Miocene time (~12 to 4 Ma), giving form ultimately to compressed, linear, mountain ranges across Santa Maria Basin, while also initiating transform motion along an inchoate Hosgri Fault trace around 4 Ma.



However, when I viewed proprietary seismic survey lines cutting across Santa Maria and Santa Lucia Basins just west of the Hosgri Transform, there was more evidence for a TRANSTENSIONAL than TRANSPRESSIONAL stress field still at work in Post-Miocene time. More specifically, the basins appeared to be rifting apart between transform faults in response to northwestward, Pacific Plate drag, with thick, Post-Miocene fill being torqued into long, sinuous anticlines over time by bounding, transform movements. Among other things, this suggests to me that more than one stress field is involved with fault and earthquake generation around and under the DCNPP.

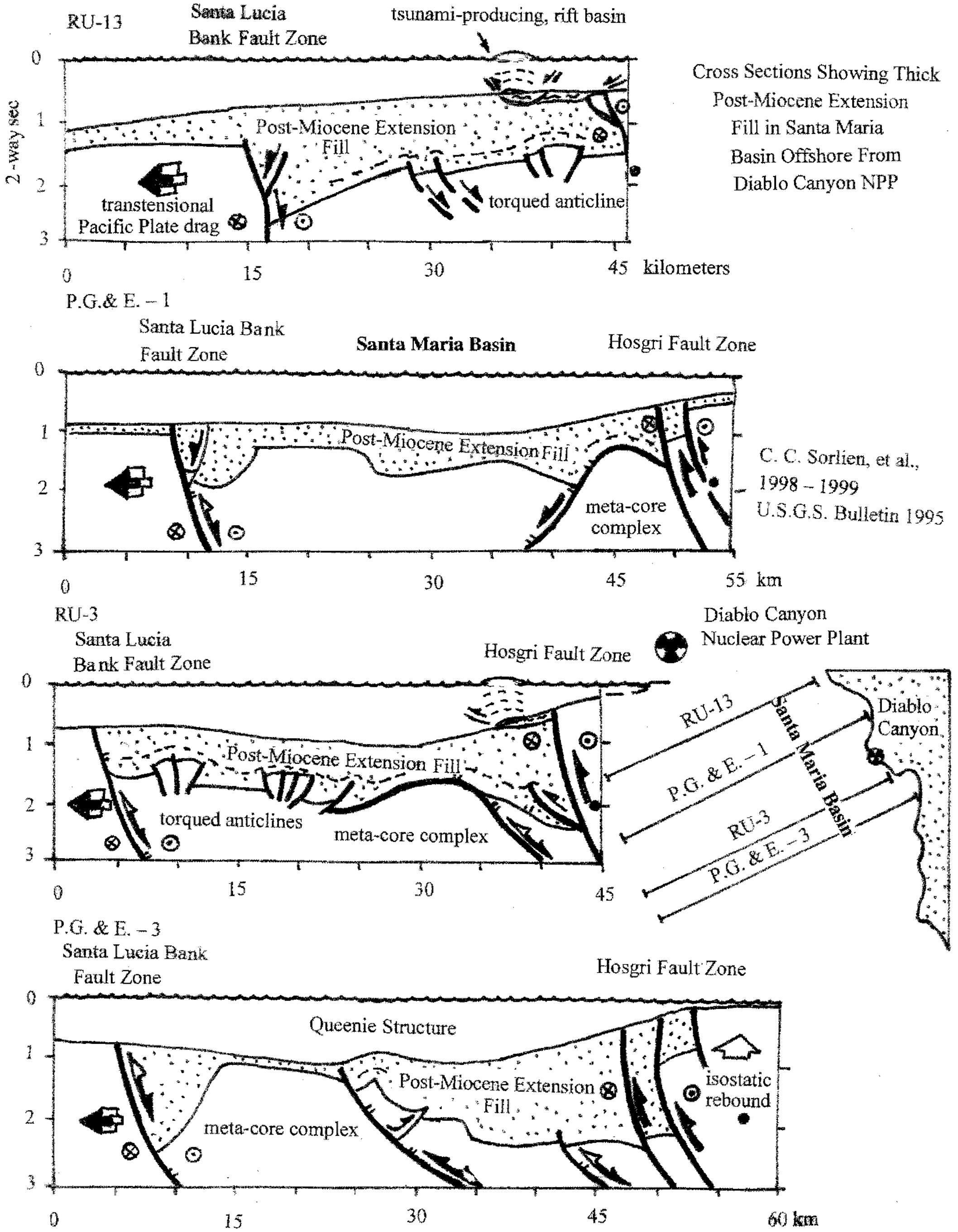
For example, there is a compressive push from the south that is generating deep, sole fault quakes beneath the Western Transverse Ranges (e.g., San Fernando Valley) and probably under rotated microplates in Santa Maria Basin, plus the "Pt. Buchon" Peninsula. Then there is Pacific Plate drag to the northwest that is inducing transform motion along the Hosgri and other, offshore, fault traces in the Greater San Andreas System to be considered. In addition, isostatic rebound over an upward-bulging, thermal, mantle plume may explain periodic, jolting uplifts of the Irish Hills Microplate upon which the DCNPP is located.



After Hoskins, E.G. and Griffiths, J.R., Shell Oil, 1971, AAPG Memoir 15; Hall, C., 1973, USGS MF-511; Fallin, J.A., FUGRO, 1974, Addenda, Diablo Canyon PSAR; Page, Ben, Stanford, 1977, Geology" Magazine; Crouch, J.K., et al., 1984, SEPM-Pacific Section, Volume 38; Clark, D.G., et al., 1994, GSA Special Paper 292; Sorlien, C.C., et al. Crustal Studies-U.C. Santa Barbara, 1998-1999, USGS Bulletin 1995; Hardebeck, Jeanne, 2010, Bull. of Seis. Soc. Amer.; Fallin, J.A., 2010, Nuclear Developments and Geotectonics of Western North America.

NUCLEAR POWER PLANT CONSTUCTION IS PRECLUDED WITHIN FIVE (5) MILES OF ANY ACTIVE FAULT

Nuclear Regulatory Commission

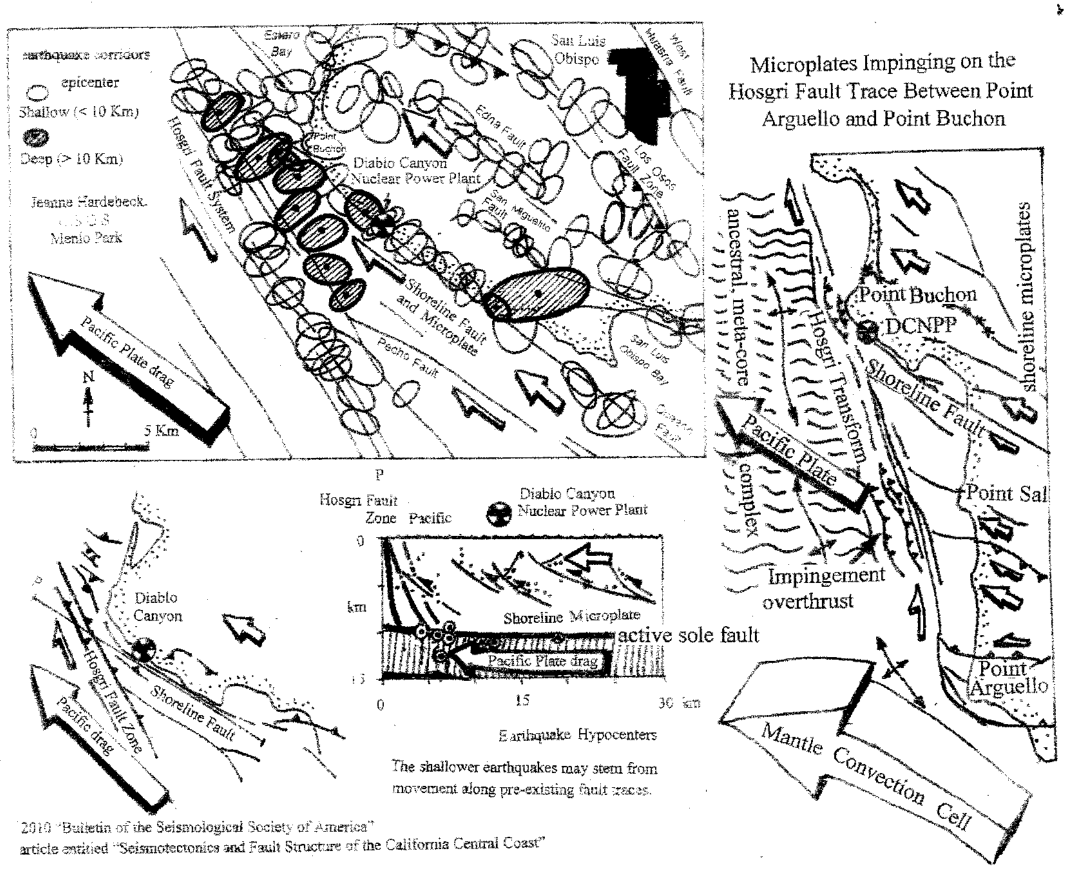


Cross Sections Showing Thick Post-Miocene Extension Fill in Santa Maria Basin Offshore From Diablo Canyon NPP

C. C. Sorlien, et al., 1998 – 1999 U.S.G.S. Bulletin 1995

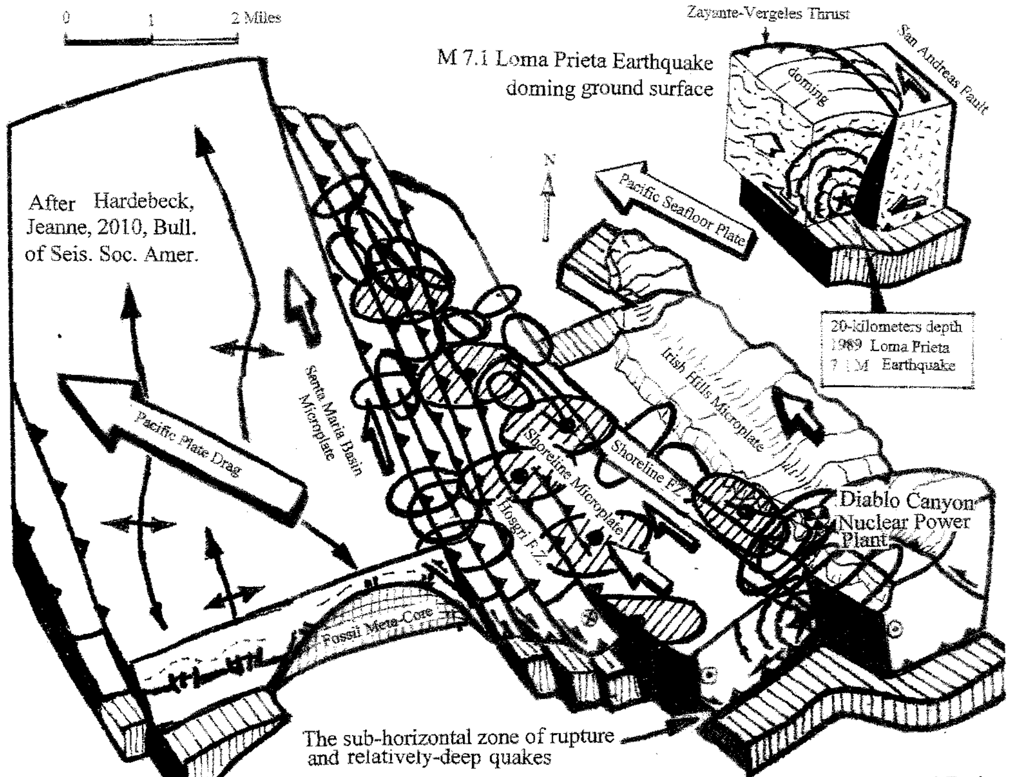
An upper mantle convection cell may also be driving shoreline microplates northwestward between Point Arguello and Point Buchon, pushing some of the deeper-rooted, landmass, crustal blocks even faster than the massive, offshore, Pacific Plate. Most assuredly, some of the landward microplates appear to be impinging on the Hosgri Fault System, defining seaward-arcing, thrust belts off Purisma Point, Point Sal and Point Buchon. On seismic profiles, the offshore, thrust belts override an ancestral, meta-core complex buttress similar to one that we discovered offshore San Onofre Nuclear Power Plant across the California borderlands in the 1970s. The meta-core complex formed most likely when the West Coast of North America began over-riding the East Pacific Rise, with northwest, convectional stresses below the coastal microplates following.

But more on the significance of sole faults running below DCNPP and many other parts of the Greater San Andreas Fault System, especially ACTIVE sole faults that generate both small and large earthquakes as splintering microplates and microplate slivers shift about in an evolving, transform setting. To some of us, the excellent 2010 Hardebeck report "Seismotectonics and Fault Structure of the California Central coast" in



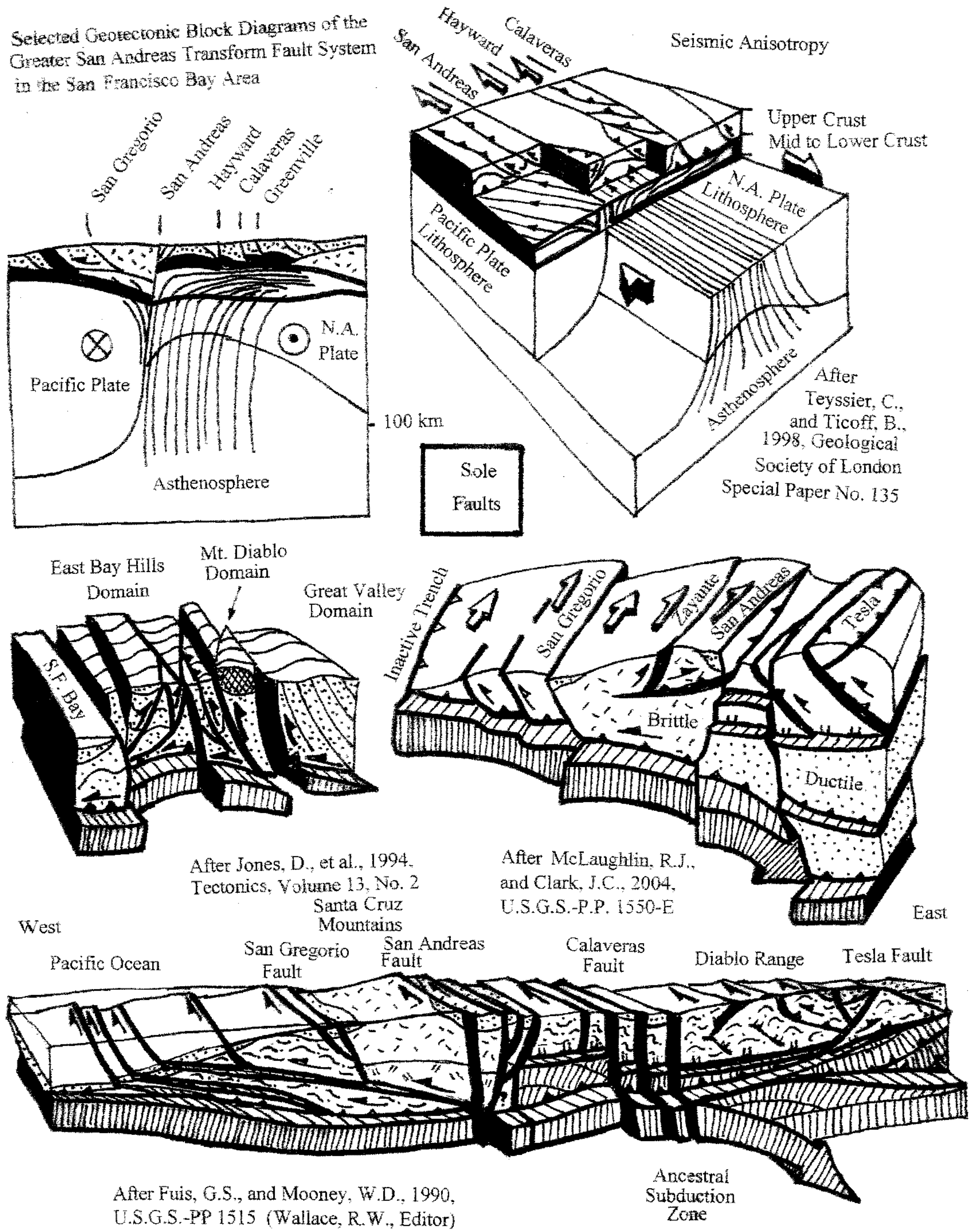
2010 "Bulletin of the Seismological Society of America" article entitled "Seismotectonics and Fault Structure of the California Central Coast"

"Bulletin of the Seismological Society of America" suggests that an active sole fault runs below DCNPP between 10- and 12-kilometer depths. The sub-horizontal zone of rupture and intermittent, jolting, stress releases is defined by a series of relatively-deep, earthquake foci that occurred between 1988 and 2008 along the Shoreline Fault trace. Combined with a cluster of shallower, M 0.8 to M 3.5 seismic events, the deeper quakes accounted for an average of more than two tremors per year along the Shoreline Fault, while leaving open the possibility of even larger, more destructive earthquakes to come.



Landward microplates impinging on the Hosgri Fault

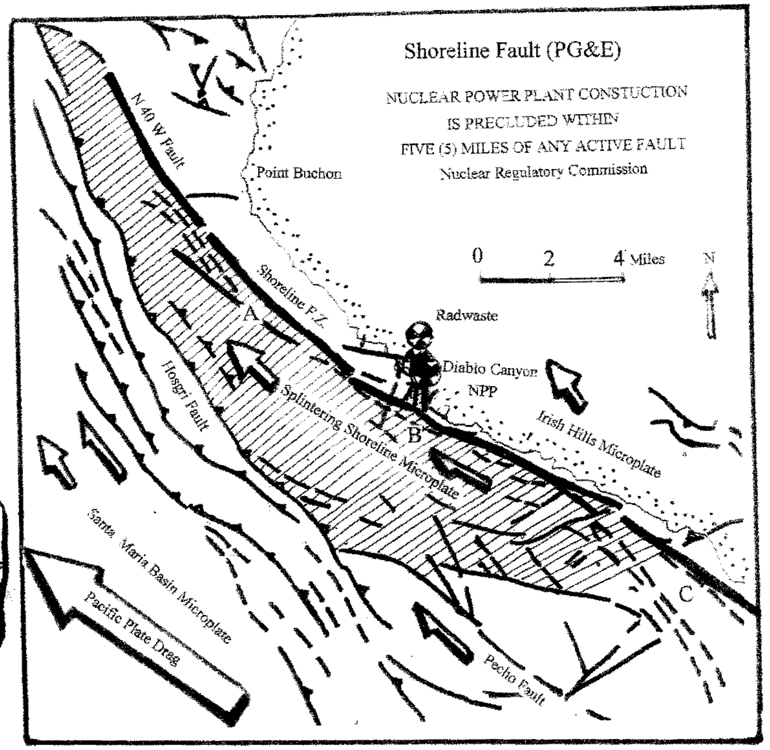
Such being the case, one must consider doming as well as fracturing of ground surface atop "sole fault" quakes in the DCNPP area. This is to say that even structurally-reinforced nuclear facilities might be tilted as well as fractured by sole fault shifts below them, cracking or partially draining used fuel rod cooling pools while also jamming reactors and initiating nuclear meltdowns. In 1989, the M 7.1 Loma Prieta Earthquake just south of the San Francisco Bay Area was generated at 20-kilometer depths over a sole fault, doming rather than fracturing ground surface, while also inducing numerous landslides and rippling Bay Area mud deposits like a bowl of Jello. Numerous, reinforced structures were tilted off their foundations as freeways overpasses collapsed like wet spaghetti and as broken gas main fires raged beside broken water lines.



Perhaps unsurprisingly, PG&E makes little or no mention of a sole fault and associated earthquakes occurring below the DCNPP. Nor does the Utility offer any explanation about how pouring extra concrete over rebar to reinforce and make their nuclear facility able to withstand a M 7.5 seismic event will keep it from being tilted to non-operable angles during a sole fault quake. After all, PG&E has a 50 year history of mis-representing and down-playing faults, earthquakes, tsunamis and other natural disasters, while also ignoring Nuclear Regulatory Commission criteria that preclude the construction of any nuclear plant within five miles of an active fault. Even when 60,000 people protested the construction of the DCNPP, the Utility had 2000 of the demonstrators arrested and charged with what they were doing, i.e., with civil disobedience, and endangering ALL!

In PG&E's 2012 status report on the Shoreline Fault, the Utility describes the transform system as being actually three, out-stepping, seismically-active, right-lateral offsets that are less than 20-miles long combined. Then, after a rigorous evaluation with "logic trees", probability calculations and mind-numbing mathematics, the Utility concludes that the fault traces are no more than about M 6.5 "capable".

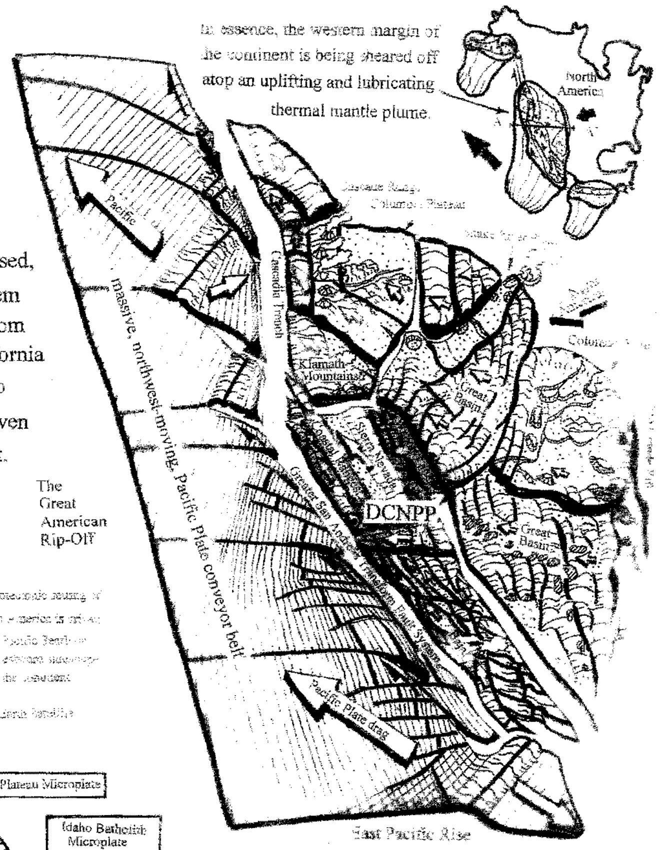
Others of us, using only logic, common sense and comparative analyses, view the Shoreline Fault a bit differently. To some of us, the Shoreline Fault is a series of three stressed, surface "rips" that may well be connected at depth and ready to tear apart with bounding "end" faults to the northwest (N 40 W Fault) and to the southeast (Oceano Fault), forming a 40- to 60-mile-long surface rupture. The fault is located in a stressed,

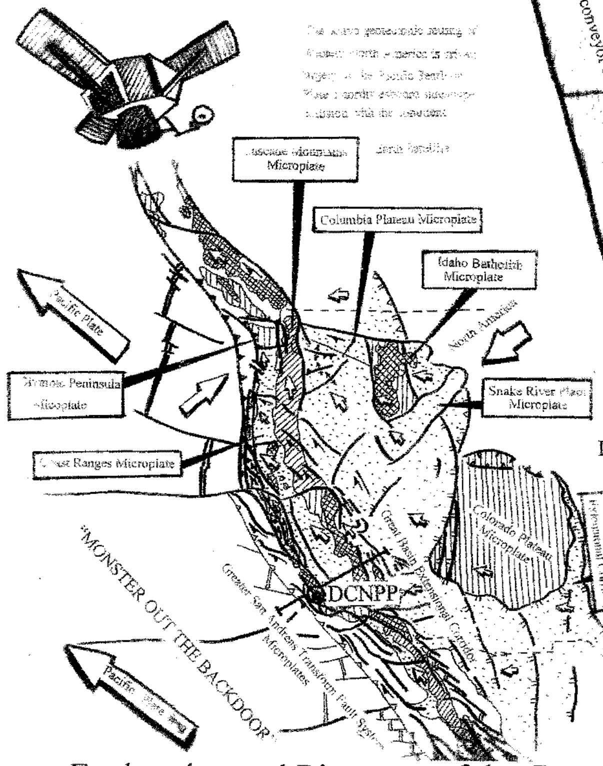


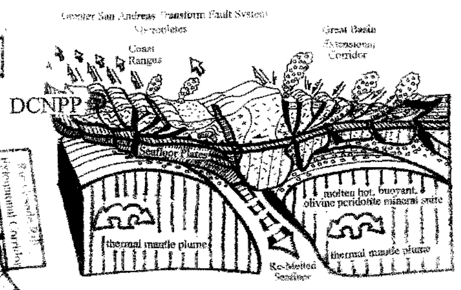
Tony Fallin's

Tectonic Map of North America

Diablo Canyon Nuclear Power Plant (DCNPP) is located on the splintering margin of a rising microplate in a stressed, dog-leg section of an active fault system that stretches more than 1500 miles from the southern tip of Baja through California on both sides of the Sierra Nevada to southern Oregon and that is being driven by Pacific Plate drag to the northwest.

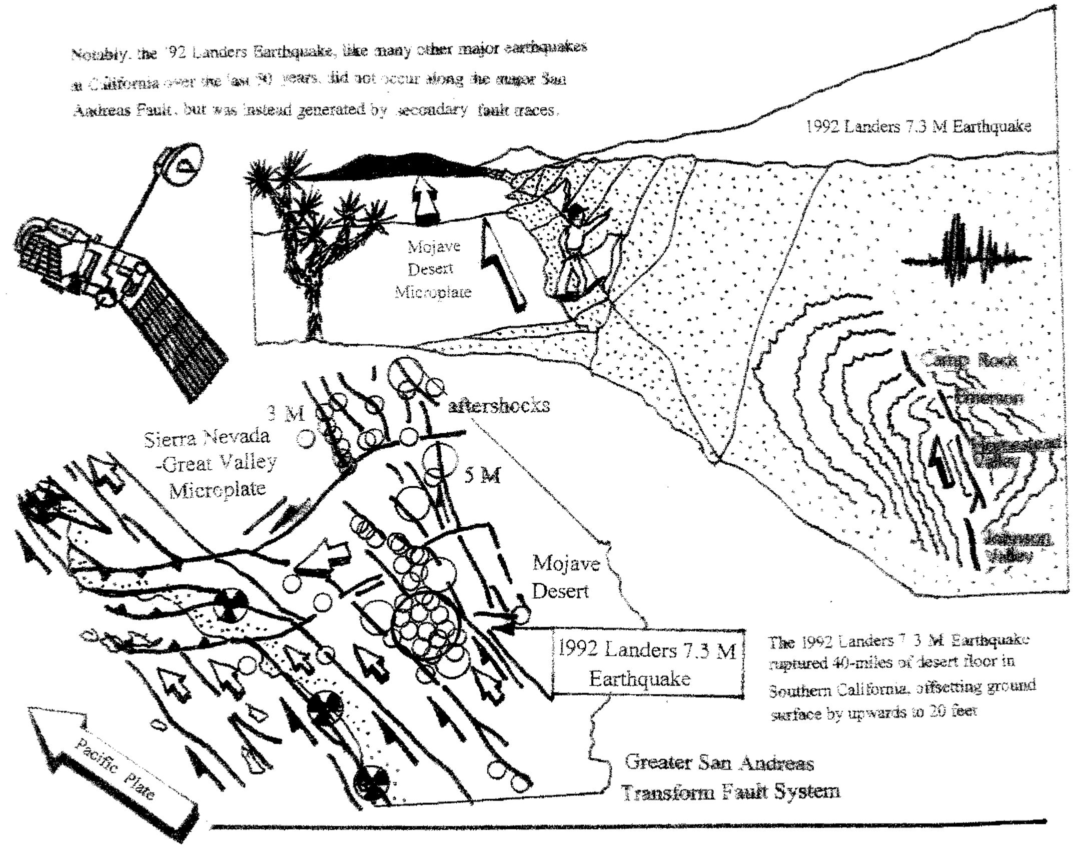






Schematic Geotectonic Block Diagram of Western North America

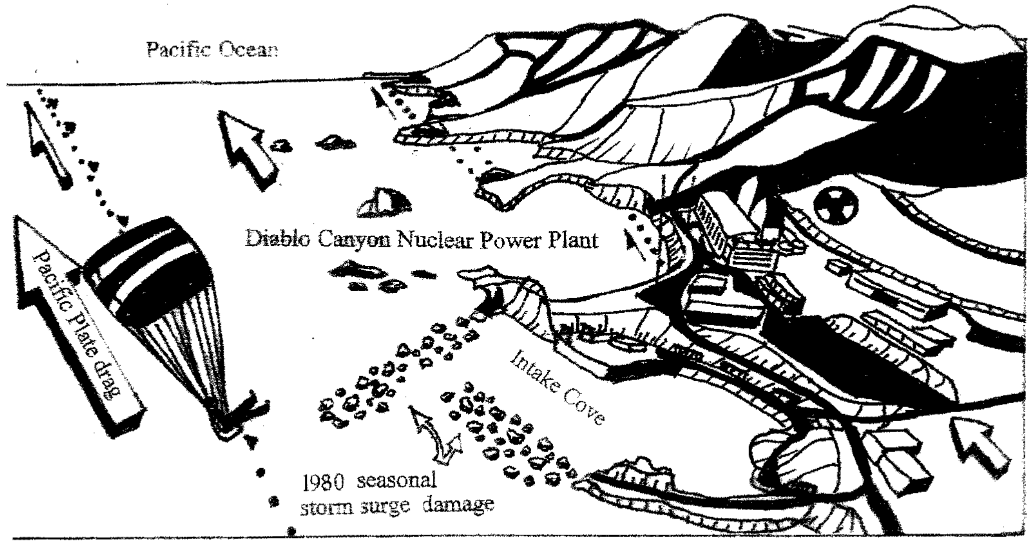
Exploration and Discovery of the Geotectonic Setting of Nuclear Sites



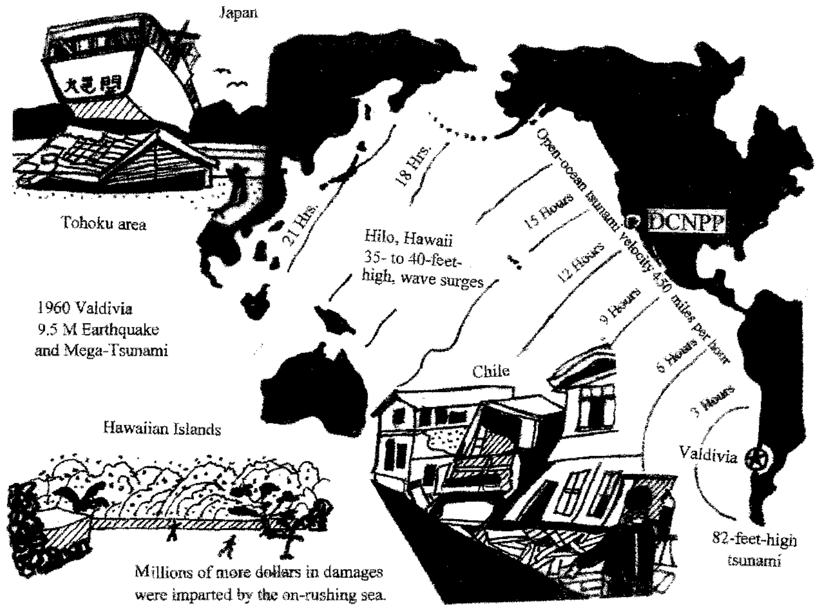
dog-leg section of the Greater San Andreas Transform System between splintering microplates (Irish Hills, Shoreline) that are undercut by a sub-horizontal, sole fault at 10- to 13-kilometer depths and that are being propelled to the northwest by an upper mantle, thermal-convection cell. As such, the fault reminds us of four, end-to-end fault splays that merged into one, 40-miles-long, transform, right-lateral rupture with up to 20 feet of vertical offset in SOCAL's Mojave Desert during the M 7.3 Landers Earthquake in 1992. Of course, if the Shoreline and its bounding neighbors move in conjunction or concomitantly with the Hosgri Fault less than five-miles west of the DCNPP – and with the underlying sole fault at a little over six-miles depth below the plant, one can expect an even larger seismic event, perhaps even exceeding M 8.0 magnitude. After all, Mother Nature can really "kick" sometimes and as Shel Silverstein once told his children, "Anything can happen, anything can BE!"

With regards to tsunami dangers, PG&E states that the DCNPP is safe sitting top an 85-feet, wave-cut terrace. Unmentioned are the vulnerability of nuclear plant's reactor cooling-water intake and outflow facilities at and below sea level, including jetties that have already required costly repair after being pounded by seasonal storm waves around Intake Cove. Historical tsunamis recorded around Diablo Canyon include one in the early 1900s during a quake near the southeast end of the Shoreline Fault that sent a wave

Irish Hills Microplate

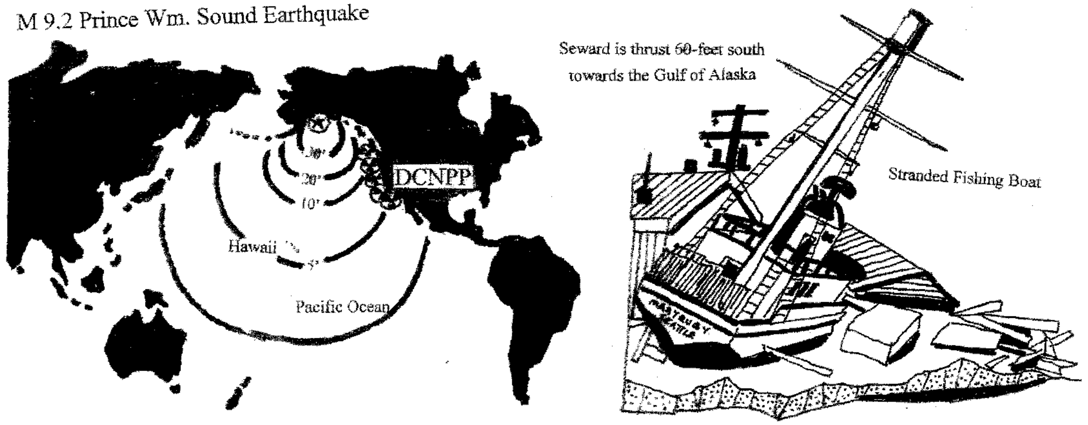


surge into San Luis Obispo Bay; one in 1960 following the M 9.5 Valdivia Earthquake in Chile; one in 1964 after the M 9.2 Prince Wm. Sound Earthquake in Alaska; one in 2010 that was generated by a M 8.8 temblor offshore Chile; and yet another 2011 following the M 9.2 Tohoku Earthquake that destroyed the Fukushima NPP in Japan. None of the tsunami surges were over six-feet high around the DCNPP and damages were limited mostly to boats, piers and offshore navigation buoys.

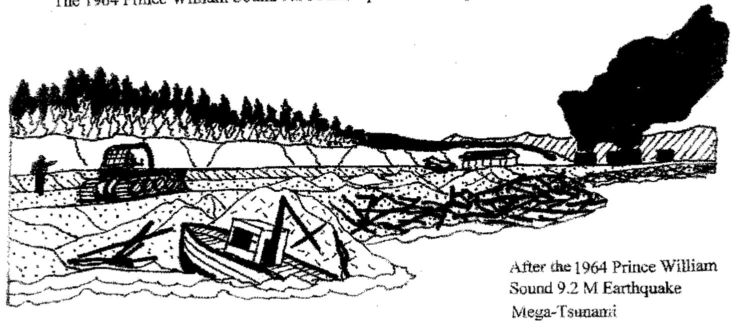


M 9.5 Valdivia Earthquake

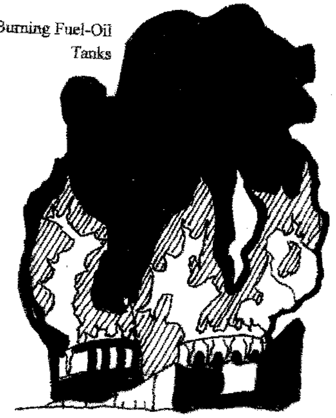
M 9.2 Prince Wm. Sound Earthquake



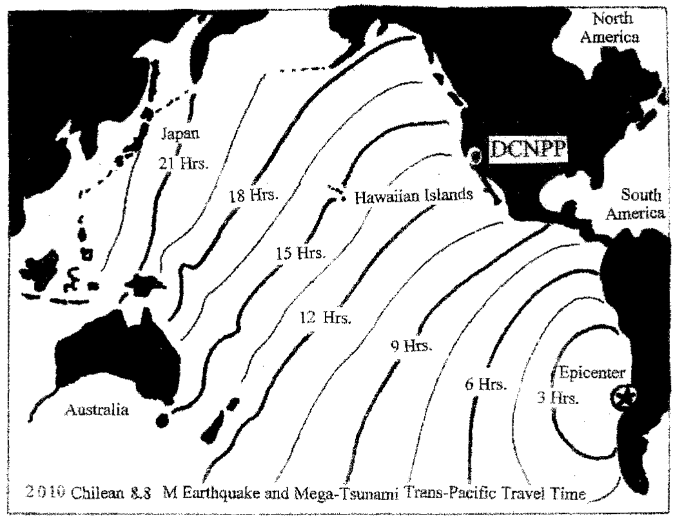
The 1964 Prince William Sound 9.2 M Earthquake and Mega-Tsunami



Burning Fuel-Oil Tanks

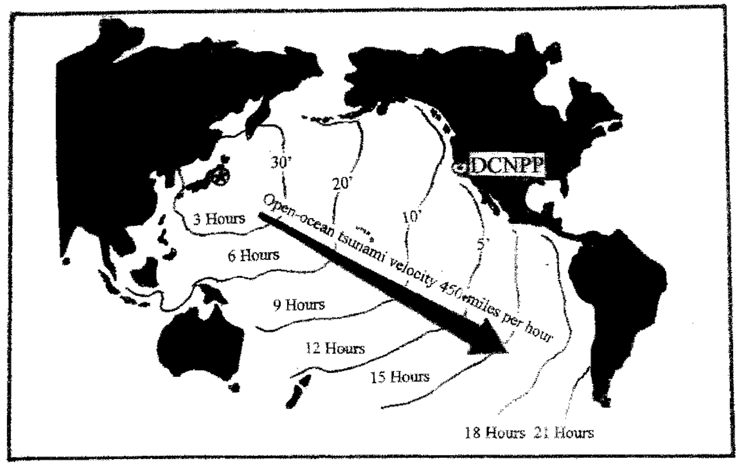


In total, the 1964 Prince William Sound Earthquake and Mega-Tsunami imparted more than $100 million dollars in damages to Pacific bays and ports across the Western U.S., while almost breaching a new, nuclear power plant at Humboldt Bay, California, too. The nuclear power plant's foundation had been placed near water's edge at Humboldt Bay.

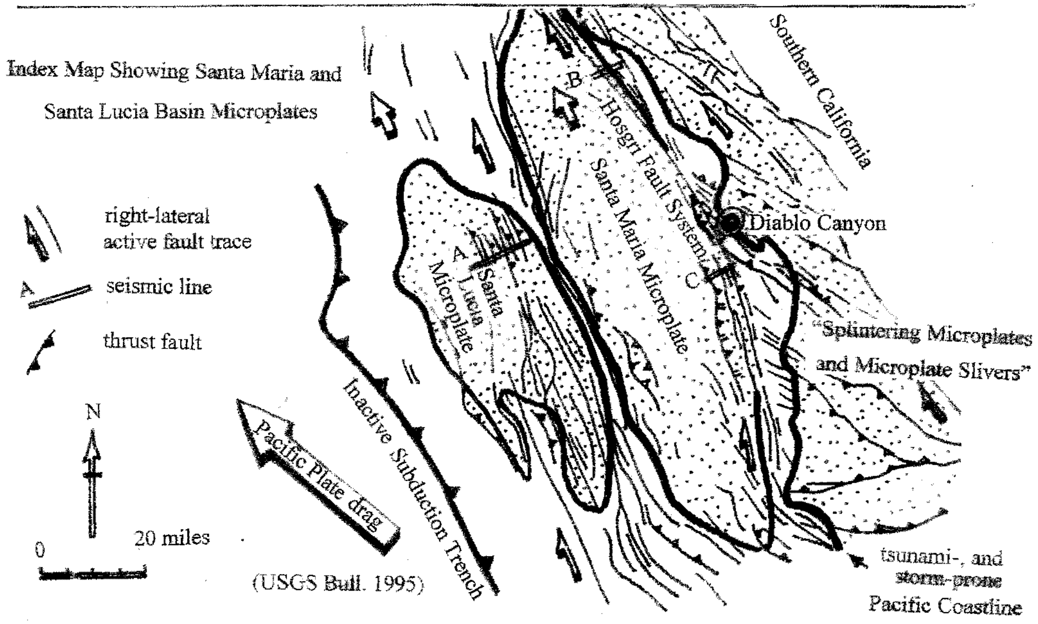


2010 Chilean 8.8 M Earthquake and Mega-Tsunami Trans-Pacific Travel Time

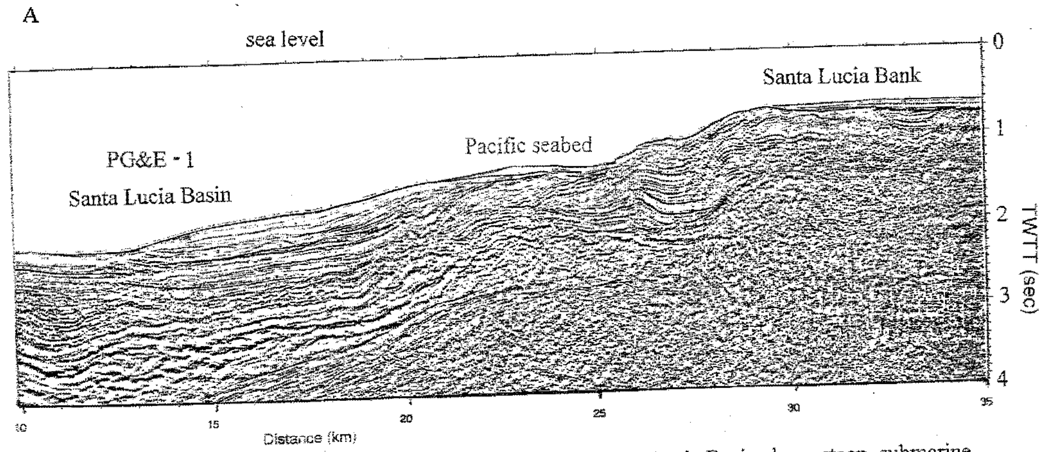
2010
M 8.8 temblor
offshore Chile



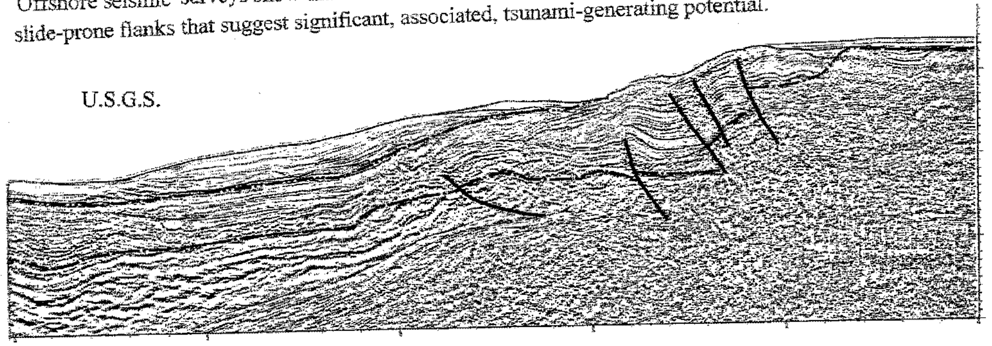
Naturally, any active fault in the region is capable of generating tsunamis, be it by initiating submarine slides and debris flows in offshore basins or by vertical as well as horizontal components of transform motion. Offshore seismic lines suggest that that Santa Lucia Basin has the most potential for generating the largest "local" tsunamis.

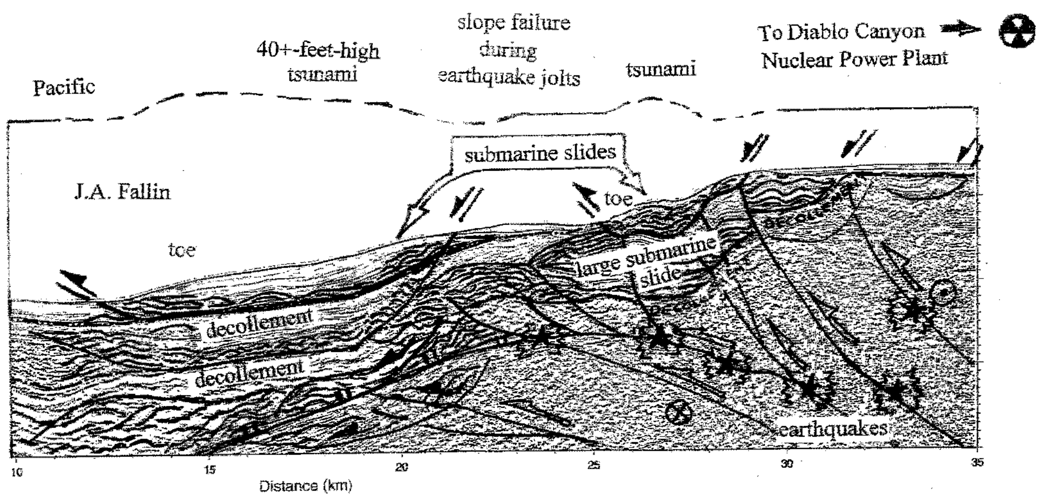


U.S.G.S. Bulletin 1995 series

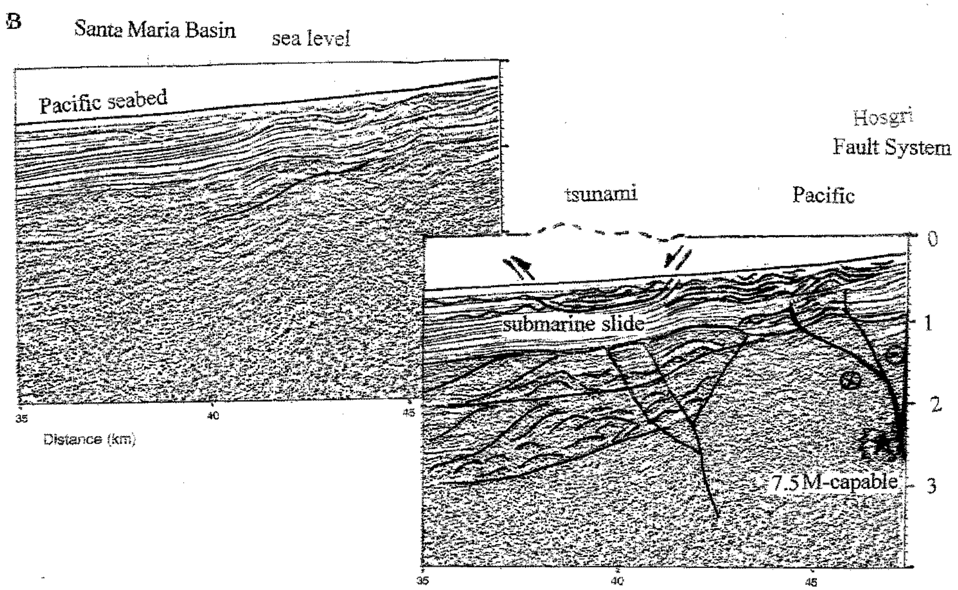


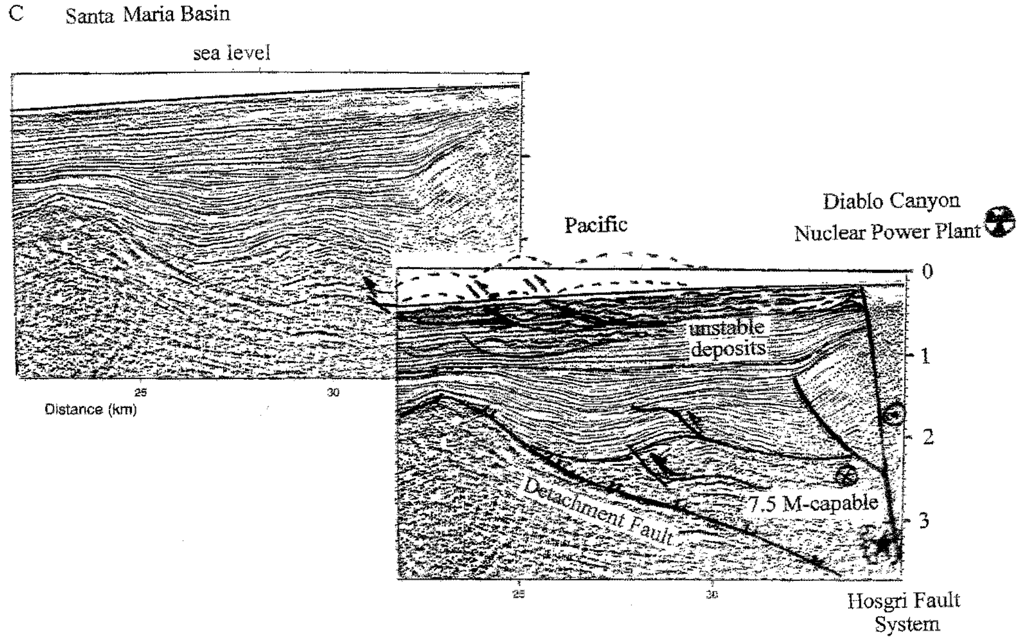
Offshore seismic surveys show that both the Santa Maria and Santa Lucia Basins have steep, submarine-slide-prone flanks that suggest significant, associated, tsunami-generating potential.





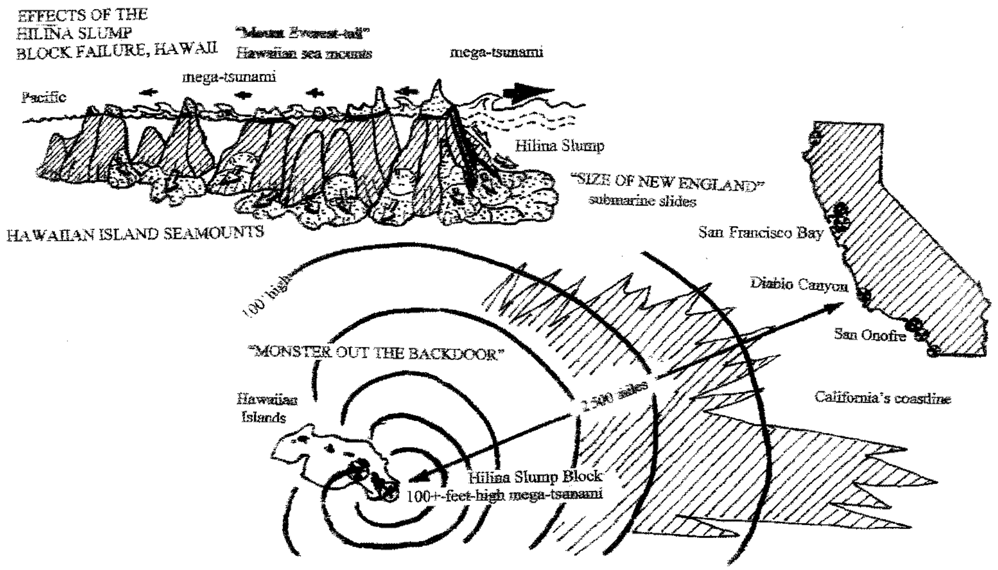
U.S.G.S. Bulletin 1995 series

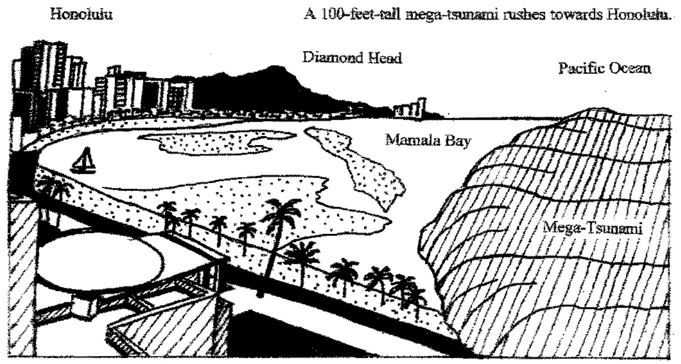




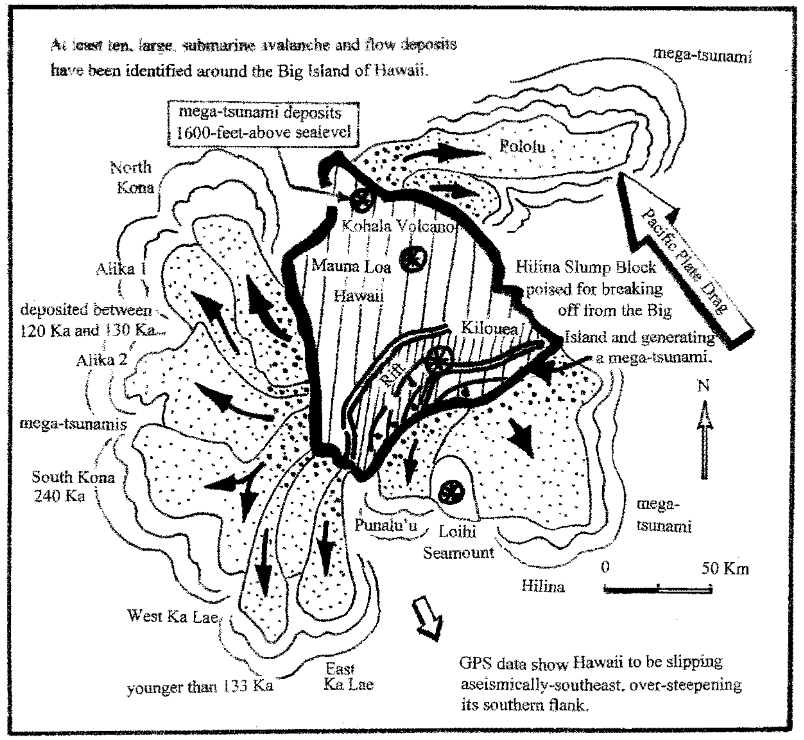
especially by large debris flows off Santa Lucia Bank. Smaller submarine slides in Santa Maria Basin are also documented on seismic lines along the Hosgri Fault System trace opposite Point Buchon.

More ominous are the mega-tsunami generation potential in the Hawai'ian Islands and along Cascadia Trench in the Pacific Northwest. Field surveys and computer models suggest that the Hilina Slump Block is dangerously close to breaking off the flank of the big island of Hawai'i, especially with an active volcano generating M 5 earthquakes at its base and the island's plate tectonic motion tilting the block seaward to the southeast. When the block does slump or break free, it has been calculated that it has the potential to generate a tsunami well over 100-feet high. Not only will such a surge destroy Honolulu completely at near-sealevel elevations, but it will also shoal catastrophically to 80- or even 100-feet heights along the West Coast of California by many estimates.

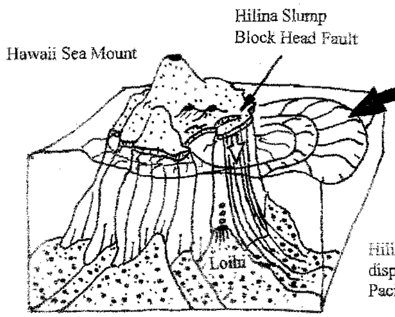


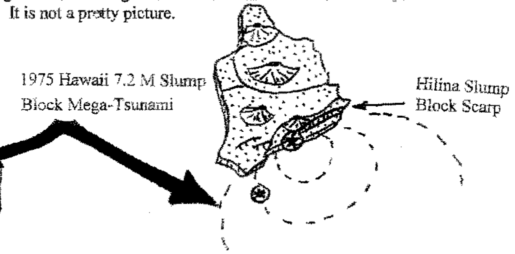


J. A. Tony Fallin

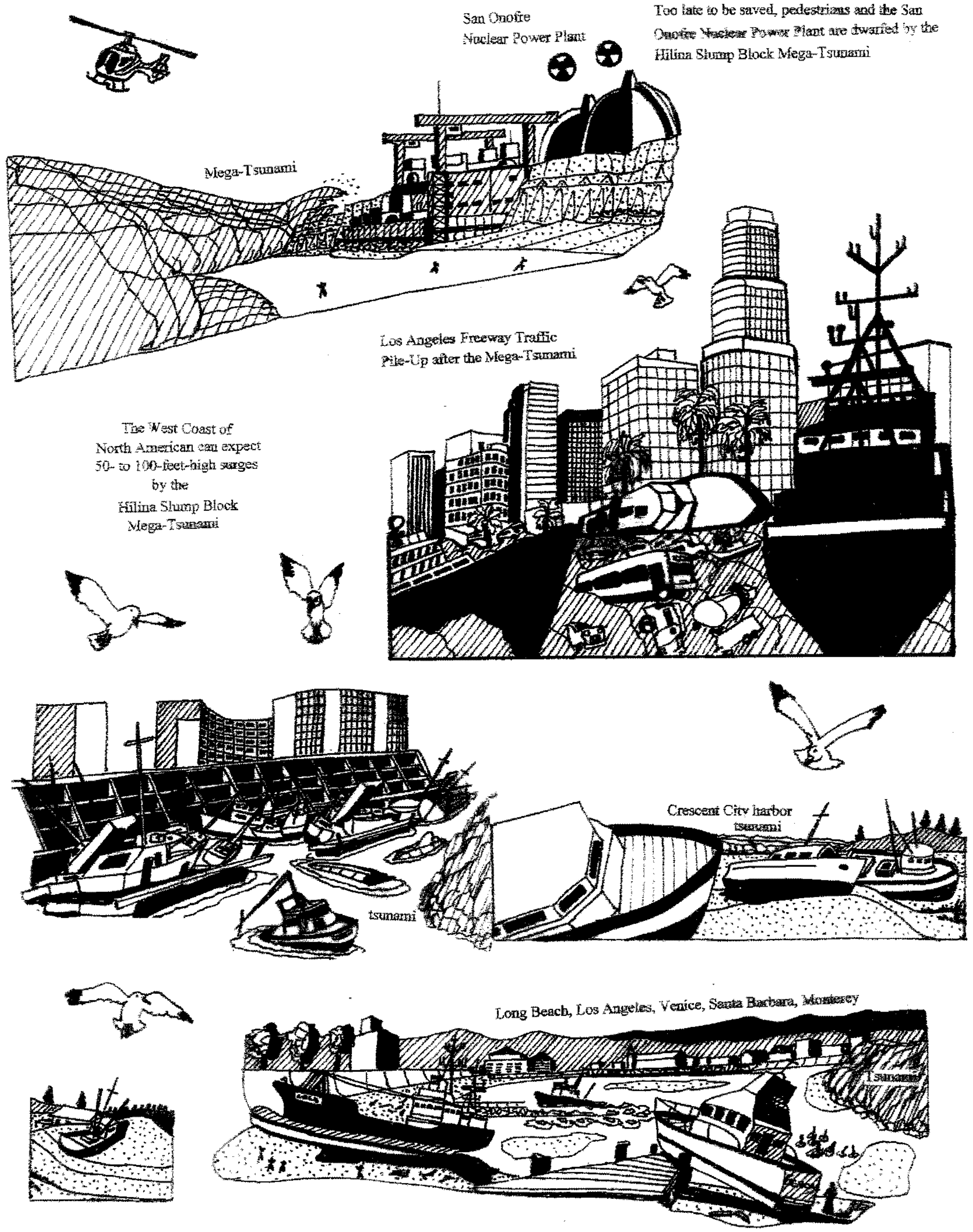


Computer simulations show that the 10,000-cubic-kilometers Hilina Slump Block will most likely generate at least a 100+-feet-high mega-tsunami if it does break off and slide down the over-steepened flank of the Big Island, displacing enormous surges of seawater towards both North and South American coastlines. On the Islands themselves, it will be "Goodbye" to Honolulu within 30 minutes as the giant surges enter Mamala Bay and wash up to 16 miles inland via Pearl Harbor and other Oahu inlets, killing hundreds of thousands of people. Similarly, the West Coast of North American can expect 50- to 100-feet-high surges by the mega-tsunami that will not only destroy ocean-front nuclear facilities like ones at Trident Submarine Base Point Loma, San Onofre and Diablo Canyon, but that will also swamp whole cities, including San Diego, Long Beach, Los Angeles, Venice, Santa Barbara, Monterey, San Francisco Bay and points north. It is not a pretty picture.



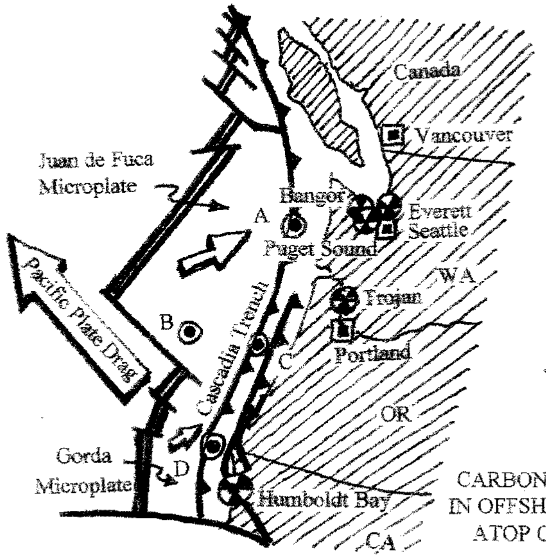


The 1975 Hawaii 7.2 M Earthquake that was generated when the giant Hilina Slump Block slipped 11-feet downward on the southeast flank of the Big Island, displacing enough seawater to form a local, 48-feet-high tsunami that was recorded around the Pacific Ocean later at tidal gauge stations in Alaska, California, Japan, Peru and Chile.

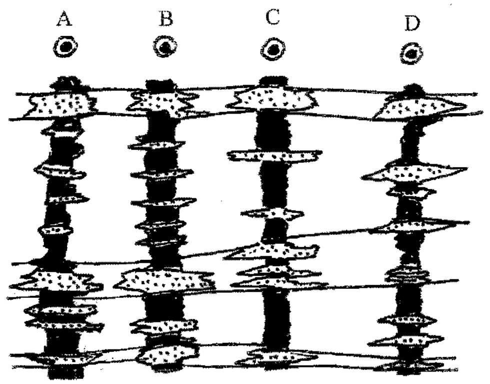


Similarly, Pacific Plate subduction and associated over-thrusting in Cascadia Trench off Oregon and Washington are overdue to generate another "Fukushima-type" mega-tsunami that would easily be more than 99-feet high by researchers' current predictions. Such a surge will impart catastrophic damage not only along the West Coast of North America but in Japan and other parts of Asia as well. Of course, PG&E makes little, if any, mention of such scenarios. It just isn't good for business! And besides, it makes Diablo Canyon Nuclear Power Plant look like the clear and present danger that it is to ALL, PG&E included!

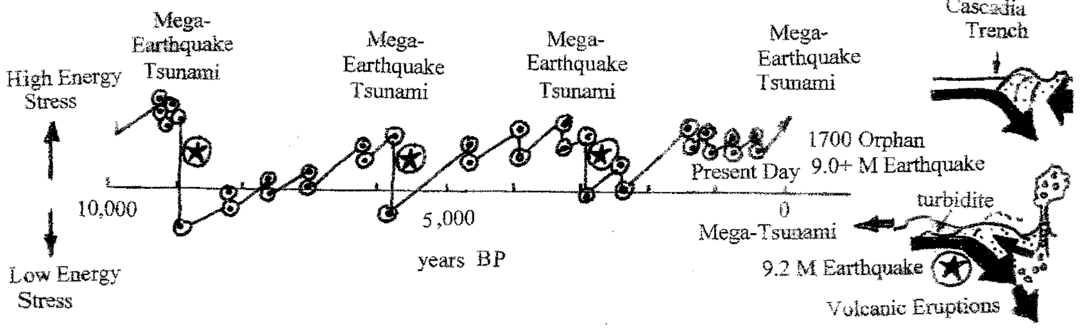
BUILDING UP STRESS FOR AN OVERDUE MEGA-EARTHQUAKE AND TSUNAMI ATOP CASCADIA SUBDUCTION TRENCH IN THE PACIFIC NORTHWEST

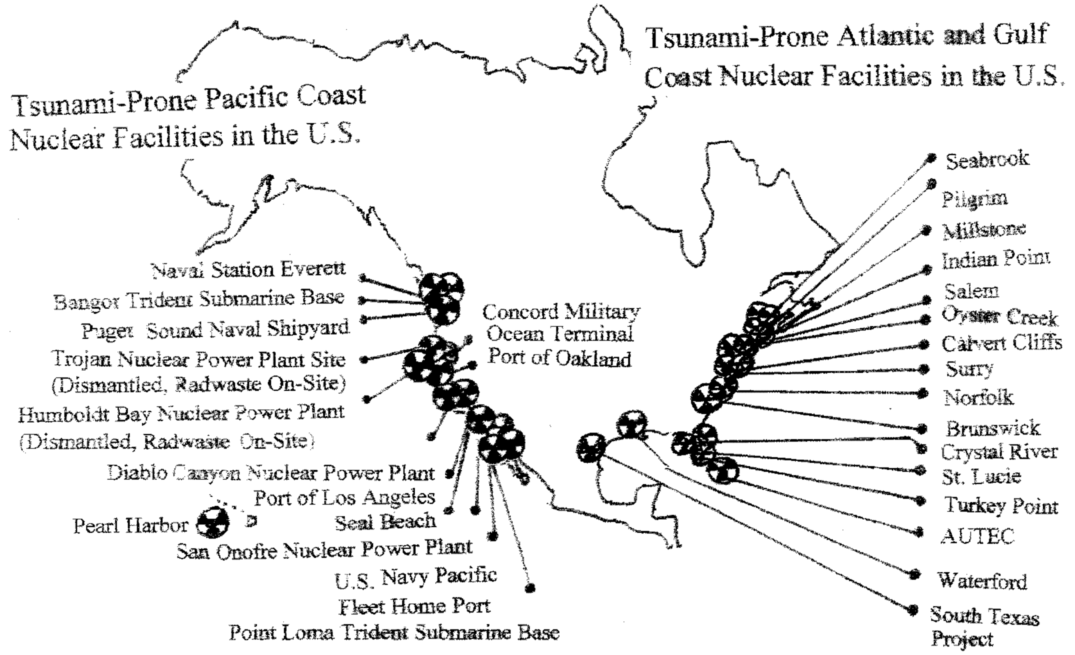


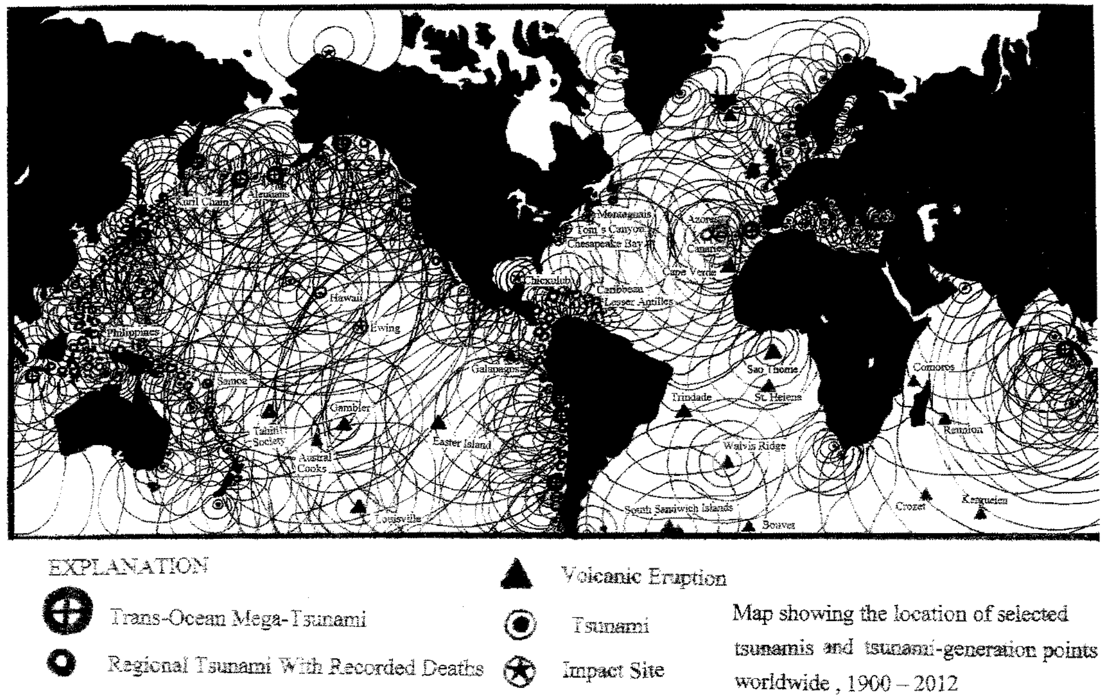
After Goldfinger, C., Ikeda, Y. and Yates, R., 2013, Earth Magazine/Oregon State University



CARBON-14 AGE-DATING OF MEGA-TURBIDITE SEQUENCES IN OFFSHORE CORES CHRONICLE PAST MEGA-EARTHQUAKES ATOP CASCADIA TRENCH IN THE PACIFIC NORTHWEST







Map showing the location of selected tsunamis and tsunami-generation points worldwide, 1900 – 2012

J.A. Tony Fallin
P.O. Box 1624
Boulder, Colorado 80306

UNITED STATES POSTAL SERVICE
1000
20852
U.S. POSTAGE
PAID
BOULDER,CO
80302
AUG 19,'13
AMOUNT
$1.52
00055411-04

U.S.-N.R.C. Atomic Safety and
Licensing Board Panel
Two White Flint North
11545 Rockville Pike M.S. T-3F23
Rockville, Maryland 20852

This packet addresses a Post-Fukushima report by Pacific Gas and Electric (PG&E) on the tectonically-active, Shoreline Fault Zone that is located beside the Diablo Canyon Nuclear Power Plant (DCNPP) in Southern California. The report is currently under review by the U.S. Nuclear Regulatory Commission's Atomic Safety and Licensing Board Panel in Rockville, Maryland, and is believed to have over-looked important aspects of the nuclear facility's geotectonic and physiographic setting *vis a vis* the earthquake-generation potential of a major sole fault that runs under the plant at 10 km depth and the catastrophic dangers of mega-tsunamis hitting the West Coast after being generated by the Hilina Slump Block's failure in Hawai'i or overthrusting in the Pacific Northwest's Cascadia Trench. The information included in this packet is not intended to be the final word on anything but is simply a warning that other things may yet need to be considered about DCNPP's geotectonic and physiographic setting.