

Elizabeth Bettenhausen's comments  
**re: Initial Study of Environmental Impact (ISEI) of  
 Geotechnical and Hydrogeologic Study at Santa Rosa Creek Beach  
 and the draft Negative Declaration  
 proposed by the Cambria Community Services District**

The federal lead agency of the proposed geotechnical and hydro-geologic study is the Army Corps of Engineers. The local lead agency of the same study is the Cambria Community Services District. The proposed study is described in the Coastal Consistency Determination (CCD) the Army Corps of Engineers sent to the California Coastal Commission in December 2009. The Initial Study was composed between January 5 and 13, 2009.

The proposed testing would be done on and in San Simeon State Beach, Shamel Park County Beach, and conservation land near Santa Rosa Creek in Cambria. In these comments I will refer to this as the "proposed study site."

My review of the Initial Study and proposed Negative Declaration leads me to the conclusion that **a full CEQA EIR must be prepared for this proposed project.**

### **1. Inconsistency between the Initial Study of Environmental Impact (ISEI) and the Coastal Consistency Determination (CCD).**

The ISEI describes the "Geotechnical and Hydrogeologic Study at Santa Rosa Creek Beach" in terms inconsistent with the description in CCD.

The CCD refers to three forms of drilling. The first chronologically will produce **ten test-holes** (CCD, 2), 50-150 ft. deep and 4-6" in diameter (CCD, 4).

"The proposed exploration locations may be subject to minor relocation (i.e., within a 50-foot radius) during the course of the field investigation based on geologic conditions or site conditions" (CCD, 2).

The second form of drilling is the conversion of three test-hole sites to **test wells**. "It is anticipated that test holes at Sample Sites 2, 5, and 9 will be converted to test wells... (CCD, 2). The test wells will be created by drilling an 8" diameter bore hole (CCD, 5), maybe "approximately 5 feet from a test hole" (CCD, 5).

The third form of drilling creates the monitoring wells. "Each test well will have up to 2 **monitoring wells** within 20 ft. (CCD, 2). Monitoring wells will have a diameter of 4 and three-fourths inches (CCD, 6).

In summary, CCD describes the project as having 10 test holes, 3 test wells, and 6 monitoring wells.

ISEI, on the other hand, refers first to a "maximum of three monitoring wells (6 to 8 inches in diameter each)..." (ISEI, 2). This reference to "monitoring wells" apparently addresses what CCD calls "test wells." ISEI does not mention what CCD calls the six "monitoring wells."

ISEI then says, "The remainder of the study will involve coring samples at approximately six to seven remaining locations along the State beach and County-owned Shamel park beach" (ISEI, 2). ISEI mentions nothing about the depth of the coring samples, i.e., 50 to 150 feet.

The CCD makes it clear that the 10 test-holes come first, in order to determine the location of the three test wells. The location of the test wells will determine the

location of the six monitoring wells. ISEI claims that “The onshore subterranean surface exploration will occur at approximately 10 sites...” (ISEI, 3). What exactly does “onshore subterranean surface exploration” mean?

**ISEI omits major parts of the project and erroneously names parts it addresses. An initial study of only part of the proposed project does not fulfill CEQA requirements.** Also omitted is reference to the “pressure transducer with 3.6 volt lithium-ion battery” in each test and monitoring well, as well as the nature of the pumps, discharge pipes, flowmeter, hose bib, three-phase, 220 volt generator, etc. (all of which are described in CCD).

**Adopting a Negative Declaration based on this Initial Study would not fulfill the requirements of California environmental quality assessment law.**

## 2. How long will the project affect the environment?

The length of the study is “over a two-year maximum time period” (ISEI, 2). However, this is the only mention of the length of the project in ISEI. The installation work for “approximately 3 weeks” is mentioned (ISEI, 2; 5), and two to four weeks are mentioned (ISEI 16) The initial study appears to consider the environmental impact only of the events during the installation period.

In the CCD reference is made to short and long-term aquifer testing (CCD, 6). The former is 84 straight hours, and the latter has no specified length. It does specify that “[u]p to 10 water samples will be collected during the aquifer testing for chemical analysis” (CCD, 8). The time each sampling takes and the time span over which sampling will be done ten times are not given (although the latter might be one year).

The test wells “will be removed after up to three months after the installation field activities. Monitoring activities will continue for up to one year after the initial test wells removal” (CCD, 8). All such activities beyond installation are not specified in the ISEI. There is no indication that the environmental impact of such long-term activities was even considered.

The ISEI focuses on the “temporary” and “short-term data gathering” aspect of the project. For example, the response to the possibility of “seiche, tsunami, or mudflow” is telling. “8j. The proposed project site is subject to a seiche, tsunami [sic] however the project itself is a short -term data gathering and the wells would not be affected by these events” (ISEI,14; emphasis added). Nothing indicates that the study considered the possible effect of rogue waves (seiche), tsunami, earthquake, or mudflow on the wells over a two-year period.

The shortest amount of time for the project (according to the events described in CCD and using the shorter of each estimate) is one year, three months, and two weeks. **The ISEI insufficient, because it explicitly considers only events in 4 weeks of a project that is at least 66 weeks long.**

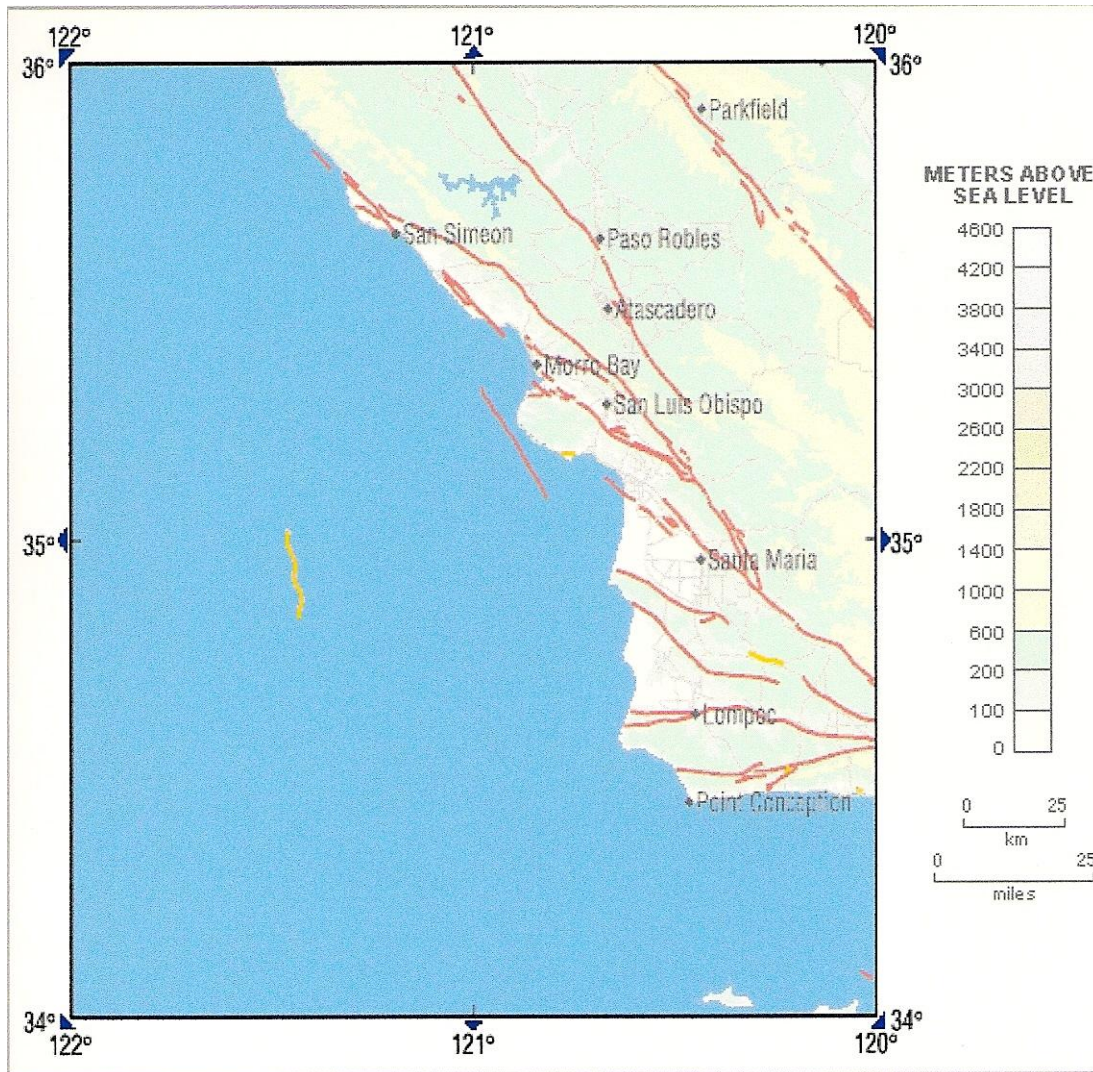
## 3. In determining the environmental impact on Geology and Soils, out-of-date information is used.

Impact Discussion:

6a.-d The San Luis Obispo County General Plan Safety Element Risk Map designates landslides, flood zones and other areas where potential natural hazards exist. The geotechnical investigations does [sic] not place life or property in areas of high geologic, flood, and fire hazard risks. The proposed action does not affect the stability and structural integrity, and neither creates nor contributes significantly to erosion, geologic instability,

or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (ISEI, 11).

First, the current USGS Active Fault Map for this area shows active fault lines running directly through Cambria.



<http://quake.wr.usgs.gov/info/faultmaps/121-35.html>

The San Luis Obispo County General Plan Safety Element Risk Map for earthquakes omits this fault line.

Second, the possible, indeed likely, seismic liquefaction of the beach is not addressed at all.

Liquefaction is a physical process that takes place during some earthquakes that may lead to ground failure. As a consequence of liquefaction, soft, young, water-saturated, well sorted, fine grain sands and silts behave as viscous fluids rather than solids. Liquefaction takes place when seismic shear waves pass through a saturated granular soil layer, distort its granular structure, and cause some of its pore spaces to collapse. The collapse of the granular structure increases pore space water pressure, and decreases the soil's shear strength. If pore space water pressure increases to the point where the soil's shear strength can no longer support the weight of the overlying soil, buildings, roads, houses, etc., then the soil will flow like a liquid and cause extensive surface damage.

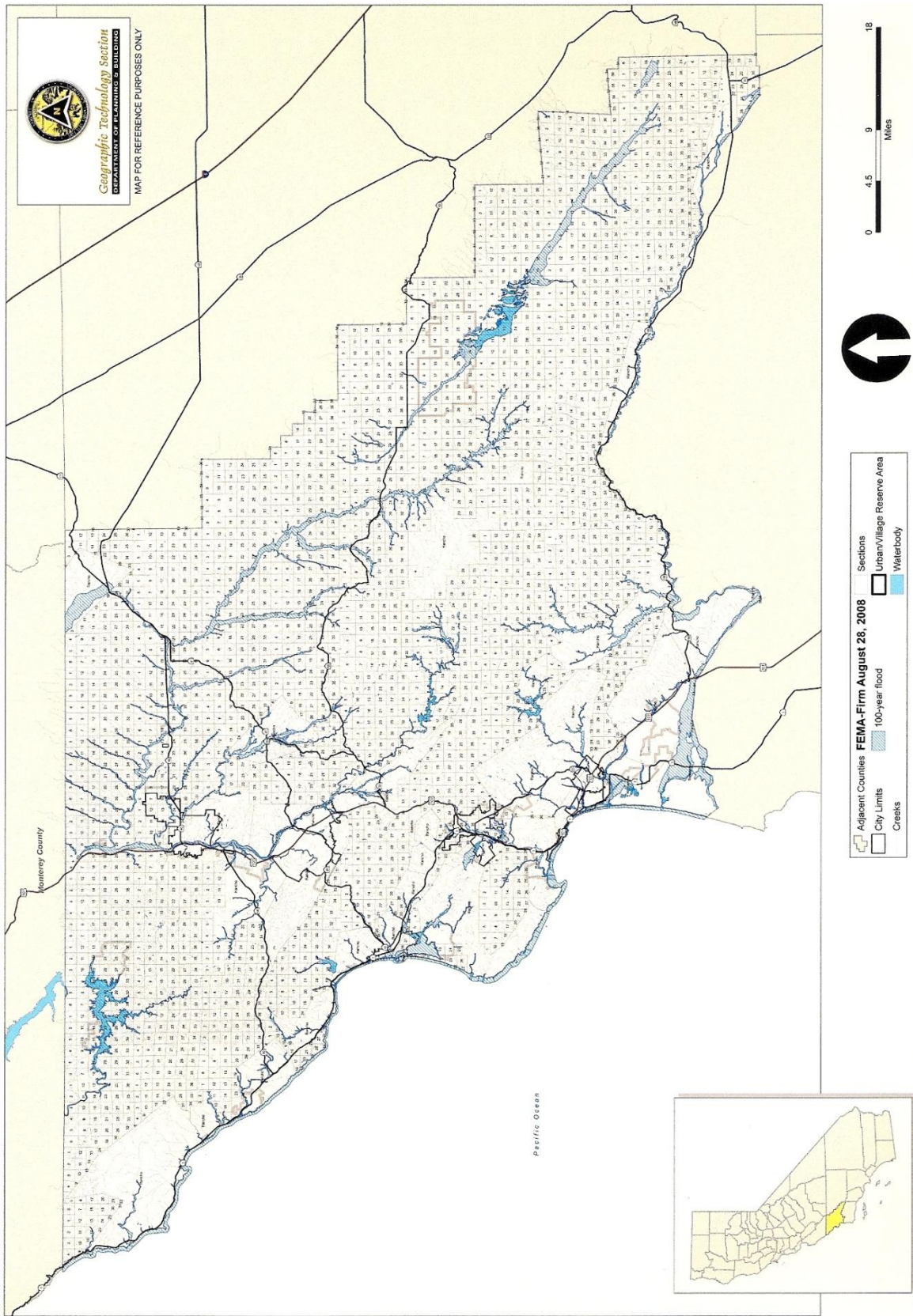
(<http://www.es.ucsc.edu/~es10/fieldtripEarthQ/Damage1.html>)

Third, the threat of flood is also discounted, again without reasons. However, the entire coast of Cambria is in a 100-year flood zone. Certainly structures in the beach, i.e., the three test wells and six monitoring wells are subject to “the flood elevation that has a 1- percent chance of being equaled or exceeded each year.”

What is the "100-year flood"?

The term "100-year flood" is misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1-percent chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most Federal and state agencies, is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance. A structure located within a special flood hazard area shown on an NFIP map has a 26 percent chance of suffering flood damage during the term of a 30 year mortgage. (FEMA Frequently Asked Questions at <http://www.FEMA.gov>)

# FEMA-FIRM FLOOD HAZARD MAP



Fourth, the possibility of landslides from the cliffs at the southern end of the beach is discounted in ISEI. I took this photo of the cliffs at San Simeon Creek, a day after the December 2003 earthquake that registered 6.5. To suggest that the test and



monitoring wells at the southern end of the proposed beach site would not be subject to significant damage by landslides and boulders ignores cliffs of similar composition and location to the north and also along San Simeon State Beach.

Fifth, the channel of Santa Rosa Creek changes mightily and often. In late December 2004 I took this photo.



The scene drew my eye because the creek was flowing out near the concrete ramp at the northern end of Shamel Park. Heavy rains, winds, and surf contribute to the creek's relocating. This often moves more than 6 vertical feet of sand on the proposed beach site; note the adults standing at the edge. The creek mouth shifted much further north in a month.

Three test wells, six monitoring wells, and pumps and generators are indeed structures, even if "hidden" three feet under the beach's surface. These wells could be moved like the tall tree trunks that regularly wash in, out, and around the Santa Rosa creek beach. I took this photo in January 2010, looking toward Shamel Park.



Sixth, I find no data supporting the conclusion that the digging of at least 16 holes and wells, perhaps all 150 feet deep, would be as benign at this site as alleged.

The proposed action does not affect the stability and structural integrity, and neither creates nor contributes significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (ISEI, 11).

On what grounds is this claim made? No supporting evidence is given. The stability and structural integrity of beaches are still only slightly understood by us humans. Every beach has its own characteristics changing daily by virtue of life forms, wind, water, sand and rocks' qualities, and more.

**The claim that this project will have no negative effect on geology and soils is ungrounded.**

#### **4. The projected use of Shamel Park, including its triangle of the beach within San Simeon State Beach, violates space zoned for recreation.**

"The study will not change the uses of Santa Rosa Creek Beach or Shamel Park" (ISEI2).

First, since wind and water can shift many feet of sand in a few hours, must each and every person walking on the beach carry a metal detector to avoid stumbling on or tripping and falling on the iron well markers that might be no longer covered with the requisite 3 feet of sand? This could be necessary for more than a year.

Second, in the discussion of Recreation (ISEI, 18), the ISEI does not even mention the playground in Shamel Park (the only public one in Cambria, apart from the schools). Indeed, the playground is at the top of the ramp the project intends to use for all the trucks, rigs, and other equipment that will drive in and out every day for 2 to 4 weeks (except weekends) and along the playground. The wall of the playground is about 1 foot high.

Third, the claim is made that because the study “would occur during times of low beach use, impacts to recreation would be insignificant” (ISEI 18). What data did they use to determine times of low beach use? Further, does insignificant mean affecting fewer than 100 people? 10? local residents? tourists?

**5. The access to the beach will use an inadequate ramp.** The ramp at the north end of Shamel Park is the proposed access to the beach. ISEI claims, “Access to the Santa Rosa Creek beach study site will be from an existing ten-foot wide reinforced concrete emergency vehicle access ramp” (ISEI, 3). However, no indication is given of ramp data indicating it can bear, for example, a 25 ton vehicle two times a day for a month (excluding weekends). Nor are data provided indicating the consequence to the beach of a 25 ton vehicle coming down that ramp at that angle that frequently.

No consideration is given to the tentative hold the rocks surrounding the ramp seem to have these days (January 2010) when the surf and tide rise. The boulders washed down from the embankment slope in the storm.



No consideration is given to the problem of blocking an emergency access ramp and the vicinity because of transport and locating of the project’s equipment.

No mention is made of the effect on Shamel Park of the movement of the project’s equipment in and out--between fence and building, fence and trees, fence and picnic tables--twice a day for twenty days.

**6. The aesthetic effect of the installation and monitoring is potentially significant.** The installation on the proposed beach site in Cambria will be viewed from the bluffs of San Simeon State Park, from residences, from the beach, from boats, etc. This will happen for at least a month.

The plan is to keep the monitoring wells covered with sand for at least a year. Given the changes that happen to the structure of the beach every single day, I cannot imagine who will pay for the needed daily checking and shoveling to make sure the structures stay invisible.

**7. The scientifically suspect presupposition that the Pacific Ocean, Santa Rosa Creek, Santa Rosa lagoon, and the beach (in three dimensions) are each wholly autonomous pervades the discussion of impact on biological resources.** ISEI claims that apparently they have nothing to do with each other; what happens in one has no effect on the others.

In the discussion of hydraulic testing (ISEI 8,9), the CCD states the clearly: “Hydraulic testing will not be conducted from wells within 50 feet of the Santa Rosa Creek lagoon unless actual flows are greater than the estimated test flow used to determine the study area boundaries” (CCD, 2; see also ISEI, 8). No indication is given of the way the test flow was or will be estimated or the criteria by which the “study area boundaries” are determined. If a rainfall not planned in the study increases the flowing rate of the creek, would this then justify drilling wells closer to the lagoon? Is a lowering of the lagoon the only possible threat to the biological resources? See also the discussion in ISEI, 14, 8b.

With regard to grunion in this section, the assumption is made that the study construction would happen in March. But exact timing cannot be guaranteed when the work to be done is on the proposed beach site in Cambria.

Spatial and temporal autonomy definitely rules the interpretation of the possible effects on threatened or endangered species, whether tidewater goby, southern sea otter, coast steelhead, or red-legged frog. They cannot be affected unless a structure literally touches them. For example, “[t]emporary noise and activities on the upper beach would not disturb sea otters offshore” (ISEI, 9). Disruption of the sands from the surface of the beach to as much as 150 feet down in at least ten places apparently poses no possible threat of mercury dislocation (ISEI, 9). Such claims require supporting evidence, since they assume the interests of the project.

In addressing the project’s possible environmental impact on the Cambria State Marine Conservation Area, the ISEI states, “The project is not located within the SMCA, however, located in the sandy beach area” (ISEI, 9). The meaning of this sentence is opaque. See also ISEI, 15, 9.c with regard to the omission of the Santa Rosa Creek Watershed Plan, now underway.

Finally, no attention is given to the ecological systems on and within the beach. Marine scientists at an international conference in Spain in 2006 developed an analysis of beach investigation: “Sandy beach ecosystems: key features, sampling issues, management challenges, and climate change impacts” (Marine Ecology 29 (Suppl. 1) (2008) 70-90. The lead author, Thomas A. Schlacher, and the others wrote,

Beach management often focuses only on the physical attributes and processes of beaches, particularly those related to managing sand budgets and the stability of the shoreline... In contrast, conservation of ecological features and processes does, in many cases, **not** form part of routine beach management. Consequently, the impacts on ecosystems are rarely included in impact assessment” (81, emphasis added).

That describes both the ISEI and CCD at issue.

8. **The discussion of possible environmental impact from hazardous materials contradicts itself and ignores facts.** It claims first that “[t]he roto sonic drilling method will not require the use of drilling fluids.” Five sentences later it says, “The potential sources of spills from the activity may include fluid from roto sonic [sic] sampling operation,” etc. (ISEI, 12).

The discussion of possible fires ignores the fact that cypress, coastal oak, and Monterey pine forests define much of Cambria (ISEI, 12, 7h).

9. The discussion of **mercury** (ISEI, 14, 8.f) avoids dealing with the possibility that digging 50-150 feet deep into the beach might release mercury from sediments. Mercury mine tailings have been found in Santa Rosa Creek. Testing potable water from CCSD wells does not address this issue. Testing the top 10 feet of a 50-150 feet hole does not either.

The article, “Mercury Contamination from Historical Gold Mining in California,” by Charles N. Alpers, Michael P. Hunerlach, Jason T. May, and Roger L. Hothem (USGS) is instructive in this regard.

10. As a resident of Park Hill in Cambria, I know from personal experience that fireworks on Shamel beach, band concerts at Shamel Park, and thunderstorms are amplified massively by the hills and Santa Lucia Range. Measuring the sound level of the work only 200 feet from the source ignores this aspect of the environment. The fireworks and concerts last one to three hours or so. Thunderstorms depend on the speed of air masses. The installation will create **a month of noise**, beginning at 7 a.m. Monday through Friday.

11. In considering the **Mandatory Findings of Significance**, the ISEI concludes that the project will have no impact on the environment in any of the three ways listed. My comments have already addressed the matter of wildlife environment, including endangered and threatened species.

The ISEI response to the second question is noteworthy. “Does the project have impacts that are individually limited, but cumulatively considerable?” The answer says there is no cumulatively significant impact (ISEI, 22, 17b.). No mention is made of the fact that the project is a step in the design of the proposed desalination plant. No mention is made of the fact that the purpose of the testing is to determine whether permanent wells would be efficient and effective in drawing out ocean water to be transported in pipes along Santa Rosa Creek to a new desalination plant near the wastewater treatment plant. No mention is made of the fact that such wells would either be vertical or slant horizontally within the state and county beach at Santa Rosa Creek

In addition, the third possible impact is declared non-existent, because of all the preceding discussion (ISEI, 22, 17c). So the claim is made that the project will not “have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. “ **This ISEI claim assumes that all possible adverse effects, direct and indirect, have been adequately considered. I strongly disagree with that assertion for the reasons stated above.**

Further reasons for my disagreement come in my comments about the Army Corps of Engineers' *Coastal Consistency Determination* (presented at the meeting of the CCSD Board of Directors on January 5, 2010). I take them to be integral to my comments on the ISEI, and they are attached.

I respectfully request the Board of Directors of the Cambria Community Services District to decide that the *Initial Study of Environmental Impact of the Geotechnical and Hydrogeologic Study at Santa Rosa Creek Beach* and the proposed Negative Declaration do not meet the requirements of the CEQA. Should the Army Corps of Engineers and the CCSD continue to agree on the need for the geotechnical and hydro-geologic study, then I request that a full environmental assessment of such study be done under CEQA and NEPA.

Submitted by  
Elizabeth Bettenhausen, Ph.D.  
February 8, 2010

345 Plymouth Street  
Cambria, CA 93428  
[elizabethbettenhausen@gmail.com](mailto:elizabethbettenhausen@gmail.com)