

### 3. Biological Effects : Pulsed vs. Continuous Wave (CW) RFR

Several studies discussed on page B-27 indicate that there is greater eye damage due to pulsed RFR than to CW RFR under corresponding conditions.

Also ( pages B-25/26 and B-27/28 ), humans can perceive certain pulsed RFR as apparent sound due to thermoelastic waves in their heads . The report does not say what would be the short- or long-term (years or decades) biological effect of such waves , of intensity level below that of auditory perception .

Effects on DNA were found to be stronger due to pulsed RFR than to CW RFR ( page B-29 ), and results of tests with rats exposed to pulsed RFR at lower than tissue heating levels showed that these " ... may influence the course of the cancer process." ( page B-34 ).

It thus seems obvious that future research should be focussed on pulsed RFR of the characteristics proposed for Sutro Tower DTV . In the present absence of the results of such research, the report appears to have been confined to ... skirting the target .

### 4. Sutro Tower DTV : RFR Pulse Peak Power Densities

The about 1700 : 1 ratio of peak vs. average power density ( Ray and Behari study, page B-29 ) and the 1000 : 1 such ratio limit specified by the international guidelines ( page B-4 ) indicates a difference of three orders of magnitude that needs to be addressed :

The " Summary of Potential Biological Effects" (page 3-13) states that :

DTV average power would be below the present NTSC peak power , and

DTV average power would be about 1/8 of the NTSC average power .

Mention of the proposed Sutro Tower DTV pulse peak power is conspicuous for its absence .

The highest reported incident average power densities from the present Sutro tower NTSC transmissions, at any residential receptor in the vicinity, are about  $0.03 \text{ mW/cm}^2$  . Using the above mentioned 1000:1 ratio the pulse peak power densities to be expected there would be about  $4 \text{ mW/cm}^2$  (  $0.03 \times 1000 / 8$  ) . Since the pulses would be of very short duration, there may be, presumably, no heating effect ; but what could possibly be other long-term biologically deleterious effects ?

( At site A , a breeze fluctuating between 1.2 and 2.0 mph (cf NTSC peak) has an average speed of 1.6 mph (cf NTSC average).

At site B , the average wind speed is 1/8 of the site A average speed , or 0.2 mph ( cf DTV average ) . But here the wind gusts for just one minute about every  $16\frac{1}{2}$  hours .... at ... 200 mph ( cf DTV pulse peak ) .... !!

If that happens during a single storm (cf experiment ), the inhabitants ( cf cells ) may rebuild ; but if it is a daily, year-round occurrence ( cf long-term human exposure ) .....

?????

)

## 5. Minimize Health Hazards

The line-of-sight distance from the proposed Sutro Tower antennas to the nearest residential receptor is about 800' ; from the antenna location(s) on Mt. San Bruno to the nearest residential receptor it is (would be) over 3000' , or four (4) times that far .

Given the inverse square principle of RFR wave propagation, impacts of DTV pulsed RFR on the most critically exposed general population would be sixteen ( 16 ) times weaker with the DTV antennas located on Mt. San Bruno than if located on Sutro Tower .

Unless and until ( detrimental ) health effects of DTV RFR are better or fully understood - and this is evidently not yet the case - , an unquantifiable risk factor remains . To minimize it - as is evidently quite feasible - it would be reasonable, prudent , and in the best interest of public health to locate the new transmitters not on Sutro Tower , but on a high location more remote from residential areas, such as Mt. San Bruno .

I trust that I have added , to some degree, to your appreciation of the concerns regarding this project . To the extent that this is the case, I respectfully urge you to communicate your opinion to the members of the San Francisco Planning Commission .

Thank you for your attention to this matter .

Sincerely yours



Ernest Kohn

cc : The Honorable Quentin L. Kopp, Senator, Eighth District,  
California Legislature

Mr. Paul Maltzer, EIR Coordinator , San Francisco Planning Department

Mr. Stephen X. Nahm, President, Midtown Terrace Homeowners Assn.

→ Ms. Nancy Hogan, President, Twin Peaks Improvement Association ,  
c/o (and for perusal) Mrs. Doris Linnenbach, TPIA

Marian Bernstein  
180 Palo Alto Ave  
San Francisco,  
CA 94114  
(415) 731-9309

September 9, 1997

Hillary E. Gitelman  
Planning Department  
1660 Mission Street, 5th floor  
San Francisco, CA 94103-2414

Dear Ms. Gitelman:

This letter is written to express my alarm about the proposed changes to the Sutro Tower.

As you can see from my address, where I have lived for over 40 years, I am directly in the "fall radius" of the Sutro Tower.

1). The Tower is now over 30 years old, fortunately has withstood one earthquake, is rusting (see your EIR ), and covered with various antennae, (many more than had been originally approved).

All towers built several years after the Sutro Tower, could be located ONLY in an area where the "fall radius" was WITHOUT human habitation. My home is directly in the "fall radius" of the aging Sutro tower. Not only am I concerned about its present state, BUT I am horrified that any responsible agency could conceive of ADDING to this AGING tower.

2). Noise from the tower is impossible, whenever there is a strong wind storm. To add another unit, suspended from the center of the tower to house the new digital equipment, is INSANE!

3). Electronic static, disturbance of answering machines, ghost openings of garage doors, inability to get the classical FM stations are only some of the problems we have faced for 30 years. And now a plan to more than double the output from the station: THIS IS OUTRAGEOUS!

Sincerely,

DUPLICATE

445 Dellbrook Avenue  
San Francisco, CA 94131  
September 4, 1997

Ms. Hillary E. Gitelman  
The Environmental Review Officer  
Planning Department  
1660 Mission Street, 5th Floor  
San Francisco, CA 94103-2414

Dear Ms. Gitelman:

I am writing with reference to the proposed modifications to the Sutro Tower antenna to increase transmissions to allow sending digital TV signals in addition to the current analog signals. I was out of town much of the time since the Draft EIR on this project was issued and I have not had a chance to read it. Nevertheless I have several serious concerns to bring to your attention for your consideration.

The first pertains to health aspects of the proposed increased signal. As you are undoubtedly aware, the question of hazards to people's health from RF radiation is controversial today. My question to you is whether it is really not irresponsible to permit increases in the RF radiation originating from a site near the geometric center of a very densely populated city. There is no absolute assurance that this radiation will be harmless. In the, perhaps unlikely, event that the increased RF radiation is indeed subsequently shown to be hazardous, It would been hard to find an area for the transmitter that would have impacted more people.

My main reason for writing you is concern the over the environmental impact of this increased level of radiation on our home electronic devices. The problems resulting from interference from even the present transmitters atop Sutro Tower are frankly unacceptably severe. For example, I have recently had to give away an expensive electronic keyboard because the annoying interference from the Tower made it unusable at this location. This is just the last event in a long series of interference problems with virtually all of our electronic devices. Another example is that cable is necessary to receive viewable TV. But even with cable, interference is significant. If the proposal to double the number of transmitters on the tower is approved, then the resulting radiation effects - and thus interference - will presumably be more than doubled. The radiation levels would be especially high because the new transmitters are to be lower on the tower and thus closer to the nearby homes. It is frightening to anticipate increased problems with our electronic devices from radiation twice as high as current levels.

The one electronic device for which we have not observed interference problems is the personal computer. However, I have a serious concern over how the proposed increased radiation levels and the presence of a differently modulated signal would impact my PC's. In the late 20th century, it would be difficult for many people to lead productive lives without reliable PC's.

My home is very close to the foot of Sutro Tower. But our problems seem to be typical of people living in the general area. I have lived here for 34 years - before Sutro Tower was built. This is a great neighborhood, and I love living here. Please don't allow increased transmissions from the Tower to force me to move.

Sincerely,

Original signed

*Gerald S. Levinson*

Gerald S. Levinson

copies: Mr. Steve Nahm, Pres. MTHOA ✓

To Ms. Hillary E. Getelman  
From Doris S. Lennensch

Re: Article - S.F. Chronicle 9/10/97

Tower Gets To Stay On Mt. Diablo

This article makes the residents on Twin Peaks ask the following questions -

1. Why didn't the City of S.F. put some limits on the 1966 C.U. regarding Lutes Tower?
2. Why is there not a "window" for a ~~some~~ bill around an annual review when this structure was placed in a highly populated area?
3. Did S.F. ever send inspectors to check the condition of the structure? Where are these reports?
4. Do building inspectors from S.F. ever check on installations of all the additional antennas up on this structure. - How safe are they?
5. Is this going to be done for future work?
6. How does this structure fit in with the required retrofit for all S.F. buildings.  
9/10 Wed. 4 o'clock
7. As "we speak" I can hear working being done at this moment. You better get an inspector up here to find out what is going on and what work is being done right now?

# COPY

79 Forest Knolls Drive  
San Francisco, CA 94131-1117  
September 4, 1997

**Paul Maltzer**  
c/o San Francisco Planning Commission  
1660 Mission Street, 5<sup>th</sup> floor  
San Francisco CA 94103

Dear Mr. Maltzer:

I am writing to express my concerns about the proposal to install Digital Television (DTV) antennas onto Sutro Tower. I do not believe that the draft Environmental Impact Report addresses the issues of concern to residents living in the area and I want to share some of my concerns with you.

As you know, expansion of Sutro Tower is a controversial issue and this controversy has a long history. In 1988, when the Tower wanted to expand its operations, the San Francisco Planning Commission turned down the proposal on a unanimous vote because of the potential health hazards of electromagnetic signals that might cause additional radiation. This issue has never been resolved.

I would like to point out that government studies have not been able to establish criteria based upon medical evidence for "safe" radiation levels from this type of signal. In effect, the draft EIR findings are based upon suppositions and even the EIR admits that investigations into the potential biological effects of radiofrequency radiation (RFR) are not able to provide definitive answers because "some of the mechanisms of interaction of RFR with various biological entities are not fully understood, and life processes are complex."

In addition, the measuring devices used to determine levels of radiation at street level are crude at best. I have watched them drive through our area with the device pointed out a vehicle window. The measuring devices are not sensitive enough to read low levels.

I would like the Planning Commission to consider the following questions:

1. What has changed since 1988? At that time, the Planning Commission came to a unanimous conclusion against Sutro Tower expansion due to concerns about health hazards. Studies of the impact of RFR do not take into consideration those persons who have moved out of the area and later developed serious health problems.

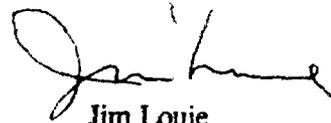
2. What assurances do residents have that the proposed expansion using an inverted antenna which is lower and whose signals point directly beneath the tower will not produce RFR that adversely impacts people, dwellings, and the environment? If, at a later date, the transmission signals are determined to be the cause of health problems in the area, will the City of San Francisco and Sutro Tower be liable for damages caused—including the probable substantial reduction in property values in the area??

The EIR is written in a style reminiscent of tobacco industry reports over the years which gave us equally bold statements about the "safe" nature of tobacco products.

3. Historically, Sutro Tower has not been a good neighbor. Decisions are made without adequate notice or input from the community. They always do what they want and let us know after the fact—or they address concerns only after complaints reach a level that can no longer be ignored. For example: installation of strobe lights, sandblasting, painting, and construction. Sutro Tower does not even have a phone number answered by a human being; instead, there is a recorded message.

In conclusion, I urge the Planning Commission to consider alternatives to expansion of Sutro Tower. Since the health questions raised in 1988 have not been satisfactorily answered, I endorse the idea of erring on the side of caution rather than needlessly exposing the neighborhood to hazards we can, at present, only guess at.

Sincerely,



Jim Louie

9/9/97.

City & County of San Francisco  
Planning Commission  
Hilary E. Gitelman  
The Environmental Review Officer  
Planning Department  
1660 Mission St., 5th Floor  
San Francisco, Ca. 94103-2444

\*\*\* HAND DELIVERED \*\*\*

Re: EIR on SUTRO TOWER 96.544E

The Environmental Impact Report as presented is **FLAWED**. It does not address - especially in detail - alternative sites such as those afforded at San Bruno facilities.

Furthermore, it does not sufficiently analyze effects on  
Humans  
Other radio technological usages  
Earthquake - seismic rift  
Water reservoir  
etc.

The EIR purports to be complete yet lacks on so many fronts, it does not truly analyze the effect which can be of an extremely adverse condition, and its subsequent effects.

Although in Appendix B action and re-action was alluded to yet **DISCLAIMERS** were deliberately included such as: "incomplete" and "based on present knowledge". I want to particularly draw your attention to page B-71 (7.1) 2nd paragraph "... no studies ... varying degrees of relevance" as well as "accurate information".

The next paragraph states "... conflicting evidence" and end with the open ended "... future research". Inconsistencies are ripe such as pg. B-72 3rd paragraph re detrimental health effects which could occur if there were sufficient research.

Particular concern is with sensitivity to modulation. It actually mentions **LETTERIOUS EFFECTS**. Other specific research was (if not deliberately) ignored. Consequences were not fully addressed with regard to all of the above concerns. It is not only the exposure of people and other living organisms (e.g. pets) but the geological hazards on the site.

There was failure in the EIR as presented to identify all potential problems. Impacts were diminished. Comparative studies were either ignored or sluffed over. Analysis of potential problems were flawed. It was implied that only Sutro Tower was eligible to support the pre-conceived conclusion.

Hilary Gitelman

EIR on Sutro Tower

9/9/97.

The EIR as presented is limited and narrow. Failure to fully analyze all potentials renders this EIR useless.

As an example: Photo pg. 3-32 as pertains to Sutro Tower is either smudged or, at least, impossible to draw a conclusion from whereas the foreground is clear.

Pg. 6-4 and 6-5 mentions DTV signals from San Bruno Mountain would be able to serve all of San Francisco YET this was not followed through completely as a viable alternative.

Whose conclusion on 6-5 was it re "... not practicable to demolish.." It seems everything is based on the monetary incentive for the owners of Sutro Tower.

Just what would be so terrible to construct new towers at San Bruno except that the current owners of Sutro Tower would be monetarily impacted. This would result in monetary diminution and therefore is not being considered in this EIR commissioned by Sutro Tower ownership.

Monetary considerations are also referred to on 6-2.

Mitigation measures are NOT addressed except for a one (1) paragraph reference on 4-1 and that states that no potentially significant effects have been identified. Why not? The neighbors seem to be able to identify numerous problems and concerns.

There also seems to be some discrepancy with regard to the specific SITING of the DTV antennae. We have a three-legged structure with very little differentiation between Fig. 6 & Fig. 7.

As long as modifications to the Sutro Tower are asked for and applied for by the owners of this project, why then do they not agree to mitigate some of the problems encountered by the most immediate neighbors such as the noise condition Pg. 3-36?

This EIR as presented is a one-way street for the benefit of the ownership of Sutro Tower and request for expansion without giving due regard to problems enumerated on the previous page as well as the neighborhoods concerns.

3.11 Geology & Soils pg. 3-38. The Dames & Moore report is 30 thirty years old. Since then we have had a major 1989 earthquake. There is a fissure there and more extended and up-to-date information is certainly indicated to be forthcoming. 1991 & 1995 studies in their entirety need to be made part of this EIR to be meaningful.

Hilary Gitelman

EIR on Sutro Tower

2/9/97.

If CU (Conditional Use) is based on this proposed EIR then it is significantly lacking in full disclosure. It is imperative that further information needs to be made part of the record so that it can be referred to by current and future residents of the neighborhood and other affected people and possessions.

The questions and concerns of the neighbors need to be fully addressed and validated. The scope of the currently presented EIR is limited. The interpretation is slanted in favor of the project sponsor and

Data utilized seems to be selected on the basis of whether it helps or hurts the conclusions sought.

Sincerely,

Edith McMillan  
647 - 28th Avenue  
San Francisco, Ca. 94121

cc: Planning Director Gerald Green  
Zoning Administrator Bob Passmore  
Neighborhood Organizations

September 3, 1997

Hilary Hutton, E.E.O.  
1666 W. Main St.  
A.F., CA 94103

Dear Mr. Hutton:

Excuse the informality of this handwritten note, but it will allow me to make it difficult to ignore.

After receiving the draft EIR on Santa Fe, I was concerned with the proposal that a new structure be built from the existing tower to President Dwight D. Eisenhower.

The residents of town are of an independent nature to doing independent analyses of the impact of higher radio tower levels upon their well-being. The draft EIR is not convincing in its assertion that it will not cause us to believe that such an increase in radio tower level is safe. Until an independent analysis is made, your desire to proceed with this project is both premature & suspect.

In addition, what draft seems to be given to the alternative proposal for using a non-adjacent site on Brown Mountain. The idea that other sites are unacceptable because new structures would have to be built implies that such financial costs are important than the well-being of residents.

The Sutter Tower area. Political & economic considerations should not be given priority over human health & safety.

I respectfully request that other project in Sutter area be made an independent analysis of this area can be made (especially the issue of existing more nearly a NONRESIDENTIAL use, such as San Francisco operation). Please give serious consideration to the concerns of San Franciscans who will be affected by the plans of Sutter Tower, Inc.

Sincerely,  
James P. Moran

Mr James P. Moran  
59 Starview Way  
San Francisco, CA. 94131-1229



160 Palo Alto Ave • San Francisco • CA 94114

September 8, 1997

Hillary E. Gitelman  
Planning Dept, 1660 Mission St.  
San Francisco CA 94103-2414

Dear Ms. Gitelman:

I live at 160 Palo Alto Avenue approximately one block from the base of Sutro Tower. I never received a copy of the Draft of the Environmental Impact Report for Sutro Tower Digital Television dated July 9, 1997 (96.544E). However, I procured a copy on my own and find it to be inadequate for the following reasons:

[1] Sutro Tower is in non-compliance with major objectives of the San Francisco General Plan.

[A] Objective 12 of the Residence Element calls for the provision of "a quality living environment." Living in the neighborhood of Sutro Tower and having to deal with the daily annoyances and inconvenience of radio frequency interference with stereos, telephones, car alarms and garage door openers is not a quality living environment. I am a serious amateur musician and recording artist. I personally had to spend thousands of dollars to create a copper-lined "Faraday Shield" around my music room to avoid the constant interference of Sutro Tower's RFI. All the non-shielded rooms in my house contain music amplifiers that are corrupted by RFI. Sutro Tower is aware of this and does nothing. Now we are expected to put up with more electromagnetic interference from additional digital antennae. You would think that intruding in a residential community as they have, they would show a greater desire to be good neighbors.

[B] Objective 4, Policy 4 of the Environmental Protection Element calls for the promotion of "non-polluting" industry. Electromagnetic radiation is pollution. It is known to be toxic to humans. The effects of combined analog and digital electromagnetic radiation has not been verified as safe for humans and indeed has not been tested at all. The reassurances of safety provided by the owners of Sutro Tower in their self-serving EIR is belied by the very words of their technical consultants hired to provide the RFR health risk assessment found in Appendix B of the EIR. They state on page B-19 that "A few studies directly address populations near radio and TV towers, but none concerns signals from DTV transmitters..." If the unknown effects of combined analog and digital

transmission are safe, why then do the owners of Sutro Tower put forth the disclaimer that "it is not scientifically possible to guarantee that exposure to Radio Frequency Radiation at relatively low levels will not result in the appearance of harmful effects for many in the future." Are the citizens of San Francisco, particularly those that live in close proximity to Sutro Tower to be unwilling guinea pigs in testing the safety of unproven and untested technology? No steps are being proposed for health monitoring of residents who live in proximity to the Tower. If it turns out to be not so safe after all, what recourse will we have?

[C] Objective 7, Policy 2 calls for the protection of land from changes that make it unsafe or unsightly.

[i] With respect to safety, the specter of disaster following the potential collapse of Sutro Tower due to an earthquake is increased considerably by its location in a residential neighborhood and its location next to 2 concrete reservoirs holding a total of 45 million gallons of water. These reservoirs are not even mentioned in the EIR. There is no other transmission Tower of this magnitude in a residential area anywhere else in the entire United States. The entire concept of a fall-zone in the event of the Tower's collapse has been ignored in the EIR. Plans for evacuation, emergency vehicle access, electrical fires, etc. are not mentioned in the EIR.

[ii] With respect to safety:

[a] none of the measurements performed in the EIR measured analog and digital transmission and are not valid.

[b] none of the calculations take into account the additional radiation of the two additional fire and CHP antennae on Palo Alto Avenue.

[c] It is virtually impossible to tell exactly where the measurements that appear were taken. The scale of the map makes accurate placement impossible and distances from the measured sites to the tower should have been provided.

[d] It does not appear that any measurements were taken from the perimeter of the Palo Ave reservoir that abuts Sutro Towers property and represents a walking path regularly used by neighborhood residents. Considering that electromagnetic radiation falls off with the square of the distance, sites particularly close to the Tower itself will receive the greatest radiation exposure.

[iii] With respect to unsightliness, few if any residents of San Francisco consider this orange-and-white-striped Eiffel Tower-sized monstrosity as anything but unsightly. It is a blight to our world-famous city skylines and an abhorrently ugly reminder of our dependence on soon-to-be-outdated TV technology.

[2] The EIR fails to adequately consider an alternative site on Mount San Bruno. Sutro Tower is a monstrosity foisted upon the citizens of San Francisco almost 30 years ago to satisfy the needs of an analog TV technology which is about to run its course and be replaced by Digital television (DTV). As the existing non-residential TV transmission site on Mount San Bruno is perfectly capable of providing DTV coverage for San Francisco, there is no reason to expand the facility on Mount Sutro. After the nine years anticipated by the FCC for the changeover from analog to digital TV, there would be no need for maintaining this public health hazard and eyesore in a residential neighborhood of San Francisco.

I feel that an amended EIR needs to be prepared, circulated, and made available for public comment. I think it is obvious to all that were Sutro Tower to be proposed today, it would be found completely unacceptable to the residents of the city of San Francisco. There is no reason to allow the self-serving interests of a few TV Tower owners to overwhelm the interests of the rest of the City. We should be planning for the phased removal of Sutro Tower, not its expansion.

Very truly yours,

Robert D. Nachtigall, M.D.

Stephen X. Nahm  
282 Dellbrook Avenue  
San Francisco, California 94131

August 3, 1997

  
Hillary E. Gitelman  
The Environmental Review Officer  
Planning Department  
1660 Mission Street, 5th floor  
San Francisco, CA 94103

Dear Ms. Gitelman:

I am writing in reference to the Draft Environmental Impact Report (EIR) for Sutro Tower Digital Television (96.544E, July 9, 1997).

The Draft EIR is deficient in several areas. I request that the final EIR contained detailed responses to the issues which I raise below.

### **Impacts not addressed by the Draft EIR**

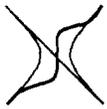
Several potential impacts of the proposed project have not been discussed at all in the Draft EIR.

#### **1. Psychological impact of proposed project**

I have resided for thirteen years in the Midtown Terrace community which is directly adjacent to Sutro Tower, and am now President of the neighborhood's homeowners association, Midtown Terrace Homeowners Association. During this time I have come to understand personally and through neighbors' comments the psychological stress caused by having Sutro Tower immediately adjacent to their homes. Most homeowners understand that scientific evidence cannot rule out potential harm of the high levels of Radio Frequency Radiation (RFR) generated by Sutro Tower. Does RFR harm their children? Does RFR harm themselves? Living under Sutro Tower, in some cases for 24 hours a day, seven days a week, might result in a cumulative harmful effect from the tower's RFR.

Statements in the draft EIR support this concern. None of the studies listed in Appendix B address health impacts of chronic, continuous RFR exposure at the levels generated by Sutro Tower over the period which the tower has been in service, 24 years. Comments given throughout Section 3.1.4 of the draft EIR state that, "The substantial weight of reliable scientific evidence is that because the project would be at a maximum of about 14.3 percent of the federal standards at the closest sensitive receptor, it is unlikely to cause such effects in the general population." (Quote is taken from the end of the second paragraph on page 3-22, however similar statements are found throughout this section.) This statement does *not* say that scientific evidence is that Sutro Tower's proposed RFR is safe, nor does it say that the various health-related impacts are *certain* to not occur to residents exposed continuously to its RFR.

The result of these unknowns is a level of stress in the residents of Midtown Terrace and adjoining communities. This has been made evident to me, as President of the Midtown Terrace Homeowners Association, through past events. Our Association has sponsored informational events in the past to discuss issues surrounding Sutro Tower (specifically sandblasting and painting which was performed there). These events are consistently the most well attended meetings that our organization sponsors. The residents who attend these meetings often express concern and frustration about the effects the tower is having on them.



Psychological stress can be assessed and characterized through a population study of the residents of the neighborhood. The addition of DTV to Sutro Tower can reasonably be expected to add to this stress (it will certainly not decrease the stress). The draft EIR does not address in any respect the psychological stress which has been caused by the tower in the past, and will be exacerbated by the proposed project. **Therefore, I request that the final EIR include a detailed study of the psychological stress of the residents within one mile of Sutro Tower.**

## **2. Impact of Sutro Tower on values of homes in surrounding communities**

Midtown Terrace consists of 820 homes on the west side of Twin Peaks. Homes are a mixture of three bedroom and two baths plus two bedrooms and one bath structures. Typical sales prices for 2 bedroom homes is \$250,000 to \$275,000. For 3 bedroom houses, sales prices range from \$275,000 to \$325,000. These prices are considerably below equivalent housing prices in San Francisco for equivalent residences. Some of this decrease in home value may be the result of the concern of potential buyers for the possible impacts from Sutro Tower. Buyers who fear harmful effects from Sutro Tower will refuse to consider this neighborhood for purchasing a house, forcing potential sellers to reduce their prices.

The draft EIR does not address this impact in any way, nor does it consider the potential additional impact on home values that the proposed DTV project will have. Given the number of homes in the area, this impact could be considerable. **Therefore, I request that the final EIR include an analysis of the values of homes in Midtown Terrace** prior to the construction of Sutro Tower, comparing these values to comparable homes in San Francisco during the same period; and an analysis of the values of Midtown Terrace homes after Sutro Tower was constructed to the present period, again comparing to comparable houses in San Francisco. This study should project the additional impact which the DTV project could have on home values in this neighborhood. I further recommend that the study be expanded beyond Midtown Terrace to all homes within one mile of Sutro Tower.

## **3. Partition of project is contrary to California Environmental Quality Act (CEQA)**

The draft EIR does not address the partition of the proposed project, in a manner which is contrary to CEQA. On page 3-38 is stated, "The tower legs, haunch diagonals, and diagonals *are being reinforced* to bring the tower structure into compliance with current codes." (My emphasis) Presumably this is in reference to Planning Department Case Number 97.357D, a project proposed by Sutro Tower to perform "structural upgrades" to the tower. As of the date of the issuance of the draft EIR (July 9, 1997), no permit was issued for this work, so the statement that the various tower structures "are being reinforced" is not true.

Additionally, CEQA requires that all relevant projects related to a proposed change be submitted as a unit, and not divided into subprojects. An EIR must cover all portions of the total project. **The final EIR must address whether the structural upgrades described in Case 97.357D are actually part of the DTV project (Case 96.544E);** that is, could the DTV project proceed with none of the upgrades proposed for Case 97.357D? **If the structural upgrades are required for the completion of the DTV project, the two projects must be withdrawn by Sutro Tower, Inc., and a new project proposed which includes the structural work.** The new EIR for the combined project must then include details of the structural upgrades and the environmental impacts they will cause.

#### 4. Impacts from foreseeable future activities

The draft EIR does not address possible impacts from foreseeable future activities which will result from the proposed project. A complete EIR must include all potential environmental impacts.

##### a. Paint and paint-laden sand outfall from tower maintenance

The addition of a 125-foot beam to Sutro Tower will result in the requirement for periodic maintenance. In the past, Sutro Tower has been sandblasted and painted to maintain its structural integrity. This work has resulted in paint-embedded sand falling on the houses surrounding the tower, as well as orange and white paint. Residents have expressed to me their concern of the possible toxic properties of this residue which has fallen on their homes.

The new beam will add to the maintenance requirement. The draft EIR does not discuss the magnitude of additional future maintenance work; nor does it discuss the toxic properties of this intrusive fallout from the maintenance work on residents; nor does it discuss the health impacts of the sand and paint which will again fall on surrounding residences during future maintenance work. **The EIR must answer each of these points and describe how this outfall can be entirely halted in future maintenance work.**

##### b. Noise

The draft EIR discusses Noise impact of the project in section 3.7. However, the noise discussed is only the noise which will be generated during construction. The presence of the tower causes an ongoing low frequency hum during periods of moderate to high wind. This noise has been noticed and mentioned to me by area residents on several occasions, and causes residents a significant degree of annoyance. The draft EIR does not measure or study the existing tower wind noise in any respect, nor does it analyze noise which may be generated by the proposed DTV structure. **The EIR must discuss how the addition of a 125-foot beam will modify tower noise, what steps can be taken to mitigate this noise, and the psychological impact of tower noise on adjacent residents.**

##### c. Dropped tools and other objects

The only object which I am currently aware has fallen from the tower is a large metallic strut cover. The addition of a new beam will present additional opportunities for objects and tools to fall from the 762-foot Level 6 and the 657-foot Level 5. Any object falling from these heights could cause considerable harm to property and person. Homes surround the tower, presenting a high probability that any falling object could cause injury. **The EIR must discuss how existing procedures and maintenance seek to ensure that all tools and other tower objects are prevented from falling, how the addition of the DTV beam will affect these procedures, and the possible impact of any falling object including the distance from the tower that an object might fall and the force of any object that might fall could have on a person or house.**

##### d. Condensation

Sutro Tower is often surrounded by coastal fog. The addition of a DTV support beam will result in additional fog condensation on the tower. **The EIR must discuss the additional amount of condensation which will occur, and the potential outfall of this condensation on surrounding homes.**

## 5. Paint scheme of proposed beam



The draft EIR does not discuss the paint scheme of the proposed DTV beam. The existing tower is painted alternating colors of orange and white according to FAA rules which were applicable prior to the recent addition of strobe lights to the tower. The draft EIR does not describe whether this orange/white scheme is still required despite the presence of daytime strobe lights. If not, the visual impact of the tower could be considerably reduced by painting it a neutral color such as gray or white. The DTV beam's visual impact in particular could be reduced in this manner. **The EIR must describe whether the orange/white paint scheme continues to be required by the FAA despite the daytime strobe lights on the tower, and if not, how the project can reduce the visual impact of the DTV beam and the tower itself by adopting a unobtrusive paint scheme.** This section should include a discussion of how the tower could be repainted without the outfall impacts discussed above.

## 6. No discussion of the nature of digital modulation

Section 1.2 on page B-7 of Appendix B explains digital TV modulation from a descriptive standpoint. However, none of the studies cited in Appendix B examine DTV modulation. This section does not discuss how the different modulation used by DTV affects the relevance of the cited studies. Does DTV's unique modulation render these studies inapplicable? Are there effects possible because of DTV's unique modulation that are not represented in any study cited? Digital signals often result in high-order harmonics in a broadcasted signal; what additional filtering must be used to ensure these parasitic signals are eliminated?

On page B-8, the statements made that "DTV signals are distinct from all signal types used in health-related research." Does this render the ANSI and FCC Guidelines irrelevant, since they are developed from health-related research? How can any safe RFR exposure limits be adequately calculated for DTV modulation?

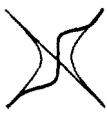
## 7. Draft EIR not available through electronic media

For the extremely short review period allowed for this draft EIR (originally 30-days, but extended to 60-days), the vast amount of information presented is difficult to process through printed material. Given the growing popularity of web pages and accessibility of these to the general population at public libraries, the EIR should be published in its entirety on an Internet web page. This will allow more effective and efficient review of EIR material.

## 8. No allowance for RFR "hot spots"

Appendix A presents a computational model of Sutro Tower radiation based on just six randomly placed measurements within 1/2 mile of the tower (plus four other measurements further away). Electromagnetic broadcasts from antennas are not uniform. Signals are greater or lesser at various positions surrounding the antenna, as a function of the antenna design and the nature of the signal. Just as two waves in the ocean can combine to form a "super" wave, certain radio "hot spots" can result from antenna broadcasts. This issue is not discussed in Appendix A. Hot spots are unlikely to be detected with six randomly placed measurements. Only a more comprehensive study based on a regular pattern of measurements and taking into account the signal patterns of the antennas can uncover such hot spots. RFR hot spots have the potential for greatly exceeding the FCC Guidelines, and can occur in the areas surrounding Sutro Tower.

9. **No discussion of the reduced need for high-elevation antennas with DTV**



The draft EIR does not describe the characteristics of DTV which would reduce the need for high elevation antennas such as are proposed by this project. DTV includes various technologies, such as error correction and adaptive receiver gain which reduces the need for high level antennas. **The EIR should explain how DTV is compatible with antennas which are of lesser height, and describe in detail the height needed to achieve coverage which is comparable to existing NSTC broadcasts.** This discussion should also consider the ability to locate antennas at a more remote site, such as San Bruno Mountain. Additional alternative sites should be discussed which are compatible with this reduced height requirement.

10. **No discussion of the potential for multiple broadcast sites**

DTV includes technology which reduces the effect of multiple path signals, which causes ghosting and other reception problems in NSTC TV. These technologies would allow multiple lower-power broadcast sites to serve a metropolitan area. **The EIR must describe how DTV signals would allow the use of multiple broadcast sites in place of a single centrally located high elevation site such as Sutro Tower, and present additional alternative sites which are allowed by this.**

**Deficiencies of the Draft EIR**

1. **Clarendon School not shown on project maps**

The maps on pages 2-4 and 3-8 show considerable detail, however they do not show the existence and location of Clarendon School. It is essential that this facility be shown in all project maps to assist policy makers in evaluating the project with respect to a location where children congregate for extended periods during the year. **The EIR must include a depiction of Clarendon School on all project maps.**

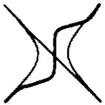
2. **In adequate display of graphic data**

Figures 2A, 2B, 3A and 3B in Appendix A (Section 8) purport to show differing levels of RFR radiation on areas surrounding Sutro Tower based on the computer model used by Hammett & Edison. The greyscale rendition of these tables is entirely inadequate to show the data being presented. A reviewer must expend considerable effort to distinguish the subtle shades of greyscale displayed by these figures. This defeats the intent of the figures, which is to present information in a manner that can be readily grasped by reviewers, and in fact may contribute to the radiation differences being hidden. This information can be presented better in color, which would immediately catch the attention of a reviewer where changes in color are shown. **The EIR should display these figures in color.**

3. **No description of DTV support beam weight**

The project description does not describe the weight of the proposed DTV beam. Nor does this section describe whether Sutro Tower as it stood on the date of publication of the draft EIR was capable of supporting this weight. Nor does it describe the procedures which will be used to elevate the three segments to Level 6, and the additional temporary weight which the tower will be required to support during construction. Each of these could substantially impact the environment if the project exceeds allowable weights and the DTV beam structure falls due to a catastrophic failure. **The EIR should present the weight impacts of the DTV beam and the steps which will be taken to ensure that the beam will not cause a catastrophic failure of Sutro Tower.**

#### 4. No description of DTV beam attachment to Sutro Tower



The project description does not describe how the DTV beam would be attached to Sutro Tower, nor how this attachment will be adequate for surviving an earthquake of 8.3 magnitude (used as a reference level for strengthening road structures in the Bay Area). Should the DTV beam fail to remain attached to Sutro Tower during such an earthquake, or should Sutro Tower itself fail during such an earthquake as a result of the attachment of the DTV beam, the impacts on the surrounding areas will be considerable. **The EIR must discuss these issues, the impact on the DTV beam of a 8.3 magnitude earthquake, and the possible impact on the surrounding area of a possible collapse of Sutro Tower or the DTV beam during such an earthquake.**

#### 5. No discussion of low-level, chronic RFR exposure

Each of the studies cited in Section 3 and Appendix B (Section 8) study occupational RFR exposure, or short-term, high-level exposure of RFR to animals and humans. The residents surrounding Sutro Tower are exposed to low-level, continuous RFR. No studies examine this type of RFR exposure. Sutro Tower has been broadcasting for 24 years with considerable levels of RFR for nearby residents. Are RFR effects cumulative? Temperature elevations which, on an instantaneous basis, may be negligible could be significant when taken cumulatively over decades. How will the addition of DTV signals add to this RFR burden?

#### 6. No discussion of RFR impact on dental appliances

Neither Section 3 nor Appendix B discuss RFR effects on metallic dental appliances. Such appliances, which could include fillings, braces, prosthetic teeth, and dentures, could be directly affected by RFR to a degree in excess of normal body exposure. In turn, such appliances could act as re-radiators of RFR, capturing radio energy and reradiating it to the body. These effects should be discussed in the EIR.

#### 7. Obscure language

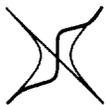
Throughout Section 3, the draft EIR refers to "sensitive receptors." Exactly what is being referred to by this phrase? I assume that this refers to residents and children of Clarendon School which might absorb RFR. If this is the case, the EIR must be modified to clearly state the subjects being referred to by the "sensitive receptors" euphemism. I recommend that the EIR instead use the phrase "community residents and children of Clarendon School."

#### 8. Misleading phrasing

Throughout Section 3.1.4, the following phrase is use with minor variations: "The substantial weight of reliable scientific evidence is that because the project would be at a maximum of about 14.3 percent of the federal standards at the closest sensitive receptor, it is unlikely to cause such effects in the general population." This phrase appears with variations related to the topic being discussed on pages 3-17, 3-18 (twice), 3-19, 3-20, 3-21 (twice), 3-22, 3-23 (twice) and 3-24.

Given the frequency with which this phrase is used, it is important that it be informative, accurate and representative of the facts. However, the phrase is misleading as stated. As stated previously, this statement does *not* say that the scientific evidence is that Sutro Tower's proposed RFR is safe, nor does it say that the various health-related impacts are *certain* to not occur to residents exposed continuously to its RFR. A more accurate and balanced statement should be used in place of this phrasing. I recommend that the following phrasing be used: "There is no definite scientific

evidence that [the effect] does or does not occur given the RFR levels proposed by this project as a result of continuous exposure by nearby residents.”



#### **9. No listing of required actions**

Section 4 mentions, but does not list, the mitigation measures required by law. This section should list all action required by law under FCC 96 Guidelines, FCC and Cal/OSHA limits for public and personnel exposure to RFR, and Cal/OSHA worker safety regulations.

Other mitigation measures should also be listed, including any possible protection of nearby residents from tower outfalls (objects, paint, sandblasting) and RFR.

#### **10. DTV RFR interference with electronic devices**

On page 3-37, the last sentence of the second paragraph states that “the existing interference would not be expected to change with addition of the DTV broadcasts.” First, no explicit characterization of this interference is given. I have also received complaints from residents about interference to various devices due to RFR from Sutro Tower. Such interference is a major environmental impact of Sutro Tower and should receive substantial attention in the EIR. The single paragraph given to this matter is entirely inadequate. This interference must be characterized and the addition of DTV RFR analyzed for additional effect.

Second, no substantiation of any kind is given for the quoted statement other than a comment that DTV modulation is different from NSTC and FM RFR. No explanation is given why modulation technology matters in this sort of interference. At a minimum, a study of area residents experiencing interference should be conducted which characterizes the existing interference and models how the addition of DTV RFR will change this interference.

#### **11. Calculation methodology is not representative of chronic exposure**

Section 1.1 of Appendix B provides detail of the methodology used for calculating RFR exposure. The ANSI standard, upon which the FCC Guidelines are based, requires a six-minute averaging period for RFR exposure measurements. This measurement may be appropriate for occupational exposure, however the residents surrounding Sutro Tower are exposed to its RFR continuously, in some cases 24 hours a day and seven days a week. Is the averaging methodology appropriate for chronic exposure such as this? Should a shorter interval be used (such as one second or less)?

#### **12. Calculation is not given for infants**

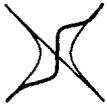
The SAR models described in Section 2.1 of Appendix B (pages B-9 and B-10) are relevant to adults and 5-year old children, however a model is not given for infants. What is the resonant absorption characteristics of an infant body? Various arbitrary safety factors are reported for the ANSI and FCC standards in Section 1.1 of Appendix B (a factor of 10 in one case and a factor of 5 in another, both stated on page B-2). Are these safety factors appropriate for infant under continuous exposure to Sutro Tower RFR? Are they appropriate for children attending Clarendon School for significant portions of the day?

#### **13. Ocular studies are not representative of chronic exposure**

The studies cited in Section 3.3 of Appendix B do not address the type of exposure that occurs with the residents surrounding Sutro Tower. No residential or chronic, continuous exposure studies are cited. What is nature of ocular RFR related impact under chronic, continuous exposure?

## Deficiencies of the Draft EIR in Relation to the Offsite Alternatives

### 1. No analysis of the differences in environmental impact of Offsite Alternatives



On page 6-1, the draft EIR states, "the project would not result in any significant environmental effects. Thus, no alternatives were formulated regarding significant effects." This result renders the draft EIR entirely inadequate. The primary environmental element surrounding Sutro Tower is the people of Midtown Terrace and the surrounding communities. Even the draft EIR cites environmental impact on page 3-37 with regard to interference with electronic devices. I have previously discussed the psychological impact on the nearby residents caused by the presence of Sutro Tower. These are real impacts that must be recognized. The offsite alternatives would have *no* impacts on residents surrounding Sutro Tower. **The EIR must include an analysis of reduced impacts which will occur if an offsite alternative is selected.**

### 2. Positive environmental results of Offsite Alternative not cited

No discussion is given in Section 6.2 or 6.3 of the potential positive environmental impact of the no project or offsite alternatives. On page 6-2, the statement is made that, "If Sutro Tower was to be demolished, then the emission of RFR would be less with this alternative." What about the additional positive environmental impacts of this potential outcome? The exiting visual impact of Sutro Tower on the City of San Francisco would be eliminated. The interference cited on page 3-37 would be eliminated. The site of Sutro Tower would be converted into a public open space, benefiting the Proposition M goal of protection of neighborhood character. Land values surrounding Sutro Tower would no longer be depressed. RFR radiation from Sutro Tower would be reduced to *zero*. Psychological stress related to the unknown impact of RFR would be eliminated.

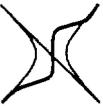
**The EIR must analyze these and all other positive impacts associated with selecting either the no project or offsite alternatives.** Section 6 should explain that under the no project and offsite alternatives, no impact would occur in the short-term at the Sutro Tower site, that any impact that would occur under these alternatives would occur away from the Sutro Tower site and possibly outside of San Francisco, and that the possible eventual removal of Sutro Tower after the cessation of NSTC broadcast from Sutro Tower would result in the above cited positive environmental results.

### 3. No economic analysis of Sutro Tower operations with no project or off site alternatives

As stated above, page 6-2 alludes to the possibility that Sutro Tower may become economically unfeasible following the cessation of NSTC broadcasting in 2006 should DTV be located somewhere other than Sutro Tower. However, no information is provided to assist reviewers and policy makers in evaluating this possibility. Is this likely, certain or unlikely? This section should present the detailed economics for operating Sutro Tower under these alternatives, including the period after NSTC broadcasting is ceased. This section should also present other services that might be hosted from Sutro Tower at that time which might provide sufficient revenue to continue its operation.

Providing this economic information will permit San Francisco citizens, the Board of Supervisors, the Planning Commission and others to weigh the positive benefits which will accrue if Sutro Tower is eventually removed against the likelihood of this outcome.

4. **Understates the lesser impacts of increased RFR at San Bruno mountain**



Page 6-6 includes a statement that at San Bruno Mountain, RFR levels would increase from 22.7 to 34.4 percent of the FCC 96 Guidelines. While it admits that San Bruno Mountain is surrounded by a public open space, this understates the lesser impact that this alternative will have compared to the project sponsor's proposal. Even though RFR will increase by a significant amount, *no* nearby residential housing exists, resulting in *no* chronic, continuous RFR exposures. Also, this alternative will not result in any additional interference (as mentioned on page 3-37), psychological stress, or other impacts which result from the existence of a broadcasting tower in a residential area, as is the case with Sutro Tower.

The EIR must present a fair and equitable representation of the lesser impacts on the environment which the San Bruno alternative will have on San Francisco and the residents surrounding Sutro Tower.

5. **FCC rules cited may not be current**

On page 6-7, FCC rules are cited regarding the placement of TV broadcast antennas. However, due to the technology used with DTV signals in error-correction and other areas, these rules may no longer be current. How are FCC rules impacted by the new technologies used by DTV? Are the statements cited on page 6-7 applicable to DTV? How does DTV change the assertions made in the cited text?

6. **Economic shortfalls from cessation of TV broadcasting at Sutro Tower is irrelevant when considering rejection of an alternative**

Paragraph 2 on page 6-8 states that the offsite alternative was rejected because the alternative would eventually render Sutro Tower useless, depriving Sutro Tower, Inc. of its substantial property and investment value. **This statement is irrelevant and should be struck from the EIR.** The project sponsor might use this argument against any and all environmental impacts caused by Sutro Tower in its present form or if DTV were implemented.

If this statement is not struck, then the project sponsor should present a detailed survey of the deprivation of property and investment value caused by the presence of Sutro Tower by the surrounding homeowners. In Midtown Terrace alone there are 820 homes with an average value of \$275,000, estimating conservatively. If the existence of Sutro Tower depresses Midtown Terrace home values by just 20%, the impact would be \$45,100,000. Is the investment and property value of Sutro Tower as much as this?

7. **What are the consequences of FCC rule violations?**

On page 6-9, paragraph 3 states that delays which may result from using the San Bruno alternative site could result in FCC rule violations as to DTV deadlines. **The EIR should cite the exact FCC rule which is being referenced and the exact dates when a violation would occur. The EIR should state the consequences of violating this rule.** What waiver or appeal process exists for obtaining an exemption from this rule?

8. **Typo in Paragraph 4, page 6-9**

The word "elf" appears in the last sentence of paragraph 4, page 6-9. What is the correct word intended here?