

# SITE PLANNING – HAZARDS AND LIABILITIES OF WIRELESS TELECOMMUNICATIONS BASE STATION INSTALLATIONS

This link contains URL's for articles **from various industry and government web sites** that discuss safety hazards and liability issues from wireless telecommunications installations. These include back-up battery problems including fire, explosion, and leaking of sulfuric acid as well as liability for RF interference with a variety of industrial, medical and home electronic equipment in the neighborhood and real estate property devaluation.

These articles can help to build the "public safety" and "preserving property values" arguments and provide "substantial evidence in a written record" to deny permits for wireless telecommunications facilities in close proximity to schools, homes, and day care and nursing home facilities such as on the community water tower, as well as those proposed for existing structures such as roof tops, historic structures and churches. The equipment shelter/hut that is required for the operation of the antennas presents a clear hazard to the safety of the neighborhood. The cost of liability insurance to cover all of these hazards along with decreases in property values should discourage churches and historic sites from hosting wireless facilities despite the promise of revenue from the wireless provider.

## BATTERY HAZARDS

Several of the authors of these articles were asked to describe a typical battery array for a cellular or PCS base station supporting an antenna site. Typically there are 16 one hundred pound, Lead-Acid 48 volt batteries that are most often filled with sulfuric acid. Their chemistry is similar to automobile batteries. There is some controversy as to whether the EPA regulation which requires notification of the presence of hazardous materials to local fire and safety authorities should apply. Sulfuric Acid is on the EPA list of "Extremely Hazardous Substances" and is present in an array of 16 batteries in sufficient amount to require this notification. As more and more antennas are sited on rooftops, in steeples, and in residential neighborhoods, notification becomes more critical.

<http://www.calicorp.com/articles/batteries-hazards.html>

Lead-Acid Battery Hazards

[http://www.ncs.gov/n5\\_hp/information\\_Assurance/HazSec2.htm](http://www.ncs.gov/n5_hp/information_Assurance/HazSec2.htm)

Web site of the National Communications System (NCS). In 1962 after the Cuban missile crisis, President Kennedy directed the National Security Council (NSC) to form this interdepartmental committee to examine the communications networks and institute changes. NCS keeps ongoing records of all hazards that have effected telecommunications systems in the United States.

From this on-line NCS Report - **2.0 NATURAL AND TECHNOLOGICAL HAZARDS:**

This section provides information concerning major natural and technological hazard threats to NS/EP telecommunications and supporting systems.

### 2.2.1.3 Experiential Data

Properties wholly dedicated to computer or telecommunications activities are actually a comparatively small part of the U.S. fire problem. From 1990 to 1994, computer and data processing centers annually averaged 29 structure fires, no reported deaths, 1 injury, and \$1.31 million in direct property damage. All communications, defense, and document facilities combine - including defense radio and radar sites, police and fire communications centers, telephone exchanges, and document centers and record repositories- annually averaged 249 structure fires, no deaths, 6 injuries, and \$7.21 million in direct property damage. **The large problem actually occurs in electronic equipment rooms or areas where more than 1,000 structure fires are reported each year to U.S. fire departments.**

See section entitled "1994 Los Angeles Telephone Exchange Fire" and paragraph under **Table 2-8 Causes of Fires at Telecommunications Facilities.**

<http://www.telecomclick.com>

Type in "A battery for all seasons?" in the SEARCH box. Click on GO.

<http://www.calicorp.com/advisory.htm>

Advisory: Lead-acid Batteries

<http://www.telecomclick.com>

Type in "Power Struggle: Battling over battery technologies" in the SEARCH box. Click on GO.

<http://www.zomeworks.com/tech/H2/H2FAQ.html>

Hydrogen FAQ [This article discusses how complex proper venting of a battery shelter/room is. This company sells shelters as well as designs to properly vent existing shelters.]

"What is the danger of explosion during battery charging?

Battery rooms and cabinets are notorious for explosions when hydrogen created by electrolysis and mixed with oxygen is ignited by a spark.

The proliferation of back up batteries at communications sites has spread the hazard from the private concern of the battery's users to the public at large. Battery cabinets, vaults, and rooms are now scattered like time bombs all around the world, many where explosion could injure or kill unaware bystanders. The danger is not imagined. Many vaults have exploded and recently a communications shelter in Yuma, Arizona, exploded shattering the windows of a neighboring house..."

<http://www.powerquality.com/art0060/art1.htm>

From the industry journal, *Power Quality Journal*.

The cogent point in this article is in the first paragraph:

". . . Most battery owners, including some of the biggest companies in the country, do not follow IEEE recommendations. They claim that the full program is too expensive. That is short-term thinking and sooner or later they will pay for it."

<http://www.calicorp.com/articles/open-house.html>

Fire Department Safety Officers Association - "Open House" Battery Incident

[http://www.firehouse.com/news/2000/6/14\\_APstate.html](http://www.firehouse.com/news/2000/6/14_APstate.html)

Fire Knocks Out State Department Phones

<http://www.wa.gov/lni/news/pr051800.htm>

All telecommunications contractors must register with Labor & Industry by June 8

<http://www.telecomclick.com>

Type "Powering wireless telecom basestations" in the SEARCH box. Click on "GO."

[http://www.ospmag.com/features/1999/h2\\_ohno.htm](http://www.ospmag.com/features/1999/h2_ohno.htm)

H2-OhNo! Hydrogen Build-Up Can Cause Battery Cabinets to EXPLODE

<http://www.telecomclick.com>

Type in "Flirting with disaster" in SEARCH box. Click on GO.

[http://www.calicorp.com/articles/osha\\_special equip.htm](http://www.calicorp.com/articles/osha_special equip.htm)

Electrical Safety Requirements for Special Equipment -  
OSHA Regulatory Profile - Special Equipment

<http://www.calicorp.com/articles/batteries-buildings.html>

Lead-Acid Batteries in Buildings

## **ENVIRONMENTAL HAZARDS OF BATTERY CHEMICALS**

<http://www.calicorp.com/articles/osha-articles.html>

Industrial Lead-Acid Batteries Are Not Considered "Articles"

[http://www.calicorp.com/epa\\_news\\_release.htm](http://www.calicorp.com/epa_news_release.htm)

EPA News Release - Ten Telecommunications Companies Voluntarily Disclose and Correct Environmental Violations

<http://es.epa.gov/oeca/ore/enfalert/vol3num6.html>

EPA's "Audit Policy" Offers Opportunity for Telecommunications Industry to Remedy Violations

[http://www.americasnetwork.com/issues/2000supplements/20000915cc/cc20000915\\_finesprint.htm](http://www.americasnetwork.com/issues/2000supplements/20000915cc/cc20000915_finesprint.htm)

Smart builders: The Fine(s) Print - EPA takes kindly to telecom companies that catch and report their own mistakes

## **RADIO FREQUENCY RADIATION LIABILITY ISSUES - RF IN THE NEIGHBORHOOD**

<http://www.telecomclick.com>

Type in "The case for testing electromagnetic radiation at the mobile radio sites" in the SEARCH box. Click GO.

From the United Kingdom-based web site of The Institution of Electrical Engineers. IEE represents the public, professional and educational interest of over 140,000 electrical, electronic and manufacturing engineers world-wide. Key activities include publishing, the organization of conferences, the maintenance of technical standards, interaction with government departments and the provision of scientific and technical information services.

<http://www.iee.org.uk/PAB/EMC/core.htm>

IEE Guidance Document on EMC (Electromagnetic Compatibility) and Functional Safety  
[From "Introduction and Purpose"]

"One of the problems peculiar to all electronic technologies is electromagnetic (EM) interference. All electrical and electronic technologies emit EM disturbances that can interfere with the correct operation of radio-communications or other electronics. Modern electronic technologies are in general more likely to cause such disturbances than those they replace.

All electronic technologies can also suffer from degraded functionality (including complete failure) when exposed to EM disturbances. Modern electronic technologies are in general more likely to be susceptible in this way than those they replace. . .

Electronic technology is increasingly used in safety-related applications. Consequently, errors and misoperation of electronic devices due to inadequate EMC can result in hazardous situations with an increased risk of harm to people's health and safety."

## **REAL ESTATE DEVALUATION**

<http://www.appraisalinstitute.org/pubs/aipub125.htm>

*The Home Environmental Sourcebook: 50 Environmental Hazards to Avoid When Buying, Selling, or Maintaining a Home.*

Although published in 1996, it is currently out of print. Try to borrow a copy from your state's Appraisal Board's library. Wireless base stations are included in the list of 50.

<http://www.abanet.org/publicserv/envguide.html>

1998 American Bar Association Annual Meeting - Environmental Law Activities

Session on Monday, August 3, 1998 - Stigmas, Contamination and the Environment: Their Influence on Property Valuation for Tax Purposes. Microwave and cellular towers are included in the list of stigmas.