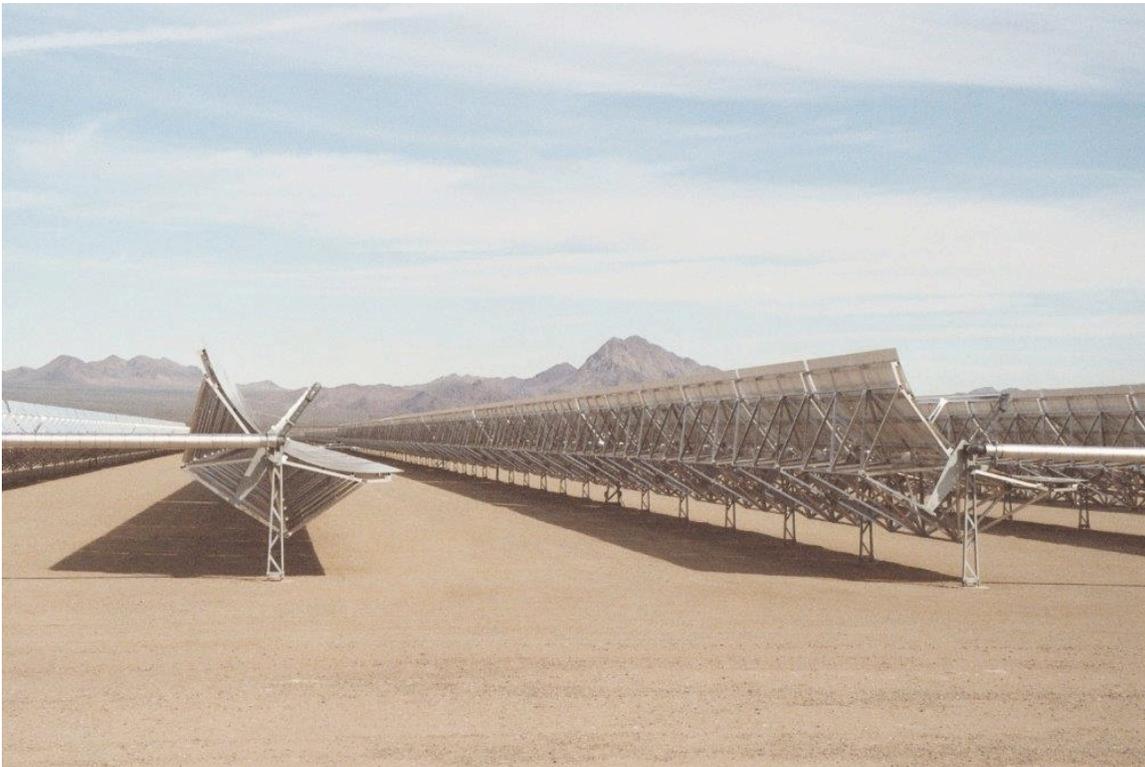


Concentrating solar power plant health hazard to people with MCS

Solar power plant leaks chemicals that make neighbors complain about the smell of burning plastic. Fumes a hazard to people with chemical sensitivities.

Keywords: concentrating solar power, solar mirror, CSP, solar thermal power, heat transfer oil, Therminol VP-1, toluene, benzene, health, chemical sensitivity, MCS



Power plant in Nevada that is similar to the Solana plant. The heat-transfer oil is pumped through the pipes in front of the mirrors.

The complaint

The *Arizona Republic* is the largest newspaper in Arizona. On June 16, 2015, it published a front page article titled “Plant’s Stormy Startup” about the Solana Generating Station near Gila Bend, Arizona (article available on <http://azcentral.com>).

The article says that the local air quality department received a complaint from a neighbor in May 2014 that the plant smelled like “burning plastic.”

The department sent an inspector to the plant in November (i.e. six months after the complaint). The inspector reported that he could smell the hot heat-transfer oil throughout the large plant and could see it leaking from joints in the piping.

He also noted that a heat exchanger had recently exploded (which presumably spilled a lot of the hot oil),

A plant engineer identified the odors as the chemicals toluene and benzene, which he referred to as a “byproduct.” Plant officials claimed that the leaks posed “no danger to the public.”

The inspector ordered the plant to fix the leaks.

What concentrating solar is

Most people are familiar with the flat solar panels that either make hot water or electricity. A third technology uses mirrors to concentrate the sun’s rays to make steam for a turbine to generate electricity. This is called concentrating solar power and is generally used in large power plants.

There are two main types of these plants. One is called a “solar tower” where all the mirrors concentrate the sun’s rays on the top of a tall tower that gets immensely hot.

The other type has mirror collectors over a large area that heat up pipes with a special heat transfer oil that is then pumped to a central building where the steam is generated. There are different versions of this basic principle, such as “solar troughs” and “linear Fresnel.” The Solana plant uses the “solar trough” technology.

The problem of toxic leaks

The solar collectors cover a large area and have miles of pipes to distribute the oil and bring it back to the turbine building. The pipes are hot and subjected to large temperature swings which promote leakages, especially in the joints.

The heat-transfer oil is toxic and used in mass quantities in these plants.

Commentary

The leaks may not be a danger to the regular public, but if the toxic chemicals benzene and toluene can be smelled, they are a danger to people with MCS.

It is also worrisome that it took six months before an inspector responded to the complaint, and how long did it then take to fix the leaks? The plant managers were obviously not going to fix the leaks voluntarily, since they hadn't done so already.

It would have been difficult for people with MCS to live near this plant. They might have had to move away until the problem was fixed, which might have taken months after the inspector ordered it done.

These plants often cover a square mile or more and are placed in rural areas. The Solana station is located in a rural part of Maricopa County, which also houses the metropolis of Phoenix. A county with a big city may have better air quality rules — and better enforcement — than other counties in the West. If this had happened in southern Utah or northeast Arizona, the plant might still be leaking.

It appears from the article that the leaks were widespread and therefore common, unless the workmanship and quality control were both shoddy during construction. It would be nice to know whether these leaks are as common in the other plants of this type.

2015