Hazardous Substances in the Site

I. Dioxins and Furans

Polychlorinated dibenzo-*para*-dioxins
[PCDDs],
or simply dioxins.
Seven of them
are of primary concern,
including
2,3,7,8- TCDD;
1,2,3,7,8-PentaCDD;
1,2,3,4,7,8-HexaCDD;
1,2,3,6,7,8-HexaCDD;
1,2,3,7,8,9-HexaCDD;
1,2,3,4,6,7,8-HeptaCDD;
OCDD.

Polychlorinated dibenzofurans
[PCDFs],
or simply furans.
Ten of them
are of primary concern,
including
2,3,7,8-TCDF;
1,2,3,7,8-PentaCDF;
2,3,4,7,8-PentaCDF;
1,2,3,4,7,8-HexaCDF;
1,2,3,6,7,8- HexaCDF;
1,2,3,7,8,9-HexaCDF;
2,3,4,6,7,8-HexaCDF;
1,2,3,4,6,7,8-HeptaCDF;
1,2,3,4,7,8,9-HeptaCDF;
OCDF.

Thus,
HPCDD,
HPCDF,
HXCDD,
HXCDF,
PECDD,
PECDF,
TCDD,
and TCDF
are the homologue groups
of dioxins and furans.

II. PCBs

Polychlorinated biphenyls,
or simply PCBs,
whose basic structure consists
of chlorinated biphenyl rings.
Among them are:
chlorinated dibenzo-p-dioxins,
chlorinated dibenzofurans,
polychlorinated biphenyls,
and chlorinated biphenyl.

Consider Aroclor1254,
for example,
a PCB mixture,
commercially-developed
and widely used for insulation.
It has twelve carbon atoms
and approximately
54 percent chlorine by mass.
Hence, 1254.

All banned in 1977.

III. Pesticides

First, organophosphate
and carbamate pesticides.
These mostly are insecticides.
Among them are malathion
and chlorpyrifos.
Carbaryl is a carbamate.

Second, pyrethroids.
These are synthetic versions
of pyrethrin,
a natural insecticide,
found in chrysanthemums.
They include such products as sumithrin
and resmethrin.

Third, and final, are
organochlorine pesticides.
These were widely used before
and are no longer in the marketplace.
They include such products as
chlordane
and mirex.

Dichloro diphenyl trichloroethane,
or simply DDT,
developed as the first synthetic
insecticide,
the 1940s,
and banned in 1972.
Dieldrin,
developed in the 1950s
and banned in 1987.

IV. **PAHs**

Polycyclic aromatic hydrocarbons,
что в переводе означает
полициклические
ароматические
углеводороды,
or simply PAHs
(or ПАУ).
These chemicals
consist of hydrogen
and carbon atoms,
arranged in benzene rings
(two, three, or more).

Anthracene,
Benzo(a)pyrene,
Chrysene,
Fluorene,
Pyrene.

***

From carbon fuels, when burned, arise,
PAHs formed under smoky skies.
Through forest fires or microbes' might,
Volcanoes, too, give them flight.

But human hands can play a role,
Cars, power plants, exhaust their toll.
Incineration, oil's refining,
Leave these chemicals aligning.

Some will drift in air's embrace,
Others settle, finding place,
On particles, they ride the breeze,
Traveling far with graceful ease.

Sunlight may break them, slow decay,
Or rain might wash them all away,
To soil and water, deep they creep,
Or spill in oceans, still they seep.

PAHs with lighter weight,
Just two or three rings in their state,
Cause toxic harm in short-term flight,
But cancer's not within their sight.

Heavier ones, with rings galore,
Four to seven, maybe more,
Though less acute in their attack,
Carcinogens, they bring life back.

V. Metals

Metals,
75% of all contaminating elements.
Mercury
is of the primary concern.
And in particular,
methylmercury.
Lead,
copper, too.

* Source: *Natural Resource Damage Assessment Plan for the Diamond Alkali Superfund Site (Public Review Draft),* by the National Oceanic and Atmospheric Administration and the U.S. Fish and Wildlife Service, November 2007.

** The second part of IV. PAHs was generated by AI.

October 1, 2024