**Toxic and Hazardous Substances**

Many compounds beyond Criterion Pollutants potentially generate adverse health effects

Most are not found naturally

Many are produced in smaller amounts

Used as part of manufacturing processes

Subject of workplace regulation

[EPA list of industrial chemicals](https://www.epa.gov/sites/production/files/documents/hazard_categories.pdf)

Regulation of compounds hampered by lack of information on health effects

effects largely unknown

Studies of health effects done on non-humans such as rats

Doses given to subjects are usually much larger than typical human exposure

**Legislation exists partially due to information problem**

If people are fully informed on levels and effects of chemicals

 markets could possibly address problem

**Federal Government has attempted to increase information on Chemical exposure**

In 1986, the Emergency Planning and Community Right-to-Know Act was passed

 Requires all facilities that use chemicals at levels above a threshold to report emissions

EPA publishes data in the Toxic Release Inventory (TRI)

People can observe what chemicals (local) firms are emitting

[List of TRI chemicals](http://milesfinney.net/334/handouts/tri_list.pdf)

**Superfund Sites**

Consist mainly of abandoned industrial sites that with remains of industrial compounds

Environmental problems associated with abandoned industrial sites

became apparent with [Love Canal](http://www.nytimes.com/video/us/100000002566509/love-canal-a-legacy-of-doubt.html)

Incident led to Comprehensive Environmental Response, Compensation and Liability Act of 1980

EPA charged with cleaning abandoned industrial sites

Called Superfund Sites

EPA spent over 35 billion through 2005 - Financing mainly by responsible parties

Community and Environmental groups propose sites as superfund

EPA evaluates sites and follow criteria determining qualification

[Number of existing and completed sites](https://www.epa.gov/superfund/superfund-national-priorities-list-npl)

[Search Superfund Sites](https://cumulis.epa.gov/supercpad/cursites/srchsites.cfm)

**Example:** [**Del Amo Facility**](https://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/7508188dd3c99a2a8825742600743735/f6f8bfd87351904d88257007005e93fd%21OpenDocument) **(**[**Location**](http://milesfinney.net/334/handouts/del_amo.pdf)**)**

* Originally built as facility producing rubber during WWII
* Industrial area grew to consist of facilities operated by Shell Oil, U. S. Rubber and Goodyear
* The industrial park was owned however, by the US government
* In 1955 the industrial park was sold to Shell, which operated it to produce rubber until 1971
* Some of the sludge byproduct was buried onsite in unlined pits
* Groundwater beneath the site later found to be contaminated
* Water aquifer supplied 34,000 people located within 4 miles of the site
* Approximately 17,600 people live within 1 mile of the site

|  |  |
| --- | --- |
| Date | Activity |
| 1984 | Discovery of soil and groundwater contamination around Del Amo Site |
| 1992 | Responsible parties mandated by EPA to begin investigation of extent of contamination of site |
| 2000? | Shell purchased homes within a certain distance of the site and destroyed them. Area made into a park. |
| 2004 | Initial investigation completed |
| 2006 | Risk Assessment Study completed |
| 2005-2008 | Free clinic operated to evaluate health of local residents |
| 2010 | Feasibility study completed |
| 2011 | Final cleanup plan approved |
| Ongoing | Cleanup of site |

EPA routinely updates local residents of the cleanup.

[Five-year update](http://milesfinney.net/334/handouts/del_amo_report.pdf) [Open House](https://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/3dc283e6c5d6056f88257426007417a2/3bed26a3a426f3f988257fe00083b4b1/%24FILE/61486077.pdf/Advertisement_PostCard.pdf)