

SITE REGISTRY REPORT
ESTES LANDFILL

Phoenix, Maricopa County, Arizona

April 28, 1998

E-5161.01.1.6.1

The attached Site Boundary Map (map) depicts the current footprint (area of deposited refuse) of the Estes Landfill, located along the south bank of the Salt River between 40th and 45th Streets in Phoenix, Arizona. In accordance with Arizona Revised Statutes (A.R.S.) §49-281(14), the site boundary is defined as the areal extent of contamination. The attached map defines the site boundary as of the date of this report. To clearly indicate the area of concern, the extent of contamination above a regulatory threshold is shown on the map.

The Estes Landfill was privately owned and operated by Garbage Service Company from approximately 1953 until 1972 when it was closed. The original footprint of the landfill extended in to the normally dry Salt River bed. The unregulated landfill is reported to have accepted industrial, commercial, residential, and liquid wastes. The City of Phoenix acquired the landfill in 1982 by eminent domain in response to repeated flooding of Sky Harbor Airport and other property during 1978-80. In 1982, the City completed a river channelization project adjacent to the landfill in connection with the Arizona Department of Health Services (ADHS), Arizona Department of Water Resources (ADWR), and the Federal Emergency Management Agency (FEMA). As part of the channelization project, approximately 30 acres of refuse located in the channel of the Salt River were moved onto the top of the landfill existing along the southern boundary of the river. The landfill materials were screened before and during excavation for possible hazardous materials, and several cubic yards of material were removed and sent to a secure hazardous waste landfill in California. The new northern boundary of the landfill was stabilized with rip rap to protect against future flooding.

Groundwater beneath the landfill contains dissolved vinyl chloride, cis-1,2-dichloroethylene (DCE), dichlorobenzene, chlorobenzene, and traces of a few other organic compounds and metals. There do not appear to be any dense nonaqueous phase liquids (DNAPLs). An early 1980's report by the Arizona Department of Health Services (ADHS) concluded that the presence of vinyl chloride in the groundwater is probably the result of the on-going degradation of other more complex chlorinated organic compounds. The principal organic compounds of interest are vinyl chloride and DCE. These compounds are commonly the result of the biodegradation of trichloroethylene (TCE).

A liquid disposal pit near the southeast corner of the landfill, identified from historical aerial photographs, is apparently the major original source area of organic compounds. During periods of high river flow, increased concentrations of dissolved iron, manganese, chloride, bicarbonate, sulfate, and total dissolved solids (TDS) are thought to be the result of groundwater temporarily saturating landfill refuse.

Pathways of concern are the soil and groundwater. A variety of hazardous substances have been disposed of at the landfill, including volatile organic compounds (VOCs) and heavy metals, and

some pesticides. As the landfill refuse decomposes, landfill gas (methane) is generated. Methane concentrations in some of the subsurface monitoring probes around the perimeter of the landfill exceed the lower explosive limit of 5 percent (5%) by volume. There are no structures at the site in which methane could accumulate.

The ADHS conducted a baseline risk assessment to evaluate potential risks to human health from contaminants at the site. Three possible exposure pathways were evaluated: groundwater, soil, and soil gas or other air emissions. The City and Bank One independently conducted a human health risk assessment of the same media. Both studies found that there are no complete exposure pathways at the site. The contaminated groundwater is not being used for industrial or public consumption. The nearest private drinking water well is more than 1 ½ miles north-northwest, and the nearest public drinking water supply well is over seven miles away.

ADEQ has investigated the presence of low levels of TCE (2.3 micrograms per liter [$\mu\text{g/l}$]) and arsenic (11 $\mu\text{g/l}$) in Southbank Lake, a private, secure lake located less than ½ mile southwest of the site. Southbank Lake is fed directly by shallow groundwater from the alluvium of the Salt River channel. The Salt River Channel in the area of the landfill has the following surface water designations: aquatic and wildlife (ephemeral) [A&We] and partial body contact (PBC). However, the Southbank Lake is not a designated water body. However, arsenic concentrations are below both the A&We (acute), A&We (chronic), and PBC standards of 440 $\mu\text{g/l}$, 230 $\mu\text{g/l}$, and 50 $\mu\text{g/l}$, respectively. There are no A&We or PBC numeric standards set for TCE. The lake owners intend to allow fishing in the lake with a catch and release policy. No fish would be allowed to be removed from the site. Neither the Salt River near the landfill nor the lake is designated for fish consumption (FC) as of the date of this report. However, concentrations of arsenic in the lake are below the FC standard of 1,450 $\mu\text{g/l}$. A FC numeric standard for TCE has not been established as of the date of this report. The lake is fenced with a six-foot chain link fence and is well marked with "no trespassing" signs. The owners are aware of the potential fish contamination from the contaminated groundwater. The source of TCE and arsenic found in the lake has not been definitively linked with the Estes Landfill, and may be associated with contamination from other sources in the area.

In 1995-96, ADEQ and the City conducted community interviews and prepared a fact sheet regarding on historical and planned site activities. In 1997, the City prepared a Community Involvement Plan, which was approved by ADEQ. In September 1997, the City submitted the Draft Remedial Investigation Report to ADEQ for review.

This site scored 45 using the adopted eligibility & evaluation (E&E) form. This Site Registry Report (SRR) is based upon information available as of the date shown. The SRR is intended as a historical document meeting the public notification requirements of Arizona Revised Statutes (A.R.S.) § 49-287.01 (B) and (D). Site boundaries depicted on the attached Site Boundary Map represents ADEQ's interpretation of data available at the time the maps were constructed. The map is intended to provide the public with basic information as to the estimated geographic extent of known contamination as of the date of the SRR. The actual extent of contamination may be different, and the geographic boundaries for this site may change in the future as new

information becomes available. Updated Site Boundary Maps, if generated, will be placed in the public site file.

An updated SRR and associated Site Boundary Map will not be issued. As new information becomes available, it will be made available for public review through placement in the public file. Interested persons are encouraged to review current information, and more detailed historical information, located in the public site file at ADEQ Phoenix Office (Site File #E-5161.01). Specific documents relied upon in the preparation of this report are identified on the attached list of references.

REFERENCES

1. “Draft Remedial Investigation Report”, September 5, 1997. Report prepared by Harding Lawson Associates for the City of Phoenix.
2. “Estes Landfill: Fourth Quarter 1997, Quarterly Report”, March 9, 1998. Report prepared by Harding Lawson Associates for the City of Phoenix.
3. “Estes Landfill: Groundwater Quality Investigation” draft report, September 19, 1990. Draft report prepared by Harding Lawson Associates for the City of Phoenix.
4. “Estes Landfill: Phase II Groundwater Quality Investigation” draft report, December 24, 1992. Draft report prepared by Harding Lawson Associates for the City of Phoenix.
5. “Arizona Administrative Code”. Title 18. Environmental Quality; Chapter 11. Department of Environmental Quality Water Quality Standards (eff. 9/30/96).
6. “Draft Risk Assessment - Estes Landfill”, August 1995. Report prepared by the Arizona Department of Health Services.
7. “Human Health Risk Assessment - Estes Landfill”, December 19, 1995. Report prepared by Harding Lawson Associates for the City of Phoenix.