



EPA's **Risk-Screening Environmental Indicators (RSEI)**

What is RSEI?



RSEI is a **screening-level tool** that assesses potential chronic human health impacts of industrial releases from pounds-based, hazard-based, and risk-related perspectives.

RSEI is a Microsoft Windows PC-based application.

Fast (typically just minutes)

Easy to Use for -

- screening large amounts of data
- identifying where further analysis is needed
- saving and redirecting resources

Note: Screening-level results should generally be supplemented with additional analyses

What does the RSEI Model Incorporate?



RSEI incorporates components of risk assessment:

- Amount of chemical released
- Toxicity of the chemical
- Fate and transport of the chemical
- Route and extent of human exposure
- Potential Number of people affected

RSEI is **NOT** a formal risk assessment, but is useful for performance measurement, prioritization, and trend analysis because it systematically incorporates toxicity and potential exposure considerations in a screening-level analysis.

RSEI

Risk-Screening Continuum

Pounds

Pounds
&
Toxicity

Pounds
&
Toxicity
&
Exposure
Proxy

Estimated
Dose
&
Toxicity
&
Exposed
Population

Risk
Assessment



RSEI

For more information about **RSEI**, visit
<http://www.epa.gov/oppt/rsei/>

What Information Does RSEI Provide?



- **Pounds Based Perspective**
 - *releases to air, water, land and underground injection*
- **Hazard Based Perspective**
 - *releases to air, water, land and underground injection*
- **Chronic human health risk-related results**
 - *releases to air and water only*
- **RSEI is NOT a formal risk assessment!**
 - It does not estimate actual risk to individuals.
 - Results are for comparative purposes only and meaningful when compared to other scores produced by RSEI.

RSEI

Caveats, Strengths, Limitations of RSEI



See Handouts:

- **Strengths and Limitations of the RSEI Model**
- **Important Caveats of the RSEI Model**

RSEI

RSEI Model Details



Divide U.S. and territories into 1-km x 1-km grid cells

Inhalation surrogate dose -

- calculates air concentrations for each cell in **101 x 101 km** grid around facilities
- uses population-specific exposure factors

Ingestion surrogate dose -

- calculates water concentrations in receiving streams up to **200 km downstream of outflow**
- finds downstream drinking water intakes
- calculates fish ingestion exposure for population within **80 km** of receiving stream
- uses population-specific exposure factors

3 facilities selected
635 releases selected
1,042 elements selected

Select

Export

Print

Help

Data

Close

Start

Selected Facilities Browser

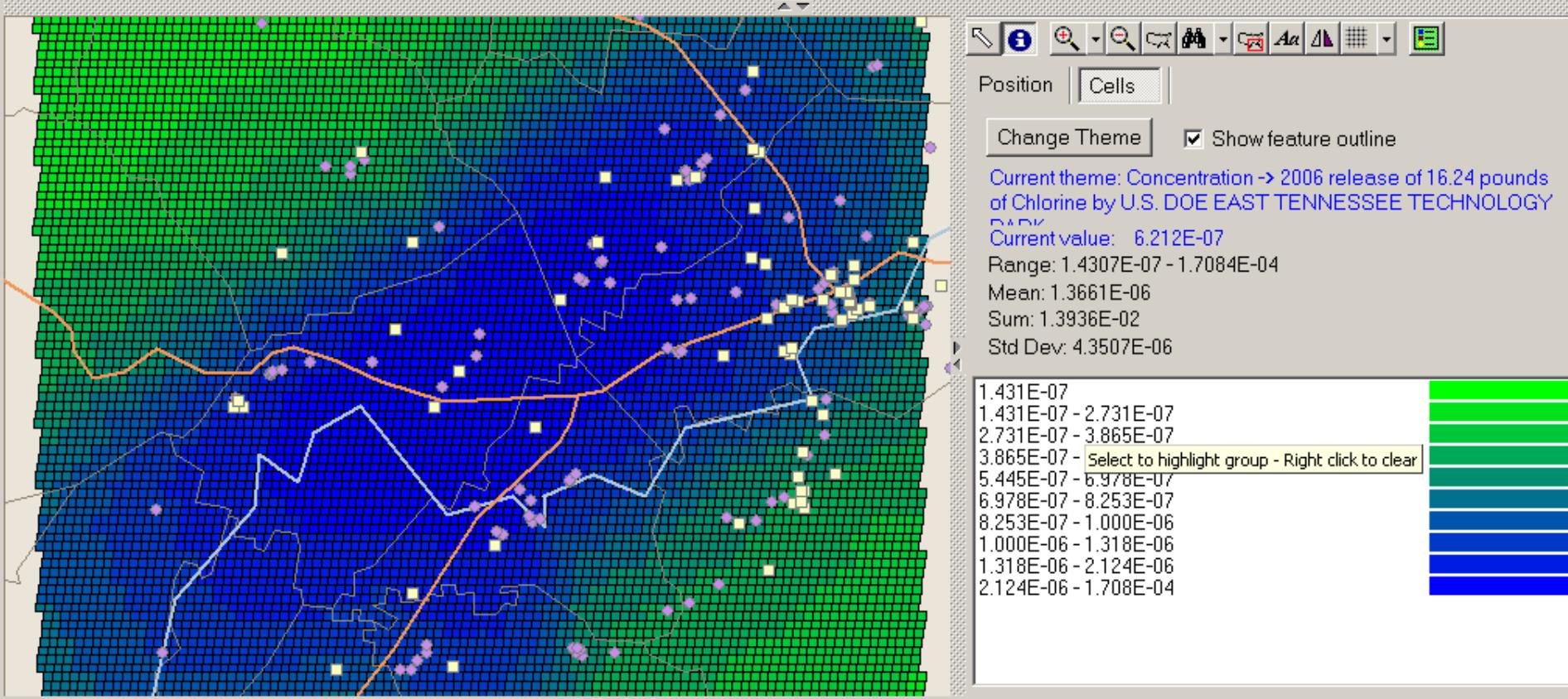
Summary

Thematic Maps

CustomTables

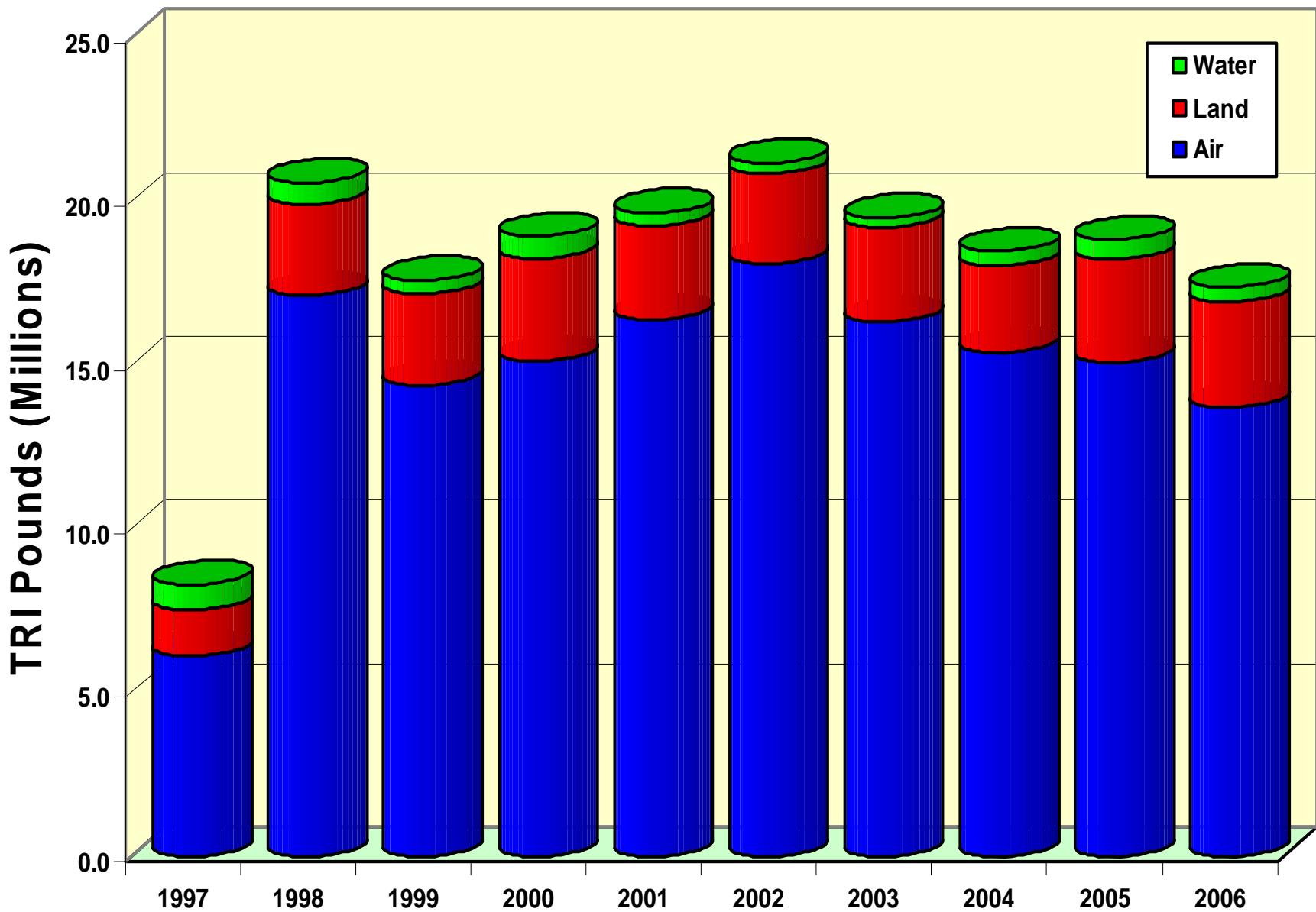
Drag a column header here to group by that column

FacilityID	Name	City	State	ZipCode	Latitude	Longitude	Score 2006
+ 37831SDKRDRTE58	U.S. DOE EAST TENNESSEE TECHNO...	OAK RIDGE	TN	37831	35.9084	-84.3916	5.45E-01
+ 37831SDKRDBETHE	U.S. DOE OAK RIDGE NATIONAL LABO...	OAK RIDGE	TN	37831	35.9833	-84.2228	0.00E+00
+ 37831SDKRDBEARC	U.S. DOE OAK RIDGE NNSA Y-12 NATI...	OAK RIDGE	TN	37831	35.9859	-84.2555	5.20E+04

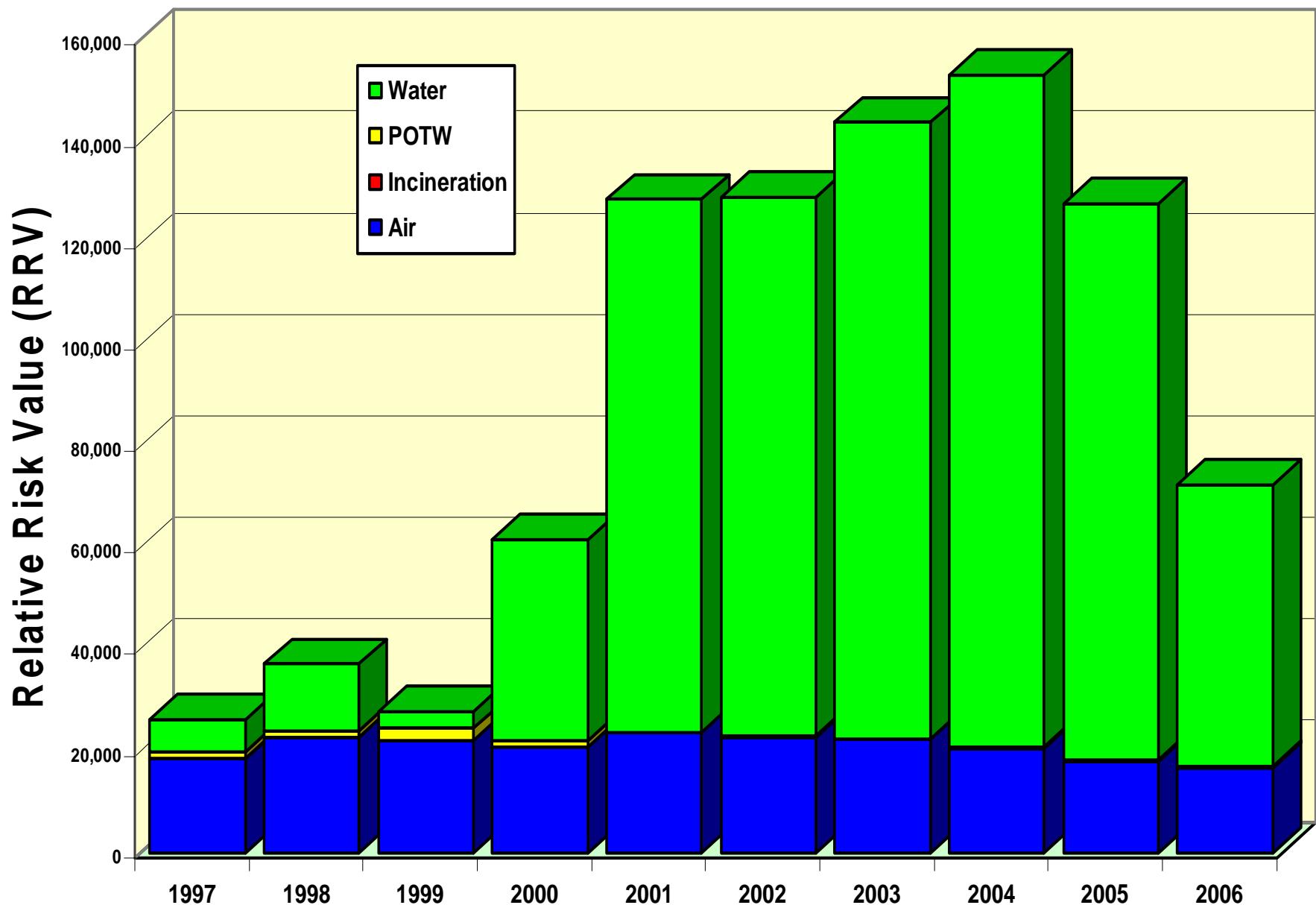


Oak Ridge, TN Area

1997-2006 TRI Releases by Media

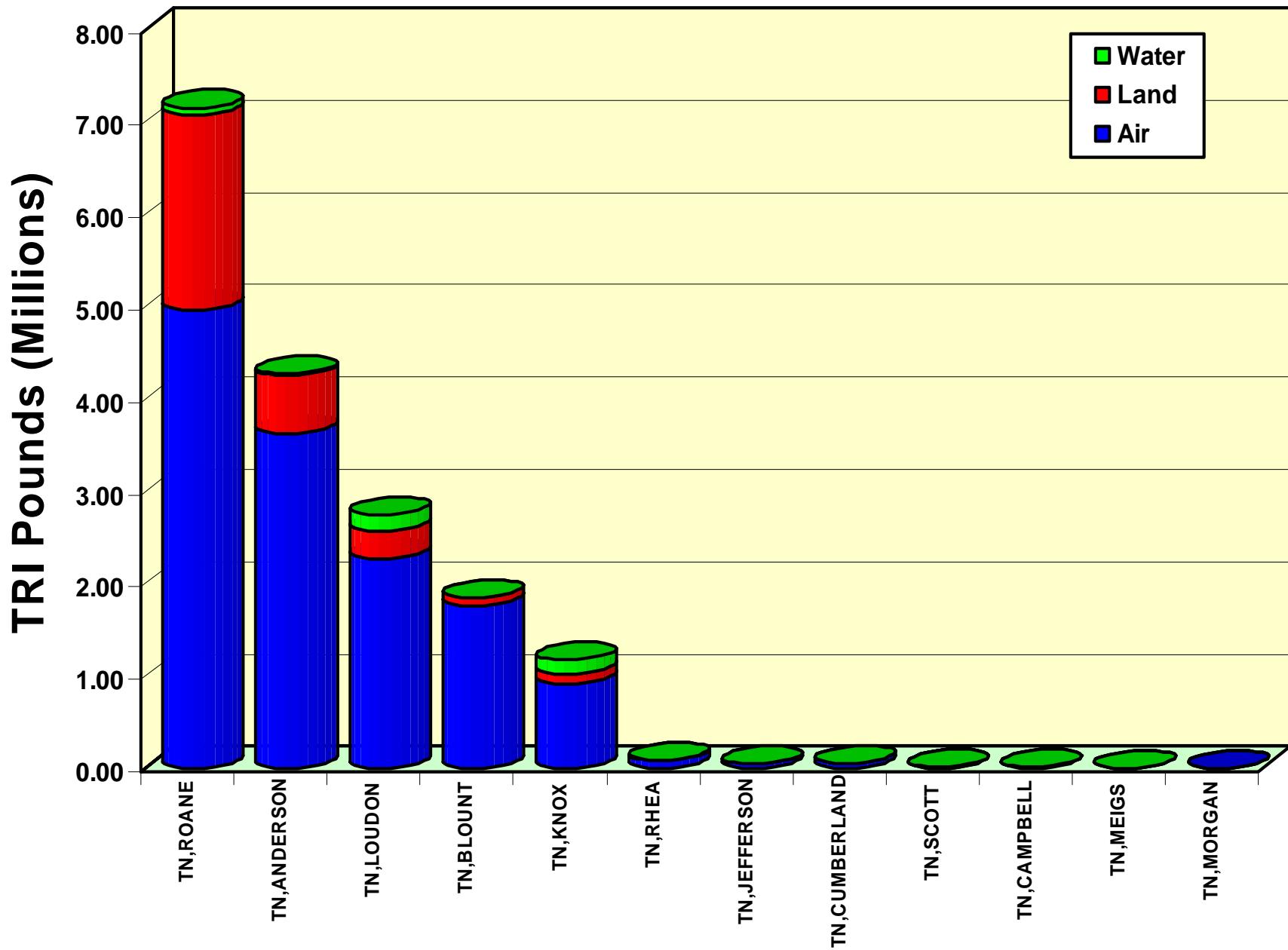


1997- 2006 Oak Ridge Area Relative Risk Values by Media

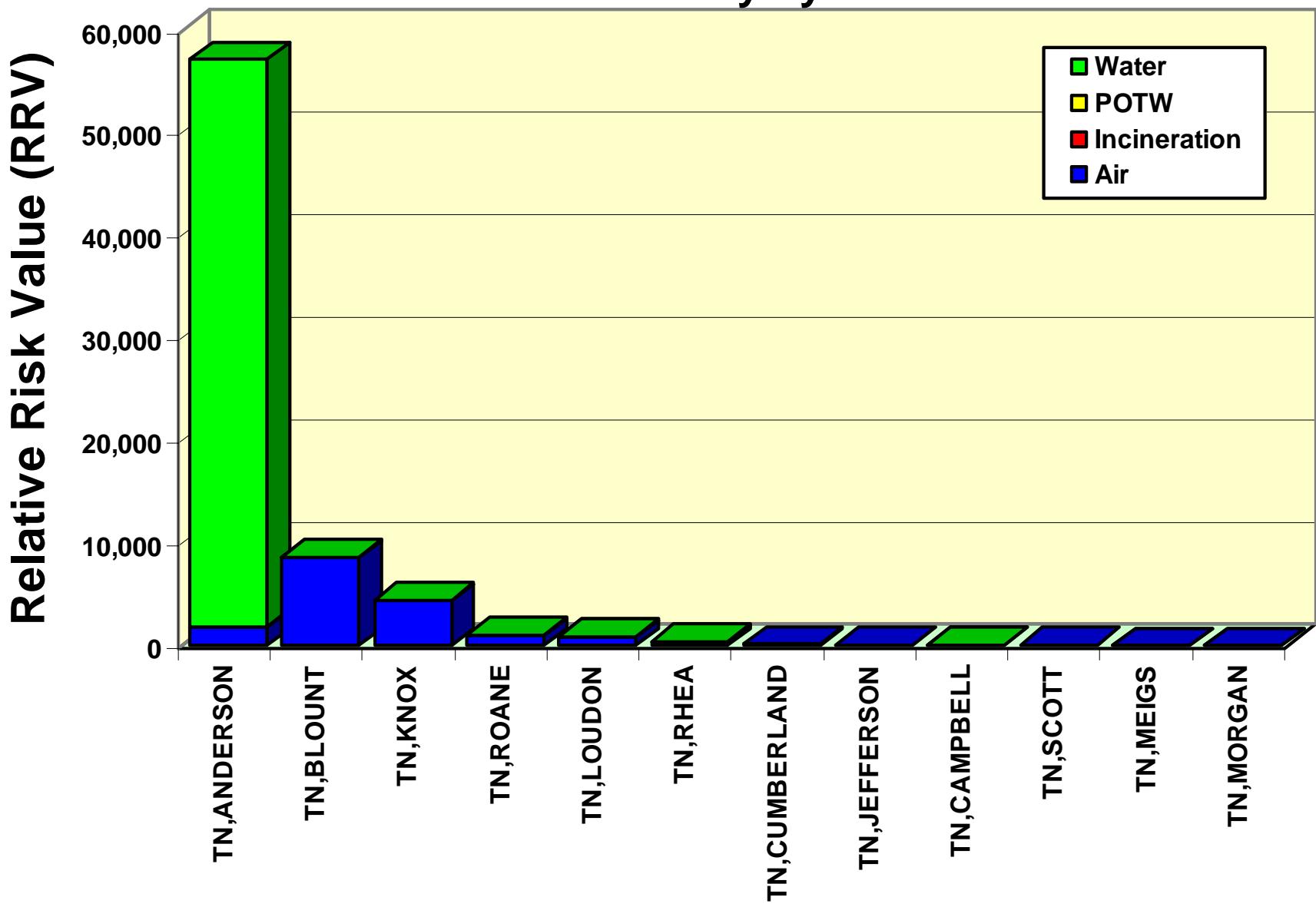


Oak Ridge, TN Area

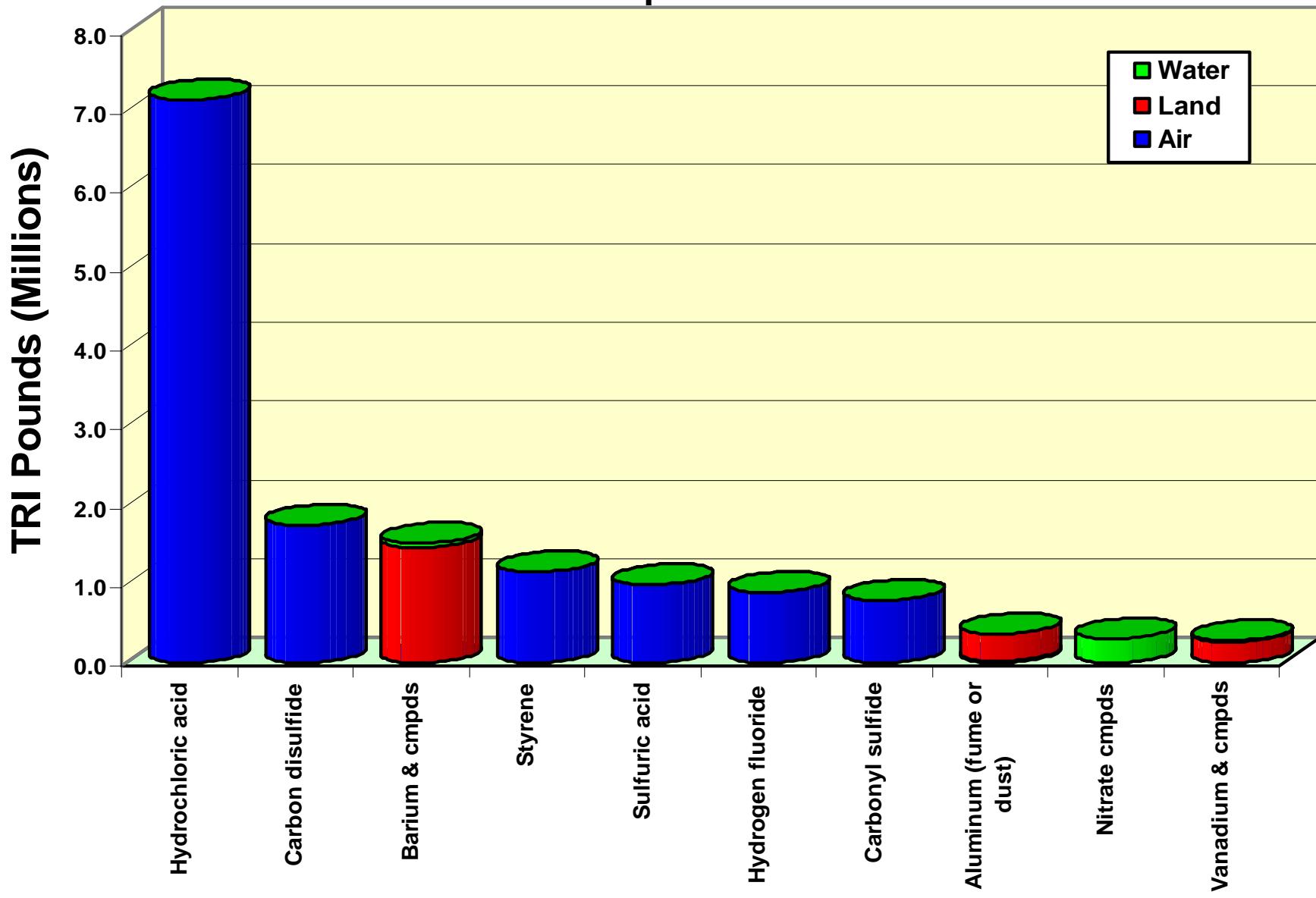
2006 TRI Releases by Media



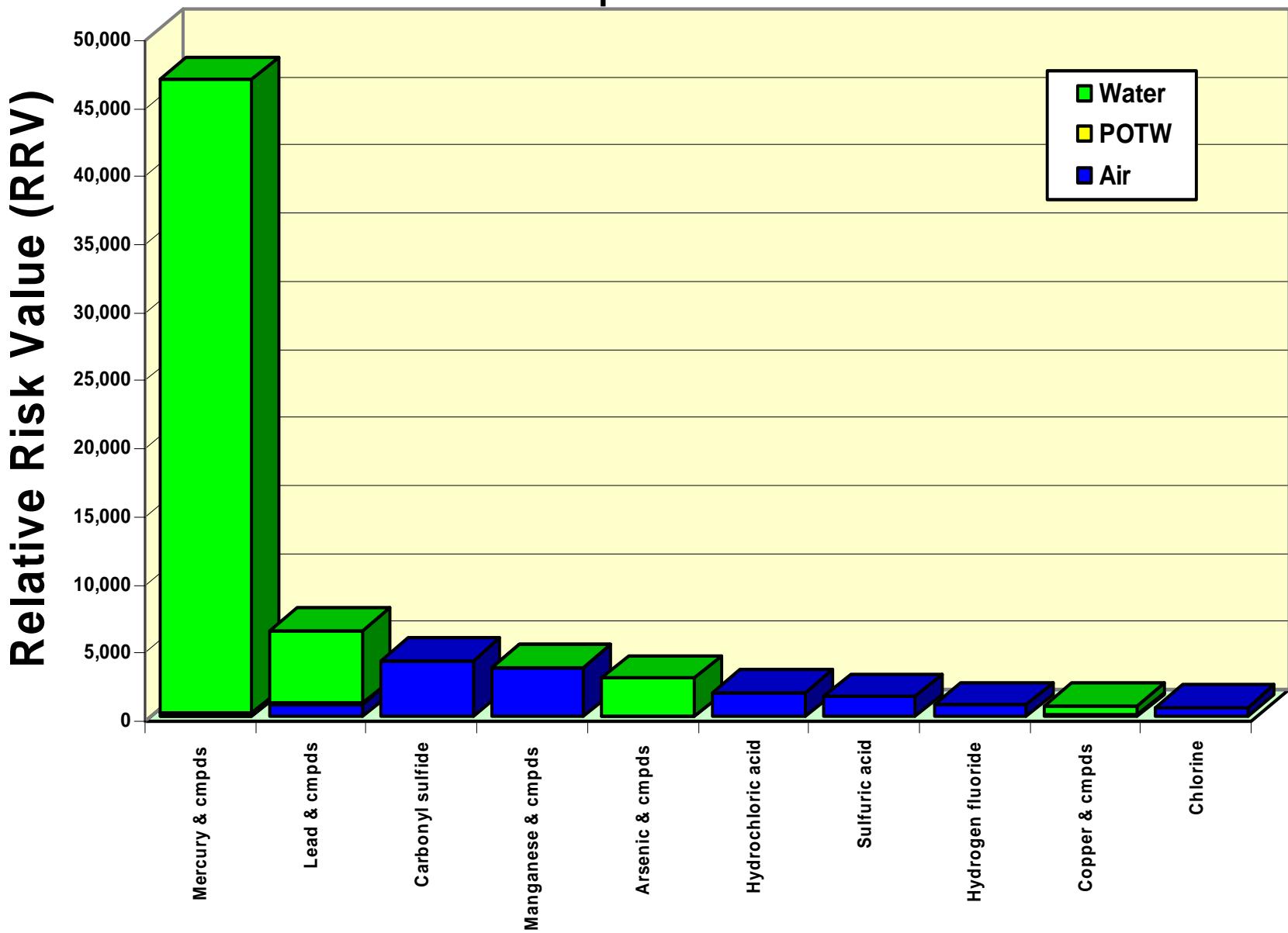
2006 Oak Ridge Area Relative Risk Values County by Media



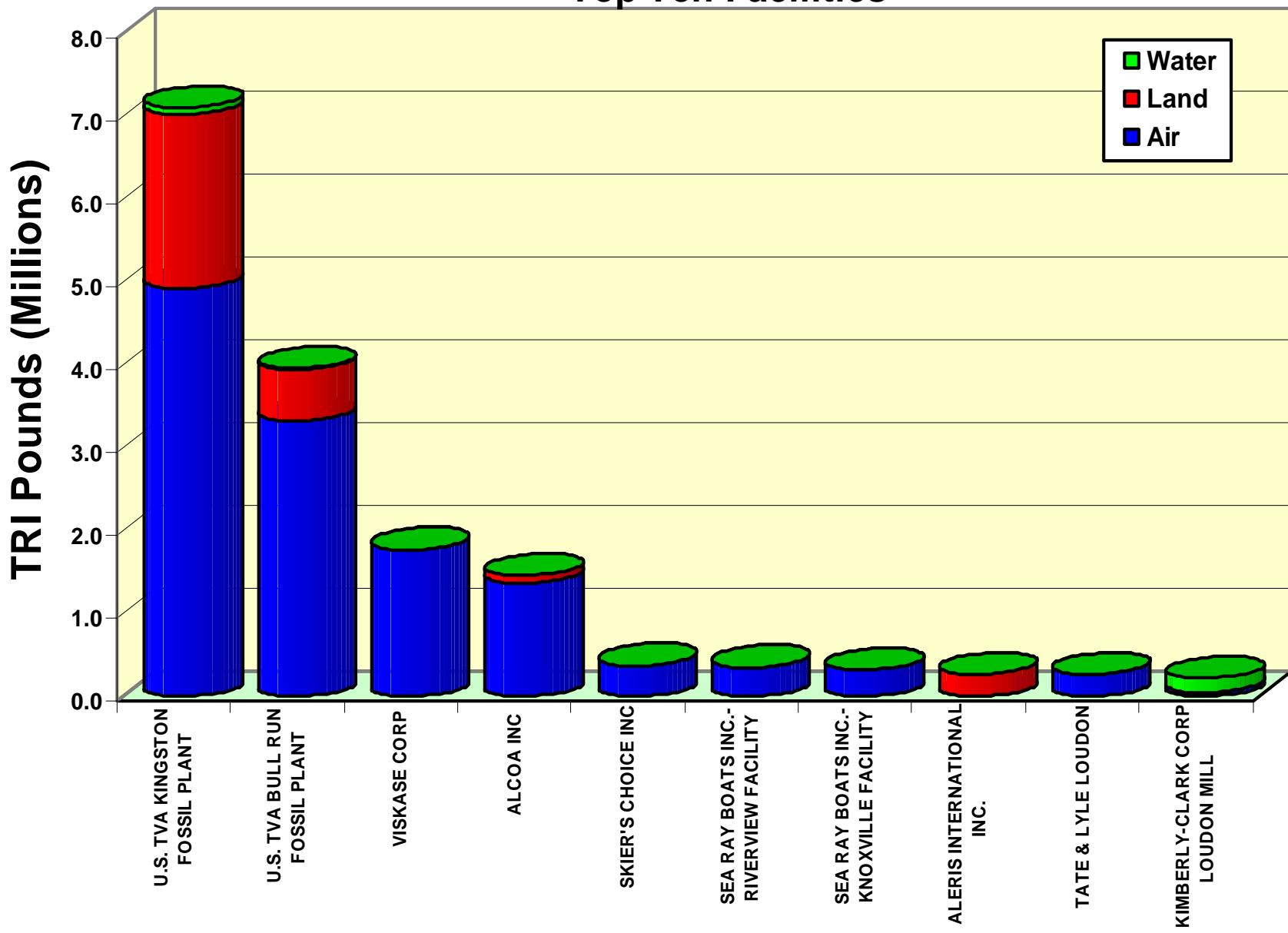
Oak Ridge Area
TRI Releases by Media
Top Ten Chemicals



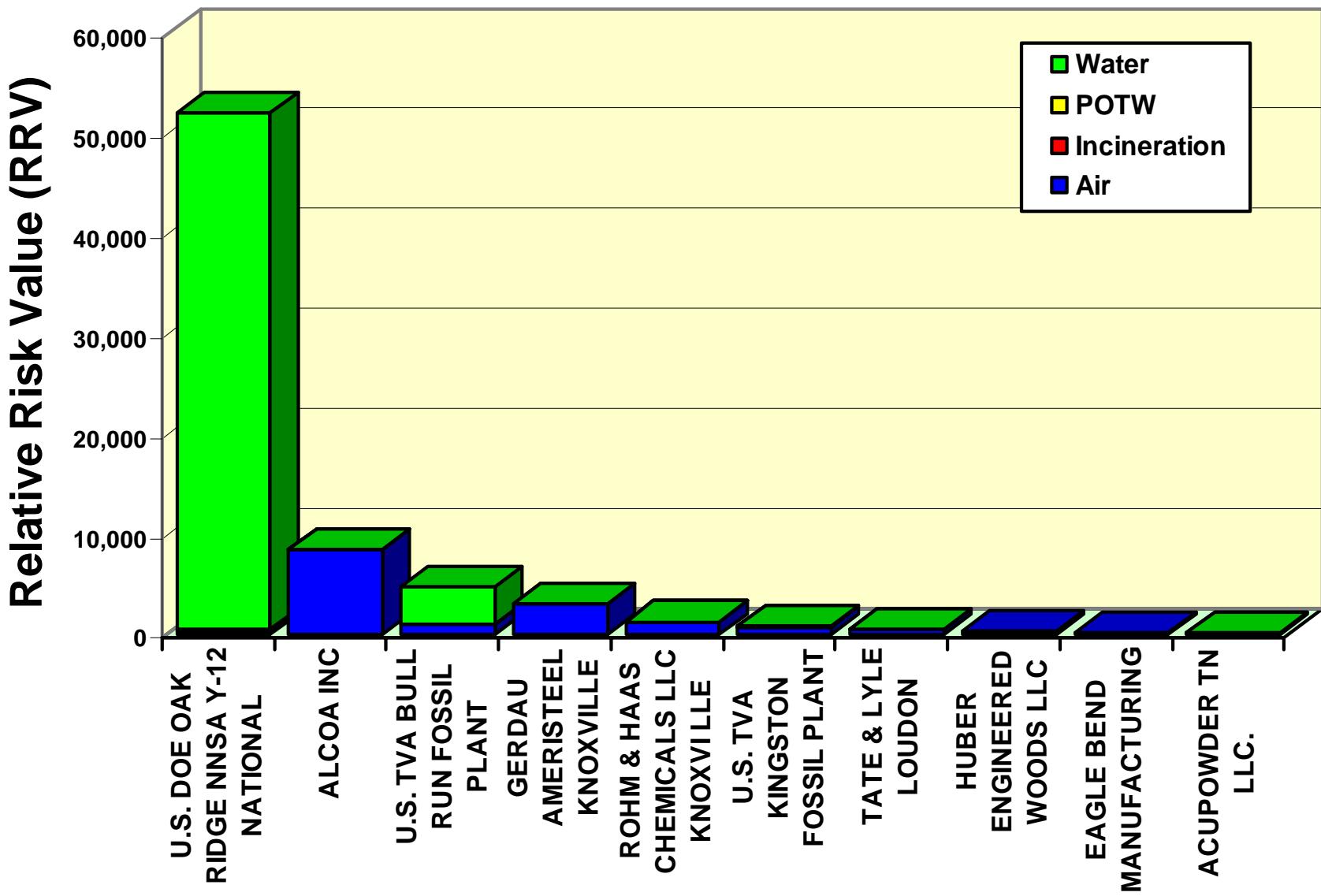
Oak Ridge Area Relative Risk Values Top Ten Chemicals

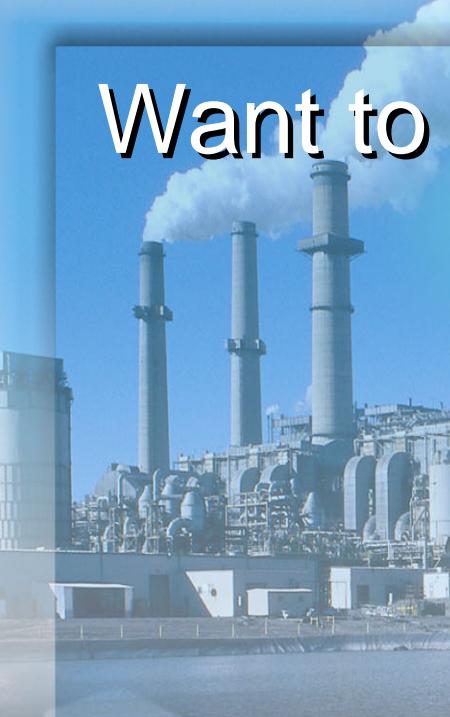


Oak Ridge Area
TRI Releases by Media
Top Ten Facilities



2006 Oak Ridge Area Relative Risk Values by Media Top Ten Facilities



A photograph of an industrial facility, likely a power plant or refinery, showing several tall, grey cylindrical smokestacks emitting white plumes of smoke against a clear blue sky. In the foreground, there's a body of water and some industrial buildings.

Want to know more about RSEI?



**For more information about RSEI
visit:**

<http://www.epa.gov/oppt/rsei>

The acronym "RSEI" in a large, bold, blue sans-serif font, with each letter having a thin black outline. The letters are slightly staggered vertically for a dynamic look.

For More Information

How To Get TRI Data:

TRI data and information are made available in a number of ways to assist the widest range of users:

TRI Explorer:

<http://www.epa.gov/triexplorer>



Envirofacts Data Warehouse:

http://www.epa.gov/enviro/html/tris/tris_query.html

The National Library of Medicine:

<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TRI>

Region 4 TRI Contacts:

We Are Happy To Help You!



Ezequiel Vélez

Region 4 TRI Coordinator

(404) 562-9191

velez.ezequiel@epa.gov

Douglas M. Chatham

TRI Program

(404) 562-9113

chatham.douglas@epa.gov

