AP - 001

GENERAL CORRESPONDENCE

YEAR(S): 2007 - 1993

AP001

HUNTSMAN

2007 MAR 2 PM 12 30

February 27, 2007

Mr. Glenn von Gonten
New Mexico Oil Conservation Division
Environmental Bureau
1220 So. St. Francis Dr.
Santa Fe, NM 87505

RE: **Submission of the 2006 Annual Groundwater Report for the Former Brickland Refinery Site**
Sunland Park, New Mexico
Huntsman Polymers Corporation

Dear Mr. von Gonten:

Enclosed is a copy of the 2006 Annual Groundwater Report for the Former Brickland Refinery Site in electronic format. As agreed upon on February 11, 2003, the report will be submitted on or before April 1 for the previous year.

Please do not hesitate to contact me at 432-640-8354 any time you have questions or need additional information.

A copy of this report is also being sent to the District 2 Office in Artesia.

Sincerely,

Glen Rhodes

Glen Rhodes
Sr. Environmental Staff Specialist
Huntsman Polymers Corporation
(GR-003-07)

cc: NMOCD District 2 - Artesia
Lon Tullos - Huntsman
Doug Swenson - Huntsman
Roger Martin - Huntsman
File 415.2

cc w/o enclosures:
Mary Wells / Fred Small - Terracon

AP001

HUNTSMAN

RECEIVED

MAR 22 2006

Oil Conservation Division
Environmental Bureau

March 17, 2006

Mr. Glenn von Gonten
New Mexico Oil Conservation Division
Environmental Bureau
1220 So. St. Francis Dr.
Santa Fe, NM 87505

RE: **Submission of the 2005 Annual Groundwater Report for the Former Brickland Refinery Site**
Sunland Park, New Mexico
Huntsman Polymers Corporation

Dear Mr. von Gonten:

Enclosed is a copy of the 2005 Annual Groundwater Report for the Former Brickland Refinery Site in electronic format. As agreed upon on February 11, 2003, the report will be submitted on or before April 1 for the previous year.

Please do not hesitate to contact me at 432-640-8354 any time you have questions or need additional information.

A copy of this report is also being sent to the District 2 Office in Artesia.

Sincerely,

Glen Rhodes
Environmental Engineer - Groundwater
Huntsman Polymers Corporation
(GR-005-06)

cc: NMOCD District 2 – Artesia
Lon Tullos – Huntsman
Roger Martin – Huntsman
File 415.2

cc w/o enclosures:
Mary Wells / Fred Small - Terracon

HUNTSMAN

AP001

RECEIVED

AUG - 3 2005

Oil Conservation Division

Environmental Bureau

August 1, 2005

ADDRESSED TO OCD & ENVELOPE

International Boundary & Water Commission, U.S. Section
4171 N. Mesa, Suite C-310
El Paso, Texas 79902

RE: **Plugging and Abandonment of MW-9D**
Former Brickland Refinery Site
Sunland Park, New Mexico

This letter is to inform you that on July 27, 2005, the Environmental Department at Huntsman Polymers Corporation in Odessa (Huntsman) plugged and abandoned a monitor well on IBWC land adjacent to the Former Brickland Refinery Site in Sunland Park, New Mexico.

Huntsman has plugged and abandoned MW-9D for the following reasons:

- MW-9D had not yielded any static water level data since 1993 due to an obstruction of silt in the casing (see data table attached from '95 Quarterly Report).
- With the well unable to provide water levels or analytical data, MW-9D was written out of the groundwater monitoring and sampling directives in the Stage II Abatement Plan (1998).
- During the June '05 sampling event at Brickland, MW-9D was found to be severely damaged. The steel well protector was completely uprooted by a motorized vehicle.

This letter is sent to you as a courtesy notification that MW-9D has been properly plugged and abandoned. The procedure involved pouring a cement / bentonite grout mixture downhole, so as to prevent the preferential migration of fluids in the area of the borehole. This well held no important value to Huntsman's monitoring program at the Brickland Site. Huntsman will follow up appropriately as to the current status of MW-9D in the next Annual Report to the NMOCD. That report will be submitted during the first quarter of 2006.

As added information, I have also attached a map of the Brickland Site to this letter pinpointing the well of interest. If there are any questions concerning this matter, please give me a call at 432-640-8354.

Sincerely,

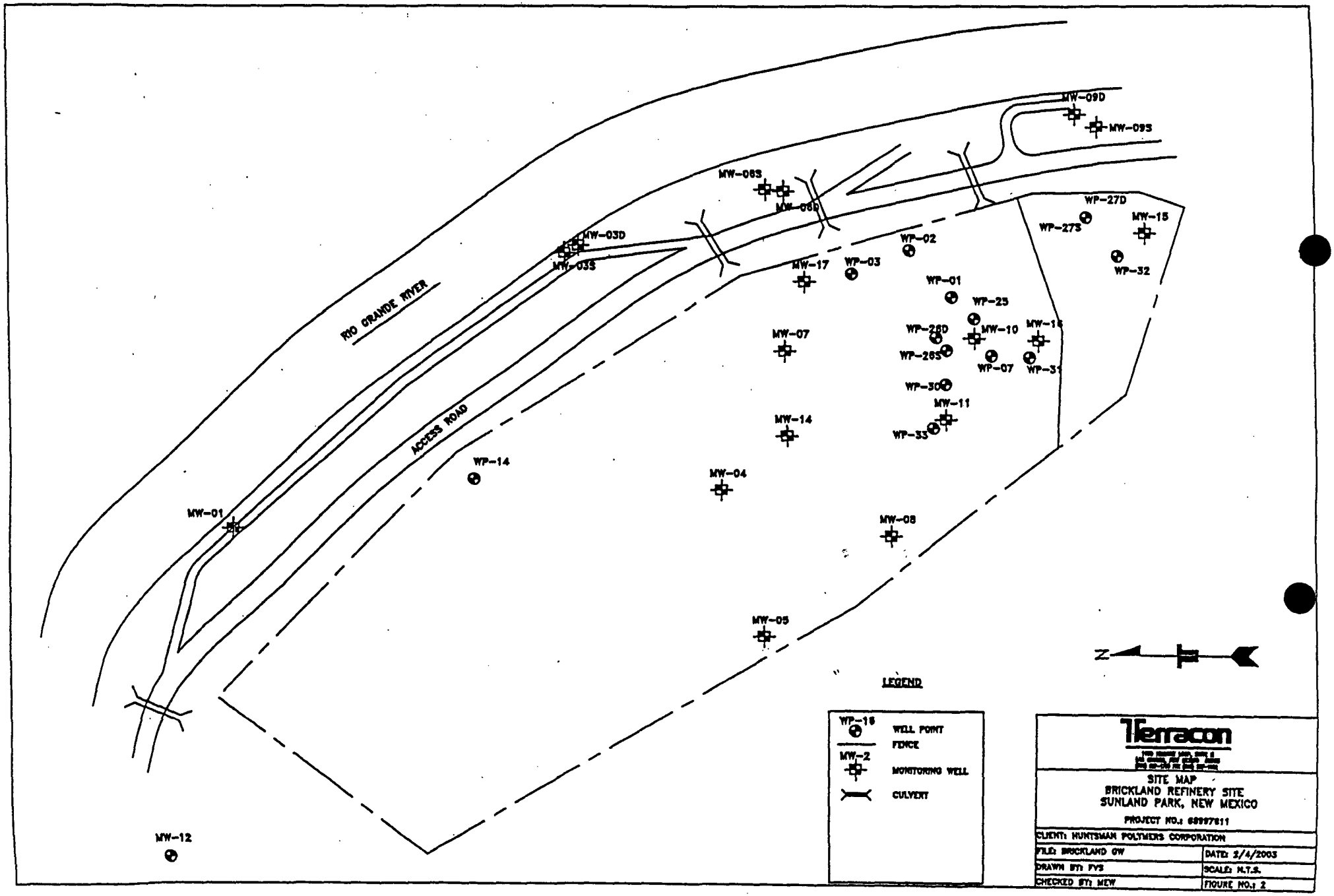
Glen Rhodes

Glen Rhodes
Environmental Engineer – Groundwater
Huntsman Polymers Corporation
(GR-002-05)

cc: Glenn von Gonten, NMOCD District 4 – Santa Fe
NMOCD District 2, Artesia
Terracon Consulting – Las Cruces
File 401.7

Water Level Data at Rexene - Brickland Facility

Well ID	TOC Elevation (ft. AMSL)	Ground Elevation (ft. AMSL)	TOS Elevation (ft. AMSL)	Measure Date	Depth to Product (ft. BTOC)	Depth to WL (ft. BTOC)	WL Elevation (ft. AMSL)	WL to TOS (ft.)	Screen Length (ft.)
MW-8	3729.22	3727.72	3724.52	04/01/90	--	--	3724.33	0.19	10.00
MW-8	3729.22		3724.52	07/01/90	--	--	3725.34	-0.82	
MW-8	3729.22		3724.52	09/30/93	--	--	3725.10	-0.58	
MW-8	3729.22		3724.52	12/03/93	--	5.80	3723.42	1.10	
MW-8	3729.22		3724.52	03/24/94	NP	4.10	3725.12	-0.60	
MW-8	3729.22		3724.52	07/11/94	NP	3.45	3725.77	-1.25	
MW-8	3729.22		3724.52	09/26/94	NP	4.73	3724.49	0.03	
MW-8	3729.22		3724.52	12/12/94	NP	5.77	3723.45	1.07	
MW-8	3729.22		3724.52	03/27/95	NP	3.80	3725.42	-0.90	
MW-9s	3730.01	3728.24	3724.31	04/01/90	--	--	3723.75	0.56	10.00
MW-9s	3730.01		3724.31	07/01/90	--	--	3724.98	-0.67	
MW-9s	3730.01		3724.31	09/30/93	--	--	3724.84	-0.53	
MW-9s	3730.01		3724.31	12/03/93	--	--	3723.52	0.79	
MW-9s	3730.01		3724.31	12/07/93	--	7.30	3722.71	1.60	
MW-9s	3730.01		3724.31	03/25/94	NP	5.45	3724.56	-0.25	
MW-9s	3730.01		3724.31	07/11/94	NP	4.72	3725.29	-0.98	
MW-9s	3730.01		3724.31	09/26/94	NP	6.10	3723.91	0.40	
MW-9s	3730.01		3724.31	12/12/94	NP	7.20	3722.81	1.50	
MW-9s	3730.01		3724.31	03/28/95	NP	5.20	3724.81	-0.50	
MW-9d	3730.08	3728.59	3703.48	04/01/90	--	--	3723.74	-20.26	10.00
MW-9d	3730.08		3703.48	07/01/90	--	--	3724.94	-21.46	
MW-9d	3730.08		3703.48	09/30/93	--	--	Silted in		
MW-9d	3730.08		3703.48	12/03/93	--	--	Silted in		
MW-9d	3730.08		3703.48	07/11/94	--	--	Obstructed		
MW-9d	3730.08		3703.48	09/26/94	--	--	Obstructed		
MW-9d	3730.08		3703.48	12/12/94	--	--	Obstructed		


MW-09D
MW-09S
MW-08S
MW-08D
WP-27D
WP-27S
MW-15
WP-32
MW-03D
MW-03S
WP-02
MW-17
WP-03
WP-01
WP-25
RIO GRANDE RIVER
WP-26D
MW-10
MW-16
MW-07
WP-26S
WP-07
WP-31
WP-30
MW-11
ACCESS ROAD
MW-14
WP-33
WP-14
MW-04
MW-01
MW-08
MW-05
MW-12
N
LEGEND
WP-16
WELL POINT
FENCE
MW-2
MONITORING WELL
CULVERT
Terracon
SITE MAP
BRICKLAND REFINERY SITE
SUNLAND PARK, NEW MEXICO
PROJECT NO.: 69997811
CLIENT: HUNTSMAN POLYMERS CORPORATION
FILE: BRICKLAND GW
DATE: 2/4/2003
DRAWN BY: FVS
SCALE: N.T.S.
CHECKED BY: MEW
FIGURE NO.: 2

HUNTSMAN

RECEIVED

MAR 10 2004

Oil Conservation Division
Environmental Bureau

March 8, 2004

Mr. William Olsen
New Mexico Oil Conservation Division
1220 So. St. Francis Dr.
Santa Fe, NM 87505

RE: **Submission of 2003 Annual Groundwater Report for the Former Brickland Refinery Site**
Sunland Park, New Mexico
Huntsman Polymers Corporation

Dear Mr. Olsen:

Enclosed is a copy of the 2003 Annual Groundwater Report for the Former Brickland Refinery Site. As we discussed on February 11, 2003, this report will be submitted on or before April 1 for the previous year.

Please do not hesitate to contact me at 432-640-8275 any time you have questions or need additional information.

A copy of this report is also being sent to the Disrict 2 office in Artesia

Sincerely,

Roger I. Martin
Staff Environmental Engineer
HUNTSMAN
(RIM-022-04)

cc: NMOCD District 2, 1301 W. Grand Ave., Artesia, NM 88210

cc w/o enclosures:
Mary Wells/Fred Small, Terracon
Ed L Gunderson
Glen Rhodes
File 415.2

RECEIVED

MAR 13 2003

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

HUNTSMAN

March 10, 2003

CERTIFIED NO. 7001-1140-0002-4325-2275

Mr. William Olsen
New Mexico Oil Conservation Division
1220 So. St. Francis Dr.
Santa Fe, NM 87505

RE: **Submission of 2002 Annual Groundwater Report for the Former Brickland Refinery Site**
Sunland Park, New Mexico
Huntsman Polymers Corporation

Dear Mr. Olsen:

Enclosed is a copy of the 2002 Annual Groundwater Report for the Former Brickland Refinery Site. As we discussed on February 11, 2003, this report will be submitted on or before April 1 for the previous year.

This report reflects the changes we discussed during our meeting of September 20, 2002. We believe these changes streamline the report and make it more accessible. To review, the changes were as follows:

1) Rather than record all data from the beginning of the project, all tables have been truncated to list data on a running 5–year span.
2) On Table 6, all data has been deleted that related to well points that have been plugged.
3) Figures for water levels and figures for organic concentrations have been combined and show data on a running 10-year span (this change combined Appendix A and Figures 3a – 3i from the previous reports). Since benzene is the organic of most concern and also the one with the lowest water quality concentration (10 ppb), benzene is the only organic plotted on these figures.
4) Except where they could be incorporated directly into the text (e.g. on page 7) , all figures and tables have been moved to Appendix A.
5) The executive summary has been shortened and is focused on an assessment of the environmental stability of the site.

The only change we proposed but did not make was to remove paper copies of the analytical reports and replace them with a data CD. We are working with a new lab and hope to make the move to electronic data in the future.

Please do not hesitate to contact me at 915-640-8275 any time you have questions or need additional information. A copy of this report is also being sent to the Disrict 2 office in Artesia

Sincerely,

Roger I. Martin
Staff Environmental Engineer
HUNTSMAN
(RIM-030-03)

cc: NMOCD District 2, 1301 W. Grand Ave., Artesia, NM 88210

cc w/o enclosures:
Mary Wells/Fred Small, Terracon
Ed L Gunderson
Glen Rhodes
File 415.2

HUNTSMAN POLYMERS CORPORATION
P.O. Box 3986 • Odessa, Texas 79760 • 915-640-7200 • Fax 915-640-8054

HUNTSMAN

February 11, 2003

Mr. William Olsen
New Mexico Oil Conservation Division
1220 So. St. Francis Dr.
Santa Fe, NM 87505

CERTIFIED NO. 7001-1140-0002-4325-2107

RE: **Confirmation of Submission Date for the Brickland Annual Report**
Huntsman Polymers Corporation
Former Brickland Refinery Site
Sunland Park, New Mexico

Dear Mr. Olsen:

Thank you for taking my call this morning to discuss the submission of the Annual Report for the Former Brickland Refinery Site. As we agreed, from now on Huntsman will submit this report to your office on or before April 1st.

Please do not hesitate to contact me at 915-640-8275 any time you have questions or need additional information.

Sincerely,

Roger I. Martin
Staff Environmental Engineer
HUNTSMAN
(RIM-011-03)

cc: Mary Wells/Fred Small, Terracon
Ed L Gunderson
Glen Rhodes
File 415.2

AP-1

HUNTSMAN

September 23, 2002

RECEIVED

SEP 27 2002

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Mr. William Olsen
New Mexico Oil Conservation Division
1220 So. St. Francis Dr.
Santa Fe, NM 87505

RE: **Notes from September 20, 2002 Meeting**
Huntsman Polymers Corporation
Former Brickland Refinery Site
Sunland Park, New Mexico

Dear Mr. Olsen:

Thank you for taking time to visit with Ed Gunderson and me on Friday. As we discussed, Huntsman's Odessa environmental group is once again managing the Brickland site. Ed and I wanted you to be aware that we remain committed to continuing the remediation/stabilization activities at the site and to providing the NMOCD with timely information about site conditions and activities.

Additionally, we discussed ways the annual report might be streamlined and reorganized to make it more accessible. As was agreed, the following changes will be made in the next report.

1) All tables will list data on a running 5–year span.
2) On Table 6, all data related to well points that have been plugged will be deleted.
3) Figures for water levels and figures for organic concentrations will be combined and will show data on a running 10-year span (this will combine Appendix A and Figures 3a – 3i). Since benzene is the organic of most concern and also the one with the lowest water quality concentration (10 ppb), benzene will be the only organic plotted on these figures.
4) Paper copies of the analytical reports will be removed from the report and replaced with a data CD, if possible.
5) Except where they can be incorporated directly into the text, all figures and tables will be moved to the end of the written section of the report.
6) The executive summary will be shortened and will focus on an assessment of the environmental stability of the site.
7) The remainder of the report will be reorganized along the lines of the model report Terracon prepared for our meeting.

Thank you again for your time and attention. Please do not hesitate to contact me at 915-640-8275 any time you have questions or need additional information.

Sincerely,

Roger I. Martin
Staff Environmental Engineer
HUNTSMAN
(RIM-056-02)

cc: Mary Wells/Fred Small, Terracon
Ed L Gunderson
Glen Rhodes
File 415.2

HUNTSMAN

AGENDA

Meeting with NMOCD
September 20, 2002

Introductions and Site Management Update

Discussion of any NMOCD concerns about site management or reporting

Huntsman proposals to streamline reporting:

- Reorganize report format to make it easier to read
- Remove data/reporting relating to plots A & B (Tract 1)
- Remove all plugged well points from Table 6 (Free Phase HC)
- Truncate all data in tables and plots to a rolling 5-year span
- Delete all GW elevation vs. time plots – current Appendix A
- Delete BTEX vs. time plot for -- MW-3S (Fig. 3a)
  MW-3D (Fig. 3b)
  MW-6D (Fig. 3e)
  MW-14 (Fig. 3h)
  MW-15 (Fig. 3i)
  Upstream (rept. pg. 29)

Attendees – Bill Olson - OCD
Roger Martin - Huntsman
Ed Gunderson - "

HUNTSMAN

RECEIVED

FEB 2 3 2002

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

February 21, 2002

Mr. William Olson
New Mexico Oil Conservation Division
1220 St. Frances Drive
Santa Fe, NM 87505

Re: Brickland Refinery 2001 Annual Report

Dear Mr. Olsen,

On behalf of Huntsman Polymers Corporation, the following letter report and bound attachment are presented in accordance with the approved Stage 2 Abatement Plan for the former Brickland Refinery Site. The Site is located in Dona Ana County near Sunland Park, New Mexico.

Annual Groundwater Monitoring Program Report

Included with this letter report is the bound Year 2001 Annual Groundwater Monitoring Report summarizing the methods, observations, conclusions and recommendations made relative to the site in accordance with the monitoring and analysis requirements of the Stage 2 Abatement Plan. Semi-annual monitoring was conducted on July 27-August 1, 2001 and on December 12-14, 2001.

Deed Restriction Records

Deed Restrictions were executed by Huntsman Polymers Corporation and recorded in the real estate records of Dona Ana County. Huntsman has now fully complied with all conditions for the termination of its Abatement Plan with respect to Areas "A" and "B" (also known as Tract 1).

International Boundary and Water Commission (IBWC) Activities

A number of meetings and information exchanges occurred in 2001 between Huntsman and the IBWC. In addition to paying the site's IBWC "Annual Fee for Land Use Permit," Huntsman also provided the IBWC with (1) a site map showing surface soil total lead results and (2) updated ponding capacity calculations for the site. IBWC has requested additional surveying to define the location of the soil cover in relation to the IBWC property line. This survey was completed but the meeting with IBWC has not been conducted. The meeting should be completed in the first quarter of year 2002.

HUNTSMAN CORPORATION
3040 Post Oak Boulevard • Houston, Texas 77056 • 713-235-6000 • Fax 713-235-6416

February 21, 2002
Letter report to Mr. William Olson
New Mexico Oil Conservation Division
Brickland Refinery 2001 Annual Report

Requested Modification of Sampling and Monitoring Programs

On July 3, 2001, the NMOCD denied Huntsman request to modify metals sampling and free-phase monitoring programs as recommended in the February 2001 "Annual Report."

Replacement of Small Soil Covers

Bids were solicited from several environmental consulting/remediation firms regarding the replacement of two small soil covers that were installed in 1996. Evaluation of the proposals is still underway.

This letter report summarizes the significant actions over the past year. If there are any questions concerning this or the attached report, please do not hesitate to contact me at (713) 235-6398.

Sincerely,

Lon F. Tullos
Manager - Environmental
Huntsman Corporation

Cc: (with enclosure)
Mr. Tim Gum
NMOCD
811 S. First St.
Artesia, NM 88210

(without enclosure)
Mr. Todd Carver
Enviroman, Inc.
5525 Weatherby Lane
Plano, TX 75093

Olson, William

From: Aenviroman@aol.com
Sent: Friday, February 01, 2002 9:55 AM
To: wolson@state.nm.us
Cc: lon_tullos@huntsman.com
Subject: Brickland Annual Report

Dear Mr. Olson,
On behalf of my client, and per our telephone discussion this morning, I am notifying you that the submittal by Huntsman Corporation of the Brickland Refinery Site Annual Report for 2001 will be made after the requested date of February 4, 2002. As relayed to you in a prior conversation, the previous site manager, Mr. Troy Boley has left Huntsman Corporation in late December. The new Huntsman contact for the site is Mr. Lon Tullos. Because of the change in personnel and since the draft report covering the December groundwater testing has just been received, it is not possible to provide a reviewed and completed report that would meet the February 4 date. It is expected that the report will be submitted by the 22nd of February or earlier.

Bill, thanks for your understanding and cooperation,

Respectfully, Todd Carver

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

July 3, 2001

CERTIFIED MAIL
RETURN RECEIPT NO. 3771-7392

Mr. Troy M. Boley
Huntsman Corporation
3040 Post Oak Boulevard
Houston, Texas 77056

RE: ANNUAL REPORT
ABATEMENT PLAN (AP-1)
BRICKLAND REFINERY
SUNLAND PARK, NEW MEXICO

Dear Mr. Boley:

The New Mexico Oil Conservation Division (OCD) has reviewed Huntsman Corporation's (HC) February 13, 2001 "BRICKLAND REFINERY 2000 ANNUAL REPORT". This document contains the results of HC's remediation and monitoring of petroleum contaminated ground water at the former Brickland Refinery in Sunland Park, New Mexico during the 2000 calendar year. The report also contains recommendations for modification of the metals sampling and free-phase monitoring programs.

Due to the presence of elevated concentrations of metals in soils and the need to monitor the areal extent of free-phase hydrocarbons in ground water, the above recommended modifications to the sampling and monitoring program are denied.

If you have any questions, please contact me at (505) 476-3491.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: OCD Artesia Office
Linda K. Riggins, Terracon

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW

Post Office Box 2307
Santa Fe, New Mexico 87504-2307

OF COUNSEL
William R. Federici

J.O. Seth (1883-1963)
A.K. Montgomery (1903-1987)
Frank Andrews (1914-1981)
Seth D. Montgomery (1937-1998)

Victor R. Ortega
Gary Kilpatric
Thomas W. Olson
Walter J. Melendres
John B. Draper
Nancy M. King
Sarah M. Singleton
Stephen S. Hamilton
Galen M. Buller

Edmund H. Kendrick
Louis W. Rose
Carolyn A. Wolf
Andrew S. Montgomery
Jennifer L. Weed
Paul R. Owen
Jeffery L. Martin
Emma Rodriguez Brittain
Germaine R. Chappelle

325 Paseo de Peralta
Santa Fe, New Mexico 87501

Telephone (505) 982-3873
Fax (505) 982-4289

February 23, 2001

HAND-DELIVERED

William Olson
Oil Conservation Division
P. O. Box 6429
Santa Fe, New Mexico 87504

Re: Final Closure for Areas "A" and "B" (Tract 1)
Stage 2 Abatement Plan (AP-1)
Brickland Refinery
Sunland Park, New Mexico

Dear Mr. Olson:

On behalf of Huntsman Polymers Corporation, I am enclosing a copy of Deed Restrictions executed by Huntsman and recorded in the real estate records of Dona Ana County. The Deed Restrictions apply to Tract 1 of the Brickland Refinery site owned by Huntsman, which is identical to the Areas "A" and "B" referred to in Huntsman's Stage 2 Abatement Plan. The Deed Restrictions prohibit the drilling of water wells for beneficial uses as well as prohibit the disturbance of the surface cover over lead-contaminated soils. These restrictions are imposed in response to a requirement of the July 31, 2000 letter from the Oil Conservation Division to Huntsman approving Huntsman's Abatement Plan Termination Request for Areas "A" and "B" at the Brickland Refinery site.

We understand that Huntsman now has fully complied with all conditions for the termination of its Abatement Plan with respect to these Areas "A" and "B."

Sincerely,

Edmund H. Kendrick

EHK:dlo
Enclosure
11305-93-01

cc: Todd Carver, Enviroman

DEED RESTRICTIONS

By this instrument, Huntsman Polymers Corporation, a Delaware corporation ("Huntsman"), adopts and places restrictions upon property owned by Huntsman as set forth below.

WHEREAS, Huntsman is the owner of certain real property located in Sunland Park, New Mexico, the legal description of which is attached hereto as Exhibit A (the "Property");

WHEREAS, for several years the Property was the site of a petroleum refinery, which through investigation has been determined to contain certain areas of contamination;

WHEREAS, Huntsman has addressed contamination on the Property in accordance with an Abatement Plan approved by the New Mexico Oil Conservation Division ("NMOCD"), which included installation of a surface cover over lead-contaminated soils on portions of the Property;

WHEREAS, NMOCD has determined that applicable water quality standards have been met on the Property and has approved termination of the Abatement Plan, subject to restrictions being placed upon the Property prohibiting the beneficial use of well water and the disturbance of the surface cover over lead-contaminated soils;

NOW THEREFORE, for the purpose of complying with NMOCD's requirements for the termination of the Abatement Plan, Huntsman adopts and places the following restrictions upon the Property:

1. **Prohibition on Water Wells.** No water well may be drilled on the Property for drinking water or for any other beneficial purpose. This restriction does not prohibit the drilling of any geotechnical or dewatering wells necessary for the construction of improvements on the Property.

994

2. **Prohibition on Disturbance of Surface Cover Over Lead-Contaminated Soils.** A surveyed plat showing the locations of the surface cover on portions of the Property is attached hereto as Exhibit B. Activity may occur within this surveyed area, but only if such activity, does not remove, weaken, penetrate or otherwise impair the integrity of the surface cover unless otherwise approved by the NMOCD or a successor agency.

3. **Covenants to Run with the Land.** These Deed Restrictions shall be covenants running with the land and shall be binding on Huntsman and its successors in title to the Property.

4. **Termination of Deed Restrictions.** Huntsman, or any successor in title, may terminate all or part of these Deed Restrictions by executing and filing of record with the Clerk of Dona Ana County an acknowledged Termination of Deed Restrictions. Such Termination of Deed Restrictions must also be executed and acknowledged by a representative of NMOCD or a successor agency.

Executed and made effective this 29 day of JAN., 2001.

HUNTSMAN POLYMERS CORPORATION

By: _____

Name: Michael J. Kern

Title: Senior V.P.

STATE OF)

COUNTY OF)

The foregoing instrument was acknowledged before me this 29 day of JANUARY, 2001, by MIKE KERN as SR. V.P. of Huntsman Polymers Corporation, a Delaware corporation, on behalf of said corporation.

Notary Public

My Commission Expires: July 14 2001

NOTARY PUBLIC STATE OF TEXAS
TINA JORDAN
Notary Public, State of Texas
My Commission Expires 07-14-2001

EXHIBIT A

PROPERTY DESCRIPTION

997

EXHIBIT A

Legal Description of the Property

Property consists of one Tract of land consisting of the following Tract 1

TRACT 1
A tract of land located in Sunland Park, Dona Ana County, New Mexico as part of lots 7 and 8, Section 9, Township 29 South, Range 4 East, New Mexico Principal Meridian and being more particularly described as follows, to wit:

Beginning at a ½ inch rebar with survey cap set for the northwest corner of the tract herein described, whence a brass cap set in concrete found for Texas/New Mexico State Line Reference Monument No. 22 bears **N.54°04'04"E., 369.29 feet;**

Thence N.67°52'00"E., 242.05 feet to a ½ inch rebar with survey cap set for the northeast corner of the tract herein described:

Thence S.56°43'32"E., 160.03 feet to a ½ inch rebar found for an angle point;

Thence S.47° 13'36"E., 175.28 feet to a ½ inch rebar found for an angle point;

Thence S.38°00'08" E., 302.03 feet to a ½ inch rebar set for the southeast corner of the tract herein described;

Thence S.67°52'00"W., 465.36 feet to a ½ inch rebar set for the southwest corner of the tract herein described;

Thence N.24°32'41"W., 581.51 feet to the point of beginning;

Said tract containing 5.046 acres, more or less.

EXHIBIT B

LOCATIONS AND LEGAL DESCRIPTIONS
OF SURFACE COVER

THE LAND GROUP INC.
ENGINEERING • SURVEYING • CONSTRUCTION
FORENSIC AND TECHNICAL INVESTIGATIONS

November 3, 2000

DESCRIPTION OF 0.168 ACRE TRACT

A tract of land situate in Sunland Park, Dona Ana County, New Mexico in Section 9, Township 29 South, Range 4 East, N.M.P.M. as part of McNutt Refinery Tract 1 and as part of International Boundary and Water Commission EOF 353, Tract 1 and being more particularly described as follows to wit:

BEGINNING on the east boundary line of said McNutt Refinery Tract 1, whence the southeast corner of McNutt Refinery Tract 1 bears **S.38°00'08"E., 87.80 feet** and whence a brass cap monument found for Reference Monument No. 22 of the Texas-New Mexico State Line bears **N.32°31'22"W., 594.37 feet**;

THENCE, leaving the east boundary line of McNutt Refinery Tract 1, **S.60°08'17"W., 17.26 feet** to the southwest corner of the tract herein described;

THENCE N.49°04'23"W., 38.19 feet to an angle point;

THENCE N.38°22'30"W., 194.31 feet to the northwest corner of the tract herein described;

THENCE N.42°53'45"E., 22.14 feet to the east boundary line of McNutt Refinery Tract 1;

THENCE, leaving the east boundary line of McNutt Refinery Tract 1, **N.42°53'45"E., 9.93 feet** to the northeast corner of the tract herein described;

THENCE S.41°12'56"E., 77.01 feet to an angle point;

THENCE S.34°53'35"E., 162.87 feet to an angle point;

THENCE S.60°08'17"W., 1.48 feet to the point of beginning;

Said tract containing **0.168** acres more or less and being subject to easements of record.

I hereby certify that this description was prepared by me or under my supervision.

Isaac Camacho

Isaac Camacho, NMPS No. 9254
2000148B.DOC

ISAAC CAMACHO NEW MEXICO 9254 REGISTERED PROFESSIONAL LAND SURVEYOR

Phone: (505) 526-2444 • Fax: (505) 526-0901
P.O. Box 16227 • Las Cruces, NM 88004
E-mail: land_group@zianet.com

1000

THE LAND GROUP INC.
ENGINEERING • SURVEYING • CONSTRUCTION
FORENSIC AND TECHNICAL INVESTIGATIONS

November 3, 2000

DESCRIPTION OF 0.038 ACRE TRACT

A tract of land situate in Sunland Park, Dona Ana County, New Mexico in Section 9, Township 29 South, Range 4 East, N.M.P.M. as part of McNutt Refinery Tract 1 and part of International Boundary and Water Commission EOF 353, Tract 1 and being more particularly described as follows to wit:

BEGINNING on the east boundary line of said McNutt Refinery Tract 1, whence a ½ inch rebar found for the northeast corner of McNutt Refinery Tract 1 bears **N.56°43'32"W., 157.81 feet** and whence a brass cap monument found for Reference Monument No. 22 of the Texas-New Mexico State Line bears **N.15°04'37"W., 219.66 feet**;

THENCE, leaving the east boundary line of McNutt Refinery Tract 1, **N.40°44'32"E., 13.26 feet,** to the northeast corner of the tract herein described;

THENCE S.54°37'04"E., 17.37 feet to an angle point;

THENCE S.38°54'10"E., 20.35 feet to the southeast corner of the tract herein described;

THENCE S.49°49'41"W., 12.26 feet to the east boundary line of McNutt Refinery Tract 1;

THENCE S.49°49'41"W., 35.45 feet to the southwest corner of the tract herein described;

THENCE N.46°10'38"W., 29.83 feet to the northwest corner of the tract herein described;

THENCE N.40°44'32"E., 31.29 feet to the point of beginning;

Said tract containing **0.038** acres more or less and being subject to easements of record.

I hereby certify that this description was prepared by me or under my supervision.

Isaac Camacho, NMPS No. 9254

ISAAC CAMACHO NEW MEXICO 9254 REGISTERED PROFESSIONAL LAND SURVEYOR

2000148A.DOC

Phone: (505) 526-2444 • Fax: (505) 526-0901
P.O. Box 16227 • Las Cruces, NM 88004
E-mail: land_group@zianet.com

TOPOGRAPHIC SURVEY

OF MCNUTT REFINERY TRACT 1
LOCATED IN SECTION 9, TOWNSHIP 29 SOUTH, RANGE 4 EAST, N.M.P.M. OF THE U.S.G.L.O. SURVEYS
SUNLAND PARK, DONA ANA COUNTY, NEW MEXICO
OCTOBER 4, 2000

1009

1008

1007

1006

1005

1004

1003

1002

LINE TABLE		
LINE	LENGTH	BEARING
L1	17.37	S54°37'04"E
L2	20.35	S38°54'10"E
L3	12.26	S49°49'41"W
L4	35.45	S49°49'41"W
L5	29.83	N46°10'38"W
L6	34.29	N40°44'32"E
L7	13.26	N40°44'32"E
L8	2.22	S56°43'32"E
L9	33.20	S47°13'36"E
L10	9.93	N42°53'45"E
L11	77.01	S41°12'56"E
L12	1.48	S60°08'17"W
L13	17.26	S60°08'17"W
L14	38.19	N49°04'23"W
L15	22.14	N42°53'45"E
L16	23.81	S47°13'36"E

BASIS OF BEARING IS N52°42'16"E FROM BRASS CAP FOUND FOR REFERENCE MONUMENT NO. 22 TO BRASS CAP FOUND FOR REFERENCE MONUMENT NO. 12 OF THE TEXAS – NEW MEXICO STATE LINE

● DENOTES CORNER FOUND

○ DENOTES CORNER SET

(M) – MEASURED BEARING AND DISTANCE

(R) – RECORD BEARING AND DISTANCE

TRUE

40 0 20 40 80
1 inch = 40 ft.

SURVEYOR CERTIFICATION

I, ISAAC CAMACHO, A REGISTERED PROFESSIONAL SURVEYOR IN THE STATE OF NEW MEXICO, HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM THE NOTES OF A BONAFIDE FIELD SURVEY, CONDUCTED UNDER MY SUPERVISION, AND THAT IT MEETS MINIMUM STANDARDS FOR SURVEYS AS SET FORTH BY THE NEW MEXICO BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

Isaac Camacho
ISAAC CAMACHO, NMPS No. 9254

ISAAC CAMACHO NEW MEXICO 9254 REGISTERED PROFESSIONAL LAND SURVEYOR

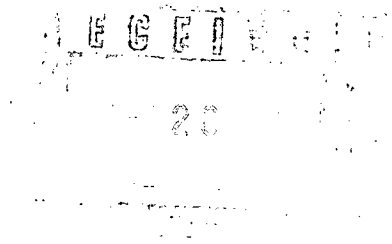
JOB #:2000-148A
DRAWN BY:S. WHITE
FIELD BY:I.C./D.S.
REVISION OF: 980358, 980246A
REVISION DATE: OCTOBER 4, 2000

LAND GROUP INC
ENGINEERING • SURVEYING • CONSTRUCTION
FORENSIC AND TECHNICAL INVESTIGATIONS
133 SPROUT DR. SUITE B LAS CRUCES, NEW MEXICO
PHONE (505) 526-3444 FAX (505) 526-0801

HUNTSMAN

February 13, 2001

Mr. William Olsen
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, NM 87505



Re: Brickland Refinery 2000 Annual Report

Dear Mr. Olsen,

On behalf of Huntsman Polymers Corporation (HPC), the following letter report and bound attachment are presented in accordance with the approved Stage 2 Abatement Plan for the former Brickland Refinery Site. The Site is located in Dona Ana County near Sunland Park NM.

Annual Groundwater Monitoring Program Report

Included with this letter report is the bound Year 2000 Annual Groundwater Monitoring Report summarizing the methods, observations, conclusions and recommendations made relative to the site in accordance with the monitoring and analysis requirements of the Stage 2 Abatement Plan. Semi-annual monitoring was conducted on June 12-14, 2000 and on December 7-8, 2000.

Cover Installation

A written request was submitted to New Mexico Oil Conservation Division (NMOCD) on February 23, 2000, seeking final approval of the installation of the soil cover as built in June of 1999. The approval letter was provided on May 24, 2000. The cover over the areas containing elevated concentrations of lead was inspected during the year for signs of erosion. No washouts or erosion problems were detected.

Transfer of Property to the City of Sunland Park

During the year several meetings were scheduled and attended where further discussions were conducted regarding the possible transfer of the northern tract (Tract 1) to the City of Sunland Park. The City had contemplated using the parcel of land to locate either a section of or an expansion to the City's existing wastewater treatment plant. Discussions regarding this potential transfer had been ongoing during the past three years. In March 2000, meetings were held in Albuquerque, NM, with representatives from numerous Federal and State environmental agencies, including NMOCD. Presentations involved various aspects and characterizations of the property. On June 8, 2000, an additional technical meeting was held in Sunland Park for what was termed a final meeting before the transfer of the property. Again, several agencies

HUNTSMAN CORPORATION
3040 Post Oak Boulevard • Houston, Texas 77056 • 713-235-6000 • Fax 713-235-6416

were in attendance at the meeting including New Mexico Environment Department, US Environmental Protection Agency, US Corps Of Engineers, and local brownfield organizations.

On July 19, 2000, notification was received that the City had delayed its decision past possible funding deadlines where financial assistance could have been available for their use. As a result, the City notified HPC that it would no longer pursue the acquisition of the site.

Abatement Plan Termination Request for Tract 1

A request for the partial termination of the Abatement Plan was made to the agency on June 22, 2000. At that time, it was contemplated as a condition for the transfer of Tract 1 to the City. A response was received from NMOCD indicating approval would be possible pending a deed restriction that would need to be filed for termination of the Plan on Tract 1 which will restrict use of groundwater and maintain the soil cover installation. Despite the termination of property transfer to the City, HPC will continue to seek termination of the Abatement Plan for Tract 1. The deed restriction process is progressing and it will be officially filed shortly.

This letter report summarizes the significant actions over the past year. If there are any questions concerning this or the attached report, please feel free to call me at (713)235-6511.

Best Regards,

Troy M. Boley

Troy M. Boley, Ph.D.
Corporate Manager - Environmental Affairs
Huntsman Corporation

Cc: (with attachment)
Mr. Tim Gum
NMOCD
811 S. First St.
Artesia, NM 88210

(without attachment)
Mr. Todd Carver
Enviroman, Inc.
5525 Weatherby Lane
Plano, Texas 75093

Olson, William
From: Aenviroman@aol.com [SMTP:Aenviroman@aol.com]
Sent: Monday, February 05, 2001 1:34 PM
To: wolson@state.nm.us
Cc: troy_boley@huntsman.com
Subject: Annual Report--Brickland

Dear Bill,
On behalf of Huntsman Polymers, and per our discussion last week, the sending of the annual report for Brickland has been delayed slightly. The report will be available by the 15th of February. The delay was caused by additional review and approval before its submission. Thank you for your understanding. As always, if there are any questions you may have, please feel free to call.

Todd

Carver,

EnviroMan

HUNTSMAN

February 28, 2000

Mr. William Olsen
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

OGRID 195202

Re: **Huntsman Polymers Corporation**
Transmittal of 1999 Annual Groundwater Monitoring Report
Former Brickland Refinery @ Sunland Park, N.M.

Dear Bill,

Attached are two copies of the *1999 Annual Groundwater Monitoring Report* for the Brickland site. Copies are also being sent to the Artesia, NM office of NMOCD and to the IBWC offices in El Paso, Texas.

This report was due to NMOCD on February 2. As we discussed in our phone conversation of February 23, changing personnel and assignments both at Huntsman and at Terracon resulted in our overlooking the February 2 deadline. We apologize for any inconvenience this might have caused, and we have added the due date to our compliance calendar to avoid being late in the future.

Also during that February 23 phone call, we discussed elements of the Stage 2 Abatement Plan approval letter that NMOCD issued December 17, 1998. Specifically, we discussed parts (j), (k) and (l) of section 5. Phone comments were as follows:

5 (j) As built construction details of the recovery system are provided as Appendix C of the attached report. This information will not be required in future annual reports.

5 (k) There are no below-grade lines in the recovery system at the Brickland site. Therefore, this requirement does not apply and will not be addressed in future reports.

HUNTSMAN POLYMERS CORPORATION
P.O. Box 3986 • Odessa, Texas 79760 • 915-333-7200

5 (l) Maps showing locations of soil cap areas and as-built construction details of the soil cap system were submitted to NMOCD August 19, 1999 as *Brickland Refinery Site -- Cover Installation Report*. Therefore, this information is not included in the attached report and will not be required in future annual reports.

If you have any questions, please call me at 915-640-8275.

Sincerely,

Roger Martin, P.E.
Sr. Environmental Specialist
HUNTSMAN
(RIM-008-00)

cc: OCD Artesia Office
Yusef E. Farran, IBWC

cc w/o attach:
Reggie Baker
File 415.2

EnviroMan
Environmental Management
Todd M. Carver, Consultant
5525 Weatherby Lane
Plano, Texas 75093
(972) 985-7948

June 30, 2000

Mr. William Olson
State of New Mexico
NMOCD
2040 S. Pacheco St.
Santa Fe, NM 87505

Re: Brickland Refinery Site-Termination of Abatement Plan-Areas A and B

Dear Bill,

Attached is a copy of the reference titled *EPA Region 6 Human Health, Media Specific Screening Levels.* The document was used as a reference in the request for termination of the Abatement Plan for Areas A and B.

If there are any further questions, please do not hesitate to call.

Respectfully,

Todd

Todd Carver
EnviroMan

Cc: Reggie Baker, Huntsman-Odessa w/o attachment
Troy Boley, Huntsman-Houston w/o attachment

EPA Region 6

Human Health

Medium-Specific Screening Levels

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202

October 1998

Disclaimer

The USEPA Region 6 Human Health Medium-Specific Screening Levels address common human health exposure pathways. They do not consider all potential human health exposure pathways nor address ecological concerns. The comparison of preliminary investigation data against risk-based media concentrations provides for an initial evaluation for the relative environmental concern for a site or set of environmental data.

The table was not generated to represent action levels or cleanup levels but rather as a technical tool. The responsibility of their use and relevance to site-specific circumstances becomes the responsibility of the person recommending their use and the user of the table.

Acknowledgment

USEPA Region 6 acknowledges the contribution of Region 9's PRG table in providing the format and the toxicity values for Region 6's medium specific screening levels.

TYPICAL EXPOSURE PATHWAYS BY MEDIUM FOR RESIDENTIAL AND INDUSTRIAL LAND USES[a]

EXPOSURE PATHWAYS, ASSUMING:		
MEDIUM	RESIDENTIAL LAND USE	INDUSTRIAL LAND USE
Ground Water	***Ingestion from drinking***	Ingestion from drinking
	Inhalation of volatile chemicals	Inhalation of volatile chemicals
	Dermal absorption from bathing	Dermal absorption
Surface Water	***Ingestion from drinking***	Ingestion from drinking
	Inhalation of volatile chemicals	Inhalation of volatile chemicals
	Dermal absorption from bathing	Dermal absorption
	Ingestion during swimming	
	Ingestion of contaminated fish	
Soil	***Ingestion***	***Ingestion***
	Inhalation of particulates	***Inhalation of particulates***
	Inhalation of volatile chemicals	***Inhalation of volatile chemicals***
	Exposure to indoor air from soil gas	Exposure to indoor air from soil gas
	Exposure to ground water contaminated by soil leachate	Exposure to ground water contaminated by soil leachate
	Ingestion via plant, meat, or dairy products	Inhalation of particulates from trucks and heavy equipment
	Dermal absorption	***Dermal absorption***

Footnote:
[a]Exposure pathways considered in the screening levels calculations are indicated in boldface italics.

READING THE SCREENING LEVELS TABLE

Excel Spreadsheet

The spreadsheet is divided into the following categories: toxicity information, physical/chemical data, residential soil, industrial soil, ambient air, tap water, the screening levels for soil, air, and water, and finally the soil screening levels for the protection of water. The spreadsheet has page breaks automatically set for easy printing of the various categories. The column headings and the contaminants always print. It is suggested that the user save the spreadsheet with a different name before unhiding columns and unfreezing rows in cases where you may only want to print the current delineated pages.

General

With the exceptions described below, screening levels are chemical concentrations that correspond to fixed levels of risk (i.e., either a one-in-one million [10^{-6}] cancer risk or a non-carcinogenic hazard quotient of one, whichever occurs at a lower concentration) in soil, air, and water. In most cases, where a substance causes both cancer and non-cancer or systemic effects, the 10^{-6} cancer risk will result in a more stringent criterion and consequently this value is presented in the table. Screening level concentrations based on cancer risk are indicated by "C." Screening level concentrations based on non-carcinogenic health threats are indicated by "N." In cases of Class C carcinogens, the risk level used is 10^{-5} which may result in the non-cancer value being more stringent and thus the non-carcinogenic value is depicted on the screening level table.

In general, screening level concentrations in the table are risk-based but for soil there are two important exceptions: (1) for several volatile chemicals, screening levels are based on the soil saturation equation ("sat") and (2) for relatively less toxic inorganic and semi-volatile contaminants, a non-risk based "ceiling limit" concentration is given as 10^{+5} mg/kg ("max").

The spreadsheet also calculates individual exposure pathways (inhalation, dermal, and ingestion) for soil for both residential and industrial exposure scenarios. This information can be used to determine what is the driving exposure pathway for the screening level and can also be used whenever only one of the pathways is of interest.

Toxicity Values

EPA toxicity values, known as non-carcinogenic reference doses (RfD) and carcinogenic slope factors (SF) were obtained from IRIS, HEAST, and EPA's National Center for Environmental Assessment, NCEA through March 1998. The priority among sources of toxicological constants used are as follows: (1) IRIS (indicated by "i"), (2) HEAST ("h"), (3) NCEA ("n"), and (4) withdrawn from IRIS or HEAST and under review ("x").

Route-to-route extrapolations ("r") were frequently used when there were no toxicity values available for a given route of exposure. Oral cancer slope factors ("SFo") and reference doses ("RfDo") were used for both oral and inhaled exposures for organic compounds lacking inhalation values. Inhalation slope factors ("SFi") and inhalation reference doses ("RfDi") were used for both inhaled and oral exposures for organic compounds lacking oral values. An additional route extrapolation is the use of oral toxicity values for evaluating dermal exposures. **Although route-to-route methods are a useful screening procedure, the appropriateness of these default assumptions for specific contaminants should be verified by a toxicologist.**

Miscellaneous

Since these screening levels are intended as an initial risk-based screen of environmental media, the screening level concentrations reflect inclusion of the dermal exposure route. A chemical-specific decision whether this exposure route is relevant should be made in subsequent risk assessment efforts.

Chemical-specific dermal absorption values for contaminants in soil and dust are presented for arsenic, cadmium, chlordane, 2,4-D, DDT, lindane, PAH's, pentachlorophenol, PCBs, and dioxin (Supplemental Dermal Guidance to RAGS, USEPA 1998). Otherwise, default skin absorption fractions are assumed to be 0.01 and 0.10, for inorganic and organic chemicals, respectively.

APPLICATION OF THE SCREENING LEVELS TABLE

The decision to use the screening levels at a site will be driven by the potential benefits of having generic risk-based concentrations in the absence of site-specific risk assessments.

Potential Benefits:

- Screening sites to determine further evaluation
- Prioritizing multiple sites within a facility
- Focusing future risk assessment efforts

Developing a Conceptual Site Model

The primary condition for use of the screening levels is that exposure pathways of concern and conditions at the site match those taken into account by the screening levels. Thus, it is always

necessary to develop a conceptual site model (CSM) to identify likely contaminant source areas, exposure pathways, and potential receptors. This information can be used to determine the applicability of screening levels at the site and the need for additional information.

The final CSM diagram represents linkages among contaminant sources, release mechanisms, exposure pathways and routes and receptors based on historical information. It summarizes the understanding of the contamination problem.

As a final check, the CSM should answer the following questions:

- Are there potential ecological concerns?
- Is there potential for land use other than those covered by the screening levels (i.e., residential and industrial)?
- Are there other likely human exposure pathways that were not considered in development of the screening levels (e.g. raising beef, dairy, or other livestock)?
- Are there unusual site conditions (e.g. large areas of contamination, high fugitive dust levels, potential for indoor air contamination)?

Potential Problems

As with any risk-based tool, the potential exists for misapplication. In most cases the root cause will be a lack of understanding of the intended use of the screening levels table. In order to prevent misuse of screening levels, the following should be avoided:

- Applying screening levels to a site without adequately developing a conceptual site model that identifies relevant exposure pathways and exposure scenarios,
- Not considering background concentrations when choosing screening levels,
- Use of screening levels as cleanup levels without the consideration of other relevant criteria
- Use of screening levels as cleanup levels without verifying numbers with a toxicologist/risk assessor,
- Use of outdated screening levels tables that have been superseded by more recent publications,
- Not considering the effects from the presence of multiple chemicals.

TECHNICAL SUPPORT DOCUMENTATION

The Region 6 screening levels consider human exposure hazards to chemicals from contact with contaminated soils, air, and water. The emphasis of the screening levels equations and technical discussion are aimed at developing initial goals for soils, since this is an area where few standards exist. For air and water, additional reference concentrations or standards are available for many chemicals (e.g. non-zero MCLGs, AWQC, and NAAQS) and consequently the discussion of these media are brief.

Inhalation of Volatile Chemicals and Fugitive Dusts

Agency toxicity criteria indicate that risks from exposure to some chemicals via inhalation far outweigh the risk via ingestion; therefore soil screening levels have been designed to address this pathway as well. The models used to calculate screening levels for inhalation of volatile chemicals / particulates are updates of risk assessment methods presented in RAGS Part B (USEPA 1991a) and are consistent with the *Soil Screening Guidance: User's Guide and Technical Background Document* (USEPA 1996a,b).

To address the soil-to-air pathways the screening level calculations incorporate volatilization factors (VF_s) for volatile contaminants and particulate emission factors (PEF) for nonvolatile contaminants. These factors relate soil contaminant concentrations to air contaminant concentrations that may be inhaled on-site. The VF_s and PEF equations can be broken into two separate models: an emission model to estimate emissions of the contaminant from the soil and a dispersion model to simulate the dispersion of the contaminant in the atmosphere.

It should be noted that the box model in RAGS Part B has been replaced with a dispersion term (Q/C) derived from a modeling exercise using meteorological data from 29 locations across the United States because the box model may not be applicable to a broad range of site types and meteorology and does not utilize state-of-the-art techniques developed for regulatory dispersion modeling. The dispersion model for both volatile chemicals and particulates is the AREA-ST, an updated version of the Office of Air Quality Planning and Standards, Industrial Source Complex Model, ISC2. However, different Q/C terms are used in the VF and PEF equations. Los Angeles was selected as the 90th percentile data set for volatile chemicals and Minneapolis was selected as the 90th percentile data set for fugitive dusts (USEPA 1996 a,b). A default source size of 0.5 acres was chosen for the screening level calculations. This is consistent with the default exposure area over which Region 6 typically averages contaminant concentrations in soils. If unusual site conditions exist such that the area source is substantially larger than the default source size assumed here, an alternative Q/C could be applied (see USEPA 1996a,b).

Volatilization Factor for Soils

Volatile chemicals, defined as those chemicals having a Henry's Law constant greater than 10^{-5} (atm-m^3/mol) and a molecular weight less than 200 g/mole, were screened for inhalation exposures using a volatilization factor for soils (VF_s).
The emission terms used in the VF_s are chemical-specific and were calculated from physical-chemical information obtained from a number of sources including *Superfund Exposure Assessment Manual* (SEAM, EPA 1988), *Subsurface Contamination Reference Guide* (EPA 1990a), *Fate and Exposure Data* (Howard 1991), and *Superfund Chemical Data Matrix* (USEPA 1994c). In those cases where Diffusivity Coefficients (Di) were not provided in existing literature, Di's were calculated using Fuller's Method described in SEAM. A surrogate term was required for some chemicals that lacked physico-chemical information. In these cases, a proxy chemical of similar structure was used that may over- or under-estimate the screening level for soils.

The soil saturation concentration "sat" corresponds to the contaminant concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and saturation of soil pore air have been reached. Above this concentration, the soil contaminant may be present in free phase, i.e., nonaqueous phase liquids (NAPLs) for contaminants that are liquid at ambient soil temperatures and pure solid phases for compounds that are solid at ambient soil temperatures.

Equation 10 below is used to calculate "sat" for each volatile contaminant. As an update to RAGS HHEM, Part B (USEPA 1991a), this equation takes into account the amount of contaminant that is in the vapor phase in soil in addition to the amount dissolved in the soil's pore water and sorbed to soil particles. A basic principle of the volatilization model is not applicable when free-phase contaminants are present. How these cases are handled depends on whether the contaminant is liquid or solid at ambient temperatures. Liquid contaminant that have a volatilization factor (VF)-based PRG that exceeds the "sat" concentration are set equal to "sat" whereas for solids (e.g., PAHs), soil screening decisions are based on appropriate other pathways of concern at the site (e.g., ingestion and dermal contact).

Volatilization Factor for Tap Water

For tap water, an upperbound volatilization constant (VF_w) is used that is based on all uses of household water (e.g showering, laundering, and dish washing). Certain assumptions were made. For example, it is assumed that the volume of water used in a residence for a family of four is 720 L/day, the volume of the dwelling is 150,000 L and the air exchange rate is 0.25 air changes/hour (Andelman in RAGS Part B). Furthermore, it is assumed that the average transfer efficiency weighted by water use is 50 percent (i.e. half of the concentration of each chemical in water will be transferred into air by all water uses). Note: the range of transfer efficiencies extends from 30% for toilets to 90% for dishwashers. Volatilization was only included in the tap water equations for compounds with an "1" in the "VOC" column.

Particulate Emission Factor for Soils

Inhalation of chemicals adsorbed to respirable particles (PM_{10}) were assessed using a default PEF equal to 1. 316 x 10^9 m^3/kg that relates the contaminant concentration in soil with the concentration of respirable particles in the air due to fugitive dust emissions from contaminated soils. The generic PEF was derived using default values in Equation 11, which corresponds to a receptor point concentration of approximately 0.76 ug/m^3. The relationship is derived by Cowherd (1985) for a rapid assessment procedure applicable to a typical hazardous waste site where the surface contamination provides a relatively continuous and constant potential for emission over an extended period of time (e.g. years). This represents an annual average emission rate based on wind erosion that should be compared with chronic health criteria; it is not appropriate for evaluating the potential for more acute exposures.

With the exception of specific heavy metals, the PEF does not appear to significantly affect most soil screening levels. Equation 11 forms the basis for deriving a generic PEF for the inhalation pathway. For more details regarding specific parameters used in the PEF model, the reader is referred to *Soil Screening Guidance: Technical Background Document* (USEPA 1996a).

Note: the generic PEF evaluates windborne emissions and does not consider dust emissions from traffic or other forms of mechanical disturbance that could lead to greater emissions than assumed here.

Dermal Contact with Contaminants in Soil

Much uncertainty surrounds the determination of hazards associated with skin contact with soils. One important data gap is the lack of EPA verified toxicity values for the dermal route. For screening purposes it is assumed that dermal toxicity values can be route-to-route extrapolated from oral values but this may not always be an appropriate assumption and should be checked.

Thus far, chemical-specific absorption values for skin have been recommended for the following chemicals: arsenic, cadmium, chlordane, 2,4-D, DDT, lindane, PAH's, pentachlorophenol, PCBs, and dioxin (Supplemental Dermal Guidance to RAGS, USEPA 1998). For all other chemicals, default absorption values for inorganic and organic chemicals are assumed to be 1 and 10 percent, respectively. Default values for dermal contact with soil have changed for two parameters, surface area and soil adherence. Exposed surface areas are 5700 and 2900 for adults and children, respectively. Recommended adherence factors are age-specific adherence factors of 0.08 and 0.3 mg/cm^2 for adults and children, respectively *(Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Supplemental Guidance, Dermal Risk Assessment,* USEPA 1998b).

SSLs for the Migration to Groundwater Pathway

Development of Soil Screening Levels

In May 1996 the EPA Office of Solid Waste and Emergency Response published the Soil Screening Guidance: Technical Background Document (Document 9355.4-17A, PB96-963502, EPA/540/R-95/128, available through NTIS at 703-487-4650). This document provides (1) a framework in which soil screening levels are to be used, (2) a detailed methodology for calculating soil screening levels, and (3) generic soil screening levels for selected chemicals.

The methodology for calculating SSLs for the migration to groundwater was developed to identify chemical concentrations in soil that have the potential to contaminate groundwater. Migration of contaminants from soil to groundwater can be envisioned as a two-stage process: (1) release of contaminant in soil leachate and (2) transport of the contaminant through the underlying soil and aquifer to a receptor well. The SSL methodology considers both of these fate and transport mechanisms.

SSLs are back calculated from acceptable ground water concentrations (i.e. nonzero MCLGs, MCLs, or risk-based screening levels). Residential exposure scenarios are assumed based on a fixed upper bound risk of 10^{-6} or a fixed hazard quotient of 1. First, the acceptable groundwater concentration is multiplied by a dilution factor to obtain a target leachate concentration. For example, if the dilution factor is 10 and the acceptable ground water concentration is 0.05 mg/L, the target soil leachate concentration would be 0.5 mg/L. The partition equation (presented in the *Soil Screening Guidance* document) is then used to calculate the total soil concentration (i.e. SSL) corresponding to this soil leachate concentration.

The SSL methodology was designed for use during the early stages of a site evaluation when information about subsurface conditions may be limited. Because of this constraint, the methodology is based on conservative, simplifying assumptions about the release and transport of contaminants in the subsurface. These SSLs provide reasonable maximum estimates of transfers of contaminants from soil to other media. One column contains soil concentrations protective of groundwater quality; the other contains soil concentrations protective of air quality.

Users of the screening levels table are strongly encouraged to consult the official guidance document for details concerning the soil screening calculations. Currently, the Region 6 spreadsheet does not generate values based upon the soil screening calculations. The numbers for the "DAF" column are pasted from the August 1998 Region 6 Medium-Specific Screening Level document. Based upon the feedback from the spreadsheet users and the regional resources, future revisions to the spreadsheet can incorporate the information necessary to calculate appropriate soil values for protection of groundwater.

Exposure Factors

Default exposure factors were obtained primarily from RAGS Supplemental Guidance

Standard Default *Exposure Factors* (OSWER Directive, 9285.6-03) dated March 25, 1991 and more recent information from U.S. EPA's Office of Solid Waste and Emergency Response, and U.S. EPA's Office of Research and Development.

Because contact rates may be different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors ("adj"). Use of age-adjusted factors are especially important for soil ingestion exposures, which are higher during childhood and decrease with age. However, for purposes of combining exposures across pathways, additional age-adjusted factors are used for inhalation and dermal exposures. These factors approximate the integrated exposure from birth until age 30 combining contact rates, body weights, and exposure durations for two age groups - small children and adults. Age-adjusted factors were obtained from RAGS PART B or developed by analogy.

For soils only, non-carcinogenic contaminants are evaluated in children separately from adults. No age-adjustment factor is used in this case. The focus on children is considered protective of the higher daily intake rates of soil by children and their lower body weight. For maintaining consistency when evaluating soils, dermal and inhalation exposures are also based on childhood contact rates.

(1) ingestion([mg•yr]/[kg•d]:

$$IFS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{(ED_r - ED_c) \times IRS_a}{BW_a}$$

(2) skin contact([mg•yr]/[kg•d]:

$$SFS_{adj} = \frac{ED_c \times AF \times SA_c}{BW_c} + \frac{(ED_r - ED_c) \times AF \times SA_a}{BW_a}$$

(3) inhalation ([m^3•yr]/[kg•d]):

$$InhF_{adj} = \frac{ED_c \times IRA_c}{BW_c} + \frac{(ED_r - ED_c) \times IRA_a}{BW_a}$$

Screening Level Equations

The equations used to calculate the screening levels for carcinogenic and non-carcinogenic contaminants are presented in Equations 1 through 8. The screening level equations update RAGS Part B equations. The methodology back calculates a soil, air, or water concentration level from a target risk (for carcinogens) or hazard quotient (for non-carcinogens). For completeness, the soil equations combine risks from ingestion, skin contact, and inhalation simultaneously.

To calculate screening levels for volatile chemicals in soil, a chemical-specific volatilization factor is calculated per Equation 9. Because of its reliance on Henry's law, the VF_s model is applicable only when the contaminant concentration in soil is at or below saturation (i.e. there is no free-phase contaminant present). Soil saturation ("sat") corresponds to the contaminant concentration in soil at which the adsorptive limits of the soil particles and the solubility limits of the available soil moisture have been reached. Above this point, pure liquid-phase contaminant is expected in the soil. If the screening level calculated using VF_s was greater than the calculated sat, the screening level was set equal to the saturation value, in accordance with *Soil Screening Guidance* (USEPA 1996 a,b). The updated equation for deriving soil saturation is presented in Equation 10.

STANDARD DEFAULT FACTORS

Symbol	Definition (units)	Default	Reference
CSFo	Cancer slope factor oral (mg/kg-d)-1	--	IRIS, HEAST, or NCEA
CSFi	Cancer slope factor inhaled (mg/kg-d)-1	--	IRIS, HEAST, or NCEA
RfDo	Reference dose oral (mg/kg-d)	--	IRIS, HEAST, or NCEA
RfDi	Reference dose inhaled (mg/kg-d)	--	IRIS, HEAST, or NCEA
TR	Target cancer risk	10^{-6}	--
THQ	Target hazard quotient	1	--
BWa	Body weight, adult (kg)	70	RAGS (Part a), EPA 1989 (EPA/540/1-89/002)
BWc	Body weight, child (kg)	15	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
ATc	Averaging time - carcinogens (days)	25550	RAGS(Part a), EPA 1989 (EPA/540/1-89/002)
ATn	Averaging time - noncarcinogens (days)	ED*365	
SAa	Exposed surface area, adult (cm^2/day)	5700	Dermal Assessment, EPA 1998 (NCEA-W-0364)
SAc	Exposed surface area, child (cm^2/day)	2900	Dermal Assessment, EPA 1998 (NCEA-W-0364)
AFa	Adherence factor, adult (mg/cm^2)	0.08	Dermal Assessment, EPA 1998 (NCEA-W-0364)
AFc	Adherence factor, child (mg/cm^2)	0.3	Dermal Assessment, EPA 1998 (NCEA-W-0364)
ABS	Skin absorption (unitless):		
	-- organics	0.1	Dermal Assessment, EPA 1998 (NCEA-W-0364)
	--Inorganics	0.01	Dermal Assessment, EPA 1998 (NCEA-W-0364)
IRAa	Inhalation rate - adult (m^3/day)	20	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRAc	Inhalation rate - child (m^3/day)	10	RAGS (Part A), EPA 1989 (EPA/540/1-89/002)
IRWa	Drinking water ingestion - adult (L/day	2	RAGS(Part A), EPA 1989 (EPA/540/1-89/002)
IRWc	Drinking water ingestion - child (L/day)	1	
IRSa	Soil ingestion - adult (mg/day)	100	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSc	Soil ingestion - child (mg/day),	200	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSo	Soil ingestion - occupational (mg/day)	50	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFr	Exposure frequency - residential (d/y)	350	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFo	Exposure frequency - occupational (d/y)	250	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDr	Exposure duration - residential (years)	30[a]	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDc	Exposure duration - child (years)	6	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDo	Exposure duration - occupational (years)	25	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
	Age-adjusted factors for carcinogens:		
IFSadj	Ingestion factor, soils ([mg•yr]/[kg•d])	114	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
SFSadj	Skin contact factor, soils ([mg•yr]/[kg•d])	503	By analogy to RAGS (Part B)
InhFadj	Inhalation factor ([m^3•yr]/[kg•d])	11	By analogy to RAGS (Part B)
IFWadj	Ingestion factor, water ([l•yr]/[kg•d])	1.1	By analogy to RAGS (Part B)
VFw	Volatilization factor for water (L/m^3)	0.5	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
PEF	Particulate emission factor (m^3/kg)	See below	Soil Screening Guidance (EPA 1996a,b)
VFs	Volatilization factor for soil (m^3/kg)	See below	Soil Screening Guidance (EPA 1996a,b)
sat	Soil saturation concentration (mg/kg)	See below	Soil Screening Guidance (EPA 1996a,b)

Footnote:
[a]Exposure duration for lifetime residents is assumed to be 30 years total. For carcinogens, exposures are combined for children (6 years) and adults (24 years) .

SCREENING LEVEL EQUATIONS

Soil Equations: For soils, equations were based on three exposure routes (ingestion, skin contact, and inhalation).

Equation 1: Combined Exposures to Carcinogenic Contaminants in Residential Soil

$$C(mg/kg) = \frac{TR \times AT_c}{EF_r \left[\left(\frac{IFS_{adj} \times CSF_o}{10^6 mg/kg}\right) + \left(\frac{SFS_{adj} \times ABS \times CSF_o}{10^6 mg/kg}\right) + \left(\frac{InhF_{adj} \times CSF_i}{VF_s^*}\right)\right]}$$

Equation 2: Combined Exposures to Noncarcinogenic Contaminants in Residential Soil

$$C(mg/kg) = \frac{THQ \times BW_c \times AT_n}{EF_r \times ED_c \left[\left(\frac{1}{RfD_o}\right) \times \left(\frac{IRS_c}{10^6 mg/kg}\right) + \left(\frac{1 \times SA_c \times AF \times ABS}{RfD_o \times 10^6 mg/kg}\right) + \left(\frac{1}{RfD_i} \times \frac{IRA_c}{VF_s^*}\right)\right]}$$

Equation 3: Combined Exposures to Carcinogenic Contaminants in Industrial Soil

$$C(mg/kg) = \frac{TR \times BW_a \times AT_c}{EF_o \times ED_o \left[\left(\frac{IRS_o \times CSF_o}{10^6 mg/kg}\right) + \left(\frac{SA_a \times AF \times ABS \times CSF_o}{10^6 mg/kg}\right) + \left(\frac{IRA_a \times CSF_i}{VF_s^*}\right)\right]}$$

Equation 4: Combined Exposures to Noncarcinogenic Contaminants in Industrial Soil

$$C(mg/kg) = \frac{THQ \times BW_a \times AT_n}{EF_o \times ED_o \left[\left(\frac{1}{RfD_o}\right) \times \left(\frac{IRS_o}{10^6 mg/kg}\right) + \left(\frac{1 \times SA_a \times AF \times ABS}{RfD_o \times 10^6 mg/kg}\right) + \left(\frac{1}{RfD_i} \times \frac{IRA_a}{VF_s^*}\right)\right]}$$

Footnote:

* Use VF_s for volatile chemicals (defined as having a Henry's Law Constant [atm-m^3/mol] greater than 10^{-5} and a molecular weight less than 200 grams/mol) or PEF for non-volatile chemicals.

Tap Water Equations:

Equation 5: Ingestion and Inhalation Exposures to Carcinogenic Contaminants in Water

$$C(ug/L) = \frac{TR \times AT_c \times 1000ug/mg}{EF_r \left[(IFW_{adj} \times CSF_o) + (VF_w \times InhF_{adj} \times CSF_i)\right]}$$

Equation 6: Ingestion and Inhalation Exposures to Noncarcinogenic Contaminants in Water

$$C(ug/L) = \frac{THQ \times BW_a \times AT_n \times 1000ug/mg}{EF_r \times ED_r \left[\left(\frac{IRW_a}{RfD_o}\right) + \left(\frac{VF_w \times IRA_a}{RfD_i}\right)\right]}$$

Air Equations:

Equation 7: Inhalation Exposures to Carcinogenic Contaminants in Air

$$C(ug/m^3) = \frac{TR \times AT_c \times 1000ug/mg}{EF_r \times InhF_{adj} \times CSF_i}$$

Equation 8: Inhalation Exposures to Noncarcinogenic Contaminants in Air

$$C(ug/m^3) = \frac{THQ \times RfD_i \times BW_a \times AT_n \times 1000ug/mg}{EF_r \times ED_r \times IRA_a}$$

SOIL-TO-AIR VOLATILIZATION FACTOR (VF_s)

Equation 9: Derivation of the Volatilization Factor

$$VF_s(m^3/kg) = (Q/C) \times \frac{(3.14 \times D_A \times T)^{1/2}}{(2 \times \rho_b \times D_A)} \times 10^{-4}(m^2/cm^2)$$

where:

$$D_A = \frac{[(\Theta_a^{10/3} D_i H' + \Theta_w^{10/3} D_w)/n^2]}{\rho_B K_d + \Theta_w + \Theta_a H'}$$

Parameter	Definition (units)	Default
VF_s	Volatilization factor (m^3/kg)	--
D_A	Apparent diffusivity (cm^2/s)	--
Q/C	Inverse of the mean conc. at the center of a 0.5-acre square source (g/m^2-s per kg/m^3)	68.81
T	Exposure interval (s)	9.5×10^8
ρ_b	Dry soil bulk density (g/cm^3)	1.5
Θ_a	Air filled soil porosity (L_{air}/L_{soil})	0.28 or n-Θ_w
n	Total soil porosity (L_{pore}/L_{soil})	0.43 or 1 - (ρ_b/ρ_s)
Θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.15
ρ_s	Soil particle density (g/cm^3)	2.65
Di	Diffusivity in air (cm^2/s)	Chemical-specific
H	Henry's Law constant ($atm\text{-}m^3/mol$)	Chemical-specific
H'	Dimensionless Henry's Law constant	Calculated from H by multiplying by 41 (USEPA 1991a)
D_w	Diffusivity in water (cm^2/s)	Chemical-specific
K_d	Soil-water partition coefficient (cm^3/g) = $K_{oc}f_{oc}$	Chemical-specific
K_{oc}	Soil organic carbon-water partition coefficient (cm^3/g)	Chemical-specific
f_{oc}	Fraction organic carbon in soil (g/g)	0.006 (0.6%)

SOIL SATURATION CONCENTRATION (sat)

Equation 10: Derivation of the Soil Saturation Limit

$$sat = \frac{S}{\rho_b} (K_d \rho_b + \Theta_w + H' \Theta_a)$$

Parameter	Definition (units)	Default
sat	Soil saturation concentration (mg/kg)	--
S	Solubility in water (mg/L-water)	Chemical-specific
ρ_b	Dry soil bulk density (kg/L)	1.5
n	Total soil porosity (L_{pore}/L_{soil})	0.43 or 1 - (ρ_b/ρ_s)
ρ_s	Soil particle density (kg/L)	2.65
K_d	Soil-water partition coefficient (L/kg)	K_{oc} x f_{oc} (chemical-specific)
k_{oc}	Soil organic carbon/water partition coefficient (L/kg)	Chemical-specific
f_{oc}	Fraction organic carbon content of soil (g/g)	0.006 or site-specific
Θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.15
Θ_a	Air filled soil porosity (L_{air}/L_{soil})	0.28 or n-Θ_w
w	Average soil moisture content (kg_{water}/kg_{soil} or L_{water}/kg_{soil})	0.1
H	Henry's Law constant (atm-m^3/mol)	Chemical-specific
H'	Dimensionless Henry's Law constant	H x 41, where 41 is a units conversion factor

Equation 11: Derivation of the Particulate Emission Factor

$$PEF(m^3/kg) = Q/C \times \frac{3600 s/h}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

Parameter	Definition (units)	Default
PEF	Particulate emission factor (m^3/kg)	1.316×10^9
Q/C	Inverse of the mean concentration at the center of a 0.5-acre-square source (g/m^2-s per kg/m^3)	90.80
V	Fraction of vegetative cover (unitless)	0.5
U_m	Mean annual windspeed (m/s)	4.69
U_t	Equivalent threshold value of windspeed at 7 m (m/s)	11.32
F(x)	Function dependent on U_m/U_t derived using Cowherd (1985) (unitless)	0.194

REFERENCES

Cowherd, C., G. Muleski, P. Engelhart, and D. Gillette. 1985. *Rapid Assessment of Exposure to Particulate Emission from Surface Contamination.* EPA/600/8-85/002. Prepared for Office of Health and Environmental Assessment, U.S. Environmental Protection Agency, Washington, DC. NTIS PB85-192219 7AS.

Howard, P.H. 1990. *Handbook of Environmental Fate and Exposure Data for Organic Chemicals.* Lewis Publishers, Chelsea Michigan.

U.S. EPA. 1988. *Superfund Exposure Assessment Manual.* EPA/540/1-88/001. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990a. *Subsurface Contamination Reference Guide.* EPA/540/2-90/011. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA 1990b. *Exposure Factors Handbook.* EPA/600/8089/043. Office of Health and Environmental Assessment, Washington, DC.

U.S. EPA. 1991a. *Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals).* Publication 9285.7-01B. Office of Emergency and Remedial Response, Washington, DC. NTIS PB92-963333.

U.S. EPA. 1991b. *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors.* Publication 9285.6-03. Office of Emergency and Remedial Response, Washington, DC. NTIS PB91-921314.

U.S. EPA. 1992a *Technical Support Document for Land Application of Sewage Sludge; Volumes I and II.* Office of Water, Washington, DC. 822/R-93-001a,b.

U.S. EPA. 1992b *Dermal Exposure Assessment: Principles and Applications.* EPA/600/8-91/011B. Office of Health and Environmental Assessment, Washington, DC.

U.S. EPA 1994a. *Estimating Exposure to Dioxin-Like Compounds.* U.S. EPA Office of Research and Development, EPA/600/6-88/005B.

U.S. EPA 1994b. *Role of Ecological Assessment in the Baseline Risk Assessment.* OSWER Directive No. 9285.7-17. Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA 1994c. *Superfund Chemical Data Matrix.* EPA/540/R-94/009. Office of Solid Waste and Emergency Response, Washington, DC. PB94-963506.

U.S. EPA. 1996a. *Soil Screening Guidance: Technical Background Document.* EPA/540/R-95/128. Office of Emergency and Remedial Response, Washington, DC. PB96-963502.

U.S. EPA. 1996b. *Soil Screening Guidance: User's Guide*. EPA/540/R-96/018. Office of Emergency and Remedial Response, Washington, DC. PB96-963505.

U.S. EPA 1996c. *Superfund Chemical Data Matrix*. EPA/540/R-96/028. Office of Solid Waste and Emergency Response, Washington, DC. PB94-963506.

U.S. EPA. 1997a. *Health Effects Assessment Summary Tables* (HEAST): Annual Update, FY 1997. National Center For Environmental Assessment (NCEA), Office of Research and Development and Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1997b. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final*. EPA/540/R-97/006. Office of Solid Waste and Emergency Response, Washington, DC. PB97-963211.

U.S. EPA. 1998a. *Integrated Risk Information System* (IRIS). Duluth, MN.

U.S. EPA. 1998b. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance Dermal Risk Assessment, Interim Guidance. NCEA-W-0364. Office of Emergency and Remedial Response, Washington, D.C.

Van Wijnen, J.H., P. Clausing and B. Brunekreef. 1990. Estimated soil ingestion by children. *Environmental Research*, 51:147-162.

[redacted]

Acephate	8.7E-03	i	C	4.0E-03	i	8.7E-03	r	4.0E-03	r	0	0.10						
Acetaldehyde	7.7E-03	r		2.6E-03	r	7.7E-03	i	2.6E-03	i	1	0.10	4.40E+01		1.1E-01	1.3E+04	2.1E+05
Acetochlor				2.0E-02	i			2.0E-02	r	0	0.10					
Acetone				1.0E-01	i			1.0E-01	r	1	0.10	5.80E+01		3.5E-03	1.3E+04	1.0E+05
Acetone cyanohydrin				8.0E-04	h			2.9E-03	x	0	0.10					
Acetonitrile				6.0E-03	i			1.4E-02	h	1	0.10	4.10E+01		9.4E-02	2.3E+04	1.9E+05
Acetophenone				1.0E-01	i			5.7E-06	x	1	0.10	1.20E+02		1.9E-01	5.5E+04	1.7E+03
Acifluorfen	1.1E-01	o		1.3E-02	i	1.1E-01	r	1.3E-02	r	0	0.10					
Acrolein				2.0E-02	h			5.7E-06	i	1	0.10	5.60E+01		1.3E-01	1.2E+04	4.8E+04
Acrylamide	4.6E+00	i	B2	2.0E-04	i	4.6E+00	i	2.0E-04	r	0	0.10					
Acrylic acid				5.0E-01	i			2.9E-04	i	0	0.10					
Acrylonitrile	5.4E-01	i	B1	1.0E-03	h	2.4E-01	i	5.7E-04	i	1	0.10	5.30E+01		5.1E-03	9.0E+03	8.4E+03
Alachlor	8.1E-02	h		1.0E-02	i	8.0E-02	r	1.0E-02	r	0	0.10					
Alar				1.5E-01	i			1.5E-01	r	0	0.10					
Aldicarb				1.0E-03	i			1.0E-03	r	0	0.10					
Aldicarb sulfone				1.0E-03	i			1.0E-03	r	0	0.10					
Aldrin	1.7E+01	i	B2	3.0E-05	i	1.7E+01	i	3.0E-05	r	0	0.10		S			
Ally				2.5E-01	i			2.5E-01	r	0	0.10					
Allyl alcohol				5.0E-03	x			5.0E-03	r	0	0.10					
Allyl chloride				5.0E-02	h			2.9E-04	i	0	0.10					
Aluminum				1.0E+00	n					0	0.01					
Aluminum phosphide				4.0E-04	i					0	0.01					
Amdro				3.0E-04	i			3.0E-04	r	0	0.10					
Ametryn				9.0E-03	i			9.0E-03	r	0	0.10					
m-Aminophenol				7.0E-02	h			7.0E-02	r	0	0.10					
4-Aminopyridine				2.0E-05	h			2.0E-05	r	0	0.10					
Amitraz				2.5E-03	i			2.5E-03	r	0	0.10					
Ammonia								2.9E-02	i	n/	n/a					
Ammonium sulfamate				2.0E-01	i					0	0.10					
Aniline	5.7E-03	i	B2	7.0E-03	n	5.7E-03	r	2.9E-04	i	0	0.10					
Antimony and compounds				4.0E-04	i					0	0.01					
Antimony pentoxide				5.0E-04	h					0	0.01					
Antimony potassium tartrate				9.0E-04	h					0	0.01					
Antimony tetroxide				4.0E-04	h					0	0.01					
Antimony trioxide				4.0E-04	h					0	0.01					
Apollo			B2	1.3E-02	i			1.3E-02	r	0	0.10					
Aramite	2.5E-02	i		5.0E-02	h	2.5E-02	i	5.0E-02	r	0	0.10					
Arsenic (noncancer endpoint)				3.0E-04	i					0	0.03					
Arsenic (cancer endpoint)	1.5E+00	i	A	3.0E-04	i	1.5E+01	i			0	0.03					
Arsine								1.4E-05	i	n/	n/a					
Assure				9.0E-03	i			9.0E-03	r	0	0.10					
Asulam				5.0E-02	i			5.0E-02	r	0	0.10					
Atrazine	2.2E-01	h		3.5E-02	h	2.2E-01	r	3.5E-02	h	0	0.10					
Avermectin B1				4.0E-04	i			4.0E-04	r	0	0.10					
Azobenzene	1.1E-01	i	B2			1.1E-01	i			0	0.10					
Barium and compounds				7.0E-02	i			1.4E-04	h	0	0.01					
Baygon				4.0E-03	i			4.0E-03	r	0	0.10					
Bayleton				3.0E-02	i			3.0E-02	r	0	0.10					
Baythroid				2.5E-02	i			2.5E-02	r	0	0.10					
Benefin				3.0E-01	i			3.0E-01	r	0	0.10					
Benomyl				5.0E-02	i			5.0E-02	r	0	0.10					
Bentazon				3.0E-02	i			3.0E-02	r	0	0.10					
Benzaldehyde				1.0E-01	i			1.0E-01	r	0	0.10					
Benzene	2.9E-02	i		3.0E-03	n	2.9E-02	i	1.7E-03	n	1	0.10	7.81E+01		3.7E-01	2.8E+03	9.0E+02
Benzidine	2.3E+02	i	A	3.0E-03	i	2.3E+02	i	3.0E-03	r	0	0.10					
Benzoic acid				4.0E+00	i			4.0E+00	i	0	0.10		S			
Benzotrichloride	1.3E+01	i	B2			1.3E+01	r			0	0.10					
Benzyl alcohol				3.0E-01	h			3.0E-01	r	0	0.10					
Benzyl chloride	1.7E-01	i	B2			1.7E-01	r			1	0.10	1.27E+02		3.0E-01	3.0E+04	1.3E+03
Beryllium and compounds			B2	2.0E-03	i	8.4E+00	i	5.7E-06	i	0	0.01					
Bidrin				1.0E-04	i			1.0E-04	r	0	0.10					
Biphenthrin (Talstar)				1.5E-02	i			1.5E-02	r	0	0.10					
1,1-Biphenyl				5.0E-02	i			5.0E-02	r	1	0.10	1.50E+02	S	4.7E+01	1.7E+05	3.5E+02
Bis(2-chloroethyl)ether	1.1E+00	i	B2			1.2E+00	i			1	0.10	1.43E+02		4.6E-01	5.7E+04	9.6E+03
Bis(2-chloroisopropyl)ether	7.0E-02	h		4.0E-02	i	3.5E-02	h	4.0E-02	r	1	0.10	1.71E+02		3.7E-01	2.2E+04	7.9E+02
Bis(chloromethyl)ether	2.2E+02	i	A			2.2E+02	i			1	0.10	1.15E+02		7.2E-03	6.7E+03	2.4E+03
Bis(2-chloro-1-methylethyl)ether	7.0E-02	h				3.5E-02	h			0	0.10					
Bis(2-ethylhexyl)phthalate (DEHP)	1.4E-02	i		2.0E-02	i	1.4E-02	r	2.2E-02	r	0	0.10					
Bisphenol A				5.0E-02	i			5.0E-02	r	0	0.10					
Boron				9.0E-02	i			5.7E-03	h	0	0.10					
Boron trifluoride								2.0E-04	h	0	0.10					
Bromobenzene				2.0E-02	n			2.9E-03	n	1	0.10	MW < 200		1.3E+00	6.3E+03	6.9E+02
Bromodichloromethane	6.2E-02	i	D	2.0E-02	i	6.2E-02	r	2.0E-02	r	1	0.10	1.64E+02		6.0E-01	1.1E+04	4.8E+03
Bromoform (tribromomethane)	7.9E-03	i	B2	2.0E-02	i	3.9E-03	i	2.0E-02	r	0	0.10					
Bromomethane				1.4E-03	i			1.4E-03	i	1	0.10	9.50E+01		5.4E-02	1.8E+03	3.1E+03
4-Bromophenyl phenyl ether										0	0.10					
Bromophos				5.0E-03	h			5.0E-03	r	0	0.10					
Bromoxynil				2.0E-02	i			2.0E-02	r	0	0.10					

Contaminant													
Bromoxynil octanoate			2.0E-02	i		2.0E-02	r	0	0.10				
1,3-Butadiene	9.8E-01	r	B2		9.8E-01	i		1	0.10	5.40E+01		7.2E-01	9.6E+02	1.6E+03
1-Butanol				1.0E-01	i		1.0E-01	r	0	0.10				
Butylate				5.0E-02	i		5.0E-02	r	0	0.10				
n-Butylbenzene				1.0E-02	n		1.0E-02	r	1	0.10	1.34E+02		1.7E+01	1.1E+04	2.4E+02
sec-Butylbenzene				1.0E-02	n		1.0E-02	r	1	0.10	1.34E+02		1.3E+01	8.3E+03	2.2E+02
tert-Butylbenzene				1.0E-02	n		1.0E-02	r	1	0.10	1.34E+02		1.3E+01	1.0E+04	3.9E+02
Butyl benzyl phthalate				2.0E-01	i		2.0E-01	r	0	0.10			8.3E+01	3.6E+06	2.4E+02
Butylphthalyl butylglycolate				1.0E+00	i		1.0E+00	r	0	0.10					
Cacodylic acid				3.0E-03	h		3.0E-03	r	0	0.10					
Cadmium and compounds				5.0E-04	i	6.3E+00	i	5.7E-05	x	0	0.01				
Caprolactam				5.0E-01	i		5.0E-01	r	0	0.10					
Captafol	8.6E-03	h		2.0E-03	i	8.6E-03	r	2.0E-03	r	0	0.10				
Captan	3.5E-03	h		1.3E-01	i	3.5E-03	r	1.3E-01	r	0	0.10				
Carbaryl				1.0E-01	i		1.1E-01	r	0	0.10					
Carbazole	2.0E-02	h				2.0E-02	r		0	0.10		S			
Carbofuran				5.0E-03	i		5.0E-03	r	0	0.10					
Carbon disulfide				1.0E-01	i		2.0E-01	i	1	0.10	7.60E+01		2.7E-01	1.2E+03	7.2E+02
Carbon tetrachloride	1.3E-01	i		7.0E-04	i	5.3E-02	i	5.7E-04	x	1	0.10	1.54E+02		9.1E-01	2.0E+03	9.9E+02
Carbosulfan				1.0E-02	i		1.0E-02	r	0	0.10					
Carboxin				1.0E-01	i		1.0E-01	r	0	0.10					
Chloral				2.0E-03	i		2.0E-03	r	0	0.10					
Chloramben				1.5E-02	i		1.5E-02	r	0	0.10					
Chloranil	4.0E-01	h				4.0E-01	r		0	0.10					
Chlordane	3.5E-01	i		5.0E-04	i	3.5E-01	i	2.3E-05	i	0	0.04		S		
Chlorimuron-ethyl				2.0E-02	i		2.0E-02	r	0	0.10					
Chlorine				1.0E-01	i				0	0.01					
Chlorine dioxide							5.7E-05	i	n/	n/a					
Chloroacetaldehyde									1	0.10					
Chloroacetic acid				2.0E-03	h		2.0E-03	r	0	0.10					
2-Chloroacetophenone				8.6E-06	r		8.6E-06	i	1	0.10	MW < 200		2.0E+00	2.6E+03	1.1E+03
4-Chloroaniline				4.0E-03	i		4.0E-03	r	0	0.10		S			
Chlorobenzene				2.0E-02	i		5.7E-03	h	1	0.10	1.13E+02		1.3E+00	6.3E+03	6.9E+02
Chlorobenzilate	2.7E-01	h		2.0E-02	i	2.7E-01	h	2.0E-02	r	0	0.10				
p-Chlorobenzoic acid				2.0E-01	h		2.0E-01	r	0	0.10					
4-Chlorobenzotrifluoride				2.0E-02	h		2.0E-02	r	0	0.10					
2-Chloro-1,3-butadiene				2.0E-02	h		2.0E-03	h	1	0.10	8.80E+01		3.0E-01	1.2E+03	4.8E+02
1-Chlorobutane				4.0E-01	h		4.0E-01	r	1	0.10	MW < 200		3.0E-01	1.2E+03	4.8E+02
1-Chloro-1,1-difluoroethane				1.4E+01	r		1.4E+01	i	1	0.10	MW < 200		3.5E-01	1.1E+03	3.4E+02
Chlorodifluoromethane				1.4E+01	r		1.4E+01	i	1	0.10	MW < 200		3.5E-01	1.1E+03	3.4E+02
2-Chloroethyl vinyl ether									1	0.10					
Chloroform	6.1E-03	i	B2	1.0E-02	i	8.1E-02	i	1.0E-02	r	1	0.10	1.19E+02		3.2E-01	2.9E+03	3.5E+03
Chloromethane	1.3E-02	h				6.3E-03	h			1	0.10	5.10E+01		2.1E-01	1.2E+03	4.0E+03
4-Chloro-2-methylaniline	5.8E-01	h				5.8E-01	r			0	0.10					
4-Chloro-2-methylaniline hydrochloride	4.6E-01	h				4.6E-01	r			0	0.10					
beta-Chloronaphthalene				8.0E-02	i		8.0E-02	r	1	0.10	1.60E+02	S	9.3E+00	8.0E+04	1.1E+02
o-Chloronitrobenzene	2.5E-02	h				2.5E-02	r		r	0	0.10					
p-Chloronitrobenzene	1.8E-02	h				1.8E-02	r		r	0	0.10					
2-Chlorophenol				5.0E-03	i		5.0E-03	r	1	0.10	1.30E+02		2.4E+00	9.7E+03	5.5E+04
2-Chloropropane				2.9E-02	r		2.9E-02	h	1	0.10	MW < 200		3.1E-01	4.1E+03	1.1E+03
Chlorothalonil	1.1E-02	h		1.5E-02	i	1.1E-02	r	1.5E-02	r	0	0.10					
o-Chlorotoluene				2.0E-02	i		2.0E-02	r	1	0.10	MW < 200		9.6E-01	5.6E+03	5.1E+02
Chlorpropham				2.0E-01	i		2.0E-01	r	0	0.10					
Chlorpyrifos				3.0E-03	i		3.0E-03	r	0	0.10					
Chlorpyrifos-methyl				1.0E-02	h		1.0E-02	r	0	0.10					
Chlorsulfuron				5.0E-02	i		5.0E-02	r	0	0.10					
Chlorthiophos				8.0E-04	h		8.0E-04	r	0	0.10					
Total Chromium (1/6 ratio Cr VI/Cr III)						4.2E+01	i			0	0.01				
Chromium VI			A	5.0E-03	i	2.9E+02	i			0	0.01				
Cobalt				6.0E-02	x			5.7E-06	x	0	0.01				
Coke Oven Emissions			A			2.2E+00	i			0	0.01				
Copper and compounds				3.7E-02	h					0	0.01				
Crotonaldehyde	1.9E+00	h	C	1.0E-02	x	1.9E+00	x	1.0E-02	r	1	0.10	MW < 200		5.0E+00	1.5E+03	1.4E+02
Cumene (isopropylbenzene)				1.0E-01	i		1.1E-01	i	1	0.10	1.20E+02		1.3E+00	9.3E+02	6.5E+02
Cyanazine	8.4E-01	h		2.0E-03	h	8.4E-01	r	2.0E-03	r	0	0.10					
Cyanides															
Barium cyanide				1.0E-01	h					0	0.10				
Calcium cyanide				4.0E-02	i					0	0.10				
Copper cyanide				5.0E-03	i					0	0.10				
Cyanogen				4.0E-02	i					0	0.10				
Cyanogen bromide				9.0E-02	i					0	0.10				
Cyanogen chloride				5.0E-02	i					0	0.10				
Free cyanide				2.0E-02	i					0	0.10				
Hydrogen cyanide				2.0E-02	i		8.6E-04	i	1	0.10	2.70E+01		1.0E-01	8.1E+03	2.1E+05
Potassium cyanide				5.0E-02	i				0	0.10					
Potassium silver cyanide				2.0E-01	i				0	0.10					
Silver cyanide				1.0E-01	i				0	0.10					
Sodium cyanide				4.0E-02	i				0	0.10					
Zinc cyanide				5.0E-02	i				0	0.10					
Cyclohexanone				5.0E+00	i		5.0E+00	r	0	0.10					
Cyclohexylamine				2.0E-01	i		2.0E-01	r	0	0.10					
Cyhalothrin/Karate				5.0E-03	r		5.0E-03	r	0	0.10					
Cypermethrin				1.0E-02	i		1.0E-02	r	0	0.10					
Cyromazine				7.5E-03	i		7.5E-03	r	0	0.10					

Region 6 Human Health Medium-Specific Screening Levels	TOXICITY INFORMATION								PHYSICAL/CHEMICAL DATA						
Contaminants															
Dacthal				1 0E-02	i		1 0E-02	r	0	0 10					
Dalapon				3 0E-02	i		3 0E-02	r	0	0 10					
Danitol				2 5E-02	i		2 5E-02	r	0	0 10					
DDD	2 4E-01	i	B2			2 4E-01	r		0	0 03		S			
DDE	3 4E-01	i	B2			3 4E-01	r		0	0 03		S			
DDT	3 4E-01	i	B2	5 0E-04	i	3 4E-01	i	5 0E-04	r	0	0 03		S			
Decabromodiphenyl ether				1 0E-02	i			1 0E-02	r	0	0 10					
Demeton				4 0E-05	i			4 0E-05	r	0	0 10					
Diallate	6 1E-02	h				6 1E-02	r		0	0 10					
Diazinon				9 0E-04	h			9 0E-04	r	0	0 10					
Dibenzofuran				4 0E-03	x			4 0E-03	r	1	0 10	1 70E+02	S	4 7E+01	6 5E+05	1 4E+02
1,4-Dibromobenzene				1 0E-02	i			1 0E-02	r	0	0 10					
Dibromochloromethane	8 4E-02	i		2 0E-02	i	8 4E-02	r	2 0E-02	r	0	0 10					
1,2-Dibromo-3-chloropropane	1 4E+00	h		5 7E-05	r	2 4E-03	h	5 7E-05	i	0	0 10					
1,2-Dibromoethane	8 5E+01	i	B2	5 7E-05	r	7 7E-01	i	5 7E-05	h	1	0 10	1 88E+02		1 7E-01	9 2E+03	9 2E+02
Dibutyl phthalate				1 0E-01	i			1 0E-01	r	0	0 10					
Dicamba				3 0E-02	i			3 0E-02	r	0	0 10					
1,2-Dichlorobenzene				9 0E-02	i			5 7E-02	h	1	0 10	1 47E+02		2 3E+00	1 2E+04	3 7E+02
1,3-Dichlorobenzene				3 0E-02	n			2 3E-03	n	1	0 10	1 47E+02		2 3E+00	1 2E+04	3 7E+02
1,4-Dichlorobenzene	2 4E-02	h		2 0E-01	n	2 4E-02	r	2 3E-01	i	1	0 10	1 47E+02	S	3 7E+00	1 3E+04	2 8E+02
3,3-Dichlorobenzidine	4 5E-01	i	B2			4 5E-01	r		0	0 10			S			
1,4-Dichloro-2-butene	9 3E+00	r				9 3E+00	h		1	0 10	1 25E+02		2 9E-01	1 2E+04	1 1E+03
Dichlorodifluoromethane				2 0E-01	i			5 7E-02	h	1	0 10	1 21E+02		3 5E-01	1 1E+03	3 4E+02
1,1-Dichloroethane				1 0E-01	h			1 4E-01	h	1	0 10	9 90E+01		3 2E-01	2 9E+03	2 3E+03
1,2-Dichloroethane (EDC)	9 1E-02	i	B2	2 9E-03	r	9 1E-02	i	2 9E-03	x	1	0 10	9 90E+01		2 3E-01	4 9E+03	2 9E+03
1,1-Dichloroethylene	6 0E-01	i	C	9 0E-03	i	1 8E-01	i	9 0E-03	r	1	0 10	9 70E+01		3 9E-01	1 5E+03	1 6E+03
1,2-Dichloroethylene (cis)				1 0E-02	h			1 0E-02	r	1	0 10	9 70E+01		2 1E-01	2 9E+03	1 2E+03
1,2-Dichloroethylene (trans)				2 0E-02	i			2 0E-02	r	1	0 10	9 70E+01		2 3E-01	2 1E+03	2 5E+03
2,4-Dichlorophenol				3 0E-03	r			3 0E-03	r	0	0 10		S			
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)				8 0E-03	i			8 0E-03	r	0	0 10					
2,4-Dichlorophenoxyacetic Acid (2,4-D)				1 0E-02	i			1 0E-02	r	0	0 05					
1,2-Dichloropropane	6 8E-02	h		1 1E-03	r	6 8E-02	r	1 1E-03	i	1	0 10	1 13E+02		2 8E-01	3 7E+03	1 1E+03
1,3-Dichloropropene	1 8E-01	h	B2	3 0E-04	i	1 3E-01	h	5 7E-03	i	1	0 10	1 11E+02		1 6E-01	1 6E+03	1 1E+03
2,3-Dichloropropanol				3 0E-03	i			3 0E-03	r	0	0 10					
Dichlorvos	2 9E-01	i	B2	5 0E-04	i	2 9E-01	r	1 4E-04	i	0	0 10					
Dicofol	4 4E-01	x				4 4E-01	r		0	0 10					
Dicyclopentadiene				3 0E-02	h			5 7E-05	h	1	0 10	1 32E+02		3 4E+00	6 1E+03	6 5E+03
Dieldrin	1 6E+01	i	B2	5 0E-05	i	1 6E+01	i	5 0E-05	r	0	0 10		S			
Diethylene glycol, monobutyl ether				5 7E-03	h			5 7E-03	x	0	0 10					
Diethylene glycol, monoethyl ether				2 0E+00	h			2 0E+00	r	0	0 10					
Diethylformamide				1 1E-02	h			1 1E-02	r	0	0 10					
Di(2-ethylhexyl)adipate	1 2E-03	i		6 0E-01	i	1 2E-03	r	6 0E-01	r	0	0 10					
Diethyl phthalate				8 0E-01	i			8 0E-01	r	0	0 10					
Diethylstilbestrol	4 7E+03	h				4 7E+03	r		0	0 10					
Difenzoquat (Avenge)				8 0E-02	i			8 0E-02	r	0	0 10					
Diflubenzuron				2 0E-02	i			2 0E-02	r	0	0 10					
1,1-Difluoroethane				1 1E+01	r			1 1E+01	i	1	0 10					
Diisopropyl methylphosphonate				8 0E-02	i			8 0E-02	r	0	0 10					
Dimethipin				2 0E-02	i			2 0E-02	r	0	0 10					
Dimethoate				2 0E-04	i			2 0E-04	r	0	0 10					
3,3'-Dimethoxybenzidine	1 4E-02	h				1 4E-02	r		0	0 10					
Dimethylamine				5 7E-06	r			5 7E-06	x	1	0 10	4 50E+01		1 3E-02	8 9E+03	1 1E+05
N-N-Dimethylaniline				2 0E-03	i			2 0E-03	r	0	0 10					
2,4-Dimethylaniline	7 5E-01	h				7 5E-01	r		0	0 10					
2,4-Dimethylaniline hydrochloride	5 8E-01	n				5 8E-01	r		0	0 10					
3,3'-Dimethylbenzidine	9 2E+00	h				9 2E+00	r		0	0 10					
1,1-Dimethylhydrazine	2 6E+00	x				3 5E+00	x		0	0 10					
1,2-Dimethylhydrazine	3 7E+01	x				3 7E+01	x		0	0 10					
N,N-Dimethylformamide				1 0E-01	h			8 6E-03	i	0	0 10					
Dimethylphenethylamine				1 0E-03	n			1 0E-03	r	0	0 10					
2,4-Dimethylphenol				2 0E-02	i			2 0E-02	r	0	0 10		S			
2,6-Dimethylphenol				6 0E-04	i			6 0E-04	r	0	0 10					
3,4-Dimethylphenol				1 0E-03	i			1 0E-03	r	0	0 10					
Dimethyl phthalate				1 0E+01	h			1 0E+01	r	0	0 10					
Dimethyl terephthalate				1 0E-01	i			1 0E-01	r	0	0 10					
4,6-Dinitro-o-cyclohexyl phenol				2 0E-03	i			2 0E-03	r	0	0 10					
1,2-Dinitrobenzene				4 0E-04	h			4 0E-04	r	0	0 10					
1,3-Dinitrobenzene				1 0E-04	i			1 0E-04	r	0	0 10					
1,4-Dinitrobenzene				4 0E-04	h			4 0E-04	r	0	0 10					
2,4-Dinitrophenol				2 0E-03	i			2 0E-03	r	0	0 10		S			
Dinitrotoluene mixture	6 8E-01	i	B2			6 8E-01	r		0	0 10					
2,4-Dinitrotoluene				2 0E-03	i			2 0E-03	r	0	0 10		S			
2,6-Dinitrotoluene				1 0E-03	h			1 0E-03	r	0	0 10		S			
Dinoseb				1 0E-03	i			1 0E-03	r	0	0 10					
di-n-Octyl phthalate				2 0E-02	h			2 0E-02	r	0	0 10					
1,4-Dioxane	1 1E-02	i	B2			1 1E-02	r		0	0 10					
Dioxin (2,3,7,8-TCDD)	1 5E+05	h				1 5E+05	h		0	0 03					
Diphenamid				3 0E-02	i			3 0E-02	r	0	0 10					
Diphenylamine				2 5E-02	i			2 5E-02	r	0	0 10					
1,2-Diphenylhydrazine	8 0E-01	i	B2			7 7E-01	i		0	0 10					
Diphenyl sulfone				9 0E-03	n			9 0E-03	r	0	0 10					
Diquat				2 2E-03	i			2 2E-03	r	0	0 10					
Direct black 38	8 6E+00	h				8 6E+00	r		0	0 10					
Direct blue 6	8 1E+00	h				8 1E+00	r		0	0 10					

Direct brown 95	9.3E+00	h		9.3E+00	r	0	0.10					
Disulfoton			4.0E-05	i	4.0E-05	r	0	0.10				
1,4-Dithiane			1.0E-02	i	1.0E-02	r	0	0.10				
Diuron			2.0E-03	i	2.0E-03	r	0	0.10				
Dodine			4.0E-03	r	4.0E-03	r	0	0.10				
Endosulfan			6.0E-03	i	6.0E-03	r	0	0.10		S		
Endothall			2.0E-02	i	2.0E-02	r	0	0.10				
Endrin			3.0E-04	i	3.0E-04	r	0	0.10		S		
Epichlorohydrin	9.9E-03	i	B2	2.0E-03	h	4.2E-03	r	2.9E-04	i	1	0.10	9.30E+01	2.1E-02	1.8E+04	7.3E+03
1,2-Epoxybutane				5.7E-03	r			5.7E-03	i	0	0.10				
EPTC (S-Ethyl dipropylthiocarbamate)				2.5E-02	i			2.5E-02	r	0	0.10				
Ethephon (2-chloroethyl phosphonic acid)				5.0E-03	i			5.0E-03	r	0	0.10				
Ethion				5.0E-04	i			5.0E-04	r	0	0.10				
2-Ethoxyethanol				4.0E-01	h			5.7E-02	i	0	0.10				
2-Ethoxyethanol acetate				3.0E-01	h			3.0E-01	r	0	0.10				
Ethyl acetate				9.0E-01	i			9.0E-01	r	1	0.10	8.80E+01	3.6E-01	1.8E+04	3.7E+04
Ethyl acrylate	4.8E-02	h				4.8E-02	r			1	0.10	MW < 200	5.0E+00	1.5E+03	1.4E+02
Ethylbenzene				1.0E-01	i			2.9E-01	r	1	0.10	1.06E+02	1.2E+00	4.2E+03	2.3E+02
Ethyl chloride				4.0E-01	n			2.9E+00	i	1	0.10	6.50E+01	8.8E-02	1.3E+03	1.6E+03
Ethylene cyanohydrin				3.0E-01	h			3.0E-01	r	0	0.10				
Ethylene diamine				2.0E-02	h			2.0E-02	r	0	0.10				
Ethylene glycol				2.0E+00	i			2.0E+00	r	0	0.10				
Ethylene glycol, monobutyl ether				5.7E-03	r			5.7E-03	h	0	0.10				
Ethylene oxide	1.0E+00	h				3.5E-01	h			1	0.10	4.40E+01	1.3E-02	9.4E+03	1.1E+05
Ethylene thiourea (ETU)	1.1E-01	h		8.0E-05	i	1.1E-01	r	8.0E-05	r	0	0.10				
Ethyl ether				2.0E-01	i			2.0E-01	r	1	0.10	MW < 200	8.4E-02	3.8E+04	1.8E+03
Ethyl methacrylate				9.0E-02	h			9.0E-02	r	1	0.10	MW < 200	5.0E+00	1.5E+03	1.4E+02
Ethyl p-nitrophenyl phenylphosphorothioate				1.0E-05	i			1.0E-05	r	0	0.10				
Ethylphthalyl ethyl glycolate				3.0E+00	i			3.0E+00	r	0	0.10				
Express				8.0E-03	i			8.0E-03	r	0	0.10				
Fenamiphos				2.5E-04	i			2.5E-04	r	0	0.10				
Fluometuron				1.3E-02	i			1.3E-02	r	0	0.10				
Fluoride				6.0E-02	i					0	0.10				
Fluoridone				8.0E-02	i			8.0E-02	r	0	0.10				
Flurprimidol				2.0E-02	i			2.0E-02	r	0	0.10				
Flutolanil				6.0E-02	i			6.0E-02	r	0	0.10				
Fluvalinate				1.0E-02	i			1.0E-02	r	0	0.10				
Folpet	3.5E-03	r	B2	1.0E-01	i	3.5E-03	r	1.0E-01	r	0	0.10				
Fomesafen	1.9E-01	i	C			1.9E-01	r			0	0.10				
Fonofos				2.0E-03	i			2.0E-03	r	0	0.10				
Formaldehyde				1.5E-01	i	4.6E-02	i			0	0.10				
Formic Acid				2.0E+00	h			2.0E+00	r	0	0.10				
Fosetyl-al				3.0E+00	i			3.0E+00	r	0	0.10				
Furan				1.0E-03	i			1.0E-03	r	1	0.10	6.80E+01	7.4E-02	1.7E+03	2.2E+03
Furazolidone	3.8E+00	h				3.8E+00	r			0	0.10				
Furfural				3.0E-03	i			1.4E-02	h	0	0.10				
Furium	5.0E+01	h				5.0E+01	r			0	0.10				
Furmecyclox	3.0E-02	i	B2			3.0E-02	r			0	0.10				
Glufosinate-ammonium				4.0E-04	i			4.0E-04	r	0	0.10				
Glycidaldehyde				4.0E-04	i			2.9E-04	h	0	0.10				
Glyphosate				1.0E-01	i			1.0E-01	r	0	0.10				
Haloxyfop-methyl				5.0E-05	i			5.0E-05	r	0	0.10				
Harmony				1.3E-02	i			1.3E-02	r	0	0.10				
Heptachlor	4.5E+00	i	B2	5.0E-04	i	4.6E+00	i	5.0E-04	r	0	0.10		S		
Heptachlor epoxide	9.1E+00	i	B2	1.3E-05	i	9.1E+00	i	1.3E-05	r	0	0.10		S		
Hexabromobenzene				2.0E-03	i			2.0E-03	r	0	0.10				
Hexachlorobenzene	1.6E+00	i	B2	8.0E-04	i	1.6E+00	i	8.0E-04	r	0	0.10		S		
Hexachlorobutadiene	7.8E-02	i	C	2.0E-04	h	7.7E-02	i	2.0E-04	r	0	0.10				
HCH (alpha)	6.3E+00	i	B2			6.3E+00	i			0	0.04		S		
HCH (beta)	1.8E+00	i	C			1.8E+00	i			0	0.04		S		
HCH (gamma) Lindane	1.3E+00	h		3.0E-04	i	1.3E+00	r	3.0E-04	r	0	0.04		S		
HCH-technical	1.8E+00	i	B2			1.8E+00	i			0	0.04				
Hexachlorocyclopentadiene				7.0E-03	i			2.0E-05	h	0	0.10				
Hexachlorodibenzo-p-dioxin mixture (HxC	6.2E+03	i	B2			4.6E+03	i			0	0.10				
Hexachloroethane	1.4E-02	i	C	1.0E-03	i	1.4E-02	i	1.0E-03	r	0	0.10		S		
Hexachlorophene				3.0E-04	i			3.0E-04	r	0	0.10				
Hexahydro-1,3,5-trinitro-1,3,5-triazine	1.1E-01	i	C	3.0E-03	i	1.1E-01	r	3.0E-03	r	0	0.10				
1,6-Hexamethylene diisocyanate				2.9E-06	r			2.9E-06	i	0	0.10				
n-Hexane				6.0E-02	h			5.7E-02	i	1	0.10	8.60E+01	5.3E+00	1.4E+03	1.1E+02
Hexazinone				3.3E-02	i			3.3E-02	r	0	0.10				
Hydrazine, hydrazine sulfate	3.0E+00	i	B2			1.7E+01	r			0	0.10				
Hydrogen chloride								5.7E-03	v	0	0.10				
Hydrogen sulfide				3.0E-03	i			2.9E-04	i	1	0.10				
p-Hydroquinone				4.0E-02	h			4.0E-02	r	0	0.10				
Imazalil				1.3E-02	i			1.3E-02	r	0	0.10				
Imazaquin				2.5E-01	i			2.5E-01	r	0	0.10				
Iprodione				4.0E-02	i			4.0E-02	r	0	0.10				
Iron				3.0E-01	n					0	0.01				
Isobutanol				3.0E-01	i			3.0E-01	r	1	0.10	7.40E+01	3.7E-01	5.7E+04	4.0E+04
Isophorone	9.5E-04	i	C	2.0E-01	i	9.5E-04	r	2.0E-01	r	0	0.10				
Isopropalin				1.5E-02	i			1.5E-02	r	0	0.10				
Isopropyl methyl phosphonic acid				1.0E-01	i			1.1E-01	r	0	0.10				
Isoxaben				5.0E-02	i			5.0E-02	r	0	0.10				
Kepone	1.8E+01	n				1.8E+01	r			0	0.10				

Contaminant													
Lactofen			2.0E-03	i		2.0E-03	r	0	0.10				
Lead	Screening Levels Based on EPA Models, IEUBK (1994) and TRW (1996), Tap Water # = MCL												
Lead (tetraethyl)			1.0E-07	i				0	0.10				
Linuron			2.0E-03	i		2.0E-03	r	0	0.10				
Lithium			2.0E-02	x				0	0.01				
Londax			2.0E-01	i		2.0E-01	r	0	0.10				
Malathion			2.0E-02	i		2.0E-02	r	0	0.10				
Maleic anhydride			1.0E-01	i		1.0E-01	r	0	0.10				
Maleic hydrazide			5.0E-01	i		5.0E-01	r	1	0.10	1.10E+02		2.5E-01	2.2E+03	2.4E+03
Malononitrile			2.0E-05	h		2.0E-05	r	0	0.10				
Mancozeb			3.0E-02	h		3.0E-02	r	0	0.10				
Maneb	6.0E-02	o	5.0E-03	i	6.0E-02	r	5.0E-03	r	0	0.10				
Manganese and compounds			4.7E-02	i		1.4E-05	i	0	0.01				
Mephosfolan			9.0E-05	h		9.0E-05	r	0	0.10				
Mepiquat			3.0E-02	i		3.0E-02	r	0	0.10				
2-Mercaptobenzothiazole	2.9E-02	n	1.0E-01	n	2.9E-02	r	1.0E-01	r	0	0.10				
Mercury and compounds			3.0E-04	i				0	0.01				
Mercury (elemental)						8.6E-05	i	n/	n/a				
Mercury (methyl)			1.0E-04	i				0	0.10				
Merphos			3.0E-05	i		3.0E-05	r	0	0.10				
Merphos oxide			3.0E-05	i		3.0E-05	r	0	0.10				
Metalaxyl			6.0E-02	i		6.0E-02	r	0	0.10				
Methacrylonitrile			1.0E-04	i		2.0E-04	h	1	0.10	MW < 200		5.1E-03	9.0E+03	8.4E+03
Methamidophos			5.0E-05	i		5.0E-05	r	0	0.10				
Methanol			5.0E-01	i		5.0E-01	r	0	0.10				
Methidathion			1.0E-03	i		1.0E-03	r	0	0.10				
Methomyl			2.5E-02	i		2.5E-02	r	1	0.10	1.60E+02		8.9E-02	1.2E+03	8.2E+04
Methoxychlor			5.0E-03	i		5.0E-03	r	0	0.10		S			
2-Methoxyethanol			1.0E-03	h		5.7E-03	i	0	0.10					
2-Methoxyethanol acetate			2.0E-03	h		2.0E-03	r	0	0.10					
2-Methoxy-5-nitroaniline	4.6E-02	h			4.6E-02	r		0	0.10					
Methyl acetate			1.0E+00	h		1.0E+00	r	1	0.10	MW < 200		1.3E-02	2.0E+04	1.1E+05
Methyl acrylate			3.0E-02	h		3.0E-02	r	1	0.10	MW < 200		5.0E+00	1.5E+03	4.2E+02
2-Methylaniline (o-toluidine)	2.4E-01	h			2.4E-01	r		0	0.10					
2-Methylaniline hydrochloride	1.8E-01	h			1.8E-01	r		0	0.10					
Methyl chlorocarbonate			1.0E+00	x		1.0E+00	r	0	0.10					
2-Methyl-4-chlorophenoxyacetic acid			5.0E-04	i		5.0E-04	r	0	0.10					
4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)			1.0E-02	i		1.0E-02	r	0	0.10					
2-(2-Methyl-4-chlorophenoxy) propionic acid			1.0E-03	i		1.0E-03	r	0	0.10					
2-(2-Methyl-1,4-chlorophenoxy) propionic acid (MCP			1.0E-03	i		1.0E-03	r	0	0.10					
Methylcyclohexane			8.6E-01	r		8.6E-01	h	0	0.10					
4,4'-Methylenebisbenzeneamine	2.5E-01	h			2.5E-01	r		0	0.10					
4,4'-Methylene bis(2-chloroaniline)	1.3E-01	h	7.0E-04	h	1.3E-01	h	7.0E-04	r	0	0.10				
4,4'-Methylene bis(N,N'-dimethyl)aniline	4.6E-02	i	B2		4.6E-02	r			0	0.10				
Methylene bromide			1.0E-02	h				1.0E-02	r	0	0.10			
Methylene chloride	7.5E-03	i	6.0E-02	i	1.6E-03	i	8.6E-01	h	1	0.10	8.50E+01		6.0E-02	2.4E+03	2.3E+03
4,4'-Methylenediphenyl isocyanate			1.7E-04	r			1.7E-04	i	0	0.10					
Methyl ethyl ketone			6.0E-01	i			2.9E-01	i	1	0.10	7.20E+01		2.7E-02	1.9E+04	3.4E+04
Methyl hydrazine	1.1E+00	h			1.1E+00	r			0	0.10					
Methyl isobutyl ketone			8.0E-02	h			2.3E-02	h	1	0.10	1.00E+02		8.0E-01	2.5E+04	1.7E+04
Methyl mercaptan			5.7E-04	r			5.7E-04	n	0	0.10					
Methyl methacrylate			1.4E+00	i			2.0E-01	i	1	0.10	1.00E+02		7.9E-02	7.1E+03	2.7E+03
2-Methyl-5-nitroaniline	3.3E-02	h			3.3E-02	r			0	0.10					
Methyl parathion			2.5E-04	i			2.5E-04	r	0	0.10					
2-Methylphenol			5.0E-02	x			5.0E-02	r	0	0.10		S			
3-Methylphenol			5.0E-02	x			5.0E-02	r	0	0.10					
4-Methylphenol			5.0E-03	h			5.0E-03	r	0	0.10					
Methyl phosphonic acid			2.0E-02	n			2.0E-02	r	0	0.10					
Methyl styrene (mixture)			6.0E-03	h			1.1E-02	h	1	0.10	MW < 200		2.2E+00	1.0E+04	6.8E+02
Methyl styrene (alpha)			7.0E-02	h			7.0E-02	r	1	0.10	MW < 200		2.2E+00	1.0E+04	6.8E+02
Methyl tertbutyl ether (MTBE)							8.6E-01	i	1	0.10					
Metolaclor (Dual)			1.5E-01	i			1.5E-01	r	0	0.10					
Metribuzin			2.5E-02	i			2.5E-02	r	0	0.10					
Mirex	1.8E+00	h	2.0E-04	i	1.8E+00	r	2.0E-04	r	0	0.10					
Molinate			2.0E-03	i			2.0E-03	r	0	0.10					
Molybdenum			5.0E-03	h					0	0.01					
Monochloramine			1.0E-01	h			1.0E-01	h	0	0.10					
Naled			2.0E-03	i			2.0E-03	r	0	0.10					
Napropamide			1.0E-01	i			1.0E-01	r	0	0.10					
Nickel and compounds			2.0E-02	i					0	0.01					
Nickel refinery dust		A			8.4E-01	i			0	0.01					
Nickel subsulfide		A			1.7E+00	i			0	0.01					
Nitrapyrin			1.5E-03	x			1.5E-03	r	0	0.10					
Nitrate	Tap Water Screening Level Based on Infant NOAEL (see IRIS)													
Nitric Oxide			1.0E-01	x					0	0.10					
Nitrite	Tap Water Screening Level Based on Infant NOAEL (see IRIS)													
2-Nitroaniline			6.0E-05	r			5.7E-05	h	0	0.10					
3-Nitroaniline									0	0.10					
4-Nitroaniline									0	0.10					
Nitrobenzene			5.0E-04	i			5.7E-04	h	1	0.10	1.20E+02		3.9E-01	4.4E+04	1.0E+03
Nitrofurantoin			7.0E-02	h			7.0E-02	r	0	0.10					
Nitrofurazone	1.5E+00	h			9.4E+00	h			0	0.10					
Nitrogen dioxide			1.0E+00	x					0	0.10					
Nitroguanidine			1.0E-01	i			1.0E-01	r	0	0.10					

4-Nitrophenol			6.2E-02	o		6.2E-02	r	0	0.10				
2-Nitropropane	9.4E+00	r	5.7E-03	r	9.4E+00	h	5.7E-03	i	1	0.10			
N-Nitrosodi-n-butylamine	5.4E+00	i	B2		5.6E+00	r			1	0.10	1.60E+02	1.5E+00	2.6E+04 2.1E+03
N-Nitrosodiethanolamine	2.8E+00	i	B2		2.8E+00	r			0	0.10			
N-Nitrosodiethylamine	1.5E+02	i	B2		1.5E+02	i			0	0.10			
N-Nitrosodimethylamine	5.1E+01	i	B2		4.9E+01	i			0	0.10			
N-Nitrosodiphenylamine	4.9E-03	i	B2		4.9E-03	r			0	0.10		S	
N-Nitroso di-n-propylamine	7.0E+00	i			7.0E+00	r			0	0.10		S	
N-Nitroso-N-methylethylamine	2.2E+01	i	B2		2.2E+01	r			0	0.10			
N-Nitrosopyrrolidine	2.1E+00	i	B2		2.1E+00	i			0	0.10			
m-Nitrotoluene			1.0E-02	h		1.0E-02	r	0	0.10				
o-Nitrotoluene			1.0E-02	h		1.0E-02	r	0	0.10				
p-Nitrotoluene			1.0E-02	h		1.0E-02	r	0	0.10				
Norflurazon			4.0E-02	i		4.0E-02	r	0	0.10				
NuStar			7.0E-04	i		[illegible]	r	0	0.10				
Octabromodiphenyl ether			3.0E-03	i		[illegible]	r	0	0.10				
Octahydro-1357-tetranitro-1357- tetrazocine (HMX)			5.0E-02	i		5.0E-02	r	0	0.10				
Octamethylpyrophosphoramide			2.0E-03	h		2.0E-03	r	0	0.10				
Oryzalin			5.0E-02	i		5.0E-02	r	0	0.10				
Oxadiazon			5.0E-03	i		5.0E-03	r	0	0.10				
Oxamyl			2.5E-02	i		2.5E-02	r	0	0.10				
Oxyfluorfen			3.0E-03	i		3.0E-03	r	0	0.10				
Paclobutrazol			1.3E-02	i		1.3E-02	r	0	0.10				
Paraquat			4.5E-03	i		4.5E-03	r	0	0.10				
Parathion			6.0E-03	h		6.0E-03	r	0	0.10				
Pebulate			5.0E-02	h		5.0E-02	r	0	0.10				
Pendimethalin			4.0E-02	i		4.0E-02	r	0	0.10				
Pentabromo-6-chloro cyclohexane	2.3E-02	h			2.3E-02	r			0	0.10			
Pentabromodiphenyl ether			2.0E-03	i		2.0E-03	r	0	0.10				
Pentachlorobenzene			8.0E-04	i		8.0E-04	r	0	0.10				
Pentachloronitrobenzene	2.6E-01	h	3.0E-03	i	2.6E-01	r	3.0E-03	r	0	0.10			
Pentachlorophenol	1.2E-01	i	3.0E-02	i	1.2E-01	r	3.0E-02	r	0	0.25		S	
Perchlorate			5.0E-04	n					0	0.01			
Permethrin			5.0E-02	i		5.0E-02	r	0	0.10				
Phenmedipham			2.5E-01	i		2.5E-01	r	0	0.10				
Phenol			6.0E-01	i		6.0E-01	r	0	0.10		S		
Phenothiazine			2.0E-03	n		2.0E-03	r	0	0.10				
m-Phenylenediamine			6.0E-03	i		6.0E-03	r	0	0.10				
p-Phenylenediamine			1.9E-01	h		1.9E-01	r	0	0.10				
Phenylmercuric acetate			8.0E-05	i		8.0E-05	r	0	0.10				
2-Phenylphenol	1.9E-03	h			1.9E-03	r			0	0.10			
Phorate			2.0E-04	h		2.0E-04	r	0	0.10				
Phosmet			2.0E-02	i		2.0E-02	r	0	0.10				
Phosphine			3.0E-04	h		8.6E-05	i	0	0.10				
Phosphoric acid						2.9E-03	i	n/	n/a				
Phosphorus (white)			2.0E-05	i				0	0.01				
p-Phthalic acid			1.0E+00	h		1.0E+00	r	0	0.10				
Phthalic anhydride			2.0E+00	i		3.4E-02	h	0	0.10				
Picloram			7.0E-02	i		7.0E-02	r	0	0.10				
Pirimiphos-methyl			1.0E-02	i		1.0E-02	r	0	0.10				
Polybrominated biphenyls	8.9E+00	h	7.0E-06	h	8.9E+00	r	7.0E-06	r	0	0.10			
Polychlorinated biphenyls (PCBs)	2.0E+00	i	B2		2.0E+00	r			0	0.14			
Aroclor 1016			7.0E-05	i		7.0E-05	r	0	0.14				
Aroclor 1254			2.0E-05	i		2.0E-05	r	0	0.14				
Polynuclear aromatic hydrocarbons									0.13				
Acenaphthene			6.0E-02	i		6.0E-02	r	1	0.13	1.54E+02	S	2.9E+01	1.8E+05 1.3E+02
Anthracene			3.0E-01	i		3.0E-01	r	1	0.13	1.78E+02	S	1.4E+02	7.0E+05 6.1E+00
Benz[a]anthracene	7.3E-01	n			3.1E-01	n			0	0.13		S	
Benzo[b]fluoranthene	7.3E-01	n	B2		3.1E-01	n			0	0.13		S	
Benzo[k]fluoranthene	7.3E-02	n	B2		3.1E-02	n			0	0.13		S	
Benzo[a]pyrene	7.3E+00	i	B2		3.1E+00	n			0	0.13		S	
Chrysene	7.3E-03	n			3.1E-03	n			0	0.13	2.28E+02	S	2.4E+03 2.7E+06 3.8E+00
Dibenz[ah]anthracene	7.3E+00	n			3.1E+00	n			0	0.13		S	
Fluoranthene			4.0E-02	i		4.0E-02	r	0	0.13			S	
Fluorene			4.0E-02	i		4.0E-02	r	1	0.13	1.66E+02	S	4.7E+01	2.7E+05 9.0E+01
Indeno[1,2,3-cd]pyrene	7.3E-01	n			3.1E-01	n			0	0.13		S	
Naphthalene			2.0E-02	i		8.6E-04	i	1	0.13	1.28E+02	S	7.1E+00	4.3E+04 2.2E+02
Pyrene			3.0E-02	i		3.0E-02	r	1	0.13	2.00E+02	S	4.1E+02	3.1E+06 5.5E+01
Prochloraz	1.5E-01	i	C		9.0E-03	i	1.5E-01	r	9.0E-03	r	0	0.10	
Profluralin			6.0E-03	h		6.0E-03	r	0	0.10				
Prometon			1.5E-02	i		1.5E-02	r	0	0.10				
Prometryn			4.0E-03	i		4.0E-03	r	0	0.10				
Pronamide			7.5E-02	i		7.5E-02	r	0	0.10				
Propachlor			1.3E-02	i		1.3E-02	r	0	0.10				
Propanil			5.0E-03	i		5.0E-03	r	0	0.10				
Propargite			2.0E-02	i		2.0E-02	r	0	0.10				
Propargyl alcohol			2.0E-03	i		2.0E-03	r	0	0.10				
Propazine			2.0E-02	i		2.0E-02	r	0	0.10				
Propham			2.0E-02	i		2.0E-02	r	0	0.10				
Propiconazole			1.3E-02	i		1.3E-02	r	0	0.10				
iso-Propylbenzene			1.0E-02	n		1.0E-02	r	1	0.10	MW < 200		1.3E+01	1.0E+04 3.9E+02
n-Propylbenzene			1.0E-02	n		1.0E-02	r	1	0.10	MW < 200		1.7E+01	1.1E+04 2.4E+02
Propylene glycol			2.0E+01	h		2.0E+01	r	0	0.10				
Propylene glycol, monoethyl ether			7.0E-01	h		7.0E-01	r	0	0.10				

Contaminant												
Propylene glycol, monomethyl ether			7.0E-01 h		5 7E-01 i	0	0.10					
Propylene oxide	2.4E-01 i	B2	8 6E-03 r	1.3E-02 i	8 6E-03 i	1	0 10	5 81E+01		1 5E-01	1 3E+04	1 2E+05
Pursuit			2.5E-01 i		2 5E-01 r	0	0 10					
Pydrin			2.5E-02 i		2 5E-02 r	0	0.10					
Pyridine			1 0E-03 i		1 0E-03 r	0	0 10					
Quinalphos			5 0E-04 i		5.0E-04 r	0	0 10					
Quinoline	1 2E+01 h			1.2E+01 r		0	0 10					
RDX (Cyclonite)	1.1E-01 i	C	3 0E-03 i	1.1E-01 r	3.0E-03 r	0	0 10					
Resmethrin			3 0E-02 i		3 0E-02 r	0	0 10					
Ronnel			5.0E-02 h		5 0E-02 r	0	0.10					
Rotenone			4.0E-03 i		4 0E-03 r	0	0.10					
Savey			2.5E-02 i		2 5E-02 r	0	0 10					
Selenious Acid			5.0E-03 i			0	0.10					
Selenium			5 0E-03 i			0	0 01					
Selenourea			5 0E-03 h			0	0.10					
Sethoxydim			9 0E-02 i		9 0E-02 r	0	0 10					
Silver and compounds			5 0E-03 i			0	0 01					
Simazine	1 2E-01 h		5 0E-03 i	1.2E-01 r	2.0E-03 r	0	0 10					
Sodium azide			4 0E-03 i		4 0E-03 r	0	0 10					
Sodium diethyldithiocarbamate	2 7E-01 h		3 0E-02 i	2.7E-01 r	3 0E-02 r	0	0 10					
Sodium fluoroacetate			2 0E-05 i		2.0E-05 r	0	0 10					
Sodium metavanadate			1 0E-03 h		1 0E-03 r	0	0 10					
Strontium, stable			6 0E-01 i			0	0 01					
Strychnine			3 0E-04 i		3 0E-04 r	0	0.10					
Styrene			2.0E-01 i		2.9E-01 i	1	0.10	1 04E+02		5 5E+00	1.5E+04	1.7E+03
Systhane			2.5E-02 i		2.5E-02 r	0	0.10					
2,3,7,8-TCDD (dioxin)	1.5E+05 h			1.5E+05 h		0	0 03					
Tebuthiuron			7.0E-02 i		7 0E-02 r	0	0 10					
Temephos			2.0E-02 h		2.0E-02 r	0	0.10					
Terbacil			1 3E-02 i		1.3E-02 r	0	0.10					
Terbufos			2.5E-05 h		2 5E-05 r	0	0.10					
Terbutryn			1.0E-03 i		1.0E-03 r	0	0 10					
1,2,4,5-Tetrachlorobenzene			3.0E-04 i		3 0E-04 r	0	0 10					
1,1,1,2-Tetrachloroethane	2.6E-02 i	C	3.0E-02 i	2.6E-02 i	3.0E-02 r	1	0.10	1 68E+02		4 7E-01	1.3E+04	1.7E+03
1,1,2,2-Tetrachloroethane	2.0E-01 i	C		2.0E-01 i		1	0 10	1.68E+02		4 7E-01	1 3E+04	1 7E+03
Tetrachloroethylene (PCE)	5.2E-02 n		1.0E-02 i	2.0E-03 n	1.1E-01 n	1	0.10	1 66E+02		1 6E+00	3 2E+03	3.7E+02
2,3,4,6-Tetrachlorophenol			3 0E-02 i		3 0E-02 r	0	0 10					
p,a,a,a-Tetrachlorotoluene	2.0E+01 h			2.0E+01 r		0	0 10					
Tetrachlorovinphos	2.4E-02 h		3.0E-02 i	2.4E-02 r	3 0E-02 r	0	0.10					
Tetraethyldithiopyrophosphate			5.0E-04 i		5 0E-04 r	0	0 10					
Tetrahydrofuran			8.6E-02 r		8.6E-02 n	0	0.10					
Thallic oxide			7.0E-05 h			0	0 01					
Thallium acetate			9.0E-05 i			0	0.01					
Thallium carbonate			8.0E-05 i			0	0 01					
Thallium chloride			8 0E-05 i			0	0 01					
Thallium nitrate			9 0E-05 i			0	0.01					
Thallium selenite			9 0E-05 x			0	0 01					
Thallium sulfate			8 0E-05 i			0	0 01					
Thiobencarb			1.0E-02 i		1 0E-02 r	0	0.10					
Thiocyanate			1.0E-01 n		1.0E-01 r	0	0.10					
2-(Thiocyanomethylthio)- benzothiazole (TCMTB)			3.0E-02 x		3 0E-02 r	0	0 10					
Thiofanox			3.0E-04 h		3.0E-04 r	0	0.10					
Thiophanate-methyl			8.0E-02 i		8.0E-02 r	0	0.10					
Thiram			5.0E-03 i		5.0E-03 r	0	0.10					
Tin and compounds			6.0E-01 h			0	0.01					
Toluene			2.0E-01 i		1 1E-01 h	1	0.10	9.20E+01		8.4E-01	3 6E+03	5.2E+02
Toluene-2,4-diamine	3.2E+00 h			3 2E+00 r		0	0.10					
Toluene-2,5-diamine			6.0E-01 h		6.0E-01 r	0	0.10					
Toluene-2,6-diamine			2.0E-01 h		2.0E-01 r	0	0.10					
p-Toluidine	1.9E-01 i			1 9E-01 r		0	0 10					
Toxaphene	1.1E+00 i	B2		1.1E+00 i		0	0.10		S			
Tralomethrin			7.5E-03 i		7 5E-03 r	0	0.10					
Triallate			1 3E-02 i		1.3E-02 r	0	0 10					
Triasulfuron			1.0E-02 i		1 0E-02 r	0	0 10					
1,2,4-Tribromobenzene			5.0E-03 i		5 0E-03 r	0	0 10					
Tributyltin oxide (TBTO)			3 0E-04 i			0	0 10					
2,4,6-Trichloroaniline	3.4E-02 h			3 4E-02 r		0	0.10					
2,4,6-Trichloroaniline hydrochloride	2.9E-02 h			2.9E-02 r		0	0 10					
1,2,4-Trichlorobenzene			1 0E-02 i		5 7E-02 h	1	0.10	1 81E+02		1 0E-01	4 2E+04	3 0E+03
1,1,1-Trichloroethane			3 5E-02 n		2 9E-01 n	1	0.10	1 33E+02		8 1E-01	2.4E+03	1 4E+03
1,1,2-Trichloroethane	5 7E-02 i		4 0E-03 i	5 6E-02 i	4 0E-03 r	1	0 10	1.33E+02		4 5E-01	7 6E+03	2 5E+03
Trichloroethylene (TCE)	1 1E-02 n		6 0E-03 x	6 0E-03 n	6 0E-03 r	1	0 10	1 31E+02		5 7E-01	2.6E+03	8 2E+02
Trichlorofluoromethane			3.0E-01 i		2 0E-01 h	1	0.10	1 37E+02		9 6E-01	1 3E+03	2 0E+03
2,4,5-Trichlorophenol			1 0E-01 i		1 0E-01 r	0	0 10		S			
2,4,6-Trichlorophenol	1 1E-02 i	B2		1 1E-02 i		0	0 10		S			
2,4,5-Trichlorophenoxyacetic Acid			1 0E-02 i		1 0E-02 r	0	0 10					
2-(2,4,5-Trichlorophenoxy) propionic acid			8 0E-03 i		8 0E-03 r	0	0 10					
1,1,2-Trichloropropane			5.0E-03 i		5 0E-03 r	1	0.10	1.47E+02		3.1E-01	2.0E+03	1.7E+03
1,2,3-Trichloropropane	7 0E+00 h		6 0E-03 i	7 0E+00 r	5 0E-03 r	1	0 10	1.47E+02		3 1E-01	1 5E+03	1.7E+03
1,2,3-Trichloropropene			5.0E-03 h		5 0E-03 r	1	0.10	MW < 200		3 1E-01	1 5E+03	1 7E+03
1,1,2-Trichloro-1,2,2-trifluoroethane			3 0E+01 i		8 6E+00 h	1	0 10	1 87E+02		9 6E-01	1 6E+03	5.6E+03
Tridiphane			3.0E-03 i		3 0E-03 r	0	0.10					
Triethylamine			2 0E-03 r		2 0E-03 i	1	0 10	MW < 200		1.3E-02	8 8E+03	1.1E+05
Trifluralin	7 7E-03 i	C	7 5E-03 i	7 7E-03 r	7 5E-03 r	0	0 10					

1,2,4-Trimethylbenzene			5.0E-02	n		1.7E-03	n	1	0.10	1.20E+02	S	2.2E+01	2.0E+04	5.7E+00
1,3,5-Trimethylbenzene			5.0E-02	n		1.7E-03	n	1	0.10	1.20E+02		4.9E+00	8.1E+03	2.5E+02
Trimethyl phosphate	3.7E-02	h			3.7E-02	r		0	0.10					
1,3,5-Trinitrobenzene			3.0E-02	i		3.0E-02	r	0	0.10					
Trinitrophenylmethylnitramine			1.0E-02	h		1.0E-02	r	0	0.10					
2,4,6-Trinitrotoluene	3.0E-02	i	C	5.0E-04	i	3.0E-02	r	5.0E-04	r	0	0.10					
Vanadium			7.0E-03	h				0	0.01					
Vanadium pentoxide			9.0E-03	i				0	0.01					
Vanadium sulfate			2.0E-02	h				0	0.01					
Vernam			1.0E-03	i		1.0E-03	r	0	0.10					
Vinclozolin			2.5E-02	i		2.5E-02	r	0	0.10					
Vinyl acetate			1.0E+00	h		5.7E-02	i	1	0.10	8.60E+01		3.2E-02	4.8E+03	2.7E+03
Vinyl bromide	1.1E-01	r	8.6E-04	r	1.1E-01	h	8.6E-04	i	1	0.10	MW < 200		7.6E-01	3.3E+03	1.6E+04
Vinyl chloride	1.9E+00	h			3.0E-01	h			1	0.10	6.30E+01		1.1E-01	1.0E+03	1.2E+03
Warfarin			3.0E-04	i		3.0E-04	r	0	0.10					
m-Xylene			2.0E+00	i		2.0E-01	x	1	0.10	1.06E+02		1.2E+00	4.4E+03	2.1E+02
o-Xylene			2.0E+00	i		2.0E-01	x	1	0.10	1.06E+02		1.4E+00	5.1E+03	2.8E+02
p-Xylene								1	0.10	1.06E+02		1.9E+00	5.0E+03	3.7E+02
Zinc			3.0E-01	i				0	0.01					
Zinc phosphide			3.0E-04	i				0	0.01					
Zineb			5.0E-02	i		5.0E-02	r	0	0.10					

Contaminant								
Acephate	1.0E+07	1.7E+03	7.4E+02	5.1E+02	8.2E+06	7.2E+02	3.1E+02	2.2E+02
Acetaldehyde	1.1E+01	1.9E+02	8.3E+01	9.2E+00	5.0E+01	4.6E+02	2.0E+02	3.7E+01
Acetochlor					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Acetone					2.0E+03	1.8E+04	7.8E+03	1.4E+03
Acetone cyanohydrin					5.9E+06	1.4E+02	6.3E+01	4.4E+01
Acetonitrile					5.2E+02	1.1E+03	4.7E+02	2.0E+02
Acetophenone					5.0E-01	1.8E+04	7.8E+03	5.0E-01
Acifluorfen	8.0E+04	1.3E+01	5.8E+00	4.0E+00	2.7E+07	2.3E+03	1.0E+03	7.1E+02
Acrolein					1.0E-01	3.6E+03	1.6E+03	1.0E-01
Acrylamide	1.9E+03	3.2E-01	1.4E-01	9.8E-02	4.1E+05	3.6E+01	1.6E+01	1.1E+01
Acrylic acid					5.9E+05	9.0E+04	3.9E+04	2.6E+04
Acrylonitrile	2.5E-01	2.7E+00	1.2E+00	1.9E-01	8.1E+00	1.8E+02	7.8E+01	7.0E+00
Alachlor	1.1E+05	1.8E+01	8.0E+00	5.5E+00	2.1E+07	1.8E+03	7.8E+02	5.5E+02
Alar					3.1E+08	2.7E+04	1.2E+04	8.2E+03
Aldicarb					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Aldicarb sulfone					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Aldrin	5.2E+02	8.5E-02	3.8E-02	2.6E-02	6.2E+04	5.4E+00	2.3E+00	1.6E+00
Ally					5.1E+08	4.5E+04	2.0E+04	1.4E+04
Allyl alcohol					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Allyl chloride					5.9E+05	9.0E+03	3.9E+03	2.7E+03
Aluminum						1.8E+06	7.8E+04	7.5E+04
Aluminum phosphide						7.2E+02	3.1E+01	3.0E+01
Amdro					6.2E+05	5.4E+01	2.3E+01	1.6E+01
Ametryn					1.9E+07	1.6E+03	7.0E+02	4.9E+02
m-Aminophenol					1.4E+08	1.3E+04	5.5E+03	3.8E+03
4-Aminopyridine					4.1E+04	3.6E+00	1.6E+00	1.1E+00
Amitraz					5.1E+06	4.5E+02	2.0E+02	1.4E+02
Ammonia								
Ammonium sulfamate						3.6E+04	1.6E+04	1.1E+04
Aniline	1.6E+06	2.5E+02	1.1E+02	7.8E+01	5.9E+05	1.3E+03	5.5E+02	3.8E+02
Antimony and compounds						7.2E+02	3.1E+01	3.0E+01
Antimony pentoxide						9.0E+02	3.9E+01	3.7E+01
Antimony potassium tartrate						1.6E+03	7.0E+01	6.7E+01
Antimony tetroxide						7.2E+02	3.1E+01	3.0E+01
Antimony trioxide						7.2E+02	3.1E+01	3.0E+01
Apollo					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Aramite	3.6E+05	5.8E+01	2.6E+01	1.8E+01	1.0E+08	9.0E+03	3.9E+03	2.7E+03
Arsenic (noncancer endpoint)						1.8E+02	2.3E+01	2.1E+01
Arsenic (cancer endpoint)	5.9E+02	3.2E+00	4.3E-01	3.8E-01		1.8E+02	2.3E+01	2.1E+01
Arsine								
Assure					1.9E+07	1.6E+03	7.0E+02	4.9E+02
Asulam					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Atrazine	4.0E+04	6.5E+00	2.9E+00	2.0E+00	7.2E+07	6.3E+03	2.7E+03	1.9E+03
Avermectin B1					8.2E+05	7.2E+01	3.1E+01	2.2E+01
Azobenzene	8.2E+04	1.3E+01	5.8E+00	4.0E+00				
Barium and compounds					2.9E+05	1.3E+05	5.5E+03	5.2E+03
Baygon					8.2E+06	7.2E+02	3.1E+02	2.2E+02
Bayleton					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Baythroid					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Benefin					6.2E+08	5.4E+04	2.3E+04	1.6E+04
Benomyl					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Bentazon					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Benzaldehyde					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Benzene	6.5E-01	5.0E+01	2.2E+01	6.2E-01	7.5E+00	5.4E+02	2.3E+02	7.1E+00
Benzidine	3.8E+01	6.3E-03	2.8E-03	1.9E-03	6.2E+06	5.4E+02	2.3E+02	1.6E+02
Benzoic acid					8.2E+09	7.2E+05	3.1E+05	2.2E+05
Benzotrichloride	6.8E+02	1.1E-01	4.9E-02	3.4E-02				
Benzyl alcohol					6.2E+08	5.4E+04	2.3E+04	1.6E+04
Benzyl chloride	1.2E+00	8.5E+00	3.8E+00	8.1E-01				
Beryllium and compounds	1.1E+03			1.1E+03	1.2E+04	3.6E+03	1.6E+02	1.5E+02
Bidrin					2.1E+05	1.8E+01	7.8E+00	5.5E+00
Biphenthrin (Talstar)					3.1E+07	2.7E+03	1.2E+03	8.2E+02
1,1-Biphenyl					1.3E+04	9.0E+03	3.9E+03	2.3E+03
Bis(2-chloroethyl)ether	3.3E-01	1.3E+00	5.8E-01	1.8E-01				
Bis(2-chloroisopropyl)ether	4.2E+00	2.1E+01	9.1E+00	2.5E+00	1.4E+03	7.2E+03	3.1E+03	8.4E+02
Bis(chloromethyl)ether	2.1E-04	6.6E-03	2.9E-03	1.9E-04				
Bis(2-chloro-1-methylethyl)ether	2.5E+05	2.1E+01	9.1E+00	6.3E+00				
Bis(2-ethylhexyl)phthalate (DEHP)	6.3E+05	1.0E+02	4.6E+01	3.2E+01	4.5E+07	3.6E+03	1.6E+03	1.1E+03
Bisphenol A					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Boron					1.2E+07	1.6E+04	7.0E+03	4.9E+03
Boron trifluoride					4.1E+05			4.1E+05
Bromobenzene					2.8E+01	3.6E+03	1.6E+03	2.8E+01
Bromodichloromethane	1.1E+00	2.3E+01	1.0E+01	9.8E-01	3.3E+02	3.6E+03	1.6E+03	2.5E+02
Bromoform (tribromomethane)	2.3E+06	1.8E+02	8.1E+01	5.6E+01	4.1E+07	3.6E+03	1.6E+03	1.1E+03
Bromomethane					4.0E+00	2.5E+02	1.1E+02	3.8E+00
4-Bromophenyl phenyl ether								
Bromophos					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Bromoxynil					4.1E+07	3.6E+03	1.6E+03	1.1E+03

Contaminant								
Bromoxynil octanoate					4.1E+07	3.6E+03	1.6E+03	1.1E+03
1,3-Butadiene	6.6E-03	1.5E+00	6.5E-01	6.5E-03				
1-Butanol					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Butylate					1.0E+08	9.0E+03	3.9E+03	2.7E+03
n-Butylbenzene					1.8E+02	1.8E+03	7.8E+02	1.3E+02
sec-Butylbenzene					1.3E+02	1.8E+03	7.8E+02	1.1E+02
tert-Butylbenzene					1.6E+02	1.8E+03	7.8E+02	1.2E+02
Butyl benzyl phthalate					4.1E+08	3.6E+04	1.6E+04	1.1E+04
Butylphthalyl butylglycolate					2.1E+09	1.8E+05	7.8E+04	5.5E+04
Cacodylic acid					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Cadmium and compounds	1.4E+03			1.4E+03	1.2E+05	9.0E+02	3.9E+01	3.7E+01
Caprolactam					1.0E+09	9.0E+04	3.9E+04	2.7E+04
Captafol	1.0E+06	1.7E+02	7.4E+01	5.2E+01	4.1E+06	3.6E+02	1.6E+02	1.1E+02
Captan	2.5E+06	4.1E+02	1.8E+02	1.3E+02	2.7E+08	2.3E+04	1.0E+04	7.1E+03
Carbaryl					2.3E+08	1.8E+04	7.8E+03	5.5E+03
Carbazole	4.4E+05	7.2E+01	3.2E+01	2.2E+01				
Carbofuran					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Carbon disulfide					3.7E+02	1.8E+04	7.8E+03	3.5E+02
Carbon tetrachloride	2.5E-01	1.1E+01	4.9E+00	2.3E-01	1.8E+00	1.3E+02	5.5E-01	1.7E+00
Carbosulfan					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Carboxin					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Chloral					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Chloramben					3.1E+07	2.7E+03	1.2E+03	8.2E+02
Chloranil	2.2E+04	3.6E+00	1.6E+00	1.1E+00				
Chlordane	2.5E+04	1.0E+01	1.8E+00	1.6E+00	4.7E+04	2.2E+02	3.9E+01	3.3E+01
Chlorimuron-ethyl					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Chlorine						1.8E+05	7.8E+03	7.5E+03
Chlorine dioxide								
Chloroacetaldehyde								
Chloroacetic acid					4.1E+06	3.6E+02	1.6E+02	1.1E+02
2-Chloroacetophenone					3.4E-02	1.5E+00	6.7E-01	3.2E-02
4-Chloroaniline					8.2E+06	7.2E+02	3.1E+02	2.2E+02
Chlorobenzene					5.7E+01	3.6E+03	1.6E+03	5.4E+01
Chlorobenzilate	3.3E+04	5.4E+00	2.4E+00	1.6E+00	4.1E+07	3.6E+03	1.6E+03	1.1E+03
p-Chlorobenzoic acid					4.1E+08	3.6E+04	1.6E+04	1.1E+04
4-Chlorobenzotrifluoride					4.1E+07	3.6E+03	1.6E+03	1.1E+03
2-Chloro-1,3-butadiene					3.6E+00	3.6E+03	1.6E+03	3.6E+00
1-Chlorobutane					7.3E+02	7.2E+04	3.1E+04	7.0E+02
1-Chloro-1,1-difluoroethane					2.4E+04	2.6E+06	1.1E+06	2.3E+04
Chlorodifluoromethane					2.3E+04	2.5E+06	1.1E+06	2.3E+04
2-Chloroethyl vinyl ether								
Chloroform	2.5E-01	2.4E+02	1.0E+02	2.4E-01	4.6E+01	1.8E+03	7.8E+02	4.2E+01
Chloromethane	1.3E+00	1.1E+02	4.9E+01	1.2E+00				
4-Chloro-2-methylaniline	1.5E+04	2.5E+00	1.1E+00	7.7E-01				
4-Chloro-2-methylaniline hydrochloride	1.9E+04	3.1E+00	1.4E+00	9.7E-01				
beta-Chloronaphthalene					1.0E+04	1.4E+04	6.3E+03	3.0E+03
o-Chloronitrobenzene	3.5E+05	5.8E+01	2.6E+01	1.8E+01				
p-Chloronitrobenzene	4.9E+05	8.0E+01	3.6E+01	2.5E+01				
2-Chlorophenol					7.6E+01	9.0E+02	3.9E+02	5.9E+01
2-Chloropropane					1.8E+02	5.2E+03	2.3E+03	1.7E+02
Chlorothalonil	8.0E+05	1.3E+02	5.8E+01	4.0E+01	3.1E+07	2.7E+03	1.2E+03	8.2E+02
o-Chlorotoluene					1.8E+02	3.6E+03	1.6E+03	1.5E+02
Chlorpropham					4.1E+08	3.6E+04	1.6E+04	1.1E+04
Chlorpyrifos					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Chlorpyrifos-methyl					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Chlorsulfuron					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Chlorthiophos					1.6E+06	1.4E+02	6.3E+01	4.4E+01
Total Chromium (1/6 ratio Cr VI/Cr III)	2.1E+02			2.1E+02				
Chromium VI	3.0E+01			3.0E+01		9.0E+03	3.9E+02	3.7E+02
Cobalt					1.2E+04	1.1E+05	4.7E+03	3.3E+03
Coke Oven Emissions	4.1E+03			4.1E+03				
Copper and compounds						6.7E+04	2.9E+03	2.8E+03
Crotonaldehyde	5.4E-02	7.6E+00	3.4E+00	5.3E-02	2.4E+01	1.8E+03	7.8E+02	2.3E+01
Cumene (isopropylbenzene)					1.6E+02	1.8E+04	7.8E+03	1.6E+02
Cyanazine	1.1E+04	1.7E+00	7.6E-01	5.3E-01	4.1E+06	3.6E+02	1.6E+02	1.1E+02
Cyanides								
Barium cyanide						1.8E+04	7.8E+03	5.5E+03
Calcium cyanide						7.2E+03	3.1E+03	2.2E+03
Copper cyanide						9.0E+02	3.9E+02	2.7E+02
Cyanogen						7.2E+03	3.1E+03	2.2E+03
Cyanogen bromide						1.6E+04	7.0E+03	4.9E+03
Cyanogen chloride						9.0E+03	3.9E+03	2.7E+03
Free cyanide						3.6E+03	1.6E+03	1.1E+03
Hydrogen cyanide					1.1E+01	3.6E+03	1.6E+03	1.1E+01
Potassium cyanide						9.0E+03	3.9E+03	2.7E+03
Potassium silver cyanide						3.6E+04	1.6E+04	1.1E+04
Silver cyanide						1.8E+04	7.8E+03	5.5E+03
Sodium cyanide						7.2E+03	3.1E+03	2.2E+03
Zinc cyanide						9.0E+03	3.9E+03	2.7E+03
Cyclohexanone					1.0E+10	9.0E+05	3.9E+05	2.7E+05
Cyclohexylamine					4.1E+08	3.6E+04	1.6E+04	1.1E+04
Cyhalothrin/Karate					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Cypermethrin					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Cyromazine					1.5E+07	1.3E+03	5.9E+02	4.1E+02

Contaminant								
Dacthal					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Dalapon					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Danitol					5.1E+07	4.5E+03	2.0E+03	1.4E+03
DDD	3.7E+04	2.0E+01	2.7E+00	2.4E+00				
DDE	2.6E+04	1.4E+01	1.9E+00	1.7E+00				
DDT	2.6E+04	1.4E+01	1.9E+00	1.7E+00	1.0E+06	3.0E+02	3.9E+01	3.5E+01
Decabromodiphenyl ether					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Demeton					8.2E+04	7.2E+00	3.1E+00	2.2E+00
Diallate	1.5E+05	2.4E+01	1.0E+01	7.3E+00				
Diazinon					1.9E+06	1.6E+02	7.0E+01	4.9E+01
Dibenzofuran					4.1E+03	7.2E+02	3.1E+02	2.1E+02
1,4-Dibromobenzene					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Dibromochloromethane	1.1E+05	1.7E+01	7.6E+00	5.3E+00	4.1E+07	3.6E+03	1.6E+03	1.1E+03
1,2-Dibromo-3-chloropropane	3.7E+06	1.0E+00	4.6E-01	3.2E-01	1.2E+05	1.0E+01	4.5E+00	3.1E+00
1,2-Dibromoethane	8.1E-02	1.7E-02	7.5E-03	4.9E-03	8.2E-01	1.0E+01	4.5E+00	6.5E-01
Dibutyl phthalate					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Dicamba					6.2E+07	5.4E+03	2.3E+03	1.6E+03
1,2-Dichlorobenzene					1.0E+03	1.6E+04	7.0E+03	8.6E+02
1,3-Dichlorobenzene					4.2E+01	5.4E+03	2.3E+03	4.1E+01
1,4-Dichlorobenzene	3.6E+00	6.0E+01	2.7E+01	3.0E+00	4.6E+03	3.6E+04	1.6E+04	3.3E+03
3,3-Dichlorobenzidine	2.0E+04	3.2E+00	1.4E+00	9.9E-01				
1,4-Dichloro-2-butene	9.0E-03	1.6E-01	6.9E-02	7.5E-03				
Dichlorodifluoromethane					9.5E+01	3.6E+04	1.6E+04	9.4E+01
1,1-Dichloroethane					6.4E+02	1.8E+04	7.8E+03	5.7E+02
1,2-Dichloroethane (EDC)	3.6E-01	1.6E+01	7.0E+00	3.4E-01	2.2E+01	5.1E+02	2.2E+02	1.9E+01
1,1-Dichloroethylene	5.7E-01	2.4E+01	1.1E+01	5.3E-01	2.1E+01	1.6E+03	7.0E+02	2.0E+01
1,2-Dichloroethylene (cis)					4.6E+01	1.8E+03	7.8E+02	4.2E+01
1,2-Dichloroethylene (trans)					6.6E+01	3.6E+03	1.6E+03	6.2E+01
2,4-Dichlorophenol					6.2E+06	5.4E+02	2.3E+02	1.6E+02
4-(2,4-Dichlorophenoxy)butyric Acid (2,4					1.6E+07	1.4E+03	6.3E+02	4.4E+02
2,4-Dichlorophenoxyacetic Acid (2,4-D)					2.1E+07	3.6E+03	7.8E+02	6.4E+02
1,2-Dichloropropane	3.6E-01	2.1E+01	9.4E+00	3.5E-01	6.6E+00	2.0E+02	8.6E+01	5.9E+00
1,3-Dichloropropene	8.4E-02	8.0E+00	3.6E+00	8.1E-02	1.5E+01	5.4E+01	2.3E+01	7.7E+00
2,3-Dichloropropanol					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Dichlorvos	3.1E+04	5.0E+00	2.2E+00	1.5E+00	2.9E+05	9.0E+01	3.9E+01	2.7E+01
Dicofol	2.0E+04	3.3E+00	1.5E+00	1.0E+00				
Dicyclopentadiene					5.5E-01	5.4E+03	2.3E+03	5.5E-01
Dieldrin	5.5E+02	9.1E-02	4.0E-02	2.8E-02	1.0E+05	9.0E+00	3.9E+00	2.7E+00
Diethylene glycol, monobutyl ether					1.2E+07	1.0E+03	4.5E+02	3.1E+02
Diethylene glycol, monoethyl ether					4.1E+09	3.6E+05	1.6E+05	1.1E+05
Diethylformamide					2.3E+07	2.0E+03	8.6E+02	6.0E+02
Di(2-ethylhexyl)adipate	7.4E+06	1.2E+03	5.3E+02	3.7E+02	1.2E+09	1.1E+05	4.7E+04	3.3E+04
Diethyl phthalate					1.6E+09	1.4E+05	6.3E+04	4.4E+04
Diethylstilbestrol	1.9E+00	3.1E-04	1.4E-04	9.4E-05				
Difenzoquat (Avenge)					1.6E+08	1.4E+04	6.3E+03	4.4E+03
Diflubenzuron					4.1E+07	3.6E+03	1.6E+03	1.1E+03
1,1-Difluoroethane						2.0E+06	8.9E+05	6.2E+05
Diisopropyl methylphosphonate					1.6E+08	1.4E+04	6.3E+03	4.4E+03
Dimethipin					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Dimethoate					4.1E+05	3.6E+01	1.6E+01	1.1E+01
3,3'-Dimethoxybenzidine	6.3E+05	1.0E+02	4.6E+01	3.2E+01				
Dimethylamine					7.9E-02	1.0E+00	4.5E-01	6.3E-02
N-N-Dimethylaniline					4.1E+06	3.6E+02	1.6E+02	1.1E+02
2,4-Dimethylaniline	1.2E+04	1.9E+00	8.5E-01	5.9E-01				
2,4-Dimethylaniline hydrochloride	1.5E+04	2.5E+00	1.1E+00	7.7E-01				
3,3'-Dimethylbenzidine	9.6E+02	1.6E-01	7.0E-02	4.8E-02				
1,1-Dimethylhydrazine	2.5E+03	5.6E-01	2.5E-01	1.7E-01				
1,2-Dimethylhydrazine	2.4E+02	3.9E-02	1.7E-02	1.2E-02				
N,N-Dimethylformamide					1.8E+07	1.8E+04	7.8E+03	5.4E+03
Dimethylphenethylamine					2.1E+06	1.8E+02	7.8E+01	5.5E+01
2,4-Dimethylphenol					4.1E+07	3.6E+03	1.6E+03	1.1E+03
2,6-Dimethylphenol					1.2E+06	1.1E+02	4.7E+01	3.3E+01
3,4-Dimethylphenol					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Dimethyl phthalate					2.1E+10	1.8E+06	7.8E+05	5.5E+05
Dimethyl terephthalate					2.1E+08	1.8E+04	7.8E+03	5.5E+03
4,6-Dinitro-o-cyclohexyl phenol					4.1E+06	3.6E+02	1.6E+02	1.1E+02
1,2-Dinitrobenzene					8.2E+05	7.2E+01	3.1E+01	2.2E+01
1,3-Dinitrobenzene					2.1E+05	1.8E+01	7.8E+00	5.5E+00
1,4-Dinitrobenzene					8.2E+05	7.2E+01	3.1E+01	2.2E+01
2,4-Dinitrophenol					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Dinitrotoluene mixture	1.3E+04	2.1E+00	9.4E-01	6.5E-01				
2,4-Dinitrotoluene					4.1E+06	3.6E+02	1.6E+02	1.1E+02
2,6-Dinitrotoluene					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Dinoseb					2.1E+06	1.8E+02	7.8E+01	5.5E+01
di-n-Octyl phthalate					4.1E+07	3.6E+03	1.6E+03	1.1E+03
1,4-Dioxane	8.0E+05	1.3E+02	5.8E+01	4.0E+01				
Dioxin (2,3,7,8-TCDD)	5.9E-02	3.2E-05	4.3E-06	3.8E-06				
Diphenamid					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Diphenylamine					5.1E+07	4.5E+03	2.0E+03	1.4E+03
1,2-Diphenylhydrazine	1.1E+04	1.8E+00	8.0E-01	5.6E-01				
Diphenyl sulfone					1.9E+07	1.6E+03	7.0E+02	4.9E+02
Diquat					4.5E+06	4.0E+02	1.7E+02	1.2E+02
Direct black 38	1.0E+03	1.7E-01	7.4E-02	5.2E-02				
Direct blue 6	1.1E+03	1.8E-01	7.9E-02	5.5E-02				

Contaminants								
Direct brown 95	9 5E+02	1.6E-01	6.9E-02	4 8E-02				
Disulfoton					8.2E+04	7.2E+00	3.1E+00	2.2E+00
1,4-Dithiane					2 1E+07	1.8E+03	7 8E+02	5 5E+02
Diuron					4 1E+06	3 6E+02	1 6E+02	1.1E+02
Dodine					8 2E+06	7.2E+02	3 1E+02	2.2E+02
Endosulfan					1 2E+07	1.1E+03	4.7E+02	3 3E+02
Endothall					4 1E+07	3 6E+03	1 6E+03	1.1E+03
Endrin					6.2E+05	5 4E+01	2.3E+01	1.6E+01
Epichlorohydrin	2.9E+01	1 5E+02	6.5E+01	1 7E+01	8 0E+00	3.6E+02	1 6E+02	7 4E+00
1,2-Epoxybutane					1.2E+07	1.0E+03	4.5E+02	3.1E+02
EPTC (S-Ethyl dipropylthiocarbamate)					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Ethephon (2-chloroethyl phosphonic aci					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Ethion					1 0E+06	9.0E+01	3.9E+01	2.7E+01
2-Ethoxyethanol					1 2E+08	7.2E+04	3 1E+04	2.2E+04
2-Ethoxyethanol acetate					6.2E+08	5.4E+04	2.3E+04	1 6E+04
Ethyl acetate					2 6E+04	1.6E+05	7 0E+04	1.7E+04
Ethyl acrylate	2 1E-01	3 0E+01	1.3E+01	2.1E-01				
Ethylbenzene					1 9E+03	1 8E+04	7 8E+03	1.4E+03
Ethyl chloride					5.9E+03	7 2E+04	3.1E+04	4 7E+03
Ethylene cyanohydrin					6 2E+08	5 4E+04	2.3E+04	1 6E+04
Ethylene diamine					4 1E+07	3.6E+03	1 6E+03	1 1E+03
Ethylene glycol					4 1E+09	3.6E+05	1.6E+05	1.1E+05
Ethylene glycol, monobutyl ether					1 2E+07	1.0E+03	4.5E+02	3 1E+02
Ethylene oxide	1.8E-01	1 4E+00	6.3E-01	1.3E-01				
Ethylene thiourea (ETU)	8.0E+04	1.3E+01	5.8E+00	4.0E+00	1.6E+05	1.4E+01	6 3E+00	4 4E+00
Ethyl ether					1.2E+04	3.6E+04	1.6E+04	5.7E+03
Ethyl methacrylate					2.1E+02	1.6E+04	7 0E+03	2.1E+02
Ethyl p-nitrophenyl phenylphosphorothio					2.1E+04	1.8E+00	7 8E-01	5.5E-01
Ethylphthalyl ethyl glycolate					6.2E+09	5 4E+05	2.3E+05	1.6E+05
Express					1.6E+07	1.4E+03	6 3E+02	4.4E+02
Fenamiphos					5.1E+05	4.5E+01	2.0E+01	1.4E+01
Fluometuron					2.7E+07	2 3E+03	1.0E+03	7.1E+02
Fluoride						1 1E+04	4.7E+03	3.3E+03
Fluoridone					1.6E+08	1.4E+04	6.3E+03	4.4E+03
Flurprimidol					4 1E+07	3.6E+03	1.6E+03	1.1E+03
Flutolanil					1.2E+08	1.1E+04	4.7E+03	3.3E+03
Fluvalinate					2.1E+07	1.8E+03	7 8E+02	5.5E+02
Folpet	2.5E+06	4.1E+02	1.8E+02	1.3E+02	2.1E+08	1.8E+04	7.8E+03	5.5E+03
Fomesafen	4.7E+05	7.6E+01	3.4E+01	2.3E+01				
Fonofos					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Formaldehyde	1.9E+05			1.9E+05		2.7E+04	1.2E+04	8.2E+03
Formic Acid					4.1E+09	3.6E+05	1.6E+05	1.1E+05
Fosetyl-al					6.2E+09	5.4E+05	2.3E+05	1.6E+05
Furan					2.6E+00	1.8E+02	7.8E+01	2.5E+00
Furazolidone	2.3E+03	3.8E-01	1.7E-01	1 2E-01				
Furfural					2.9E+07	5.4E+02	2.3E+02	1.6E+02
Furium	1 8E+02	2.9E-02	1.3E-02	8.9E-03				
Furmecyclox	2.9E+05	4.8E+01	2.1E+01	1 5E+01				
Glufosinate-ammonium					8.2E+05	7.2E+01	3.1E+01	2.2E+01
Glycidaldehyde					5.9E+05	7.2E+01	3.1E+01	2.2E+01
Glyphosate					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Haloxyfop-methyl					1.0E+05	9.0E+00	3.9E+00	2.7E+00
Harmony					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Heptachlor	1.9E+03	3.2E-01	1.4E-01	9.9E-02	1.0E+06	9.0E+01	3.9E+01	2.7E+01
Heptachlor epoxide	9.7E+02	1.6E-01	7.0E-02	4.9E-02	2.7E+04	2.3E+00	1.0E+00	7.1E-01
Hexabromobenzene					4.1E+08	3.6E+02	1.6E+02	1.1E+02
Hexachlorobenzene	5.5E+03	9.1E-01	4.0E-01	2.8E-01	1.6E+06	1.4E+02	6.3E+01	4.4E+01
Hexachlorobutadiene	1.1E+06	1.9E+02	8.2E+01	5.7E+01	4.1E+05	3.6E+01	1.6E+01	1.1E+01
HCH (alpha)	1.4E+03	5.7E-01	1.0E-01	8.6E-02				
HCH (beta)	4.9E+04	2.0E+01	3.6E+00	3.0E+00				
HCH (gamma) Lindane	6.8E+03	2.8E+00	4.9E-01	4.2E-01	6.2E+05	1.3E+02	2.3E+01	2.0E+01
HCH-technical	5.0E+03	2.0E+00	3.6E-01	3.0E-01				
Hexachlorocyclopentadiene					4 1E+04	1 3E+03	5 5E+02	3.8E+02
Hexachlorodibenzo-p-dioxin mixture (Hx	1.9E+00	2.3E-04	1.0E-04	7.2E-05				
Hexachloroethane	6 3E+06	1 0E+03	4.6E+02	3 2E+02	2 1E+06	1.8E+02	7.8E+01	5 5E+01
Hexachlorophene					6 2E+05	5 4E+01	2.3E+01	1 6E+01
Hexahydro-1,3,5-trinitro-1,3,5-triazine	8 0E+05	1.3E+02	5 8E+01	4 0E+01	6 2E+06	5.4E+02	2 3E+02	1.6E+02
1,6-Hexamethylene diisocyanate					5 9E+03	5.1E-01	2 2E-01	1 6E-01
n-Hexane					1 2E+02	1 1E+04	4.7E+03	1.2E+02
Hexazinone					6 8E+07	5 9E+03	2.6E+03	1 8E+03
Hydrazine, hydrazine sulfate	5 2E+02	4 8E-01	2 1E-01	1 5E-01				
Hydrogen chloride					1 2E+07			1 2E+07
Hydrogen sulfide						5 4E+02	2 3E+02	1 6E+02
p-Hydroquinone					8 2E+07	7 2E+03	3 1E+03	2.2E+03
Imazalil					2 7E+07	2.3E+03	1 0E+03	7 1E+02
Imazaquin					5 1E+08	4 5E+04	2 0E+04	1 4E+04
Iprodione					8 2E+07	7.2E+03	3 1E+03	2.2E+03
Iron						5 4E+05	2 3E+04	2 2E+04
Isobutanol					2.7E+04	5.4E+04	2.3E+04	1.0E+04
Isophorone	9 3E+07	1.5E+04	6.7E+03	4 7E+03	4 1E+08	3 6E+04	1 6E+04	1 1E+04
Isopropalin					3 1E+07	2.7E+03	1 2E+03	8.2E+02
Isopropyl methyl phosphonic acid					2 3E+08	1.8E+04	7 8E+03	5.5E+03
Isoxaben					1 0E+08	9 0E+03	3 9E+03	2.7E+03
Kepone	4 9E+02	8 0E-02	3 6E-02	2 5E-02				

Lactofen					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Lead								
Lead (tetraethyl)						1.8E-02	7.8E-03	5.5E-03
Linuron					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Lithium						3.6E+04	1.6E+03	1.5E+03
Londax					4.1E+08	3.6E+04	1.6E+04	1.1E+04
Malathion					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Maleic anhydride					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Maleic hydrazide					1.7E+03	9.0E+04	3.9E+04	1.6E+03
Malononitrile					4.1E+04	3.6E+00	1.6E+00	1.1E+00
Mancozeb					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Maneb	1.5E+05	2.4E+01	1.1E+01	7.4E+00	1.0E+07	9.0E+02	3.9E+02	2.7E+02
Manganese and compounds					2.9E+04	8.4E+04	3.6E+03	3.1E+03
Mephosfolan					1.9E+05	1.6E+01	7.0E+00	4.9E+00
Mepiquat					6.2E+07	5.4E+03	2.3E+03	1.6E+03
2-Mercaptobenzothiazole	3.1E+05	5.0E+01	2.2E+01	1.5E+01	2.1E+08	1.8E+04	7.8E+03	5.5E+03
Mercury and compounds						5.4E+02	2.3E+01	2.2E+01
Mercury (elemental)								
Mercury (methyl)						1.8E+01	7.8E+00	5.5E+00
Merphos					6.2E+04	5.4E+00	2.3E+00	1.6E+00
Merphos oxide					6.2E+04	5.4E+00	2.3E+00	1.6E+00
Metalaxyl					1.2E+08	1.1E+04	4.7E+03	3.3E+03
Methacrylonitrile					2.8E+00	1.8E+01	7.8E+00	1.9E+00
Methamidophos					1.0E+05	9.0E+00	3.9E+00	2.7E+00
Methanol					1.0E+09	9.0E+04	3.9E+04	2.7E+04
Methidathion					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Methomyl					4.5E+01	4.5E+03	2.0E+03	4.4E+01
Methoxychlor					1.0E+07	9.0E+02	3.9E+02	2.7E+02
2-Methoxyethanol					1.2E+07	1.8E+02	7.8E+01	5.5E+01
2-Methoxyethanol acetate					4.1E+06	3.6E+02	1.6E+02	1.1E+02
2-Methoxy-5-nitroaniline	1.9E+05	3.1E+01	1.4E+01	9.7E+00				
Methyl acetate					3.1E+04	1.8E+05	7.8E+04	2.0E+04
Methyl acrylate					7.2E+01	5.4E+03	2.3E+03	6.9E+01
2-Methylaniline (o-toluidine)	3.7E+04	6.0E+00	2.7E+00	1.9E+00				
2-Methylaniline hydrochloride	4.9E+04	8.0E+00	3.6E+00	2.5E+00				
Methyl chlorocarbonate					2.1E+09	1.8E+05	7.8E+04	5.5E+04
2-Methyl-4-chlorophenoxyacetic acid					1.0E+06	9.0E+01	3.9E+01	2.7E+01
4-(2-Methyl-4-chlorophenoxy) butyric aci					2.1E+07	1.8E+03	7.8E+02	5.5E+02
2-(2-Methyl-4-chlorophenoxy) propionic					2.1E+06	1.8E+02	7.8E+01	5.5E+01
2-(2-Methyl-1,4-chlorophenoxy) propionic					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Methylcyclohexane					1.8E+09	1.5E+05	6.7E+04	4.7E+04
4,4'-Methylenebisbenzeneamine	3.5E+04	5.8E+00	2.6E+00	1.8E+00				
4,4'-Methylene bis(2-chloroaniline)	6.8E+04	1.1E+01	4.9E+00	3.4E+00	1.4E+06	1.3E+02	5.5E+01	3.8E+01
4,4'-Methylene bis(N,N'-dimethyl)aniline	1.9E+05	3.1E+01	1.4E+01	9.7E+00				
Methylene bromide					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Methylene chloride	9.9E+00	1.9E+02	8.5E+01	8.5E+00	3.3E+03	1.1E+04	4.7E+03	1.6E+03
4,4'-Methylenediphenyl isocyanate					3.5E+05	3.1E+01	1.3E+01	9.3E+00
Methyl ethyl ketone					8.7E+03	1.1E+05	4.7E+04	6.9E+03
Methyl hydrazine	8.0E+03	1.3E+00	5.8E-01	4.0E-01				
Methyl isobutyl ketone					9.0E+02	1.4E+04	6.3E+03	7.5E+02
Methyl mercaptan					1.2E+06	1.0E+02	4.5E+01	3.1E+01
Methyl methacrylate					2.2E+03	2.5E+05	1.1E+05	2.2E+03
2-Methyl-5-nitroaniline	2.7E+05	4.4E+01	1.9E+01	1.3E+01				
Methyl parathion					5.1E+05	4.5E+01	2.0E+01	1.4E+01
2-Methylphenol					1.0E+08	9.0E+03	3.9E+03	2.7E+03
3-Methylphenol					1.0E+08	9.0E+03	3.9E+03	2.7E+03
4-Methylphenol					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Methyl phosphonic acid					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Methyl styrene (mixture)					1.8E+02	1.1E+03	4.7E+02	1.2E+02
Methyl styrene (alpha)					1.1E+03	1.3E+04	5.5E+03	8.6E+02
Methyl tertbutyl ether (MTBE)								
Metolaclor (Dual)					3.1E+08	2.7E+04	1.2E+04	8.2E+03
Metribuzin					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Mirex	4.9E+03	8.0E-01	3.6E-01	2.5E-01	4.1E+05	3.6E+01	1.6E+01	1.1E+01
Molinate					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Molybdenum						9.0E+03	3.9E+02	3.7E+02
Monochloramine					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Naled					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Napropamide					2.1E+08	1.8E+04	7.8E+03	5.5E+03
Nickel and compounds						3.6E+04	1.6E+03	1.5E+03
Nickel refinery dust	1.1E+04			1.1E+04				
Nickel subsulfide	5.2E+03			5.2E+03				
Nitrapyrin					3.1E+06	2.7E+02	1.2E+02	8.2E+01
Nitrate								
Nitric Oxide						1.8E+04	7.8E+03	5.5E+03
Nitrite								
2-Nitroaniline					1.2E+05	1.1E+01	4.7E+00	3.3E+00
3-Nitroaniline								
4-Nitroaniline								
Nitrobenzene					4.0E+01	9.0E+01	3.9E+01	1.6E+01
Nitrofurantoin					1.4E+08	1.3E+04	5.5E+03	3.8E+03
Nitrofurazone	9.4E+02	9.7E-01	4.3E-01	3.0E-01				
Nitrogen dioxide						1.8E+05	7.8E+04	5.5E+04
Nitroguanidine					2.1E+08	1.8E+04	7.8E+03	5.5E+03

4-Nitrophenol					1.3E+08	1.1E+04	4.8E+03	3.4E+03
2-Nitropropane		1.5E-01	6.8E-02	4.7E-02		1.0E+03	4.5E+02	3.1E+02
N-Nitrosodi-n-butylamine	3.1E-02	2.7E-01	1.2E-01	2.2E-02				
N-Nitrosodiethanolamine	3.2E+03	5.2E-01	2.3E-01	1.6E-01				
N-Nitrosodiethylamine	5.9E+01	9.7E-03	4.3E-03	3.0E-03				
N-Nitrosodimethylamine	1.8E+02	2.8E-02	1.3E-02	8.7E-03				
N-Nitrosodiphenylamine	1.8E+06	3.0E+02	1.3E+02	9.1E+01				
N-Nitroso di-n-propylamine	1.3E+03	2.1E-01	9.1E-02	6.3E-02				
N-Nitroso-N-methylethylamine	4.0E+02	6.6E-02	2.9E-02	2.0E-02				
N-Nitrosopyrrolidine	4.1E+03	6.9E-01	3.0E-01	2.1E-01				
m-Nitrotoluene					2.1E+07	1.8E+03	7.8E+02	5.5E+02
o-Nitrotoluene					2.1E+07	1.8E+03	7.8E+02	5.5E+02
p-Nitrotoluene					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Norflurazon					8.2E+07	7.2E+03	3.1E+03	2.2E+03
NuStar					1.4E+06	1.3E+02	5.5E+01	3.8E+01
Octabromodiphenyl ether					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Octahydro-1357-tetranitro-1357- tetrazoc					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Octamethylpyrophosphoramide					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Oryzalin					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Oxadiazon					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Oxamyl					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Oxyfluorfen					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Paclobutrazol					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Paraquat					9.3E+06	8.1E+02	3.5E+02	2.5E+02
Parathion					1.2E+07	1.1E+03	4.7E+02	3.3E+02
Pebulate					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Pendimethalin					8.2E+07	7.2E+03	3.1E+03	2.2E+03
Pentabromo-6-chloro cyclohexane	3.8E+05	6.3E+01	2.8E+01	1.9E+01				
Pentabromodiphenyl ether					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Pentachlorobenzene					1.6E+06	1.4E+02	6.3E+01	4.4E+01
Pentachloronitrobenzene	3.4E+04	5.6E+00	2.5E+00	1.7E+00	6.2E+06	5.4E+02	2.3E+02	1.6E+02
Pentachlorophenol	7.4E+04	4.8E+00	5.3E+00	2.5E+00	6.2E+07	2.2E+03	2.3E+03	1.1E+03
Perchlorate						9.0E+02	3.9E+01	3.7E+01
Permethrin					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Phenmedipham					5.1E+08	4.5E+04	2.0E+04	1.4E+04
Phenol					1.2E+09	1.1E+05	4.7E+04	3.3E+04
Phenothiazine					4.1E+06	3.6E+02	1.6E+02	1.1E+02
m-Phenylenediamine					1.2E+07	1.1E+03	4.7E+02	3.3E+02
p-Phenylenediamine					3.9E+08	3.4E+04	1.5E+04	1.0E+04
Phenylmercuric acetate					1.6E+05	1.4E+01	6.3E+00	4.4E+00
2-Phenylphenol	4.7E+06	7.5E+02	3.3E+02	2.3E+02				
Phorate					4.1E+05	3.6E+01	1.6E+01	1.1E+01
Phosmet					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Phosphine					1.8E+05	5.4E+01	2.3E+01	1.6E+01
Phosphoric acid					#VALUE!			
Phosphorus (white)						3.6E+01	1.6E+00	1.5E+00
p-Phthalic acid					2.1E+09	1.8E+05	7.8E+04	5.5E+04
Phthalic anhydride					7.0E+07	3.6E+05	1.6E+05	1.1E+05
Picloram					1.4E+08	1.3E+04	5.5E+03	3.8E+03
Pirimiphos-methyl					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Polybrominated biphenyls	9.9E+02	1.6E-01	7.2E-02	5.0E-02	1.4E+04	1.3E+00	5.5E-01	3.8E-01
Polychlorinated biphenyls (PCBs)	4.4E+03	5.2E-01	3.2E-01	2.0E-01				
Aroclor 1016					1.4E+05	9.0E+00	5.5E+00	3.4E+00
Aroclor 1254					4.1E+04	2.6E+00	1.6E+00	9.7E-01
Polynuclear aromatic hydrocarbons								
Acenaphthene					1.7E+04	8.3E+03	4.7E+03	2.6E+03
Anthracene					3.3E+05	4.1E+04	2.3E+04	1.4E+04
Benz[a]anthracene	2.9E+04	1.5E+00	8.8E-01	5.6E-01				
Benzo[b]fluoranthene	2.9E+04	1.5E+00	8.8E-01	5.6E-01				
Benzo[k]fluoranthene	2.9E+05	1.5E+01	8.8E+00	5.6E+00				
Benzo[a]pyrene	2.9E+03	1.5E-01	8.8E-02	5.6E-02				
Chrysene	2.9E+06	1.5E+02	8.8E+01	5.6E+01				
Dibenz[ah]anthracene	2.9E+03	1.5E-01	8.8E-02	5.6E-02				
Fluoranthene					8.2E+07	5.5E+03	3.1E+03	2.0E+03
Fluorene					1.7E+04	5.5E+03	3.1E+03	1.8E+03
Indeno[1,2,3-cd]pyrene	2.9E+04	1.5E+00	8.8E-01	5.6E-01				
Naphthalene					5.8E+01	2.8E+03	1.6E+03	5.5E+01
Pyrene					1.4E+05	4.1E+03	2.3E+03	1.5E+03
Prochloraz	5.9E+05	9.7E+01	4.3E+01	3.0E+01	1.9E+07	1.6E+03	7.0E+02	4.9E+02
Profluralin					1.2E+07	1.1E+03	4.7E+02	3.3E+02
Prometon					3.1E+07	2.7E+03	1.2E+03	8.2E+02
Prometryn					8.2E+06	7.2E+02	3.1E+02	2.2E+02
Pronamide					1.5E+08	1.3E+04	5.9E+03	4.1E+03
Propachlor					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Propanil					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Propargite					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Propargyl alcohol					4.1E+06	3.6E+02	1.6E+02	1.1E+02
Propazine					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Propham					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Propiconazole					2.7E+07	2.3E+03	1.0E+03	7.1E+02
iso-Propylbenzene					1.6E+02	1.8E+03	7.8E+02	1.2E+02
n-Propylbenzene					1.8E+02	1.8E+03	7.8E+02	1.3E+02
Propylene glycol					4.1E+10	3.6E+06	1.6E+06	1.1E+06
Propylene glycol, monoethyl ether					1.4E+09	1.3E+05	5.5E+04	3.8E+04

Contaminant								
Propylene glycol, monomethyl ether					1.2E+09	1.3E+05	5.5E+04	3.8E+04
Propylene oxide	7.0E+00	6.0E+00	2.7E+00	1.5E+00	1.8E+02	1.5E+03	6.7E+02	1.3E+02
Pursuit					5.1E+08	4.5E+04	2.0E+04	1.4E+04
Pydrin					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Pyridine					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Quinalphos					1.0E+06	9.0E+01	3.9E+01	2.7E+01
Quinoline	7.4E+02	1.2E-01	5.3E-02	3.7E-02				
RDX (Cyclonite)	8.0E+05	1.3E+02	5.8E+01	4.0E+01	6.2E+06	5.4E+02	2.3E+02	1.6E+02
Resmethrin					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Ronnel					1.0E+08	9.0E+03	3.9E+03	2.7E+03
Rotenone					8.2E+06	7.2E+02	3.1E+02	2.2E+02
Savey					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Selenious Acid						9.0E+02	3.9E+02	2.7E+02
Selenium						9.0E+03	3.9E+02	3.7E+02
Selenourea						9.0E+02	3.9E+02	2.7E+02
Sethoxydim					1.9E+08	1.6E+04	7.0E+03	4.9E+03
Silver and compounds						9.0E+03	3.9E+02	3.7E+02
Simazine	7.4E+04	1.2E+01	5.3E+00	3.7E+00	4.1E+06	9.0E+02	3.9E+02	2.7E+02
Sodium azide					8.2E+06	7.2E+02	3.1E+02	2.2E+02
Sodium diethyldithiocarbamate	3.3E+04	5.4E+00	2.4E+00	1.6E+00	6.2E+07	5.4E+03	2.3E+03	1.6E+03
Sodium fluoroacetate					4.1E+04	3.6E+00	1.6E+00	1.1E+00
Sodium metavanadate					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Strontium, stable						1.1E+06	4.7E+04	4.5E+04
Strychnine					6.2E+05	5.4E+01	2.3E+01	1.6E+01
Styrene					6.6E+03	3.6E+04	1.6E+04	4.1E+03
Systhane					5.1E+07	4.5E+03	2.0E+03	1.4E+03
2,3,7,8-TCDD (dioxin)	5.9E-02	3.2E-05	4.3E-06	3.8E-06				
Tebuthiuron					1.4E+08	1.3E+04	5.5E+03	3.8E+03
Temephos					4.1E+07	3.6E+03	1.6E+03	1.1E+03
Terbacil					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Terbufos					5.1E+04	4.5E+00	2.0E+00	1.4E+00
Terbutryn					2.1E+06	1.8E+02	7.8E+01	5.5E+01
1,2,4,5-Tetrachlorobenzene					6.2E+05	5.4E+01	2.3E+01	1.6E+01
1,1,1,2-Tetrachloroethane	3.4E+01	5.6E+02	2.5E+02	2.9E+01	6.2E+02	5.4E+03	2.3E+03	4.5E+02
1,1,2,2-Tetrachloroethane	4.4E+00	7.2E+01	3.2E+01	3.6E+00				
Tetrachloroethylene (PCE)	1.1E+01	2.8E+01	1.2E+01	4.7E+00	5.7E+02	1.8E+03	7.8E+02	2.8E+02
2,3,4,6-Tetrachlorophenol					6.2E+07	5.4E+03	2.3E+03	1.6E+03
p,a,a,a-Tetrachlorotoluene	4.4E+02	7.2E-02	3.2E-02	2.2E-02				
Tetrachlorovinphos	3.7E+05	6.0E+01	2.7E+01	1.9E+01	6.2E+07	5.4E+03	2.3E+03	1.6E+03
Tetraethyldithiopyrophosphate					1.0E+06	9.0E+01	3.9E+01	2.7E+01
Tetrahydrofuran					1.8E+08	1.5E+04	6.7E+03	4.7E+03
Thallic oxide						1.3E+02	5.5E+00	5.2E+00
Thallium acetate						1.6E+02	7.0E+00	6.7E+00
Thallium carbonate						1.4E+02	6.3E+00	6.0E+00
Thallium chloride						1.4E+02	6.3E+00	6.0E+00
Thallium nitrate						1.6E+02	7.0E+00	6.7E+00
Thallium selenite						1.6E+02	7.0E+00	6.7E+00
Thallium sulfate						1.4E+02	6.3E+00	6.0E+00
Thiobencarb					2.1E+07	1.8E+03	7.8E+02	5.5E+02
Thiocyanate					2.1E+08	1.8E+04	7.8E+03	5.5E+03
2-(Thiocyanomethylthio)- benzothiazole (					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Thiofanox					6.2E+05	5.4E+01	2.3E+01	1.6E+01
Thiophanate-methyl					1.6E+08	1.4E+04	6.3E+03	4.4E+03
Thiram					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Tin and compounds						1.1E+06	4.7E+04	4.5E+04
Toluene					6.1E+02	3.6E+04	1.6E+04	5.8E+02
Toluene-2,4-diamine	2.8E+03	4.5E-01	2.0E-01	1.4E-01				
Toluene-2,5-diamine					1.2E+09	1.1E+05	4.7E+04	3.3E+04
Toluene-2,6-diamine					4.1E+08	3.6E+04	1.6E+04	1.1E+04
p-Toluidine	4.7E+04	7.6E+00	3.4E+00	2.3E+00				
Toxaphene	7.9E+03	1.3E+00	5.8E-01	4.0E-01				
Tralomethrin					1.5E+07	1.3E+03	5.9E+02	4.1E+02
Triallate					2.7E+07	2.3E+03	1.0E+03	7.1E+02
Triasulfuron					2.1E+07	1.8E+03	7.8E+02	5.5E+02
1,2,4-Tribromobenzene					1.0E+07	9.0E+02	3.9E+02	2.7E+02
Tributyltin oxide (TBTO)						5.4E+01	2.3E+01	1.6E+01
2,4,6-Trichloroaniline	2.6E+05	4.3E+01	1.9E+01	1.3E+01				
2,4,6-Trichloroaniline hydrochloride	3.1E+05	5.0E+01	2.2E+01	1.5E+01				
1,2,4-Trichlorobenzene					3.7E+03	1.8E+03	7.8E+02	4.8E+02
1,1,1-Trichloroethane					1.1E+03	6.3E+03	2.7E+03	6.9E+02
1,1,2-Trichloroethane	9.1E-01	2.5E+01	1.1E+01	8.2E-01	4.8E+01	7.2E+02	3.1E+02	3.9E+01
Trichloroethylene (TCE)	2.9E+00	1.3E+02	5.8E+01	2.7E+00	2.4E+01	1.1E+03	4.7E+02	2.3E+01
Trichlorofluoromethane					3.9E+02	5.4E+04	2.3E+04	3.8E+02
2,4,5-Trichlorophenol					2.1E+08	1.8E+04	7.8E+03	5.5E+03
2,4,6-Trichlorophenol	8.2E+05	1.3E+02	5.8E+01	4.0E+01				
2,4,5-Trichlorophenoxyacetic Acid					2.1E+07	1.8E+03	7.8E+02	5.5E+02
2-(2,4,5-Trichlorophenoxy) propionic acid					1.6E+07	1.4E+03	6.3E+02	4.4E+02
1,1,2-Trichloropropane					1.6E+01	9.0E+02	3.9E+02	1.5E+01
1,2,3-Trichloropropane	1.5E-03	2.1E-01	9.1E-02	1.4E-03	1.2E+01	1.1E+03	4.7E+02	1.1E+01
1,2,3-Trichloropropene					1.2E+01	9.0E+02	3.9E+02	1.1E+01
1,1,2-Trichloro-1,2,2-trifluoroethane					2.1E+04	5.4E+06	2.3E+06	2.1E+04
Tridiphane					6.2E+06	5.4E+02	2.3E+02	1.6E+02
Triethylamine					2.8E+01	3.6E+02	1.6E+02	2.2E+01
Trifluralin	1.1E+07	1.9E+03	8.3E+02	5.8E+02	1.5E+07	1.3E+03	5.9E+02	4.1E+02

1,2,4-Trimethylbenzene					5.2E+01	9.0E+03	3.9E+03	5.1E+01
1,3,5-Trimethylbenzene					2.1E+01	9.0E+03	3.9E+03	2.1E+01
Trimethyl phosphate	2.4E+05	3.9E+01	1.7E+01	1.2E+01				
1,3,5-Trinitrobenzene					6.2E+07	5.4E+03	2.3E+03	1.6E+03
Trinitrophenylmethylnitramine					2.1E+07	1.8E+03	7.8E+02	5.5E+02
2,4,6-Trinitrotoluene	2.9E+06	4.8E+02	2.1E+02	1.5E+02	1.0E+06	9.0E+01	3.9E+01	2.7E+01
Vanadium						1.3E+04	5.5E+02	5.2E+02
Vanadium pentoxide						1.6E+04	7.0E+02	6.7E+02
Vanadium sulfate						3.6E+04	1.6E+03	1.5E+03
Vernam					2.1E+06	1.8E+02	7.8E+01	5.5E+01
Vinclozolin					5.1E+07	4.5E+03	2.0E+03	1.4E+03
Vinyl acetate					4.3E+02	1.8E+05	7.8E+04	4.3E+02
Vinyl bromide	2.0E-01	1.3E+01	5.8E+00	1.9E-01	4.4E+00	1.5E+02	6.7E+01	4.0E+00
Vinyl chloride	2.3E-02	7.6E-01	3.4E-01	2.1E-02				
Warfarin					6.2E+05	5.4E+01	2.3E+01	1.6E+01
m-Xylene					1.4E+03	3.6E+05	1.6E+05	1.4E+03
o-Xylene					1.6E+03	3.6E+05	1.6E+05	1.6E+03
p-Xylene								
Zinc						5.4E+05	2.3E+04	2.2E+04
Zinc phosphide						5.4E+02	2.3E+01	2.2E+01
Zineb					1.0E+08	9.0E+03	3.9E+03	2.7E+03

Contaminant								
Acephate	2.2E+07	7.2E+03	6.6E+03	3.4E+03	2.7E+07	9.0E+03	8.2E+03	4.3E+03
Acetaldehyde	2.3E+01	8.1E+02	7.4E+02	2.2E+01	1.6E+02	5.8E+03	5.3E+03	1.6E+02
Acetochlor					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Acetone					6.4E+03	2.2E+05	2.0E+05	6.1E+03
Acetone cyanohydrin					1.9E+07	1.8E+03	1.6E+03	8.6E+02
Acetonitrile					1.7E+03	1.3E+04	1.2E+04	1.4E+03
Acetophenone					1.6E+00	2.2E+05	2.0E+05	1.6E+00
Acifluorfen	1.7E+05	5.7E+01	5.2E+01	2.7E+01	8.7E+07	2.9E+04	2.7E+04	1.4E+04
Acrolein					3.4E-01	4.5E+04	4.1E+04	3.4E-01
Acrylamide	4.1E+03	1.4E+00	1.3E+00	6.6E-01	1.3E+06	4.5E+02	4.1E+02	2.1E+02
Acrylic acid					1.9E+06	1.1E+06	1.0E+06	4.2E+05
Acrylonitrile	5.4E-01	1.2E+01	1.1E+01	4.9E-01	2.6E+01	2.2E+03	2.0E+03	2.6E+01
Alachlor	2.4E+05	7.8E+01	7.1E+01	3.7E+01	6.7E+07	2.2E+04	2.0E+04	1.1E+04
Alar					1.0E+09	3.4E+05	3.1E+05	1.6E+05
Aldicarb					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Aldicarb sulfone					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Aldrin	1.1E+03	3.7E-01	3.4E-01	1.8E-01	2.0E+05	6.7E+01	6.1E+01	3.2E+01
Ally					1.7E+09	5.6E+05	5.1E+05	2.7E+05
Allyl alcohol					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Allyl chloride					1.9E+06	1.1E+05	1.0E+05	5.2E+04
Aluminum						2.2E+07	2.0E+06	1.9E+06
Aluminum phosphide						9.0E+03	8.2E+02	7.5E+02
Amdro					2.0E+06	6.7E+02	6.1E+02	3.2E+02
Ametryn					6.1E+07	2.0E+04	1.8E+04	9.6E+03
m-Aminophenol					4.7E+08	1.6E+05	1.4E+05	7.5E+04
4-Aminopyridine					1.3E+05	4.5E+01	4.1E+01	2.1E+01
Amitraz					1.7E+07	5.6E+03	5.1E+03	2.7E+03
Ammonia								
Ammonium sulfamate						4.5E+05	4.1E+05	2.1E+05
Aniline	3.3E+06	1.1E+03	1.0E+03	5.3E+02	1.9E+06	1.6E+04	1.4E+04	7.5E+03
Antimony and compounds						9.0E+03	8.2E+02	7.5E+02
Antimony pentoxide						1.1E+04	1.0E+03	9.4E+02
Antimony potassium tartrate						2.0E+04	1.8E+03	1.7E+03
Antimony tetroxide						9.0E+03	8.2E+02	7.5E+02
Antimony trioxide						9.0E+03	8.2E+02	7.5E+02
Apollo					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Aramite	7.6E+05	2.5E+02	2.3E+02	1.2E+02	3.4E+08	1.1E+05	1.0E+05	5.3E+04
Arsenic (noncancer endpoint)						2.2E+03	6.1E+02	4.8E+02
Arsenic (cancer endpoint)	1.3E+03	1.4E+01	3.8E+00	3.0E+00		2.2E+03	6.1E+02	4.8E+02
Arsine								
Assure					6.1E+07	2.0E+04	1.8E+04	9.6E+03
Asulam					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Atrazine	8.6E+04	2.8E+01	2.6E+01	1.3E+01	2.4E+08	7.8E+04	7.2E+04	3.7E+04
Avermectin B1					2.7E+06	9.0E+02	8.2E+02	4.3E+02
Azobenzene	1.7E+05	5.7E+01	5.2E+01	2.7E+01				
Barium and compounds					9.6E+05	1.6E+06	1.4E+05	1.2E+05
Baygon					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Bayleton					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Baythroid					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Benefin					2.0E+09	6.7E+05	6.1E+05	3.2E+05
Benomyl					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Bentazon					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Benzaldehyde					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Benzene	1.4E+00	2.2E+02	2.0E+02	1.4E+00	2.4E+01	6.7E+03	6.1E+03	2.4E+01
Benzidine	8.2E+01	2.7E-02	2.5E-02	1.3E-02	2.0E+07	6.7E+03	6.1E+03	3.2E+03
Benzoic acid					2.7E+10	9.0E+06	8.2E+06	4.3E+06
Benzotrichloride	1.4E+03	4.8E-01	4.4E-01	2.3E-01				
Benzyl alcohol					2.0E+09	6.7E+05	6.1E+05	3.2E+05
Benzyl chloride	2.5E+00	3.7E+01	3.4E+01	2.2E+00				
Beryllium and compounds	2.2E+03			2.2E+03	3.8E+04	4.5E+04	4.1E+03	3.4E+03
Bidrin					6.7E+05	2.2E+02	2.0E+02	1.1E+02
Biphenthrin (Talstar)					1.0E+08	3.4E+04	3.1E+04	1.6E+04
1,1-Biphenyl					4.3E+04	1.1E+05	1.0E+05	2.4E+04
Bis(2-chloroethyl)ether	7.1E-01	5.7E+00	5.2E+00	5.6E-01				
Bis(2-chloroisopropyl)ether	9.0E+00	9.0E+01	8.2E+01	7.4E+00	4.5E+03	9.0E+04	8.2E+04	4.1E+03
Bis(chloromethyl)ether	4.4E-04	2.9E-02	2.6E-02	4.3E-04				
Bis(2-chloro-1-methylethyl)ether	5.4E+05	9.0E+01	8.2E+01	4.3E+01				
Bis(2-ethylhexyl)phthalate (DEHP)	1.3E+06	4.5E+02	4.1E+02	2.1E+02	1.5E+08	4.5E+04	4.1E+04	2.1E+04
Bisphenol A					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Boron					3.8E+07	2.0E+05	1.8E+05	9.6E+04
Boron trifluoride					1.3E+06			1.3E+06
Bromobenzene					9.3E+01	4.5E+04	4.1E+04	9.2E+01
Bromodichloromethane	2.4E+00	1.0E+02	9.2E+01	2.3E+00	1.1E+03	4.5E+04	4.1E+04	1.0E+03
Bromoform (tribromomethane)	4.9E+06	7.9E+02	7.2E+02	3.8E+02	1.3E+08	4.5E+04	4.1E+04	2.1E+04
Bromomethane					1.3E+01	3.1E+03	2.9E+03	1.3E+01
4-Bromophenyl phenyl ether								
Bromophos					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Bromoxynil					1.3E+08	4.5E+04	4.1E+04	2.1E+04

Contaminant								
Bromoxynil octanoate					1.3E+08	4.5E+04	4.1E+04	2.1E+04
1,3-Butadiene	1.4E-02	6.4E+00	5.8E+00	1.4E-02				
1-Butanol					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Butylate					3.4E+08	1.1E+05	1.0E+05	5.3E+04
n-Butylbenzene					5.8E+02	2.2E+04	2.0E+04	5.5E+02
sec-Butylbenzene					4.3E+02	2.2E+04	2.0E+04	4.1E+02
tert-Butylbenzene					5.2E+02	2.2E+04	2.0E+04	4.9E+02
Butyl benzyl phthalate					1.3E+09	4.5E+05	4.1E+05	2.1E+05
Butylphthalyl butylglycolate					6.7E+09	2.2E+06	2.0E+06	1.1E+06
Cacodylic acid					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Cadmium and compounds	3.0E+03			3.0E+03	3.8E+05	1.1E+04	1.0E+03	9.3E+02
Caprolactam					3.4E+09	1.1E+06	1.0E+06	5.3E+05
Captafol	2.2E+06	7.3E+02	6.7E+02	3.5E+02	1.3E+07	4.5E+03	4.1E+03	2.1E+03
Captan	5.4E+06	1.8E+03	1.6E+03	8.6E+02	8.7E+08	2.9E+05	2.7E+05	1.4E+05
Carbaryl					7.4E+08	2.2E+05	2.0E+05	1.1E+05
Carbazole	9.4E+05	3.1E+02	2.9E+02	1.5E+02				
Carbofuran					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Carbon disulfide					1.2E+03	2.2E+05	2.0E+05	1.2E+03
Carbon tetrachloride	5.4E-01	4.8E+01	4.4E+01	5.2E-01	5.7E+00	1.6E+03	1.4E+03	5.7E+00
Carbosulfan					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Carboxin					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Chloral					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Chloramben					1.0E+08	3.4E+04	3.1E+04	1.6E+04
Chloranil	4.7E+04	1.6E+01	1.4E+01	7.4E+00				
Chlordane	5.4E+04	4.5E+01	1.6E+01	1.2E+01	1.5E+05	2.8E+03	1.0E+03	7.5E+02
Chlorimuron-ethyl					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Chlorine						2.2E+06	2.0E+05	1.9E+05
Chlorine dioxide								
Chloroacetaldehyde								
Chloroacetic acid					1.3E+07	4.5E+03	4.1E+03	2.1E+03
2-Chloroacetophenone					1.1E-01	1.9E+01	1.8E+01	1.1E-01
4-Chloroaniline					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Chlorobenzene					1.9E+02	4.5E+04	4.1E+04	1.8E+02
Chlorobenzilate	7.0E+04	2.3E+01	2.1E+01	1.1E+01	1.3E+08	4.5E+04	4.1E+04	2.1E+04
p-Chlorobenzoic acid					1.3E+09	4.5E+05	4.1E+05	2.1E+05
4-Chlorobenzotrifluoride					1.3E+08	4.5E+04	4.1E+04	2.1E+04
2-Chloro-1,3-butadiene					1.2E+01	4.5E+04	4.1E+04	1.2E+01
1-Chlorobutane					2.4E+03	9.0E+05	8.2E+05	2.4E+03
1-Chloro-1,1-difluoroethane					7.7E+04	3.2E+07	2.9E+07	7.7E+04
Chlorodifluoromethane					7.6E+04	3.1E+07	2.9E+07	7.5E+04
2-Chloroethyl vinyl ether								
Chloroform	5.2E-01	1.0E+03	9.4E+02	5.2E-01	1.5E+02	2.2E+04	2.0E+04	1.5E+02
Chloromethane	2.7E+00	4.8E+02	4.4E+02	2.7E+00				
4-Chloro-2-methylaniline	3.2E+04	1.1E+01	9.9E+00	5.2E+00				
4-Chloro-2-methylaniline hydrochloride	4.1E+04	1.4E+01	1.2E+01	6.5E+00				
beta-Chloronaphthalene					3.3E+04	1.8E+05	1.6E+05	2.4E+04
o-Chloronitrobenzene	7.5E+05	2.5E+02	2.3E+02	1.2E+02				
p-Chloronitrobenzene	1.0E+06	3.5E+02	3.2E+02	1.7E+02				
2-Chlorophenol					2.5E+02	1.1E+04	1.0E+04	2.4E+02
2-Chloropropane					6.0E+02	6.5E+04	5.9E+04	5.9E+02
Chlorothalonil	1.7E+06	5.7E+02	5.2E+02	2.7E+02	1.0E+08	3.4E+04	3.1E+04	1.6E+04
o-Chlorotoluene					5.8E+02	4.5E+04	4.1E+04	5.6E+02
Chlorpropham					1.3E+09	4.5E+05	4.1E+05	2.1E+05
Chlorpyrifos					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Chlorpyrifos-methyl					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Chlorsulfuron					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Chlorthiophos					5.4E+06	1.8E+03	1.6E+03	8.6E+02
Total Chromium (1/6 ratio Cr VI/Cr III)	4.5E+02			4.5E+02				
Chromium VI	6.4E+01			6.4E+01		1.1E+05	1.0E+04	9.4E+03
Cobalt					3.8E+04	1.3E+06	1.2E+05	2.9E+04
Coke Oven Emissions	8.7E+03			8.7E+03				
Copper and compounds						8.3E+05	7.6E+04	7.0E+04
Crotonaldehyde	1.1E-01	3.3E+01	3.0E+01	1.1E-01	7.8E+01	2.2E+04	2.0E+04	7.7E+01
Cumene (isopropylbenzene)					5.2E+02	2.2E+05	2.0E+05	5.2E+02
Cyanazine	2.2E+04	7.5E+00	6.8E+00	3.6E+00	1.3E+07	4.5E+03	4.1E+03	2.1E+03
Cyanides								
Barium cyanide						2.2E+05	2.0E+05	1.1E+05
Calcium cyanide						9.0E+04	8.2E+04	4.3E+04
Copper cyanide						1.1E+04	1.0E+04	5.3E+03
Cyanogen						9.0E+04	8.2E+04	4.3E+04
Cyanogen bromide						2.0E+05	1.8E+05	9.6E+04
Cyanogen chloride						1.1E+05	1.0E+05	5.3E+04
Free cyanide						4.5E+04	4.1E+04	2.1E+04
Hydrogen cyanide					3.6E+01	4.5E+04	4.1E+04	3.5E+01
Potassium cyanide						1.1E+05	1.0E+05	5.3E+04
Potassium silver cyanide						4.5E+05	4.1E+05	2.1E+05
Silver cyanide						2.2E+05	2.0E+05	1.1E+05
Sodium cyanide						9.0E+04	8.2E+04	4.3E+04
Zinc cyanide						1.1E+05	1.0E+05	5.3E+04
Cyclohexanone					3.4E+10	1.1E+07	1.0E+07	5.3E+06
Cyclohexylamine					1.3E+09	4.5E+05	4.1E+05	2.1E+05
Cyhalothrin/Karate					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Cypermethrin					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Cyromazine					5.0E+07	1.7E+04	1.5E+04	8.0E+03

Contaminants								
Dacthal					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Dalapon					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Danitol					1.7E+08	5.6E+04	5.1E+04	2.7E+04
DDD	7.8E+04	8.7E+01	2.4E+01	1.9E+01				
DDE	5.5E+04	6.2E+01	1.7E+01	1.3E+01				
DDT	5.5E+04	6.2E+01	1.7E+01	1.3E+01	3.4E+06	3.7E+03	1.0E+03	8.0E+02
Decabromodiphenyl ether					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Demeton					2.7E+05	9.0E+01	8.2E+01	4.3E+01
Diallate	3.1E+05	1.0E+02	9.4E+01	4.9E+01				
Diazinon					6.1E+06	2.0E+03	1.8E+03	9.6E+02
Dibenzofuran					1.3E+04	9.0E+03	8.2E+03	3.2E+03
1,4-Dibromobenzene					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Dibromochloromethane	2.2E+05	7.5E+01	6.8E+01	3.6E+01	1.3E+08	4.5E+04	4.1E+04	2.1E+04
1,2-Dibromo-3-chloropropane	7.8E+06	4.5E+00	4.1E+00	2.1E+00	3.8E+05	1.3E+02	1.2E+02	6.1E+01
1,2-Dibromoethane	1.7E-01	7.4E-02	6.7E-02	2.9E-02	2.7E+00	1.3E+02	1.2E+02	2.6E+00
Dibutyl phthalate					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Dicamba					2.0E+08	6.7E+04	6.1E+04	3.2E+04
1,2-Dichlorobenzene					3.4E+03	2.0E+05	1.8E+05	3.3E+03
1,3-Dichlorobenzene					1.4E+02	6.7E+04	6.1E+04	1.4E+02
1,4-Dichlorobenzene	7.7E+00	2.6E+02	2.4E+02	7.3E+00	1.5E+04	4.5E+05	4.1E+05	1.4E+04
3,3-Dichlorobenzidine	4.2E+04	1.4E+01	1.3E+01	6.7E+00				
1,4-Dichloro-2-butene	1.9E-02	6.7E-01	6.2E-01	1.8E-02				
Dichlorodifluoromethane					3.1E+02	4.5E+05	4.1E+05	3.1E+02
1,1-Dichloroethane					2.1E+03	2.2E+05	2.0E+05	2.0E+03
1,2-Dichloroethane (EDC)	7.8E-01	6.9E+01	6.3E+01	7.6E-01	7.2E+01	6.4E+03	5.8E+03	7.0E+01
1,1-Dichloroethylene	1.2E+00	1.0E+02	9.5E+01	1.2E+00	6.8E+01	2.0E+04	1.8E+04	6.7E+01
1,2-Dichloroethylene (cis)					1.5E+02	2.2E+04	2.0E+04	1.5E+02
1,2-Dichloroethylene (trans)					2.2E+02	4.5E+04	4.1E+04	2.1E+02
2,4-Dichlorophenol					2.0E+07	6.7E+03	6.1E+03	3.2E+03
4-(2,4-Dichlorophenoxy)butyric Acid (2,4					5.4E+07	1.8E+04	1.6E+04	8.6E+03
2,4-Dichlorophenoxyacetic Acid (2,4-D)					6.7E+07	4.5E+04	2.0E+04	1.4E+04
1,2-Dichloropropane	7.8E-01	9.2E+01	8.4E+01	7.6E-01	2.2E+01	2.5E+03	2.2E+03	2.1E+01
1,3-Dichloropropene	1.8E-01	3.5E+01	3.2E+01	1.8E-01	4.8E+01	6.7E+02	6.1E+02	4.1E+01
2,3-Dichloropropanol					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Dichlorvos	6.5E+04	2.2E+01	2.0E+01	1.0E+01	9.6E+05	1.1E+03	1.0E+03	5.3E+02
Dicofol	4.3E+04	1.4E+01	1.3E+01	6.8E+00				
Dicyclopentadiene					1.8E+00	6.7E+04	6.1E+04	1.8E+00
Dieldrin	1.2E+03	3.9E-01	3.6E-01	1.9E-01	3.4E+05	1.1E+02	1.0E+02	5.3E+01
Diethylene glycol, monobutyl ether					3.8E+07	1.3E+04	1.2E+04	6.1E+03
Diethylene glycol, monoethyl ether					1.3E+10	4.5E+06	4.1E+06	2.1E+06
Diethylformamide					7.4E+07	2.5E+04	2.2E+04	1.2E+04
Di(2-ethylhexyl)adipate	1.6E+07	5.2E+03	4.8E+03	2.5E+03	4.0E+09	1.3E+06	1.2E+06	6.4E+05
Diethyl phthalate					5.4E+09	1.8E+06	1.6E+06	8.6E+05
Diethylstilbestrol	4.0E+00	1.3E-03	1.2E-03	6.4E-04				
Difenzoquat (Avenge)					5.4E+08	1.8E+05	1.6E+05	8.6E+04
Diflubenzuron					1.3E+08	4.5E+04	4.1E+04	2.1E+04
1,1-Difluoroethane						2.6E+07	2.3E+07	1.2E+07
Diisopropyl methylphosphonate					5.4E+08	1.8E+05	1.6E+05	8.6E+04
Dimethipin					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Dimethoate					1.3E+06	4.5E+02	4.1E+02	2.1E+02
3,3'-Dimethoxybenzidine	1.3E+06	4.5E+02	4.1E+02	2.1E+02				
Dimethylamine					2.6E-01	1.3E+01	1.2E+01	2.5E-01
N-N-Dimethylaniline					1.3E+07	4.5E+03	4.1E+03	2.1E+03
2,4-Dimethylaniline	2.5E+04	8.4E+00	7.6E+00	4.0E+00				
2,4-Dimethylaniline hydrochloride	3.2E+04	1.1E+01	9.9E+00	5.2E+00				
3,3'-Dimethylbenzidine	2.0E+03	6.8E-01	6.2E-01	3.3E-01				
1,1-Dimethylhydrazine	5.4E+03	2.4E+00	2.2E+00	1.2E+00				
1,2-Dimethylhydrazine	5.1E+02	1.7E-01	1.5E-01	8.1E-02				
N,N-Dimethylformamide					5.8E+07	2.2E+05	2.0E+05	1.1E+05
Dimethylphenethylamine					6.7E+06	2.2E+03	2.0E+03	1.1E+03
2,4-Dimethylphenol					1.3E+08	4.5E+04	4.1E+04	2.1E+04
2,6-Dimethylphenol					4.0E+06	1.3E+03	1.2E+03	6.4E+02
3,4-Dimethylphenol					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Dimethyl phthalate					6.7E+10	2.2E+07	2.0E+07	1.1E+07
Dimethyl terephthalate					6.7E+08	2.2E+05	2.0E+05	1.1E+05
4,6-Dinitro-o-cyclohexyl phenol					1.3E+07	4.5E+03	4.1E+03	2.1E+03
1,2-Dinitrobenzene					2.7E+06	9.0E+02	8.2E+02	4.3E+02
1,3-Dinitrobenzene					6.7E+05	2.2E+02	2.0E+02	1.1E+02
1,4-Dinitrobenzene					2.7E+06	9.0E+02	8.2E+02	4.3E+02
2,4-Dinitrophenol					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Dinitrotoluene mixture	2.8E+04	9.2E+00	8.4E+00	4.4E+00				
2,4-Dinitrotoluene					1.3E+07	4.5E+03	4.1E+03	2.1E+03
2,6-Dinitrotoluene					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Dinoseb					6.7E+06	2.2E+03	2.0E+03	1.1E+03
di-n-Octyl phthalate					1.3E+08	4.5E+04	4.1E+04	2.1E+04
1,4-Dioxane	1.7E+06	5.7E+02	5.2E+02	2.7E+02				
Dioxin (2,3,7,8-TCDD)	1.3E-01	1.4E-04	3.8E-05	3.0E-05				
Diphenamid					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Diphenylamine					1.7E+08	5.6E+04	5.1E+04	2.7E+04
1,2-Diphenylhydrazine	2.4E+04	7.8E+00	7.2E+00	3.7E+00				
Diphenyl sulfone					6.1E+07	2.0E+04	1.8E+04	9.6E+03
Diquat					1.5E+07	4.9E+03	4.5E+03	2.4E+03
Direct black 38	2.2E+03	7.3E-01	6.7E-01	3.5E-01				
Direct blue 6	2.3E+03	7.7E-01	7.1E-01	3.7E-01				

Direct brown 95	2.0E+03	6.7E-01	6.2E-01	3.2E-01				
Disulfoton					2.7E+05	9.0E+01	8.2E+01	4.3E+01
1,4-Dithiane					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Diuron					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Dodine					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Endosulfan					4.0E+07	1.3E+04	1.2E+04	6.4E+03
Endothall					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Endrin					2.0E+06	6.7E+02	6.1E+02	3.2E+02
Epichlorohydrin	6.1E+01	6.3E+02	5.8E+02	5.1E+01	2.6E+01	4.5E+03	4.1E+03	2.6E+01
1,2-Epoxybutane					3.8E+07	1.3E+04	1.2E+04	6.1E+03
EPTC (S-Ethyl dipropylthiocarbamate)					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Ethephon (2-chloroethyl phosphonic aci					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Ethion					3.4E+06	1.1E+03	1.0E+03	5.3E+02
2-Ethoxyethanol					3.8E+08	9.0E+05	8.2E+05	4.3E+05
2-Ethoxyethanol acetate					2.0E+09	6.7E+05	6.1E+05	3.2E+05
Ethyl acetate					8.3E+04	2.0E+06	1.8E+06	7.7E+04
Ethyl acrylate	4.6E-01	1.3E+02	1.2E+02	4.5E-01				
Ethylbenzene					6.2E+03	2.2E+05	2.0E+05	5.8E+03
Ethyl chloride					1.9E+04	9.0E+05	8.2E+05	1.9E+04
Ethylene cyanohydrin					2.0E+09	6.7E+05	6.1E+05	3.2E+05
Ethylene diamine					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Ethylene glycol					1.3E+10	4.5E+06	4.1E+06	2.1E+06
Ethylene glycol, monobutyl ether					3.8E+07	1.3E+04	1.2E+04	6.1E+03
Ethylene oxide	3.8E-01	6.2E+00	5.6E+00	3.4E-01				
Ethylene thiourea (ETU)	1.7E+05	5.7E+01	5.2E+01	2.7E+01	5.4E+05	1.8E+02	1.6E+02	8.6E+01
Ethyl ether					3.9E+04	4.5E+05	4.1E+05	3.3E+04
Ethyl methacrylate					7.0E+02	2.0E+05	1.8E+05	7.0E+02
Ethyl p-nitrophenyl phenylphosphorothio					6.7E+04	2.2E+01	2.0E+01	1.1E+01
Ethylphthalyl ethyl glycolate					2.0E+10	6.7E+06	6.1E+06	3.2E+06
Express					5.4E+07	1.8E+04	1.6E+04	8.6E+03
Fenamiphos					1.7E+06	5.6E+02	5.1E+02	2.7E+02
Fluometuron					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Fluoride						1.3E+05	1.2E+05	6.4E+04
Fluoridone					5.4E+08	1.8E+05	1.6E+05	8.6E+04
Flurprimidol					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Flutolanil					4.0E+08	1.3E+05	1.2E+05	6.4E+04
Fluvalinate					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Folpet	5.4E+06	1.8E+03	1.6E+03	8.6E+02	6.7E+08	2.2E+05	2.0E+05	1.1E+05
Fomesafen	9.9E+05	3.3E+02	3.0E+02	1.6E+02				
Fonofos					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Formaldehyde	4.1E+05			4.1E+05		3.4E+05	3.1E+05	1.6E+05
Formic Acid					1.3E+10	4.5E+06	4.1E+06	2.1E+06
Fosetyl-al					2.0E+10	6.7E+06	6.1E+06	3.2E+06
Furan					8.6E+00	2.2E+03	2.0E+03	8.5E+00
Furazolidone	5.0E+03	1.7E+00	1.5E+00	7.9E-01				
Furfural					9.6E+07	6.7E+03	6.1E+03	3.2E+03
Furium	3.8E+02	1.3E-01	1.1E-01	6.0E-02				
Furmecyclox	6.3E+05	2.1E+02	1.9E+02	1.0E+02				
Glufosinate-ammonium					2.7E+06	9.0E+02	8.2E+02	4.3E+02
Glycidaldehyde					1.9E+06	9.0E+02	8.2E+02	4.3E+02
Glyphosate					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Haloxyfop-methyl					3.4E+05	1.1E+02	1.0E+02	5.3E+01
Harmony					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Heptachlor	4.1E+03	1.4E+00	1.3E+00	6.7E-01	3.4E+06	1.1E+03	1.0E+03	5.3E+02
Heptachlor epoxide	2.1E+03	6.9E-01	6.3E-01	3.3E-01	8.7E+04	2.9E+01	2.7E+01	1.4E+01
Hexabromobenzene					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Hexachlorobenzene	1.2E+04	3.9E+00	3.6E+00	1.9E+00	5.4E+06	1.8E+03	1.6E+03	8.6E+02
Hexachlorobutadiene	2.4E+06	8.0E+02	7.3E+02	3.8E+02	1.3E+06	4.5E+02	4.1E+02	2.1E+02
HCH (alpha)	3.0E+03	2.5E+00	9.1E-01	6.7E-01				
HCH (beta)	1.0E+05	8.7E+01	3.2E+01	2.3E+01				
HCH (gamma) Lindane	1.4E+04	1.2E+01	4.4E+00	3.2E+00	2.0E+06	1.7E+03	6.1E+02	4.5E+02
HCH-technical	1.1E+04	8.7E+00	3.2E+00	2.3E+00				
Hexachlorocyclopentadiene					1.3E+05	1.6E+04	1.4E+04	7.1E+03
Hexachlorodibenzo-p-dioxin mixture (Hx	4.1E+00	1.0E-03	9.2E-04	4.8E-04				
Hexachloroethane	1.3E+07	4.5E+03	4.1E+03	2.1E+03	6.7E+06	2.2E+03	2.0E+03	1.1E+03
Hexachlorophene					2.0E+06	6.7E+02	6.1E+02	3.2E+02
Hexahydro-1,3,5-trinitro-1,3,5-triazine	1.7E+06	5.7E+02	5.2E+02	2.7E+02	2.0E+07	6.7E+03	6.1E+03	3.2E+03
1,6-Hexamethylene diisocyanate					1.9E+04	6.4E+00	5.8E+00	3.1E+00
n-Hexane					4.1E+02	1.3E+05	1.2E+05	4.0E+02
Hexazinone					2.2E+08	7.4E+04	6.7E+04	3.5E+04
Hydrazine, hydrazine sulfate	1.1E+03	2.1E+00	1.9E+00	1.0E+00				
Hydrogen chloride					3.8E+07			3.8E+07
Hydrogen sulfide						6.7E+03	6.1E+03	3.2E+03
p-Hydroquinone					2.7E+08	9.0E+04	8.2E+04	4.3E+04
Imazalil					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Imazaquin					1.7E+09	5.6E+05	5.1E+05	2.7E+05
Iprodione					2.7E+08	9.0E+04	8.2E+04	4.3E+04
Iron						6.7E+06	6.1E+05	5.6E+05
Isobutanol					8.8E+04	6.7E+05	6.1E+05	6.9E+04
Isophorone	2.0E+08	6.6E+04	6.0E+04	3.2E+04	1.3E+09	4.5E+05	4.1E+05	2.1E+05
Isopropalin					1.0E+08	3.4E+04	3.1E+04	1.6E+04
Isopropyl methyl phosphonic acid					7.4E+08	2.2E+05	2.0E+05	1.1E+05
Isoxaben					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Kepone	1.0E+03	3.5E-01	3.2E-01	1.7E-01				

Contaminants								
Lactofen					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Lead								
Lead (tetraethyl)						2.2E-01	2.0E-01	1.1E-01
Linuron					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Lithium						4.5E+05	4.1E+04	3.7E+04
Londax					1.3E+09	4.5E+05	4.1E+05	2.1E+05
Malathion					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Maleic anhydride					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Maleic hydrazide					5.7E+03	1.1E+06	1.0E+06	5.6E+03
Malononitrile					1.3E+05	4.5E+01	4.1E+01	2.1E+01
Mancozeb					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Maneb	3.1E+05	1.0E+02	9.5E+01	5.0E+01	3.4E+07	1.1E+04	1.0E+04	5.3E+03
Manganese and compounds					9.4E+04	1.0E+06	9.5E+04	4.5E+04
Mephosfolan					6.1E+05	2.0E+02	1.8E+02	9.6E+01
Mepiquat					2.0E+08	6.7E+04	6.1E+04	3.2E+04
2-Mercaptobenzothiazole	6.5E+05	2.2E+02	2.0E+02	1.0E+02	6.7E+08	2.2E+05	2.0E+05	1.1E+05
Mercury and compounds						6.7E+03	6.1E+02	5.6E+02
Mercury (elemental)								
Mercury (methyl)						2.2E+02	2.0E+02	1.1E+02
Merphos					2.0E+05	6.7E+01	6.1E+01	3.2E+01
Merphos oxide					2.0E+05	6.7E+01	6.1E+01	3.2E+01
Metalaxyl					4.0E+08	1.3E+05	1.2E+05	6.4E+04
Methacrylonitrile					9.2E+00	2.2E+02	2.0E+02	8.4E+00
Methamidophos					3.4E+05	1.1E+02	1.0E+02	5.3E+01
Methanol					3.4E+09	1.1E+06	1.0E+06	5.3E+05
Methidathion					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Methomyl					1.5E+02	5.6E+04	5.1E+04	1.5E+02
Methoxychlor					3.4E+07	1.1E+04	1.0E+04	5.3E+03
2-Methoxyethanol					3.8E+07	2.2E+03	2.0E+03	1.1E+03
2-Methoxyethanol acetate					1.3E+07	4.5E+03	4.1E+03	2.1E+03
2-Methoxy-5-nitroaniline	4.1E+05	1.4E+02	1.2E+02	6.5E+01				
Methyl acetate					1.0E+05	2.2E+06	2.0E+06	9.2E+04
Methyl acrylate					2.4E+02	6.7E+04	6.1E+04	2.3E+02
2-Methylaniline (o-toluidine)	7.8E+04	2.6E+01	2.4E+01	1.2E+01				
2-Methylaniline hydrochloride	1.0E+05	3.5E+01	3.2E+01	1.7E+01				
Methyl chlorocarbonate					6.7E+09	2.2E+06	2.0E+06	1.1E+06
2-Methyl-4-chlorophenoxyacetic acid					3.4E+06	1.1E+03	1.0E+03	5.3E+02
4-(2-Methyl-4-chlorophenoxy) butyric aci					6.7E+07	2.2E+04	2.0E+04	1.1E+04
2-(2-Methyl-4-chlorophenoxy) propionic					6.7E+06	2.2E+03	2.0E+03	1.1E+03
2-(2-Methyl-1,4-chlorophenoxy) propionic					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Methylcyclohexane					5.8E+09	1.9E+06	1.8E+06	9.2E+05
4,4'-Methylenebisbenzeneamine	7.5E+04	2.5E+01	2.3E+01	1.2E+01				
4,4'-Methylene bis(2-chloroaniline)	1.4E+05	4.8E+01	4.4E+01	2.3E+01	4.7E+06	1.6E+03	1.4E+03	7.5E+02
4,4'-Methylene bis(N,N'-dimethyl)aniline	4.1E+05	1.4E+02	1.2E+02	6.5E+01				
Methylene bromide					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Methylene chloride	2.1E+01	8.4E+02	7.6E+02	2.0E+01	1.1E+04	1.3E+05	1.2E+05	9.1E+03
4,4'-Methylenediphenyl isocyanate					1.1E+06	3.8E+02	3.5E+02	1.8E+02
Methyl ethyl ketone					2.8E+04	1.3E+06	1.2E+06	2.7E+04
Methyl hydrazine	1.7E+04	5.7E+00	5.2E+00	2.7E+00				
Methyl isobutyl ketone					2.9E+03	1.8E+05	1.6E+05	2.8E+03
Methyl mercaptan					3.8E+06	1.3E+03	1.2E+03	6.1E+02
Methyl methacrylate					7.3E+03	3.1E+06	2.9E+06	7.3E+03
2-Methyl-5-nitroaniline	5.7E+05	1.9E+02	1.7E+02	9.1E+01				
Methyl parathion					1.7E+06	5.6E+02	5.1E+02	2.7E+02
2-Methylphenol					3.4E+08	1.1E+05	1.0E+05	5.3E+04
3-Methylphenol					3.4E+08	1.1E+05	1.0E+05	5.3E+04
4-Methylphenol					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Methyl phosphonic acid					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Methyl styrene (mixture)					5.9E+02	1.3E+04	1.2E+04	5.4E+02
Methyl styrene (alpha)					3.6E+03	1.6E+05	1.4E+05	3.5E+03
Methyl tertbutyl ether (MTBE)								
Metolaclor (Dual)					1.0E+09	3.4E+05	3.1E+05	1.6E+05
Metribuzin					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Mirex	1.0E+04	3.5E+00	3.2E+00	1.7E+00	1.3E+06	4.5E+02	4.1E+02	2.1E+02
Molinate					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Molybdenum						1.1E+05	1.0E+04	9.4E+03
Monochloramine					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Naled					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Napropamide					6.7E+08	2.2E+05	2.0E+05	1.1E+05
Nickel and compounds						4.5E+05	4.1E+04	3.7E+04
Nickel refinery dust	2.2E+04			2.2E+04				
Nickel subsulfide	1.1E+04			1.1E+04				
Nitrapyrin					1.0E+07	3.4E+03	3.1E+03	1.6E+03
Nitrate								
Nitric Oxide						2.2E+05	2.0E+05	1.1E+05
Nitrite								
2-Nitroaniline					3.8E+05	1.3E+02	1.2E+02	6.4E+01
3-Nitroaniline								
4-Nitroaniline								
Nitrobenzene					1.3E+02	1.1E+03	1.0E+03	1.0E+02
Nitrofurantoin					4.7E+08	1.6E+05	1.4E+05	7.5E+04
Nitrofurazone	2.0E+03	4.2E+00	3.8E+00	2.0E+00				
Nitrogen dioxide						2.2E+06	2.0E+06	1.1E+06
Nitroguanidine					6.7E+08	2.2E+05	2.0E+05	1.1E+05

Region 6 Tapwater Evaluation for Screening Concentrations								
Soluble Saturation Level								
Contaminants								
4-Nitrophenol					4.2E+08	1.4E+05	1.3E+05	6.6E+04
2-Nitropropane		6.7E-01	6.1E-01	3.2E-01		1.3E+04	1.2E+04	6.1E+03
N-Nitrosodi-n-butylamine	6.5E-02	1.2E+00	1.1E+00	5.8E-02				
N-Nitrosodiethanolamine	6.7E+03	2.2E+00	2.0E+00	1.1E+00				
N-Nitrosodiethylamine	1.3E+02	4.2E-02	3.8E-02	2.0E-02				
N-Nitrosodimethylamine	3.8E+02	1.2E-01	1.1E-01	5.9E-02				
N-Nitrosodiphenylamine	3.8E+06	1.3E+03	1.2E+03	6.1E+02				
N-Nitroso di-n-propylamine	2.7E+03	9.0E-01	8.2E-01	4.3E-01				
N-Nitroso-N-methylethylamine	8.6E+02	2.9E-01	2.6E-01	1.4E-01				
N-Nitrosopyrrolidine	8.8E+03	3.0E+00	2.7E+00	1.4E+00				
m-Nitrotoluene					6.7E+07	2.2E+04	2.0E+04	1.1E+04
o-Nitrotoluene					6.7E+07	2.2E+04	2.0E+04	1.1E+04
p-Nitrotoluene					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Norflurazon					2.7E+08	9.0E+04	8.2E+04	4.3E+04
NuStar					4.7E+06	1.6E+03	1.4E+03	7.5E+02
Octabromodiphenyl ether					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Octahydro-1357-tetranitro-1357- tetrazoci					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Octamethylpyrophosphoramide					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Oryzalin					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Oxadiazon					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Oxamyl					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Oxyfluorfen					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Paclobutrazol					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Paraquat					3.0E+07	1.0E+04	9.2E+03	4.8E+03
Parathion					4.0E+07	1.3E+04	1.2E+04	6.4E+03
Pebulate					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Pendimethalin					2.7E+08	9.0E+04	8.2E+04	4.3E+04
Pentabromo-6-chloro cyclohexane	8.2E+05	2.7E+02	2.5E+02	1.3E+02				
Pentabromodiphenyl ether					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Pentachlorobenzene					5.4E+06	1.8E+03	1.6E+03	8.6E+02
Pentachloronitrobenzene	7.2E+04	2.4E+01	2.2E+01	1.2E+01	2.0E+07	6.7E+03	6.1E+03	3.2E+03
Pentachlorophenol	1.6E+05	2.1E+01	4.8E+01	1.5E+01	2.0E+08	2.7E+04	6.1E+04	1.9E+04
Perchlorate						1.1E+04	1.0E+03	9.4E+02
Permethrin					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Phenmedipham					1.7E+09	5.6E+05	5.1E+05	2.7E+05
Phenol					4.0E+09	1.3E+06	1.2E+06	6.4E+05
Phenothiazine					1.3E+07	4.5E+03	4.1E+03	2.1E+03
m-Phenylenediamine					4.0E+07	1.3E+04	1.2E+04	6.4E+03
p-Phenylenediamine					1.3E+09	4.3E+05	3.9E+05	2.0E+05
Phenylmercuric acetate					5.4E+05	1.8E+02	1.6E+02	8.6E+01
2-Phenylphenol	9.9E+06	3.2E+03	3.0E+03	1.5E+03				
Phorate					1.3E+06	4.5E+02	4.1E+02	2.1E+02
Phosmet					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Phosphine					5.8E+05	6.7E+02	6.1E+02	3.2E+02
Phosphoric acid								
Phosphorus (white)						4.5E+02	4.1E+01	3.7E+01
p-Phthalic acid					6.7E+09	2.2E+06	2.0E+06	1.1E+06
Phthalic anhydride					2.3E+08	4.5E+06	4.1E+06	2.1E+06
Picloram					4.7E+08	1.6E+05	1.4E+05	7.5E+04
Pirimiphos-methyl					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Polybrominated biphenyls	2.1E+03	7.1E-01	6.4E-01	3.4E-01	4.7E+04	1.6E+01	1.4E+01	7.5E+00
Polychlorinated biphenyls (PCBs)	9.4E+03	2.2E+00	2.9E+00	1.3E+00				
Aroclor 1016					4.7E+05	1.1E+02	1.4E+02	6.3E+01
Aroclor 1254					1.3E+05	3.2E+01	4.1E+01	1.8E+01
Polynuclear aromatic hydrocarbons								
Acenaphthene					5.6E+04	1.0E+05	1.2E+05	2.8E+04
Anthracene					1.1E+06	5.2E+05	6.1E+05	2.2E+05
Benz[a]anthracene	6.1E+04	6.6E+00	7.8E+00	3.6E+00				
Benzo[b]fluoranthene	6.1E+04	6.6E+00	7.8E+00	3.6E+00				
Benzo[k]fluoranthene	6.1E+05	6.6E+01	7.8E+01	3.6E+01				
Benzo[a]pyrene	6.1E+03	6.6E-01	7.8E-01	3.6E-01				
Chrysene	6.1E+06	6.6E+02	7.8E+02	3.6E+02				
Dibenz[ah]anthracene	6.1E+03	6.6E-01	7.8E-01	3.6E-01				
Fluoranthene					2.7E+08	6.9E+04	8.2E+04	3.7E+04
Fluorene					5.6E+04	6.9E+04	8.2E+04	2.2E+04
Indeno[1,2,3-cd]pyrene	6.1E+04	6.6E+00	7.8E+00	3.6E+00				
Naphthalene					1.9E+02	3.4E+04	4.1E+04	1.9E+02
Pyrene					4.7E+05	5.2E+04	6.1E+04	2.6E+04
Prochloraz	1.3E+06	4.2E+02	3.8E+02	2.0E+02	6.1E+07	2.0E+04	1.6E+04	9.6E+03
Profluralin					4.0E+07	1.3E+04	1.2E+04	6.4E+03
Prometon					1.0E+08	3.4E+04	3.1E+04	1.6E+04
Prometryn					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Pronamide					5.0E+08	1.7E+05	1.5E+05	8.0E+04
Propachlor					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Propanil					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Propargite					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Propargyl alcohol					1.3E+07	4.5E+03	4.1E+03	2.1E+03
Propazine					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Propham					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Propiconazole					8.7E+07	2.9E+04	2.7E+04	1.4E+04
iso-Propylbenzene					5.2E+02	2.2E+04	2.0E+04	4.9E+02
n-Propylbenzene					5.8E+02	2.2E+04	2.0E+04	5.5E+02
Propylene glycol					1.3E+11	4.5E+07	4.1E+07	2.1E+07
Propylene glycol, monoethyl ether					4.7E+09	1.6E+06	1.4E+06	7.5E+05

Contaminants								
Propylene glycol, monomethyl ether					3.8E+09	1.6E+06	1.4E+06	7.5E+05
Propylene oxide	1.5E+01	2.6E+01	2.4E+01	6.8E+00	5.9E+02	1.9E+04	1.8E+04	5.5E+02
Pursuit					1.7E+09	5.6E+05	5.1E+05	2.7E+05
Pydrin					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Pyridine					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Quinalphos					3.4E+06	1.1E+03	1.0E+03	5.3E+02
Quinoline	1.6E+03	5.2E-01	4.8E-01	2.5E-01				
RDX (Cyclonite)	1.7E+06	5.7E+02	5.2E+02	2.7E+02	2.0E+07	6.7E+03	6.1E+03	3.2E+03
Resmethrin					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Ronnel					3.4E+08	1.1E+05	1.0E+05	5.3E+04
Rotenone					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Savey					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Selenious Acid						1.1E+04	1.0E+04	5.3E+03
Selenium						1.1E+05	1.0E+04	9.4E+03
Selenourea						1.1E+04	1.0E+04	5.3E+03
Sethoxydim					6.1E+08	2.0E+05	1.8E+05	9.6E+04
Silver and compounds						1.1E+05	1.0E+04	9.4E+03
Simazine	1.6E+05	5.2E+01	4.8E+01	2.5E+01	1.3E+07	1.1E+04	1.0E+04	5.3E+03
Sodium azide					2.7E+07	9.0E+03	8.2E+03	4.3E+03
Sodium diethyldithiocarbamate	7.0E+04	2.3E+01	2.1E+01	1.1E+01	2.0E+08	6.7E+04	6.1E+04	3.2E+04
Sodium fluoroacetate					1.3E+05	4.5E+01	4.1E+01	2.1E+01
Sodium metavanadate					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Strontium, stable						1.3E+07	1.2E+06	1.1E+06
Strychnine					2.0E+06	6.7E+02	6.1E+02	3.2E+02
Styrene					2.2E+04	4.5E+05	4.1E+05	2.0E+04
Systhane					1.7E+08	5.6E+04	5.1E+04	2.7E+04
2,3,7,8-TCDD (dioxin)	1.3E-01	1.4E-04	3.8E-05	3.0E-05				
Tebuthiuron					4.7E+08	1.6E+05	1.4E+05	7.5E+04
Temephos					1.3E+08	4.5E+04	4.1E+04	2.1E+04
Terbacil					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Terbufos					1.7E+05	5.6E+01	5.1E+01	2.7E+01
Terbutryn					6.7E+06	2.2E+03	2.0E+03	1.1E+03
1,2,4,5-Tetrachlorobenzene					2.0E+06	6.7E+02	6.1E+02	3.2E+02
1,1,1,2-Tetrachloroethane	7.3E+01	2.4E+03	2.2E+03	6.9E+01	2.0E+03	6.7E+04	6.1E+04	1.9E+03
1,1,2,2-Tetrachloroethane	9.3E+00	3.1E+02	2.9E+02	8.7E+00				
Tetrachloroethylene (PCE)	2.3E+01	1.2E+02	1.1E+02	1.6E+01	1.9E+03	2.2E+04	2.0E+04	1.6E+03
2,3,4,6-Tetrachlorophenol					2.0E+08	6.7E+04	6.1E+04	3.2E+04
p,a,a,a-Tetrachlorotoluene	9.4E+02	3.1E-01	2.9E-01	1.5E-01				
Tetrachlorovinphos	7.8E+05	2.6E+02	2.4E+02	1.2E+02	2.0E+08	6.7E+04	6.1E+04	3.2E+04
Tetraethyldithiopyrophosphate					3.4E+06	1.1E+03	1.0E+03	5.3E+02
Tetrahydrofuran					5.8E+08	1.9E+05	1.8E+05	9.2E+04
Thallic oxide						1.6E+03	1.4E+02	1.3E+02
Thallium acetate						2.0E+03	1.8E+02	1.7E+02
Thallium carbonate						1.8E+03	1.6E+02	1.5E+02
Thallium chloride						1.8E+03	1.6E+02	1.5E+02
Thallium nitrate						2.0E+03	1.8E+02	1.7E+02
Thallium selenite						2.0E+03	1.8E+02	1.7E+02
Thallium sulfate						1.8E+03	1.6E+02	1.5E+02
Thiobencarb					6.7E+07	2.2E+04	2.0E+04	1.1E+04
Thiocyanate					6.7E+08	2.2E+05	2.0E+05	1.1E+05
2-(Thiocyanomethylthio)- benzothiazole (					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Thiofanox					2.0E+06	6.7E+02	6.1E+02	3.2E+02
Thiophanate-methyl					5.4E+08	1.8E+05	1.6E+05	8.6E+04
Thiram					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Tin and compounds						1.3E+07	1.2E+06	1.1E+06
Toluene					2.0E+03	4.5E+05	4.1E+05	2.0E+03
Toluene-2,4-diamine	5.9E+03	2.0E+00	1.8E+00	9.4E-01				
Toluene-2,5-diamine					4.0E+09	1.3E+06	1.2E+06	6.4E+05
Toluene-2,6-diamine					1.3E+09	4.5E+05	4.1E+05	2.1E+05
p-Toluidine	9.9E+04	3.3E+01	3.0E+01	1.6E+01				
Toxaphene	1.7E+04	5.7E+00	5.2E+00	2.7E+00				
Tralomethrin					5.0E+07	1.7E+04	1.5E+04	8.0E+03
Triallate					8.7E+07	2.9E+04	2.7E+04	1.4E+04
Triasulfuron					6.7E+07	2.2E+04	2.0E+04	1.1E+04
1,2,4-Tribromobenzene					3.4E+07	1.1E+04	1.0E+04	5.3E+03
Tributyltin oxide (TBTO)						6.7E+02	6.1E+02	3.2E+02
2,4,6-Trichloroaniline	5.5E+05	1.8E+02	1.7E+02	8.8E+01				
2,4,6-Trichloroaniline hydrochloride	6.5E+05	2.2E+02	2.0E+02	1.0E+02				
1,2,4-Trichlorobenzene					1.2E+04	2.2E+04	2.0E+04	5.7E+03
1,1,1-Trichloroethane					3.5E+03	7.8E+04	7.2E+04	3.2E+03
1,1,2-Trichloroethane	1.9E+00	1.1E+02	1.0E+02	1.9E+00	1.6E+02	9.0E+03	8.2E+03	1.5E+02
Trichloroethylene (TCE)	6.2E+00	5.7E+02	5.2E+02	6.1E+00	8.0E+01	1.3E+04	1.2E+04	7.9E+01
Trichlorofluoromethane					1.3E+03	6.7E+05	6.1E+05	1.3E+03
2,4,5-Trichlorophenol					6.7E+08	2.2E+05	2.0E+05	1.1E+05
2,4,6-Trichlorophenol	1.7E+06	5.7E+02	5.2E+02	2.7E+02				
2,4,5-Trichlorophenoxyacetic Acid					6.7E+07	2.2E+04	2.0E+04	1.1E+04
2-(2,4,5-Trichlorophenoxy) propionic acid					5.4E+07	1.8E+04	1.6E+04	8.6E+03
1,1,2-Trichloropropane					5.1E+01	1.1E+04	1.0E+04	5.1E+01
1,2,3-Trichloropropane	3.1E-03	9.0E-01	8.2E-01	3.1E-03	3.9E+01	1.3E+04	1.2E+04	3.9E+01
1,2,3-Trichloropropene					3.9E+01	1.1E+04	1.0E+04	3.9E+01
1,1,2-Trichloro-1,2,2-trifluoroethane					6.9E+04	6.7E+07	6.1E+07	6.9E+04
Tridiphane					2.0E+07	6.7E+03	6.1E+03	3.2E+03
Triethylamine					9.0E+01	4.5E+03	4.1E+03	8.6E+01
Trifluralin	2.4E+07	8.1E+03	7.4E+03	3.9E+03	5.0E+07	1.7E+04	1.5E+04	8.0E+03

1,2,4-Trimethylbenzene					1.7E+02	1.1E+05	1.0E+05	1.7E+02
1,3,5-Trimethylbenzene					7.0E+01	1.1E+05	1 0E+05	7 0E+01
Trimethyl phosphate	5.1E+05	1.7E+02	1 5E+02	8.1E+01				
1,3,5-Trinitrobenzene					2.0E+08	6.7E+04	6.1E+04	3.2E+04
Trinitrophenylmethylnitramine					6.7E+07	2.2E+04	2 0E+04	1.1E+04
2,4,6-Trinitrotoluene	6.3E+06	2.1E+03	1.9E+03	1 0E+03	3 4E+06	1.1E+03	1.0E+03	5.3E+02
Vanadium						1.6E+05	1.4E+04	1 3E+04
Vanadium pentoxide						2.0E+05	1.8E+04	1.7E+04
Vanadium sulfate						4 5E+05	4.1E+04	3.7E+04
Vernam					6.7E+06	2.2E+03	2.0E+03	1.1E+03
Vinclozolin					1.7E+08	5.6E+04	5.1E+04	2.7E+04
Vinyl acetate					1.4E+03	2.2E+06	2.0E+06	1 4E+03
Vinyl bromide	4.3E-01	5.7E+01	5.2E+01	4.2E-01	1.4E+01	1.9E+03	1 8E+03	1 4E+01
Vinyl chloride	5.0E-02	3.3E+00	3.0E+00	4 8E-02				
Warfarin					2.0E+06	6.7E+02	6.1E+02	3.2E+02
m-Xylene					4.5E+03	4 5E+06	4.1E+06	4.5E+03
o-Xylene					5 2E+03	4 5E+06	4.1E+06	5.2E+03
p-Xylene								
Zinc						6.7E+06	6 1E+05	5.6E+05
Zinc phosphide						6.7E+03	6.1E+02	5 6E+02
Zineb					3.4E+08	1.1E+05	1 0E+05	5.3E+04

Acephate	7.7E+00	1.5E+01	7.7E+01	1.5E+02
Acetaldehyde	8.7E-01	9.4E+00	1.5E+00	1.6E+01
Acetochlor		7.3E+01		7.3E+02
Acetone		3.7E+02		6.1E+02
Acetone cyanohydrin		1.0E+01		2.9E+01
Acetonitrile		5.2E+01		7.1E+01
Acetophenone		2.1E-02		4.2E-02
Acifluorfen	6.1E-02	4.7E+01	6.1E-01	4.7E+02
Acrolein		2.1E-02		4.2E-02
Acrylamide	1.5E-03	7.3E-01	1.5E-02	7.3E+00
Acrylic acid		1.0E+00		1.8E+04
Acrylonitrile	2.8E-02	2.1E+00	3.9E-02	3.7E+00
Alachlor	8.4E-02	3.7E+01	8.4E-01	3.7E+02
Alar		5.5E+02		5.5E+03
Aldicarb		3.7E+00		3.7E+01
Aldicarb sulfone		3.7E+00		3.7E+01
Aldrin	3.9E-04	1.1E-01	4.0E-03	1.1E+00
Ally		9.1E+02		9.1E+03
Allyl alcohol		1.8E+01		1.8E+02
Allyl chloride		1.0E+00		1.8E+03
Aluminum				3.7E+04
Aluminum phosphide				1.5E+01
Amdro		1.1E+00		1.1E+01
Ametryn		3.3E+01		3.3E+02
m-Aminophenol		2.6E+02		2.6E+03
4-Aminopyridine		7.3E-02		7.3E-01
Amitraz		9.1E+00		9.1E+01
Ammonia		1.0E+02		
Ammonium sulfamate				7.3E+03
Aniline	1.2E+00	1.0E+00	1.2E+01	2.6E+02
Antimony and compounds				1.5E+01
Antimony pentoxide				1.8E+01
Antimony potassium tartrate				3.3E+01
Antimony tetroxide				1.5E+01
Antimony trioxide				1.5E+01
Apollo		4.7E+01		4.7E+02
Aramite	2.7E-01	1.8E+02	2.7E+00	1.8E+03
Arsenic (noncancer endpoint)				1.1E+01
Arsenic (cancer endpoint)	4.5E-04		4.5E-02	1.1E+01
Arsine		5.2E-02		
Assure		3.3E+01		3.3E+02
Asulam		1.8E+02		1.8E+03
Atrazine	3.1E-02	1.3E+02	3.0E-01	1.3E+03
Avermectin B1		1.5E+00		1.5E+01
Azobenzene	6.2E-02		6.1E-01	
Barium and compounds		5.2E-01		2.6E+03
Baygon		1.5E+01		1.5E+02
Bayleton		1.1E+02		1.1E+03
Baythroid		9.1E+01		9.1E+02
Benefin		1.1E+03		1.1E+04
Benomyl		1.8E+02		1.8E+03
Bentazon		1.1E+02		1.1E+03
Benzaldehyde		3.7E+02		3.7E+03
Benzene	2.3E-01	6.2E+00	3.9E-01	1.1E+01
Benzidine	2.9E-05	1.1E+01	2.9E-04	1.1E+02
Benzoic acid		1.5E+04		1.5E+05
Benzotrichloride	5.2E-04		5.2E-03	
Benzyl alcohol		1.1E+03		1.1E+04
Benzyl chloride	4.0E-02		6.6E-02	
Beryllium and compounds	8.0E-04	2.1E-02		7.3E+01
Bidrin		3.7E-01		3.7E+00
Biphenthrin (Talstar)		5.5E+01		5.5E+02
1,1-Biphenyl		1.8E+02		3.0E+02
Bis(2-chloroethyl)ether	5.8E-03		9.8E-03	
Bis(2-chloroisopropyl)ether	1.9E-01	1.5E+02	2.7E-01	2.4E+02
Bis(chloromethyl)ether	3.1E-05		5.2E-05	
Bis(2-chloro-1-methylethyl)ether	1.9E-01		9.6E-01	
Bis(2-ethylhexyl)phthalate (DEHP)	4.8E-01	8.0E+01	4.8E+00	7.3E+02
Bisphenol A		1.8E+02		1.8E+03
Boron		2.1E+01		3.3E+03
Boron trifluoride		7.3E-01		
Bromobenzene		1.0E+01		2.0E+01
Bromodichloromethane	1.1E-01	7.3E+01	1.8E-01	1.2E+02
Bromoform (tribromomethane)	1.7E+00	7.3E+01	8.5E+00	7.3E+02
Bromomethane		5.2E+00		8.7E+00
4-Bromophenyl phenyl ether				
Bromophos		1.8E+01		1.8E+02
Bromoxynil		7.3E+01		7.3E+02

Contaminant				
Bromoxynil octanoate		7.3E+01		7.3E+02
1,3-Butadiene	6.9E-03		1.1E-02	
1-Butanol		3.7E+02		3.7E+03
Butylate		1.8E+02		1.8E+03
n-Butylbenzene		3.7E+01		6.1E+01
sec-Butylbenzene		3.7E+01		6.1E+01
tert-Butylbenzene		3.7E+01		6.1E+01
Butyl benzyl phthalate		7.3E+02		7.3E+03
Butylphthalyl butylglycolate		3.7E+03		3.7E+04
Cacodylic acid		1.1E+01		1.1E+02
Cadmium and compounds	1.1E-03	2.1E-01		1.8E+01
Caprolactam		*1.8E+03*		*1.8E+04*
Captafol	7.9E-01	7.3E+00	7.8E+00	7.3E+01
Captan	1.9E+00	4.7E+02	1.9E+01	4.7E+03
Carbaryl		4.0E+02		3.7E+03
Carbazole	3.4E-01		3.4E+00	
Carbofuran		1.8E+01		1.8E+02
Carbon disulfide		7.3E+02		1.0E+03
Carbon tetrachloride	1.3E-01	2.1E+00	1.7E-01	3.6E+00
Carbosulfan		3.7E+01		3.7E+02
Carboxin		3.7E+02		3.7E+03
Chloral		7.3E+00		7.3E+01
Chloramben		5.5E+01		5.5E+02
Chloranil	1.7E-02		1.7E-01	
Chlordane	1.9E-02	8.3E-02	1.9E-01	1.8E+01
Chlorimuron-ethyl		7.3E+01		7.3E+02
Chlorine				3.7E+03
Chlorine dioxide		2.1E-01		
Chloroacetaldehyde				
Chloroacetic acid		7.3E+00		7.3E+01
2-Chloroacetophenone		3.1E-02		5.2E-02
4-Chloroaniline		1.5E+01		1.5E+02
Chlorobenzene		2.1E+01		3.9E+01
Chlorobenzilate	2.5E-02	7.3E+01	2.5E-01	7.3E+02
p-Chlorobenzoic acid		7.3E+02		7.3E+03
4-Chlorobenzotrifluoride		7.3E+01		7.3E+02
2-Chloro-1,3-butadiene		7.3E+00		1.4E+01
1-Chlorobutane		1.5E+03		2.4E+03
1-Chloro-1,1-difluoroethane		5.2E+04		8.7E+04
Chlorodifluoromethane		5.1E+04		8.5E+04
2-Chloroethyl vinyl ether				
Chloroform	8.4E-02	3.7E+01	1.6E-01	6.1E+01
Chloromethane	1.1E+00		1.5E+00	
4-Chloro-2-methylaniline	1.2E-02		1.2E-01	
4-Chloro-2-methylaniline hydrochloride	1.5E-02		1.5E-01	
beta-Chloronaphthalene		2.9E+02		4.9E+02
o-Chloronitrobenzene	2.7E-01		2.7E+00	
p-Chloronitrobenzene	3.7E-01		3.7E+00	
2-Chlorophenol		1.8E+01		3.0E+01
2-Chloropropane		1.0E+02		1.7E+02
Chlorothalonil	6.1E-01	5.5E+01	6.1E+00	5.5E+02
o-Chlorotoluene		7.3E+01		1.2E+02
Chlorpropham		7.3E+02		7.3E+03
Chlorpyrifos		1.1E+01		1.1E+02
Chlorpyrifos-methyl		3.7E+01		3.7E+02
Chlorsulfuron		1.8E+02		1.8E+03
Chlorthiophos		2.9E+00		2.9E+01
Total Chromium (1/6 ratio Cr VI/Cr III)	1.6E-04			
Chromium VI	*2.3E-05*			*1.8E+02*
Cobalt		2.1E-02		2.2E+03
Coke Oven Emissions	3.1E-03			
Copper and compounds				1.4E+03
Crotonaldehyde	3.5E-02	3.7E+01	5.9E-02	6.1E+01
Cumene (isopropylbenzene)		4.0E+02		6.6E+02
Cyanazine	8.0E-03	7.3E+00	8.0E-02	7.3E+01
Cyanides				
Barium cyanide				3.7E+03
Calcium cyanide				1.5E+03
Copper cyanide				1.8E+02
Cyanogen				1.5E+03
Cyanogen bromide				3.3E+03
Cyanogen chloride				1.8E+03
Free cyanide				7.3E+02
Hydrogen cyanide		3.1E+00		6.2E+00
Potassium cyanide				1.8E+03
Potassium silver cyanide				7.3E+03
Silver cyanide				3.7E+03
Sodium cyanide				1.5E+03
Zinc cyanide				1.8E+03
Cyclohexanone		1.8E+04		1.8E+05
Cyclohexylamine		7.3E+02		7.3E+03
Cyhalothrin/Karate		1.8E+01		1.8E+02
Cypermethrin		3.7E+01		3.7E+02
Cyromazine		2.7E+01		2.7E+02

Dacthal		3.7E+01		3.7E+02
Dalapon		1.1E+02		1.1E+03
Danitol		9.1E+01		9.1E+02
DDD	2.8E-02		2.8E-01	
DDE	2.0E-02		2.0E-01	
DDT	2.0E-02	1.8E+00	2.0E-01	1.8E+01
Decabromodiphenyl ether		3.7E+01		3.7E+02
Demeton		1.5E-01		1.5E+00
Diallate	1.1E-01		1.1E+00	
Diazinon		3.3E+00		3.3E+01
Dibenzofuran		1.5E+01		2.4E+01
1,4-Dibromobenzene		3.7E+01		3.7E+02
Dibromochloromethane	8.0E-02	7.3E+01	8.0E-01	7.3E+02
1,2-Dibromo-3-chloropropane	2.8E+00	2.1E-01	4.8E-02	2.1E+00
1,2-Dibromoethane	8.7E-03	2.1E-01	7.6E-04	3.5E-01
Dibutyl phthalate		3.7E+02		3.7E+03
Dicamba		1.1E+02		1.1E+03
1,2-Dichlorobenzene		2.1E+02		3.7E+02
1,3-Dichlorobenzene		8.4E+00		1.7E+01
1,4-Dichlorobenzene	2.8E-01	8.4E+02	4.7E-01	1.4E+03
3,3-Dichlorobenzidine	1.5E-02		1.5E-01	
1,4-Dichloro-2-butene	7.2E-04		1.2E-03	
Dichlorodifluoromethane		2.1E+02		3.9E+02
1,1-Dichloroethane		5.2E+02		8.1E+02
1,2-Dichloroethane (EDC)	7.4E-02	1.0E+01	1.2E-01	1.7E+01
1,1-Dichloroethylene	3.8E-01	3.3E+01	4.6E-01	5.5E+01
1,2-Dichloroethylene (cis)		3.7E+01		6.1E+01
1,2-Dichloroethylene (trans)		7.3E+01		1.2E+02
2,4-Dichlorophenol		1.1E+01		1.1E+02
4-(2,4-Dichlorophenoxy)butyric Acid (2,4		2.9E+01		2.9E+02
2,4-Dichlorophenoxyacetic Acid (2,4-D)		3.7E+01		3.7E+02
1,2-Dichloropropane	9.9E-02	4.2E+00	1.6E-01	6.9E+00
1,3-Dichloropropene	5.2E-02	2.1E+01	8.1E-02	8.7E+00
2,3-Dichloropropanol		1.1E+01		1.1E+02
Dichlorvos	2.3E-02	5.2E-01	2.3E-01	1.8E+01
Dicofol	1.5E-02		1.5E-01	
Dicyclopentadiene		2.1E-01		4.2E-01
Dieldrin	4.2E-04	1.8E-01	4.2E-03	1.8E+00
Diethylene glycol, monobutyl ether		2.1E+01		2.1E+02
Diethylene glycol, monoethyl ether		7.3E+03		7.3E+04
Diethylformamide		4.0E+01		4.0E+02
Di(2-ethylhexyl)adipate	5.6E+00	2.2E+03	5.6E+01	2.2E+04
Diethyl phthalate		2.9E+03		2.9E+04
Diethylstilbestrol	1.4E-06		1.4E-05	
Difenzoquat (Avenge)		2.9E+02		2.9E+03
Diflubenzuron		7.3E+01		7.3E+02
1,1-Difluoroethane		4.2E+04		6.9E+04
Diisopropyl methylphosphonate		2.9E+02		2.9E+03
Dimethipin		7.3E+01		7.3E+02
Dimethoate		7.3E-01		7.3E+00
3,3'-Dimethoxybenzidine	4.8E-01		4.8E+00	
Dimethylamine		2.1E-02		3.5E-02
N-N-Dimethylaniline		7.3E+00		7.3E+01
2,4-Dimethylaniline	9.0E-03		9.0E-02	
2,4-Dimethylaniline hydrochloride	1.2E-02		1.2E-01	
3,3'-Dimethylbenzidine	7.3E-04		7.3E-03	
1,1-Dimethylhydrazine	1.9E-03		2.6E-02	
1,2-Dimethylhydrazine	1.8E-04		1.8E-03	
N,N-Dimethylformamide		3.1E+01		3.7E+03
Dimethylphenethylamine		3.7E+00		3.7E+01
2,4-Dimethylphenol		7.3E+01		7.3E+02
2,6-Dimethylphenol		2.2E+00		2.2E+01
3,4-Dimethylphenol		3.7E+00		3.7E+01
Dimethyl phthalate		3.7E+04		3.7E+05
Dimethyl terephthalate		3.7E+02		3.7E+03
4,6-Dinitro-o-cyclohexyl phenol		7.3E+00		7.3E+01
1,2-Dinitrobenzene		1.5E+00		1.5E+01
1,3-Dinitrobenzene		3.7E-01		3.7E+00
1,4-Dinitrobenzene		1.5E+00		1.5E+01
2,4-Dinitrophenol		7.3E+00		7.3E+01
Dinitrotoluene mixture	9.9E-03		9.9E-02	
2,4-Dinitrotoluene		7.3E+00		7.3E+01
2,6-Dinitrotoluene		3.7E+00		3.7E+01
Dinoseb		3.7E+00		3.7E+01
di-n-Octyl phthalate		7.3E+01		7.3E+02
1,4-Dioxane	6.1E-01		6.1E+00	
Dioxin (2,3,7,8-TCDD)	4.5E-08		4.5E-07	
Diphenamid		1.1E+02		1.1E+03
Diphenylamine		9.1E+01		9.1E+02
1,2-Diphenylhydrazine	8.7E-03		8.4E-02	
Diphenyl sulfone		3.3E+01		3.3E+02
Diquat		8.0E+00		8.0E+01
Direct black 38	7.8E-04		7.8E-03	
Direct blue 6	8.3E-04		8.3E-03	

Region 6 Human Health Screening Levels for Chemicals in Soil				
Compound				
Direct brown 95	7 2E-04		7 2E-03	
Disulfoton		1.5E-01		1 5E+00
1,4-Dithiane		3.7E+01		3 7E+02
Diuron		7 3E+00		7.3E+01
Dodine		1 5E+01		1 5E+02
Endosulfan		2.2E+01		2.2E+02
Endothall		7 3E+01		7 3E+02
Endrin		1 1E+00		1.1E+01
Epichlorohydrin	1.6E+00	1 0E+00	2.2E+00	2.0E+00
1,2-Epoxybutane		2.1E+01		2.1E+02
EPTC (S-Ethyl dipropylthiocarbamate)		9 1E+01		9.1E+02
Ethephon (2-chloroethyl phosphonic aci		1.8E+01		1 8E+02
Ethion		1 8E+00		1.8E+01
2-Ethoxyethanol		2 1E+02		1.5E+04
2-Ethoxyethanol acetate		1 1E+03		1.1E+04
Ethyl acetate		3 3E+03		5 5E+03
Ethyl acrylate	1 4E-01		2.3E-01	
Ethylbenzene		1.1E+03		1.3E+03
Ethyl chloride		1 0E+04		8 6E+03
Ethylene cyanohydrin		1 1E+03		1.1E+04
Ethylene diamine		7 3E+01		7 3E+02
Ethylene glycol		7.3E+03		7 3E+04
Ethylene glycol, monobutyl ether		2.1E+01		2.1E+02
Ethylene oxide	1 9E-02		2.4E-02	
Ethylene thiourea (ETU)	6 1E-02	2.9E-01	6.1E-01	2.9E+00
Ethyl ether		7.3E+02		1 2E+03
Ethyl methacrylate		3 3E+02		5 5E+02
Ethyl p-nitrophenyl phenylphosphorothic		3.7E-02		3.7E-01
Ethylphthalyl ethyl glycolate		1 1E+04		1.1E+05
Express		2.9E+01		2.9E+02
Fenamiphos		9.1E-01		9.1E+00
Fluometuron		4 7E+01		4.7E+02
Fluoride				2.2E+03
Fluoridone		2.9E+02		2.9E+03
Flurprimidol		7.3E+01		7.3E+02
Flutolanil		2 2E+02		2.2E+03
Fluvalinate		3 7E+01		3.7E+02
Folpet	1 9E+00	3.7E+02	1 9E+01	3.7E+03
Fomesafen	3 5E-01		3.5E+00	
Fonofos		7 3E+00		7 3E+01
Formaldehyde	1.5E-01			5.5E+03
Formic Acid		7.3E+03		7.3E+04
Fosetyl-al		1.1E+04		1.1E+05
Furan		3 7E+00		6.1E+00
Furazolidone	1.8E-03		1.8E-02	
Furfural		5.2E+01		1.1E+02
Furium	1.3E-04		1.3E-03	
Furmecyclox	2.2E-01		2.2E+00	
Glufosinate-ammonium		1 5E+00		1.5E+01
Glycidaldehyde		1.0E+00		1.5E+01
Glyphosate		3.7E+02		3.7E+03
Haloxyfop-methyl		1.8E-01		1.8E+00
Harmony		4.7E+01		4.7E+02
Heptachlor	1 5E-03	1.8E+00	1.5E-02	1.8E+01
Heptachlor epoxide	7.4E-04	4.7E-02	7.4E-03	4.7E-01
Hexabromobenzene		7.3E+00		7 3E+01
Hexachlorobenzene	4 2E-03	2.9E+00	4.2E-02	2.9E+01
Hexachlorobutadiene	8.7E-01	7.3E-01	8 6E+00	7.3E+00
HCH (alpha)	1.1E-03		1.1E-02	
HCH (beta)	3.7E-02		3.7E-01	
HCH (gamma) Lindane	5 2E-03	1 1E+00	5 2E-02	1 1E+01
HCH-technical	3.8E-03		3.7E-02	
Hexachlorocyclopentadiene		7 3E-02		2 6E+02
Hexachlorodibenzo-p-dioxin mixture (Hx	1 5E-06		1.1E-05	
Hexachloroethane	4 8E+00	3 7E+00	4 8E+01	3.7E+01
Hexachlorophene		1 1E+00		1.1E+01
Hexahydro-1,3,5-trinitro-1,3,5-triazine	6.1E-01	1 1E+01	6 1E+00	1.1E+02
1,6-Hexamethylene diisocyanate		1 0E-02		1 0E-01
n-Hexane		2.1E+02		3.5E+02
Hexazinone		1 2E+02		1 2E+03
Hydrazine, hydrazine sulfate	3 9E-04		2 2E-02	
Hydrogen chloride		2.1E+01		
Hydrogen sulfide		1 0E+00		2 0E+00
p-Hydroquinone		1 5E+02		1 5E+03
Imazalil		4 7E+01		4 7E+02
Imazaquin		9 1E+02		9 1E+03
Iprodione		1 5E+02		1 5E+03
Iron				1.1E+04
Isobutanol		1 1E+03		1 8E+03
Isophorone	7 1E+01	7 3E+02	7 1E+02	7 3E+03
Isopropalin		5 5E+01		5 5E+02
Isopropyl methyl phosphonic acid		4 0E+02		3 7E+03
Isoxaben		1 8E+02		1 8E+03
Kepone	3 7E-04		3 7E-03	

Region 6 Human Health Medium-Specific Screening Levels (Continued)				
Lactofen		7.3E+00		7.3E+01
Lead				
Lead (tetraethyl)				3.7E-03
Linuron		7.3E+00		7.3E+01
Lithium				7.3E+02
Londax		7.3E+02		7.3E+03
Malathion		7.3E+01		7.3E+02
Maleic anhydride		3.7E+02		3.7E+03
Maleic hydrazide		1.8E+03		3.0E+03
Malononitrile		7.3E-02		7.3E-01
Mancozeb		1.1E+02		1.1E+03
Maneb	1.1E-01	1.8E+01	1.1E+00	1.8E+02
Manganese and compounds		5.1E-02		1.7E+03
Mephosfolan		3.3E-01		3.3E+00
Mepiquat		1.1E+02		1.1E+03
2-Mercaptobenzothiazole	2.3E-01	3.7E+02	2.3E+00	3.7E+03
Mercury and compounds				1.1E+01
Mercury (elemental)		3.1E-01		
Mercury (methyl)				3.7E+00
Merphos		1.1E-01		1.1E+00
Merphos oxide		1.1E-01		1.1E+00
Metalaxyl		2.2E+02		2.2E+03
Methacrylonitrile		7.3E-01		1.0E+00
Methamidophos		1.8E-01		1.8E+00
Methanol		1.8E+03		1.8E+04
Methidathion		3.7E+00		3.7E+01
Methomyl		9.1E+01		1.5E+02
Methoxychlor		1.8E+01		1.8E+02
2-Methoxyethanol		2.1E+01		3.7E+01
2-Methoxyethanol acetate		7.3E+00		7.3E+01
2-Methoxy-5-nitroaniline	1.5E-01		1.5E+00	
Methyl acetate		3.7E+03		6.1E+03
Methyl acrylate		1.1E+02		1.8E+02
2-Methylaniline (o-toluidine)	2.8E-02		2.8E-01	
2-Methylaniline hydrochloride	3.7E-02		3.7E-01	
Methyl chlorocarbonate		3.7E+03		3.7E+04
2-Methyl-4-chlorophenoxyacetic acid		1.8E+00		1.8E+01
4-(2-Methyl-4-chlorophenoxy) butyric aci		3.7E+01		3.7E+02
2-(2-Methyl-4-chlorophenoxy) propionic		3.7E+00		3.7E+01
2-(2-Methyl-1,4-chlorophenoxy) propionic		3.7E+00		3.7E+01
Methylcyclohexane		3.1E+03		3.1E+04
4,4'-Methylenebisbenzeneamine	2.7E-02		2.7E-01	
4,4'-Methylene bis(2-chloroaniline)	5.2E-02	2.6E+00	5.2E-01	2.6E+01
4,4'-Methylene bis(N,N'-dimethyl)aniline	1.5E-01		1.5E+00	
Methylene bromide		3.7E+01		3.7E+02
Methylene chloride	4.1E+00	3.1E+03	4.3E+00	1.6E+03
4,4'-Methylenediphenyl isocyanate		6.2E-01		6.2E+00
Methyl ethyl ketone		1.0E+03		1.9E+03
Methyl hydrazine	6.1E-03		6.1E-02	
Methyl isobutyl ketone		8.3E+01		1.6E+02
Methyl mercaptan		2.1E+00		2.1E+01
Methyl methacrylate		7.3E+02		1.4E+03
2-Methyl-5-nitroaniline	2.0E-01		2.0E+00	
Methyl parathion		9.1E-01		9.1E+00
2-Methylphenol		1.8E+02		1.8E+03
3-Methylphenol		1.8E+02		1.8E+03
4-Methylphenol		1.8E+01		1.8E+02
Methyl phosphonic acid		7.3E+01		7.3E+02
Methyl styrene (mixture)		4.2E+01		6.0E+01
Methyl styrene (alpha)		2.6E+02		4.3E+02
Methyl tertbutyl ether (MTBE)		3.1E+03		
Metolaclor (Dual)		5.5E+02		5.5E+03
Metribuzin		9.1E+01		9.1E+02
Mirex	3.7E-03	7.3E-01	3.7E-02	7.3E+00
Molinate		7.3E+00		7.3E+01
Molybdenum				1.8E+02
Monochloramine		3.7E+02		3.7E+03
Naled		7.3E+00		7.3E+01
Napropamide		3.7E+02		3.7E+03
Nickel and compounds				7.3E+02
Nickel refinery dust	8.0E-03			
Nickel subsulfide	4.0E-03			
Nitrapyrin		5.5E+00		5.5E+01
Nitrate				
Nitric Oxide				3.7E+03
Nitrite				
2-Nitroaniline		2.1E-01		2.2E+00
3-Nitroaniline				
4-Nitroaniline				
Nitrobenzene		2.1E+00		3.4E+00
Nitrofurantoin		2.6E+02		2.6E+03
Nitrofurazone	7.2E-04		4.5E-02	
Nitrogen dioxide				3.7E+04
Nitroguanidine		3.7E+02		3.7E+03

4-Nitrophenol		2.3E+02		2.3E+03
2-Nitropropane	7.2E-04	2.1E+01	1.2E-03	3.5E+01
N-Nitrosodi-n-butylamine	1.2E-03		2.0E-03	
N-Nitrosodiethanolamine	2.4E-03		2.4E-02	
N-Nitrosodiethylamine	4.5E-05		4.5E-04	
N-Nitrosodimethylamine	1.4E-04		1.3E-03	
N-Nitrosodiphenylamine	1.4E+00		1.4E+01	
N-Nitroso di-n-propylamine	9.6E-04		9.6E-03	
N-Nitroso-N-methylethylamine	3.1E-04		3.1E-03	
N-Nitrosopyrrolidine	3.1E-03		3.2E-02	
m-Nitrotoluene		3.7E+01		3.7E+02
o-Nitrotoluene		3.7E+01		3.7E+02
p-Nitrotoluene		3.7E+01		3.7E+02
Norflurazon		1.5E+02		1.5E+03
NuStar		2.6E+00		2.6E+01
Octabromodiphenyl ether		1.1E+01		1.1E+02
Octahydro-1357-tetranitro-1357- tetrazoc		1.8E+02		1.8E+03
Octamethylpyrophosphoramide		7.3E+00		7.3E+01
Oryzalin		1.8E+02		1.8E+03
Oxadiazon		1.8E+01		1.8E+02
Oxamyl		9.1E+01		9.1E+02
Oxyfluorfen		1.1E+01		1.1E+02
Paclobutrazol		4.7E+01		4.7E+02
Paraquat		1.6E+01		1.6E+02
Parathion		2.2E+01		2.2E+02
Pebulate		1.8E+02		1.8E+03
Pendimethalin		1.5E+02		1.5E+03
Pentabromo-6-chloro cyclohexane	2.9E-01		2.9E+00	
Pentabromodiphenyl ether		7.3E+00		7.3E+01
Pentachlorobenzene		2.9E+00		2.9E+01
Pentachloronitrobenzene	2.6E-02	1.1E+01	2.6E-01	1.1E+02
Pentachlorophenol	5.6E-02	1.1E+02	5.6E-01	1.1E+03
Perchlorate				1.8E+01
Permethrin		1.8E+02		1.8E+03
Phenmedipham		9.1E+02		9.1E+03
Phenol		2.2E+03		2.2E+04
Phenothiazine		7.3E+00		7.3E+01
m-Phenylenediamine		2.2E+01		2.2E+02
p-Phenylenediamine		6.9E+02		6.9E+03
Phenylmercuric acetate		2.9E-01		2.9E+00
2-Phenylphenol	3.5E+00		3.5E+01	
Phorate		7.3E-01		7.3E+00
Phosmet		7.3E+01		7.3E+02
Phosphine		3.1E-01		1.1E+01
Phosphoric acid		1.0E+01		
Phosphorus (white)				7.3E-01
p-Phthalic acid		3.7E+03		3.7E+04
Phthalic anhydride		1.2E+02		7.3E+04
Picloram		2.6E+02		2.6E+03
Pirimiphos-methyl		3.7E+01		3.7E+02
Polybrominated biphenyls	7.6E-04	2.6E-02	7.6E-03	2.6E-01
Polychlorinated biphenyls (PCBs)	3.4E-03		3.4E-02	
Aroclor 1016		2.6E-01		2.6E+00
Aroclor 1254		7.3E-02		7.3E-01
Polynuclear aromatic hydrocarbons				
Acenaphthene		2.2E+02		3.7E+02
Anthracene		1.1E+03		1.8E+03
Benz[a]anthracene	2.2E-02		9.2E-02	
Benzo[b]fluoranthene	2.2E-02		9.2E-02	
Benzo[k]fluoranthene	2.2E-01		9.2E-01	
Benzo[a]pyrene	2.2E-03		9.2E-03	
Chrysene	2.2E+00		9.2E+00	
Dibenz[ah]anthracene	2.2E-03		9.2E-03	
Fluoranthene		1.5E+02		1.5E+03
Fluorene		1.5E+02		2.4E+02
Indeno[1,2,3-cd]pyrene	2.2E-02		9.2E-02	
Naphthalene		3.1E+00		6.2E+00
Pyrene		1.1E+02		1.8E+02
Prochloraz	4.5E-01	3.3E+01	4.5E+00	3.3E+02
Profluralin		2.2E+01		2.2E+02
Prometon		5.5E+01		5.5E+02
Prometryn		1.5E+01		1.5E+02
Pronamide		2.7E+02		2.7E+03
Propachlor		4.7E+01		4.7E+02
Propanil		1.8E+01		1.8E+02
Propargite		7.3E+01		7.3E+02
Propargyl alcohol		7.3E+00		7.3E+01
Propazine		7.3E+01		7.3E+02
Propham		7.3E+01		7.3E+02
Propiconazole		4.7E+01		4.7E+02
iso-Propylbenzene		3.7E+01		6.1E+01
n-Propylbenzene		3.7E+01		6.1E+01
Propylene glycol		7.3E+04		7.3E+05
Propylene glycol, monoethyl ether		2.6E+03		2.6E+04

Propylene glycol, monomethyl ether		2.1E+03		2.6E+04
Propylene oxide	5.2E-01	3.1E+01	2.2E-01	5.2E+01
Pursuit		9.1E+02		9.1E+03
Pydrin		9.1E+01		9.1E+02
Pyridine		3.7E+00		3.7E+01
Quinalphos		1.8E+00		1.8E+01
Quinoline	5.6E-04		5.6E-03	
RDX (Cyclonite)	6.1E-01	1.1E+01	6.1E+00	1.1E+02
Resmethrin		1.1E+02		1.1E+03
Ronnel		1.8E+02		1.8E+03
Rotenone		1.5E+01		1.5E+02
Savey		9.1E+01		9.1E+02
Selenious Acid				1.8E+02
Selenium				1.8E+02
Selenourea				1.8E+02
Sethoxydim		3.3E+02		3.3E+03
Silver and compounds				1.8E+02
Simazine	5.6E-02	7.3E+00	5.6E-01	1.8E+02
Sodium azide		1.5E+01		1.5E+02
Sodium diethyldithiocarbamate	2.5E-02	1.1E+02	2.5E-01	1.1E+03
Sodium fluoroacetate		7.3E-02		7.3E-01
Sodium metavanadate		3.7E+00		3.7E+01
Strontium, stable				2.2E+04
Strychnine		1.1E+00		1.1E+01
Styrene		1.1E+03		1.6E+03
Systhane		9.1E+01		9.1E+02
2,3,7,8-TCDD (dioxin)	4.5E-08		4.5E-07	
Tebuthiuron		2.6E+02		2.6E+03
Temephos		7.3E+01		7.3E+02
Terbacil		4.7E+01		4.7E+02
Terbufos		9.1E-02		9.1E-01
Terbutryn		3.7E+00		3.7E+01
1,2,4,5-Tetrachlorobenzene		1.1E+00		1.1E+01
1,1,1,2-Tetrachloroethane	2.6E+00	1.1E+02	4.3E+00	1.8E+02
1,1,2,2-Tetrachloroethane	3.3E-01		5.5E-01	
Tetrachloroethylene (PCE)	3.3E+00	4.2E+02	1.1E+00	2.5E+02
2,3,4,6-Tetrachlorophenol		1.1E+02		1.1E+03
p,a,a,a-Tetrachlorotoluene	3.4E-04		3.4E-03	
Tetrachlorovinphos	2.8E-01	1.1E+02	2.8E+00	1.1E+03
Tetraethyldithiopyrophosphate		1.8E+00		1.8E+01
Tetrahydrofuran		3.1E+02		3.1E+03
Thallic oxide				2.6E+00
Thallium acetate				3.3E+00
Thallium carbonate				2.9E+00
Thallium chloride				2.9E+00
Thallium nitrate				3.3E+00
Thallium selenite				3.3E+00
Thallium sulfate				2.9E+00
Thiobencarb		3.7E+01		3.7E+02
Thiocyanate		3.7E+02		3.7E+03
2-(Thiocyanomethylthio)- benzothiazole (		1.1E+02		1.1E+03
Thiofanox		1.1E+00		1.1E+01
Thiophanate-methyl		2.9E+02		2.9E+03
Thiram		1.8E+01		1.8E+02
Tin and compounds				2.2E+04
Toluene		4.0E+02		7.2E+02
Toluene-2,4-diamine	2.1E-03		2.1E-02	
Toluene-2,5-diamine		2.2E+03		2.2E+04
Toluene-2,6-diamine		7.3E+02		7.3E+03
p-Toluidine	3.5E-02		3.5E-01	
Toxaphene	6.0E-03		6.1E-02	
Tralomethrin		2.7E+01		2.7E+02
Triallate		4.7E+01		4.7E+02
Triasulfuron		3.7E+01		3.7E+02
1,2,4-Tribromobenzene		1.8E+01		1.8E+02
Tributyltin oxide (TBTO)				1.1E+01
2,4,6-Trichloroaniline	2.0E-01		2.0E+00	
2,4,6-Trichloroaniline hydrochloride	2.3E-01		2.3E+00	
1,2,4-Trichlorobenzene		2.1E+02		1.9E+02
1,1,1-Trichloroethane		1.0E+03		7.9E+02
1,1,2-Trichloroethane	1.2E-01	1.5E+01	2.0E-01	2.4E+01
Trichloroethylene (TCE)	1.1E+00	2.2E+01	1.6E+00	3.7E+01
Trichlorofluoromethane		7.3E+02		1.3E+03
2,4,5-Trichlorophenol		3.7E+02		3.7E+03
2,4,6-Trichlorophenol	6.2E-01		6.1E+00	
2,4,5-Trichlorophenoxyacetic Acid		3.7E+01		3.7E+02
2-(2,4,5-Trichlorophenoxy) propionic acid		2.9E+01		2.9E+02
1,1,2-Trichloropropane		1.8E+01		3.0E+01
1,2,3-Trichloropropane	9.6E-04	1.8E+01	1.6E-03	3.1E+01
1,2,3-Trichloropropene		1.8E+01		3.0E+01
1,1,2-Trichloro-1,2,2-trifluoroethane		3.1E+04		5.9E+04
Tridiphane		1.1E+01		1.1E+02
Triethylamine		7.3E+00		1.2E+01
Trifluralin	8.7E+00	2.7E+01	8.7E+01	2.7E+02

1,2,4-Trimethylbenzene		6 2E+00		1.2E+01
1,3,5-Trimethylbenzene		6 2E+00		1.2E+01
Trimethyl phosphate	1 8E-01		1 8E+00	
1,3,5-Trinitrobenzene		1 1E+02		1.1E+03
Trinitrophenylmethylnitramine		3 7E+01		3.7E+02
2,4,6-Trinitrotoluene	2.2E+00	1.8E+00	2.2E+01	1.8E+01
Vanadium				2.6E+02
Vanadium pentoxide				3.3E+02
Vanadium sulfate				7.3E+02
Vernam		3.7E+00		3.7E+01
Vinclozolin		9 1E+01		9.1E+02
Vinyl acetate		2.1E+02		4.1E+02
Vinyl bromide	6.1E-02	3.1E+00	1 0E-01	5.2E+00
Vinyl chloride	2.2E-02		2.0E-02	
Warfarin		1.1E+00		1.1E+01
m-Xylene		7.3E+02		1.4E+03
o-Xylene		7 3E+02		1.4E+03
p-Xylene				
Zinc				1.1E+04
Zinc phosphide				1.1E+01
Zineb		1 8E+02		1 8E+03

Contaminant										
Acephate	30560-19-1	2.2E+02	N	3.4E+03	C	7.7E+00	C	7.7E+01	C	6.0E+01
Acetaldehyde	75-07-0	9.2E+00	C	2.2E+01	C	8.7E-01	C	1.5E+00	C	
Acetochlor	34256-82-1	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Acetone	67-64-1	1.4E+03	N	6.1E+03	N	3.7E+02	N	6.1E+02	N	8.0E-01
Acetone cyanohydrin	75-86-5	4.4E+01	N	8.6E+02	N	1.0E+01	N	2.9E+01	N	
Acetonitrile	75-05-8	2.0E+02	N	1.4E+03	N	5.2E+01	N	7.1E+01	N	
Acetophenone	98-86-2	5.0E-01	N	1.6E+00	N	2.1E-02	N	4.2E-02	N	
Acifluorfen	50594-66-6	4.0E+00	C	2.7E+01	C	6.1E-02	C	6.1E-01	C	
Acrolein	107-02-8	1.0E-01	N	3.4E-01	N	2.1E-02	N	4.2E-02	N	
Acrylamide	79-06-1	9.8E-02	C	6.6E-01	C	1.5E-03	C	1.5E-02	C	
Acrylic acid	79-10-7	2.6E+04	N	1.0E+05	a	1.0E+00	N	1.8E+04	N	
Acrylonitrile	107-13-1	1.9E-01	C	4.9E-01	C	2.8E-02	C	3.9E-02	C	
Alachlor	15972-60-8	5.5E+00	C	3.7E+01	C	8.4E-02	C	8.4E-01	C	
Alar	1596-84-5	8.2E+03	N	1.0E+05	a	5.5E+02	N	5.5E+03	N	
Aldicarb	116-06-3	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Aldicarb sulfone	1646-88-4	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Aldrin	309-00-2	2.6E-02	C	1.8E-01	C	3.9E-04	C	4.0E-03	C	5.9E+02
Ally	5585-64-8	1.4E+04	N	1.0E+05	a	9.1E+02	N	9.1E+03	N	
Allyl alcohol	107-18-6	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Allyl chloride	107-05-1	2.7E+03	N	5.2E+04	N	1.0E+00	N	1.8E+03	N	
Aluminum	7429-90-5	7.5E+04	N	1.0E+05	a			3.7E+04	N	
Aluminum phosphide	20859-73-8	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Amdro	67485-29-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Ametryn	834-12-8	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
m-Aminophenol	591-27-5	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
4-Aminopyridine	504-24-5	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Amitraz	33089-61-1	1.4E+02	N	2.7E+03	N	9.1E+00	N	9.1E+01	N	
Ammonia	7664-41-7					1.0E+02	N			
Ammonium sulfamate	7773-06-0	1.1E+04	N	1.0E+05	a			7.3E+03	N	
Aniline	62-53-3	7.8E+01	C	5.3E+02	C	1.0E+00	N	1.2E+01	C	
Antimony and compounds	7440-36-0	3.0E+01	N	7.5E+02	N			1.5E+01	N	3.0E-01
Antimony pentoxide	1314-60-9	3.7E+01	N	9.4E+02	N			1.8E+01	N	
Antimony potassium tartrate	28300-74-5	6.7E+01	N	1.7E+03	N			3.3E+01	N	
Antimony tetroxide	1332-81-6	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Antimony trioxide	1309-64-4	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Apollo	74115-24-5	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Aramite	140-57-8	1.8E+01	C	1.2E+02	C	2.7E-01	C	2.7E+00	C	
Arsenic (noncancer endpoint)	7440-38-2	2.1E+01	N	4.8E+02	N					
Arsenic (cancer endpoint)	7440-38-2	3.8E-01	C	3.0E+00	C	4.5E-04	C	4.5E-02	C	1.0E+00
Arsine	7784-42-1					5.2E-02	N			
Assure	76578-12-6	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
Asulam	3337-71-1	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Atrazine	1912-24-9	2.0E+00	C	1.3E+01	C	3.1E-02	C	3.0E-01	C	
Avermectin B1	71751-41-2	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
Azobenzene	103-33-3	4.0E+00	C	2.7E+01	C	6.2E-02	C	6.1E-01	C	
Barium and compounds	7440-39-3	5.2E+03	N	1.0E+05	a	5.2E-01	N	2.6E+03	N	8.2E+01
Baygon	114-26-1	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Bayleton	43121-43-3	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Baythroid	68359-37-5	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Benefin	1861-40-1	1.6E+04	N	1.0E+05	a	1.1E+03	N	1.1E+04	N	
Benomyl	17804-35-2	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Bentazon	25057-89-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Benzaldehyde	100-52-7	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Benzene	71-43-2	6.2E-01	C	1.4E+00	C	2.3E-01	C	3.9E-01	C	2.0E-03
Benzidine	92-87-5	1.9E-03	C	1.3E-02	C	2.9E-05	C	2.9E-04	C	
Benzoic acid	65-85-0	1.0E+05	ma	1.0E+05	a	1.5E+04	N	1.5E+05	N	2.0E+01
Benzotrichloride	98-07-7	3.4E-02	C	2.3E-01	C	5.2E-04	C	5.2E-03	C	
Benzyl alcohol	100-51-6	1.6E+04	N	1.0E+05	a	1.1E+03	N	1.1E+04	N	
Benzyl chloride	100-44-7	8.1E-01	C	2.2E+00	C	4.0E-02	C	6.6E-02	C	
Beryllium and compounds	7440-41-7	1.5E+02	N	2.2E+03	C	8.0E-04	C	7.3E+01	N	3.0E+00
Bidrin	141-66-2	5.5E+00	N	1.1E+02	N	3.7E-01	N	3.7E+00	N	
Biphenthrin (Talstar)	82657-04-3	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
1,1-Biphenyl	92-52-4	2.3E+03	N	2.4E+04	N	1.8E+02	N	3.0E+02	N	
Bis(2-chloroethyl)ether	111-44-4	1.8E-01	C	5.6E-01	C	5.8E-03	C	9.8E-03	C	2.0E-05
Bis(2-chloroisopropyl)ether	39638-32-9	2.5E+00	C	7.4E+00	C	1.9E-01	C	2.7E-01	C	
Bis(chloromethyl)ether	542-88-1	1.9E-04	C	4.3E-04	C	3.1E-05	C	5.2E-05	C	
Bis(2-chloro-1-methylethyl)ether	108-60-1	6.3E+00	C	4.3E+01	C	1.9E-01	C	9.6E-01	C	
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	3.2E+01	C	2.1E+02	C	4.8E-01	C	4.8E+00	C	
Bisphenol A	80-05-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Boron	7440-42-8	4.9E+03	N	9.6E+04	N	2.1E+01	N	3.3E+03	N	
Boron trifluoride	7637-07-2	1.0E+05	ma	1.0E+05	a	7.3E-01	N			
Bromobenzene	108-86-1	2.8E+01	N	9.2E+01	N	1.0E+01	N	2.0E+01	N	
Bromodichloromethane	75-27-4	9.8E-01	C	2.3E+00	C	1.1E-01	C	1.8E-01	C	3.0E-02
Bromoform (tribromomethane)	75-25-2	5.6E+01	C	3.8E+02	C	1.7E+00	C	8.5E+00	C	4.0E-02
Bromomethane	74-83-9	3.8E+00	N	1.3E+01	N	5.2E+00	N	8.7E+00	N	1.0E-02
4-Bromophenyl phenyl ether	101-55-3									
Bromophos	2104-96-3	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Bromoxynil	1689-84-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	

Contaminant										
Bromoxynil octanoate	1689-99-2	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
1,3-Butadiene	106-99-0	6.5E-03	C	1.4E-02	C	6.9E-03	C	1.1E-02	C	
1-Butanol	71-36-3	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	9.0E-01
Butylate	2008-41-5	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
n-Butylbenzene	104-51-8	1.3E+02	N	2.4E+02	sat	3.7E+01	N	6.1E+01	N	
sec-Butylbenzene	135-9-88	1.1E+02	N	2.2E+02	sat	3.7E+01	N	6.1E+01	N	
tert-Butylbenzene	104-5-18	1.2E+02	N	3.9E+02	sat	3.7E+01	N	6.1E+01	N	
Butyl benzyl phthalate	85-68-7	2.4E+02	sat	2.4E+02	sat	7.3E+02	N	7.3E+03	N	8.1E+02
Butylphthalyl butylglycolate	85-70-1	5.5E+04	N	1.0E+05	a	3.7E+03	N	3.7E+04	N	
Cacodylic acid	75-60-5	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Cadmium and compounds	7440-43-9	3.7E+01	N	9.3E+02	N	1.1E-03	C	1.8E+01	N	4.0E-01
Caprolactam	105-60-2	2.7E+04	N	1.0E+05	a	1.8E+03	N	1.8E+04	N	
Captafol	2425-06-1	5.2E+01	C	3.5E+02	C	7.8E-01	C	7.8E+00	C	
Captan	133-06-2	1.3E+02	C	8.6E+02	C	1.9E+00	C	1.9E+01	C	
Carbaryl	63-25-2	5.5E+03	N	1.0E+05	a	4.0E+02	N	3.7E+03	N	
Carbazole	86-74-8	2.2E+01	C	1.5E+02	C	3.4E-01	C	3.4E+00	C	3.0E-02
Carbofuran	1563-66-2	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Carbon disulfide	75-15-0	3.5E+02	N	7.2E+02	sat	7.3E+02	N	1.0E+03	N	2.0E+00
Carbon tetrachloride	56-23-5	2.3E-01	C	5.2E-01	C	1.3E-01	C	1.7E-01	C	3.0E-03
Carbosulfan	55285-14-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Carboxin	5234-68-4	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Chloral	302-17-0	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Chloramben	133-90-4	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Chloranil	118-75-2	1.1E+00	C	7.4E+00	C	1.7E-02	C	1.7E-01	C	
Chlordane	57-74-9	1.6E+00	C	1.2E+01	C	1.9E-02	C	1.9E-01	C	5.0E-01
Chlorimuron-ethyl	90982-32-4	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Chlorine	7782-50-5	7.5E+03	N	1.0E+05	a			3.7E+03	N	
Chlorine dioxide	10049-04-4					2.1E-01	N			
Chloroacetaldehyde	107-20-0									
Chloroacetic acid	79-11-8	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2-Chloroacetophenone	532-27-4	3.2E-02	N	1.1E-01	N	3.1E-02	N	5.2E-02	N	
4-Chloroaniline	106-47-8	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	3.0E-02
Chlorobenzene	108-90-7	5.4E+01	N	1.8E+02	N	2.1E+01	N	3.9E+01	N	7.0E-02
Chlorobenzilate	510-15-6	1.6E+00	C	1.1E+01	C	2.5E-02	C	2.5E-01	C	
p-Chlorobenzoic acid	74-11-3	1.1E+04	N	1.0E+05	a	7.3E+02	N	7.3E+03	N	
4-Chlorobenzotrifluoride	98-56-6	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
2-Chloro-1,3-butadiene	126-99-8	3.6E+00	N	1.2E+01	N	7.3E+00	N	1.4E+01	N	
1-Chlorobutane	109-69-3	4.8E+02	sat	4.8E+02	sat	1.5E+03	N	2.4E+03	N	
1-Chloro-1,1-difluoroethane	75-68-3	3.4E+02	sat	3.4E+02	sat	5.2E+04	N	8.7E+04	N	
Chlorodifluoromethane	75-45-6	3.4E+02	sat	3.4E+02	sat	5.1E+04	N	8.5E+04	N	
2-Chloroethyl vinyl ether	110-75-8									
Chloroform	67-66-3	2.4E-01	C	5.2E-01	C	8.4E-02	C	1.6E-01	C	3.0E-02
Chloromethane	74-87-3	1.2E+00	C	2.7E+00	C	1.1E+00	C	1.5E+00	C	
4-Chloro-2-methylaniline	95-69-2	7.7E-01	C	5.2E+00	C	1.2E-02	C	1.2E-01	C	
4-Chloro-2-methylaniline hydrochloride	3165-93-3	9.7E-01	C	6.5E+00	C	1.5E-02	C	1.5E-01	C	
beta-Chloronaphthalene	91-58-7	3.0E+03	N	2.4E+04	N	2.9E+02	N	4.9E+02	N	
o-Chloronitrobenzene	88-73-3	1.8E+01	C	1.2E+02	C	2.7E-01	C	2.7E+00	C	
p-Chloronitrobenzene	100-00-5	2.6E+01	C	1.7E+02	C	3.7E-01	C	3.7E+00	C	
2-Chlorophenol	95-57-8	5.9E+01	N	2.4E+02	N	1.8E+01	N	3.0E+01	N	2.0E-01
2-Chloropropane	75-29-6	1.7E+02	N	5.9E+02	N	1.0E+02	N	1.7E+02	N	
Chlorothalonil	1897-45-6	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
o-Chlorotoluene	95-49-8	1.5E+02	N	5.1E+02	sat	7.3E+01	N	1.2E+02	N	
Chlorpropham	101-21-3	1.1E+04	N	1.0E+05	a	7.3E+02	N	7.3E+03	N	
Chlorpyrifos	2921-88-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Chlorpyrifos-methyl	5598-13-0	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Chlorsulfuron	64902-72-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Chlorthiophos	60238-56-4	4.4E+01	N	8.6E+02	N	2.9E+00	N	2.9E+01	N	
Total Chromium (1/6 ratio Cr VI/Cr III)	n/a	2.1E+02	C	4.5E+02	C	1.6E-04	C			2.0E+00
Chromium VI	7440-47-3	3.0E+01	C	6.4E+01	C	2.3E-05	C	1.8E+02	N	2.0E+00
Cobalt	7440-48-4	3.3E+03	N	2.9E+04	N	2.1E-02	N	2.2E+03	N	
Coke Oven Emissions	8007-45-2					3.1E-03	C			
Copper and compounds	7440-50-8	2.8E+03	N	7.0E+04	N			1.4E+03	N	
Crotonaldehyde	123-73-9	5.3E-02	C	1.1E-01	C	3.5E-02	C	5.9E-02	C	
Cumene (isopropylbenzene)	98-82-8	1.6E+02	N	5.2E+02	N	4.0E+02	N	6.6E+02	N	
Cyanazine	21725-46-2	5.3E-01	C	3.6E+00	C	8.0E-03	C	8.0E-02	C	
Cyanides	n/a									
Barium cyanide	542-62-1	5.5E+03	N	1.0E+05	a			3.7E+03	N	
Calcium cyanide	592-01-8	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Copper cyanide	544-92-3	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Cyanogen	460-19-5	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Cyanogen bromide	506-68-3	4.9E+03	N	9.6E+04	N			3.3E+03	N	
Cyanogen chloride	506-77-4	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Free cyanide	57-12-5	1.1E+03	N	2.1E+04	N			7.3E+02	N	2.0E+00
Hydrogen cyanide	74-90-8	1.1E+01	N	3.5E+01	N	3.1E+00	N	6.2E+00	N	
Potassium cyanide	151-50-8	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Potassium silver cyanide	506-61-6	1.1E+04	N	1.0E+05	a			7.3E+03	N	
Silver cyanide	506-64-9	5.5E+03	N	1.0E+05	a			3.7E+03	N	
Sodium cyanide	143-33-9	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Zinc cyanide	557-21-1	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Cyclohexanone	108-94-1	1.0E+05	ma	1.0E+05	a	1.8E+04	N	1.8E+05	N	
Cyclohexylamine	108-91-8	1.1E+04	N	1.0E+05	a	7.3E+02	N	7.3E+03	N	
Cyhalothrin/Karate	68085-85-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Cypermethrin	52315-07-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Cyromazine	66215-27-8	4.1E+02	N	8.0E+03	N	2.7E+01	N	2.7E+02	N	

Contaminant										
Dacthal	1861-32-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Dalapon	75-99-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Danitol	39515-41-8	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
DDD	72-54-8	2.4E+00	C	1.9E+01	C	2.8E-02	C	2.8E-01	C	8.0E-01
DDE	72-55-9	1.7E+00	C	1.3E+01	C	2.0E-02	C	2.0E-01	C	3.0E+00
DDT	50-29-3	1.7E+00	C	1.3E+01	C	2.0E-02	C	2.0E-01	C	2.0E+00
Decabromodiphenyl ether	1163-19-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Demeton	8065-48-3	2.2E+00	N	4.3E+01	N	1.5E-01	N	1.5E+00	N	
Diallate	2303-16-4	7.3E+00	C	4.9E+01	C	1.1E-01	C	1.1E+00	C	
Diazinon	333-41-5	4.9E+01	N	9.6E+02	N	3.3E+00	N	3.3E+01	N	
Dibenzofuran	132-64-9	2.1E+02	N	3.2E+03	N	1.5E+01	N	2.4E+01	N	
1,4-Dibromobenzene	106-37-6	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Dibromochloromethane	124-48-1	5.3E+00	C	3.6E+01	C	8.0E-02	C	8.0E-01	C	2.0E-02
1,2-Dibromo-3-chloropropane	96-12-8	3.2E-01	C	2.1E+00	C	2.1E-01	N	4.8E-02	C	
1,2-Dibromoethane	106-93-4	4.9E-03	C	2.9E-02	C	8.7E-03	C	7.6E-04	C	
Dibutyl phthalate	84-74-2	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	2.7E+02
Dicamba	1918-00-9	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
1,2-Dichlorobenzene	95-50-1	3.7E+02	sat	3.7E+02	sat	2.1E+02	N	3.7E+02	N	9.0E-01
1,3-Dichlorobenzene	541-73-1	4.1E+01	N	1.4E+02	N	8.4E+00	N	1.7E+01	N	
1,4-Dichlorobenzene	106-46-7	3.0E+00	C	7.3E+00	C	2.8E-01	C	4.7E-01	C	1.0E-01
3,3-Dichlorobenzidine	91-94-1	9.9E-01	C	6.7E+00	C	1.5E-02	C	1.5E-01	C	3.0E-04
1,4-Dichloro-2-butene	764-41-0	7.5E-03	C	1.8E-02	C	7.2E-04	C	1.2E-03	C	
Dichlorodifluoromethane	75-71-8	9.4E+01	N	3.1E+02	N	2.1E+02	N	3.9E+02	N	
1,1-Dichloroethane	75-34-3	5.7E+02	N	2.0E+03	N	5.2E+02	N	8.1E+02	N	1.0E+00
1,2-Dichloroethane (EDC)	107-06-2	3.4E-01	C	7.6E-01	C	7.4E-02	C	1.2E-01	C	1.0E-03
1,1-Dichloroethylene	75-35-4	5.3E-01	C	1.2E+00	C	3.8E-01	C	4.6E-01	C	3.0E-03
1,2-Dichloroethylene (cis)	156-59-2	4.2E+01	N	1.5E+02	N	3.7E+01	N	6.1E+01	N	2.0E-02
1,2-Dichloroethylene (trans)	156-60-5	6.2E+01	N	2.1E+02	N	7.3E+01	N	1.2E+02	N	3.0E-02
2,4-Dichlorophenol	120-83-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	5.0E-02
4-(2,4-Dichlorophenoxy)butyric Acid (2,4	94-82-6	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	6.4E+02	N	1.4E+04	N	3.7E+01	N	3.7E+02	N	
1,2-Dichloropropane	78-87-5	3.5E-01	C	7.6E-01	C	9.9E-02	C	1.6E-01	C	1.0E-03
1,3-Dichloropropene	542-75-6	8.1E-02	C	1.8E-01	C	5.2E-02	C	8.1E-02	C	2.0E-04
2,3-Dichloropropanol	616-23-9	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Dichlorvos	62-73-7	1.5E+00	C	1.0E+01	C	2.3E-02	C	2.3E-01	C	
Dicofol	115-32-2	1.0E+00	C	6.8E+00	C	1.5E-02	C	1.5E-01	C	
Dicyclopentadiene	77-73-6	5.5E-01	N	1.8E+00	N	2.1E-01	N	4.2E-01	N	
Dieldrin	60-57-1	2.8E-02	C	1.9E-01	C	4.2E-04	C	4.2E-03	C	2.0E-04
Diethylene glycol, monobutyl ether	112-34-5	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
Diethylene glycol, monoethyl ether	111-90-0	1.0E+05	ma	1.0E+05	a	7.3E+03	N	7.3E+04	N	
Diethylformamide	617-84-5	6.0E+02	N	1.2E+04	N	4.0E+01	N	4.0E+02	N	
Di(2-ethylhexyl)adipate	103-23-1	3.7E+02	C	2.5E+03	C	5.6E+00	C	5.6E+01	C	
Diethyl phthalate	84-66-2	4.4E+04	N	1.0E+05	a	2.9E+03	N	2.9E+04	N	
Diethylstilbestrol	56-53-1	9.4E-05	C	6.4E-04	C	1.4E-06	C	1.4E-05	C	
Difenzoquat (Avenge)	43222-48-6	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Diflubenzuron	35367-38-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
1,1-Difluoroethane	75-37-6	1.0E+05	ma	1.0E+05	a	4.2E+04	N	6.9E+04	N	
Diisopropyl methylphosphonate	1445-75-6	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Dimethipin	55290-64-7	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Dimethoate	60-51-5	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	
3,3'-Dimethoxybenzidine	119-90-4	3.2E+01	C	2.1E+02	C	4.8E-01	C	4.8E+00	C	
Dimethylamine	124-40-3	6.3E-02	N	2.5E-01	N	2.1E-02	N	3.5E-02	N	
N-N-Dimethylaniline	121-69-7	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2,4-Dimethylaniline	95-68-1	5.9E-01	C	4.0E+00	C	9.0E-03	C	9.0E-02	C	
2,4-Dimethylaniline hydrochloride	21436-96-4	7.7E-01	C	5.2E+00	C	1.2E-02	C	1.2E-01	C	
3,3'-Dimethylbenzidine	119-93-7	4.8E-02	C	3.3E-01	C	7.3E-04	C	7.3E-03	C	
1,1-Dimethylhydrazine	57-14-7	1.7E-01	C	1.2E+00	C	1.9E-03	C	2.6E-02	C	
1,2-Dimethylhydrazine	540-73-8	1.2E-02	C	8.1E-02	C	1.8E-04	C	1.8E-03	C	
N,N-Dimethylformamide	68-12-2	5.4E+03	N	1.0E+05	a	3.1E+01	N	3.7E+03	N	
Dimethylphenethylamine	122-09-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
2,4-Dimethylphenol	105-67-9	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	4.0E-01
2,6-Dimethylphenol	576-26-1	3.3E+01	N	6.4E+02	N	2.2E+00	N	2.2E+01	N	
3,4-Dimethylphenol	95-65-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Dimethyl phthalate	131-11-3	1.0E+05	ma	1.0E+05	a	3.7E+04	N	3.7E+05	N	
Dimethyl terephthalate	120-61-6	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
4,6-Dinitro-o-cyclohexyl phenol	131-89-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
1,2-Dinitrobenzene	528-29-0	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
1,3-Dinitrobenzene	99-65-0	5.5E+00	N	1.1E+02	N	3.7E-01	N	3.7E+00	N	
1,4-Dinitrobenzene	100-25-4	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
2,4-Dinitrophenol	51-28-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	1.0E-02
Dinitrotoluene mixture	25321-14-6	6.5E-01	C	4.4E+00	C	9.9E-03	C	9.9E-02	C	4.0E-05
2,4-Dinitrotoluene	121-14-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	4.0E-05
2,6-Dinitrotoluene	606-20-2	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	3.0E-05
Dinoseb	88-85-7	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
di-n-Octyl phthalate	117-84-0	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	1.0E+04
1,4-Dioxane	123-91-1	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
Dioxin (2,3,7,8-TCDD)	1746-01-6	3.8E-06	C	3.0E-05	C	4.5E-08	C	4.5E-07	C	
Diphenamid	957-51-7	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Diphenylamine	122-39-4	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
1,2-Diphenylhydrazine	122-66-7	5.6E-01	C	3.7E+00	C	8.7E-03	C	8.4E-02	C	
Diphenyl sulfone	127-63-9	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
Diquat	85-00-7	1.2E+02	N	2.4E+03	N	8.0E+00	N	8.0E+01	N	
Direct black 38	1937-37-7	5.2E-02	C	3.5E-01	C	7.8E-04	C	7.8E-03	C	
Direct blue 6	2602-46-2	5.5E-02	C	3.7E-01	C	8.3E-04	C	8.3E-03	C	

Contaminant										
Direct brown 95	16071-86-6	4.8E-02	C	3.2E-01	C	7.2E-04	C	7.2E-03	C	
Disulfoton	298-04-4	2.2E+00	N	4.3E+01	N	1.5E-01	N	1.5E+00	N	
1,4-Dithiane	505-29-3	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Diuron	330-54-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Dodine	2439-10-3	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Endosulfan	115-29-7	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	9.0E-01
Endothall	145-73-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Endrin	72-20-8	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	5.0E-02
Epichlorohydrin	106-89-8	7.4E+00	N	2.6E+01	N	1.0E+00	N	2.0E+00	N	
1,2-Epoxybutane	106-88-7	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
EPTC (S-Ethyl dipropylthiocarbamate)	759-94-4	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Ethephon (2-chloroethyl phosphonic aci	16672-87-0	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Ethion	563-12-2	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
2-Ethoxyethanol	110-80-5	2.2E+04	N	1.0E+05	a	2.1E+02	N	1.5E+04	N	
2-Ethoxyethanol acetate	111-15-9	1.6E+04	N	1.0E+05	a	1.1E+03	N	1.1E+04	N	
Ethyl acetate	141-78-6	1.7E+04	N	3.7E+04	sat	3.3E+03	N	5.5E+03	N	
Ethyl acrylate	140-88-5	2.1E-01	C	4.5E-01	C	1.4E-01	C	2.3E-01	C	
Ethylbenzene	100-41-4	2.3E+02	sat	2.3E+02	sat	1.1E+03	N	1.3E+03	N	7.0E-01
Ethyl chloride	75-00-3	1.6E+03	sat	1.6E+03	sat	1.0E+04	N	8.6E+03	N	
Ethylene cyanohydrin	109-78-4	1.6E+04	N	1.0E+05	a	1.1E+03	N	1.1E+04	N	
Ethylene diamine	107-15-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Ethylene glycol	107-21-1	1.0E+05	ma	1.0E+05	a	7.3E+03	N	7.3E+04	N	
Ethylene glycol, monobutyl ether	111-76-2	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
Ethylene oxide	75-21-8	1.3E-01	C	3.4E-01	C	1.9E-02	C	2.4E-02	C	
Ethylene thiourea (ETU)	96-45-7	4.0E+00	C	2.7E+01	C	6.1E-02	C	6.1E-01	C	
Ethyl ether	60-29-7	1.8E+03	sat	1.8E+03	sat	7.3E+02	N	1.2E+03	N	
Ethyl methacrylate	97-63-2	1.4E+02	sat	1.4E+02	sat	3.3E+02	N	5.5E+02	N	
Ethyl p-nitrophenyl phenylphosphorothio	2104-64-5	5.5E-01	N	1.1E+01	N	3.7E-02	N	3.7E-01	N	
Ethylphthalyl ethyl glycolate	84-72-0	1.0E+05	ma	1.0E+05	a	1.1E+04	N	1.1E+05	N	
Express	101200-48-	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
Fenamiphos	22224-92-6	1.4E+01	N	2.7E+02	N	9.1E-01	N	9.1E+00	N	
Fluometuron	2164-17-2	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Fluoride	16984-48-8	3.3E+03	N	6.4E+04	N			2.2E+03	N	
Fluoridone	59756-60-4	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Flurprimidol	56425-91-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Flutolanil	66332-96-5	3.3E+03	N	6.4E+04	N	2.2E+02	N	2.2E+03	N	
Fluvalinate	69409-94-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Folpet	133-07-3	1.3E+02	C	8.6E+02	C	1.9E+00	C	1.9E+01	C	
Fomesafen	72178-02-0	2.3E+01	C	1.6E+02	C	3.5E-01	C	3.5E+00	C	
Fonofos	944-22-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Formaldehyde	50-00-0	8.2E+03	N	1.0E+05	a	1.5E-01	C	5.5E+03	N	
Formic Acid	64-18-6	1.0E+05	ma	1.0E+05	a	7.3E+03	N	7.3E+04	N	
Fosetyl-al	39148-24-8	1.0E+05	ma	1.0E+05	a	1.1E+04	N	1.1E+05	N	
Furan	110-00-9	2.5E+00	N	8.5E+00	N	3.7E+00	N	6.1E+00	N	
Furazolidone	67-45-8	1.2E-01	C	7.9E-01	C	1.8E-03	C	1.8E-02	C	
Furfural	98-01-1	1.6E+02	N	3.2E+03	N	5.2E+01	N	1.1E+02	N	
Furium	531-82-8	8.9E-03	C	6.0E-02	C	1.3E-04	C	1.3E-03	C	
Furmecyclox	60568-05-0	1.5E+01	C	1.0E+02	C	2.2E-01	C	2.2E+00	C	
Glufosinate-ammonium	77182-82-2	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
Glycidaldehyde	765-34-4	2.2E+01	N	4.3E+02	N	1.0E+00	N	1.5E+01	N	
Glyphosate	1071-83-6	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Haloxyfop-methyl	69806-40-2	2.7E+00	N	5.3E+01	N	1.8E-01	N	1.8E+00	N	
Harmony	79277-27-3	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Heptachlor	76-44-8	9.9E-02	C	6.7E-01	C	1.5E-03	C	1.5E-02	C	1.0E+00
Heptachlor epoxide	1024-57-3	4.9E-02	C	3.3E-01	C	7.4E-04	C	7.4E-03	C	3.0E-02
Hexabromobenzene	87-82-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Hexachlorobenzene	118-74-1	2.8E-01	C	1.9E+00	C	4.2E-03	C	4.2E-02	C	1.0E-01
Hexachlorobutadiene	87-68-3	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	1.0E-01
HCH (alpha)	319-84-6	8.6E-02	C	6.7E-01	C	1.1E-03	C	1.1E-02	C	3.0E-05
HCH (beta)	319-85-7	3.0E+00	C	2.3E+01	C	3.7E-02	C	3.7E-01	C	1.0E-04
HCH (gamma) Lindane	58-89-9	4.2E-01	C	3.2E+00	C	5.2E-03	C	5.2E-02	C	5.0E-04
HCH-technical	608-73-1	3.0E-01	C	2.3E+00	C	3.8E-03	C	3.7E-02	C	1.0E-04
Hexachlorocyclopentadiene	77-47-4	3.8E+02	N	7.1E+03	N	7.3E-02	N	2.6E+02	N	2.0E+01
Hexachlorodibenzo-p-dioxin mixture (Hx	19408-74-3	7.2E-05	C	4.8E-04	C	1.5E-06	C	1.1E-05	C	
Hexachloroethane	67-72-1	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	2.0E-02
Hexachlorophene	70-30-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
1,6-Hexamethylene diisocyanate	822-06-0	1.6E-01	N	3.1E+00	N	1.0E-02	N	1.0E-01	N	
n-Hexane	110-54-3	1.1E+02	sat	1.1E+02	sat	2.1E+02	N	3.5E+02	N	
Hexazinone	51235-04-2	1.8E+03	N	3.5E+04	N	1.2E+02	N	1.2E+03	N	
Hydrazine, hydrazine sulfate	302-01-2	1.5E-01	C	1.0E+00	C	3.9E-04	C	2.2E-02	C	
Hydrogen chloride	7647-01-0	1.0E+05	ma	1.0E+05	a	2.1E+01	N			
Hydrogen sulfide	7783-06-4	1.6E+02	N	3.2E+03	N	1.0E+00	N	2.0E+00	N	
p-Hydroquinone	123-31-9	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Imazalil	35554-44-0	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Imazaquin	81335-37-7	1.4E+04	N	1.0E+05	a	9.1E+02	N	9.1E+03	N	
Iprodione	36734-19-7	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Iron	7439-89-6	2.2E+04	N	1.0E+05	a			1.1E+04	N	
Isobutanol	78-83-1	1.0E+04	N	4.0E+04	sat	1.1E+03	N	1.8E+03	N	
Isophorone	78-59-1	4.7E+03	C	3.2E+04	C	7.1E+01	C	7.1E+02	C	3.0E-02
Isopropalin	33820-53-0	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Isopropyl methyl phosphonic acid	1832-54-8	5.5E+03	N	1.0E+05	a	4.0E+02	N	3.7E+03	N	
Isoxaben	82558-50-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Kepone	143-50-0	2.5E-02	C	1.7E-01	C	3.7E-04	C	3.7E-03	C	

Contaminant										
Lactofen	77501-63-4	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Lead	7439-92-1	4.0E+02		2.0E+03				1.5E+01		
Lead (tetraethyl)	78-00-2	5.5E-03	N	1.1E-01	N			3.7E-03	N	
Linuron	330-55-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Lithium	7439-93-2	1.5E+03	N	3.7E+04	N			7.3E+02	N	
Londax	83055-99-6	1.1E+04	N	1.0E+05	a	7.3E+02	N	7.3E+03	N	
Malathion	121-75-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Maleic anhydride	108-31-6	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Maleic hydrazide	123-33-1	1.6E+03	N	2.4E+03	sat	1.8E+03	N	3.0E+03	N	
Malononitrile	109-77-3	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Mancozeb	8018-01-7	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Maneb	12427-38-2	7.4E+00	C	5.0E+01	C	1.1E-01	C	1.1E+00	C	
Manganese and compounds	7439-96-5	3.1E+03	N	4.5E+04	N	5.1E-02	N	1.7E+03	N	
Mephosfolan	950-10-7	4.9E+00	N	9.6E+01	N	3.3E-01	N	3.3E+00	N	
Mepiquat	24307-26-4	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
2-Mercaptobenzothiazole	149-30-4	1.5E+01	C	1.0E+02	C	2.3E-01	C	2.3E+00	C	
Mercury and compounds	7487-94-7	2.2E+01	N	5.6E+02	N			1.1E+01	N	
Mercury (elemental)	7439-97-6					3.1E-01	N			
Mercury (methyl)	22967-92-6	5.5E+00	N	1.1E+02	N			3.7E+00	N	
Merphos	150-50-5	1.6E+00	N	3.2E+01	N	1.1E-01	N	1.1E+00	N	
Merphos oxide	78-48-8	1.6E+00	N	3.2E+01	N	1.1E-01	N	1.1E+00	N	
Metalaxyl	57837-19-1	3.3E+03	N	6.4E+04	N	2.2E+02	N	2.2E+03	N	
Methacrylonitrile	126-98-7	1.9E+00	N	8.4E+00	N	7.3E-01	N	1.0E+00	N	
Methamidophos	10265-92-6	2.7E+00	N	5.3E+01	N	1.8E-01	N	1.8E+00	N	
Methanol	67-56-1	2.7E+04	N	1.0E+05	a	1.8E+03	N	1.8E+04	N	
Methidathion	950-37-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Methomyl	16752-77-5	4.4E+01	N	1.5E+02	N	9.1E+01	N	1.5E+02	N	
Methoxychlor	72-43-5	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	8.0E+00
2-Methoxyethanol	109-86-4	5.5E+01	N	1.1E+03	N	2.1E+01	N	3.7E+01	N	
2-Methoxyethanol acetate	110-49-6	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2-Methoxy-5-nitroaniline	99-59-2	9.7E+00	C	6.5E+01	C	1.5E-01	C	1.5E+00	C	
Methyl acetate	79-20-9	2.0E+04	N	9.2E+04	N	3.7E+03	N	6.1E+03	N	
Methyl acrylate	96-33-3	6.9E+01	N	2.3E+02	N	1.1E+02	N	1.8E+02	N	
2-Methylaniline (o-toluidine)	95-53-4	1.9E+00	C	1.2E+01	C	2.8E-02	C	2.8E-01	C	
2-Methylaniline hydrochloride	636-21-5	2.5E+00	C	1.7E+01	C	3.7E-02	C	3.7E-01	C	
Methyl chlorocarbonate	79-22-1	5.5E+04	N	1.0E+05	a	3.7E+03	N	3.7E+04	N	
2-Methyl-4-chlorophenoxyacetic acid	94-74-6	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
4-(2-Methyl-4-chlorophenoxy) butyric aci	94-81-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2-(2-Methyl-4-chlorophenoxy) propionic	93-65-2	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
2-(2-Methyl-1,4-chlorophenoxy) propionic	16484-77-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Methylcyclohexane	108-87-2	4.7E+04	N	1.0E+05	a	3.1E+03	N	3.1E+04	N	
4,4'-Methylenebisbenzeneamine	101-77-9	1.8E+00	C	1.2E+01	C	2.7E-02	C	2.7E-01	C	
4,4'-Methylene bis(2-chloroaniline)	101-14-4	3.4E+00	C	2.3E+01	C	5.2E-02	C	5.2E-01	C	
4,4'-Methylene bis(N,N'-dimethyl)aniline	101-61-1	9.7E+00	C	6.5E+01	C	1.5E-01	C	1.5E+00	C	
Methylene bromide	74-95-3	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Methylene chloride	75-09-2	8.5E+00	C	2.0E+01	C	4.1E+00	C	4.3E+00	C	1.0E-03
4,4'-Methylenediphenyl isocyanate	101-68-8	9.3E+00	N	1.8E+02	N	6.2E-01	N	6.2E+00	N	
Methyl ethyl ketone	78-93-3	6.9E+03	N	2.7E+04	N	1.0E+03	N	1.9E+03	N	
Methyl hydrazine	60-34-4	4.0E-01	C	2.7E+00	C	6.1E-03	C	6.1E-02	C	
Methyl isobutyl ketone	108-10-1	7.5E+02	N	2.8E+03	N	8.3E+01	N	1.6E+02	N	
Methyl mercaptan	74-93-1	3.1E+01	N	6.1E+02	N	2.1E+00	N	2.1E+01	N	
Methyl methacrylate	80-62-6	2.2E+03	N	2.7E+03	sat	7.3E+02	N	1.4E+03	N	
2-Methyl-5-nitroaniline	99-55-8	1.3E+01	C	9.1E+01	C	2.0E-01	C	2.0E+00	C	
Methyl parathion	298-00-0	1.4E+01	N	2.7E+02	N	9.1E-01	N	9.1E+00	N	
2-Methylphenol	95-48-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	8.0E-01
3-Methylphenol	108-39-4	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
4-Methylphenol	106-44-5	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Methyl phosphonic acid	993-13-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Methyl styrene (mixture)	25013-15-4	1.2E+02	N	5.4E+02	N	4.2E+01	N	6.0E+01	N	
Methyl styrene (alpha)	98-83-9	6.8E+02	sat	6.8E+02	sat	2.6E+02	N	4.3E+02	N	
Methyl tertbutyl ether (MTBE)	1634-04-4					3.1E+03	N	2.0E+01		
Metolaclor (Dual)	51218-45-2	8.2E+03	N	1.0E+05	a	5.5E+02	N	5.5E+03	N	
Metribuzin	21087-64-9	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Mirex	2385-85-5	2.5E-01	C	1.7E+00	C	3.7E-03	C	3.7E-02	C	
Molinate	2212-67-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Molybdenum	7439-98-7	3.7E+02	N	9.4E+03	N			1.8E+02	N	
Monochloramine	10599-90-3	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Naled	300-76-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Napropamide	15299-99-7	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
Nickel and compounds	7440-02-0	1.5E+03	N	3.7E+04	N			7.3E+02	N	7.0E+00
Nickel refinery dust	n/a	1.1E+04	C	2.2E+04	C	8.0E-03	C			
Nickel subsulfide	12035-72-2	5.2E+03	C	1.1E+04	C	4.0E-03	C			
Nitrapyrin	1929-82-4	8.2E+01	N	1.6E+03	N	5.5E+00	N	5.5E+01	N	
Nitrate	14797-55-8							1.0E+04		
Nitric Oxide	10102-43-9	5.5E+03	N	1.0E+05	a			3.7E+03	N	
Nitrite	14797-65-0							1.0E+03		
2-Nitroaniline	88-74-4	3.3E+00	N	6.4E+01	N	2.1E-01	N	2.2E+00	N	
3-Nitroaniline	99-09-2									
4-Nitroaniline	100-01-6									
Nitrobenzene	98-95-3	1.6E+01	N	1.0E+02	N	2.1E+00	N	3.4E+00	N	7.0E-03
Nitrofurantoin	67-20-9	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Nitrofurazone	59-87-0	3.0E-01	C	2.0E+00	C	7.2E-04	C	4.5E-02	C	
Nitrogen dioxide	101102-44-	5.5E+04	N	1.0E+05	a			3.7E+04	N	
Nitroguanidine	556-88-7	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	

Contaminant										
4-Nitrophenol	100-02-7	3.4E+03	N	6.6E+04	N	2.3E+02	N	2.3E+03	N	
2-Nitropropane	79-46-9	4.7E-02	C	3.2E-01	C	7.2E-04	C	1.2E-03	C	
N-Nitrosodi-n-butylamine	924-16-3	2.2E-02	C	5.8E-02	C	1.2E-03	C	2.0E-03	C	
N-Nitrosodiethanolamine	1116-54-7	1.6E-01	C	1.1E+00	C	2.4E-03	C	2.4E-02	C	
N-Nitrosodiethylamine	55-18-5	3.0E-03	C	2.0E-02	C	4.5E-05	C	4.5E-04	C	
N-Nitrosodimethylamine	62-75-9	8.7E-03	C	5.9E-02	C	1.4E-04	C	1.3E-03	C	
N-Nitrosodiphenylamine	86-30-6	9.1E+01	C	6.1E+02	C	1.4E+00	C	1.4E+01	C	6.0E-02
N-Nitroso di-n-propylamine	621-64-7	6.3E-02	C	4.3E-01	C	9.6E-04	C	9.6E-03	C	2.0E-06
N-Nitroso-N-methylethylamine	10595-95-6	2.0E-02	C	1.4E-01	C	3.1E-04	C	3.1E-03	C	
N-Nitrosopyrrolidine	930-55-2	2.1E-01	C	1.4E+00	C	3.1E-03	C	3.2E-02	C	
m-Nitrotoluene	99-08-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
o-Nitrotoluene	99-08-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
p-Nitrotoluene	99-99-0	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Norflurazon	27314-13-2	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
NuStar	85509-19-9	3.8E+01	N	7.5E+02	N	2.6E+00	N	2.6E+01	N	
Octabromodiphenyl ether	32536-52-0	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Octahydro-1357-tetranitro-1357- tetrazoci	2691-41-0	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Octamethylpyrophosphoramide	152-16-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Oryzalin	19044-88-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Oxadiazon	19666-30-9	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Oxamyl	23135-22-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Oxyfluorfen	42874-03-3	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Paclobutrazol	76738-62-0	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Paraquat	4685-14-7	2.5E+02	N	4.8E+03	N	1.6E+01	N	1.6E+02	N	
Parathion	56-38-2	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
Pebulate	1114-71-2	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Pendimethalin	40487-42-1	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Pentabromo-6-chloro cyclohexane	87-84-3	1.9E+01	C	1.3E+02	C	2.9E-01	C	2.9E+00	C	
Pentabromodiphenyl ether	32534-81-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Pentachlorobenzene	608-93-5	4.4E+01	N	8.6E+02	N	2.9E+00	N	2.9E+01	N	
Pentachloronitrobenzene	82-68-8	1.7E+00	C	1.2E+01	C	2.6E-02	C	2.6E-01	C	
Pentachlorophenol	87-86-5	2.5E+00	C	1.5E+01	C	5.6E-02	C	5.6E-01	C	1.0E-03
Perchlorate	7601-90-3	3.7E+01	N	9.4E+02	N			1.8E+01	N	
Permethrin	52645-53-1	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Phenmedipham	13684-63-4	1.4E+04	N	1.0E+05	a	9.1E+02	N	9.1E+03	N	
Phenol	108-95-2	3.3E+04	N	1.0E+05	a	2.2E+03	N	2.2E+04	N	5.0E+00
Phenothiazine	92-84-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
m-Phenylenediamine	108-45-2	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
p-Phenylenediamine	106-50-3	1.0E+04	N	1.0E+05	a	6.9E+02	N	6.9E+03	N	
Phenylmercuric acetate	62-38-4	4.4E+00	N	8.6E+01	N	2.9E-01	N	2.9E+00	N	
2-Phenylphenol	90-43-7	2.3E+02	C	1.5E+03	C	3.5E+00	C	3.5E+01	C	
Phorate	298-02-2	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	
Phosmet	732-11-6	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Phosphine	7803-51-2	1.6E+01	N	3.2E+02	N	3.1E-01	N	1.1E+01	N	
Phosphoric acid	7664-38-2					1.0E+01	N			
Phosphorus (white)	7723-14-0	1.5E+00	N	3.7E+01	N			7.3E-01	N	
p-Phthalic acid	100-21-0	5.5E+04	N	1.0E+05	a	3.7E+03	N	3.7E+04	N	
Phthalic anhydride	85-44-9	1.0E+05	ma	1.0E+05	a	1.2E+02	N	7.3E+04	N	
Picloram	1918-02-1	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Pirimiphos-methyl	23505-41-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Polybrominated biphenyls		5.0E-02	C	3.4E-01	C	7.6E-04	C	7.6E-03	C	
Polychlorinated biphenyls (PCBs)	1336-36-3	2.0E-01	C	1.3E+00	C	3.4E-03	C	3.4E-02	C	
Aroclor 1016	12674-11-2	3.4E+00	N	6.3E+01	N	2.6E-01	N	2.6E+00	N	
Aroclor 1254	11097-69-1	9.7E-01	N	1.8E+01	N	7.3E-02	N	7.3E-01	N	
Polynuclear aromatic hydrocarbons										
Acenaphthene	83-32-9	2.6E+03	N	2.8E+04	N	2.2E+02	N	3.7E+02	N	2.9E+01
Anthracene	120-12-7	1.4E+04	N	1.0E+05	a	1.1E+03	N	1.8E+03	N	5.9E+02
Benz[a]anthracene	56-55-3	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	8.0E-02
Benzo[b]fluoranthene	205-99-2	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	2.0E-01
Benzo[k]fluoranthene	207-08-9	5.6E+00	C	3.6E+01	C	2.2E-01	C	9.2E-01	C	2.0E+00
Benzo[a]pyrene	50-32-8	5.6E-02	C	3.6E-01	C	2.2E-03	C	9.2E-03	C	4.0E-01
Chrysene	218-01-9	5.6E+01	C	3.6E+02	C	2.2E+00	C	9.2E+00	C	8.0E+00
Dibenz[ah]anthracene	53-70-3	5.6E-02	C	3.6E-01	C	2.2E-03	C	9.2E-03	C	8.0E-02
Fluoranthene	206-44-0	2.0E+03	N	3.7E+04	N	1.5E+02	N	1.5E+03	N	2.1E+02
Fluorene	86-73-7	1.8E+03	N	2.2E+04	N	1.5E+02	N	2.4E+02	N	2.8E+01
Indeno[1,2,3-cd]pyrene	193-39-5	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	7.0E-01
Naphthalene	91-20-3	5.5E+01	N	1.9E+02	N	3.1E+00	N	6.2E+00	N	4.0E+00
Pyrene	129-00-0	1.5E+03	N	2.6E+04	N	1.1E+02	N	1.8E+02	N	2.1E+02
Prochloraz	67747-09-5	3.0E+01	C	2.0E+02	C	4.5E-01	C	4.5E+00	C	
Profluralin	26399-36-0	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
Prometon	1610-18-0	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Prometryn	7287-19-6	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Pronamide	23950-58-5	4.1E+03	N	8.0E+04	N	2.7E+02	N	2.7E+03	N	
Propachlor	1918-16-7	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Propanil	709-98-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Propargite	2312-35-8	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propargyl alcohol	107-19-7	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Propazine	139-40-2	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propham	122-42-9	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propiconazole	60207-90-1	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
iso-Propylbenzene	104-5-18	1.2E+02	N	3.9E+02	sat	3.7E+01	N	6.1E+01	N	
n-Propylbenzene	104-51-8	1.3E+02	N	2.4E+02	sat	3.7E+01	N	6.1E+01	N	
Propylene glycol	57-55-6	1.0E+05	ma	1.0E+05	a	7.3E+04	N	7.3E+05	N	
Propylene glycol, monoethyl ether	111-35-3	3.8E+04	N	1.0E+05	a	2.6E+03	N	2.6E+04	N	

Contaminant	CAS No.									
Propylene glycol, monomethyl ether	107-98-2	3.8E+04	N	1.0E+05	a	2.1E+03	N	2.6E+04	N	
Propylene oxide	75-56-9	1.5E+00	C	6.8E+00	C	5.2E-01	C	2.2E-01	C	
Pursuit	81335-77-5	1.4E+04	N	1.0E+05	a	9.1E+02	N	9.1E+03	N	
Pydrin	51630-58-1	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Pyridine	110-86-1	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Quinalphos	13593-03-8	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Quinoline	91-22-5	3.7E-02	C	2.5E-01	C	5.6E-04	C	5.6E-03	C	
RDX (Cyclonite)	121-82-4	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
Resmethrin	10453-86-8	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Ronnel	299-84-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Rotenone	83-79-4	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Savey	78587-05-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Selenious Acid	7783-00-8	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Selenium	7782-49-2	3.7E+02	N	9.4E+03	N			1.8E+02	N	3.0E-01
Selenourea	630-10-4	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Sethoxydim	74051-80-2	4.9E+03	N	9.6E+04	N	3.3E+02	N	3.3E+03	N	
Silver and compounds	7440-22-4	3.7E+02	N	9.4E+03	N			1.8E+02	N	2.0E+00
Simazine	122-34-9	3.7E+00	C	2.5E+01	C	5.6E-02	C	5.6E-01	C	
Sodium azide	26628-22-8	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Sodium diethyldithiocarbamate	148-18-5	1.6E+00	C	1.1E+01	C	2.5E-02	C	2.5E-01	C	
Sodium fluoroacetate	62-74-8	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Sodium metavanadate	13718-26-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Strontium, stable	7440-24-6	4.5E+04	N	1.0E+05	a			2.2E+04	N	
Strychnine	57-24-9	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Styrene	100-42-5	1.7E+03	sat	1.7E+03	sat	1.1E+03	N	1.6E+03	N	2.0E-01
Systhane	88671-89-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
2,3,7,8-TCDD (dioxin)	1746-01-6	3.8E-06	C	3.0E-05	C	4.5E-08	C	4.5E-07	C	
Tebuthiuron	34014-18-1	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Temephos	3383-96-8	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Terbacil	5902-51-2	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Terbufos	13071-79-9	1.4E+00	N	2.7E+01	N	9.1E-02	N	9.1E-01	N	
Terbutryn	886-50-0	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
1,2,4,5-Tetrachlorobenzene	95-94-3	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
1,1,1,2-Tetrachloroethane	630-20-6	2.9E+01	C	6.9E+01	C	2.6E+00	C	4.3E+00	C	
1,1,2,2-Tetrachloroethane	79-34-5	3.6E+00	C	8.7E+00	C	3.3E-01	C	5.5E-01	C	2.0E-04
Tetrachloroethylene (PCE)	127-18-4	4.7E+00	C	1.6E+01	C	3.3E+00	C	1.1E+00	C	3.0E-03
2,3,4,6-Tetrachlorophenol	58-90-2	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
p,a,a,a-Tetrachlorotoluene	5216-25-1	2.2E-02	C	1.5E-01	C	3.4E-04	C	3.4E-03	C	
Tetrachlorovinphos	961-11-5	1.9E+01	C	1.2E+02	C	2.8E-01	C	2.8E+00	C	
Tetraethyldithiopyrophosphate	3689-24-5	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Tetrahydrofuran	109-99-9	4.7E+03	N	9.2E+04	N	3.1E+02	N	3.1E+03	N	
Thallic oxide	1314-32-5	5.2E+00	N	1.3E+02	N			2.6E+00	N	
Thallium acetate	563-68-8	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium carbonate	6533-73-9	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thallium chloride	7791-12-0	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thallium nitrate	10102-45-1	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium selenite	12039-52-0	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium sulfate	7446-18-6	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thiobencarb	28249-77-6	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Thiocyanate	N/A	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	
2-(Thiocyanomethylthio)- benzothiazole (	21564-17-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Thiofanox	39196-18-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Thiophanate-methyl	23564-05-8	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Thiram	137-26-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Tin and compounds	n/a	4.5E+04	N	1.0E+05	a			2.2E+04	N	
Toluene	108-88-3	5.2E+02	sat	5.2E+02	sat	4.0E+02	N	7.2E+02	N	6.0E-01
Toluene-2,4-diamine	95-80-7	1.4E-01	C	9.4E-01	C	2.1E-03	C	2.1E-02	C	
Toluene-2,5-diamine	95-70-5	3.3E+04	N	1.0E+05	a	2.2E+03	N	2.2E+04	N	
Toluene-2,6-diamine	823-40-5	1.1E+04	N	1.0E+05	a	7.3E+02	N	7.3E+03	N	
p-Toluidine	106-49-0	2.3E+00	C	1.6E+01	C	3.5E-02	C	3.5E-01	C	
Toxaphene	8001-35-2	4.0E-01	C	2.7E+00	C	6.0E-03	C	6.1E-02	C	2.0E+00
Tralomethrin	66841-25-6	4.1E+02	N	8.0E+03	N	2.7E+01	N	2.7E+02	N	
Triallate	2303-17-5	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Triasulfuron	82097-50-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
1,2,4-Tribromobenzene	615-54-3	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Tributyltin oxide (TBTO)	56-35-9	1.6E+01	N	3.2E+02	N			1.1E+01	N	
2,4,6-Trichloroaniline	634-93-5	1.3E+01	C	8.8E+01	C	2.0E-01	C	2.0E+00	C	
2,4,6-Trichloroaniline hydrochloride	33663-50-2	1.5E+01	C	1.0E+02	C	2.3E-01	C	2.3E+00	C	
1,2,4-Trichlorobenzene	120-82-1	4.8E+02	N	3.0E+03	sat	2.1E+02	N	1.9E+02	N	3.0E-01
1,1,1-Trichloroethane	71-55-6	6.9E+02	N	1.4E+03	sat	1.0E+03	N	7.9E+02	N	1.0E-01
1,1,2-Trichloroethane	79-00-5	8.2E-01	C	1.9E+00	C	1.2E-01	C	2.0E-01	C	9.0E-04
Trichloroethylene (TCE)	79-01-6	2.7E+00	C	6.1E+00	C	1.1E+00	C	1.6E+00	C	3.0E-03
Trichlorofluoromethane	75-69-4	3.8E+02	N	1.3E+03	N	7.3E+02	N	1.3E+03	N	
2,4,5-Trichlorophenol	95-95-4	5.5E+03	N	1.0E+05	a	3.7E+02	N	3.7E+03	N	1.4E+01
2,4,6-Trichlorophenol	88-06-2	4.0E+01	C	2.7E+02	C	6.2E-01	C	6.1E+00	C	8.0E-03
2,4,5-Trichlorophenoxyacetic Acid	93-76-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
1,1,2-Trichloropropane	598-77-6	1.5E+01	N	5.1E+01	N	1.8E+01	N	3.0E+01	N	
1,2,3-Trichloropropane	96-18-4	1.4E-03	C	3.1E-03	C	9.6E-04	C	1.6E-03	C	
1,2,3-Trichloropropene	96-19-5	1.1E+01	N	3.9E+01	N	1.8E+01	N	3.0E+01	N	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5.6E+03	sat	5.6E+03	sat	3.1E+04	N	5.9E+04	N	
Tridiphane	58138-08-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Triethylamine	121-44-8	2.2E+01	N	8.6E+01	N	7.3E+00	N	1.2E+01	N	
Trifluralin	1582-09-8	4.1E+02	N	3.9E+03	C	8.7E+00	C	8.7E+01	C	

1,2,4-Trimethylbenzene	95-63-6	5.1E+01	N	1.7E+02	N	6.2E+00	N	1.2E+01	N	
1,3,5-Trimethylbenzene	108-67-8	2.1E+01	N	7.0E+01	N	6.2E+00	N	1.2E+01	N	
Trimethyl phosphate	512-56-1	1.2E+01	C	8.1E+01	C	1.8E-01	C	1.8E+00	C	
1,3,5-Trinitrobenzene	99-35-4	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Trinitrophenylmethylnitramine	479-45-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2,4,6-Trinitrotoluene	118-96-7	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Vanadium	7440-62-2	5.2E+02	N	1.3E+04	N			2.6E+02	N	3.0E+02
Vanadium pentoxide	1314-62-1	6.7E+02	N	1.7E+04	N			3.3E+02	N	3.0E+02
Vanadium sulfate	13701-70-7	1.5E+03	N	3.7E+04	N			7.3E+02	N	3.0E+02
Vernam	1929-77-7	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Vinclozolin	50471-44-8	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Vinyl acetate	108-05-4	4.3E+02	N	1.4E+03	N	2.1E+02	N	4.1E+02	N	8.0E+00
Vinyl bromide	593-60-2	1.9E-01	C	4.2E-01	C	6.1E-02	C	1.0E-01	C	
Vinyl chloride	75-01-4	2.1E-02	C	4.8E-02	C	2.2E-02	C	2.0E-02	C	7.0E-04
Warfarin	81-81-2	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
m-Xylene	108-38-3	2.1E+02	sat	2.1E+02	sat	7.3E+02	N	1.4E+03	N	1.0E+01
o-Xylene	95-47-6	2.8E+02	sat	2.8E+02	sat	7.3E+02	N	1.4E+03	N	9.0E+00
p-Xylene	106-42-3	3.7E+02	sat	3.7E+02	sat					1.0E+01
Zinc	7440-66-6	2.2E+04	N	1.0E+05	a			1.1E+04	N	6.2E+02
Zinc phosphide	1314-84-7	2.2E+01	N	5.6E+02	N			1.1E+01	N	
Zineb	12122-67-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	

EPA REGION 6

United States Environmental Protection Agency

Arkansas Louisiana New Mexico Oklahoma Texas

Region 6 Home
EPA Home
Index
What's New
Comments
Search

Multimedia Planning and Permitting Division

Region 6 Human Health Medium-Specific Screening Levels

Key : C=CANCER, N=NONCANCER, sat=SOIL SATURATION, max=CEILING LIMIT

Contaminants	CAS No.	Screening Levels Residential Soil (mg/kg)	KEY	Screening Levels Industrial Soil (mg/kg)	KEY	Screening Levels Ambient Air (ug/m3)	KEY	Screening Levels Tap Water (ug/l)	KEY	Screening Levels DAF 1 (mg/kg)
Acephate	30560-19-1	2.2E+02	N	3.4E+03	C	7.7E+00	C	7.7E+01	C	6.0E+01
Acetaldehyde	75-07-0	9.2E+00	C	2.2E+01	C	8.7E-01	C	1.5E+00	C	
Acetochlor	34256-82-1	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Acetone	67-64-1	1.4E+03	N	6.1E+03	N	3.7E+02	N	6.1E+02	N	8.0E-01
Acetone cyanohydrin	75-86-5	4.4E+01	N	8.6E+02	N	1.0E+01	N	2.9E+01	N	
Acetonitrile	75-05-8	2.0E+02	N	1.4E+03	N	5.2E+01	N	7.1E+01	N	
Acetophenone	98-86-2	5.0E-01	N	1.6E+00	N	2.1E-02	N	4.2E-02	N	
Acifluorfen	50594-66-6	4.0E+00	C	2.7E+01	C	6.1E-02	C	6.1E-01	C	
Acrolein	107-02-8	1.0E-01	N	3.4E-01	N	2.1E-02	N	4.2E-02	N	
Acrylamide	79-06-1	9.8E-02	C	6.6E-01	C	1.5E-03	C	1.5E-02	C	
Acrylic acid	79-10-7	2.6E+04	N	1.0E+05	max	1.0E+00	N	1.8E+04	N	
Acrylonitrile	107-13-1	1.9E-01	C	4.9E-01	C	2.8E-02	C	3.9E-02	C	
Alachlor	15972-60-8	5.5E+00	C	3.7E+01	C	8.4E-02	C	8.4E-01	C	
Alar	1596-84-5	8.2E+03	N	1.0E+05	max	5.5E+02	N	5.5E+03	N	
Aldicarb	116-06-3	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Aldicarb sulfone	1646-88-4	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Aldrin	309-00-2	2.6E-02	C	1.8E-01	C	3.9E-04	C	4.0E-03	C	5.9E+02
Ally	5585-64-8	1.4E+04	N	1.0E+05	max	9.1E+02	N	9.1E+03	N	
Allyl alcohol	107-18-6	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Allyl chloride	107-05-1	2.7E+03	N	5.2E+04	N	1.0E+00	N	1.8E+03	N	
Aluminum	7429-90-5	7.5E+04	N	1.0E+05	max			3.7E+04	N	
Aluminum phosphide	20859-73-8	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Amdro	67485-29-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Ametryn	834-12-8	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
m-Aminophenol	591-27-5	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
4-Aminopyridine	504-24-5	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Amitraz	33089-61-1	1.4E+02	N	2.7E+03	N	9.1E+00	N	9.1E+01	N	
Ammonia	7664-41-7					1.0E+02	N			
Ammonium sulfamate	7773-06-0	1.1E+04	N	1.0E+05	max			7.3E+03	N	
Aniline	62-53-3	7.8E+01	C	5.3E+02	C	1.0E+00	N	1.2E+01	C	
Antimony and compounds	7440-36-0	3.0E+01	N	7.5E+02	N			1.5E+01	N	3.0E-01
Antimony pentoxide	1314-60-9	3.7E+01	N	9.4E+02	N			1.8E+01	N	
Antimony potassium tartrate	28300-74-5	6.7E+01	N	1.7E+03	N			3.3E+01	N	
Antimony tetroxide	1332-81-6	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Antimony trioxide	1309-64-4	3.0E+01	N	7.5E+02	N			1.5E+01	N	
Apollo	74115-24-5	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Aramite	140-57-8	1.8E+01	C	1.2E+02	C	2.7E-01	C	2.7E+00	C	
Arsenic (noncancer endpoint)	7440-38-2	2.1E+01	N	4.8E+02	N					
Arsenic (cancer endpoint)	7440-38-2	3.8E-01	C	3.0E+00	C	4.5E-04	C	4.5E-02	C	1.0E+00
Arsine	7784-42-1					5.2E-02	N			
Assure	76578-12-6	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
Asulam	3337-71-1	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	

Atrazine	1912-24-9	2.0E+00	C	1.3E+01	C	3.1E-02	C	3.0E-01	C	
Avermectin B1	71751-41-2	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
Azobenzene	103-33-3	4.0E+00	C	2.7E+01	C	6.2E-02	C	6.1E-01	C	
Barium and compounds	7440-39-3	5.2E+03	N	1.0E+05	max	5.2E-01	N	2.6E+03	N	8.2E+01
Baygon	114-26-1	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Bayleton	43121-43-3	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Baythroid	68359-37-5	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Benefin	1861-40-1	1.6E+04	N	1.0E+05	max	1.1E+03	N	1.1E+04	N	
Benomyl	17804-35-2	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Bentazon	25057-89-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Benzaldehyde	100-52-7	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Benzene	71-43-2	6.2E-01	C	1.4E+00	C	2.3E-01	C	3.9E-01	C	2.0E-03
Benzidine	92-87-5	1.9E-03	C	1.3E-02	C	2.9E-05	C	2.9E-04	C	
Benzoic acid	65-85-0	1.0E+05	max	1.0E+05	max	1.5E+04	N	1.5E+05	N	2.0E+01
Benzotrichloride	98-07-7	3.4E-02	C	2.3E-01	C	5.2E-04	C	5.2E-03	C	
Benzyl alcohol	100-51-6	1.6E+04	N	1.0E+05	max	1.1E+03	N	1.1E+04	N	
Benzyl chloride	100-44-7	8.1E-01	C	2.2E+00	C	4.0E-02	C	6.6E-02	C	
Beryllium and compounds	7440-41-7	1.5E+02	N	2.2E+03	C	8.0E-04	C	7.3E+01	N	3.0E+00
Bidrin	141-66-2	5.5E+00	N	1.1E+02	N	3.7E-01	N	3.7E+00	N	
Biphenthrin (Talstar)	82657-04-3	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
1,1-Biphenyl	92-52-4	2.3E+03	N	2.4E+04	N	1.8E+02	N	3.0E+02	N	
Bis(2-chloroethyl)ether	111-44-4	1.8E-01	C	5.6E-01	C	5.8E-03	C	9.8E-03	C	2.0E-05
Bis(2-chloroisopropyl)ether	39638-32-9	2.5E+00	C	7.4E+00	C	1.9E-01	C	2.7E-01	C	
Bis(chloromethyl)ether	542-88-1	1.9E-04	C	4.3E-04	C	3.1E-05	C	5.2E-05	C	
Bis(2-chloro-1-methylethyl)ether	108-60-1	6.3E+00	C	4.3E+01	C	1.9E-01	C	9.6E-01	C	
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	3.2E+01	C	2.1E+02	C	4.8E-01	C	4.8E+00	C	
Bisphenol A	80-05-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Boron	7440-42-8	4.9E+03	N	9.6E+04	N	2.1E+01	N	3.3E+03	N	
Boron trifluoride	7637-07-2	1.0E+05	max	1.0E+05	max	7.3E-01	N			
Bromobenzene	108-86-1	2.8E+01	N	9.2E+01	N	1.0E+01	N	2.0E+01	N	
Bromodichloromethane	75-27-4	9.8E-01	C	2.3E+00	C	1.1E-01	C	1.8E-01	C	3.0E-02
Bromoform (tribromomethane)	75-25-2	5.6E+01	C	3.8E+02	C	1.7E+00	C	8.5E+00	C	4.0E-02
Bromomethane	74-83-9	3.8E+00	N	1.3E+01	N	5.2E+00	N	8.7E+00	N	1.0E-02
4-Bromophenyl phenyl ether	101-55-3									
Bromophos	2104-96-3	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Bromoxynil	1689-84-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Bromoxynil octanoate	1689-99-2	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
1,3-Butadiene	106-99-0	6.5E-03	C	1.4E-02	C	6.9E-03	C	1.1E-02	C	
1-Butanol	71-36-3	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	9.0E-01
Butylate	2008-41-5	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
n-Butylbenzene	104-51-8	1.3E+02	N	2.4E+02	sat	3.7E+01	N	6.1E+01	N	
sec-Butylbenzene	135-9-88	1.1E+02	N	2.2E+02	sat	3.7E+01	N	6.1E+01	N	
tert-Butylbenzene	104-5-18	1.2E+02	N	3.9E+02	sat	3.7E+01	N	6.1E+01	N	
Butyl benzyl phthalate	85-68-7	2.4E+02	sat	2.4E+02	sat	7.3E+02	N	7.3E+03	N	8.1E+02
Butylphthalyl butylglycolate	85-70-1	5.5E+04	N	1.0E+05	max	3.7E+03	N	3.7E+04	N	
Cacodylic acid	75-60-5	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Cadmium and compounds	7440-43-9	3.7E+01	N	9.3E+02	N	1.1E-03	C	1.8E+01	N	4.0E-01
Caprolactam	105-60-2	2.7E+04	N	1.0E+05	max	1.8E+03	N	1.8E+04	N	
Captafol	2425-06-1	5.2E+01	C	3.5E+02	C	7.8E-01	C	7.8E+00	C	
Captan	133-06-2	1.3E+02	C	8.6E+02	C	1.9E+00	C	1.9E+01	C	
Carbaryl	63-25-2	5.5E+03	N	1.0E+05	max	4.0E+02	N	3.7E+03	N	
Carbazole	86-74-8	2.2E+01	C	1.5E+02	C	3.4E-01	C	3.4E+00	C	3.0E-02
Carbofuran	1563-66-2	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Carbon disulfide	75-15-0	3.5E+02	N	7.2E+02	sat	7.3E+02	N	1.0E+03	N	2.0E+00
Carbon tetrachloride	56-23-5	2.3E-01	C	5.2E-01	C	1.3E-01	C	1.7E-01	C	3.0E-03
Carbosulfan	55285-14-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Carboxin	5234-68-4	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Chloral	302-17-0	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Chloramben	133-90-4	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Chloranil	118-75-2	1.1E+00	C	7.4E+00	C	1.7E-02	C	1.7E-01	C	
Chlordane	57-74-9	1.6E+00	C	1.2E+01	C	1.9E-02	C	1.9E-01	C	5.0E-01
Chlorimuron-ethyl	90982-32-4	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Chlorine	7782-50-5	7.5E+03	N	1.0E+05	max			3.7E+03	N	
Chlorine dioxide	10049-04-4					2.1E-01	N			
Chloroacetaldehyde	107-20-0									
Chloroacetic acid	79-11-8	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2-Chloroacetophenone	532-27-4	3.2E-02	N	1.1E-01	N	3.1E-02	N	5.2E-02	N	

4-Chloroaniline	106-47-8	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	3.0E-02
Chlorobenzene	108-90-7	5.4E+01	N	1.8E+02	N	2.1E+01	N	3.9E+01	N	7.0E-02
Chlorobenzilate	510-15-6	1.6E+00	C	1.1E+01	C	2.5E-02	C	2.5E-01	C	
p-Chlorobenzoic acid	74-11-3	1.1E+04	N	1.0E+05	max	7.3E+02	N	7.3E+03	N	
4-Chlorobenzotrifluoride	98-56-6	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
2-Chloro-1,3-butadiene	126-99-8	3.6E+00	N	1.2E+01	N	7.3E+00	N	1.4E+01	N	
1-Chlorobutane	109-69-3	4.8E+02	sat	4.8E+02	sat	1.5E+03	N	2.4E+03	N	
1-Chloro-1,1-difluoroethane	75-68-3	3.4E+02	sat	3.4E+02	sat	5.2E+04	N	8.7E+04	N	
Chlorodifluoromethane	75-45-6	3.4E+02	sat	3.4E+02	sat	5.1E+04	N	8.5E+04	N	
2-Chloroethyl vinyl ether	110-75-8									
Chloroform	67-66-3	2.4E-01	C	5.2E-01	C	8.4E-02	C	1.6E-01	C	3.0E-02
Chloromethane	74-87-3	1.2E+00	C	2.7E+00	C	1.1E+00	C	1.5E+00	C	
4-Chloro-2-methylaniline	95-69-2	7.7E-01	C	5.2E+00	C	1.2E-02	C	1.2E-01	C	
4-Chloro-2-methylaniline hydrochloride	3165-93-3	9.7E-01	C	6.5E+00	C	1.5E-02	C	1.5E-01	C	
beta-Chloronaphthalene	91-58-7	3.0E+03	N	2.4E+04	N	2.9E+02	N	4.9E+02	N	
o-Chloronitrobenzene	88-73-3	1.8E+01	C	1.2E+02	C	2.7E-01	C	2.7E+00	C	
p-Chloronitrobenzene	100-00-5	2.5E+01	C	1.7E+02	C	3.7E-01	C	3.7E+00	C	
2-Chlorophenol	95-57-8	5.9E+01	N	2.4E+02	N	1.8E+01	N	3.0E+01	N	2.0E-01
2-Chloropropane	75-29-6	1.7E+02	N	5.9E+02	N	1.0E+02	N	1.7E+02	N	
Chlorothalonil	1897-45-6	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
o-Chlorotoluene	95-49-8	1.5E+02	N	5.1E+02	sat	7.3E+01	N	1.2E+02	N	
Chlorpropham	101-21-3	1.1E+04	N	1.0E+05	max	7.3E+02	N	7.3E+03	N	
Chlorpyrifos	2921-88-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Chlorpyrifos-methyl	5598-13-0	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Chlorsulfuron	64902-72-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Chlorthiophos	60238-56-4	4.4E+01	N	8.6E+02	N	2.9E+00	N	2.9E+01	N	
Total Chromium (1/6 ratio Cr VI/Cr III)	n/a	2.1E+02	C	4.5E+02	C	1.6E-04	C			2.0E+00
Chromium VI	7440-47-3	3.0E+01	C	6.4E+01	C	2.3E-05	C	1.8E+02	N	2.0E+00
Cobalt	7440-48-4	3.3E+03	N	2.9E+04	N	2.1E-02	N	2.2E+03	N	
Coke Oven Emissions	8007-45-2					3.1E-03	C			
Copper and compounds	7440-50-8	2.8E+03	N	7.0E+04	N			1.4E+03	N	
Crotonaldehyde	123-73-9	5.3E-02	C	1.1E-01	C	3.5E-02	C	5.9E-02	C	
Cumene (isopropylbenzene)	98-82-8	1.6E+02	N	5.2E+02	N	4.0E+02	N	6.6E+02	N	
Cyanazine	21725-46-2	5.3E-01	C	3.6E+00	C	8.0E-03	C	8.0E-02	C	
Cyanides	n/a									
Barium cyanide	542-62-1	5.5E+03	N	1.0E+05	max			3.7E+03	N	
Calcium cyanide	592-01-8	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Copper cyanide	544-92-3	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Cyanogen	460-19-5	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Cyanogen bromide	506-68-3	4.9E+03	N	9.6E+04	N			3.3E+03	N	
Cyanogen chloride	506-77-4	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Free cyanide	57-12-5	1.1E+03	N	2.1E+04	N			7.3E+02	N	2.0E+00
Hydrogen cyanide	74-90-8	1.1E+01	N	3.5E+01	N	3.1E+00	N	6.2E+00	N	
Potassium cyanide	151-50-8	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Potassium silver cyanide	506-61-6	1.1E+04	N	1.0E+05	max			7.3E+03	N	
Silver cyanide	506-64-9	5.5E+03	N	1.0E+05	max			3.7E+03	N	
Sodium cyanide	143-33-9	2.2E+03	N	4.3E+04	N			1.5E+03	N	
Zinc cyanide	557-21-1	2.7E+03	N	5.3E+04	N			1.8E+03	N	
Cyclohexanone	108-94-1	1.0E+05	max	1.0E+05	max	1.8E+04	N	1.8E+05	N	
Cyclohexylamine	108-91-8	1.1E+04	N	1.0E+05	max	7.3E+02	N	7.3E+03	N	
Cyhalothrin/Karate	68085-85-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Cypermethrin	52315-07-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Cyromazine	66215-27-8	4.1E+02	N	8.0E+03	N	2.7E+01	N	2.7E+02	N	
Dacthal	1861-32-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Dalapon	75-99-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Danitol	39515-41-8	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
DDD	72-54-8	2.4E+00	C	1.9E+01	C	2.8E-02	C	2.8E-01	C	8.0E-01
DDE	72-55-9	1.7E+00	C	1.3E+01	C	2.0E-02	C	2.0E-01	C	3.0E+00
DDT	50-29-3	1.7E+00	C	1.3E+01	C	2.0E-02	C	2.0E-01	C	2.0E+00
Decabromodiphenyl ether	1163-19-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Demeton	8065-48-3	2.2E+00	N	4.3E+01	N	1.5E-01	N	1.5E+00	N	
Diallate	2303-16-4	7.3E+00	C	4.9E+01	C	1.1E-01	C	1.1E+00	C	
Diazinon	333-41-5	4.9E+01	N	9.6E+02	N	3.3E+00	N	3.3E+01	N	
Dibenzofuran	132-64-9	2.1E+02	N	3.2E+03	N	1.5E+01	N	2.4E+01	N	
1,4-Dibromobenzene	106-37-6	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Dibromochloromethane	124-48-1	5.3E+00	C	3.6E+01	C	8.0E-02	C	8.0E-01	C	2.0E-02
1,2-Dibromo-3-chloropropane	96-12-8	3.2E-01	C	2.1E+00	C	2.1E-01	N	4.8E-02	C	

1,2-Dibromoethane	106-93-4	4.9E-03	C	2.9E-02	C	8.7E-03	C	7.6E-04	C	
Dibutyl phthalate	84-74-2	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	2.7E+02
Dicamba	1918-00-9	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
1,2-Dichlorobenzene	95-50-1	3.7E+02	sat	3.7E+02	sat	2.1E+02	N	3.7E+02	N	9.0E-01
1,3-Dichlorobenzene	541-73-1	4.1E+01	N	1.4E+02	N	8.4E+00	N	1.7E+01	N	
1,4-Dichlorobenzene	106-46-7	3.0E+00	C	7.3E+00	C	2.8E-01	C	4.7E-01	C	1.0E-01
3,3-Dichlorobenzidine	91-94-1	9.9E-01	C	6.7E+00	C	1.5E-02	C	1.5E-01	C	3.0E-04
1,4-Dichloro-2-butene	764-41-0	7.5E-03	C	1.8E-02	C	7.2E-04	C	1.2E-03	C	
Dichlorodifluoromethane	75-71-8	9.4E+01	N	3.1E+02	N	2.1E+02	N	3.9E+02	N	
1,1-Dichloroethane	75-34-3	5.7E+02	N	2.0E+03	N	5.2E+02	N	8.1E+02	N	1.0E+00
1,2-Dichloroethane (EDC)	107-06-2	3.4E-01	C	7.6E-01	C	7.4E-02	C	1.2E-01	C	1.0E-03
1,1-Dichloroethylene	75-35-4	5.3E-01	C	1.2E+00	C	3.8E-01	C	4.6E-01	C	3.0E-03
1,2-Dichloroethylene (cis)	156-59-2	4.2E+01	N	1.5E+02	N	3.7E+01	N	6.1E+01	N	2.0E-02
1,2-Dichloroethylene (trans)	156-60-5	6.2E+01	N	2.1E+02	N	7.3E+01	N	1.2E+02	N	3.0E-02
2,4-Dichlorophenol	120-83-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	5.0E-02
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	94-82-6	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	6.4E+02	N	1.4E+04	N	3.7E+01	N	3.7E+02	N	
1,2-Dichloropropane	78-87-5	3.5E-01	C	7.6E-01	C	9.9E-02	C	1.6E-01	C	1.0E-03
1,3-Dichloropropene	542-75-6	8.1E-02	C	1.8E-01	C	5.2E-02	C	8.1E-02	C	2.0E-04
2,3-Dichloropropanol	616-23-9	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Dichlorvos	62-73-7	1.5E+00	C	1.0E+01	C	2.3E-02	C	2.3E-01	C	
Dicofol	115-32-2	1.0E+00	C	6.8E+00	C	1.5E-02	C	1.5E-01	C	
Dicyclopentadiene	77-73-6	5.5E-01	N	1.8E+00	N	2.1E-01	N	4.2E-01	N	
Dieldrin	60-57-1	2.8E-02	C	1.9E-01	C	4.2E-04	C	4.2E-03	C	2.0E-04
Diethylene glycol, monobutyl ether	112-34-5	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
Diethylene glycol, monoethyl ether	111-90-0	1.0E+05	max	1.0E+05	max	7.3E+03	N	7.3E+04	N	
Diethylformamide	617-84-5	6.0E+02	N	1.2E+04	N	4.0E+01	N	4.0E+02	N	
Di(2-ethylhexyl)adipate	103-23-1	3.7E+02	C	2.5E+03	C	5.6E+00	C	5.6E+01	C	
Diethyl phthalate	84-66-2	4.4E+04	N	1.0E+05	max	2.9E+03	N	2.9E+04	N	
Diethylstilbestrol	56-53-1	9.4E-05	C	6.4E-04	C	1.4E-06	C	1.4E-05	C	
Difenzoquat (Avenge)	43222-48-6	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Diflubenzuron	35367-38-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
1,1-Difluoroethane	75-37-6	1.0E+05	max	1.0E+05	max	4.2E+04	N	6.9E+04	N	
Diisopropyl methylphosphonate	1445-75-6	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Dimethipin	*55290-64-7*	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Dimethoate	60-51-5	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	
3,3'-Dimethoxybenzidine	119-90-4	3.2E+01	C	2.1E+02	C	4.8E-01	C	4.8E+00	C	
Dimethylamine	124-40-3	6.3E-02	N	2.5E-01	N	2.1E-02	N	3.5E-02	N	
N-N-Dimethylaniline	121-69-7	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2,4-Dimethylaniline	95-68-1	5.9E-01	C	4.0E+00	C	9.0E-03	C	9.0E-02	C	
2,4-Dimethylaniline hydrochloride	21436-96-4	7.7E-01	C	5.2E+00	C	1.2E-02	C	1.2E-01	C	
3,3'-Dimethylbenzidine	119-93-7	4.8E-02	C	3.3E-01	C	7.3E-04	C	7.3E-03	C	
1,1-Dimethylhydrazine	57-14-7	1.7E-01	C	1.2E+00	C	1.9E-03	C	2.6E-02	C	
1,2-Dimethylhydrazine	540-73-8	1.2E-02	C	8.1E-02	C	1.8E-04	C	1.8E-03	C	
N,N-Dimethylformamide	68-12-2	5.4E+03	N	1.0E+05	max	3.1E+01	N	3.7E+03	N	
Dimethylphenethylamine	122-09-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
2,4-Dimethylphenol	105-67-9	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	4.0E-01
2,6-Dimethylphenol	576-26-1	3.3E+01	N	6.4E+02	N	2.2E+00	N	2.2E+01	N	
3,4-Dimethylphenol	95-65-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Dimethyl phthalate	131-11-3	1.0E+05	max	1.0E+05	max	3.7E+04	N	3.7E+05	N	
Dimethyl terephthalate	120-61-6	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
4,6-Dinitro-o-cyclohexyl phenol	131-89-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
1,2-Dinitrobenzene	528-29-0	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
1,3-Dinitrobenzene	99-65-0	5.5E+00	N	1.1E+02	N	3.7E-01	N	3.7E+00	N	
1,4-Dinitrobenzene	100-25-4	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
2,4-Dinitrophenol	51-28-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	1.0E-02
Dinitrotoluene mixture	25321-14-6	6.5E-01	C	4.4E+00	C	9.9E-03	C	9.9E-02	C	4.0E-05
2,4-Dinitrotoluene	121-14-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	4.0E-05
2,6-Dinitrotoluene	606-20-2	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	3.0E-05
Dinoseb	88-85-7	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
di-n-Octyl phthalate	117-84-0	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	1.0E+04
1,4-Dioxane	123-91-1	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
Dioxin (2,3,7,8-TCDD)	1746-01-6	3.8E-06	C	3.0E-05	C	4.5E-08	C	4.5E-07	C	
Diphenamid	957-51-7	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Diphenylamine	122-39-4	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	

1,2-Diphenylhydrazine	122-66-7	5.6E-01	C	3.7E+00	C	8.7E-03	C	8.4E-02	C	
Diphenyl sulfone	127-63-9	4.9E+02	N	9.6E+03	N	3.3E+01	N	3.3E+02	N	
Diquat	85-00-7	1.2E+02	N	2.4E+03	N	8.0E+00	N	8.0E+01	N	
Direct black 38	1937-37-7	5.2E-02	C	3.5E-01	C	7.8E-04	C	7.8E-03	C	
Direct blue 6	2602-46-2	5.5E-02	C	3.7E-01	C	8.3E-04	C	8.3E-03	C	
Direct brown 95	16071-86-6	4.8E-02	C	3.2E-01	C	7.2E-04	C	7.2E-03	C	
Disulfoton	298-04-4	2.2E+00	N	4.3E+01	N	1.5E-01	N	1.5E+00	N	
1,4-Dithiane	505-29-3	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Diuron	330-54-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Dodine	2439-10-3	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Endosulfan	115-29-7	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	9.0E-01
Endothall	145-73-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Endrin	72-20-8	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	5.0E-02
Epichlorohydrin	106-89-8	7.4E+00	N	2.6E+01	N	1.0E+00	N	2.0E+00	N	
1,2-Epoxybutane	106-88-7	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
EPTC (S-Ethyl dipropylthiocarbamate)	759-94-4	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Ethephon (2-chloroethyl phosphonic acid)	16672-87-0	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Ethion	563-12-2	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
2-Ethoxyethanol	110-80-5	2.2E+04	N	1.0E+05	max	2.1E+02	N	1.5E+04	N	
2-Ethoxyethanol acetate	111-15-9	1.6E+04	N	1.0E+05	max	1.1E+03	N	1.1E+04	N	
Ethyl acetate	141-78-6	1.7E+04	N	3.7E+04	sat	3.3E+03	N	5.5E+03	N	
Ethyl acrylate	140-88-5	2.1E-01	C	4.5E-01	C	1.4E-01	C	2.3E-01	C	
Ethylbenzene	100-41-4	2.3E+02	sat	2.3E+02	sat	1.1E+03	N	1.3E+03	N	7.0E-01
Ethyl chloride	75-00-3	1.6E+03	sat	1.6E+03	sat	1.0E+04	N	8.6E+03	N	
Ethylene cyanohydrin	109-78-4	1.6E+04	N	1.0E+05	max	1.1E+03	N	1.1E+04	N	
Ethylene diamine	107-15-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Ethylene glycol	107-21-1	1.0E+05	max	1.0E+05	max	7.3E+03	N	7.3E+04	N	
Ethylene glycol, monobutyl ether	111-76-2	3.1E+02	N	6.1E+03	N	2.1E+01	N	2.1E+02	N	
Ethylene oxide	75-21-8	1.3E-01	C	3.4E-01	C	1.9E-02	C	2.4E-02	C	
Ethylene thiourea (ETU)	96-45-7	4.0E+00	C	2.7E+01	C	6.1E-02	C	6.1E-01	C	
Ethyl ether	60-29-7	1.8E+03	sat	1.8E+03	sat	7.3E+02	N	1.2E+03	N	
Ethyl methacrylate	97-63-2	1.4E+02	sat	1.4E+02	sat	3.3E+02	N	5.5E+02	N	
Ethyl p-nitrophenyl phenylphosphorothioate	2104-64-5	5.5E-01	N	1.1E+01	N	3.7E-02	N	3.7E-01	N	
Ethylphthalyl ethyl glycolate	84-72-0	1.0E+05	max	1.0E+05	max	1.1E+04	N	1.1E+05	N	
Express	101200-48-0	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
Fenamiphos	22224-92-6	1.4E+01	N	2.7E+02	N	9.1E-01	N	9.1E+00	N	
Fluometuron	2164-17-2	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Fluoride	16984-48-8	3.3E+03	N	6.4E+04	N			2.2E+03	N	
Fluoridone	59756-60-4	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Flurprimidol	56425-91-3	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Flutolanil	66332-96-5	3.3E+03	N	6.4E+04	N	2.2E+02	N	2.2E+03	N	
Fluvalinate	69409-94-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Folpet	133-07-3	1.3E+02	C	8.6E+02	C	1.9E+00	C	1.9E+01	C	
Fomesafen	72178-02-0	2.3E+01	C	1.6E+02	C	3.5E-01	C	3.5E+00	C	
Fonofos	944-22-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Formaldehyde	50-00-0	8.2E+03	N	1.0E+05	max	1.5E-01	C	5.5E+03	N	
Formic Acid	64-18-6	1.0E+05	max	1.0E+05	max	7.3E+03	N	7.3E+04	N	
Fosetyl-al	39148-24-8	1.0E+05	max	1.0E+05	max	1.1E+04	N	1.1E+05	N	
Furan	110-00-9	2.5E+00	N	8.5E+00	N	3.7E+00	N	6.1E+00	N	
Furazolidone	67-45-8	1.2E-01	C	7.9E-01	C	1.8E-03	C	1.8E-02	C	
Furfural	98-01-1	1.6E+02	N	3.2E+03	N	5.2E+01	N	1.1E+02	N	
Furium	531-82-8	8.9E-03	C	6.0E-02	C	1.3E-04	C	1.3E-03	C	
Furmecyclox	60568-05-0	1.5E+01	C	1.0E+02	C	2.2E-01	C	2.2E+00	C	
Glufosinate-ammonium	77182-82-2	2.2E+01	N	4.3E+02	N	1.5E+00	N	1.5E+01	N	
Glycidaldehyde	765-34-4	2.2E+01	N	4.3E+02	N	1.0E+00	N	1.5E+01	N	
Glyphosate	1071-83-6	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Haloxyfop-methyl	69806-40-2	2.7E+00	N	5.3E+01	N	1.8E-01	N	1.8E+00	N	
Harmony	79277-27-3	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Heptachlor	76-44-8	9.9E-02	C	6.7E-01	C	1.5E-03	C	1.5E-02	C	1.0E+00
Heptachlor epoxide	1024-57-3	4.9E-02	C	3.3E-01	C	7.4E-04	C	7.4E-03	C	3.0E-02
Hexabromobenzene	87-82-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Hexachlorobenzene	118-74-1	2.8E-01	C	1.9E+00	C	4.2E-03	C	4.2E-02	C	1.0E-01
Hexachlorobutadiene	87-68-3	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	1.0E-01
HCH (alpha)	319-84-6	8.6E-02	C	6.7E-01	C	1.1E-03	C	1.1E-02	C	3.0E-05
HCH (beta)	319-85-7	3.0E+00	C	2.3E+01	C	3.7E-02	C	3.7E-01	C	1.0E-04

HCH (gamma) Lindane	58-89-9	4.2E-01	C	3.2E+00	C	5.2E-03	C	5.2E-02	C	5.0E-04
HCH-technical	608-73-1	3.0E-01	C	2.3E+00	C	3.8E-03	C	3.7E-02	C	1.0E-04
Hexachlorocyclopentadiene	77-47-4	3.8E+02	N	7.1E+03	N	7.3E-02	N	2.6E+02	N	2.0E+01
Hexachlorodibenzo-p-dioxin mixture (HxCDD)	19408-74-3	7.2E-05	C	4.8E-04	C	1.5E-06	C	1.1E-05	C	
Hexachloroethane	67-72-1	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	2.0E-02
Hexachlorophene	70-30-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Hexahydro-1,3,5-trinitro-1,3,5-triazine	121-82-4	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
1,6-Hexamethylene diisocyanate	822-06-0	1.6E-01	N	3.1E+00	N	1.0E-02	N	1.0E-01	N	
n-Hexane	110-54-3	1.1E+02	sat	1.1E+02	sat	2.1E+02	N	3.5E+02	N	
Hexazinone	51235-04-2	1.8E+03	N	3.5E+04	N	1.2E+02	N	1.2E+03	N	
Hydrazine, hydrazine sulfate	302-01-2	1.5E-01	C	1.0E+00	C	3.9E-04	C	2.2E-02	C	
Hydrogen chloride	7647-01-0	1.0E+05	max	1.0E+05	max	2.1E+01	N			
Hydrogen sulfide	7783-06-4	1.6E+02	N	3.2E+03	N	1.0E+00	N	2.0E+00	N	
p-Hydroquinone	123-31-9	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Imazalil	35554-44-0	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Imazaquin	81335-37-7	1.4E+04	N	1.0E+05	max	9.1E+02	N	9.1E+03	N	
Iprodione	36734-19-7	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Iron	7439-89-6	2.2E+04	N	1.0E+05	max			1.1E+04	N	
Isobutanol	78-83-1	1.0E+04	N	4.0E+04	sat	1.1E+03	N	1.8E+03	N	
Isophorone	78-59-1	4.7E+03	C	3.2E+04	C	7.1E+01	C	7.1E+02	C	3.0E-02
Isopropalin	33820-53-0	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Isopropyl methyl phosphonic acid	1832-54-8	5.5E+03	N	1.0E+05	max	4.0E+02	N	3.7E+03	N	
Isoxaben	82558-50-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Kepone	143-50-0	2.5E-02	C	1.7E-01	C	3.7E-04	C	3.7E-03	C	
Lactofen	77501-63-4	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Lead	7439-92-1	4.0E+02		2.0E+03				1.5E+01		
Lead (tetraethyl)	78-00-2	5.5E-03	N	1.1E-01	N			3.7E-03	N	
Linuron	330-55-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Lithium	7439-93-2	1.5E+03	N	3.7E+04	N			7.3E+02	N	
Londax	83055-99-6	1.1E+04	N	1.0E+05	max	7.3E+02	N	7.3E+03	N	
Malathion	121-75-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Maleic anhydride	108-31-6	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Maleic hydrazide	123-33-1	1.6E+03	N	2.4E+03	sat	1.8E+03	N	3.0E+03	N	
Malononitrile	109-77-3	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Mancozeb	8018-01-7	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Maneb	12427-38-2	7.4E+00	C	5.0E+01	C	1.1E-01	C	1.1E+00	C	
Manganese and compounds	7439-96-5	3.1E+03	N	4.5E+04	N	5.1E-02	N	1.7E+03	N	
Mephosfolan	950-10-7	4.9E+00	N	9.6E+01	N	3.3E-01	N	3.3E+00	N	
Mepiquat	24307-26-4	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
2-Mercaptobenzothiazole	149-30-4	1.5E+01	C	1.0E+02	C	2.3E-01	C	2.3E+00	C	
Mercury and compounds	7487-94-7	2.2E+01	N	5.6E+02	N			1.1E+01	N	
Mercury (elemental)	7439-97-6					3.1E-01	N			
Mercury (methyl)	22967-92-6	5.5E+00	N	1.1E+02	N			3.7E+00	N	
Merphos	150-50-5	1.6E+00	N	3.2E+01	N	1.1E-01	N	1.1E+00	N	
Merphos oxide	78-48-8	1.6E+00	N	3.2E+01	N	1.1E-01	N	1.1E+00	N	
Metalaxyl	57837-19-1	3.3E+03	N	6.4E+04	N	2.2E+02	N	2.2E+03	N	
Methacrylonitrile	126-98-7	1.9E+00	N	8.4E+00	N	7.3E-01	N	1.0E+00	N	
Methamidophos	10265-92-6	2.7E+00	N	5.3E+01	N	1.8E-01	N	1.8E+00	N	
Methanol	67-56-1	2.7E+04	N	1.0E+05	max	1.8E+03	N	1.8E+04	N	
Methidathion	950-37-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Methomyl	16752-77-5	4.4E+01	N	1.5E+02	N	9.1E+01	N	1.5E+02	N	
Methoxychlor	72-43-5	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	8.0E+00
2-Methoxyethanol	109-86-4	5.5E+01	N	1.1E+03	N	2.1E+01	N	3.7E+01	N	
2-Methoxyethanol acetate	110-49-6	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
2-Methoxy-5-nitroaniline	99-59-2	9.7E+00	C	6.5E+01	C	1.5E-01	C	1.5E+00	C	
Methyl acetate	79-20-9	2.0E+04	N	9.2E+04	N	3.7E+03	N	6.1E+03	N	
Methyl acrylate	96-33-3	6.9E+01	N	2.3E+02	N	1.1E+02	N	1.8E+02	N	
2-Methylaniline (o-toluidine)	95-53-4	1.9E+00	C	1.2E+01	C	2.8E-02	C	2.8E-01	C	
2-Methylaniline hydrochloride	636-21-5	2.5E+00	C	1.7E+01	C	3.7E-02	C	3.7E-01	C	
Methyl chlorocarbonate	79-22-1	5.5E+04	N	1.0E+05	max	3.7E+03	N	3.7E+04	N	
2-Methyl-4-chlorophenoxyacetic acid	94-74-6	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)	94-81-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2-(2-Methyl-4-chlorophenoxy) propionic acid	93-65-2	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
2-(2-Methyl-1,4-chlorophenoxy) propionic acid (MCPP)	16484-77-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	

Methylcyclohexane	108-87-2	4.7E+04	N	1.0E+05	max	3.1E+03	N	3.1E+04	N	
4,4'-Methylenebisbenzeneamine	101-77-9	1.8E+00	C	1.2E+01	C	2.7E-02	C	2.7E-01	C	
4,4'-Methylene bis(2-chloroaniline)	101-14-4	3.4E+00	C	2.3E+01	C	5.2E-02	C	5.2E-01	C	
4,4'-Methylene bis(N,N'-dimethyl)aniline	101-61-1	9.7E+00	C	6.5E+01	C	1.5E-01	C	1.5E+00	C	
Methylene bromide	74-95-3	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Methylene chloride	75-09-2	8.5E+00	C	2.0E+01	C	4.1E+00	C	4.3E+00	C	1.0E-03
4,4'-Methylenediphenyl isocyanate	101-68-8	9.3E+00	N	1.8E+02	N	6.2E-01	N	6.2E+00	N	
Methyl ethyl ketone	78-93-3	6.9E+03	N	2.7E+04	N	1.0E+03	N	1.9E+03	N	
Methyl hydrazine	60-34-4	4.0E-01	C	2.7E+00	C	6.1E-03	C	6.1E-02	C	
Methyl isobutyl ketone	108-10-1	7.5E+02	N	2.8E+03	N	8.3E+01	N	1.6E+02	N	
Methyl mercaptan	74-93-1	3.1E+01	N	6.1E+02	N	2.1E+00	N	2.1E+01	N	
Methyl methacrylate	80-62-6	2.2E+03	N	2.7E+03	sat	7.3E+02	N	1.4E+03	N	
2-Methyl-5-nitroaniline	99-55-8	1.3E+01	C	9.1E+01	C	2.0E-01	C	2.0E+00	C	
Methyl parathion	298-00-0	1.4E+01	N	2.7E+02	N	9.1E-01	N	9.1E+00	N	
2-Methylphenol	95-48-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	8.0E-01
3-Methylphenol	108-39-4	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
4-Methylphenol	106-44-5	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Methyl phosphonic acid	993-13-5	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Methyl styrene (mixture)	25013-15-4	1.2E+02	N	5.4E+02	N	4.2E+01	N	6.0E+01	N	
Methyl styrene (alpha)	98-83-9	6.8E+02	sat	6.8E+02	sat	2.6E+02	N	4.3E+02	N	
Methyl tertbutyl ether (MTBE)	1634-04-4					3.1E+03	N	2.0E+01		
Metolaclor (Dual)	51218-45-2	8.2E+03	N	1.0E+05	max	5.5E+02	N	5.5E+03	N	
Metribuzin	21087-64-9	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Mirex	2385-85-5	2.5E-01	C	1.7E+00	C	3.7E-03	C	3.7E-02	C	
Molinate	2212-67-1	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Molybdenum	7439-98-7	3.7E+02	N	9.4E+03	N			1.8E+02	N	
Monochloramine	10599-90-3	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Naled	300-76-5	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Napropamide	15299-99-7	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
Nickel and compounds	7440-02-0	1.5E+03	N	3.7E+04	N			7.3E+02	N	7.0E+00
Nickel refinery dust	n/a	1.1E+04	C	2.2E+04	C	8.0E-03	C			
Nickel subsulfide	12035-72-2	5.2E+03	C	1.1E+04	C	4.0E-03	C			
Nitrapyrin	1929-82-4	8.2E+01	N	1.6E+03	N	5.5E+00	N	5.5E+01	N	
Nitrate	14797-55-8							1.0E+04		
Nitric Oxide	10102-43-9	5.5E+03	N	1.0E+05	max			3.7E+03	N	
Nitrite	14797-65-0							1.0E+03		
2-Nitroaniline	88-74-4	3.3E+00	N	6.4E+01	N	2.1E-01	N	2.2E+00	N	
3-Nitroaniline	99-09-2									
4-Nitroaniline	100-01-6									
Nitrobenzene	98-95-3	1.6E+01	N	1.0E+02	N	2.1E+00	N	3.4E+00	N	7.0E-03
Nitrofurantoin	67-20-9	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Nitrofurazone	59-87-0	3.0E-01	C	2.0E+00	C	7.2E-04	C	4.5E-02	C	
Nitrogen dioxide	101102-44-0	5.5E+04	N	1.0E+05	max			3.7E+04	N	
Nitroguanidine	556-88-7	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
4-Nitrophenol	100-02-7	3.4E+03	N	6.6E+04	N	2.3E+02	N	2.3E+03	N	
2-Nitropropane	79-46-9	4.7E-02	C	3.2E-01	C	7.2E-04	C	1.2E-03	C	
N-Nitrosodi-n-butylamine	924-16-3	2.2E-02	C	5.8E-02	C	1.2E-03	C	2.0E-03	C	
N-Nitrosodiethanolamine	1116-54-7	1.6E-01	C	1.1E+00	C	2.4E-03	C	2.4E-02	C	
N-Nitrosodiethylamine	55-18-5	3.0E-03	C	2.0E-02	C	4.5E-05	C	4.5E-04	C	
N-Nitrosodimethylamine	62-75-9	8.7E-03	C	5.9E-02	C	1.4E-04	C	1.3E-03	C	
N-Nitrosodiphenylamine	86-30-6	9.1E+01	C	6.1E+02	C	1.4E+00	C	1.4E+01	C	6.0E-02
N-Nitroso di-n-propylamine	621-64-7	6.3E-02	C	4.3E-01	C	9.6E-04	C	9.6E-03	C	2.0E-06
N-Nitroso-N-methylethylamine	10595-95-6	2.0E-02	C	1.4E-01	C	3.1E-04	C	3.1E-03	C	
N-Nitrosopyrrolidine	930-55-2	2.1E-01	C	1.4E+00	C	3.1E-03	C	3.2E-02	C	
m-Nitrotoluene	99-08-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
o-Nitrotoluene	99-08-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
p-Nitrotoluene	99-99-0	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Norflurazon	27314-13-2	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
NuStar	85509-19-9	3.8E+01	N	7.5E+02	N	2.6E+00	N	2.6E+01	N	
Octabromodiphenyl ether	32536-52-0	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Octahydro-1357-tetranitro-1357-tetrazocine (HMX)	2691-41-0	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Octamethylpyrophosphoramide	152-16-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Oryzalin	19044-88-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Oxadiazon	19666-30-9	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Oxamyl	23135-22-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Oxyfluorfen	42874-03-3	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	

Paclobutrazol	76738-62-0	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Paraquat	4685-14-7	2.5E+02	N	4.8E+03	N	1.6E+01	N	1.6E+02	N	
Parathion	56-38-2	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
Pebulate	1114-71-2	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Pendimethalin	40487-42-1	2.2E+03	N	4.3E+04	N	1.5E+02	N	1.5E+03	N	
Pentabromo-6-chloro cyclohexane	87-84-3	1.9E+01	C	1.3E+02	C	2.9E-01	C	2.9E+00	C	
Pentabromodiphenyl ether	32534-81-9	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Pentachlorobenzene	608-93-5	4.4E+01	N	8.6E+02	N	2.9E+00	N	2.9E+01	N	
Pentachloronitrobenzene	82-68-8	1.7E+00	C	1.2E+01	C	2.6E-02	C	2.6E-01	C	
Pentachlorophenol	87-86-5	2.5E+00	C	1.5E+01	C	5.6E-02	C	5.6E-01	C	1.0E-03
Perchlorate	7601-90-3	3.7E+01	N	9.4E+02	N			1.8E+01	N	
Permethrin	52645-53-1	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Phenmedipham	13684-63-4	1.4E+04	N	1.0E+05	max	9.1E+02	N	9.1E+03	N	
Phenol	108-95-2	3.3E+04	N	1.0E+05	max	2.2E+03	N	2.2E+04	N	5.0E+00
Phenothiazine	92-84-2	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
m-Phenylenediamine	108-45-2	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
p-Phenylenediamine	106-50-3	1.0E+04	N	1.0E+05	max	6.9E+02	N	6.9E+03	N	
Phenylmercuric acetate	62-38-4	4.4E+00	N	8.6E+01	N	2.9E-01	N	2.9E+00	N	
2-Phenylphenol	90-43-7	2.3E+02	C	1.5E+03	C	3.5E+00	C	3.5E+01	C	
Phorate	298-02-2	1.1E+01	N	2.1E+02	N	7.3E-01	N	7.3E+00	N	
Phosmet	732-11-6	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Phosphine	7803-51-2	1.6E+01	N	3.2E+02	N	3.1E-01	N	1.1E+01	N	
Phosphoric acid	7664-38-2					1.0E+01	N			
Phosphorus (white)	7723-14-0	1.5E+00	N	3.7E+01	N			7.3E-01	N	
p-Phthalic acid	100-21-0	5.5E+04	N	1.0E+05	max	3.7E+03	N	3.7E+04	N	
Phthalic anhydride	85-44-9	1.0E+05	max	1.0E+05	max	1.2E+02	N	7.3E+04	N	
Picloram	1918-02-1	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Pirimiphos-methyl	23505-41-1	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Polybrominated biphenyls		5.0E-02	C	3.4E-01	C	7.6E-04	C	7.6E-03	C	
Polychlorinated biphenyls (PCBs)	1336-36-3	2.0E-01	C	1.3E+00	C	3.4E-03	C	3.4E-02	C	
Aroclor 1016	12674-11-2	3.4E+00	N	6.3E+01	N	2.6E-01	N	2.6E+00	N	
Aroclor 1254	11097-69-1	9.7E-01	N	1.8E+01	N	7.3E-02	N	7.3E-01	N	
Polynuclear aromatic hydrocarbons										
Acenaphthene	83-32-9	2.6E+03	N	2.8E+04	N	2.2E+02	N	3.7E+02	N	2.9E+01
Anthracene	120-12-7	1.4E+04	N	1.0E+05	max	1.1E+03	N	1.8E+03	N	5.9E+02
Benz[a]anthracene	56-55-3	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	8.0E-02
Benzo[b]fluoranthene	205-99-2	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	2.0E-01
Benzo[k]fluoranthene	207-08-9	5.6E+00	C	3.6E+01	C	2.2E-01	C	9.2E-01	C	2.0E+00
Benzo[a]pyrene	50-32-8	5.6E-02	C	3.6E-01	C	2.2E-03	C	9.2E-03	C	4.0E-01
Chrysene	218-01-9	5.6E+01	C	3.6E+02	C	2.2E+00	C	9.2E+00	C	8.0E+00
Dibenz[ah]anthracene	53-70-3	5.6E-02	C	3.6E-01	C	2.2E-03	C	9.2E-03	C	8.0E-02
Fluoranthene	206-44-0	2.0E+03	N	3.7E+04	N	1.5E+02	N	1.5E+03	N	2.1E+02
Fluorene	86-73-7	1.8E+03	N	2.2E+04	N	1.5E+02	N	2.4E+02	N	2.8E+01
Indeno[1,2,3-cd]pyrene	193-39-5	5.6E-01	C	3.6E+00	C	2.2E-02	C	9.2E-02	C	7.0E-01
Naphthalene	91-20-3	5.5E+01	N	1.9E+02	N	3.1E+00	N	6.2E+00	N	4.0E+00
Pyrene	129-00-0	1.5E+03	N	2.6E+04	N	1.1E+02	N	1.8E+02	N	2.1E+02
Prochloraz	67747-09-5	3.0E+01	C	2.0E+02	C	4.5E-01	C	4.5E+00	C	
Profluralin	26399-36-0	3.3E+02	N	6.4E+03	N	2.2E+01	N	2.2E+02	N	
Prometon	1610-18-0	8.2E+02	N	1.6E+04	N	5.5E+01	N	5.5E+02	N	
Prometryn	7287-19-6	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Pronamide	23950-58-5	4.1E+03	N	8.0E+04	N	2.7E+02	N	2.7E+03	N	
Propachlor	1918-16-7	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Propanil	709-98-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Propargite	2312-35-8	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propargyl alcohol	107-19-7	1.1E+02	N	2.1E+03	N	7.3E+00	N	7.3E+01	N	
Propazine	139-40-2	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propham	122-42-9	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Propiconazole	60207-90-1	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
iso-Propylbenzene	104-5-18	1.2E+02	N	3.9E+02	sat	3.7E+01	N	6.1E+01	N	
n-Propylbenzene	104-51-8	1.3E+02	N	2.4E+02	sat	3.7E+01	N	6.1E+01	N	
Propylene glycol	57-55-6	1.0E+05	max	1.0E+05	max	7.3E+04	N	7.3E+05	N	
Propylene glycol, monoethyl ether	111-35-3	3.8E+04	N	1.0E+05	max	2.6E+03	N	2.6E+04	N	
Propylene glycol, monomethyl ether	107-98-2	3.8E+04	N	1.0E+05	max	2.1E+03	N	2.6E+04	N	
Propylene oxide	75-56-9	1.5E+00	C	6.8E+00	C	5.2E-01	C	2.2E-01	C	
Pursuit	81335-77-5	1.4E+04	N	1.0E+05	max	9.1E+02	N	9.1E+03	N	
Pydrin	51630-58-1	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Pyridine	110-86-1	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	

Quinalphos	13593-03-8	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Quinoline	91-22-5	3.7E-02	C	2.5E-01	C	5.6E-04	C	5.6E-03	C	
RDX (Cyclonite)	121-82-4	4.0E+01	C	2.7E+02	C	6.1E-01	C	6.1E+00	C	
Resmethrin	10453-86-8	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Ronnel	299-84-3	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	
Rotenone	83-79-4	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Savey	78587-05-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Selenious Acid	7783-00-8	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Selenium	7782-49-2	3.7E+02	N	9.4E+03	N			1.8E+02	N	3.0E-01
Selenourea	630-10-4	2.7E+02	N	5.3E+03	N			1.8E+02	N	
Sethoxydim	74051-80-2	4.9E+03	N	9.6E+04	N	3.3E+02	N	3.3E+03	N	
Silver and compounds	7440-22-4	3.7E+02	N	9.4E+03	N			1.8E+02	N	2.0E+00
Simazine	122-34-9	3.7E+00	C	2.5E+01	C	5.6E-02	C	5.6E-01	C	
Sodium azide	26628-22-8	2.2E+02	N	4.3E+03	N	1.5E+01	N	1.5E+02	N	
Sodium diethyldithiocarbamate	148-18-5	1.6E+00	C	1.1E+01	C	2.5E-02	C	2.5E-01	C	
Sodium fluoroacetate	62-74-8	1.1E+00	N	2.1E+01	N	7.3E-02	N	7.3E-01	N	
Sodium metavanadate	13718-26-8	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Strontium, stable	7440-24-6	4.5E+04	N	1.0E+05	max			2.2E+04	N	
Strychnine	57-24-9	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Styrene	100-42-5	1.7E+03	sat	1.7E+03	sat	1.1E+03	N	1.6E+03	N	2.0E-01
Systhane	88671-89-0	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
2,3,7,8-TCDD (dioxin)	1746-01-6	3.8E-06	C	3.0E-05	C	4.5E-08	C	4.5E-07	C	
Tebuthiuron	34014-18-1	3.8E+03	N	7.5E+04	N	2.6E+02	N	2.6E+03	N	
Temephos	3383-96-8	1.1E+03	N	2.1E+04	N	7.3E+01	N	7.3E+02	N	
Terbacil	5902-51-2	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Terbufos	13071-79-9	1.4E+00	N	2.7E+01	N	9.1E-02	N	9.1E-01	N	
Terbutryn	886-50-0	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
1,2,4,5-Tetrachlorobenzene	95-94-3	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
1,1,1,2-Tetrachloroethane	630-20-6	2.9E+01	C	6.9E+01	C	2.6E+00	C	4.3E+00	C	
1,1,2,2-Tetrachloroethane	79-34-5	3.6E+00	C	8.7E+00	C	3.3E-01	C	5.5E-01	C	2.0E-04
Tetrachloroethylene (PCE)	127-18-4	4.7E+00	C	1.6E+01	C	3.3E+00	C	1.1E+00	C	3.0E-03
2,3,4,6-Tetrachlorophenol	58-90-2	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
p,a,a,a-Tetrachlorotoluene	5216-25-1	2.2E-02	C	1.5E-01	C	3.4E-04	C	3.4E-03	C	
Tetrachlorovinphos	961-11-5	1.9E+01	C	1.2E+02	C	2.8E-01	C	2.8E+00	C	
Tetraethyldithiopyrophosphate	3689-24-5	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Tetrahydrofuran	109-99-9	4.7E+03	N	9.2E+04	N	3.1E+02	N	3.1E+03	N	
Thallic oxide	1314-32-5	5.2E+00	N	1.3E+02	N			2.6E+00	N	
Thallium acetate	563-68-8	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium carbonate	6533-73-9	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thallium chloride	7791-12-0	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thallium nitrate	10102-45-1	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium selenite	12039-52-0	6.7E+00	N	1.7E+02	N			3.3E+00	N	4.0E-01
Thallium sulfate	7446-18-6	6.0E+00	N	1.5E+02	N			2.9E+00	N	4.0E-01
Thiobencarb	28249-77-6	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
Thiocyanate	N/A	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	
2-(Thiocyanomethylthio)-benzothiazole (TCMTB)	21564-17-0	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Thiofanox	39196-18-4	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
Thiophanate-methyl	23564-05-8	4.4E+03	N	8.6E+04	N	2.9E+02	N	2.9E+03	N	
Thiram	137-26-8	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Tin and compounds	n/a	4.5E+04	N	1.0E+05	max			2.2E+04	N	
Toluene	108-88-3	5.2E+02	sat	5.2E+02	sat	4.0E+02	N	7.2E+02	N	6.0E-01
Toluene-2,4-diamine	95-80-7	1.4E-01	C	9.4E-01	C	2.1E-03	C	2.1E-02	C	
Toluene-2,5-diamine	95-70-5	3.3E+04	N	1.0E+05	max	2.2E+03	N	2.2E+04	N	
Toluene-2,6-diamine	823-40-5	1.1E+04	N	1.0E+05	max	7.3E+02	N	7.3E+03	N	
p-Toluidine	106-49-0	2.3E+00	C	1.6E+01	C	3.5E-02	C	3.5E-01	C	
Toxaphene	8001-35-2	4.0E-01	C	2.7E+00	C	6.0E-03	C	6.1E-02	C	2.0E+00
Tralomethrin	66841-25-6	4.1E+02	N	8.0E+03	N	2.7E+01	N	2.7E+02	N	
Triallate	2303-17-5	7.1E+02	N	1.4E+04	N	4.7E+01	N	4.7E+02	N	
Triasulfuron	82097-50-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
1,2,4-Tribromobenzene	615-54-3	2.7E+02	N	5.3E+03	N	1.8E+01	N	1.8E+02	N	
Tributyltin oxide (TBTO)	56-35-9	1.6E+01	N	3.2E+02	N			1.1E+01	N	
2,4,6-Trichloroaniline	634-93-5	1.3E+01	C	8.8E+01	C	2.0E-01	C	2.0E+00	C	
2,4,6-Trichloroaniline hydrochloride	33663-50-2	1.5E+01	C	1.0E+02	C	2.3E-01	C	2.3E+00	C	
1,2,4-Trichlorobenzene	120-82-1	4.8E+02	N	3.0E+03	sat	2.1E+02	N	1.9E+02	N	3.0E-01
1,1,1-Trichloroethane	71-55-6	6.9E+02	N	1.4E+03	sat	1.0E+03	N	7.9E+02	N	1.0E-01
1,1,2-Trichloroethane	79-00-5	8.2E-01	C	1.9E+00	C	1.2E-01	C	2.0E-01	C	9.0E-04
Trichloroethylene (TCE)	79-01-6	2.7E+00	C	6.1E+00	C	1.1E+00	C	1.6E+00	C	3.0E-03

Trichlorofluoromethane	75-69-4	3.8E+02	N	1.3E+03	N	7.3E+02	N	1.3E+03	N	
2,4,5-Trichlorophenol	95-95-4	5.5E+03	N	1.0E+05	max	3.7E+02	N	3.7E+03	N	1.4E+01
2,4,6-Trichlorophenol	88-06-2	4.0E+01	C	2.7E+02	C	6.2E-01	C	6.1E+00	C	8.0E-03
2,4,5-Trichlorophenoxyacetic Acid	93-76-5	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2-(2,4,5-Trichlorophenoxy) propionic acid	93-72-1	4.4E+02	N	8.6E+03	N	2.9E+01	N	2.9E+02	N	
1,1,2-Trichloropropane	598-77-6	1.5E+01	N	5.1E+01	N	1.8E+01	N	3.0E+01	N	
1,2,3-Trichloropropane	96-18-4	1.4E-03	C	3.1E-03	C	9.6E-04	C	1.6E-03	C	
1,2,3-Trichloropropene	96-19-5	1.1E+01	N	3.9E+01	N	1.8E+01	N	3.0E+01	N	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5.6E+03	sat	5.6E+03	sat	3.1E+04	N	5.9E+04	N	
Tridiphane	58138-08-2	1.6E+02	N	3.2E+03	N	1.1E+01	N	1.1E+02	N	
Triethylamine	121-44-8	2.2E+01	N	8.6E+01	N	7.3E+00	N	1.2E+01	N	
Trifluralin	1582-09-8	4.1E+02	N	3.9E+03	C	8.7E+00	C	8.7E+01	C	
1,2,4-Trimethylbenzene	95-63-6	5.1E+01	N	1.7E+02	N	6.2E+00	N	1.2E+01	N	
1,3,5-Trimethylbenzene	108-67-8	2.1E+01	N	7.0E+01	N	6.2E+00	N	1.2E+01	N	
Trimethyl phosphate	512-56-1	1.2E+01	C	8.1E+01	C	1.8E-01	C	1.8E+00	C	
1,3,5-Trinitrobenzene	99-35-4	1.6E+03	N	3.2E+04	N	1.1E+02	N	1.1E+03	N	
Trinitrophenylmethylnitramine	479-45-8	5.5E+02	N	1.1E+04	N	3.7E+01	N	3.7E+02	N	
2,4,6-Trinitrotoluene	118-96-7	2.7E+01	N	5.3E+02	N	1.8E+00	N	1.8E+01	N	
Vanadium	7440-62-2	5.2E+02	N	1.3E+04	N			2.6E+02	N	3.0E+02
Vanadium pentoxide	1314-62-1	6.7E+02	N	1.7E+04	N			3.3E+02	N	3.0E+02
Vanadium sulfate	13701-70-7	1.5E+03	N	3.7E+04	N			7.3E+02	N	3.0E+02
Vernam	1929-77-7	5.5E+01	N	1.1E+03	N	3.7E+00	N	3.7E+01	N	
Vinclozolin	50471-44-8	1.4E+03	N	2.7E+04	N	9.1E+01	N	9.1E+02	N	
Vinyl acetate	108-05-4	4.3E+02	N	1.4E+03	N	2.1E+02	N	4.1E+02	N	8.0E+00
Vinyl bromide	593-60-2	1.9E-01	C	4.2E-01	C	6.1E-02	C	1.0E-01	C	
Vinyl chloride	75-01-4	2.1E-02	C	4.8E-02	C	2.2E-02	C	2.0E-02	C	7.0E-04
Warfarin	81-81-2	1.6E+01	N	3.2E+02	N	1.1E+00	N	1.1E+01	N	
m-Xylene	108-38-3	2.1E+02	sat	2.1E+02	sat	7.3E+02	N	1.4E+03	N	1.0E+01
o-Xylene	95-47-6	2.8E+02	sat	2.8E+02	sat	7.3E+02	N	1.4E+03	N	9.0E+00
p-Xylene	106-42-3	3.7E+02	sat	3.7E+02	sat					1.0E+01
Zinc	7440-66-6	2.2E+04	N	1.0E+05	max			1.1E+04	N	6.2E+02
Zinc phosphide	1314-84-7	2.2E+01	N	5.6E+02	N			1.1E+01	N	
Zineb	12122-67-7	2.7E+03	N	5.3E+04	N	1.8E+02	N	1.8E+03	N	

[Region 6 Home] [EPA Home] [Index] [What's New] [Comments] [Search]

URL: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/r6scrval.htm
Last Updated: October 8, 1998 - Metadata Record

Number of Accesses since October 8, 1997: 00175

EPA Region 6

Human Health

Media-Specific Screening Levels

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202

9200.4-27
EPA/540/F-98/030
PB98-963244

OSWER Directive # 9200.4-27P

MEMORANDUM

SUBJECT: Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities

FROM: Timothy Fields, Jr.
Acting Assistant Administrator

TO: Regional Administrators I-X

PURPOSE

This directive clarifies the existing 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, OSWER Directive 9355.4-12. Specifically, this directive clarifies OSWER's policy on (1) using EPA's Science Advisory Board (SAB) reviewed Integrated Exposure Uptake Biokinetic Model (IEUBK) and blood lead studies, (2) determining the geographic area to use in evaluating human exposure to lead contamination ("exposure units"), (3) addressing multimedia lead contamination and (4) determining appropriate response actions at lead sites. The purpose for clarifying the existing 1994 directive is to promote national consistency in decision-making at CERCLA and RCRA lead sites across the country.

BACKGROUND

OSWER Directive 9355.4-12, issued on July 14, 1994 established OSWER's current approach to addressing lead in soil at CERCLA and RCRA sites. The existing directive established a streamlined approach for determining protective levels for lead in soil at CERCLA sites and RCRA facilities as follows:

- It recommends a 400 ppm screening level for lead in soil at residential properties;
- It describes how to develop site-specific preliminary remediation goals (PRGs) at CERCLA sites and media cleanup standards at RCRA Corrective Action facilities for

residential land use; and,

- It describes a strategy for management of lead contamination at CERCLA sites and RCRA Corrective Action facilities that have multiple sources of lead.

The existing interim directive provides direction regarding risk assessment and risk management approaches for addressing soil lead contaminated sites. The OSWER directive states that, " ... implementation of this guidance is expected to provide more consistent decisions across the country ..." However, since that directive was released, OSWER determined that clarification of the guidance is needed. Key areas being clarified by issuance of this directive include: (1) using the IEUBK model and blood lead studies, (2) determining exposure units to be considered in evaluating risk and developing risk management strategies, (3) addressing multimedia lead contamination and (4) determining appropriate response actions at residential lead sites. The existing directive provides the following guidance on these areas:

1. The OSWER directive recommends using the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children (Pub. # 9285.7-15-1, PB93-963510) for setting site-specific residential preliminary risk-based remediation goals (PRGs) at CERCLA sites and media cleanup standards (MCSs) at RCRA corrective actions Facilities. The directive states that the IEUBK model is the best tool currently available for predicting the potential blood lead levels of children exposed to lead in the environment. OSWER's directive also recommends the evaluation of blood lead data, where available, and states that well-conducted blood lead studies provide useful information to site managers. The directive however recommends that "... blood lead data not be used alone to assess risk from lead exposure or to develop soil lead cleanup levels."

2. The directive describes OSWER's risk reduction goal as "...generally, OSWER will attempt to limit exposure to soil lead levels such that a typical (or hypothetical) child or group of similarly exposed children would have an estimated risk of no more than 5% of exceeding a 10 ug/dl blood lead level." The directive also states that "... EPA recommends that a soil lead concentration be determined so that a typical child or group of children exposed to lead at this level would have an estimated risk of no more than 5% of exceeding a blood lead of 10 ug/dl." OSWER generally defines an exposure unit as a geographic area where exposures occur to the receptor of concern during the time of interest and believes that for a child or group of similarly exposed children, this is typically the individual residence and other areas where routine exposures are occurring.

3. The directive recommends that risk managers assess the contribution of multiple environmental sources of lead to overall lead exposure (e.g., consideration of the importance of soil lead levels relative to lead from drinking water, paint, and household dust) which promotes development of risk reduction strategies that address all sources that contribute significantly to exposure.

4. The OSWER directive states that the IEUBK model is not the only factor to be considered in establishing lead cleanup goals. Rather, the IEUBK model is the primary risk assessment tool available for evaluating lead risk and the results of the model are used to guide selection of appropriate risk management strategies for each site.

Since the OSWER directive was issued in 1994, there has been a trend toward a more consistent approach to managing risk at residential lead sites, however, OSWER was interested in identifying areas requiring additional clarification to facilitate more effective implementation of the directive. As a first step in the process, meetings were held with various EPA Regions, States and local governments to discuss how the directive has been implemented nationally at lead sites since 1994. By participating in these meetings and by reviewing the decisions that are being made across the country, OSWER believed that clarification of certain aspects of the 1994 directive would be useful.

All of the documents and guidance referenced in this directive are available through the National Technical Information Service (NTIS) at 703-605-6000 or could be downloaded electronically from: http//epa.gov/superfund/oerr/ini_prod/lead/prods.htm.

OBJECTIVE

At lead contaminated residential sites, OSWER seeks assurance that the health of the most susceptible population (children and women of child bearing age) is protected and promotes a program that proactively assesses and addresses risk. OSWER believes that predictive tools should be used to evaluate the risk of lead exposure, and that cleanup actions should be designed to address both current and potential future risk.

While health studies, surveys, and monitoring can be valuable in identifying current exposures and promoting improved public health, they are not definitive tools in evaluating potential risk from exposure to environmental contaminants. In the case of lead exposure, blood lead monitoring programs can be of critical importance in identifying individuals experiencing potential negative health outcomes and directing education and intervention resources to address those risks. However, CERCLA §121(b) requires EPA to select cleanup approaches that are protective of human health and the environment and that utilize permanent solutions to the maximum extent practicable. To comply with the requirements set forth in CERCLA § 121(b), OSWER will generally require selection of cleanup programs that are proactive in mitigating risk and that do not simply rely on biological monitoring programs to determine if an exposure has already occurred.

To meet these objectives, OSWER will seek actions that limit exposure to soil lead levels such that a typical child or group of similarly exposed children would have an estimated risk of no more than 5% of exceeding a 10 ug/dl blood lead level. If lead is predicted to pose a risk to the susceptible population, OSWER recommends that actions be taken to significantly minimize or eliminate this exposure to lead.

The principles laid out in the **four attached factsheets** (Appendix) support OSWER's goals by encouraging appropriate assessment and response actions at CERCLA and RCRA lead sites across the country.

This clarification directive emphasizes the following key messages regarding the four areas and encourages the users of this directive, be they EPA Regions, States, or other stakeholders, to adopt these principles in assessing and managing CERCLA and RCRA lead sites across the country. The critical elements of the attached papers are as follows:

I. Using Blood Lead Studies and IEUBK Model at Lead Sites:

OSWER emphasizes the use of the IEUBK Model for estimating risks for childhood lead exposure from a number of sources, such as soils, dust, air, water, and other sources to predict blood lead levels in children 6 months to 84 (7 years) months old. The 1994 directive also recommended evaluation of available blood lead data and stated that data from a well-conducted blood lead study of children could provide useful information to site managers. In summary, OSWER's clarification policy on the appropriate use of the IEUBK and blood lead studies is that:

- OSWER recommends that the IEUBK model be used as the primary tool to generate risk-based soil cleanup levels at lead sites for current or future residential land use. If Regions propose an alternative method for generating cleanup levels, they are required to submit their approach to the national Lead Sites Consultation Group (LSCG)[1] for review and comment ;

- Response actions can be taken using IEUBK predictions alone; blood lead studies are not required; and

- Blood lead studies and surveys are useful tools at lead sites and can be used to identify key site-specific exposure pathways and to direct health professionals to individuals needing immediate assistance in minimizing lead exposure; however, OSWER recommends that blood lead studies not be used for establishing long-term remedial or non-time-critical removal cleanup levels at lead sites.

II. Determining Exposure and Remediation Units at Lead Sites

OSWER recommends that cleanup levels at lead sites be designed to reduce risk to a typical or individual child receiving exposures at the residence to meet Agency guidelines (i.e., no greater

(1) The Lead Sites Consultation Group (LSCG) is comprised of senior management representatives from the Waste Management Divisions in all 10 EPA regions along with senior representatives from the Office of Emergency and Remedial Response in EPA headquarters. The LSCG is supported by EPA's Technical Review Workgroup (TRW) for lead and the national Lead Sites Workgroup (LSW). The TRW consists of key scientific experts in lead risk assessment from various EPA Regions, labs and headquarters. The LSW is comprised of senior Regional Project Managers from various Regions and key representatives from headquarters who are experienced in addressing lead threats at Superfund sites.

than a 5% chance of exceeding a 10 ug/dl blood-lead level for a full-time child resident).

Therefore, it is recommended that risk assessments conducted at lead-contaminated residential sites use the individual residence as the primary exposure unit of concern. This does not mean that a risk assessment should be conducted for every yard, rather that the soil lead contamination data from yards and other residential media (for example, interior dust and drinking water) should be input into the IEUBK model to provide a preliminary remediation goal (PRG) for the residential setting. When applicable, potential exposure to accessible site-related lead sources outside the residential setting should also be evaluated to understand how these other potential exposures contribute to the overall risk to children, and to suggest appropriate cleanup measures for those areas.

III. Addressing Multimedia Contamination at Lead Sites

EPA generally has limited legal authority to use Superfund to address exposure from **interior lead-based paint.** As a policy matter, OSWER recommends that such exposures not be addressed through actual abatement activities. However, EPA Regions should promote addressing interior paint risks through actions by others (e.g., potentially responsible parties (PRPs), other government programs, etc.) as a component of an overall site management strategy.

Because of other competing demands on the Superfund Trust Fund, OSWER recommends that EPA Regions avoid using the Superfund Trust Fund for removing **exterior lead-based paint** and soil contaminated from lead-based paint. Superfund dollars *may* however be used in limited circumstances to remediate exterior lead-based paint in order to protect the overall site remedy (i.e., to avoid re-contamination of soils that have been remediated) but generally only after determining that other funding sources are unavailable. As with interior lead-based paint abatement, EPA Regions should promote remediation of exterior lead-based paint by others, such as PRPs, local governments or individual homeowners.

IV. Determining Appropriate Response Actions at Lead Sites

In selecting site management strategies, it is OSWER's preference to seek early risk reduction with a combination of engineering controls (actions which permanently remove or treat contaminants, or create reliable barriers to mitigate the risk of exposure) and non-engineering response actions. All potential lead sources should be identified in site assessment activities. Non-engineering response actions, such as education and health intervention programs, should be considered an integral part of early risk reduction efforts because of their potential to provide immediate health benefits. In addition, engineering controls should be implemented early at sites presenting the greatest risk to children and other susceptible subpopulations.

As a given project progresses, OSWER's goal should be to reduce the reliance on education and intervention programs to mitigate risk. The goal should be cleanup strategies that move away from reliance on long-term changes in community behavior to be protective since behavioral changes may be difficult to maintain over time. The actual remedy selected at each CERCLA site must be determined by application of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (55 FR 8666- 8865, March 8, 1990) remedy selection criteria to site-

specific circumstances. This approach also recognizes the NCP preference for permanent remedies and emphasizes selection of engineering over non-engineering remedies for long-term response actions.

This directive clarifies OSWER's policy on four key issue areas addressed in the 1994 OSWER soil lead directive in order to promote a nationally consistent decision-making process for assessing and managing risks associated with lead contaminated sites across the country. The policy presented in these specific issue areas supersedes all existing OSWER policy and directives on these subjects. No other aspects of the existing 1994 directive are affected.

IMPLEMENTATION

The principles laid out in this directive (which includes the four attached factsheets) are meant to apply to all residential lead sites currently being evaluated through the CERCLA Remedial Investigation/Feasibility Study process and all future CERCLA Sites and RCRA Corrective Action Facilities contaminated with lead. The Regions will be required to submit their rationale for deviating from the policies laid out in this directive to the Lead Sites Consultation Group. This directive does not apply to previous remedy selection decisions.

Attachments

cc: Waste Management Policy Managers (Regions I-X)
Stephen Luftig, OERR
Elizabeth Cotsworth, OSW
James Woolford, FFRRO
Barry Breen, OSRE
Larry Reed, OERR
Tom Sheckells, OERR
Murray Newton, OERR
Betsy Shaw, OERR
John Cunningham, OERR
Paul Nadeau, OERR
Bruce Means, OERR
Earl Salo, OERR

NOTICE: This document provides guidance to EPA staff. The document does not, however, substitute for EPA's statutes or regulations, nor is it a regulation itself. Thus it cannot impose legally-binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA may change this guidance in the future, as appropriate.

EPA Region 6
Human Health
Media-Specific Screening Levels

Legend: MCL = Maximum Contaminant Level SAT = risk-based value above expected saturation point max = maximum concentration PEST = Pesticide Herb = Herbicide VOC = Volatile Organic Compound SVOC = Semi-Volatile Organic Compound "Blank" = Missing data for generation of value.					Basis: C= carcinogenic effects N = non-carcinogenic effects E = EPA draft Soil Screening Level S = soil saturation concentration M = EPA MCL I = Ingestion route only						
Contaminant	Chemical Group Name	Cancer Class Risk Level: A/B= 10^{-6} C= 10^{-5} Blank= 10^{-6}	Soil Regional Background Conc/Range (mg/kg)	Drinking Water (MCL's)	Risk-Based Screening Levels Tap Water (Residential Scenario: Ingestion, & Inhalation)	Ambient Air (Residential Scenario)	Fish (Recreational Fishing Scenario)	Soil (Ingestion, Inhalation, and Dermal Exposure Routes) Residential	Industrial	Soil Screening Level Transfers from Soil to: Air	Groundwater
				µg/L	µg/L	µg/m3	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Iron Isobutanol Isophorone	VOC PEST	C			1100) N I 1100 N I 710 C	1100 N 1100 N 66 C	410 N 410 N 33 C	23000 N I 23000 N 4700 C	SAT SAT 20000 C	3400 E	0.2 E
Isopropalin Isopropyl methyl phosphonic acid Isoxaben	PEST				550 N 3700 N 1100 N	55 N 370 N 110 N	20 N 140 N 68 N	980 N 6500 N 2300 N	10000 N 68000 N 34000 N		
Lead			10-18		(Uptake	Biokinetic	Model)	400 N	2000 N		
Kepone Lactofen Linuron	PEST PEST PEST				0.00017 C 73 N 73 N	0.00035 C 7.3 N 7.3 N	0.00018 C 2.7 N 2.7 N	0.03 C 330 N 330 N	0.1 C 1400 N 1400 N		
Lithium Londax Malathion	PEST PEST				730 N 7300 N 730 N	73 N 730 N 73 N	27 N 270 N 27 N	1500 N 13000 N 1300 N	34000 N SAT 14000 N		
Maleic anhydride Maleic hydrazide Malononitrile	SVOC PEST VOC				3700 N 18000 N 0.73 N	370 N 1800 N 0.073 N	140 N 680 N 0.027 N	6500 N 33000 N 1.3 N	68000 N SAT 14 N		
Mancozeb Maneb Manganese and compounds	PEST PEST		389-850		1100 N 180 N 180 N	110 N 18 N 0.052 N	41 N 6.8 N 6.8 N	2000 N 330 N 330 N	20000 N 3400 N 8300 N		

EnviroMan
Environmental Management
Todd M. Carver, Consultant
5525 Weatherby Lane
Plano, Texas 75093
(972) 985-7948

Mr. William Olson
New Mexico Oil Conservation Division
2040 S. Pacheco Street
Santa Fe, NM 87505

June 22, 2000

Re: Brickland Refinery Site-Parcel A and B-Abatement Plan Termination Request

Dear Bill,

On behalf of Huntsman Polymers Corporation, the following information is presented in support of a request for closure or a no-further-action (NFA) required statement on a portion of the land formerly known as the Brickland Refinery Site. Specifically, the portion of land that is addressed in this request comprises the northernmost sections of the property, Areas A and B, corresponding to Tract 1, as defined in the attached metes and bounds description, and further identified in the attached map of the Site. As you are aware, the site is currently under an Abatement Plan (Brickland Refinery Site Stage 1 approval dated May 21, 1997 and Stage 2 approval dated December 17, 1998). The NFA request is being made in order to transfer Tract 1, comprising approximately 5-acres, to the City of Sunland Park.

Huntsman has negotiated with the City of Sunland Park over the past few years to provide the land to the City for their construction of a wastewater treatment facility. The City desires to enter the agreement and accept the land but also has expressed their intentions to enter into the Voluntary Remediation Program (VRP) with the New Mexico Environment Department (NMED) in order to gain environmental covenant provisions. In order for the City to enter the program, the land must not be subject to the Abatement Plan. Therefore, in an effort to allow the City to proceed with the VRP and other Brownfield's initiatives, Huntsman is requesting this portion of the site known as Area A and B (tract 1 legal description) to be considered as having the abatement completed and to terminate the plan with respect only to this portion of the site. Review of the investigative reports addressing the Site has been conducted and supporting information is provided in this report.

Your consideration of termination of the Abatement Plan for only this portion of the site is greatly appreciated. If I can be of further assistance, please do not hesitate to call.

Respectfully,

Todd Carver

Todd Carver
EnviroMan

cc: Reggie Baker, Huntsman-Odessa
Troy Boley, Huntsman-Houston

I. Historical Information

The refinery operations were conducted on this approximately 35-acre property from 1933 through 1958. At that time, the equipment was dismantled and sent to other locations. A quality control laboratory for testing petroleum products existed on the site for an additional six years until 1964. Activities on the property after the refinery operations ceased included an automobile salvage yard, cattle grazing, and several trucking businesses. Deposition of what appears to be department of transportation construction debris and dredge spoils were also placed on sections of the overall site during this period. Extensive and detailed investigations have been conducted at the location beginning in 1989 by Eder Associates. GCL, Inc. furthered this investigative work in years 1993 through 1995.

During Eder Associates' investigations, considerable effort was placed on the definition of historic operations conducted on the site. Based on the research, which included aerial photographs, review of process flow diagrams and plot plans, and consultation with past employees that worked at the site, the property was divided into seven areas based on the refinery operations conducted in a certain location. These divisions were assigned designations of Areas A through G. Areas A and B are located in the northern portion of the site. Activities in these sectors were limited to product storage in Area A and transfer piping in Area B. There were two above ground storage tanks in Area A located near the eastern, or Rio Grande, side of the property. Area B contained transfer piping which connected the storage tanks in Area A with the refinery, which was located in Areas D-G or the southern end of the site. Between 1984 and 1989, concrete demolition material from off-site sources was placed on both Area A and B. It appears from the size, type and composition of debris that the debris may have originated from the destruction of a bridge, road, or similar concrete structure. The debris is not from on-site buildings since confirmation with a 1985 aerial photograph indicates the disappearance of the buildings and most structural supports and yet there is no visible presence of the debris currently located on the north end of the site.

II. Summary

The portion of the site, known as Areas A and B, effectively described in the legal description of Tract 1, see attached, is in compliance with the criteria for closure under the New Mexico Water Quality Control Commission Abatement Plan standards. Applicable standards as set forth in Section 4103 of the NMWQCC regulations have been met for this portion of the site. No change to the existing groundwater monitoring program, the site maintenance activities or the abatement program covering the remainder of the site is proposed.

The soil cover as required by the Abatement Plan to provide protection from ingestion and inhalation of lead contaminated soils has been placed over portions of Areas A and B. The purpose of the cover was to provide this protection from blowing surface soils where lead concentrations were in excess of 400 mg/kg. The as-built installation of this cover was approved by the NMOCD on May 24, 2000.

III. Regulations

The Abatement Plan is a provision of the New Mexico Water Quality Control Commission regulations. The Plan is administered by the New Mexico Oil Conservation Department (NMOCD) and is referenced as Title 20, Chapter 6, Part 2 of the regulations. Specifically, the Abatement Plan can be considered complete when the conditions and standards listed in Sections 4103 and 3103 are met. A comparison of the study results with these requirements is provided in this segment of the report for ease of reference.

Comparison

20NMAC 6.2 4103 Abatement Standards and Requirements

A. The vadose zone shall be abated so that water contaminants are not capable of contaminating the groundwater in excess of referenced standards.

Ground water contaminants in the vadose zone meet the standards as set forth in Section 4103 subparts B and C. Soil analysis meets criteria to provide protection of the groundwater.

B. Groundwater pollution must conform to standards of Section 3103 regarding toxic pollutants and other contaminants.

Groundwater pollution conforms to the following standards:

1. toxic pollutants are not present at concentrations that have been defined as having an adverse effect,
2. the concentrations of contaminants meet the standards of Section 3103.

C. Surface water shall be abated to conform to the water quality standards for interstate and intrastate streams in New Mexico.

There is no surface water located on the property. The Rio Grande is adjacent to the property and no contamination from the site has been measured in the river.

D. Surface and sub-surface water abatement shall continue for a period of at least two years and meet the NMWQCC standards. Soils sampling may be considered complete after one sampling event.

Abatement standards for groundwater in monitoring wells located in Area A or B have met the standards during all the sampling events starting in 1990. Soil analysis has met criteria listed in the EPA Media-Specific Screening Level for all samples except for lead.

20NMAC 6.2 3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or Less

1. Non-aqueous phase liquid shall not be present. (20 NMAC 6.2 Section 3103.A)

There has been no free phase hydrocarbon detected in the Area A and B location.

2. Standards for groundwater must be met. (20 NMAC 6.2 Section 3103.A)
Standards have been met in cases of volatile compounds, semi-volatile compounds, and most metals. Two metals, iron and manganese have been detected in MW-2 above domestic water supply standards. However, there is a restrictive covenant prohibiting beneficial use of any well water on the site.

IV. Historical Testing and Analysis

Analytical results from past investigative reports are ordered chronologically and by the report from which the information was gathered. Reference is usually made only to Areas A and B. The exception to this are references to monitoring well MW-13 that was located adjacent to these sections in Area C, monitoring well MW-1 that is located to the east side of the property, and soil samples from test pits located adjacent to the Area A and B segments. These references are used to support the fact there was no contamination found in the area in question (Area A and B). The referenced report is italicized and underlined. Data is presented following the report heading.

A. *Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Eder Associates, and dated August 6, 1990.*

This was the initial investigation for the former Brickland Refinery. The report discusses the testing conducted during March 1990 through July 1990. In addition to background information on the site, screening testing comprised of soil-gas surveys, oil and grease testing, and magnetometer analysis was undertaken. Soil sampling was achieved primarily from test pit installations and supplemented by several soil borings. Installation of thirteen monitoring wells was also conducted at this time.

Comments from Report

The only process activity in Areas A and B was the operation of two product storage tanks. These tanks were located along the eastern side of Area A.

Analytical Testing

1. Soils

Soil gas analyses using a portable gas chromatograph were conducted across the site to provide an order-of-magnitude screening for contaminated areas that warranted further testing and presented possible health concerns. Soil gas analytical results from Area A indicated no definable compounds in the nine samples taken. Analysis in Area B detected only one measurable result out of 13 samples collected. This measurement occurred when the sample was rerun with the instrument set at an elevated gain. The screening work concluded there were three areas of contamination, all of which were in the southern end of the site. Areas A and B were not a concern.

2. Soils and Groundwater

Seven (7) test pits were dug in Area A and an additional four were developed in Area B. Metals and semi-volatile testing was conducted on each test pit. One of the wells in Area

A was sampled for volatile organic compounds (VOC). Additionally, five soil borings were developed in these two parcels with four borings located in Area A and one in Area B. Testing was conducted for metals and semi-volatile compounds. One monitoring well (MW-2) was installed in Area A. MW-2 was placed in the southwest quarter of Area A, just north of the boundary between Area A and Area B. During installation of the well, a photoionization detector (PID) was used to detect the presence of any hydrocarbons. No hydrocarbons were detected. No visible product was noted on the initial sampling of the well.

B. *Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Part II, Eder Associates, dated October 1, 1990.*

Results from the analytical testing conducted in the earlier sampling events are presented.

Comments from Report

Area A had no evidence of petroleum contamination except for a small area of stained surface soils. This was believed to originate from a small spill or leak in a limited location. There were no PID readings on any of the six test pits or on the 1 hand-auger boring. One VOC sample was taken from the stained soil area. This is location A-TP-65. No priority pollutant metals above background concentrations were found in the eight samples taken.

Area B contained piping linking the refinery process to the south and the storage tanks located in Area A to the north. There was no staining seen in the surface soils. One soil boring encountered a layer of petroleum stained soil beneath the surface that was thought to be from a spill or release from piping along the eastern side of the section.

Analytical Results

1. Soils-Oil and Grease

Testing for oil and grease was conducted as a screen for further detailed analytical work. Results were quite low for Area A and B in comparison with the portion of the site where refinery operations were located. Oil and Grease results were as follows.

NMWQCC Requirements: There is no standard for oil and grease that must be met.

Oil and Grease Summary Table

Test Location	Oil and Grease (mg/kg)	Test Location	Oil and Grease (mg/kg)
A-TP-63	320	B-TP-83	73
A-TP-64	300	B-TP-84	79
A-TP-65	76	B-TP-85	51
A-TP-87	100	B-TP-86	160
A-TP-88	110	B-HA-1	230
A-TP-89	130	B-HA-2	110
A-TP-90	100	B-HA-3	150
A-HA-5	56	B-HA-4	6100

Key: A-area A, B-area B; TP-test pit; HA-hand auger (boring); 53-test location

2. Soil-BTEX/VOC

Analysis was conducted for VOCs; more targeted for benzene, toluene, ethylbenzene, and xylene from a soil sample in Area A, test pit A-TP-65 (stained soil location). Results are given below.

NMWQCC Requirements: WQCC Standards are for the groundwater only. However, when comparing the soil media results with the EPA Media-Specific Screening Levels, which are developed to protect groundwater, the results are several orders of magnitude below the screening level.

Volatile Organic Compounds for Soil Sample A-TP-65

Volatile Organic Compound	Result (µg/kg)	EPA Media-Specific Screening Level (µg/kg)*	WQCC Standard (µg/l)
Benzene	ND	620	10
Ethylbenzene	ND	230000	750
Toluene	ND	520000	750
Xylene	500	210000	620
Non-target BTEX	500	---	---
total	51000	---	---

*-Residential screening levels

Area B: No VOC testing was conducted since the PID indications were so low.

The western side of the property in Areas A and B contains construction debris. Because of this, the placement of test pits was not performed. To check the western side of the property, the results of a test pit in Area C, C-TP-1, were reviewed. This test pit was located just south of the Area B-C boundary near the western side of the site. No BTEX or semi-volatile compounds were noted in the soil samples at this location.

3. Soils-Semi-volatile Testing

Area A: No semi-volatile testing was conducted.
Area B: No semi-volatiles work was conducted since the oil and grease screening did not trigger further analysis.

The outfall from the drainage culvert number 4, located to the north of Area A, adjacent to the property, was sampled for soil contaminants. Several semi-volatile compounds were detected. This area originally drained the northern end of the property and also the salvage and storage yard located adjacent and to the north of the site. At an undefined point in time, the northern drainage culvert was diverted to only allow drainage from the adjacent property.

The test results indicated in the table below were reported as contaminants found in the soil sample from the culvert area. However, when reviewing the laboratory results found

in the body of the report, all compounds were listed as non-detect for concentrations. Data validation was conducted on the laboratory analysis and the following results were assigned. In all cases, the results are below the EPA Media-Specific Screening Level for industrial soils. The results are below the Media-Specific Screening Levels for residential soil except for one component, the benzo-(a)-pyrene which was 0.250 mg/kg versus a residential screening level of 0.056 mg/kg. None of these components have been detected in groundwater.

Northern Outfall (Culvert 4-1) Soil Sample

Semi-volatile compound	Test result (mg/kg)	EPA Media-Specific Screening Level (mg/kg)**
Phenanthrene	0.670	--
Anthracene	0.670	10000
Chrysene	0.520	360
Benzo-(a)-anthrene	0.500	3.6
Fluoranthene	1.220	37000
Benzo-(a)-pyrene	0.250	0.360

**-The SSLs listed are for industrial soil.

4. Soil-Metals

Area A: No priority pollutant metals above background concentrations were found in the eight samples taken.

Area B: Only the Copper, Lead, and Silver metal results were found above background levels. The Lead matrix spike for testing was out of acceptable range. Results are summarized in the following table.

NMWQCC Requirements: There are no WQCC standards for soil concentrations. However, the EPA's Media-Specific Screening Levels (SSLs) for the various contaminants reflect concentrations that are derived from protection of the groundwater and relate to partitioning between the soil and the groundwater. The data presented in the table are for Media-Specific Screening Levels at residential sites. Industrial soil concentrations are higher. Leachate tests on soil samples over the site indicate that the metals are "fixed" and there is no threat to the groundwater.

Metals Summary for Soil Sampling

Metal	Test Result Range (mg/kg)		Background (mg/kg)	Western US, USGS Range (mg/kg)	EPA Media-Specific Screening Level (mg/kg)*
	Area A	Area B	Site		
Copper	6-169	35-1370	6-140	2-300	2800
Lead	15-284	60-2830	6-270	10-700	400
Mercury	.06	.41	.02-.11	.01-4.6	22
Silver	.6	1.4-177	.25-1.2	--	370
Cadmium	2.9	4.7	.9-5.5	--	37
Chromium	13.5	860	7.5-23	3-2000	2100
Nickel	10.2	5.4	5-10	5-700	1500
Zinc	101	178	21-180	20-1500	22000
Arsenic	19.8	6	1.4	.1-97	21

*residential standards

5. Groundwater-BTEX and Semi-volatile Compounds

Groundwater testing for MW-2 indicated non-detect levels for BTEX or targeted semi-volatile compounds. Total semi-volatile compounds were 62 and 78 μg/l for the two sampling events. Non-detect levels for BTEX compounds meet WQCC Standards.

Similarly, monitoring well MW-13, located in Area C south of the Area B-C boundary also analyzed at non-detect for BTEX and targeted semi-volatile compounds. Total semi-volatiles were at a level of 25 and 59 μg/l. Non-detect levels for BTEX compounds meet WQCC Standards.

Volatile Compounds in Monitoring Wells

Compound	MW-2 (μg/l)	MW-13 (μg/l)	WQCC Standard (μg/l)
Benzene	ND, ND	ND, ND	10
Ethylbenzene	ND, ND	ND, ND	750
Toluene	ND, ND	ND, ND	750
Xylene	ND, ND	ND, ND	620

NMWQCC Requirements: All results for volatile compounds in the groundwater analysis were below concentrations listed for the WQCC standards.

6. Groundwater-Metals

Testing was conducted for dissolved metals in the monitoring wells. In most cases the metal was not detected. Two separate sampling events were conducted. Results are listed in the following table.

Groundwater Metal Analytical Summary

Metal	MW-2 (µg/l) (Area A)	MW-13 (µg/l) (Area C)	WQCC Standard (µg/l)
Arsenic	2U,7.7	2U,10	100
Cadmium	1.6U,16U	1.6U,16U	10
Chromium	4U,40U	4U,40U	50
Lead	1U,1U	1U,1U	50
Mercury, total	.2U,.2U	.2U,.2U	2
Selenium	5U,26U	5U,26U	50
Silver	5U,50U	5U,50U	50
Copper (dom. supply)	2U.45	2U,43	1000
Zinc (dom. supply)	13U,29	13U,27	10000
Nickel (irrigation use)	8U,80U	8U,80U	200

U= undetected at instrument detection limit (analysis by furnace)

NMWQCC Requirements: All results for metals in the groundwater analysis were either below concentrations listed for the WQCC standards or they were non-detected at the levels indicated in the table.

Both well analysis results were negative on heavy metals of concern (Pb, Cu, and Cr). Arsenic was below WQCC standard levels. Calcium, Sodium, Potassium, and Magnesium metals were present at elevated concentrations and are readily available from natural sources and found in compounds such as chlorides, sulfates, and carbonates.

7. Groundwater-Chlorinated and Other Chemicals

Cleaning Chemicals

Compound	MW-2 (µg/l)*	MW-13 (µg/l)	WQCC Standard (µg/l)
Acetone	5	ND	--
1,2 dichloroethane	1	ND	10
1,1,2 trichloroethane	2	ND	100
Bromoform	1	ND	--
Non target volatiles	ND	ND	--
Target semi-vols.	ND	ND	--
Non-target semi-volatiles	62	25	--

*Actual analysis for MW-2 indicated non-detection. However, when QA/QC validation procedures were conducted, the concentrations above were assigned.

NMWQCC Requirements: All results for Targeted compounds in the groundwater analysis were below concentrations listed for the WQCC standards.

8. Groundwater-Semi-Volatile Organic Compounds

Semi-volatile Compounds

Compound	MW-2 (µg/l)		MW-13 (µg/l)		WQCC Standard (µg/l)
2-methylnaphthalene	ND	ND	ND	ND	
Naphthalene	ND	ND	ND	ND	
Total naphthalene					30 (1)
2,4 bimethylphenol	ND	ND	ND	ND	
Fluorene	ND	ND	ND	ND	
Phenanthrene	ND	ND	ND	ND	
Phenol	ND	ND	ND	ND	5 (2)
Bis(2-chloroisopropyl)ether	ND	ND	ND	ND	
2-methylphenol	ND	ND	ND	ND	
4-methylphenol	ND	ND	ND	ND	
anthracene	ND	ND	ND	ND	
Non-target compounds	62	78	25	59	

(1)-Total naphthalene plus monomethylnaphthalenes
(2)-domestic water supply standard for phenols

NMWQCC Requirements: All results for semi-volatile compounds in the groundwater analysis were below acceptable concentrations listed for the WQCC standards.

C. *Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Part III, Eder Associates, dated March 1991.*

Additional information requested by NMEID is presented in this report. Aerial maps of contaminants were generated and presented with the report.

Statistically, the only additional information presented in the report was the correction of metals analyses for the soil samples from the culverts and the background sampling. Metals from the soil samples taken from the various culverts and the background analysis were adjusted to correct for dry basis versus wet basis conditions. As a result, the metals analyses of the soils were increased accordingly. The adjusted background levels are indicated in the following table.

Adjusted Metals Summary for Soil Sampling

Metal	Test Result Range (mg/kg)		Adjusted Background (mg/kg)	Western US,USGS Range (mg/kg)
	Area A	Area B	Site	
Copper	6-169	35-1370	8.3-140	2-300
Lead	15-284	60-2830	83-400	10-700
Mercury	.06	.41	.02-.11	.01-4.6
Silver	.6	1.4-177	.25-1.4	--
Cadmium	2.9	4.7	1.2-20	--
Chromium	13.5	860	10-31	3-2000
Nickel	10.2	5.4	6.3-13	5-700
Zinc	101	178	29-400	20-1500
Arsenic	19.8	6	1.4-40	.1-97

D. *Remedial Investigation Report for the former Brickland Refinery, GCL, December 1, 1994*

A remedial investigation was conducted in June and July of 1994. Focus was on characterizing the nature and extent of hydrocarbons in the soils and determining the physical properties of the soils. A secondary objective was to refine the geologic and hydrogeologic characteristics and the relationship with groundwater flow and potential contaminant migration.

Comments from Report

No soil borings were taken in Areas A and B. Well points and additional monitoring wells were placed throughout the property. Here again, there were no installations in the present area of concern.

Analytical

Analytical work for groundwater was presented in the report. It includes the third quarter sampling event as indicated in the above report, *Final Site Investigation Report for the Former Brickland Refinery Stage 1 Abatement Plan*. The datum has already received comment previously.

E. *Site Characterization and Risk Assessment for the former Brickland Refinery, GCL, November 14, 1995*

The Risk Assessment is based on the analytical work in prior documents and submittals. The Risk Assessment evaluates various route pathways and calculates both cancer and non-cancer risks associated with site. The data was selected using the worst case concentrations found on the total site. In all cases, this data used in the calculations was from the southern end of the site-not the Area A or B region. No new test results were presented.

F. *Final Site Investigation Report for the Former Brickland Refinery Stage 1 Abatement Plan, GCL and BDM, dated December 20, 1996 and March 21, 1997 respectively*

These documents comprise the Stage 1 Abatement Plan for the NMOCD. Approval of these documents was received on May 21, 1997. Limited testing of soils was conducted in Areas A and B, while groundwater analysis of monitoring wells consisted of the monitoring for free-phase hydrocarbons and quantification of volatile compounds (BTEX and TPH), phenols, semi-volatile compounds (PAHs), NM WQCC metals, and cations and anions. The document contained information from the original Eder Associated testing and from the five quarterly sampling events from December 1993 through December 1994. Data was also provided from the remedial investigation that was conducted in June and July of 1994 and was reported under *Remedial Investigation Report for the former Brickland Refinery by GCL.* Please see Section IV.D. in this report. Data, primarily from Eder reports, that has been previously discussed in this summary will not be restated here.

Comments

In Areas A and B, no further soil testing was conducted by GCL. A discussion was furthered regarding select metals found in the soils in Area B. The silver found in B-HA-1, B-HA-2, B-HA-3, and B-HA-4 was 1.4, 1.8, 177, and 4.9 mg/kg respectively.

Select Metals in Hand Auger Soil Samples

Metal	Result (mg/kg)	Background (mg/kg)	Western US, USGS Range (mg/kg)	EPA Media-Specific Screening Level (mg/kg)*
	Area B	Site		
Copper	1370	6-140	2-300	2800
Lead	2830	6-270	10-700	400
Mercury	.41	.02-.11	.01-4.6	22
Silver	1.4-177	.25-1.2	--	370
Chromium	860	7.5-23	3-2000	2100

*residential standard

NMWQCC Requirements: The NM WQCC standards do not state concentrations for contaminants in the soil. General requirements are to protect human health and the environment. The EPA Media-Specific Screening Levels are set to provide this reference to the soils so as to protect the groundwater. All results are below the EPA Media-Specific Screening Levels with the exception of lead. But lead is no a threat to groundwater since it is fixed in the soil.

Analytical

1. Groundwater-Free-Phase Determination

Monitoring wells were checked quarterly from March 1994 through June 1995 for the presence of free phase existence. Area A is monitored by a single well, MW-2. An additional monitoring well, MW-1, is located adjacent to the tract on the property between the Site and the Rio Grande. Additionally, as a comparison, monitoring well MW-13 was reviewed. This well is located south of Area A and B on parcel C. It is on the western side of the property.

No non-aqueous free-phase hydrocarbons were found in any of these wells.

NMWQCC Requirements: The existence of non-aqueous phase liquids is not permitted. The standard is met for all three wells.

2. Groundwater-BTEX and TPH Compounds

Samples were taken for five successive quarters from December 1993 through December 1994 for MW-1. MW-2 testing was conducted from March 1994 through December of 1994. All components were either non-detect or at levels below the NMWQCC standards. TPH is not a standard for NMWQCC. Results were low for the one-time testing that was conducted. Results for the corresponding testing dates are listed below.

Monitoring Well MW-1

Constituent	WQCC Standard (µg/l)	Detection level	12/93 (µg/l)	3/94 (µg/l)	7/94 (µg/l)	9/94 (µg/l)	12/94 (µg/l)
Benzene	10	.5 µg/l	ND	ND	1.3	ND	ND
Toluene	750	.1 µg/l	ND	ND	ND	ND	ND
Ethylbenzene	750	.5 µg/l	ND	ND	ND	ND	ND
Xylene	620	.5 µg/l	ND	ND	ND	ND	ND
TPH	--	.1 mg/kg	.1 (1)	NA	NA	NA	NA

ND- not detected. NA- not analyzed (1)-mg/kg result

Monitoring Well MW-2

Constituent	WQCC Standard (ug/l)	Detection level	12/93 (µg/l)	3/94 (µg/l)	7/94 (µg/l)	9/94 (µg/l)	12/94 (µg/l)
Benzene	10	.5 µg/l	NS	ND	ND	ND	ND
Toluene	750	.1 µg/l	NS	18	ND	ND	ND
Ethylbenzene	750	.5 µg/l	NS	3.2	ND	ND	ND
Xylene	620	.5 µg/l	NS	49	ND	ND	ND
TPH	--	.1 mg/kg	NS	.5(1)	NA	NA	NA

ND- not detected. NA- not analyzed. NS-not sampled. (1)-mg/kg result

NMWQCC Requirements: All results for volatile compounds in the groundwater analysis were below concentrations listed for the WQCC standards.

3. Groundwater-Semi-volatile Compounds (PAHs)

Groundwater testing was conducted for five quarters from December 1993 through December 1994. For both monitoring wells MW-1 and MW-2, no PAHs were detected.

NMWQCC Requirements: All results for semi-volatile compounds in the groundwater analysis were non-detect--below acceptable concentrations listed for the WQCC standards.

4. Groundwater-Phenols

Analytical testing for phenols in the groundwater was conducted for four quarters from March 1994 through December 1994. For both monitoring wells MW-1 and MW-2, no Phenols were detected.

NMWQCC Requirements: All results for phenols in the groundwater analysis were non-detect. The NMWQCC standard for phenol is for domestic water supply. In addition to the results being below the standard, no water wells are or can be constructed on the site or adjacent property. Restrictive covenants are in place to prohibit any well water use.

5. Groundwater-Metals

Analysis was conducted for determining dissolved metals in the groundwater. The NMWQCC metals listed in the table were measured. Exceedances above NMWQCC standards exist for Iron, Manganese, and Selenium in MW-1 and only for Iron and Manganese in MW-2. The Iron and Manganese standards are for domestic water supply. Water from the site is not used as domestic water supply and restrictive covenants exist whereby the future use of the water cannot be for domestic water. Therefore, the groundwater in Area A and B meet NMWQCC standards.

Dissolved Metals in Groundwater

MW-1

Date	AL	AS	BA	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	ZN
WQCC Standard	5	0.1	1.0	.01	.05	.05	1.0	1.0	.05	0.2	.002	1.0	0.2	.05	.05	10
12/93	NA	.07	.14	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
3/94	NA	.07	.11	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
6/94	1.2	ND	.18	ND	ND	ND	.01	1.96	ND	1.42	ND	ND	ND	ND	ND	.01
9/94	.11	ND	.13	ND	ND	ND	ND	.08	ND	1.12	ND	ND	ND	.1	ND	ND
12/94	.10	ND	.12	ND	ND	ND	.02	.03	ND	.21	.0002	.05	.04	.1	.01	.01

ND-not detected. NA-not analyzed. All results, mg/l.

MW-2

Date	AL	AS	BA	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	ZN
WQCC Standard	5	0.1	1.0	.01	.05	.05	1.0	1.0	.05	0.2	.002	1.0	0.2	.05	.05	10
3/94	NA	ND	.01	ND	.01	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
6/94	ND	ND	ND	ND	ND	ND	ND	1.83	ND	7.47	ND	ND	ND	ND	ND	ND
9/94	.12	.05	.03	ND	ND	ND	ND	.05	ND	8.07	ND	ND	ND	ND	ND	.03
12/94	ND	ND	ND	ND	ND	ND	.01	.18	ND	1.95	ND	ND	ND	ND	ND	ND

ND-not detected. NA-not analyzed. All results, mg/l.

NMWQCC Requirements: All results for metals in the groundwater analysis that are located on Area A or B were either below concentrations listed for the WQCC standards or non-detect, with the exception of those metal concentrations compared to domestic water supply limits. The domestic water supply criteria do not apply since restrictive covenants for wells on the site prohibit domestic water use. Therefore, relative NMWQCC standards are met.

G. *Stage 2 Abatement Plan-Former Brickland Refinery Site, Huntsman Polymers Corporation, BDM, August 14, 1998.*

This document summarizes the findings in the Stage 1 Abatement Plan Report and establishes the remedial action to be undertaken at the Site. There is no new or additional analytical data in this report.

H. *Lead sampling and Analytical Testing for Brickland Refinery, April 2, 1999* and *Cover Installation Report, August 19,1999*

Surface soil sampling was conducted to identify areas of concentration of lead above the EPA Media-Specific Screening Level residential standard of 400 mg/kg. In Area A and in Area B, one area in each section was identified which lie along the eastern fence line of the property where the standard was surpassed. The contamination is most likely a result of spills occurring during the transport of product to the storage tanks located in Area A.

Both areas where lead concentrations in the soils exceed the threshold have been covered with at least six inches of compacted, roadbed-grade material to prevent the ingestion and inhalation of the lead contained soil.

The cover installation was an element of the Stage 2 Abatement Plan. The as-built cover installation was approved by the NMOCD.

NMWQCC Requirements: The corrective action of the cover placement meets the requirements of the Abatement Plan. Furthermore, the transfer of the property to the City of Sunland Park includes a restrictive covenant to keep the cap intact.

I. *1999 Annual Groundwater Monitoring Report by Terracon, February 24, 2000*

Free phase thickness measurements were provided for all monitoring wells in June of 1999. The December of 1999 results did not include MW-2 and MW-13 since they were plugged and abandoned following the June 1999 testing. The June 1999 results, as well as a table of all results for free-phase measurements conducted since September 1993 is included in the report.

NMWQCC Requirements: No free phase hydrocarbons were detected in any readings for MW-2 or MW-13. Non-aqueous phase liquid has not been present. This meets NMWQCC requirements.

Analysis for BTEX concentrations has been done at least semi-annually since 1993. However, in accordance with the groundwater monitoring program, no sampling of the two monitoring wells located in Tract 1 was conducted.

V. Bibliography

1. Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Eder Associates, and dated August 6, 1990.
2. Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Part II, Eder Associates, dated October 1, 1990.
3. Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Part III, Eder Associates, dated March 1991.
4. Remedial Investigation Report for the former Brickland Refinery, GCL, December 1, 1994.
5. Site Characterization and Risk Assessment for the former Brickland Refinery, GCL, November 14, 1995.
6. Final Site Investigation Report for the Former Brickland Refinery Stage 1 Abatement Plan, GCL and BDM, dated December 20, 1996 and March 21, 1997 respectively.
7. Stage 2 Abatement Plan-Former Brickland Refinery Site, Huntsman Polymers Corporation, BDM, August 14, 1998.
8. Lead sampling and Analytical Testing for Brickland Refinery, April 2, 1999 and Cover Installation Report, August 19,1999.
9. 1999 Annual Groundwater Monitoring Report by Terracon, February 24, 2000
10. USEPA Region 6 Human Health Media-Specific Screening Levels, October, 1998.
11. State of New Mexico, Water Quality Control Commission Regulations, October, 1995.

EXHIBIT

Legal Description of the Northern Tract

Property consists of one Tract of land consisting of the following Tract 1

TRACT 1

A tract of land located in Sunland Park, Dona Ana County, New Mexico as part of lots 7 and 8, Section 9, Township 29 South, Range 4 East, New Mexico Principal Meridian and being more particularly described as follows, to wit:

Beginning at a ½ inch rebar with survey cap set for the northwest corner of the tract herein described, whence a brass cap set in concrete found for Texas/New Mexico State Line Reference Monument No. 22 bears **N.54°04'04"E., 369.29 feet;**

Thence N.67°52'00"E., 242.05 feet to a ½ inch rebar with survey cap set for the northeast corner of the tract herein described:

Thence S.56°43'32"E., 160.03 feet to a ½ inch rebar found for an angle point;

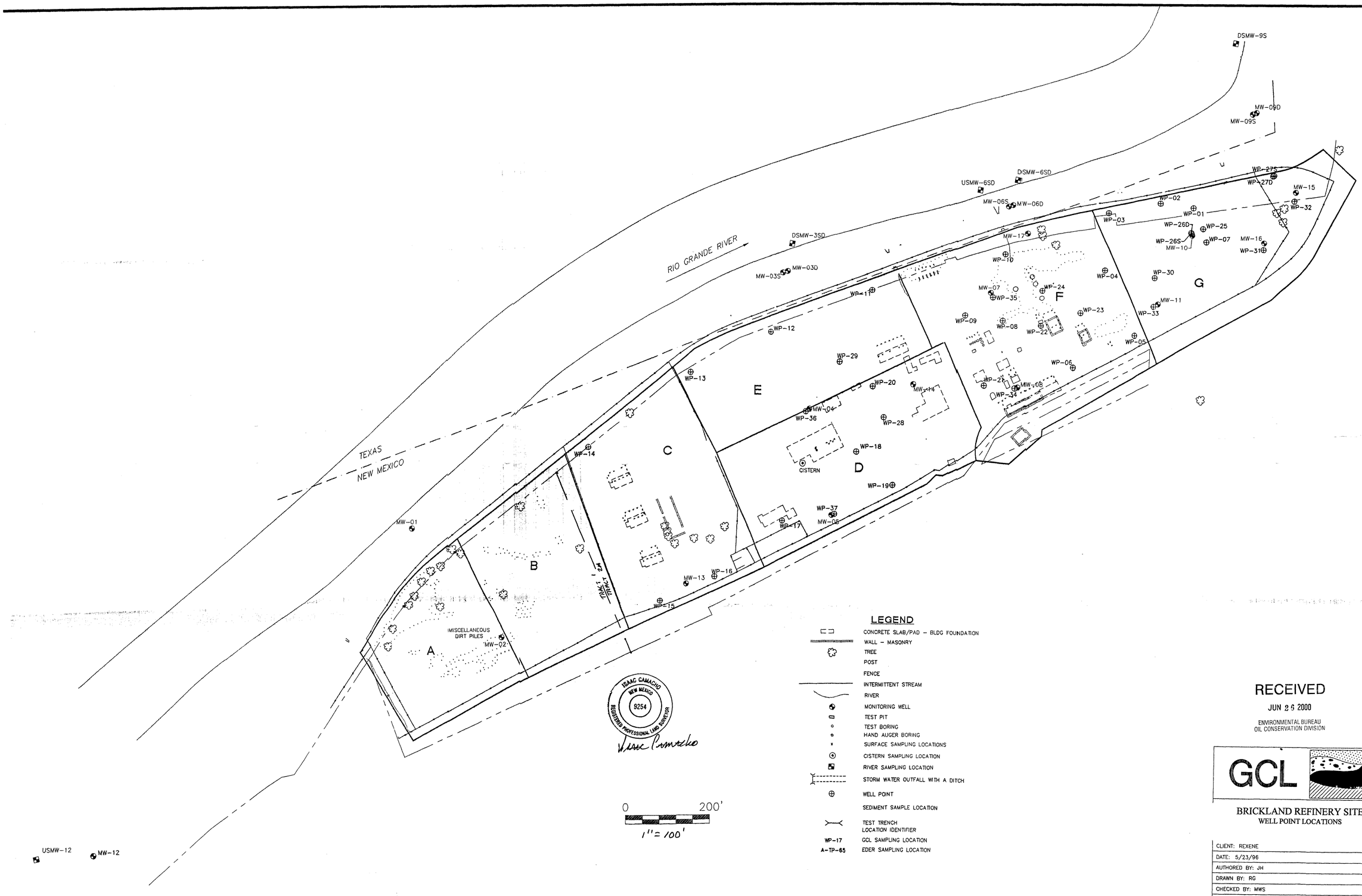
Thence S.47° 13'36"E., 175.28 feet to a ½ inch rebar found for an angle point;

Thence S.38°00'08" E., 302.03 feet to a ½ inch rebar set for the southeast corner of the tract herein described;

Thence S.67°52'00"W., 465.36 feet to a ½ inch rebar set for the southwest corner of the tract herein described;

Thence N.24°32'41"W., 581.51 feet to the point of beginning;

Said tract containing 5.046 acres, more or less.



ISAAC CAMACHO
NEW MEXICO
9254
REGISTERED PROFESSIONAL LAND SURVEYOR

0 200'
1" = 100'

LEGEND

- CONCRETE SLAB/PAD – BLDG FOUNDATION
- WALL – MASONRY
- TREE
- POST
- FENCE
- INTERMITTENT STREAM
- RIVER
- MONITORING WELL
- TEST PIT
- TEST BORING
- HAND AUGER BORING
- SURFACE SAMPLING LOCATIONS
- CISTERN SAMPLING LOCATION
- RIVER SAMPLING LOCATION
- STORM WATER OUTFALL WITH A DITCH
- WELL POINT
- SEDIMENT SAMPLE LOCATION
- TEST TRENCH
  LOCATION IDENTIFIER
- WP-17 GCL SAMPLING LOCATION
- A-TP-65 EDER SAMPLING LOCATION

RECEIVED
JUN 29 2000
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

GCL

BRICKLAND REFINERY SITE
WELL POINT LOCATIONS

CLIENT:	REXENE
DATE:	5/23/96
AUTHORED BY:	JH
DRAWN BY:	RG
CHECKED BY:	MWS
DWG. NO.:	D:\REXENE\RXBASE2.DWG

EnviroMan
Environmental Management
Todd M. Carver, Consultant
5525 Weatherby Lane
Plano, Texas 75093
(972) 985-7948

Mr. William Olson
State of New Mexico
NMOCD
2040 S. Pacheco
Santa Fe, New Mexico 87505

February 23, 2000

Re: Huntsman Polymers-Brickland Site Construction of Cap

Dear Bill,

Thank you for your time and discussion earlier today regarding the former Brickland Refinery Site located in Dona Ana County. As you are aware, a cover was installed in 1999 over those portions of the site where lead was detected in surface soils at concentrations above the EPA regulatory standard of 400 mg/kg. A report covering this cover installation was transmitted on August 19, 1999. A subsequent report was filed on October 18, 1999 addressing your comment regarding the analysis of water found in the sump on site.

On behalf of Huntsman Polymers Corporation, I am requesting an approval letter from NMOCD with reference to the completion of this cover installation.

Thanks for your assistance in this matter. If there are any additional questions, please feel free to contact me at (972) 985-7948.

Best Regards,

Todd Carver

Todd Carver

cc: Reggie Baker, Huntsman Polymers
Randy Hicks, Hicks Consultants, Ltd.

AGENDA
SUNLAND PARK WASTEWATER TREATMENT PLANT EXPANSION
PROJECT COORDINATION MEETING
WEDNESDAY, MARCH 22, 2000

Main Objectives:

- To introduce and recognize the persons, roles, and entities involved.
- To identify the processes necessary to accomplish this project in a timely manner.
- To foster technical discussion between all parties present.

TIME	AGENDA	RESOURCE
10:00 AM	**INTRODUCTION OF PARTICIPANTS** *Basic Objectives*: - *Introduce roles, responsibilities, and interests of* participating agencies with respect to the project.	FACILITATOR
10:45 AM	**PROJECT BACKGROUND** *Basic Objectives*: - Obtain an understanding of current site conditions and any institutional, regulatory, and/or engineering controls that are in effect. - Identify wastewater treatment plant expansion location and the appropriate area to be used on the former Brickland refinery.	HUNTSMAN POLYMER CORPORATION MOLZEN-CORBIN & ASSOCIATES
11:30 AM	**LUNCH**	ON SITE
12:30 PM	**SUMMARY OF FUNDING** *Basic Objectives:* - Identify source, criteria, deadlines, and process of funding administration.	MOLZEN-CORBIN & ASSOCIATES
1:30 PM	**REGULATORY DISCUSSION** *Basic Objectives:* - Discuss site jurisdiction, work plan requirements, and agency procedures.	NMED – VRP OCD
2:15 PM	**BREAK**	
2:30 PM	**TECHNICAL FORUM** *Basic Objectives:* - Consider the engineering and construction components of the work plan.	ENVIRONMENTAL CONSULTANT
3:30 PM	**CONCLUSION** *Basic Objectives:* - Summarize tabled items, action items, and project timetable.	FACILITATOR
4:00 PM	**ADJOURN**	

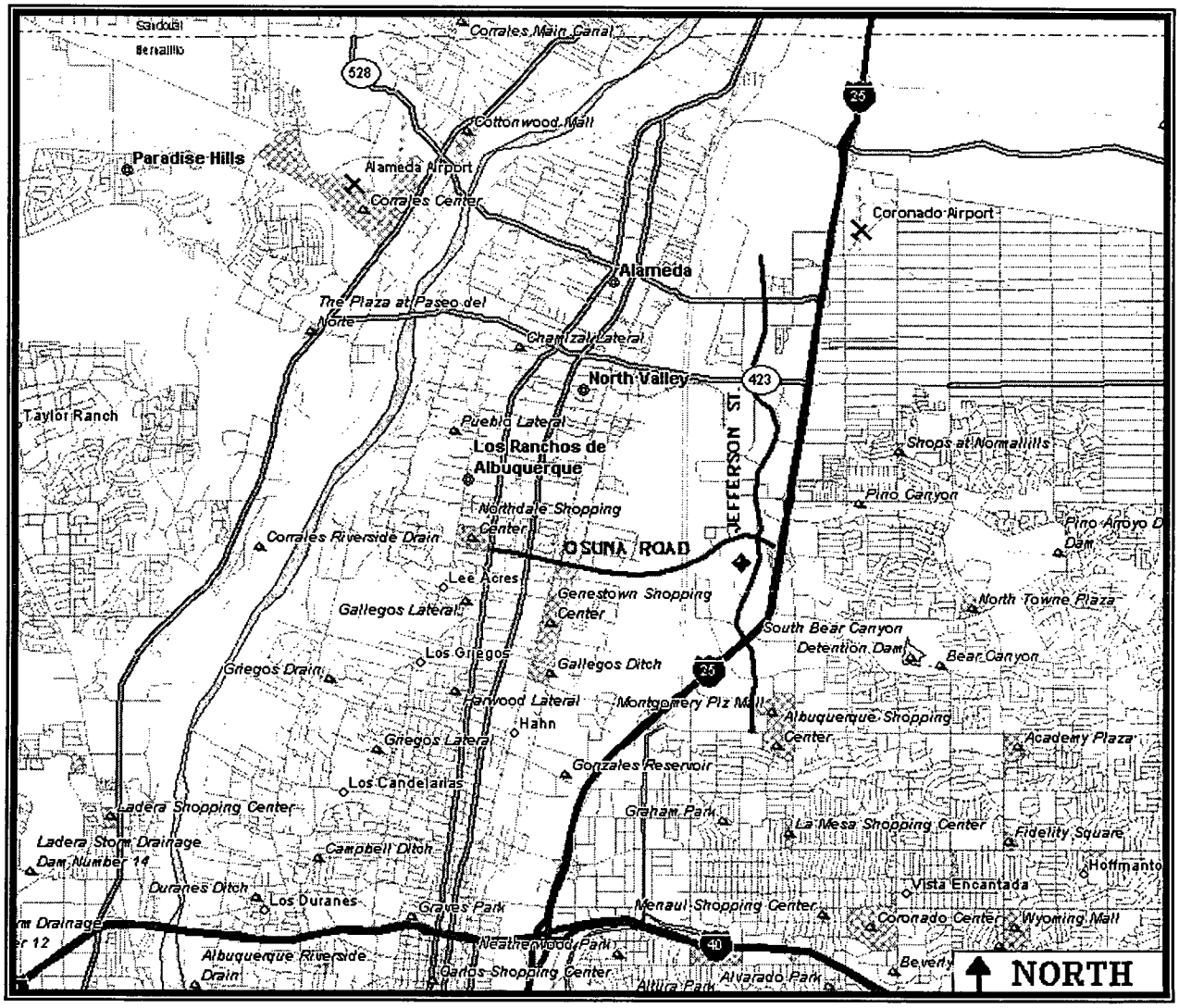
Please RSVP via phone, fax, or e-mail to:
Karen Perez, P.E.
Molzen-Corbin & Associates
phone: 505-522-0049
fax: 505-522-7884
e-mail: kperez@molzencorbin.com

To be held at:
US ARMY CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT OFFICE
4101 JEFFERSON PLAZA NE
ALBUQUERQUE NM 87109-3435
PHONE: 505-342-3171
FAX: 505-342-3199

US ARMY CORPS OF ENGINEERS

DIRECTIONS TO DISTRICT OFFICE

The Albuquerque District Office is located about 5 miles north of the I-25 and I-40 intersection at 4101 Jefferson Plaza in Albuquerque, New Mexico. From the south, take the Jefferson exit and go west. Almost immediately Jefferson makes a bend to the north. Proceed north on Jefferson, and the District Office is located behind the Holman's building, on Jefferson Plaza. From the north, take the Ellison/Osuna exit and turn west to Jefferson. Turn left, or south, onto Jefferson and continue south beyond Osuna. You'll find the District Office west of the Holman's building on Jefferson Plaza.



TENTATIVE LIST OF PARTICIPANTS

NAME	AGENCY	DEPARTMENT
Cheryl Buckel	Army Corps of Engineers	
Cecilia V. Horner	Army Corps of Engineers	
Debra Little	International Boundary and Water Commission	Engineering Department
Carlos Marin	International Boundary and Water Commission	Operations and Maintenance
Manny Rubio	International Boundary and Water Commission	General Services
Annie Kearns	New Mexico Environment Dept.	Groundwater Quality Bureau Voluntary Remediation Program
Mary Heather Noble	New Mexico Environment Dept.	Groundwater Quality Bureau Pollution Prevention Section
Glenn Saums	New Mexico Environment Dept.	Surface Water Bureau Point Source Regulation Section
Coy D. Webb	New Mexico Environment Dept.	Construction Programs Bureau
Frances Padilla	New Mexico Finance Authority	
William C. Olson	Oil Conservation Division	
Sergio Guerrero	Rio Grande Council of Govts.	
Barbara Kauffman	Rio Grande Council of Govts.	
Clyde Hudson	United States Department of Agriculture	Rural Utilities Service
Mike B. Cockrell	U.S. Environmental Protection Agency	Region 6
Frank Padilla	United States Office of Housing and Urban Development	Office of Commercial Planning and Development
Mayor Jesus Ruben Segura	City of Sunland Park	
Larry Shannon	City of Sunland Park	Community Development
Nora Bailey	City of Sunland Park	Community Development Grants Administration
B. Reggie Baker	Huntsman Polymers Corporation	
Jerry B. Paz	Molzen-Corbin & Associates	
Karen Perez	Molzen-Corbin & Associates	
Sandy Deerman	Molzen-Corbin & Associates	
Dr. Adrian Hanson	New Mexico State University	Civil, Agricultural, Geological and Environmental Engineering Department
Mike Meenan	TetraTech NUS	
Diane Lindsay	TetraTech NUS	

3/22/00 Sunland Park / Bricktand Refinery Meeting

see agenda

Intros (Dr. Hanson - facilitator)

Mayor - Ruben Segura (Sunland Park)

City looking to move WWTP from City Hall area
Bricktand Refinery site downgradient of city for flow purposes

Discussion centers on North end site

Background

Todd Corvin - Huntsman

3000 bbl refining capacity

Control surface releases from site

Transfer to city "as is", "where is", "with all defects" basis
without representations or warranties

Jerry Rz - Molzen/Corbin

- City looking at future use as regional facility for entire site
- Backfill up to levee level, lay pipe ~~above~~ underground but above current land
- 15% of site will have structures or basecourse for roads, parking
- 100,000 yds estimated for fill at site

Funding

Karen Perez (Martin/Cordova)

2.3 million in loans/grants from RUS
start spending by end of year (2000)

Sergio Guerrero (Rio Grande Council of Gov.)
Economic development project
Money for assessment

$30,000 available for investigation

Soc 5903 (COE) impact on variety of activities

Anne Kearns (NMED)
Want further site characterization
Go through program in approx 3 months
Tammis Fox NMED attny for VRP

* Close NE portion of site ?
* Transfer of Abatement Plan ? - partial site
entire site

Technical Terry Paz (Molzen/Corbet)

City Construction activities

1.) Rubble removal - for subgrade stability

2.) Dewatering - for construction of digester
- piers on bedrock for foundation
- subgrade preparation

3.) Stormwater diversion - around site

Olson, William
From: s.guerrero@riocog.org [SMTP:s.guerrero@riocog.org]
Sent: Monday, March 06, 2000 8:57 AM
To: Olson, William
Subject: Redevelopment of the refinery site in Sunland Park, NM

Mr. Olson,
Thank you for your quick response. I will make sure that you receive a packet with the agenda, maps and directions to the meeting at the Albuquerque Offices of the U.S. Army Corps of Engineers. The offices are at 4101 Jefferson Plaza N.E. My hope is that all the agencys and firms involved will become informed of the risks as well as the benefits which can come about from redeveloping this property. By increasing the waste-water capacity of Sunland Park, we will help insure the development of Southern Dona Ana County in the near future. Again, thank you and I hope to meet you on the 22nd.

Sincerely,
Sergio S. Guerrero Jr.
Brownfields Coordinator
Rio Grande Council of Governments

Olson, William
From: Olson, William
Sent: Friday, March 03, 2000 2:34 PM
To: 'Sergio Guerrero Jr. - EPA Brownsfield Coordinator'
Cc: Gum, Tim; Wrotenbery, Lori; Anderson, Roger
Subject: FW: Redevelopment of old Petroleum Refinery in Sunland Park, NM

I am the person at the New Mexico Oil Conservation Division (OCD) responsible for state oversight of the cleanup actions at the former Brickland Refinery in Sunland Park, New Mexico. I have also been in contact with the City of Sunland Park and their consultants at various times over the last couple of years regarding transfer of ownership of the northern portion of the refinery from Huntsman Corporation to the city. The OCD has supported the city's efforts to redevelop and make use of this property.

Recently Molzen-Corbin & Associates requested that I attend the March 22 meeting referenced in your following Email. I will be able to attend the meeting to provide the OCD's input on the state regulatory actions at the site. However, I have a prior scheduled meeting at 9:00 am that day and will not be able to arrive in Albuquerque until approximately 11:00 am at the earliest. Could you please keep me informed of any meetings related to this site. If you have any questions, please feel free to contact me.

Sincerely,

William C. Olson
Hydrologist
NM Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Phone: (505) 827-7154
Fax: (505) 827-8177
Email: wolson@state.nm.us

From: Gum, Tim
Sent: Thursday, March 02, 2000 9:35 AM
To: Olson, William
Subject: FW: Redevelopment of old Petroleum Refinery in Sunland Park, NM

From: s.guerrero@riocog.org[SMTP:s.guerrero@riocog.org]
Sent: Wednesday, March 01, 2000 2:43 PM
To: Gum, Tim
Subject: Redevelopment of old Petroleum Refinery in Sunland Park, NM

Mr. Gum
I am trying to contact the person who is in charge of the remediation efforts at an abandoned refinery site in Sunland Park, New Mexico. The owners of the site, The Huntsman Polymer Corporation, is in the process of turning the property over to the City of Sunland Park for the development of a waste water treatment plant in the northern 9 acres of the 35 acre site.

I am the coordinator of an EPA Brownfields Pilot Project who is working with the municipality and all the agencies concerned in the redevelopment of this old site. The private company involved, Molsen-Corbin & Associates indicated that a Mr. Bill Olsen from NMOCD is going to work with us in this redevelopment project.

My interest is to make sure that all the local, state and federal agencies or partners involved are contacted and provided with all the information they need. In other words, my pilot project is serving as the facilitator in this project. Other agencies involved include: NMED; EPA; U.S. Army Corps of Engineers; IBWC; Dept. of Agriculture; and HUD. Private firms involved include the aforementioned Molzen-Corbin & Associates as well as the environmental firm Tetratech. We are having an all day planning session in Albuquerque on March 22, 2000 at the U.S. Army Corps of Engineers offices.

From the detailed reports on the site, your organization has jurisdiction over this property and so I have contacted you in order to be sure that a representative from your organization is at the meeting. If you can direct me to who that individual might be, I can provide an information packet describing the project as well as maps and directions of where the meeting will be. Thank you for your time and I hope to hear from you soon.

Sincerely,

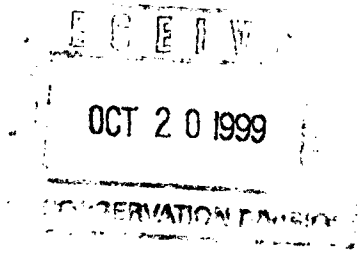
Sergio S. Guerrero Jr.
Brownfields Coordinator
Rio Grande Council of Governments
Phone: 915/ 533-0998 ext. 149
Fax: 915/ 532-9385

R.T. HICKS CONSULTANTS, LTD.

4665 Indian School NE Suite 106 Albuquerque, NM 87110 505.266.5004 Fax: 505.266.7738

William C. Olson
State of New Mexico
Oil Conservation Division
2040 S Pacheco
Santa Fe, NM 87505

October 18, 1999



Re: Cap Installation Report-Request for Information
Brickland Refinery Site

Dear Mr. Olson,

On behalf of Huntsman Polymers Corporation, I am responding to your letter of September 29, 1999, requesting additional information regarding the samples that were taken when the two sumps located on the site were opened and emptied. This work was performed by Indian Environmental Services and the comments in the *Cap Installation Report* were as follows:

> Indian Environmental Services removed the tops of both sumps on the 9th of June. Three samples were taken from each sump and it was determined from physical characteristics of the samples that the contents were sewage and storm water. That afternoon, the two sumps were emptied of approximately 2000 gallons by OK Pump Service and transported for disposal. Disposal was approved and completed at the following facility:
>
> WWTP Septic Station Busta Mante
> 10001 Southside Road
> El Paso, TX 79927

To reiterate, there was no chemical analysis conducted on the samples collected from the sumps. Only a physical inspection (consisting of odor and visual inspection) of the contents was conducted and the determination was made it was septic material and water.

I trust this answers your question on the analysis. If there are any additional comments or questions, please feel free to contact me at (972) 985-7948.

Respectfully,

Todd Carver

Todd M. Carver

cc: Roger Martin, Huntsman Polymers Corporation
Randy Hicks, Hicks Consultants
OCD Artesia Office
Mora Henning, NMED Superfund Program Manager
Yusuf E. Farran, IBWC

HUNTSMAN

September 27, 1999

Mr. William Olsen
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Re: **Huntsman Polymer Corporation**
Plugging and Abandonment of MW-02 and MW-13
Former Brickland Refinery @ Sunland Park, N.M.

Dear Bill,

As per your approval and as part of the Brickland Abatement Plan, Huntsman plugged and abandoned two monitor wells prior to the installation of the cap at the Brickland Refinery site.

Attached is a letter report from Terracon, the contractor who oversaw the P&A work. The information contained in the Terracon letter should provide adequate documentation that the wells were plugged in accordance with all applicable regulations.

If you have any questions, please call me at 915-640-8275.

Sincerely,

Roger Martin, P.E.
Sr. Environmental Specialist
HUNTSMAN
(RIM-080-99)

cc: Todd Carver
Reggie Baker
Manuel Rubio, IBWC
File 415.2

ENVIRONMENTAL

SEP 15 '99

File:		Action	Info
	BRB		
	SAM		
	RIM		
	JEB		
	VKK		
	JTT		
	JRM		
	SJ		
File:			

Terracon
4200 South Research Drive
Building C
P.O. Box 5067
Las Cruces, New Mexico 88003
(505) 527-1700 Fax: (505) 527-1092

September 7, 1999

Huntsman Polymers Corporation
2400 S. Grandview Avenue
Odessa, Texas 79760

Attn: Mr. Roger Martin

Via Facsimile (915) 640-8770

RE: Well Abandonment Activities
Former Brickland Refinery Site
Sunland Park, New Mexico

Dear Mr. Martin:

Terracon is pleased to present this letter summarizing the plugging and abandonment of two monitoring wells at the above referenced site. The work was performed in general accordance with Terracon Proposal No. 99-033E, Subtask E, authorized by Huntsman Polymers Corporation on April 30, 1999. The New Mexico Environmental Improvement Division Monitoring Well Construction and Abandonment Policy guidelines were utilized for the procedures.

Terracon retained the services of Tierra Drilling, a New Mexico licensed well driller, in order to pull, plug, and abandon two monitoring wells at the site, monitoring wells MW-02 and MW-13. Tierra Drilling was also responsible for the offsite disposal of the well casing material and the attached grout. Terracon personnel observed and documented the plugging and abandonment of the two wells.

Monitoring wells MW-02 and MW-13 were plugged and abandoned on June 4, 1999. The well pad, outer casing, and 5.5 feet of 4-inch PVC well casing were removed from monitoring well MW-02, and 10.0 feet of screen remained in the ground. The well pad, outer casing, and 5.0 feet of 4-inch PVC well casing were removed from monitoring well MW-13, and 5.0 feet of screen remained in the ground. The wells were backfilled using neat cement grout with 5% bentonite added (by dry weight). The grout mixture was composed of 30 gallons of water, 94 pounds of neat cement, and 25 pounds of bentonite (medium chips).

Should you have any questions concerning this letter, please feel free to contact the undersigned at (505) 527-1700.

Sincerely,
TERRACON

Linda Kay Riggins
Staff Geologist

Mary E. Wells, P. E.
Las Cruces Office Manager

\66997604\wellabandonmentletter.doc

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

September 29, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-714

Mr. Roger Martin
Huntsman Polymers Corporation
P.O. Box 3986
Odessa, Texas 79760

RE: CAP INSTALLATION REPORT
BRICKLAND REFINERY

Dear Mr. Martin:

The New Mexico Oil Conservation Division (OCD) has reviewed Huntsman Polymers Corporation's (HPC) August 19, 1999 "TRANSMITTAL OF BRICKLAND REFINER SITE – COVER INSTALLATION REPORT, HUNTSMAN POLYMERS CORPORATION, ODESSA, TEXAS". This document contains documentation of HPC's installation of a cap for lead contaminated soils at the former Brickland Refinery in Sunland Park, New Mexico.

The work as documented in the above referenced report appears satisfactory. However, the report does not contain the results of the samples taken from each sump that was removed during the cap construction. Please provide the OCD with this information. Submission of this information will allow the OCD to complete a review of the report.

If you have any questions or comments, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Todd Carver, R.T. Hicks Consultants, Ltd.
Yusuf E. Farran, International Boundary and Water Commission

HUNTSMAN

August 19, 1999

RECEIVED
AUG 23 1999
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Mr. Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Re: **Transmittal of *Brickland Refiner Site -- Cover Installation Report***
Huntsman Polymers Corporation
Odessa, Texas

Dear Mr. Olsen,

Enclosed is a copy of *Brickland Refinery Site -- Cover Installation Report.* We are also sending a copy to the NMOCD District 2 office in Artesia and will, in the next week or so, send a copy to the International Boundary and Water Commission office in El Paso and other interested parties.

If you have any questions or need further information, please call me at 915-640-8275.

Sincerely,

Roger Martin

Roger Martin, P.E.
Sr. Environmental Specialist
HUNTSMAN
(RIM-066-99)

cc: NMOCD District 2, Artesia, NM

R.T. HICKS CONSULTANTS, LTD.

4665 Indian School NE Suite 106 Albuquerque, NM 87110 505.266.5004 Fax: 505.266.7738

Mr. William Olson
State of New Mexico
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

April 26, 1999

Re: **Brickland Refinery Site, Sunland Park, New Mexico**
Work Plan Addendum

Dear Bill,

On March 29, 1999, Hicks Consultants submitted to NMOCD the Work Plan and the Construction Quality Assurance Plan for the installation of a cover at the Brickland Refinery Site. The documents are requirements of Huntsman Polymers Corporation's (Huntsman) Stage 2 Abatement Plan that was approved on December 17, 1998. The Work Plan consisted of elements associated solely with installation of a cover over the areas of soil contamination where lead exceeded the screening level of 400 mg/kg.

Huntsman wishes to amend the Work Plan for the site to include the removal of thirty three (33) Well Points and two (2) Monitoring Wells as proposed in the attached analyses. The removal of these particular Well Points and Monitoring Wells will not adversely affect the data collection at the Site. However, their removal will provide improved access to the area during installation of the cover or eliminate concerns regarding tampering of the Monitoring Wells following transfer of the land surrounding the wells to the City of Sunland Park. It is requested that you approve this addendum to the Work Plan to allow for the removal of these Well Points and Monitoring Wells in the contractor bid packages.

Thank you in advance for your consideration and timely review of this letter and the attached documents. As always, if there are any additional questions that should arise, please feel free to contact Roger Martin of Huntsman Polymers Corporation at (915) 640-8275 or me at (972) 985-7948.

Best Regards,

Todd Carver

Attachments: (2)
cc: Roger Martin, Huntsman
Randy Hicks, Hicks Consultants

Brickland Refinery Site

WELL POINTS ANALYSIS

There are 37 well points (WP) currently located throughout the Brickland Refinery Site property. They were initially established to determine the presence of free phase (fp) material. As the project moves forward with the installation of a cover over most of the site, these well points create an obstacle to its construction. Therefore, an analysis was conducted in which to review the data and recommend well points for potential removal and plugging. The WP can be grouped into four (4) separate categories based on whether they are in the area of where the cover is to be installed or whether they have had a free phase reading. Additional breakdown is provided as given below.

Location of Well Points

Total number:	37	(39 when counting shallow and deep)
WP in cover area:	16	(5, 6, 8, 9, 10, 15, 16, 17, 21, 22, 23, 24, 29, 34, 35, 37)
WP out of cover area:	23	(1, 2, 3, 4, 7, 11, 12, 13, 14, 18, 19, 20, 25, 26(s), 26(d), 27(s), 27(d), 28, 30, 31, 32, 33, 36)

Free Phase Criteria

WP with fp readings: 16 (1, 6, 10, 14, 15, 17, 18, 19, 21, 25, 26, 27(s), 27(d), 29, 33, 37)
(fp reading could be any comment on the result.)

WP w/fp in cover:	7	(6, 10, 15, 17, 21, 29, 37)
WP w/fp out cover:	9	(1, 14, 18, 19, 25, 26, 27(s), 27(d), 33)

By looking at the data for just the past two years (1998 and 1997), the data does not change significantly.

WP with fp measurements last two years: 14
WP with fp in cover-last two years: (6, 15, 17, 21, 29, 37) (drop #10)
WP with fp out cover-last two years: (1, 14, 18, 25, 26, 27(s), 27(d), 33) (drop #19)

Chronological Table of Readings for Well Points

WP	12-98	6-98	1-98	7-97	12-96	6-96	12-95	3-95	12-94	9-94	7-94	3-94	12-93	9-93
1	.74	0.00	dry	0.00	tr.	nm	.16	nm	0.00	0.00	0.00	nm	nm	nm
6	0.00	0.00	tr.	0.00	0.00	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
10	dry	0.00	dry	0.00	dry	nm	0.00	nm	dry	.2	0.00	nm	nm	nm
14	tar	tar	tar	tar	tar	nm	.14	nm	nm	tar	0.00	nm	nm	nm
15	0.00	0.00	dry	.20	0.00	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
17	dry	0.00	dry	.12	dry	nm	0.00	nm	dry	dry	0.00	nm	nm	nm
18	0.00	0.00	dry	tr.	tr.	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
19	0.00	0.00	0.00	0.00	0.00	nm	0.00	nm	0.00	0.00	0.00	nm	.01	nm
21	dry	0.00	dry	.06	dry	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
25	1.05	0.00	tr.	nm	nm	nm	1.56	nm	.20	nm	.22	nm	.05	.05
26s	.39	0.00	tar	1.29	0.00	nm	0.00	nm	1.53	2.59	2.20	nm	.12	nm
27s	.07	0.00	0.00	0.00	0.00	nm	nm	nm	0.00	0.00	0.00	nm	nm	nm
27d	0.00	0.00	1.18	.44	.48	nm	nm	nm	.49	.45	.11	nm	nm	nm
29	0.00	0.00	0.00	tr.	0.00	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
33	0.00	0.00	0.00	tr.	tr..	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm
37	0.00	0.00	0.00	.17	.04	nm	0.00	nm	0.00	0.00	0.00	nm	nm	nm

Location of wells that have had no free phase measurement:

LOCATED IN PROJECTED COVER AREA:

WP	Approximate Location
5	Area F, near road, NW of MW-11
8	Area F, near MW-7
9	Area F, near MW-7
16	Area C, near road and MW-13
22	Area F, west of MW-7
23	Area F, SW of MW-7, ½ way to MW-11
24	Area F, near MW-8
34	Area F, near MW-8
35	Area F, near MW-7

LOCATED OUT of PROJECTED COVER AREA:

WP	Approximate Location
2	Area G, east side of property , E of MW-10
3	Area G, east side of property , NE of MW-10
4	Area F, ½ way between MW-10 and MW-7
7	Area G, just W of MW-10
11	Area E, east side of property, South section
12	Area E, east side of property, Mid section
13	Area e, east side of property, North section
20	Area D, NE of MW-14
26d	Area G, near MW-10
28	Area D, NW of MW-14
30	Area G, 2/3 way from MW-10 towards MW-11
31	Area G, near MW-16
32	Area G, near MW-15
36	Area D, near MW-4

WP with free phase comment but without measurable quantity, only a trace reading, or only a "tar" reading, last three years:

WP	Comment	Location
6	Only one trace reading	Area F, S of MW-8
10	No measured amounts-all dry or zero	Area F, eastside, NW of MW-17
14	All tar readings	Area C, eastside, north section
18	One dry and two trace readings	Area D, ½ between MW-5 and MW-14
19	No measured amounts	Area D, west side near fence, S of MW-5
29	Only one trace reading	Area E, SE of MW-4 and NE of MW-14
33	Only two trace readings	Area G, next to MW-11

Only the following WP have free phase measurable readings:
(Highlighted ones are within the expected cover area.)

WP	12-98	6-98	1-98	7-97	12-96	6-96	12-95	3-95	12-94	9-94	7-94	3-94	12-93	9-93
1	.74		dry		tr.	nm	.16	nm				nm	nm	nm
15			dry	.20		nm		nm				nm	nm	nm
17	dry		dry	.12	dry	nm		nm	dry	dry		nm	nm	nm
21	dry		dry	.06	dry	nm		nm				nm	nm	nm
25	1.05		tr.	nm	nm	nm	1.56	nm	.20	nm	.22	nm	.05	.05
26s	.39		tar	1.29		nm		nm	1.53	2.59	2.20	nm	.12	nm
27s	.07					nm	nm	nm				nm	nm	nm
27d			1.18	.44	.48	nm	nm	nm	.49	.45	.11	nm	nm	nm
37				.17	.04	nm		nm				nm	nm	nm

No indication in a cell represents a reading of 0.00.

These well points have the following reference locations.

WP	Readings	Approximate Location
1	2	Area G, east of and near MW-10.
15	1	Area C, north of and near MW-13
17	1	Area D, north of and near MW-5
21	1	Area F, north and west of and near MW-8
25	6	Area G, just south of MW-10.
26s	6	Area G, next to MW-10.
27s	1	Area G, east of and near MW-15.
27d	6	Area G, east of and near MW-15.
37	2	Area D, next to MW-5

SUMMARY
Since most (23 out of 39 locations) WP have never had readings of free phase, they are not providing any data. Additionally, several WP (7 of the remaining 16 locations) at the site have not had a quantifiable reading. These WP are also located near monitoring wells. Of the remaining nine locations, four of them are contained in the projected area to be covered. These well points have only had one measurable reading (three cases) or two readings (one case). In most cases the well points are located adjacent to or upgradient of a monitoring well. The one exception to this is in area C, where WP-14 would be downgradient to the other wells. The remaining five well points are located in Area G where the presence of free phase has been seen in the various lenses.

PROPOSAL

Therefore, WP-14 as well as the five Well Points in area G [WP-1, 25, 26(s), 26(d), and 27(d)] are proposed to remain on-site. The other Well Points will be removed by pulling them from the ground and filling the holes with bentonite or by cutting off the pipe, capping, and cementing or grouting the casings.

REVIEW OF MONITORING WELLS MW-2 AND MW-13

Monitoring wells were installed at the Brickland Site starting in the spring of 1990. These wells were used to initiate a study for groundwater contamination. Volatile, semi-volatile, and metals analysis screening was conducted in April through July of 1990.

RESULTS

MW-2

MW-2 is located in Area A in the northern most section of the plant Site. It is approximately 90 feet from the western edge of the property and 300 feet south of the northwest corner of the site. It is situated in the area of construction debris/rubble that lies in the northern section. The well was sampled in 1990 for volatile organic chemicals, semi-volatile chemicals, and metals. Results were contained in the October 1990 report by Eder Associates entitled *Phase 1 Site Investigation, Field Investigation Report for Old Brickland Refinery Site, Sunland Park, New Mexico.*

Results:

BTEX	none detected (2 samples)
Semi-Volatiles	none detected (2 samples)
	(analysis was run for 2-methylnapthalene, Napthalene, 2,4-dimethyphenol, Flourene, Phenanthrene, Phenol, bis (2-chloroisopryl)ether, 2-methylphenol, 3-methylphenol, and Anthracene) five unknown semi-volatile compounds were detected at concentrations less than 30 ppb.
Metals	numerous ions and metals were detected (2 samples)
Free Phase	no free phase hydrocarbons were ever detected

MW-13

MW-13 is located in Area C in the northern half of the plant Site. It is approximately 60 feet from the western edge of the property and 700 feet south of the northwest corner of the site. It is situated in an area where plant housing was once located. The monitoring well is in an area where concrete foundations exist nearby. The well was sampled in 1990 for volatile organic chemicals, semi-volatile chemicals, and metals. Results were contained in the October 1990 report by Eder Associates entitled *Phase 1 Site Investigation, Field Investigation Report for Old Brickland Refinery Site, Sunland Park, New Mexico.*

Results:

BTEX	none detected (2 samples)
Semi-Volatiles	none detected (2 samples)

(analysis was run for 2-methylnapthalene, Napthalene, 2,4-dimethyphenol, Flourene, Phenanthrene, Phenol, bis (2-chloroisopryl)ether, 2-methylphenol, 3-methylphenol, and Anthracene)
two unknown semi-volatile organics were detected at concentrations less than 15 ppb

Metals	numerous ions and metals were detected (2 samples)
Free Phase	no free phase hydrocarbons were ever detected

It appears that following this initial work, the wells were not tested further for any constituents. Water levels were determined since then but no component analysis was noted in any of the records.

PROPOSAL

Remove these two monitoring wells. This will assist in the installation of the cover (in the case of MW-13) but more importantly both MW-2 and MW-13 are situated in the parcel of land that is intended to be transferred to the City of Sunland Park in the near future. Plugging and abandoning these wells will eliminate concerns over contamination or physical damage.

AGENDA

New Mexico Oil Conservation Division
Santa Fe, NM
And
Huntsman Polymers Corporation

April 23, 1999

1. Work Plan and Construction Quality Assurance Plan
2. Areal Extent of Lead above Screening Level
3. Well Point Information and Analysis
4. Status of Bids
5. Current Site Maintenance and Recovery

WELL POINTS ANALYSIS

There are 37 well points on the property. They can be grouped into four (4) separate categories based on whether they are in the area of where the cover is to be installed or whether they have had a free phase reading. Additional breakdown is provided as given below.

Location of Well Points

Total number:	37	(39 when counting shallow and deep)
WP in cover area:	16	(5, 6, 8, 9, 10, 15, 16, 17, 21, 22, 23, 24, 29, 34, 35, 37)
WP out of cover area:	23	(1, 2, 3, 4, 7, 11, 12, 13, 14, 18, 19, 20, 25, 26(s), 26(d), 27(s), 27(d), 28, 30, 31, 32, 33, 36)

Free Phase Criteria

WP with fp readings: 16 (1, 6, 10, 14, 15, 17, 18, 19, 21, 25, 26, 27(s), 27(d), 29, 33, 37)
(fp reading could be any comment on the result.)

WP w/fp in cover:	7	(6, 10, 15, 17, 21, 29, 37)
WP w/fp out cover:	9	(1, 14, 18, 19, 25, 26, 27(s), 27(d), 33)

By looking at the data for just the past two years (1998 and 1997), the data does not change significantly.

WP with fp measurements last two years: 14
WP with fp in cover-last two years: (6, 15, 17, 21, 29, 37) (drop #10)
WP with fp out cover-last two years: (1, 14, 18, 25, 26, 27(s), 27(d), 33) (drop #19)

Chronological Table of Readings for Well Points

WP	12-98	6-98	1-98	7-97	12-96	6-96	12-95	3-95	12-94	9-94	7-94	3-94	12-93	9-93
1	.74		dry		tr	nm	.16	nm				nm	nm	nm
6			tr			nm		nm				nm	nm	nm
10	dry		dry		dry	nm		nm	dry	.2		nm	nm	nm
14	tar	tar	tar	tar	tar	nm	.14	nm	nm	tar		nm	nm	nm
15			dry	.20		nm		nm				nm	nm	nm
17	dry		dry	.12	dry	nm		nm	dry	dry		nm	nm	nm
18			dry	tr	tr	nm		nm				nm	nm	nm
19						nm		nm				nm	.01	nm
21	dry		dry	.06	dry	nm		nm				nm	nm	nm
25	1.05		tr	nm	nm	nm	1.56	nm	.20	nm	.22	nm	.05	.05
26s	.39		tar	1.29		nm		nm	1.53	2.59	2.20	nm	.12	nm
27s	.07					nm	nm	nm				nm	nm	nm
27d			1.18	.44	.48	nm	nm	nm	.49	.45	.11	nm	nm	nm
29				tr		nm		nm				nm	nm	nm
33				tr	tr	nm		nm				nm	nm	nm
37				.17	.04	nm		nm				nm	nm	nm

Location of wells that have had no free phase measurement:

LOCATED IN PROJECTED COVER AREA:

WP	Approximate Location
5	Area F, near road, NW of MW-11
8	Area F, near MW-7
9	Area F, near MW-7
16	Area C, near road and MW-13
22	Area F, west of MW-7
23	Area F, SW of MW-7, ½ way to MW-11
24	Area F, near MW-8
34	Area F, near MW-8
35	Area F, near MW-7

LOCATED OUT of PROJECTED COVER AREA:

WP	Approximate Location
2	Area G, east side of property , E of MW-10
3	Area G, east side of property , NE of MW-10
4	Area F, ½ way between MW-10 and MW-7
7	Area G, just W of MW-10
11	Area E, east side of property, South section
12	Area E, east side of property, Mid section
13	Area e, east side of property, North section
20	Area D, NE of MW-14
26d	Area G, near MW-10
28	Area D, NW of MW-14
30	Area G, 2/3 way from MW-10 towards MW-11
31	Area G, near MW-16
32	Area G, near MW-15
36	Area D, near MW-4

WP with free phase comment <u>but</u> without measurable quantity, only a trace reading, or only a "tar" reading, last three years:

WP	Comment	Location
6	Only one trace reading	Area F, S of MW-8
10	No measured amounts-all dry or zero	Area F, eastside, NW of MW-17
14	All tar readings	Area C, eastside, north section
18	One dry and two trace readings	Area D, ½ between MW-5 and MW-14
19	No measured amounts	Area D, west side near fence, S of MW-5
29	Only one trace reading	Area E, SE of MW-4 and NE of MW-14
33	Only two trace readings	Area G, next to MW-11

Only the following WP have free phase measurable readings:
(Highlighted ones are within the expected cover area.)

WP	12-98	6-98	1-98	7-97	12-96	6-96	12-95	3-95	12-94	9-94	7-94	3-94	12-93	9-93
1	.74		dry		tr	nm	.16	nm				nm	nm	nm
15			dry	.20		nm		nm				nm	nm	nm
17	dry		dry	.12	dry	nm		nm	dry	dry		nm	nm	nm
21	dry		dry	.06	dry	nm		nm				nm	nm	nm
25	1.05		tr	nm	nm	nm	1.56	nm	.20	nm	.22	nm	.05	.05
26s	.39		tar	1.29		nm		nm	1.53	2.59	2.20	nm	.12	nm
27s	.07					nm	nm	nm				nm	nm	nm
27d			1.18	.44	.48	nm	nm	nm	.49	.45	.11	nm	nm	nm
37				.17	.04	nm		nm				nm	nm	nm

These well points have the following reference locations.

WP	Readings	Approximate Location
1	2	Area G, east of and near MW-10.
15	1	Area C, north of and near MW-13
17	1	Area D, north of and near MW-5
21	1	Area F, north and west of and near MW-8
25	6	Area G, just south of MW-10.
26s	6	Area G, next to MW-10.
27s	1	Area G, east of and near MW-15.
27d	6	Area G, east of and near MW-15.
37	2	Area D, next to MW-5

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

April 23, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-260

Mr. Todd M. Carver
Huntsman Corporation
5005 LBJ Freeway, Suite 450
Dallas, Texas 75244

RE: STAGE 2 ABATEMENT PLAN PROPOSAL
BRICKLAND REFINERY
SUNLAND PARK, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) has completed a review of the following Huntsman Corporation (HC) documents:

- July 31, 1997 "STAGE 2 ABATEMENT PLAN FORMER BRICKLAND REFINERY SITE REXENE CORPORATION".
- October 22, 1997 "BRICKLAND REFINERY SITE--STAGE 2 ABATEMENT PLAN PUBLIC NOTICE".
- November 5, 1997 "STAGE 2 ABATEMENT PLAN, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO - RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION COMMENTS".
- March 12, 1998 "STAGE 2 ABATEMENT PLAN PROPOSAL, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO - RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION LETTER DATED 16, 1998"

These documents contain HC's proposed draft Stage 2 Abatement Plan Proposal for remediation of contaminated soil and ground water identified during Rexene's Stage 1 site investigations at the former Brickland Refinery in Sunland Park, New Mexico.

The OCD will consider HC's Stage 2 Abatement Plan to be administratively complete upon receipt of a final comprehensive Stage 2 Abatement Plan for the Brickland Refinery Site which incorporates the modifications contained in the above referenced November 5, 1997 and March 12, 1998 documents. The final comprehensive Stage 2 Abatement Plan Proposal will be submitted to the OCD Santa Fe Office with a copy provided to the OCD Artesia District Office and a copy provided to the local public repository.

Within 30 days of OCD's receipt of the final Stage 2 Abatement Plan Proposal, HC will provide proof of public notice pursuant to New Mexico Water Quality Control Commission (WQCC) regulation 4108. HC will also provide proof of public notice to the following:

- Dona Ana County Commission
- City Manager, City of Sunland Park, New Mexico
- City Manager, City of El Paso, Texas
- Texas Natural Resources Conservation Commission

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Mike Selke, BDM International
Yusuf E. Farran, International Boundary and Water Commission

Z 235 437 260

US Postal Service

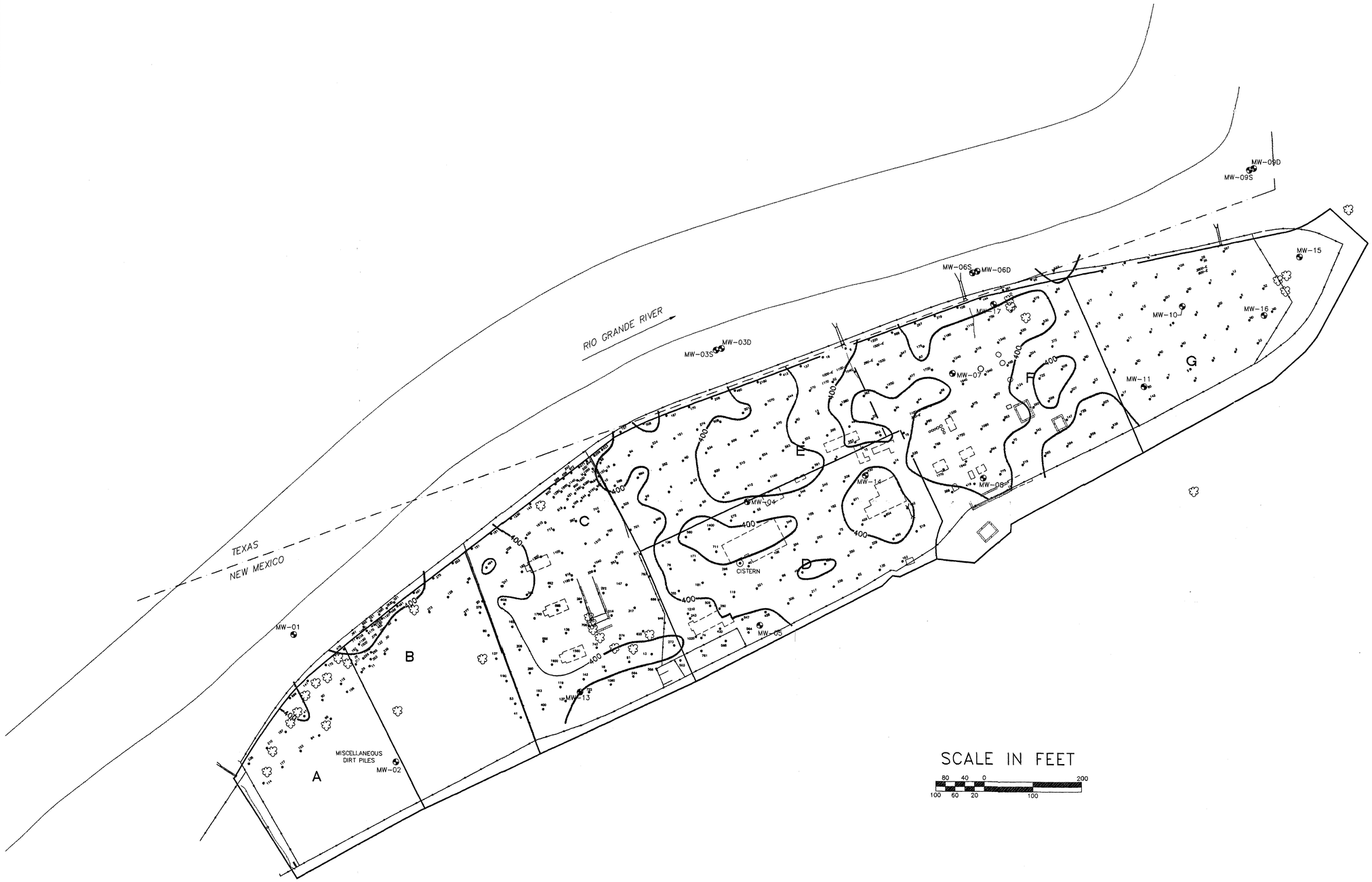
Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995



SCALE IN FEET

80 40 0 200

100 60 20 100

LEGEND

- CONCRETE SLAB/PAD – BLDG FOUNDATION
- WALL – MASONRY
- TREE
- FENCE
- INTERMITTENT STREAM
- MW-01 — MONITORING WELL
- STORM WATER OUTFALL WITH A DITCH
- 3800 — TRW SAMPLING LOCATION (AND RESULTS IN mg/kg)
- 23 — ENVIROMAN SAMPLING LOCATION (AND RESULTS IN mg/kg)
- 400 — CONTOUR OF 400 mg/kg SOIL LEAD CONCENTRATION

TRW

FIGURE 1
DISTRIBUTION OF LEAD IN SURFACE SOIL SAMPLES

CLIENT: HUNTSMAN	
DATE: 1/26/99	REV. NO.:
AUTHOR: RFB	DRAWN BY: DAG
CK'D BY: RFB	FILE: LEAD-ANALYS-1.dwg

TRW Systems & Information Technology Group
6001 Indian School Road NE, Suite 100
Albuquerque, NM 87110

TRW/ABQ-RFB-EES006-99

January 29, 1999

Mr. William Olson
Hydrologist
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Re: 1998 ANNUAL MONITORING REPORT FOR THE FORMER BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO

Dear Mr. Olson:

Please find enclosed one copy of the 1998 Annual Groundwater Monitoring Report for the above-referenced site. This report has been prepared in accordance with the approved Groundwater Monitoring Plan for the site, and the Stage 2 Abatement Plan approved by the New Mexico Oil Conservation Division (NMOCD) on December 17, 1998. Documentation of the installation, testing and operation of the free-product recovery system at monitor well MW-10 is also included in the report.

Please call Mr. Reggie Baker, of Huntsman Corporation at 915-640-8760, if you have any questions or require additional information regarding the former Brickland Refinery site.

Sincerely,

Reid Bandeen

Reid F. Bandeen
Principal Hydrogeologist

Enclosure

cc: Roger Martin, Huntsman Corporation
Mayor Ruben Segura, City of Sunland Park
Tim Gum, Oil Conservation Division, Artesia, NM
Usuf Farran, IBWC

(S:PROJETS/REXENE_HUNTSMAN/LETTERS/OLSON)

TRW Systems & Information Technology Group 6001 Indian School Road NE, Suite 100
Albuquerque, NM 87110

TRW/ABQ-RFB-ENV065-98

December 14, 1998

Bill Olson
Hydrologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Free Product Recovery for Brickland Refinery, Sunland Park, New Mexico

Dear Mr. Olson:

As discussed at our meeting of November 16, 1998, TRW Inc. (TRW) has prepared a proposal to perform free product recovery in the vicinity of monitoring well MW-10 at the above-referenced site. These activities will proceed in advance of formal approval of the Stage 2 Abatement Plan for the Brickland site. Huntsman Polymers Corporation (Huntsman) has indicated their approval of this proposal. TRW is prepared to mobilize to the site to install the proposed system on December 21, 1998, pending your review and approval.

Please review the attached proposal (Attachment A), and provide any comments you may have at your earliest convenience. Please call me at 505-998-8211 if you have any questions regarding the proposed recovery system.

Sincerely,

Reid Bandeen

Reid F. Bandeen
Principal Hydrogeologist

RFB/rfb

Enclosure

cc: Reggie Baker, Huntsman Corporation

ATTACHMENT A
PRODUCT RECOVERY SYSTEM PROPOSAL

TRW Systems & Information Technology Group
6001 Indian School Road NE, Suite 100
Albuquerque, NM 87110
December 2, 1998

Mr. Reggie Baker
Environmental Manager
Huntsman Polymers Corporation
P.O. Box 3986
Odessa, Texas 79760

RE: COST PROPOSAL TO CONDUCT PHASE SEPARATED HYDROCARBON RECOVERY AT FORMER BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO

Dear Mr. Baker:

As discussed at our November 16, 1998 meeting, TRW Inc. (TRW) is pleased to present this cost proposal to implement remedial recovery of phase separated hydrocarbon (PSH) product in the vicinity of monitor well MW-10 at the above-named site. As agreed with Mr. Bill Olson of the New Mexico Oil Conservation Division (OCD) during the meeting, PSH recovery may proceed in the vicinity of monitor well MW-10 immediately, independent of OCD's final approval of the Stage 2 Abatement Plan. Following is a brief presentation of TRW's assumptions on the proposed scope of work, estimated costs and project schedule.

SCOPE OF WORK

TRW proposes to address one work element of the Stage 2 Abatement Plan (Section 3) concerning remedial pumping and disposal of PSH from monitor well MW-10, located in the southern portion of the former Brickland Refinery site (Figure 1). The work will be divided into three tasks:

Task 1 – Field Preparation
Task 2 – System Installation
Task 3 – System Testing and Calibration

A brief description of each of these tasks is presented in the following sections.

Task 1 – Field Preparation

Task 1 will include final system design, equipment specification, ordering, shipping and all preparation for system installation. Site-specific parameters will be reviewed with the equipment contractors prior to finalizing equipment specifications. The site Health and Safety plan will also be reviewed and updated, as necessary. All field personnel will review equipment installation and testing procedures, and field health and safety procedures.

Task 2 – System Installation

An experienced environmental technician familiar with the Brickland site and product recovery equipment will travel to the site to perform equipment installation and testing. The proposed PSH recovery pump system is a 4-inch diameter model ADJ1100 "Smart Skimmer" product pump. This pneumatically operated system will be powered by compressed nitrogen gas, supplied in portable pressure-tested tanks holding approximately 230 cubic feet. Each tank is projected to last for approximately one month of system operation. Electric power required for the pump controller will be supplied by a rechargeable 12-volt battery, charged by a portable solar panel. A conventional electric power connection will not be required at the site. Pumped PSH product will be stored in a 220 gallon polyethylene tank. The tank will be constructed on a dedicated gravel pad, and contained within a secondary containment structure with sufficient capacity to contain 300 gallons of fluid in the highly unlikely event of catastrophic tank failure.

Task 3 – System Testing and Calibration

Following installation, the system will be tested, and calibrated for long-term operation. Parameters to be calibrated during this process include skimmer pumping on/off cycling interval, pumping rate, pumping cycle duration. A pilot test will be performed to acquire data on these parameters, and provide estimates of product pumping recovery interval, total PSH fluid volume, and estimated duration of operation to complete product removal. Based on the calibrated product recovery rate, the timing of site visits for routine system checks and maintenance, as well as product disposal, will be determined. TRW field staff will remain at the site until all parameters have been calibrated and programmed into the pump controller for long-term operation. Field staff will observe and document successful system operation through at least 10 complete pumping cycles. The testing and calibration phase assumes the capture and disposal of approximately 200 gallons of PSH. Disposal of the PSH collected during testing and calibration operations will be disposed of by the Rinchem Company of Chaparral, New Mexico.

PROJECT COSTS

Estimated costs to complete the above tasks have been prepared. Total costs, including labor, installation and other direct costs (ODC's) are summarized as follows:

Task 1 – Field Preparation	$2,000
Task 2 – System Installation	$7,802
Task 3 - System Testing and Calibration	$3,822

Total estimated costs to complete the work detailed in the proposed scope, including New Mexico Gross Receipts tax, is $ 14,847. A detailed work sheet of estimated project costs is presented as Attachment A. The work will be performed on a time and materials basis. This project upper limit will not be exceeded unless unanticipated site conditions are encountered, and without prior authorization by Huntsman. In the case that unanticipated site conditions are encountered, work will cease, and Huntsman will be notified. An estimate of reasonable additional costs will be agreed upon and authorized by Huntsman prior to resuming site work.

These estimated costs in Attachment A apply specifically to the items and activities detailed in the above scope of work.

The cost estimate is based on the following assumptions:

- Two tanks of compressed nitrogen gas will be used during startup, calibration and the first month of system operation
- Costs for disposal of the evacuated PSH product during installation, testing, calibration, and the first month of operation are included at approximately $1,645. Total volume evacuated during this period is estimated at about 200 gallons of PSH.
- Cost estimate includes installation, testing, calibration and one month's operation of PSH recovery system, including associated labor, parts, ancillary equipment (nitrogen gas and containment system), and applicable taxes.

Potential Additional Work Elements and Costs

Additional work elements related to the proposed scope include reporting, operations and maintenance, additional site security, passive skimming, and long-term PSH product disposal. Costs associated with these additional work elements are not included in the cost estimates presented in this proposal, but are presented as additional/optional items, for reasons discussed below.

1. **Project Reporting** - As discussed at our November 16, 1998 meeting, documentation of all system design, installation and testing activities will be documented in the annual monitoring report for the site, scheduled to be delivered in February 1999. Reporting of these additional activities will increase the costs of preparing that report by approximately $2,000 to document the final design, installation, and calibration. Subsequent annual reports will require a few additional labor hours to present updated recovery data. Estimated additional annual reporting costs total approximately $500.

2. **System Maintenance** – Given the current uncertainties in system operating parameters, the frequency of site visits by a local maintenance technician also remain uncertain at this time. Time for routine maintenance is estimated to be 8 hours per month, and together with related direct charges, maintenance costs should not exceed $800 per month, including necessary ancillary equipment, such as additional compressed nitrogen gas tanks.

3. **Site Security** – The Stage 2 Abatement Plan calls for repair to perimeter fencing to prohibit access to the site from unauthorized entrants. TRW recommends this repair work be undertaken as soon as possible. As such, a reasonable degree of site security to prevent theft and/or vandalism to the recovery equipment is assumed in this proposal. Given the locality, additional redundant security fencing dedicated to the remediation equipment should probably be installed. Cost of a dedicated locked chain-link fence with aluminum slats (including top) installed would be approximately $1700.

4. **Passive Skimming** – The Stage 2 Abatement Plan calls for optional additional removal of PSH from selected wells where PSH has appeared intermittently, or has occurred in minimal thicknesses (less than 6 inches). Such minor occurrences of PSH may be removed by hand bailing during routine site monitoring, or by the use of passive skimming mechanisms installed in the well. Any installation of a passive skimmer would be considered part of the larger Stage 2 Abatement Plan and is not included in the scope of this proposal.

5. **Product Disposal** - Estimated disposal costs are based on the assumption that product is of typical gasoline composition. In the event that field observations indicate product other than gasoline, additional analytical testing and possibly disposal fees may be incurred. Disposal costs for the evacuated PSH product have been estimated at $1645 for the initial installation and testing, first month of operation. Monthly disposal costs beyond this period would be estimated based on actual performance data.

PROJECT SCHEDULE

TRW can mobilize to the site within 10 working days of authorization to proceed by Huntsman. This implementation schedule would be consistent with that proposed in the Stage 2 Abatement Plan. TRW anticipates a 3 to 4 day field effort for installation and calibration, including travel.

TRW proposes to include the scope of services described herein as an addendum to the existing contract for TRW to provide environmental services to Huntsman. This contract was last updated on November 19, 1996, and last modified to include additional services on June 19, 1998. Additional work requested by Huntsman not included within the proposed scope of work described herein will be provided by TRW according to the 1998 Professional Service Fee Schedule included as Attachment B.

If Huntsman finds the terms of this proposal acceptable, please return a copy of this letter, including provision of the appropriate signature on the attached authorization form (Attachment C).

TRW looks forward to the opportunity of serving Huntsman in executing this element of the Stage 2 Abatement Plan at the Brickland Refinery. Please call me at 505-998-8211 if you have any questions regarding this cost proposal or need additional information.

Sincerely,

Reid Bandeen

Reid F. Bandeen
Principal Hydrogeologist

S:REGIONAL/RMARKET/PROP98/HUNTSMAN

TRW

FACSIMILE TRANSMISSION

6001 Indian School Rd. NE
Albuquerque, NM 87110

DATE: 12-~~14~~-16-98

TO: Bill Olson

FAX: 505-827-~~8166~~ 8177

COMPANY: NMOCD

PHONE: 505-827-7154

FROM: Reid Bandeen

PHONE: (505) - 998-8211

COMPANY: TRW

FAX: (505) 998-8125

NUMBER OF PAGES: 7

IF YOU DO NOT RECEIVE ALL THE PAGES, OR THE TEXT IS NOT COMING THROUGH CLEARLY, PLEASE CALL THE SENDER.

Bill -

Correspondence re. product recovery at Brickland. Please call to discuss. Hard copy to follow.

TRW Systems & Information Technology Group 6001 Indian School Road NE, Suite 100 Albuquerque, NM 87110

TRW/ABQ-RFB-ENV065-98

December 14, 1998

Bill Olson
Hydrologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Free Product Recovery for Brickland Refinery, Sunland Park, New Mexico

Dear Mr. Olson:

As discussed at our meeting of November 16, 1998, TRW Inc. (TRW) has prepared a proposal to perform free product recovery in the vicinity of monitoring well MW-10 at the above-referenced site. These activities will proceed in advance of formal approval of the Stage 2 Abatement Plan for the Brickland site. Huntsman Polymers Corporation (Huntsman) has indicated their approval of this proposal. TRW is prepared to mobilize to the site to install the proposed system on December 21, 1998, pending your review and approval.

Please review the attached proposal (Attachment A), and provide any comments you may have at your earliest convenience. Please call me at 505-998-8211 if you have any questions regarding the proposed recovery system.

Sincerely,

Reid Bandeen

Reid F. Bandeen
Principal Hydrogeologist

RFB/rfb

Enclosure

cc: Reggie Baker, Huntsman Corporation

ATTACHMENT A
PRODUCT RECOVERY SYSTEM PROPOSAL

TRW

TRW Systems & Information Technology Group
6001 Indian School Road NE, Suite 100
Albuquerque, NM 87110
December 2, 1998

Mr. Reggie Baker
Environmental Manager
Huntsman Polymers Corporation
P.O. Box 3986
Odessa, Texas 79760

RE: COST PROPOSAL TO CONDUCT PHASE SEPARATED HYDROCARBON RECOVERY AT FORMER BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO

Dear Mr. Baker:

As discussed at our November 16, 1998 meeting, TRW Inc. (TRW) is pleased to present this cost proposal to implement remedial recovery of phase separated hydrocarbon (PSH) product in the vicinity of monitor well MW-10 at the above-named site. As agreed with Mr. Bill Olson of the New Mexico Oil Conservation Division (OCD) during the meeting, PSH recovery may proceed in the vicinity of monitor well MW-10 immediately, independent of OCD's final approval of the Stage 2 Abatement Plan. Following is a brief presentation of TRW's assumptions on the proposed scope of work, estimated costs and project schedule.

SCOPE OF WORK

TRW proposes to address one work element of the Stage 2 Abatement Plan (Section 3) concerning remedial pumping and disposal of PSH from monitor well MW-10, located in the southern portion of the former Brickland Refinery site (Figure 1). The work will be divided into three tasks:

Task 1 – Field Preparation
Task 2 – System Installation
Task 3 – System Testing and Calibration

A brief description of each of these tasks is presented in the following sections.

Task 1 – Field Preparation

Task 1 will include final system design, equipment specification, ordering, shipping and all preparation for system installation. Site-specific parameters will be reviewed with the equipment contractors prior to finalizing equipment specifications. The site Health and Safety plan will also be reviewed and updated, as necessary. All field personnel will review equipment installation and testing procedures, and field health and safety procedures.

Task 2 – System Installation

An experienced environmental technician familiar with the Brickland site and product recovery equipment will travel to the site to perform equipment installation and testing. The proposed PSH recovery pump system is a 4-inch diameter model ADJ1100 "Smart Skimmer" product pump. This pneumatically operated system will be powered by compressed nitrogen gas, supplied in portable pressure-tested tanks holding approximately 230 cubic feet. Each tank is projected to last for approximately one month of system operation. Electric power required for the pump controller will be supplied by a rechargeable 12-volt battery, charged by a portable solar panel. A conventional electric power connection will not be required at the site. Pumped PSH product will be stored in a 220 gallon polyethylene tank. The tank will be constructed on a dedicated gravel pad, and contained within a secondary containment structure with sufficient capacity to contain 300 gallons of fluid in the highly unlikely event of catastrophic tank failure.

Task 3 – System Testing and Calibration

Following installation, the system will be tested, and calibrated for long-term operation. Parameters to be calibrated during this process include skimmer pumping on/off cycling interval, pumping rate, pumping cycle duration. A pilot test will be performed to acquire data on these parameters, and provide estimates of product pumping recovery interval, total PSH fluid volume, and estimated duration of operation to complete product removal. Based on the calibrated product recovery rate, the timing of site visits for routine system checks and maintenance, as well as product disposal, will be determined. TRW field staff will remain at the site until all parameters have been calibrated and programmed into the pump controller for long-term operation. Field staff will observe and document successful system operation through at least 10 complete pumping cycles. The testing and calibration phase assumes the capture and disposal of approximately 200 gallons of PSH. Disposal of the PSH collected during testing and calibration operations will be disposed of by the Rinchem Company of Chaparral, New Mexico.

PROJECT COSTS

Estimated costs to complete the above tasks have been prepared. Total costs, including labor, installation and other direct costs (ODC's) are summarized as follows:

Task 1 – Field Preparation	$2,000
Task 2 – System Installation	$7,802
Task 3 - System Testing and Calibration	$3,822

Total estimated costs to complete the work detailed in the proposed scope, including New Mexico Gross Receipts tax, is $ 14,847. A detailed work sheet of estimated project costs is presented as Attachment A. The work will be performed on a time and materials basis. This project upper limit will not be exceeded unless unanticipated site conditions are encountered, and without prior authorization by Huntsman. In the case that unanticipated site conditions are encountered, work will cease, and Huntsman will be notified. An estimate of reasonable additional costs will be agreed upon and authorized by Huntsman prior to resuming site work.

These estimated costs in Attachment A apply specifically to the items and activities detailed in the above scope of work.

The cost estimate is based on the following assumptions:

- Two tanks of compressed nitrogen gas will be used during startup, calibration and the first month of system operation
- Costs for disposal of the evacuated PSH product during installation, testing, calibration, and the first month of operation are included at approximately $1,645. Total volume evacuated during this period is estimated at about 200 gallons of PSH.
- Cost estimate includes installation, testing, calibration and one month's operation of PSH recovery system, including associated labor, parts, ancillary equipment (nitrogen gas and containment system), and applicable taxes.

Potential Additional Work Elements and Costs

Additional work elements related to the proposed scope include reporting, operations and maintenance, additional site security, passive skimming, and long-term PSH product disposal. Costs associated with these additional work elements are not included in the cost estimates presented in this proposal, but are presented as additional/optional items, for reasons discussed below.

1. **Project Reporting** - As discussed at our November 16, 1998 meeting, documentation of all system design, installation and testing activities will be documented in the annual monitoring report for the site, scheduled to be delivered in February 1999. Reporting of these additional activities will increase the costs of preparing that report by approximately $2,000 to document the final design, installation, and calibration. Subsequent annual reports will require a few additional labor hours to present updated recovery data. Estimated additional annual reporting costs total approximately $500.

2. **System Maintenance** – Given the current uncertainties in system operating parameters, the frequency of site visits by a local maintenance technician also remain uncertain at this time. Time for routine maintenance is estimated to be 8 hours per month, and together with related direct charges, maintenance costs should not exceed $800 per month, including necessary ancillary equipment, such as additional compressed nitrogen gas tanks.

3. **Site Security** – The Stage 2 Abatement Plan calls for repair to perimeter fencing to prohibit access to the site from unauthorized entrants. TRW recommends this repair work be undertaken as soon as possible. As such, a reasonable degree of site security to prevent theft and/or vandalism to the recovery equipment is assumed in this proposal. Given the locality, additional redundant security fencing dedicated to the remediation equipment should probably be installed. Cost of a dedicated locked chain-link fence with aluminum slats (including top) installed would be approximately $1700.

4. **Passive Skimming** – The Stage 2 Abatement Plan calls for optional additional removal of PSH from selected wells where PSH has appeared intermittently, or has occurred in minimal thicknesses (less than 6 inches). Such minor occurrences of PSH may be removed by hand bailing during routine site monitoring, or by the use of passive skimming mechanisms installed in the well. Any installation of a passive skimmer would be considered part of the larger Stage 2 Abatement Plan and is not included in the scope of this proposal.

5. **Product Disposal** - Estimated disposal costs are based on the assumption that product is of typical gasoline composition. In the event that field observations indicate product other than gasoline, additional analytical testing and possibly disposal fees may be incurred. Disposal costs for the evacuated PSH product have been estimated at $1645 for the initial installation and testing, first month of operation. Monthly disposal costs beyond this period would be estimated based on actual performance data.

PROJECT SCHEDULE

TRW can mobilize to the site within 10 working days of authorization to proceed by Huntsman. This implementation schedule would be consistent with that proposed in the Stage 2 Abatement Plan. TRW anticipates a 3 to 4 day field effort for installation and calibration, including travel.

TRW proposes to include the scope of services described herein as an addendum to the existing contract for TRW to provide environmental services to Huntsman. This contract was last updated on November 19, 1996, and last modified to include additional services on June 19, 1998. Additional work requested by Huntsman not included within the proposed scope of work described herein will be provided by TRW according to the 1998 Professional Service Fee Schedule included as Attachment B.

If Huntsman finds the terms of this proposal acceptable, please return a copy of this letter, including provision of the appropriate signature on the attached authorization form (Attachment C).

TRW looks forward to the opportunity of serving Huntsman in executing this element of the Stage 2 Abatement Plan at the Brickland Refinery. Please call me at 505-998-8211 if you have any questions regarding this cost proposal or need additional information.

Sincerely,

Reid Bandeen

Reid F. Bandeen
Principal Hydrogeologist

S:REGIONAL/RMARKET/PROP98/HUNTSMAN

HUNTSMAN

November 25, 1998

Mr. Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Re: EPA Superfund Recommendation - Brickland

Dear Bill:

It was good to visit with you last week. I have several consultants looking at an expedited implementation plan for the free-phase recovery system at Brickland. I'll keep you posted on our progress.

I have attached a copy of the EPA Superfund Recommendation for the Brickland site that you requested last week. The facility was given a site score of 2.49 and a "No Further Remedial Action Planned" designation.

Let me know if you need any further information.

Sincerely,

B. Reggie Baker
Environmental Manager
HUNTSMAN POLYMERS CORPORATION

BRB-032-98
File 415.2
NMOCD SPRFND.wpd

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SUPERFUND SITE STRATEGY RECOMMENDATION - REGION 06

Site Name: El Paso Products CERCLIS ID#: NMD980622757

Alias Site Names:

Address: 2 miles NW of El Paso

City/County or Parish/State/Zip Code: Sunland Park/Dona Ana ~~Texas~~ NEW MEXICO

Report Type, Date, and Author: SIP II/Nov. 1995/Fluor

RECOMMENDATION

(X) 1. No Further Remedial Action Planned (NFRAP)

( ) 2. Further Investigation Needed Under Superfund
( ) PA ( ) HRS Priority: ( ) High
( ) SI ( ) RA ( ) Low
( ) ESI ( ) RI/FS
( ) Other: Focused Site Inspection
To be performed by:

( ) 3. Action Deferred to:
( ) RCRA ( ) NRC

NOTIFY AUTHORITY:

( ) Removal	( ) RCRA	( ) TSCA	( ) CAA	( ) SMCRA
( ) Remedial	(X) State	( ) NPDES	( ) NRC	( ) Resource Trustee:
( ) CERCLA Enforcement	( ) Federal Facility	( ) UIC	( ) SPCC	( ) Other:

SEND COPIES TO: ( ) 6E-E ( ) 6W-SP ( ) ATSDR ( ) State Agency

DISCUSSION:

A Site Inspection Prioritization (SIP) was conducted at El Paso Products, 2 miles northwest of El Paso, in Sunland Park, Texas. El Paso Products is an inactive oil refinery that operated from 1933 to 1958. The site covers approximately 30 acres and is adjacent to the Rio Grande. Three potential source areas were identified: a lagoon, a litharge tower and an oil pit. Contaminants that did not meet the petroleum exclusion under CERCLA were evaluated at this site. Ground water use within 4 miles of the site is limited and there is no evidence of contamination in the public supply well. Surface water is used as a source of drinking water but no contamination was detected in surface water samples taken from the Rio Grande immediately downstream of the site. Due to the low exposure potential, the surrounding fence, the small number of targets and a site score of 2.49, a determination of No Further Remedial Action Planned (NFRAP) under Superfund is recommended.

APPROVALS:

Disposition Recommended by: LaDonna Walker Signature: LaDonna Walker Date: Nov/15/95
(Site Assessment Manager)

Disposition Recommended by: Ragan Broyles Signature: Eguera for RBroyles Date: 11/15/95
(Section Chief)

Disposition Approved by: Charles A. Gazda Signature: Eguera for CGazda Date: 11/15/95
(Branch Chief)

Introduction

Fluor Daniel, Inc. was tasked by the Environmental Protection Agency (EPA) Region 6 to conduct Site Inspection Prioritization (SIP) activities for El Paso Products in Sunland Park, Dona Ana County, New Mexico (EPA ID No. NMD980622757). A phased approach was implemented for each site under this Work Assignment. First, a preliminary site categorization was developed utilizing the PAscore computer program. The PAscore was completed using only historical data provided by EPA Region 6. Additional data were then collected to update and supplement the historical data and a PREscore package was completed. The following report summarizes important site conditions which were evaluated in performing the PREscore package.

Site Description/Background Information

El Paso Products, currently known as Rexene Products Company, is an inactive oil refinery located approximately 2 miles northwest of El Paso, Texas in Dona Ana County, New Mexico (Figure 1). The site covers approximately 30 acres and is adjacent to the Rio Grande. The geographic coordinates of the site are 31°47'39" North latitude and 106°32'02" West longitude. The yearly average precipitation is 8.81 inches and is concentrated almost entirely in the months of July, August, and September [20, 001]. From 1933 until 1956, the site, at that time known as the Brickland Refinery, operated as a crude oil refinery. In 1956, El Paso Products purchased the property and operated the refinery until 1958. Although refining operations ceased in 1958, a refinery products quality control laboratory operated on-site until 1964. The site was unused from 1964 until approximately 1967. Two-thirds of the property was leased to a grocery transportation company and the remaining one-third was leased to an auto salvage company from 1967 to 1986. El Paso Products, now known as Rexene Products Company, no longer subleases the land. The site has been inactive for the last 9 years. The only authorized on-site operation is the dismantling of buildings [22, 001].

On April 12, 1989, personnel from the New Mexico Environmental Improvement Division (NMEID) conducted a Screening Site Inspection (SSI) reconnaissance visit. Three potential source areas were identified: a lagoon, a litharge tower, and an oil pit. The lagoon was used for disposal of waste water, tank bottoms, and other process waste. The lagoon occupies 77,040 square feet and is presently covered with dredgings from the Rio Grande [4, p. 33]. In the refining process, lead oxide was added to petroleum to extract sulfur in the litharge tower. The area of soil contamination around the litharge tower is estimated to be 10,000 square feet. The waste oil pit is a 7,500 square foot area containing viscous oil [4, p. 33]. No berm exists around the oil pit and a thin layer of soil deposited over the pit is the only covering. Heavy metals, volatile, and semi-volatile organic compounds were identified at concentrations above background in sediment, tar, and sludge samples collected on-site during the SSI [4, p. 8]. A consulting company was retained by Rexene Products Company to conduct a Site Investigation (SI) in 1990. Sediment samples showing concentrations of heavy metals were taken from the drainage culvert which drains the southern portion of the site. The drainage culvert occupies an area of approximately 1,680 square feet. Rexene Products currently conducts quarterly monitoring of the ground water, and they are completing a site remediation plan under the supervision of the New Mexico Oil Conservation Department [21, 001].

Waste Characteristics/Waste Quantity

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances documented to have been generated or used at the site include heavy metals and volatile and semi-volatile organic compounds. These substances were identified in sediment, tar, and sludge samples collected on-site during the 1989 SSI. While many of these organic compounds are exempt from CERCLA action under the "petroleum exclusion," waste material in the lagoon, the litharge tower area, the oil pit, and the drainage culvert contained high concentrations of chromium, copper, or mercury. These contaminants are not typical constituents of petroleum; in addition, they are constituents of the hazardous wastes K-049 (slop oil emulsion solids), K-051 (API separator sludge), and K-052 (leaded tank bottoms) [2, Table 9, p. 34]. Therefore, these contaminants do not meet the petroleum exclusion requirements [2, p. 5].

The 1990 SI included magnetometer and soil gas surveys, and soil, sediment, and waste characterization sampling. Sampling results from the litharge tower area revealed concentrations of mercury (10 parts per million (ppm)), chromium (28 ppm), copper (2,300 ppm), lead (1,100 ppm), naphthalene (15.8 ppm), anthracene (9.9 ppm), and fluorene (8.0 ppm). Chromium (97 ppm), copper (20,100 ppm), nickel (41.2 ppm), lead (34,900 ppm), and naphthalene (11.0 ppm) were detected in the oil pit area. In the lagoon area, sampling revealed mercury (0.15 ppm), copper (2,000 ppm), lead (24,000 ppm), and naphthalene (27.9 ppm) [3, Tables 18 - 21, p. 45 - 52]. SI sampling also detected concentrations of mercury (0.27 ppm), cadmium (7.9 ppm), chromium (39 ppm), copper (240 ppm), and lead (260 ppm) in sediment samples taken from drainage culverts leading to the Rio Grande [2, Table 10, p. 35]. Surface water samples taken from the Rio Grande just downstream of the drainage outfalls did not indicate any contamination [3, p. 65].

Other areas of the site were used exclusively for petroleum production and storage. Soil sampling in these areas detected organic and heavy metal contamination. However, these contaminants were detected in concentrations normally present in petroleum and petroleum products. Therefore, these areas qualify for the "petroleum exclusion" and were not used to evaluate the site.

Ground water samples from 15 on-site monitoring wells documented a release of petroleum hydrocarbons, volatile compounds, semi-volatile compounds and metals. Only those contaminants which were constituents of hazardous wastes K-049 (slop oil emulsion solids), K-051 (API separator sludge), and K-052 (leaded tank bottoms) were used to evaluate the site, as these contaminants do not meet the "petroleum exclusion" requirements [2, Table 9, p. 34]. The maximum concentrations detected in the ground water follow: anthracene (75 parts per billion (ppb)), arsenic (100 ppb), benzene (15,000 ppb), ethyl benzene (1,100 ppb), fluorene (150 ppb), naphthalene (210 ppb), phenanthrene (490 ppb), silver (270 ppb), toluene (2,600 ppb), and xylenes (817 ppb).

Ground Water Migration Pathway

The site is located on the alluvial terrace of the Rio Grande. The site lies within the bounds of the lower Mesilla Valley. At the south end of the valley, the Rio Grande flows through a narrow gorge with bedrock trending to within 80 feet of the surface. The Mesilla Valley and

adjacent areas are characterized by a thick sequence of alluvial material. The main body of sediments in the valley belong to the Santa Fe group of middle Miocene to Pleistocene age. More recent sediments overlie the Santa Fe Group as outwash-fan deposits and show characteristics similar to the Santa Fe Group. Consequently, it is difficult to determine the contact between the alluvium and the Santa Fe Group [3, p. 8-9].

Consolidated rocks in and near the lower Mesilla Valley include igneous and sedimentary rocks. Most of the igneous rocks are either Precambrian or Tertiary age. The sedimentary rocks are pre-Tertiary. In general, the consolidated rocks in the lower Mesilla Valley do not contain a useable ground water supply due to their low permeability. The obstruction at the lower end of the valley by andesite materially affects the water quality in the valley because of its mineral salts composition [3, p. 8-9].

The general surface area of the site is covered in most areas with a layer of fine sand underlain by layers of clay or silty/sandy clay which is extremely hard in many areas due to cementing by caliche. The formation of caliche is a typical feature in the region and is due to the high rate of evaporation of capillary water above the water table which leaves behind a residue of minerals, chiefly salts, which are part of the naturally high dissolved solids in the ground water. Boring log and test data suggest that the caliche layer retards the downward movement of oily wastes and petroleum liquid toward the ground water below [3, p. 8-9].

The unconsolidated deposits of the lower Mesilla Valley contain what is referred to as shallow, medium and deep aquifers and, although these aquifers are referred to as separate water bearing units, they tend to be hydraulically connected. The shallow aquifer consists of the shallow alluvial deposits and a portion of the underlying Santa Fe Group. The bulk of the Santa Fe Group comprises the medium and deep aquifers.

Generally, the three aquifers function as a single hydrologic system. Water moves from one aquifer to another in response to a change in head. Since pumping is mainly from the medium and deep aquifers, water may move from the shallow zone to deeper zones in reaction to localized gradients. However, the geologic cross section of the Rio Grande gorge, several hundred feet east of the site, indicates that maximum depth to bedrock is 86 feet; it is not likely that the generalized inter-aquifer hydraulic connection has significance for this site since the bedrock consists of silt and clay layers of very low permeability [2, p. 7-9 and 19, 002]. The bedrock would minimize contaminant migration from the site to wells located east of the site.

Ground water use of the shallow aquifers near the site is limited due to high dissolved solids content. During the 1990 SI, 76 wells within 4 miles of the site were identified. Of these wells, there are 14 domestic wells used for drinking water and one public water supply well belonging to the City of El Paso located 3.5 miles east of the site [16, 001]. The remaining 61 wells are either used for irrigation or are closed. The City of El Paso indicated that there would be very little or no migration potential between ground water beneath the site and ground water flow to the public supply well due to the existence of the silt and clay bedrock [19, 002]. Sampling done at the public supply well revealed no contamination [19, 003].

Assuming one connection per household and an average household population of 3.00 for Dona Ana County [12, 002], the 14 domestic wells serve a total population of 42 persons (14 wells x 3.00 persons/well). There are no wells within a 1/2-mile radius of the site. There are two wells between 1/2 to 1 mile from the site which serve 6 persons (2 wells x 3.00 persons/well), five wells between 1 to 2 miles from the site which serve 15 persons (5 wells x 3.00 persons/well), four wells between 2 to 3 miles from the site which serve 12 persons (4 wells x 3.00 persons/well), and three wells between 3 to 4 miles from the site which serve 9 persons (3 wells x 3.00 persons/well). Ground water samples from 15 on-site monitoring wells, installed during 1990, documented a release of petroleum hydrocarbons, volatile compounds, semi-volatile compounds and metals. There is no evidence of contamination in the public drinking water supply.

Surface Water Migration Pathway

The site is bordered on the east by the Rio Grande which lies about 50 feet from the edge of the site. Site surface water runoff is diverted to the Rio Grande via three engineered storm water drainage culverts on the eastern edge of the property. The probable points of entry into the surface water pathway is the point where the culverts drain into the Rio Grande. The entire 15-mile Target Distance Limit (TDL) of the surface water pathway is traveled southeast and east along the Rio Grande to a point just past the town of San Jose, Texas [10, 001-003]. No commercial fishing and limited sport fishing of catfish takes place along the 15-mile TDL. The site lies in a 100-year floodplain [13, 002]. The net precipitation for this area is less than 20 inches per year [20,001].

Surface water from the Rio Grande is used for drinking water by the City of El Paso. The water is diverted into an open canal at a point 0.8 mile downstream from the site, but does not actually enter the pipe system of the Robertson/Umbenhauer Water Treatment Plant until approximately 4 miles southeast of the site [2, p. 19]. This water serves approximately 150,000 persons in the El Paso area. Sampling of water at the treatment plants has not indicated contamination [6, 001]. Although contamination was detected in sediment samples collected from the drainage culvert draining the southern portion of the site, no contamination was detected in surface water samples taken from the Rio Grande immediately downstream of the site.

Soil Exposure Pathway

There are no residents, daycare centers, schools, nor terrestrial or sensitive environments within 200 feet of the facility. A 6-foot chain link fence topped with barb wire surrounds the facility and restricts access [22, 001]. There is no recreational attractiveness attributed to the site. The closest residence is located approximately 800 feet from the site [10, 001]. A house count was conducted using a topographic map within a 1-mile radius of the site. The estimated population per household in Dona Ana County is 3.00 persons [12, 002]. The population within 1/4 mile of the site is 3 (1 house x 3 people/house). The population between 1/4 to 1/2 mile from the site is 3 (1 house x 3 people/house). The population between 1/2 to 1 mile from the site is 177 (59 houses x 3 people/house).

FLUOR DANIEL

Fluor Daniel, Inc.
12750 Merit Drive, Suite 300, LB 169
Dallas, TX 75251
Tel (214) 450-4100
Fax (214) 450-4101

November 08, 1995

FDI/ARCS # 3613

U.S. Environmental Protection Agency
Attn: Eddie Sierra (6SF-RA)
Work Assignment Manager
1445 Ross Avenue, Suite 1000
Dallas, Texas 75202

CONTRACT NO. 68-W9-0013
NARRATIVE REPORT / PRESCORE
EL PASO PRODUCTS
EPA ID NO. NMD980622757
SUNLAND PARK, DONA ANA COUNTY, ~~TEXAS~~ NEW MEXICO
SITE INSPECTION PRIORITIZATION II
WORK ASSIGNMENT NO. 52-6JZZ

Dear Mr. Sierra:

Attached is the Narrative Report and supporting documentation for the above-referenced site. We have also attached a 3.5 inch disk with an electronic copy of the Narrative Report and PREscore. With your approval, this submittal constitutes completion of our work for this site.

Should you have questions or require additional information, please contact either of the undersigned at (214) 450-4100.

Sincerely,

Mengistu Lemma
ARCS Project Manager

W. Jared Fuqua, P.G.
ARCS Pre-remedial Manager

Attachments

ML/scd

Air Migration Pathway

No release to the air pathway has been observed. The presence of tar and asphalt material over some of the site reduces the probability of contaminants being released to the air [2, p. 21]. The Southwestern Willow Flycatcher, which is proposed to be listed as a federal endangered specie, is located 4 miles from the site. The Aplomado Falcon, which is currently listed as a federal endangered specie, is located approximately 1.5 miles from the site [15, 001]. Wetlands acreage totals 87.1 acres within 4 miles of the site [14, 001-005]. Based on a topographic map house count, the population within a 1-mile radius of the site is 183 [10, 001]. Based on Geographical Exposure Modeling System census data, the resident population is 12,516 between 1 to 2 miles from the site; 29,911 between 2 to 3 miles from the site; and 46,949 between 3 to 4 miles from the site. The total population within a 4-mile radius of the site is 89,559 [5, 002].

Summary

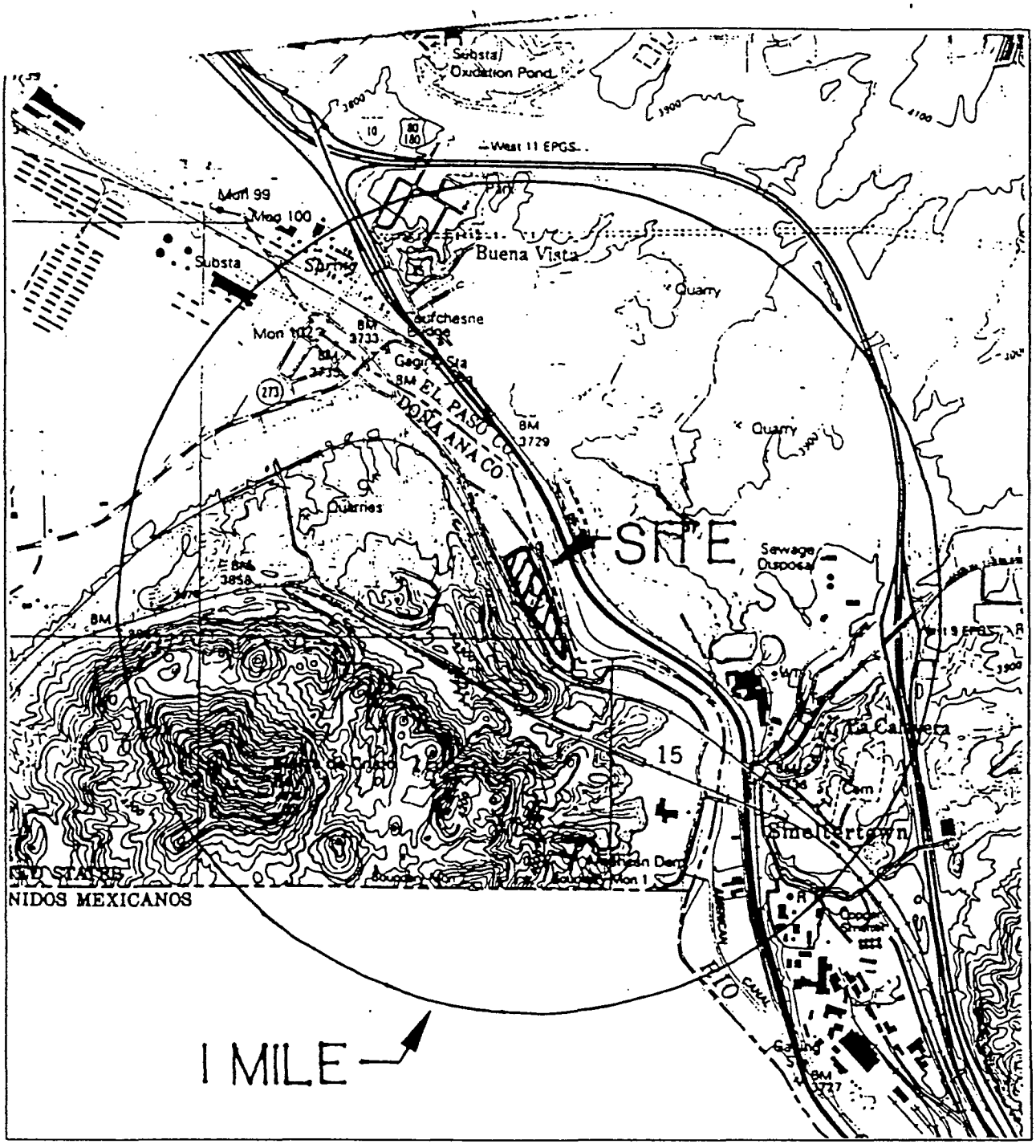
El Paso Products (currently Rexene Products Company) is an inactive oil refinery located in Sunland Park, Dona Ana County, New Mexico on the border of New Mexico and Texas. The site operated as a crude oil refinery from 1933 to 1958. A 1989 NMEID Screening Site Investigation identified a lagoon, the area around the litharge tower, and a waste oil pit as potential waste source areas. Waste materials in these areas contained concentrations of chromium, copper, and mercury which are not common constituents of petroleum. In addition, contaminants in these areas are constituents of the hazardous wastes K-049 (slop oil emulsion solids), K-051 (API separator sludge), and K-052 (leaded tank bottoms). Therefore, these contaminants did not meet the "petroleum exclusion" requirements and were used to evaluate the site.

Analysis of samples taken during a 1990 Site Investigation revealed concentrations of heavy metals and semi-volatile organic compounds in the areas of the lagoon, litharge tower, and oil pit. Concentrations of heavy metals were also found in the drainage culvert draining the southern portion of the site to the Rio Grande; however, no contamination was detected in surface water samples taken from the Rio Grande immediately downstream of the site. Soil contamination in other portions of the site used exclusively for petroleum production and storage qualify for the "petroleum exclusion" and were not used to evaluate the site.

Since 1990, the site has utilized samples from 15 monitoring wells for documenting releases to ground water. Ground water use within 4 miles of the site is limited, and there is no evidence of contamination in the public supply well. Surface water is used as a source of drinking water; a surface water intake is located 4 miles downstream of the site. Due to the low exposure potential, the surrounding fence, and the small number of targets, the potential to effect the soil exposure pathway would be low. No air release has been observed.

FIGURE 1

SITE LOCATION MAP



Note: Topographic Map, Smeltertown, TX-NM Quadrangle, 1994.

SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

QUADRANGLE LOCATION

FLUOR DANIEL

FIGURE 1
SITE LOCATION MAP
El Paso Products
EPA ID No. NMD980622757
Dona Ana County, New Mexico

References

1. U.S. Environmental Protection Agency. Final Rule Hazard Ranking System, FR 51532-51667, December 14, 1990.

2. Slifer, Dennis, "Listing Site Inspection Start", New Mexico Environmental Improvement Division, October 31, 1990. (Included in EPA Files)

3. Eder Associates, "Phase I Site Investigation Field Investigation Report for Old Brickland Refinery Site, Sunland Park, New Mexico", October, 1990. (Included in EPA File)

4. Lewis, Amy, New Mexico Health and Environment Department, "Screening Site Inspection Report", September 22, 1989. (Included in EPA File)

5. U.S. Environmental Protection Agency, Graphical Exposure Modeling System (GEMS) Database, compiled from the U.S. Census Bureau 1990 data, accessed July 13, 1994.

6. Rittmann, Doug, El Paso Water Utilities, Personal Conversation with Kendra Miller of Fluor Daniel, Inc. re: El Paso Surface Water Supply, July 25, 1995.

7. International Boundary and Water Commission, "Flow of the Rio Grande and Related Data", Water Bulletin Number 62, 1992.

8. Hershfield, D.M., "Rainfall Frequency Atlas of the United States", U.S. Weather Bureau Technical Paper No. 40, 1961.

9. Garcia, Gabe, Las Cruces Environmental Department, Personal Conversation with Tom Lundahl of Fluor Daniel, Inc. re: Wellhead Protection Areas, August 8, 1995.

10. U.S. Geological Survey, 7.5-minute topographic maps of New Mexico and Texas: Smeltertown, TX-NM (1994); El Paso, TX (1994).

11. Jaquez, Ernie, New Mexico Department of Games and Fish, Personal Conversation with Tom Lundahl of Fluor Daniel, Inc. re: Fishing Activities Along the Rio Grande, August 9, 1995.

12. U.S. Department of Commerce, Bureau of the Census, "County and City Data Book", 1988.

13. Ramos, Cesar, Dona Ana County Office of the Flood Commissioner, FAX to Tom Lundahl of Fluor Daniel, Inc. re: Section of FEMA Map Showing Site Floodplain Information, August 9, 1995.

14. U.S. Department of the Interior, National Wetland Map Inventory Maps of New Mexico and Texas: El Paso, TX (1993); Ysleta NW TX (1993); Ysleta, TX (1993); Smeltertown, TX-NM (1990); San Elizario, TX (1993).

15. McBride, Tobias J., New Mexico Heritage Program, Letter to Tom Lundahl of Fluor Daniel, Inc. re: Listing of Endangered Species for Area of El Paso Site, August 16, 1995.

16. Texas Water Development Board, Groundwater Data System, accessed Summer 1995.

17. Moffit, Kurt, Sunland Department of Public Works, Personal Conversation with Terry Smart of Fluor Daniel, Inc. re: Groundwater usage within the TDL of El Paso Products, August 29, 1995

18. Westbrook, Debbie, Sunland Racetrack, Personal Conversation with Terry Smart of Fluor Daniel, Inc. re: Groundwater usage at the Sunland Racetrack, August 29, 1995

19. Spene, Roger, Geologist El Paso Water Utilities, Personal Conversation with Deidre Johnson, Terry Smart, and Tom Lundahl of Fluor Daniel, Inc. re: El Paso ground water wells, July 27, August 29, and September 6, 1995.

20. Blood, Max, Meteorologist National Weather Services, Personal Conversation with Kendra Miller of Fluor Daniel, Inc. re: Rainfall Information, July 24, 1995.

21. Olson, Bill, New Mexico Oil Conservation Department, Personal Conversation with Tom Lundahl of Fluor Daniel, Inc., re: Current Site Status, August 31, 1995.

22. Karver, Todd, VP Environmental Affairs, Rexene Products Company, Personal Conversation with Tom Lundahl of Fluor Daniel, Inc. re: Current Site Status, August 31, 1995.

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW

Post Office Box 2307
Santa Fe, New Mexico 87504-2307

OF COUNSEL
William R. Federici
Seth D. Montgomery

J.O. Seth (1883-1963)
A.K. Montgomery (1903-1987)
Frank Andrews (1914-1981)

Victor R. Ortega
Gary Kilpatric
Thomas W. Olson
Walter J. Melendres
Bruce Herr
John B. Draper
Nancy M. King
Sarah M. Singleton
Stephen S. Hamilton
Galen M. Buller
Edmund H. Kendrick
Louis W. Rose
Paul S. Grand
Carolyn A. Wolf
Andrew S. Montgomery
Grace Philips
Alexandra Corwin
Jennifer L. Weed

325 Paseo de Peralta
Santa Fe, New Mexico 87501

Telephone (505) 982-3873
Fax (505) 982-4289

August 12, 1998

TELECOPY & U.S.MAIL

William Olson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Stage 2 Abatement Plan of Huntsman Polymers Corporation

Dear Bill:

Please find enclosed for your review Huntsman's proposed revised Notice of Publication in this matter as well as a copy of the previously approved Notice showing the revisions. In reviewing the Notice against the Stage 2 Abatement Plan, we noted an error in the fourth abatement measure described in the Notice. Only areas where lead in soil is present above guidance levels are to be capped, rather than all areas where any metals are present. Also, we realized that, because the Notice relates to an abatement plan, the word "abatement" should be substituted for the word "remediation", wherever that word occurs.

We assume that these revisions are acceptable to OCD, because they improve the accuracy of the Notice. Please give me a call at your earliest convenience to confirm that the revised Notice is acceptable or to discuss any questions you may have. It is our goal to issue the Notice during the week of August 17.

Sincerely,

Edmund H. Kendrick

EHK:dlo
enclosures
11305-93-01

cc: (w/enclosure via telecopy)
Todd Carver

8/19/98
0945 hrs Verbal Approval to
Ned Kendrick
Bill Olson

DRAFT 8/12/98

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following stage 2 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Huntsman Polymers Corporation, Reggie Baker, (915) 640-8760, P. O. Box 3986, Odessa, Texas 79760, has submitted a stage 2 abatement plan proposal for the former Brickland Refinery site, 3010 Old McNutt Road, in portions of Sections 9 and 16, Township 29 South, Range 4 East, Sunland Park, Dona Ana County, New Mexico. The site of approximately 35 acres, where the Brickland Refinery formerly operated, contains materials associated with refinery operations. Hydrocarbons have been detected at concentrations in excess of ground water standards. The stage 2 abatement plan proposal presents the following measures for abating soil and ground water at the site: (1) natural attenuation of hydrocarbons in soil; (2) recovery of limited free-phase hydrocarbons on ground water; (3) natural attenuation of dissolved-phase hydrocarbons in ground water; (4) capping of areas where lead in soil is present above guidance levels; (5) site security until abatement is complete; and (6) semi-annual ground water monitoring until abatement is complete.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The stage 2 abatement plan proposal may be viewed at the above address or at the City Hall, City Clerk's Office, 3800 McNutt Road, Sunland Park, New Mexico 88063, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed stage 2 abatement plan, the Director of the Oil Conservation Division shall allow at least sixty (60) days after the date of publication of this notice during which comments may be submitted and a public meeting or hearing may be requested by any interested person. Requests for a public meeting or hearing shall set forth the reasons why a meeting or hearing should be held. A meeting or hearing will be held if the Director determines there is significant public interest.

If no public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on information available. If a public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on the information in the stage 2 abatement plan proposal and information submitted at the meeting or hearing.

DRAFT 6/22/98

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following stage 2 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Huntsman Polymers Corporation, Reggie Baker, (915) 640-8760, P. O. Box 3986, Odessa, Texas 79760, has submitted a stage 2 abatement plan proposal for the former Brickland Refinery site, 3010 Old McNutt Road, in portions of Sections 9 and 16, Township 29 South, Range 4 East, Sunland Park, Dona Ana County, New Mexico. The site of approximately 35 acres, where the Brickland Refinery formerly operated, contains materials associated with refinery operations. Hydrocarbons have been detected at concentrations in excess of ground water standards. The stage 2 abatement plan proposal presents the following measures for ~~remediating~~ soil and ground water at the site: (1) natural attenuation of hydrocarbons in soil; (2) recovery of limited free-phase hydrocarbons on ground water; (3) natural attenuation of dissolved-phase hydrocarbons in ground water; (4) capping of areas where ~~metals~~ in soil ~~(primarily lead) are~~ present; (5) site security until ~~remediation~~ is complete; and (6) semi-annual ground water monitoring until ~~remediation~~ is complete.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The stage 2 abatement plan proposal may be viewed at the above address or at the City Hall, City Clerk's Office, 3800 McNutt Road, Sunland Park, New Mexico 88063, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed stage 2 abatement plan, the Director of the Oil Conservation Division shall allow at least sixty (60) days after the date of publication of this notice during which comments may be submitted and a public meeting or hearing may be requested by any interested person. Requests for a public meeting or hearing shall set forth the reasons why a meeting or hearing should be held. A meeting or hearing will be held if the Director determines there is significant public interest.

If no public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on information available. If a public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on the information in the stage 2 abatement plan proposal and information submitted at the meeting or hearing.

MONTGOMERY & ANDREWS, P.A.
325 PASEO DE PERALTA
POST OFFICE BOX 2307
SANTA FE, NEW MEXICO 87504-2307

(505) 982-3873 (FAX) (505) 982-4289

FAX TRANSMITTAL

DATE: 08/12/98 TIME: 4:15PM NO. PAGES (INCLUDING COVER) 4

TO: **William Olson** FAX: 827-8177 PHONE: _____

FROM: **EDMUND H. KENDRICK, ESQ.** (505) 986-2527

HANDLING INSTRUCTIONS: ___ Urgent
___ Call when received
___ Original to be mailed

MESSAGE:

Stage 2 Abatement Plan

cc: Todd Carver w/encl.

This fax is being sent from (505) 982-4289

CLIENT NAME: CLIENT NUMBER:

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW

Post Office Box 2307
Santa Fe, New Mexico 87504-2307

325 Paseo de Peralta
Santa Fe, New Mexico 87501

Telephone (505) 982-3873
Fax (505) 982-4289

OF COUNSEL
William R. Federici
Seth D. Montgomery

J.O. Seth (1883-1963)
A.K. Montgomery (1903-1987)
Frank Andrews (1914-1981)

Victor R. Ortega
Gary Kilpatric
Thomas W. Olson
Walter J. Melendres
Bruce Herr
John B. Draper
Nancy M. King
Sarah M. Singleton
Stephen S. Hamilton
Galen M. Buller
Edmund H. Kendrick
Louis W. Rose
Paul S. Grand
Carolyn A. Wolf
Andrew S. Montgomery
Grace Phillips
Alexandra Corwin
Jennifer L. Weed

August 12, 1998

TELECOPY & U.S.MAIL

William Olson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Stage 2 Abatement Plan of Huntsman Polymers Corporation

Dear Bill:

Please find enclosed for your review Huntsman's proposed revised Notice of Publication in this matter as well as a copy of the previously approved Notice showing the revisions. In reviewing the Notice against the Stage 2 Abatement Plan, we noted an error in the fourth abatement measure described in the Notice. Only areas where lead in soil is present above guidance levels are to be capped, rather than all areas where any metals are present. Also, we realized that, because the Notice relates to an abatement plan, the word "abatement" should be substituted for the word "remediation", wherever that word occurs.

We assume that these revisions are acceptable to OCD, because they improve the accuracy of the Notice. Please give me a call at your earliest convenience to confirm that the revised Notice is acceptable or to discuss any questions you may have. It is our goal to issue the Notice during the week of August 17.

Sincerely,

Edmund H. Kendrick

EHK:dlo
enclosures
11305-93-01

cc: (w/enclosure via telecopy)
Todd Carver

DRAFT 6/22/98

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following stage 2 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Huntsman Polymers Corporation, Reggie Baker, (915) 640-8760, P. O. Box 3986, Odessa, Texas 79760, has submitted a stage 2 abatement plan proposal for the former Brickland Refinery site, 3010 Old McNutt Road, in portions of Sections 9 and 16, Township 29 South, Range 4 East, Sunland Park, Dona Ana County, New Mexico. The site of approximately 35 acres, where the Brickland Refinery formerly operated, contains materials associated with refinery operations. Hydrocarbons have been detected at concentrations in excess of ground water standards. The stage 2 abatement plan proposal presents the following measures for ~~remediating~~ soil and ground water at the site: (1) natural attenuation of hydrocarbons in soil; (2) recovery of limited free-phase hydrocarbons on ground water; (3) natural attenuation of dissolved-phase hydrocarbons in ground water; (4) capping of areas where ~~metals~~ land in soil ~~(primarily lead) are~~ 1,3 present; (5) site security until ~~remediation~~ is complete; and (6) semi-annual ground water monitoring until ~~remediation~~ is complete.

abating
abatement
above guidance levels

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The stage 2 abatement plan proposal may be viewed at the above address or at the City Hall, City Clerk's Office, 3800 McNutt Road, Sunland Park, New Mexico 88063, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed stage 2 abatement plan, the Director of the Oil Conservation Division shall allow at least sixty (60) days after the date of publication of this notice during which comments may be submitted and a public meeting or hearing may be requested by any interested person. Requests for a public meeting or hearing shall set forth the reasons why a meeting or hearing should be held. A meeting or hearing will be held if the Director determines there is significant public interest.

If no public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on information available. If a public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on the information in the stage 2 abatement plan proposal and information submitted at the meeting or hearing.

MONTGOMERY & ANDREWS, P.A.

325 PASEO DE PERALTA
POST OFFICE BOX 2307
SANTA FE, NEW MEXICO 87504-2307

(505) 982-3873 (FAX) (505) 982-4289

FAX TRANSMITTAL

DATE: 05/27/98 TIME: 3:43PM NO. PAGES (INCLUDING COVER) 4

TO: **Bill Olson, OCD** FAX: 827-8177 PHONE: _____

FROM: **EDMUND H. KENDRICK, ESQ.** **(505) 986-2527**

HANDLING INSTRUCTIONS: ___ Urgent
___ Call when received
___ Original to be mailed

MESSAGE:

I will be mailing out the public notice on behalf of Huntsman Polymers Corporation as soon as the stage 2 abatement plan proposal is administratively complete. I noted several revisions that should be made on the enclosed draft. We have the document on our computer. Would you like us to make any revisions that you require or would you prefer to handle at OCD?

This fax is being sent from (505) 982-4289

Verbal approval to Ned Kendrick 1130 hrs. 6/2/98 Will Olson

CLIENT NAME: CLIENT NUMBER:

HUNTSMAN

October 22, 1997

Mr. Bill Olson
State of New Mexico
New Mexico Oil Conservation Division
2040 S. Pacheko St.
Santa Fe, NM 87505

Re: Brickland Refinery Site--Stage 2 Abatement Plan Public Notice

Dear Mr. Olson,

Huntsman Polymers Corporation, formerly Rexene Corporation, is progressing through a closure of the above mentioned facility utilizing the State of New Mexico abatement program. The company has currently submitted a stage 2 plan with your agency. Per our discussions in Santa Fe on the 30th of September, please find attached a draft of the public notice for your approval.

Your cooperation in this matter is greatly appreciated. If there are any further questions, please contact me in Dallas at (972) 450-9064.

Respectfully,

Todd M Carver

Todd Carver
Huntsman Polymers Corporation

Copy: B. McNamee-Dallas
R. Baker-Odessa
L. Tullos-Houston

TMC97.BRICKLAND.1022

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following stage 2 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Huntsman Polymers Corporation, Lon Tullos, (713) 235-6398, 3040 Post Oak Boulevard, Houston, Texas 77056, has submitted a stage 2 abatement plan proposal for the former Brickland Refinery site, 3010 McNutt Road, in portions of Sections 9 and 10, Township 29 South, Range 4 East, Sunland Park, Dona Ana County, New Mexico. The site of approximately 35 acres, where the Brickland Refinery formerly operated, contains materials associated with refinery operations. Hydrocarbons have been detected at concentrations in excess of ground water standards. The stage 2 abatement plan proposal presents the following measures for remediating soil and ground water at the site: (1) natural attenuation of hydrocarbons in soil; (2) recovery of limited free-phase hydrocarbons on ground water; (3) natural attenuation of dissolved-phase hydrocarbons in ground water; (4) capping of areas where metals in soil (primarily lead) are present; (5) site security until remediation is complete; and (6) semi-annual ground water monitoring until remediation is complete.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The stage 2 abatement plan proposal may be viewed at the above address or at the Oil Conservation Division District II Office, 811 S. First Street, Artesia, New Mexico 88210, Telephone (505) 748-1283, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed stage 2 abatement plan, the Director of the Oil Conservation Division shall allow at least sixty (60) days after the date of publication of this notice during which comments may be submitted to him and a public meeting or hearing may be requested by any interested person. Requests for a public meeting or hearing shall set forth the reasons why a meeting or hearing should be held. A meeting or hearing will be held if the Director determines there is significant public interest.

If no public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on information available. If a public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on the information in the stage 2 abatement plan proposal and information submitted at the meeting or hearing.

Division?

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this _____ day of October 1997.
June 1998.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

delete

WILLIAM J. LEMAY, Director
LORI WROTENBERY

Olson, William

From: Mike Selke[SMTP:MSELKE@bdm.com]
Sent: Thursday, February 12, 1998 1:51 PM
To: Olson, William
Subject: CHANGE OF ADDRESS

Bill - BDM has moved their offices across town. My new address is as follows:

TRW/BDM
Environmental Services Unit
1601 Indian School Road NE
MS-4A
Albuquerque, New Mexico 87110

My new telephone number and fax is:

(505) 998-8387

fax-8125

My email remains unchanged, however, if you ever need to reach me when I am out, my home email is MSELKE628@AOL.COM

Mike

MAR 13 1998

BDM International, Inc.
6001 Indian School Rd., NE
Albuquerque, NM 87110
(505) 998-8100

Direct Dial Number:
(505) 998-8387

BDM/ABQ-MWS-EN027-98

March 12, 1998

Mr. William Olsen
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: STAGE 2 ABATEMENT PLAN PROPOSAL, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO – RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION LETTER DATED JANUARY 16, 1998

Dear Bill:

BDM International Inc. (BDM), on behalf of Huntsman Corporation (Huntsman), formerly Rexene Corporation, herein presents this response to the New Mexico Oil Conservation Division (NMOCD) letter dated January 16, 1998. We understand that upon approval of the specific items presented in this letter, NMOCD will deem the Stage 2 Abatement Plan for the Brickland Refinery Site to be administratively complete. Huntsman will then integrate the items in this letter with the following documents:

- STAGE 2 ABATEMENT PLAN FORMER BRICKLAND REFINERY SITE REXENE CORPORATION, July 31, 1997
- BRICKLAND REFINERY SITE – STAGE 2 ABATEMENT PLAN PUBLIC NOTICE October 22, 1997
- STAGE 2 ABATEMENT PLAN, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO – RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION COMMENTS, November 5, 1997

The integrated document will be submitted as the Final Stage 2 Abatement Plan Proposal for the Former Brickland Refinery Site, Sunland Park, New Mexico.

Presented below are itemized responses to the above-referenced NMOCD letter:

Comment No. 1

The public notice will be revised to include a local public location where the Stage 1 report and Stage 2 Abatement Plan Proposal can be viewed, such as a Sunland Park city office or local library.

Response to Comment No. 1

The final submission of the Stage 2 Abatement Plan will include a local address where a copy of the Stage 1 Abatement Plan – Final Site Investigation Report and the Stage 2 Abatement Plan can be reviewed by the public.

Comment No. 2

The OCD requires that Huntsman submit more detailed information on the type of material to be used in the cap construction. Please keep in mind that the cap materials must be compactible and stable for the foreseeable future.

Response to Comment No. 2

Specifications. The EPA publication titled "Seminar Publication: Design and Construction of RCRA/CERCLA Final Covers" (EPA/825/4-91/025) was utilized as a reference for the proposed cap specification. This document provides guidance on designing and constructing covers for various hazardous and non-hazardous sites and provides some useful criteria that is applicable to the Brickland Refinery site. The following specifications for covering the lead-impacted areas of the site are based on the principles of this document as adapted to actual site conditions and requirements.

1. Clearing and Grubbing – The areas to be capped shall first be cleared of all natural and man-made objectionable material to include brush, weeds, boulders, fences, walls, rubbish, etc. The areas within the designated limit lines [400 parts per million (ppm) lead] shall be cleared and grubbed. All removed materials shall be deposited on site at a location designated by the Design Engineer.

2. Material – The soil to be used for construction of the cap shall be natural subbase material described in the New Mexico Standard Specifications for Public Works Construction. It shall contain a satisfactory mixture of clay and sand, as to be readily workable and compactible. The material shall be imported from off site and shall be free of any deleterious substance

3. Compaction – The selected material shall be compacted to reach minimum of 70 percent and a target of 90 percent of maximum density as determined by American Society for Testing and Materials (ASTM) D1557. The minimum compacted thickness of the cap shall be 6 inches, as determined by relative elevation measurements taken at locations designated by the design engineer.

4. A top layer of asphalt, concrete, or topsoil with vegetation will be acceptable, as compatible with future use, but is not required.

Comment No. 3

The OCD requires that Huntsman provide a quality assurance plan for construction of the cap. The plan will ensure the cap will be constructed to design specification and will provide a system, such as cap markers or other methods, that will monitor the integrity of the cap over time.

Response to Comment No. 3

Quality Control of Construction. The EPA publication, "Technical Guidance Document: Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA/530-(S)SW-86-031) will be used as a guide in developing a construction quality assurance (CQA) plan for the Brickland Refinery site. The document defines the elements of a CQA plan required by EPA for hazardous waste land disposal facilities. The site is not a hazardous waste disposal facility, however, this document provides criteria that can be used to ensure the site is closed according to the approved plans and specifications. A CQA plan appropriate to the site will be developed as part of the project work plan.

Construction Quality Assurance Plan. The CQA plan will be a site-specific document consisting of the following five elements:

1. Responsibility and Authority of Organizations and Key Personnel
2. CQA Personnel Qualifications
3. Inspection Activities
4. Sampling Strategies to Demonstrate Compaction Densities Are Achieved
5. Documentation

Erosion Indicators. Erosion indicators made of 2-inch diameter by 2-feet long, capped galvanized steel pipe shall be inserted at locations designated by the design engineer.

Health and Safety Plan. A health and safety (H&S) plan will be prepared to ensure adequate protection of persons on or near the site during construction activities. The condition of concern is blowing of loose soil due to disturbance by construction equipment. Grubbing and leveling is to be kept to a minimum and, where required, is to be conducted gently to prevent excessive soil disturbance. Dust masks will be required during these activities and at other times as designated by the H&S officer. General safety requirements are expected to include safety hats, safety shoes, leather gloves, and long coveralls.

Regulatory Approval. BDM will present the work plan containing the CQA plan and H&S plan, along with the construction plans and specifications, to the NMOCD for approval prior to the start of construction

Please call me if you wish to discuss the proposed text.

Sincerely,

Michael W. Selke, RG
Senior Program Manager

3031/OLSON008.LTR

cc: Todd Carver, Huntsman
Reggie Baker, Huntsman
Project File

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 16, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-219

Mr. Todd M. Carver
Huntsman Corporation
5005 LBJ Freeway, Suite 450
Dallas, Texas 75244

RE: STAGE 2 ABATEMENT PLAN PROPOSAL
BRICKLAND REFINERY
SUNLAND PARK, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) has reviewed the following Huntsman Corporation (HC) documents:

- July 31, 1997 "STAGE 2 ABATEMENT PLAN FORMER BRICKLAND REFINERY SITE REXENE CORPORATION".

- October 22, 1997 "BRICKLAND REFINERY SITE--STAGE 2 ABATEMENT PLAN PUBLIC NOTICE".

- November 5, 1997 "STAGE 2 ABATEMENT PLAN, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO - RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION COMMENTS".

These documents contain HC's proposed draft Stage 2 Abatement Plan Proposal for remediation of contaminated soil and ground water identified during Rexene's Stage 1 site investigations at the former Brickland Refinery in Sunland Park, New Mexico.

The OCD has the following requirements regarding the above referenced documents:

1. The public notice will be revised to include a local public location where the Stage 1 report and Stage 2 Abatement Plan Proposal can be viewed such as a Sunland Park city office or local library.

2. The OCD requires that HC submit more detailed information on the type of material to be used in the cap construction. Please keep in mind that the cap materials must be compactable and stable for the foreseeable future.

3. The OCD requires that HC provide a quality assurance plan for construction of the cap. The plan will insure that the cap will be constructed to design specifications and will provide a system, such as cap markers or other methods, which will be able to monitor the integrity of the cap over time.

Please provide the above information to the OCD Santa Fe Office with a copy provided to the OCD Artesia District Office.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: OCD Artesia Office
Marcy Leavitt, NMED Ground Water Quality Bureau Chief
Mike Selke, BDM International
Yusuf E. Farran, International Boundary and Water Commission

Z 235 437 219

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

BDM International, Inc.
Randolph Building
1801 Randolph Road, S.E.
Albuquerque, NM 87106
(505) 848-5000

Direct Dial Number:

(505) 848-5289

BDM/ABQ-MWS-EN161-97

November 5, 1997

Mr. William Olsen
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: STAGE 2 ABATEMENT PLAN, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO - RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION COMMENTS

Dear Bill:

Huntsman (formerly Rexene) and BDM have reviewed the comments presented in your October 8, 1997 letter and have prepared the following itemized responses:

Comment 1.

The text on page 9 references an "Appendix A", but there is no Appendix A in the document. This appendix needs to be included in the plan.

Response 1.

Appendix A was inadvertently not included in the plan. Appendix A is a copy of the ponding capacity study that was completed to determine if the site could contain runoff from a 100-year rainfall event. A copy of the study is attached.

Comment 2.

A cap and cover are selected as a remedial action plan for metals contaminated soils. However, the plan does not include specific information on the design of the cap and cover system. Please provide the OCD with detailed engineering design criteria and the proposed location of the cap and cover system.

Response 2.

The proposed cap will provide a practical method of preventing off site migration of soil that could possibly contain measurable concentrations of lead. It has been determined from previous investigations that lead exists in the soil in some areas of the site, and that a potential risk exists by the possibility of lead being transported off site by wind and water erosion of the soil. A protective cap installed on top of the affected areas will secure the soil in place and prevent off site transport. The proposed cap will essentially consist of a six-inch layer of imported soil placed on top of the designated lead-containing areas. The areas to be covered by the cap are identified in Figure 11b and represent the zones of soil that contain greater than 400 ppm of lead. The figure also illustrates a typical cross section of the proposed cap.

Since the purpose of the cap is the prevention of wind and water erosion, a simplified design can be used. The current topography is relatively flat, so the existing soil will not be disturbed by grading. Site preparation will consist only of removing debris and brush that may interfere with the integrity of the cap. The cap material will be deposited directly on top of the areas to be covered, and will be spread and compacted without disturbing the existing soil. Any grading required to direct rainfall runoff away from the capped areas will be limited to those areas of soil that do not contain lead above 400 ppm. No additional surface treatment will be required, but asphalt, concrete, topsoil, or other similar surface treatments may be used as desired.

The following basic specifications will be used in construction of the cap:

- Clearing and Grubbing - The areas to be capped shall first be cleared of all natural and man-made objectionable material to include brush, weeds, boulders, fences, walls, rubbish, etc. The areas within the designated limit lines (400 ppm lead) shall be cleared and grubbed. All removed materials shall be deposited on site at a location designated by the Project Manager.

- Material - The soil to be used for construction of the cap shall be similar in composition to typical subbase material used in residential street construction as described in the New Mexico Standard Specifications for Public Works Construction. It shall be natural soil that is readily workable and compactible. The material shall be imported from off site and shall be free of any deleterious substance. A representative sample of proposed material to be utilized as the cap material shall be submitted to the Project Manager for approval.

- Compaction - The selected material shall be compacted to 95% of maximum density as determined by ASTM D1557 for its full thickness. The minimum compacted thickness of the cap shall be six inches.

Comment 3.

The text on page 10 reverences an "Appendix B", but there is no Appendix B in the document. This appendix needs to be included in the plan.

Response 3.

Appendix B was inadvertently not included in the Plan. Appendix B is a copy of the covenant executed between IBWC and Rexene prohibiting water well installation on their property. A copy of the covenant is attached.

Comment 4.

Once free phase product removal is complete, the OCD requires that groundwater from monitor wells MW-4, MW-5, MW-7, MW-8, MW-9, MW-10, MW-11, MW-14, MW-15 and MW-17 be monitored on an annual basis to evaluate the progress of the remedial actions. The monitor wells will need to be sampled and analyzed annually for benzene, toluene, ethylbenzene, xylene (BTEX), polynuclear aromatic hydrocarbons (PAH) and New Mexico Water Quality Control Commission (WQCC) metals. These sampling requirements need to be included in the plan.

Response 4.

We believe that the additional monitoring wells required by NMOCD are appropriate for closure monitoring. However, the free-phase product could be removed very quickly while significantly elevated concentrations of dissolved-phase hydrocarbons will still be present that will require time to naturally biodegrade. Because of this expected condition, we believe the greatly increased number of monitoring wells may be excessive for monitoring progress of the abatement for the time period beginning after product is removed and before quarterly closure monitoring is initiated. Instead, we propose that in addition to continued monitoring of the off-site monitor wells, five interior monitor wells be sampled annually for BTEX, PAHs and WQCC metals to monitor abatement progress. Monitor wells MW 5, MW-8, MW-10, MW-11 and MW-17 are all located within areas of high benzene in groundwater and are best situated to monitor decreasing concentrations of dissolved-phase hydrocarbons beneath the site. Based on our

telephone conversation of November 3, 1997 I understand that you would also like to sample monitor wells MW-4, MW-7, MW-14 and MW-15 every other year. Huntsman is in agreement with this request and will modify the sampling and analysis plan accordingly. When concentrations of the constituents of concern decrease to WQCC action levels, all of the off-site monitor wells, as well as the on-site monitor wells listed above, will be sampled quarterly until closure requirements are met.

Comment 5.

The monitoring plan needs to include a commitment to perform all sampling and analysis pursuant to EPA approved methods.

Response 5.

The following statement will be added to section 3.4 of the Stage 2 Abatement Plan: "All sampling and analyses will be conducted pursuant to EPA approved methods."

Comment 6.

A map showing the location of all sampling points needs to be included in the plan.

Response 6.

A map showing the location of all sampling points is attached.

Comment 7.

Section 3.5 on page 12 states that public notice will be performed pursuant to WQCC regulations. Please provide a draft public notice to the OCD for approval. Please use WQCC regulation 4108.B. and 4108.C. in prepartion of the notice.

Response 7.

A draft public notice will be provided under separate cover.

Comment 8.

The closure criteria do not meet the requirements of WQCC regulation 4103.D. The ground water, surface water and soil closure criteria need to be modified as appropriate to conform with this provision.

Response 8.

The last paragraph in section 4.0 will be revised as follows: "When COC concentrations sampled from the compliance monitoring network are below the WQCC regulatory action level for eight consecutive quarterly sampling events, monitoring will cease and an abatement completion report will be submitted to NMOCD requesting site closure."

When NMOCD approves these itemized responses, Huntsman will revise the Stage 2 Abatement Plan accordingly and submit it to NMOCD for final plan approval.

Sincerely,

for Michael W. Selke
Senior Program Manager

3031/OLSEN007.LTR

Enclosures

cc: Reggie Baker, Huntsman
Todd Carver, Huntsman
Lon Tullos, Huntsman
Project File

HUNTSMAN

7 1997

October 22, 1997

Mr. Bill Olson
State of New Mexico
New Mexico Oil Conservation Division
2040 S. Pacheko St.
Santa Fe, NM 87505

Re: Brickland Refinery Site--Stage 2 Abatement Plan Public Notice

Dear Mr. Olson,

Huntsman Polymers Corporation, formerly Rexene Corporation, is progressing through a closure of the above mentioned facility utilizing the State of New Mexico abatement program. The company has currently submitted a stage 2 plan with your agency. Per our discussions in Santa Fe on the 30th of September, please find attached a draft of the public notice for your approval.

Your cooperation in this matter is greatly appreciated. If there are any further questions, please contact me in Dallas at (972) 450-~~9064~~ 2345

Respectfully,

Todd M Carver

Todd Carver
Huntsman Polymers Corporation

Copy: B. McNamee-Dallas
R. Baker-Odessa
L. Tullos-Houston

TMC97.BRICKLAND.1022

2340

HUNTSMAN POLYMERS CORPORATION
5005 LBJ Freeway, Suite 500 • Dallas, Texas 75244 • 972-450-9000 • Fax 972-450-9056

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following stage 2 abatement plan proposal has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

Huntsman Polymers Corporation, Lon Tullos, (713) 235-6398, 3040 Post Oak Boulevard, Houston, Texas 77056, has submitted a stage 2 abatement plan proposal for the former Brickland Refinery site, 3010 McNutt Road, in portions of Sections 9 and 16, Township 29 South, Range 4 East, Sunland Park, Dona Ana County, New Mexico. The site of approximately 35 acres, where the Brickland Refinery formerly operated, contains materials associated with refinery operations. Hydrocarbons have been detected at concentrations in excess of ground water standards. The stage 2 abatement plan proposal presents the following measures for remediating soil and ground water at the site: (1) natural attenuation of hydrocarbons in soil; (2) recovery of limited free-phase hydrocarbons on ground water; (3) natural attenuation of dissolved-phase hydrocarbons in ground water; (4) capping of areas where metals in soil (primarily lead) are present; (5) site security until remediation is complete; and (6) semi-annual ground water monitoring until remediation is complete.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The stage 2 abatement plan proposal may be viewed at the above address or at the Oil Conservation Division District II Office, 811 S. First Street, Artesia, New Mexico 88210, Telephone (505) 748-1283, between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed stage 2 abatement plan, the Director of the Oil Conservation Division shall allow at least sixty (60) days after the date of publication of this notice during which comments may be submitted to him and a public meeting or hearing may be requested by any interested person. Requests for a public meeting or hearing shall set forth the reasons why a meeting or hearing should be held. A meeting or hearing will be held if the Director determines there is significant public interest.

If no public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on information available. If a public meeting or hearing is held, the Director will approve or disapprove the proposed stage 2 abatement plan based on the information in the stage 2 abatement plan proposal and information submitted at the meeting or hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this _____ day of October 1997.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

WILLIAM J. LEMAY, Director

HUNTSMAN

Mr. Bill Olson
State of New Mexico
New Mexico Oil Conservation Division
2040 S. Pacheko St.
Santa Fe, N.M. 87505

October 8, 1997

Re: Brickland Refinery Site--Name Change

Dear Mr. Olson,

Rexene Corporation is progressing through a closure of the above mentioned facility utilizing the State of New Mexico abatement program. The company has currently submitted a stage II plan with your agency. Please be advised that as of August 27, 1997, there has been a name change. Rexene Corporation has changed its name to Huntsman Polymers Corporation.

Please reflect this change on all permits and correspondence.

Your cooperation in this matter is greatly appreciated. If there are any further questions, please contact the facility representative Mr. Reggie Baker in Odessa at (915) 333-8760.

Facility Address: Huntsman Polymers Corporation
P.O. Box 3986
Odessa, Tx 79760

Respectfully,

Todd Carver
Huntsman Polymers Corporation

cc: M. Vandervalk -Dallas
R. Baker-Odessa
L. Tullos-Houston

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

October 8, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-224

Mr. Todd M. Carver
Vice President Environmental Affairs
Rexene Corporation
5005 LBJ Freeway
Occidental Tower
Dallas, Texas 75244

RE: STAGE 2 ABATEMENT PLAN PROPOSAL
BRICKLAND REFINERY
SUNLAND PARK, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) is in receipt of Rexene Corporation's (Rexene) July 31, 1997 "STAGE 2 ABATEMENT PLAN FORMER BRICKLAND REFINERY SITE REXENE CORPORATION". This document contains Rexene's plan for remediation of contaminated soil and ground water identified during Rexene's Stage 1 site investigations at the former Brickland Refinery in Sunland Park, New Mexico.

Upon review of this document, the OCD has the following comments and requests for information:

1. The text on page 9 references an "Appendix A", but there is no Appendix A in the document. This appendix needs to be included in the plan.

2. A cap and cover are selected as a remedial action plan for metals contaminated soils. However, the plan does not include specific information on the design of the cap and cover system. Please provide the OCD with detailed engineering design criteria and the proposed location of the cap and cover system.

3. The text on page 10 references an "Appendix B", but there is no Appendix B in the document. This appendix needs to be included in the plan.

4. Once free phase product removal is complete, the OCD requires that ground water from monitor wells MW-4, MW-5, MW-7, MW-8 MW-10, MW-11, MW-14, MW-15 and MW-17 be monitored on an annual basis to evaluate the progress of the remedial actions. The monitor wells will need to be sampled and analyzed annually for benzene, toluene, ethylbenzene, xylene (BTEX), polynuclear aromatic hydrocarbons (PAH) and New Mexico Water Quality Control Commission (WQCC) metals. These sampling requirements need to be included in the plan.

5. The monitoring plan needs to include a commitment to perform all sampling and analysis pursuant to EPA approved methods.

6. A map showing the locations of all sampling points needs to be included in the plan.

7. Section 3.5 on page 12 states that public notice will be performed pursuant to WQCC regulations. Please provide a draft public notice to the OCD for approval. Please use WQCC regulation 4108.B. and 4108.C. in preparation of the notice.

8. The closure criteria do not meet the requirements of WQCC regulation 4103.D. The ground water, surface water and soil closure criteria need to be modified as appropriate to conform with this provision.

Please submit the above information to the OCD Santa Fe Office by November 7, 1997 with a copy also provided to the OCD Artesia District Office. Once the above issues have been addressed a final Stage 2 abatement plan will need to be prepared.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Mike Selke, BDM International
Yusuf E. Farran, International Boundary and Water Commission

BDM INTERNATIONAL, INC.
1801 RANDOLPH ROAD, S.E.
ALBUQUERQUE, NM 87106
(505) 848-5000

DIRECT DIAL NUMBER:
(505) 848-5289

BDM/ABQ-MWS-EN161-97

July 28, 1997

Mr. William Olsen
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: STAGE 2 ABATEMENT PLAN SUBMITTAL, BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO

Dear Bill:

This letter will serve to summarize our telephone conversation of July 21, 1997. During that conversation, on behalf of Rexene Corporation (Rexene), I requested a short extension of the July 21 due date for the above referenced Stage 2 Abatement Plan. Pursuant to your response that a short extension would be acceptable, Rexene requests the due date be revised to August 1, 1997.

Rexene appreciates your cooperation.

Sincerely,

Michael W. Selke
Senior Program Manager

3031/OLSEN006.LTR

cc: Reggie Baker, Rexene
Project File

BDM INTERNATIONAL, INC.
1801 RANDOLPH ROAD, S.E.
ALBUQUERQUE, NM 87106
(505) 848-5000

DIRECT DIAL NUMBER:
(505) 848-5289

BDM/ABQ-MWS-ENV61-97

March 21, 1997

Mr. Bill Olsen
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: RESPONSE TO NEW MEXICO OIL CONSERVATION DIVISION FINAL COMMENTS ON BRICKLAND REFINERY SITE FINAL SITE INVESTIGATION REPORT

Dear Bill:

On behalf of Rexene Corporation (Rexene), BDM International, Inc. (BDM) has prepared this response to New Mexico Oil Conservation Division (NMOCD) comments on the Final Site Investigation Report for the Brickland Refinery Site, Doña Ana County, New Mexico. This response specifically addresses the itemized comments cited in your February 26, 1997 letter.

NMOCD Comment 1:

There appears to be typographical errors on figure 11b which conflict with the text. Certain comparative sampling results are reversed in the figure. Some Eder sample results are depicted as GCL samples results and some GCL sample results are depicted as Eder sample results. This figure needs to be corrected.

Response:

The reversed results have been corrected. A new figure 11b is enclosed.

NMOCD Comment 2:

The text states that the analytical data sheets and associated quality assurance/quality control data for the April 1996 soil sampling are included in the reports attachment. However, the OCD could not find these sample results in the attachment. This data needs to be included in the report.

Response:

The missing laboratory reports are enclosed.

NMOCD Comment 3:

There appears to be a typographical error in the sample location on figure 11b. Sample location F-SS-4 should be E-SS-4.

Response:

The typographical errors have been corrected. A new figure 11b is enclosed.

NMOCD Comment 4:

The soils conclusions on page 46 state that no PAHs have been detected in the off-site monitor wells. This conflicts with the ground water conclusions for PAHs on page 47. The soils PAH conclusions need to be corrected to correspond to those related to ground water.

Response:

The second sentence of the third bullet on page 46 "None have been detected in off-site monitor wells since the quarterly sampling program was initiated in December 1993." has been deleted. A new page 46 is enclosed and should be substituted for the corresponding page in your current copy of the report.

NMOCD Comment 5:

Rexene's correspondence states that the PAH data from the Eder reports is included in this figure. However, the data does not appear on figure 12. This data needs to be on figure 12 or appear as a separate figure.

Response:

Based on your recommendation I have created figure 12b which is the original Eder plate showing polyaromatic hydrocarbon (PAH) results from their soil sampling. A new table of contents and the pages of text with the callouts for this figure are enclosed for substitution into your current copy of the report.

NMOCD Comment 6:

The lithologic log for monitor well MW-13 and monitor well construction details for monitor wells MW-2 and MW-13 are missing from Appendix B.

Response:

Neither BDM nor Rexene possess a copy of the lithologic log for monitor well MW-13 and the construction details for monitor wells MW-2 and MW-13. The same information is missing from Eder's August 1990 report, which is our source for the information. However, none of the missing information is crucial to the investigation. Since these monitor wells were installed, BDM (formerly GCL) has

conducted extensive soil and groundwater investigation at the site and there is no practical purpose for reproducing the lithology. However, construction diagrams have been developed by reproducing design criteria that is consistent with all other monitor wells installed by Eder. At the next semi-annual sampling event we will measure the depth to the bottom of MW-13. If possible, we will also measure the depth to the top of the screen by viewing down the wellbore using a flashlight and reflected light. We can then fill in some of the missing completion depths for this well, and submit it with the next annual report. The new construction diagrams for MW-2 and MW-13 are enclosed.

Please call me at my new telephone number, 848-5289, if you have any further questions.

Sincerely,

Michael W. Selke, RG
Senior Program Manager

\3031\OLSEN005.LTR

Enclosures All enclosures are bound in 12/22/97 Final Site Investigation Report. Each replacement page is stamped with a March 26, 1997 received date. The old pages removed are attached to this document.

5/21/97

cc: Reggie Baker, Rexene
Todd Carver, Rexene
Project File

List of Figures

Figure

1	The Brickland Refinery Site Location Map
2	Site Map Showing Refinery Operations Areas
3	Land Ownership in the Vicinity of the Brickland Refinery
4	Site Map Showing Locations of Test Pits, Borings, Monitoring Wells, and Well Points
5	Groundwater Elevation Contour Map (September 1994)
6	Groundwater Elevation Contour Map (December 1994)
7	Groundwater Elevation Contour Map (March 1995)
8	Groundwater Elevation Contour Map (June 1995)
9	TPH Concentrations in Soil
10	Benzene Concentration in Soil
11a	RCRA Metals and TCLP Soil Sample Results (June 1994)
11b	Distribution of Lead in Soil Samples - Surface and Subsurface
12	PAH Soil Sample Results
13	Free Phase Hydrocarbon Thickness Map Brickland Refinery Site - GCL
14a	Benzene Concentration Contour Map in 6th Quarter, Sept. 1995
14b	Benzene Concentration Contour Map in 6th Quarter, June 1995
14c	Benzene Concentration Contour Map in 6th Quarter, March 1995
14d	Benzene Concentration Contour Map in 6th Quarter, Dec. 1994
15	PAHs Concentration Contour Map (March 1995)
16	Mixing Zone Model

— Xylene concentrations ranged from non-detect in D-TP-2, D-TP-52 and D-TP-53 to 25,000 µg/kg in D-TP-51 (Table 7a and Figure 10).

One sample collected from B-02 was analyzed by toxicity characteristic leaching potential (TCLP) and detected benzene at 260 µg/L, below the regulatory level of 500 µg/L (Figure 10).

- Results of soil samples obtained by Eder showed the highest PAH concentration in pits adjacent to the crude unloading racks and adjacent to the north most storage warehouse (Table 7b).

- Soil samples obtained by GCL from test pit TR-2 showed presence of 1-methyl naphthalene (12,000 µg/kg) and 2-methyl naphthalene (12,000 µg/kg) from TR-02 at 4 feet to 6 feet (Figure 12). These results correlate with the soil samples obtained by Eder for B-22 for 2-methyl naphthalene (18,500 µg/kg) (Table 7b).

- Cadmium, copper, zinc, and arsenic were found in one or more samples collected by Eder from hollow-stem auger borings across this area (Table 7c)

- Lead was identified in GCL trench TR-02 at a concentration of 55 mg/kg and in boring B-04 at concentrations of 46.0 and 9.0 mg/kg at depths of 2 to 4 and 6 to 8 feet, respectively. Eder soil sampling detected lead in borings B-1 through B-16 at concentrations ranging from 5.9 to 1,500 mg/kg.

- Soil samples obtained by GCL from 6 to 8 feet from B-02 showed low metal concentrations and all TCLP metals below the maximum concentration limits (Figure 11a).

Area E - Drum and Tank Storage

Twenty-five test pits (20 by Eder and one by GCL) were excavated, along with two hollow-stem auger borings (GCL), and two surface soil samples (Eder) collected within Area E. Results of the soil sampling are discussed below:

- TPH concentrations ranged from 1,230 mg/kg at the 2- to 4-foot interval to 4,670 mg/kg at the 0- to 2-foot interval in hollow-stem boring B-07 (GCL).

Analytical results are shown on Figure 9. No TPH samples were collected in Area E during Eder's phase of the investigation.

- BTEX samples were collected from nine test pits (eight Eder and one GCL) and two hollow-stem auger borings (GCL). VOC analyses by Eder showed widespread BTEX constituents in the southern part of the area. A soil sample (E-TP-32) collected adjacent to the former truck parking area contained 292,000 µg/kg total BTEX (Table 8a). Only one sample obtained by GCL was analyzed for BTEX (total BTEX 71,700 µg/kg). Results obtained are similar to those obtained by Eder for E-TP-20 (total BTEX 53,200 µg/kg) in the vicinity of TR-1.

- Total PAH samples obtained by Eder ranged across the area from nondetect in E-TP-68 mg/kg to 227 mg/kg in E-TP-21 (Table 8b). Soil samples obtained by GCL from TR-1 at 2 feet to 4 feet and analyzed for PAH detected 1-methyl naphthalene, 2-methyl naphthalene, and naphthalene (Figure 12).

- Lead was the only metal found by Eder in Area E significantly above background values. The areas where lead was found in samples were limited to the southernmost transects, with the highest concentration of lead, 139,000 mg/kg in E-TP-26, found adjacent to the truck loading area (Table 8c). Lead concentrations from samples obtained by GCL from TR-01 at zero to two feet (53.0 mg/kg) and two to four feet (9-10 mg/kg) were low and are comparable to Eder results obtained from E-TP-29 (88.4 mg/kg), located in the southeast corner of Area E (Figure 11a).

- Soil sampling by Eder detected mercury at concentrations of 0.15, 0.16, and 0.76 mg/kg in test pits E-TP-25, -26 and -27, respectively. Soil sampled from GCL trench TR-01 contained 0.14 mg/kg at a depth of 0 to 2 feet, while the 2 to 4 foot sample was below the detection limit.

Area F - Refinery Process Facilities

Twenty-nine test pits (27 by Eder and two by GCL) were excavated in Area F. In addition, six hollow-stem auger borings (four by Eder and two by GCL) were completed along with four surface samples collected by Eder during the 1990 investigation. The results of the soil sampling are discussed below:

- TPH was detected in all four GCL hollow-stem auger borings (Figure 9). The highest concentrations were 1,790 µg/kg in boring B-08 from 6 feet to 8 feet bgs. No other TPH samples were collected in this area.

- BTEX concentrations were widespread in soil within Area F (Table 9a and Figure 10). Benzene was found in soil sampled from test pit TR-3 at a concentration of 219,000 µg/kg at a depth of 3 feet bgs. One sample collected for TCLP benzene detected 1,100 micrograms per liter (µg/L), which is above the 500 µg/L regulatory level.

- PAHs were detected in soil sampled from test pits (Eder and GCL) and hollow-stem auger borings (GCL) (Table 9b and Figure 12).

- Three metals were distributed in soil samples obtained by Eder across Area F at concentrations significantly over background: copper, lead, and zinc. Lead concentrations in soil generally ranged from 0.008 mg/kg in F-TP-44 to 377 mg/kg in F-TP-34 (Table 9c). One TCLP lead sample obtained from B-08 by GCL at 4 feet to 6 feet was 82 mg/kg, which is above the 5 mg/kg regulatory level for TCLP lead (Figure 11). However, groundwater monitor wells MW-7 (located nearby), MW-17, and MW-6S (located downgradient from B-08) did not detect any lead, nor has lead been detected in any other monitor wells.

- Mercury was identified in Eder test pits ranging in concentration from 0.03 to 2.8 mg/kg while samples from GCL trenches were non-detect. Eder surface samples for mercury ranged from 0.1 to 10 mg/kg. Chromium was identified in Eder test pits ranging in concentration from 4.7 to 47.2 mg/kg and one GCL trench, TR-3, contained 8 mg/kg. Eder surface samples ranged in concentration from 8 to 28 mg/kg chromium. Cadmium was identified in Eder test pits ranging in concentration from 0.85 to 25.4 mg/kg and one TCLP sample from GCL boring B-06 was 0.12 mg/L. Silver was found in Eder test pits in concentrations ranging from 0.45 to 8.1 mg/kg while samples from GCL borings and trenches were non-detect.

Area G - Cooling Water Lagoons and Slop Oil Lagoons

Area G is the southernmost and furthest downgradient area of the site and contained a number of surface impoundments and storage tanks. Nineteen test pits (17 by Eder and two by GCL), four hollow-stem auger borings (GCL), and three surface soil samples (Eder) were completed in Area G. The results of the soil sampling are discussed below:

- Although free-phase product occurs sporadically around the site as a sheen or extremely thin layers, one well in Area G, MW-10, contained a substantial thickness of free-phase product (up to 5 feet). Eder (1990, Plate 5), has previously projected free-phase product to occur as either a visible sheen or in measurable thicknesses extensively throughout the southern two-thirds of the site. However, further investigation by GCL determined that free-phase product occurs locally, trapped in discontinuous layers of silt and fine sand (Figure 13).

- TPH concentrations were detected in all the GCL test pits and hollow-stem auger borings (Figure 9). The highest concentration was 6,150 mg/kg from 10 to 12 feet bgs in boring B-13, located at the southern end of the site. No other samples were collected for TPH analysis.

- BTEX constituents are present in soil throughout Area G in varying concentrations. The highest concentration of total BTEX obtained was from test pit G-TP-12-2 at 253 mg/kg (Table 10a). One sample collected from hollow-stem auger boring B-12 (GCL) for TCLP analysis of benzene was non-detect (Figure 10a).

- The highest PAH concentrations were found on the north side of Area G and near the southeastern corner (Table 10b). The remainder of the area which has low PAH concentrations may reflect the previous locations of the four cooling water ponds that did not have any major source of hydrocarbons. 1-methyl naphthalene, 2-methyl naphthalene, naphthalene, phenanthrene, and pyrene were the only PAHs detected in samples obtained by GCL (Figure 12). Highest concentration of 2-methyl naphthalene detected by GCL was 160,000 µg/kg from B-11 at 8 to 10 feet.

- The slight increase in background concentrations of some of the metals from the north to south of the site is probably due to the proximity of the Asarco smelter to the southern end of the site.

- In general, lead and arsenic concentrations detected at the Brickland Refinery site are believed to have resulted at least in part from smelter operations.

- PAHs and phenols have been detected in soils at the site. None have been detected in off-site monitor wells since the quarterly sampling program was initiated in December 1993.

- Hydrocarbon releases in on-site soils and groundwater are restricted to the southern two-thirds of the facility.

- Site security effectively breaks the pathway between the constituents of concern and receptors.

Groundwater

- Hydrocarbons exceeding WQCC standards have been observed off site only in MW-6S. However, the absence of hydrocarbon constituents in all other off-site wells, with the exception of sporadic occurrences of BTEX below WQCC standards and a single sample of total xylenes at the detection limit in a river sample, indicate on-site hydrocarbon compound migration is attenuated on site by the interbedded silty/clayey sediments, the relatively flat, shallow water table, and/or natural biodegradation/dispersion. The minor amount of hydrocarbon migration that occurs is attenuated by biodegradation and dispersion.

- Benzene has been detected in groundwater at concentrations greater than health-based standards at only one off-site location (MW-6S). The other BTEX compounds have either not been detected or have been below WQCC standards in off-site monitor wells.

- Free-phase hydrocarbon has been observed in monitor well MW-10, MW-11, and several well points in the immediate vicinity. The recent investigation determined that this free-phase hydrocarbon occurs locally in discontinuous

pockets associated with thin, discontinuous, sand lenses. No free-phase hydrocarbons have been observed in off-site wells.

- PAHs and phenols have been detected in the shallow aquifer at the site. None have been detected above regulatory standards in off-site monitor wells since the quarterly sampling program was initiated in December 1993 and only one sample detected PAHs below regulatory standards.

- Intrinsic remediation of the constituents of concern and current land use effectively breaks the pathway between the constituents of concern and receptors.

Surface Water

- No BTEX compounds have been detected in water samples collected from the Rio Grande at locations upgradient and downgradient from the site. Furthermore contaminant transport modeling has shown no significant risk of benzene entering the Rio Grande in the future.

- A monitoring program is required to determine if the surface water route completes a pathway between on-site constituents of concern and receptors.

- The gates to the three southernmost culverts are closed. There is no runoff in this area.

- Lead has not been detected in any on- or off-site monitor wells.

- Other metals have been detected sporadically in monitor wells. Arsenic, barium, iron, and manganese may correlate to metals found in site soils.

LEGEND

- CONCRETE SLAB/PAD – BLDG FOUNDATION
- WALL – MASONRY
- TREE
- FENCE
- INTERMITTENT STREAM
- RIVER
- MONITORING WELL
- TEST PIT
- TEST BORING
- HAND AUGER BORING
- SURFACE SAMPLING LOCATIONS
- CISTERN SAMPLING LOCATION
- RIVER SAMPLING LOCATION
- STORM WATER OUTFALL WITH A DITCH
- WELL POINT
- TEST TRENCH
- B-02 (75) — GCL SAMPLING LOCATION (AND RESULTS IN mg/kg)
- F-TP-45 (268) — EDER SAMPLING LOCATION (AND RESULTS IN mg/kg)
- E-SS-4 — SURFACE SAMPLES
- 400 ppm CONTOURLINE

RECEIVED
JAN - 2 1997
Environmental Bureau
Oil Conservation Division

GCL

FIGURE 11b
DISTRIBUTION OF LEAD IN SOIL SAMPLES SURFACE AND SUBSURFACE

CLIENT:	REXENE
DATE:	5/14/96
AUTHORED BY:	RR
DRAWN BY:	RG
CHECKED BY:	RWH
DWG. NO.:	D:\REXENE\RXL2.DWG

DANIEL B. STEPHENS & ASSOCIATES, INC.
ENVIRONMENTAL SCIENTISTS AND ENGINEERS

March 6, 1997

Mr. Bill Olson
Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Report of Service Pit and Flow Through Process Tank Closure, Brickland Refinery, Sunland Park, New Mexico (DBS&A #REXBRI001)

Dear Mr. Olson:

Daniel B. Stephens & Associates, Inc. (DBS&A), on behalf of Rexene Corporation, is pleased to submit the attached report which outlines the work performed in closing the flow-through process tank and service pit at the Brickland Facility, Sunland Park, New Mexico. If you have any questions regarding the removal activity or soil sample results, please do not hesitate to call me at (915) 520-6615 or (806) 798-9969.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

P. Damian Reed

P. Damian Reed
Project Manager

e:\client\rex\bri\reort\cvr.wpd

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

February 26, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-266

Mr. Todd M. Carver
Vice President Environmental Affairs
Rexene Corporation
5005 LBJ Freeway
Occidental Tower
Dallas, Texas 75244

RE: FINAL SITE INVESTIGATION REPORT
BRICKLAND REFINERY
DONA ANA COUNTY, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) has reviewed Rexene Corporation's (Rexene) December 20, 1996 "FINAL SITE INVESTIGATION REPORT FOR THE BRICKLAND REFINERY SITE" and December 20, 1996 "FINAL SITE INVESTIGATION REPORT FOR THE FORMER BRICKLAND REFINERY STAGE I ABATEMENT PLAN". These documents contain a final site investigation report which was modified to incorporate OCD's August 21, 1996 comments. The documents contain the results of recent and prior soil and ground water contamination investigations at the former Brickland Refinery in Sunland Park, New Mexico.

The OCD has identified the following items which need to be corrected prior to issuing final approval of the Stage 1 investigation report. Rexene's December 20, 1996 correspondence stated that these items were included in the final investigation report, however they appear to have been inadvertently omitted.

1. Section 3.2.3, Pages 20-26 and Figure 11b

   There appears to be typographical errors on figure 11b which conflict with the text. Certain comparative sampling results are reversed in the figure. Some Eder sample results are depicted as GCL samples results and some GCL sample results are depicted as Eder sample results. This figure needs to be corrected.

2. Section 3.2.3, Page 21

   The text states that the analytical data sheets and associated quality assurance/quality control data for the April 1996 soil sampling are included in the reports attachment. However, the OCD could not find these sample results in the attachment. This data needs to be included in the report.

3. Section 3.2.3, Page 23 and Figure 11b

There appears to be a typographical error in the sample location on figure 11b. Sample location F-SS-4 should be E-SS-4.

4. Section 4.0, Page 46 and 47

The soils conclusions on page 46 state that no PAH's have been detected in the off-site monitor wells. This conflicts with the ground water conclusions for PAH's on page 47. The soils PAH conclusions need to be corrected to correspond to those related to ground water.

5. Figure 12

Rexene's correspondence states that the PAH data from the Eder reports is included in this figure. However, the data does not appear on figure 12. This data needs to be on figure 12 or appear as a separate figure.

6. Appendix B

The lithologic log for monitor well MW-13 and monitor well construction details for monitor wells MW-2 and MW-13 are missing from Appendix B.

Submission of the above requested corrections and information will allow the OCD to complete a review of the Stage 1 investigation report.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Mike Selke, BDM International
Yusuf E. Farran, International Boundary and Water Commission

P 269 269 266

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

DANIEL B. STEPHENS & ASSOCIATES, INC.
ENVIRONMENTAL SCIENTISTS AND ENGINEERS

February 12, 1997

Mr. Bill Olsen
Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Work Plan for Sump Removal, Brickland Site, Sunland Park, New Mexico

Dear Mr. Olsen,

As per our phone conversation on February 12, 1997, due to the inclement weather we experienced in early January, we were delayed approximately two weeks in removing the sump as specified in the work plan submitted to your office on December 26, 1997. Therefore, we are unable to complete the report by the date specified in your approval letter (February 14, 1997). Analytical results arrived today on the soil samples collected from the tank hold and transportation and disposal of the waste should occur at the end of this week. We expect that the report on the excavation will be completed and ready for your review by February 28, 1997.

Pleas call me at (915) 520-6615 if you have any questions or require any additional information.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

P. Damian Reed

P. Damian Reed
Operations Manager

NMOCD/REXENE JANUARY 21, 1997 MEETING AGENDA

STAGE 1 ABATEMENT PLAN - FINAL SITE INVESTIGATION REPORT

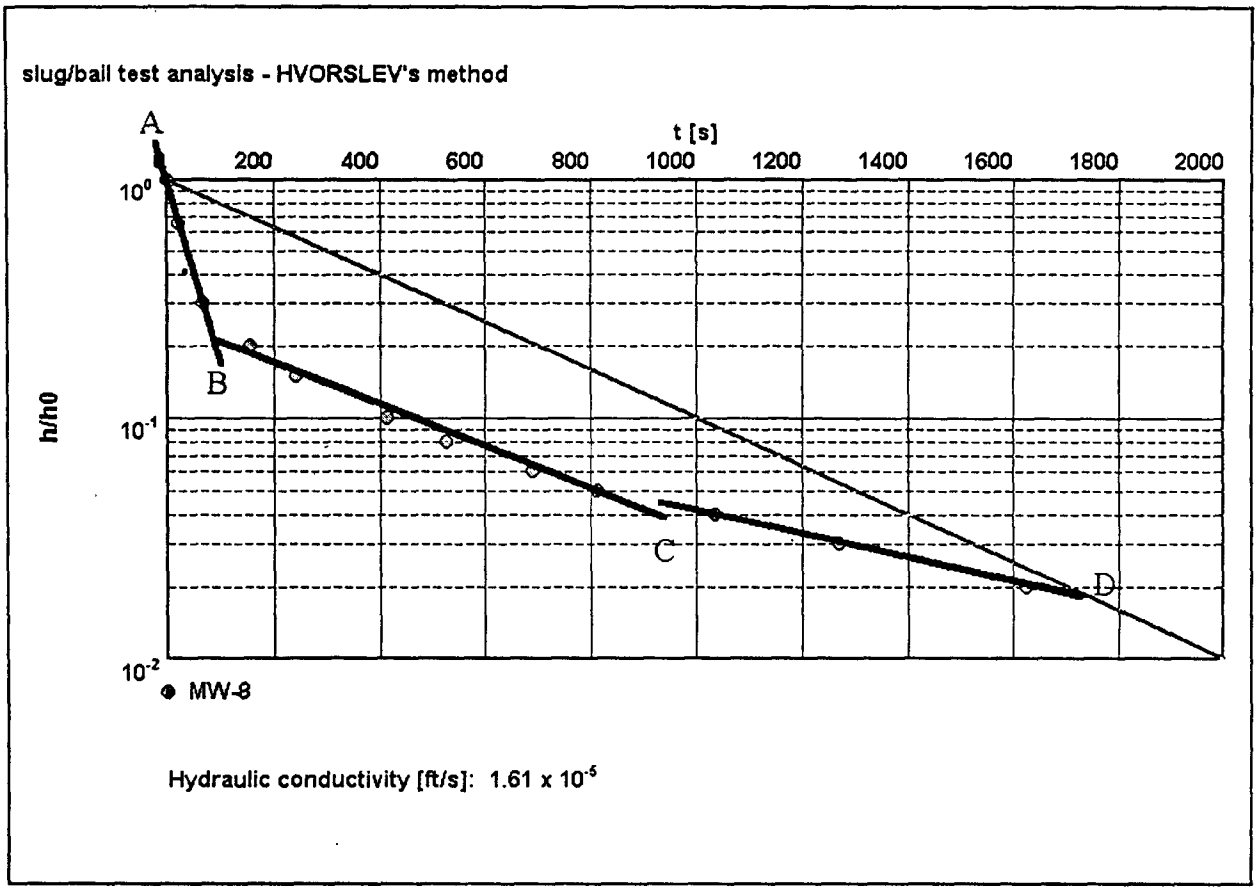
- Clarification of final response to NMOCD comments
- Slug test interpretation
- Approval

PRELIMINARY RESULTS OF SEMI-ANNUAL SAMPLING

UPDATE ON MEETING WITH IBWC

STAGE 2 ABATEMENT PLAN

- Free-phase product
- Dissolved-phase hydrocarbon
- Metals in soil
- Long-term monitoring
- Public notice



DOUBLE STRAIGHT LINE EFFECT WHEN PLOTTING SLUG TEST RESULTS

Many users of the Hvorslev and Bouwer-Rice methods have occasionally observed what appears to be two (or three) straight line portions of the plotted measurement points, as is illustrated above by the thick lines. At early times, the rate of water level rise (or fall) is quicker than at later stages. The AB portion of the curve is likely caused by quick drainage (not instantaneous, as the original theory of Bouwer and Rice assumed) of the gravel pack or highly permeable zone around the well when the water level initially is lowered into the screened portion (or alternatively, if the unsaturated zone is also screened) for a falling head test. **If the water level never gets into the screened section of the well, one should not see this effect** (unless perhaps there is leakage around the seal just above the gravel pack). For these cases, one should work with the less steep portion of the curve marked BC in the figure. Of course, the curved portion of the curve at late times (CD) should always be ignored as it reflects drawdown effects of the water table surrounding the well. These become increasingly significant at larger times.

Guidelines for LEAD IN SOIL

Proposal of the Society for Environmental Geochemistry and Health

Over the past 20 years the focus of concern about the toxicity of lead to humans—especially small children—has shifted from industrial exposure to environmental exposure. The use of leaded gasoline has declined in the United States since 1970, and the same trend is observed in other countries, diminishing the hazard of airborne lead. Unfortunately, during the years of high ambient lead emissions the metal accumulated in soil, and concentrations are now elevated in the yard soils of most cities. Other sources of lead, especially old flaking paint, still exist and, together with contaminated soil, contribute to lead in street and house dusts.

This legacy affects young children, who spend much of their time playing in their yards or on floors at home and frequently put dirty fingers into their mouths. Some children may obsessively lick or eat soil and dust. Hand-to-mouth transfer of dirt is now recognized as a significant pathway by which children ingest lead.

The danger to health from lead residues in soil and dust is now widely accepted. What has not been agreed upon is a value for lead concentration in soil that will protect the public, especially children. Lead guideline values are needed both for urban soils and dusts and for contaminated-site cleanup. We raised the pressing need for a scientifically based rationale that could be used for setting a lead-in-soil guideline in an earlier paper (*1*).

This paper arose from a dissatisfaction with the existing attempts to prescribe advisory or regulatory limits that were perceived as highly empirical. Any environmental guideline value needs to be based on the derivation of a well-founded relationship between the concentration of lead in human blood and environmental sources of lead. We were also skeptical of the tendency to prescribe single values for lead in soil for use in all situations. For example, a lead level deemed acceptable for soils within an industrial area would be unacceptably high for a school playground. In short, a less naive approach was needed.

These reservations commanded wide support and resulted in the March 1988 conference entitled "Lead in Soil: Issues and Guidelines," sponsored by the Society for Environmental Geochemistry and Health (SEGH), EPA, the International Lead Zinc Research Organization, the Lead Industries Association, and Clemson University (South Carolina). The conference proceedings (*2*) documented the latest data on the lead problem, the tentative guidelines for lead, and the scientific approaches used in other nations.

As a result of panel and audience discussions during the conference, the SEGH formed a task force to examine the scientific rationale underpinning the relationship of blood lead to environmental lead and to frame defensible guidelines for lead in soil and dust. A "Lead in Soil" task force was subsequently assembled, made up of SEGH members from regulatory agencies, industries, the medical profession, public health institutions, and universities. The box on p. 28 A lists the members who are charged with developing a flexible approach that could be used internationally.

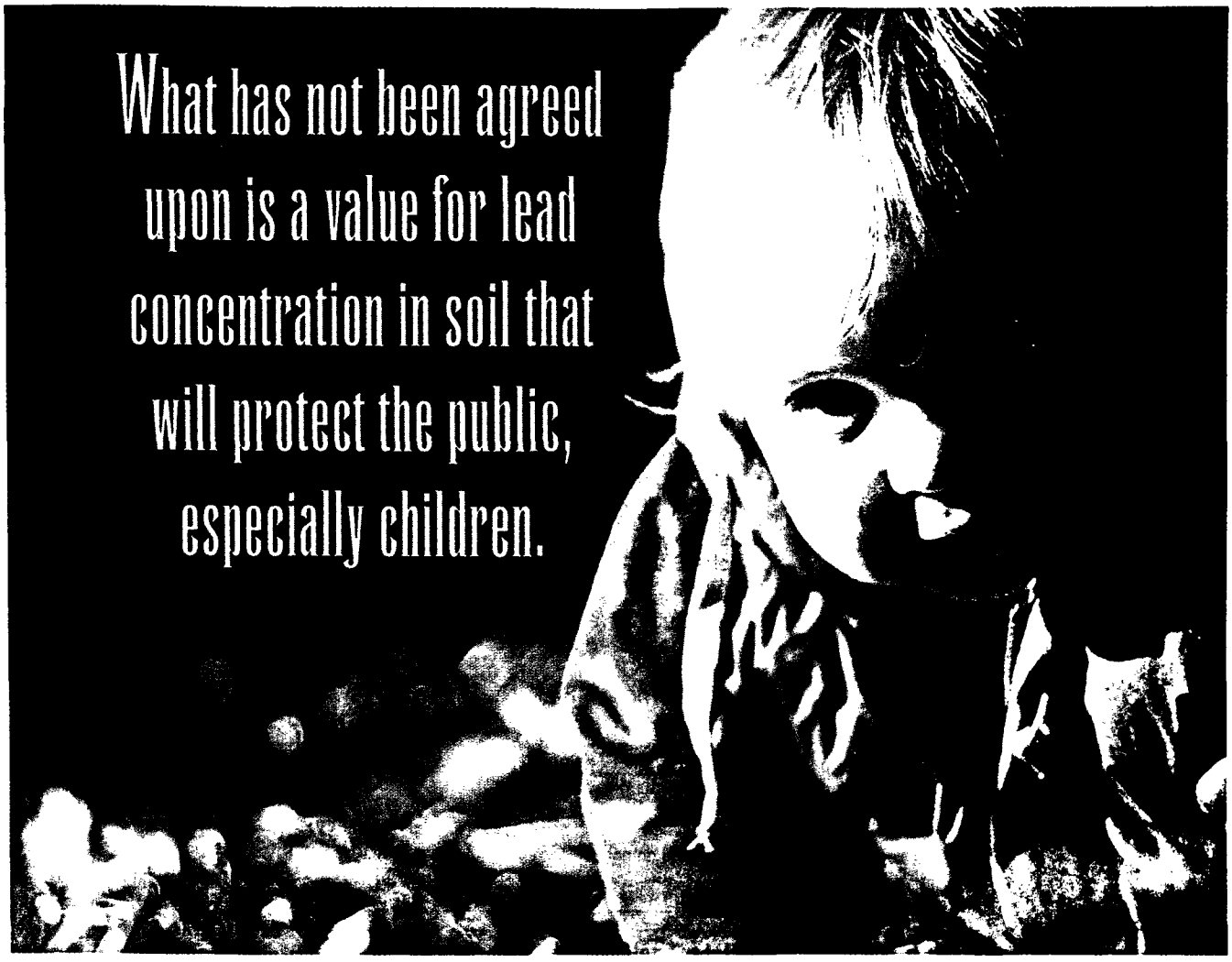
The group attempted to derive a quantitative relationship based primarily on blood lead as a function of soil and dust lead concentrations, but that would also take into account the combined influences of other environmental sources. The flexibility inherent in such a model would allow any user to select appropriate target levels of blood lead concentrations based on a variety of environmental situations or regulatory criteria. Such an approach would be both new and timely.

The interaction of scientists, phy-

BOBBY G. WIXSON
Clemson University
Clemson, SC 29634

BRIAN E. DAVIES
University of Bradford
Bradford, West Yorkshire BD7 1DP
England

0013-936X/94/0927-26A$04.50/0



sicians, and regulators resulted in the realization that a lead model could be constructed as part of a systematic decision-making process or "phased action plan" for assessing the significance of soil contamination and for proposing appropriate remedial measures. Progress was reported regularly to the SEGH (*3–5*), and in 1992 the initial draft report was sent out for worldwide review by acknowledged experts. Their comments were used by the task force to complete the final report, summarized in this article.

Acceptable blood lead levels

Historically, an acceptable blood lead concentration has been defined as that concentration below which adverse health effects, as understood at the time, are not likely to occur. Medicine was concerned primarily with the acute clinical disease. Thus, the upper limit of acceptable blood lead concentration for adults until about 1970 was 80 μg Pb/deciliter (dL) whole blood. For children, until 1960–1965, the upper limit was 50–60 μg Pb/dL whole blood.

It has long been known that lead disturbs heme synthesis, and it became apparent that the blood lead threshold for adverse health effects in both children and adults was at a blood lead level of approximately 40 μg Pb/dL whole blood (*6*). At the same time, studies of children not exposed to lead (beyond that found in usual food, water, and air) revealed no lead level in excess of 40 μg Pb/dL whole blood. In 1970, the surgeon general of the United States proposed 40 μg Pb/dL whole blood as the upper limit of normal or acceptable blood lead concentration (*7*).

When the SEGH task force began its study, the blood lead level of 25 μg/dL whole blood was the lower acceptable limit specified by the Centers for Disease Control (CDC) (*8*) in the United States. The current World Health Organization recommendation for acceptable blood lead concentration is that no more than 2% of the population have blood lead above 20 μg/dL whole blood. In October 1991, the CDC recommended that the 1985 intervention limit be revised downward to 10 μg Pb/dL whole blood (*9*).

These new blood lead values were based on scientific publications over the preceding six years that indicated that groups of preschool children were at risk for long-lasting adverse neurobehavioral effects when blood lead concentrations rose above 10 μg Pb/dL whole blood (data is summarized in Reference 9). Anticipating that changes in recommendations were likely, the task force adopted a flexibile approach to accommodate any lowering of the blood lead concentration, such as that from 25 to 10 μg Pb/dL whole blood.

Bioavailability

The task force also recognized the problem of lead ingested as dust or soil. The bioavailable fraction (for animals) of lead in soil or dust may generally be defined as that fraction that can be absorbed into the blood stream after ingestion. Factors that may influence whether lead in soil and dust ingested by children is absorbed into the blood include the physical and chemical properties and particle size of the soil. For example, bioavailability studies have indicated that the chemical form and larger particle size of mining

Society for Environmental Geochemistry and Health "Lead in Soil" task force

Robert Bornschein
University of Cincinnati
Cincinnati, OH

Rufus Chaney
U.S. Department of Agriculture
Beltsville, MD

Willard R. Chappell
University of Colorado–Denver
Denver, CO

Julian Chisolm, Jr.
Kennedy Institute
Baltimore, MD

Rick Cothern
U.S. EPA
Washington, DC

Brian Davies (co-chair)
University of Bradford
Bradford, England

Howard Mielke
Xavier University of Louisiana
New Orleans, LA

Albert Page
University of California
Riverside, CA

C. D. Strehlow
Westminster Children's Hospital
London, England

Ian Thornton
Imperial College
London, England

Rosalind Volpe
International Lead Zinc Research Organization, Inc.
Research Triangle Park, NC

Dan Vornberg
Doe Run Company
Herculaneum, MO

Pamela Welbourn
University of Toronto
Toronto, Canada

Bobby Wixson (chair)
Clemson University
Clemson, SC

Betsy Kagey (alternate)
Empire State College
Glens Falls, NY

Robert Putnam (alternate)
International Lead Zinc Research Organization, Inc.
Research Triangle Park, NC

The views expressed in the SEGH report are those of the authors and do not necessarily represent those of the authors' agencies or organizations.

wastes could possibly explain the reduced impact on blood lead level resulting from lead sulfide in contaminated soils (*10*).

Interim metals criteria proposed by EPA reflect a recognition of the correlation between metals measured and those that are biologically available (*11*). EPA has also recognized that "the bioavailability and toxicity of metals depend strongly on the exact physical and chemical form of the metal and on the species affected" (*11*, p. 96).

Children's nutrition also affects bioavailability. Lead absorption studies of children and adults indicate that iron deficiency strongly affects lead absorption. A combination of dietary calcium and phosphorus in animal and human studies reduced lead absorption more than did calcium alone. An important finding shows that lead absorption may be reduced greatly by the simultaneous ingestion of food, which increases stomach acidity to a pH of about 6, greatly reducing dissolution of environmental soil lead (*12*). Thus, the risk from soil lead is very different from the risk associated with lead in water, paint, or food.

The SEGH model

With the above considerations in mind, the SEGH task force turned to the difficult job of modeling the relationship of lead in soil and dust to blood lead. The concept of using a single value guideline for lead in soil may be favored by many regulators, but was rejected by the task force. The type of population at risk is important and may vary from young children to retirement home residents to occasional users of vacant land proposed for development. A neighborhood filled with young children playing in contaminated yard soil clearly represents a much greater hazard than does an empty industrial site only occasionally visited by adults—even when soil lead values at both locations are similar. The environment surrounding the population at risk may include urban dusts containing lead from paint pigments, old mining areas, waste disposal sites, or other sources; or previous emissions from automobiles, municipal incinerators, primary or secondary lead smelter operations, or coal-burning power plants.

A lead guideline value for soil and dust was therefore identified not as a single value, but as one computed from a relationship or formula that allows for a variety of environmental situations and regulatory criteria. Alternate modeling techniques proposed for multiple-source exposure to lead (*13*, *14*) may, of course, be used according to the data available.

Health criteria were used to develop the formula. The blood lead concentration is equated to a baseline level plus an increment resulting from exposure to soil, dust, or other possible sources of lead. The SEGH model also considers the blood lead guideline selected (or target concentration) and the degree of protection required in the population at risk. The slope of the blood lead–soil lead relationship is used to calculate an increase in blood lead over a baseline value; hence, the soil guideline can vary depending on several factors. This guideline can be adjusted for a given situation and modified as future data become available.

The relationship derived and the equation parameters are illustrated in the box. Examples of the soil guideline, derived for different target blood lead concentrations and by varying other parameters in the model are illustrated in Tables 1–4. The SEGH model questions the use of a single number (such as 500 or 100 mg Pb/kg soil) because the blood lead levels in the population at risk should be considered (*16*).

For example, in Table 4 (using the assumptions at the bottom of the table) if the background blood lead level of the population at risk ranges from 4 to 6 μg/dL whole blood, then a target blood lead value of 10 μg/dL whole blood could not be attained by the use of 500 mg Pb/kg soil. Similar concerns are addressed in the matrix approach used for the SEGH model. Any value chosen should, of course, be modified with future research or investigation using the suggested guidelines, which are theoretical calculations.

Risk management

The decision to move away from recommending single value guidelines for lead in soil implies that the consideration of risk needs to be examined. Risk communication gives experts and the general public a way to communicate with each other about uncertain environmental hazards. This process educates the public, informs the experts, and respects the democratic process. The SEGH report proposes establishing a soil value appropriate to prevailing scientific knowledge in

Target soil dust lead guideline model

$$S = \frac{\left| \frac{T}{G^n} - B \right|}{\delta} \cdot 1000$$

where:

- S is the soil or dust guideline, a geometric mean concentration in micrograms of lead per gram of dust (ppm)
- T is the blood lead guideline or target concentration in micrograms of lead per deciliter of whole blood
- G is the geometric standard deviation of the blood lead distribution, typically in the range of 1.3 to 1.5
- B is the background or baseline blood lead concentration in the population from sources other than soil and dust
- n is the number of standard deviations corresponding to the degree of protection required for the population at risk, and would normally follow from the way in which the blood lead guideline T was defined
- δ is the slope or response of the blood lead–soil (dust) lead relationship and has the units of micrograms of lead per deciliter of blood increase per 1000 ppm increment of soil or dust lead

TABLE 1
Variation of soil lead guideline with target blood lead concentration and degree of desired protection[a]

Target PbB (μg/dL)	Soil lead standard for % of population < target PbB			
	95%	98%	99%	99.9%
10	880	500	300	—
15	2300	1860	1400	700
20	3750	3000	2600	1600
25	5200	4250	3700	2500

[a]Assumptions: δ = 2, background PbB = 4 μg/dL, geometric standard deviation (GSD) = 1.4.

TABLE 2
Effect of variation in δ and target PbB on soil lead guideline[a]

Target PbB (μg/dL)	δ, (μg Pb/dL blood)(100 mg Pb/kg soil)$^{-1}$			
	1	2	4	8
10	600	300	150	75
15	2900	1400	700	350
20	5200	2600	1300	650
25	7500	3700	1850	925

[a]Assumptions: 99% of population < PbB-T, GSD = 1.4, background PbB = 4 μg/dL.

TABLE 3
Effect of variation in the geometric standard deviation of the PbB distribution on soil lead guideline[a]

Target PbB (μg/dL)	Geometric standard deviation					
	1.3	1.4	1.5	1.6	1.7	1.8
10	720	300	—	—	—	—
15	2100	1400	930	520	190	—
20	3400	2600	1900	1350	920	560
25	4800	3700	2900	2200	1650	1200

[a]Assumptions: δ = 2, background PbB = 4.0, 99% of population = PbB-T.

the context of a systematic risk assessment.

The risk management section of the SEGH report was written mainly from a U.S. viewpoint. It is primarily concerned with the exposure assessment and the quantification of the relationship between blood lead levels and soil lead levels as one possible source of exposure. Overall risk assessment should be implemented on a site-specific basis and should include economic, legal, political, and social factors. Other parts of the exposure assessment include contributions to blood lead levels from lead in dust, water, food, paint, and other sources.

The risk manager needs to consider the number and age distribution of the exposed population, present and possible future land use, and socioeconomic status of area residents. Economic considerations related to lead levels should be evaluated with a cost–benefit analysis done on a case-by-case basis. Financial resources available also need to be determined before a remedial plan is established.

Remedial actions for elevated levels of lead in soil may include soil removal; soil containment; contaminant extraction; deep tilling; revegetation, barrier construction, or zoning; and stabilization. The cost of the potential detrimental impacts of no action must also be considered. Suggested protocols for soil sampling and analysis are contained in the complete SEGH task force report, which will be published as an Environmental Geochemistry and Health monograph in spring 1994. The protocol, examples, and references given should aid in the development of experiment design and sampling to determine soil lead levels.

Phased action plan

Having established a satisfactory relationship between blood lead and soil or dust lead, and having recognized the need to consider risk, the task force turned its attention to how the model might be implemented. Lead "pollution" is a sensitive public issue, and when soil values are bandied about in the news, citizens are confused. Ignorance about the 'normal" soil lead content and reliance on data based on unrepresentative sampling can cause unjustified panic and major expenditures.

A systematic approach to data evaluation was drawn up as the "Phased Action Plan." It is a stepwise progression through six major areas as illustrated in Figure 1. The first series of determinations (A–D) points the way toward assessing whether an observed concentration of lead in soil really is a problem.

A. Unplanned discovery of elevated soil lead or soil lead concentrations (those not collected during a systematic or controlled sampling program).

B. Unplanned discovery of elevated blood lead levels (data that might be discovered in a clinical in-

vestigation not necessarily concerned with lead).

C. Unplanned discovery of lead toxicity in animal or plant tissues; again concentrations not systematically observed.

D. Anticipated problem with lead in soil arising from an evaluation of land with a history of industrial use.

If any of these problems is found, then the user moves to the next area of the action plan, Testing, which requires the use of:

E. Appropriate target lead-in-soil criterion, which is a computable value based on specified criteria using the equation derived in the box.

F. Preliminary soil sampling and analysis requiring a systematic survey to characterize soil lead concentrations in the area under investigation.

G. First reliable soil lead values obtained from the preliminary systematic soil sampling and analysis.

The third area in the action plan, Initial Assessment of the Potential Problem (Step H), is based on the data obtained and the target levels chosen. A decision would be made at this point either to end the investigation or to proceed to Risk Assessment Evaluation.

The Risk Assessment Evaluation outlines steps to be taken (I to M) if the investigation is to continue.

I. Evaluate the community at risk to determine—and, when possible, quantify—other contributing factors such as the number and age of the population at risk or proposed land use. This may reveal the need for a comprehensive environmental sampling.

J. Design environmental sampling to develop a general description of the project including necessary details (time tables and tasks, use of data, project organization, and responsible individuals).

K. Trained medical personnel design and conduct a blood lead survey using a laboratory with an acceptable quality control program.

L. Conduct a soil lead survey of those areas indicated by the risk assessment and the environmental design.

M. Conduct surveys of lead in dust, vegetation, and water using methods listed in the supplemental sampling and analysis section of the SEGH report.

The second assessment decision (Step N) is made on the basis of the information gained during the risk assessment evaluation. A decision must again be made either to end the investigation or to proceed to the implementation risk management stage (Steps O to S). The implementation process requires the following:

O. A second data evaluation in terms of the financial resources available for the various actions that may need to be taken.

P. A consideration of what actions, based on each site-specific risk management decision process, are necessary to determine what to do next.

Q. Consideration of remedial actions that may be prescribed but will need more scrutiny.

R. Creation of a data archive in an appropriate location so that all data collected and evaluated may be retained for possible future use.

S. Systematic monitoring of the problem site to determine the efficiency of any remedial actions.

TABLE 4
Effect of variation in background PbB on the soil lead guideline[a]

Target PbB µg/dL	Background PbB, µg/dL				
	2	4	6	8	10
10	1300	300	—	—	—
15	2400	1400	450	—	—
20	3600	2600	1600	600	—
25	4700	3700	2700	1700	700

[a]In this case, "background" could include other particular sources of lead exposure. Assumptions: δ = 2, GSD = 1.4, 99% of population < PbB-T.

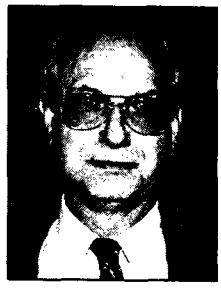
Conclusions

This summary of the SEGH task force report on lead in soil emphasizes a Phased Action Plan protocol that provides a rationale for decisions concerning lead in soil. Health criteria have been used to develop a SEGH model based on the blood lead–soil lead relationship. This is accomplished by the use of a soil or dust guideline, a blood lead target concentration in micrograms of lead per deciliter of whole blood, a geometric standard deviation of the blood lead distribution, the baseline concentration of blood lead from multiple sources, the degree of protection required for the population at risk, and the slope of the relationship of blood lead to lead in soil and dust. Tables 1–4 illustrate how the model may be used.

Bioavailibility is a major factor that will need more consideration in the future, especially to reflect the influence of chemical form and particle size on the resultant absorption of ingested lead.

Risk management should be ap-

Bobby G. Wixson *holds a B.S. degree in geology and an M.S. degree in biology from Sul Ross State University in Alpine, TX. His Ph.D. in biology and environmental engineering is from Texas A&M University. He conducted extensive research on lead and other trace metals in the Lead Belt of Missouri while on the faculty at the University of Missouri–Rolla (formerly Missouri School of Mines). Since 1987 he has served as dean of the College of Sciences at Clemson University in South Carolina. He chairs the Lead in Soil task force of the Society for Environmental Geochemistry and Health.*



Brian E. Davies *holds a B.Sc. degree in biochemistry and soil science and a Ph.D. in soil science from the University of Wales. While on the University of Wales faculty, he researched heavy metal contamination of mining and urban environments. Since 1985 he has taught environmental science at the University of Bradford, Yorkshire, where he is director of the Environmental Geochemistry Research Unit. He is the editor of* Environmental Geochemistry and Health.

plied in the implementation phase of the action plan. Remedial actions should be combined with the archiving of report data and continual situation monitoring as required for site-specific conditions.

The SEGH report on lead in soil should be useful in the development of improved experimental designs, comparable sampling programs, analyses, and specific procedures necessary for the application of practical lead-in-soil guidelines to protect the environment and human health.

Acknowledgments

The work of the SEGH task force and the support of the Environmental Protection Agency, the International Lead Zinc Research Organization, the Lead Industries Association, Clemson University, and the University of Bradford are gratefully ackowledged.

References

(1) Davies, B. E.; Wixson, B. G. In *XX Trace Substances in Environmental Health*; Hemphill, D. D., Ed.; University of Missouri: Columbia, 1986; pp. 233–41.

(2) Wixson, B. G. In Davies, B. E.; Wixson, B. G., Eds.; *Lead in Soil: Issues and Guidelines*; Environmental Geochemistry and Health, Monograph Series 4, Supplement to Vol. 9; Science Reviews: Northwood, U.K., 1989; pp. 1–6.

(3) Wixson, B. G. In *XXIII Trace Substances in Environmental Health*; Hemphill, D. D., Ed.; University of Missouri: Columbia, MO, 1989; pp. 93–100.

(4) Wixson, B. G. In *XXIV Trace Substances in Environmental Health*; Hemphill, D. D.; Cothern, C. R., Eds.; Science Reviews: Northwood, U.K., 1990; pp. 11–20.

(5) Wixson, B. G.; Davies, B. E. In *XXV Trace Substances in Environmental Health*; Beck, B. D., Ed.; Science Reviews: Northwood, U.K., 1991; pp. 145–68.

(6) "Lead: Airborne Lead in Perspective"; Committee on Medical and Biological Effects of Atmospheric Pollutants. National Academy of Science, National Research Council: Washington, DC, 1972.

(7) U.S. Department of Health, Education, and Welfare. *Health Services and Mental Health Administration Health Report*; **1971**, *86*, 104–43.

(8) U.S. Centers for Disease Control. *Preventing Lead Poisoning in Young Children*; U. S. Department of Health and Human Services: Atlanta, GA, 1985.

(9) U.S. Centers for Disease Control. *Preventing Lead Poisoning in Young Children*; U.S. Department of Health and Human Services: Atlanta, GA, 1991.

(10) Bornschein, R. L. et al. In *Lead in Soil: Issues and Guidelines*; Davies, B. E.; Wixson, B. G., Eds.; Environmental Geochemistry and Health, Monograph Series 4, Supplement to Vol. 9. Science Reviews: Northwood, U.K., 1989; pp. 149–60.

(11) Hall, J. C.; Raider, R. L. *Water Environ. Technol.*; **1993**, *5*(2), 96.

(12) Chaney, R. L.; Mielke, H. W.; Sterrett, S. B. In *Lead in Soil: Issues and Guidelines*; Davies, B. E.; Wixson, B. G., Eds.; Environmental Geochemistry and Health, Monograph Series 4, Supplement to Vol. 9. Science Reviews: Northwood, U.K., 1989; pp. 105–30.

(13) Kneip, T. J.; Mallon, R. P.; Harley, N. *Neurotox.* **1983**, *4*, 189–92.

(14) *Review of the National Ambient Air Quality Standards for Lead: Exposure Analysis Methodology and Validation*; Office of Air Quality Planning and Standards. Air Quality Management Division. U.S. Environmental Protection Agency: Research Triangle Park, NC, 1988.

(15) Marcus, A. H.; Cohen, J. In *Lead in Soil: Issues and Guidelines*; Davies, B. E.; Wixson, B. G., Eds.; Environmental Geochemistry and Health, Monograph Series 4, Supplement to Vol. 9. Science Reviews: Northwood, U.K., 1989; pp. 161–74.

(16) Wixson, B. G. In *Developing Cleanup Standards for Contaminated Soil, Sediment, and Groundwater*; Water Environment Federation: Washington, DC, 1993; pp. 377–88.-

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 10:15 am	Date 12/4/96
Originating Party		**Other Parties**
Mike Sellca - GCA		Bill Olson - Envir. Bureau

Subject

Rexone - Brickland Refinery

Discussion

Phone conference on 10/28/96 Draft Response Request comments

Conclusions or Agreements

GCA will revise document into Final draft Expect to submit to OCD by year end

Distribution

Signed Bill Olson

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

NOV 13 1996

Mr. William Olsen
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Dear Mr. Olsen:

Based on a recent telephone conversation between yourself and Ms. Yvette McKenna of my staff, the United States Section of the International Boundary and Water Commission (USIBWC) offers the following preliminary comments regarding future actions at the Former Brickland Refinery Site.

As you know, the USIBWC has granted Rexene Corporation a license for several off-site groundwater monitoring wells which were installed adjacent to the site on levee property within our jurisdiction. The USIBWC has been a recipient of quarterly groundwater analyses and remedial investigation reports from Rexene, and has remained informed of the status of the regulatory evaluation. As a result of a May 30, 1996 meeting with personnel from Rexene, the USIBWC agreed to close the three southern-most culverts, which traverse the levee from the site to the Rio Grande. This will assist in preventing potentially contaminated surface water run-off from the site from directly entering the river. Currently, we are awaiting a draft covenant from Rexene to eliminate the potential for new groundwater wells on our property for the purpose of supplying drinking water. The USIBWC also requested that a 6-hour, 100 year flood be modeled to determine the amount of run-off which may be trapped behind the levee with the USIBWC culvert gates closed. Rexene informed us that this storm water run-off model would be included in the Stage II Abatement Plan.

In order for the USIBWC to continue to meet its obligations to Mexico with respect to delivery of treaty-obligated waters, and notification of impacts to water quality from upstream activities, we suggest that the final site sampling plan include those monitoring wells and well points which have historically shown the presence of free-phase product. We were pleased to know that surface water sampling will be part of the monitoring program. And, although we understand that the New Mexico Oil Conservation Commission (NMOCD) is only obligated to compare site results to the Water Quality Control Commission (WQCC) standards for the protection of groundwater and surface water, we suggest comparing the surface water results to the Texas Natural Resource Conservation Commission (TNRCC) Surface Water Quality Standards (SWQS) for this segment of the Rio Grande. Due to the site's proximity to the Texas state line and the international border with Mexico, it is the downstream users who may be potential receptors to impacts originating from the site.

THE COMMONS, BUILDING C, SUITE 310 • 4171 N. MESA STREET • EL PASO, TEXAS 79902
(915) 534-6700 • (FTS) 570-6700

Lastly, due to the reason stated above, we suggest coordination with the El Paso County Water Improvement District at 294 Candelaria Street, El Paso, Texas 79907, and the El Paso Water Utilities, Public Service Board at P.O. Box 511, El Paso, Texas 79961.

Thank you for your consideration of our comments. We look forward to reviewing the Stage II Abatement Plan for the Former Brickland Refinery Site, and participating in the upcoming public comment period. If you have any questions, please call me or Ms. Yvette McKenna at (915)534-6704.

Sincerely,

Yusuf E. Farran

Yusuf E. Farran, P.E.
Division Engineer
Environmental Management Division

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 21, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-194

Mr. Todd M. Carver
Vice President Environmental Affairs
Rexene Corporation
5005 LBJ Freeway
Occidental Tower
Dallas, Texas 75244

RE: FINAL SITE INVESTIGATION REPORT
BRICKLAND REFINERY
DONA ANA COUNTY, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) has reviewed Rexene Corporation's (Rexene) June 20, 1996 "FINAL SITE INVESTIGATION REPORT FOR THE FORMER BRICKLAND REFINERY STAGE 1 ABATEMENT PLAN". This document contains the results of recent and prior soil and ground water contamination investigations at the former Brickland Refinery in Sunland Park, New Mexico.

The OCD commends Rexene for their attempt at tying together site investigations conducted by 3 separate parties. However, the OCD's review has identified the following items which need to be corrected prior to issuing final approval of the Stage 1 investigation report.

1. Section 3.2.1., Page 10

   This section references Appendix E as containing the soil metals study conducted by the El Paso City-County Health Department and the Texas Air Control Board. However, Appendix E actually contains the International Boundary Water Commission Report.

2. Section 3.2.2, Area B, Page 12

   The elevated concentrations of silver and mercury in Area B soil samples needs to be included in the discussion.

3. Section 3.2.2, Area C, Page 13

   The elevated concentrations of cadmium and silver in Area C soil samples needs to be included in the discussion.

4. Section 3.2.2, Area D, Page 14

The elevated concentrations of lead in Area D soil samples needs to be included in the discussion.

5. Section 3.2.2, Area E, Page 15

a. The elevated concentrations of mercury in Area E soil samples needs to be included in the discussion.

b. The bottom paragraph on the page has a soil concentration of 139 mg/kg lead listed for boring E-TP-26. This appears to be a typographical error. Table 8c. lists the concentration as 139,000 mg/kg

c. What is the significance of comparing the soil lead concentration in boring E-TP-29 with that from trench TR-01? These sample locations are approximately 250 feet apart and therefore would not confirm that TR-01 samples represents accurate sample concentrations at E-TP-29's location.

6. Section 3.2.2, Area F, Page 16

The elevated concentrations of mercury, chromium, cadmium and silver in Area F soil samples needs to be included in the discussion.

7. Section 3.2.2, Area G, Page 17

The elevated concentrations of mercury, chromium, cadmium and silver in Area F soil samples needs to be included in the discussion.

8. Section 3.2.3, Pages 18-22 and Figure 11b

There appears to be some typographical errors on figure 11b. Some of the comparative sampling results are reversed in the figure. Some Eder sample results are depicted as GCL samples results and some GCL sample results are depicted as Eder sample results. This figure needs to be corrected.

9. Section 3.2.3, Page 18

a. The analytical data sheets and associated quality assurance/quality control data for the April 1996 soil sampling is not included in the report. Since the information has not been previously supplied to the OCD, this data needs to be included in the report.

b. The text states that the soil sampling comparative studies includes a discussion of area D and boring B-1. While figure 11b shows comparative sample results for boring B-1, there is no discussion of the results in the text.

10. Section 3.2.3, Page 20 and Figure 11b

a. The data for the E-SS-4 samples could not be found in the Eder data tables nor elsewhere in the report.

b. There appears to be a typographical error in the sample location on figure 11b. Sample location F-SS-4 should be E-SS-4.

11. Section 3.2.3, Page 21 and Figure 11b

The data for the F-SS-6 samples could not be found in the Eder data tables nor elsewhere in the report. In addition, the F-SS-5 sample location on figure 11b shows a sample result which is not included as data elsewhere in the report.

12. Section 3.3.2, Page 24

a. This section needs to contain the quarterly total benzene, toluene, ethylbenzene and xylene (BTEX) maps showing their distribution in ground water. These maps were to be submitted in quarterly reports as required in OCD's April 14, 1995 approval of the monitoring program. Since the OCD has no record of receiving these maps in the quarterly reports they will need to be included in this report.

b. The text references GCL surface water and river sediment samples, but the it was not clear where these sample were taken. The sample locations should be depicted on the site maps.

c. The analytical data sheets and associated quality assurance/quality control data for the surface water and river sediment sampling is not included in the report. Since the information has not been previously supplied to the OCD, this data needs to be included in the report.

13. Section 3.3.3, Page 25

a. This section needs to contain the quarterly total polycyclic aromatic hydrocarbon (PAH) maps showing their distribution in ground water. These maps were to be submitted in quarterly reports as required in OCD's April 14, 1995 approval of the monitoring program. Since the OCD has no record of receiving these maps in the quarterly reports, they will need to be included in this report.

b. The first sentence of the PAH section references Appendix F. This appears to be a typographical error. It should reference Appendix G.

c. PAH's have been detected in prior offsite sampling, therefore the text should not categorically state that off-site migration of these constituents has not occurred. In addition, the OCD's June 21, 1996 sampling of surface water adjacent to MW-6 (sample results and sample location map enclosed) show that low level PAH's appear to be entering the river at this location.

d. There is no reference to surface water quality sampling for PAH's which was required in OCD's April 14, 1995 approval of the monitoring program. Since the OCD has no record of receiving this information, the analytical data sheets and associated quality assurance/quality control data for these samples needs to be included in the report.

14. Section 3.3.3, Page 27

The sample results show that metals concentrations in ground water have been detected in excess of New Mexico Water Quality Control Commission (WQCC) standards in petroleum contaminated monitoring wells both onsite and offsite. At times when WQCC standards have not been exceeded, metals are fairly regularly found in the petroleum contaminated wells at elevated levels. In addition, GCL's TCLP soil sampling demonstrated that leachable amounts of lead were present in soils in one area well in excess of state standards and at a level that would classify them as a hazardous waste. Therefore, the summary needs to discuss these trends and should not categorically state that metals do not pose a threat to ground water and are tightly bound within site soils.

15. Section 3.4.6, Pages 27-31 and Appendix K

The text in this section accurately reflects that the slug test early time data represents the hydraulic conductivity (K) of the gravel pack and not the aquifer formation materials. However, approximately half of the slug tests in Appendix K still use early time data to calculate the K of the formation. These slug tests need to be recalculated for the correct aquifer K using the late time data.

16. Section 3.5, Pages 31-37 and Appendix K

The transport modeling calculations will need to be redone after the proper K values have been recalculated as discussed in comment 15 above.

17. Section 3.6, Page 37

The text references figure 18. However, no figure 18 could be found in the report.

18. Table 8a, Figure 4 and Figure 10

The benzene soil sample results for E-TP-4-2, E-TP-5-2, E-TP-6-2 and E-TP-8-2 are not plotted on figure 10 nor could their sample locations be found on the figure 4 site map.

19. Table 9a, Figure 4 and Figure 10

The benzene soil sample results for F-TP-9-2, F-TP-10-2 and F-TP-91 are not plotted on figure 10 nor could their sample locations be found on the figure 4 site map.

20. Table 10a, Figure 4 and Figure 10

The benzene soil sample results for G-TP-11-2, G-TP-12-2, G-TP-13-2, G-TP-14-2, G-TP-15-2 and G-TP-16-2 are not plotted on figure 10 nor could their sample locations be found on the figure 4 site map.

21. Table 13

In order to make comparisons with WQCC standards, this table needs to contain a breakdown of the individual BTEX components for each sampling event.

22. Figure 12

The PAH data from the Eder reports needs to be included in this figure.

23. Figure 14a, Figure 14b, Figure 14c and Figure 14d

When compared with the free phase hydrocarbon map (Figure 13), the contour lines drawn for these figures are misleading. The benzene maps show known free phase product areas as having non-detectable concentrations of benzene. These maps need to be reevaluated.

24. Appendix B

As stated in the OCD's February 13, 1996 correspondence, the monitor well logs need to include monitor well construction details or the construction details need to be included as a separate Appendix.

Submission of a new draft document which incorporates the above requested information will allow the OCD to complete a review of the Stage 1 investigation report.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

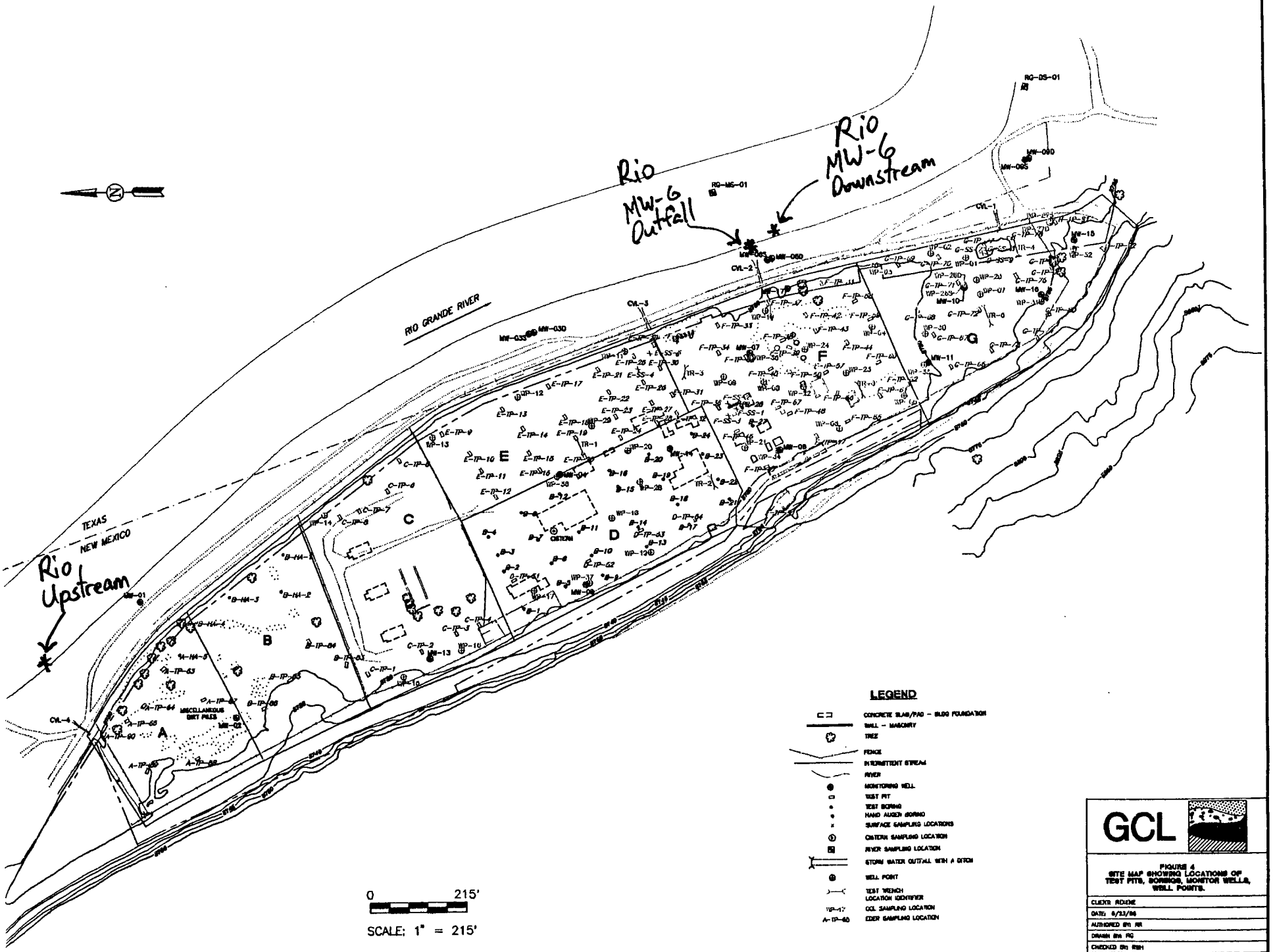
xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Mike Selke, Geoscience Consultants, Ltd.

P 269 269 194

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995



GCL

FIGURE 4
SITE MAP SHOWING LOCATIONS OF TEST PITS, BORINGS, MONITOR WELLS, WELL POINTS.

CLIENT: RDHENE	
DATE: 8/23/96	
AUTHORED BY: RR	
DRAWN BY: RG	
CHECKED BY: RRH	
DWG. NO.: D:\RDHENE\RKBASCLOWG	

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

June 20, 1996

Mr. William Olsen
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: FINAL SITE INVESTIGATION REPORT FOR THE FORMER BRICKLAND REFINERY SITE, SUNLAND PARK, NEW MEXICO

Dear Bill:

Geoscience Consultants, Ltd. (GCL), on behalf of Rexene Corporation, is pleased to submit the Final Site Investigation Report for the Brickland Refinery Site in Sunland Park, New Mexico. Please note that while we have integrated relevant figures, tables, and plates from the previous work done by GCL and Eder and Associates, we have not resubmitted the laboratory reports or chain-of-custody documentation. A duplication of this documentation is unnecessary since it has already been submitted to the New Mexico Oil Conservation Division (NMOCD).

Please call me at (505) 842-0001 if you have any questions.

Sincerely,
Geoscience Consultants, Ltd. (GCL)

Michael W. Selke, RG
Principal Hydrogeologist

MWS/3031/OLSEN03.LTR

cc: Todd Carver, Rexene
Roger Martin, Rexene
Reggie Baker, Rexene
Margarita Licon, IBWC
Randy Hicks, GCL

REXENE PRODUCTS

P. O. BOX 3986 • ODESSA, TEXAS 79760 • 915-333-7200

May 28, 1996

Mr. William Olsen
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Re: **Submission of Stage 1 Abatement Plan for the Former Brickland Refinery**

Dear Bill,

As we discussed in our telephone conversation today, Rexene expects to submit the Stage 1 Abatement Plan for the Former Brickland Refinery on or before June 21, 1996. We are currently reviewing the final draft and have a few more details to resolve.

Thank you for your time and attention to this matter.

Sincerely,

Roger Martin, P.E.
Environmental Specialist
REXENE CORPORATION
(RIM-042-96)

cc: Todd Carver
Reggie Baker
Mike Selke, GCL

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

OIL CONSERVATION DIVISION
RECEIVED
'96 MAR 25 AM 8 52

March 21, 1996

Mr. William Olsen
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

RE: GROUNDWATER SAMPLING AT THE FORMER BRICKLAND REFINERY SITE

Dear Bill:

Presented herein is the groundwater and surface water monitoring plan as required by the New Mexico Oil Conservation Division (NMOCD) and cited in your February 13, 1996 letter to Rexene. Geoscience Consultants, Ltd. (GCL) respectfully submits this plan on behalf of Rexene.

Groundwater sampling has been conducted by GCL at the former Brickland Refinery site continuously since December 1993. Prior to that, additional groundwater sampling had been performed by Eder and Associates. Since December 1993, eight quarterly sampling events have been completed and a large volume of groundwater chemistry data has been compiled. When we met in Santa Fe last December (1995), we discussed changing the groundwater sampling frequency from quarterly to semi-annual or annual. In addition, we discussed reducing the number of monitor wells that must be sampled. At that time, you and Roger Anderson indicated that a decrease in the sampling frequency and a reduction in the number of sampling points and analytes was probably warranted.

High and low seasonal concentration trends in benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations are variable at the site. However, MW-6S has shown several cycles with high concentrations in the summer. On this basis, we recommend initiating semi-annual sampling of groundwater at three locations and surface water to coincide with that cycle. The next sampling event would therefore occur in June followed by a sampling event in December. The sampling will include analyses for BTEX from shallow off-site monitor wells MW-3S, MW-6S, and MW-9S. Water level measurements will also be recorded. The December event will also include analyses for naphthalene. The sampling results from June and December will be transmitted to the NMOCD with a brief summary within 30 days of the December sampling.

Please call me at (505) 842-0001 if you have any questions.

Sincerely,
Geoscience Consultants, Ltd. (GCL)

Michael W. Selke, RG
Principal Hydrogeologist

MWS/3031/olsen02.ltr

cc: Todd Carver, Rexene
Roger Martin, Rexene

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

February 13, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-765-962-545

Mr. Todd M. Carver
Vice President Environmental Affairs
Rexene Corporation
5005 LBJ Freeway
Occidental Tower
Dallas, Texas 75244

RE: SITE CHARACTERIZATION/RISK ASSESSMENT REPORT
BRICKLAND REFINERY
DONA ANA COUNTY, NEW MEXICO

Dear Mr. Carver:

The New Mexico Oil Conservation Division (OCD) has reviewed Rexene Corporation's (Rexene) November 14, 1995 "SITE CHARACTERIZATION AND RISK ASSESSMENT FOR THE FORMER BRICKLAND REFINERY". This document contains the results of recent soil and ground water investigations and an assessment of the risks associated with soil and ground water contamination at the former Brickland Refinery in Sunland Park, New Mexico. This document also recommends limited remedial action and monitoring based upon the results of the risk assessment.

Based upon Rexene's proposal for abatement of water pollution to a level which will not meet the standards of Section 4103.B of the New Mexico Water Quality Control Commission (WQCC) regulations (enclosed) and the potential for public impacts, the OCD hereby requires that Rexene submit an abatement plan pursuant to WQCC regulations 4104 and 4106.

The documents to date on investigations at the site will constitute the initial work plans and initial investigation reports of the "Stage 1 Abatement Plan". Under the abatement regulations, the OCD must approve a final site investigation report prior to consideration of a "Stage 2 Abatement Plan". The OCD will not comment on the risk assessment at this time since the OCD has not yet approved a final site investigation report and because the OCD has several comments, questions and requests for information on the site characterization sections which could affect the Stage 2 remedial plan. The OCD requires that Rexene draft a comprehensive final site investigation report without sections on proposed abatement methods and standards and submit it to the OCD by May 31, 1996. Because the current monitoring program has terminated, the

OCD also requires that Rexene submit a new ground water and surface water monitoring plan for the site to the OCD by March 29, 1996.

The final site investigation report will be drafted to conform to the requirements of WQCC Section 4106.C and will also address the following comments based upon the OCD's review of the above referenced document.

1. Section 2.0, Page 14

The section needs to be expanded to include a more comprehensive discussion of the prior site uses.

The report should include a copy of the correspondence in which EPA "Region VI concluded the site did not warrant inclusion on the NPL and ceded jurisdiction to the State of New Mexico".

2. Section 2.1, Page 14

This section needs to be expanded to include more information on the locations of all prior site activities including all disposal and spill areas. The section also needs to include information on the types of wastes and/or materials disposed or spilled at each location.

3. Section 2.3, Page 16

The report should include a map showing the ownership of land within 1 mile of the facility.

4. Section 2.4, Page 16-17

Important information such as the high metals concentrations in soils documented in prior investigations is not presented in this section. The section needs to be expanded to present a detailed discussion and summary of the results of all prior investigations or this information should be presented in Section 3.0 Site Characterization.

5. Section 3.1.2, Page 19

The report needs to contain a discussion of seasonal variations of the ground water flow direction and surface water flow stages at the site including seasonal water table elevation contour maps (OCD's April 14, 1995 approval of the monitoring program required submission of quarterly water table elevation maps). The discussion also needs to contain information on the magnitude of vertical hydraulic gradients and where they occur.

6. Section 3.2, Page 20-21

This section needs to contain actual data, a more detailed discussion of the extent of contamination at the site and contaminant specific maps showing their distribution in soils . The section also needs to include discussion of relevant information from prior investigations including elevated metals concentrations observed in onsite soils including culvert and outfall soil samples in the runoff discharge areas. Most importantly, the text needs to include discussion of soil contaminant concentrations in relation to preexisting site operations as was done in prior Eder and Associates and New Mexico Environment Department (NMED) reports.

7. Section 3.2, Page 21, Paragraph 2

This paragraph discounts metals as a soil contaminant at the site. However, earlier investigations by NMED and Eder and Associates documented high lead concentrations in soils (up to 37% lead in soil). In addition, many of the soil metal samples in Rexene's December 1, 1994 "REMEDIAL INVESTIGATION were taken at depth and therefore may not be representative of potential threats from surface soils. These discrepancies need to be addressed.

This paragraph also states that low levels of metals in TCLP analyses show that the metals are tightly bound to the soils. However, the TCLP metals concentrations from borehole B-8 soils at a depth of 6-8 feet show leachable concentrations of arsenic, cadmium and lead with arsenic and lead in excess of WQCC ground water standards. This sample location is in the vicinity of the 37% lead soil concentrations observed by Eder and Associates and elevated soil metals observed by NMED. This demonstrates that vertical leaching of metals is occurring. These discrepancies need to be addressed.

8. Section 3.2, Page 21, Paragraph 3

Please provide supporting evidence which verifies Rexene's conclusion that barium in the soils is a result of volcanic activity within the Rio Grande Rift.

9. Section 3.2, Page 21, Paragraph 4

Some of the metals concentrations in soils may be due to nearby smelting operations. However, NMED analyses determined that background metals concentrations are considerably less than those found in onsite disposal and spill areas. In the absence of any other site data, the actual site background metals concentrations are those determined in the NMED studies.

10. Section 3.3, Pages 21-24

This section needs to contain all relevant data, a more detailed discussion of the extent of contamination at the site and contaminant specific maps showing their distribution in ground water (OCD's April 14, 1995 approval of the monitoring program required submission of quarterly contaminant specific maps and free product thickness maps). The section also needs to include relevant or conflicting information from all prior investigations.

11. Section 3.3, Page 22, Paragraphs 4

The conclusion that there are no defined trends in the benzene, toluene, ethylbenzene, xylene (BTEX) conflicts with the data presented in Appendix G. Many of the concentration vs. time plots show that BTEX concentrations in ground water increase at the same time each year. For example, monitor well MW-6S greatly increases in BTEX concentration in direct correlation to seasonal changes in the water table and the Rio Grande. These trends need to be discussed.

12. Section 3.3, Page 23, Paragraphs 1 and 2

This section references sediment sampling adjacent to MW-6S and from the river bed sediments of the Rio Grande. The OCD could not find any information provided which shows the sampling locations or the sample results. This information needs to be provided.

13. Section 3.3, Page 23, Paragraph 6

This section states that there are no trends observed during the monitoring for metals in ground water. OCD's review of the data does show observable trends for metals in ground water. Metals in ground water are consistently elevated in ground water from monitor wells which have petroleum contamination. Arsenic and barium fairly regularly exceed WQCC ground water standards in these wells. These trends need to be discussed.

14. Section 3.3, Page 24, Paragraph 4

The conclusions on metals in soils and ground water need to be modified to reflect all available data.

15. Section 3.4, Page 24, Paragraph 5

As expressed at prior meetings, the OCD is still concerned about uncontrolled site runoff flowing directly into the Rio Grande and the lack of any data showing potential contaminant migration from surface flows into the river during runoff events. In addition,

20. Appendix C

The water level vs. time plots do not include data after approximately May 1995. This data needs to be included in the plots in order to make comparisons with the BTEX concentration vs. time data in Appendix G.

21. Appendix D

Please explain why some of aquifer slug tests use early time data for determining hydraulic conductivity and some of the tests use late time data. Use of early time data would be more reflective of the hydraulic conductivity of the gravel pack and not the formation.

In addition, please explain why the hydraulic conductivity calculations use a value of 80 feet for the saturated aquifer thickness since total saturated thickness at the site has not been determined and the slug tests only determine hydraulic conductivity in the direct vicinity of the well bore and screened interval.

22. Appendix F

This section needs to include summary tables for all monitor wells.

23. Appendix P

In order to determine the worst case scenario, the downstream river concentrations must be calculated using critical low flow conditions in the Rio Grande.

If you have any questions, please contact Bill Olson of my staff at (505) 827-7154.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

xc: OCD Artesia Office
Mora Hanning, NMED Superfund Program Manager
Mike Selke, Geoscience Consultants, Ltd.

Z 765 962 545

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

Fold at line over top of envelope to the right of the return address

OCD/Rexene meeting on Bricktown Refinery
12/18/1995 10:30 am

- Bill Olson - OCD Envir. Bureau
- Roger Anderson - " " "
- Todd Carver - Rexene
- Roger Martin - "
- Mike Selke - GCI (consultant to Rexene)
- Randy Hicks - GCI

Discussed Abatement plan procedure

M.S. Reviewed documents submitted to date
see handout #1

5 options seen by Rexene

1.) Alternate abatement stds.
2.) OP with alternate abate
3.) OP with covenants restricting use
4.) No action
5.) Technically infeasable to clean up

OCD will review & comment by end of Jan.

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

March 2, 1995

REX100.LTR

Mr. Bill Olson
Hydrogeologist
Environmental Bureau
Oil Conservation Division
Energy, Minerals and Natural Resources Department
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: MODIFICATIONS TO THE QUARTERLY GROUNDWATER MONITORING PROGRAM FOR THE BRICKLAND REFINERY SITE

Dear Mr. Olson:

As discussed in our meeting on February 6, 1995, Rexene Corporation is proposing that the following modifications be made to the quarterly groundwater monitoring program for the Brickland Refinery site based on the data obtained during the previous year and the additional requirements contained in your letter of January 30, 1995.

WQCC Metals: Reduce sampling frequency to annually. The 3 to 4 quarters of data obtained to date do not indicate that the facility has had an impact on the shallow groundwater underlying the site. The metals that have been detected appear to be naturally occurring or within sampling and analytical variation.

PAH'S and Phenols: Reduce sampling frequency to annually with the exception of the following wells which will be sampled quarterly:

MW-3S	MW-3D	MW-5	MW-6S
MW-6D	MW-8	MW-9S	MW-11
MW-14	MW-15	MW-17	

This list includes the wells that have had consistent "hits" of PAH's and phenols and the 5 downgradient off-site wells. As agreed in the February 6, 1995 meeting, the well points indicated in your letter will be sampled for PAH's and phenols during the first quarterly sampling to provide a comparison in time with the other monitoring wells. Well points that contain free phase hydrocarbon or that are dry will be excluded along with the well points indicated in your letter.

BTEX Compounds: Reduce sampling frequency to annually with the exception of the following wells which will be sampled quarterly:

MW-3S	MW-3D	MW-4	MW-5
MW-6S	MW-6D	MW-9S	MW-7
MW-8	MW-11	MW-14	MW-16
MW-17			

These wells have exhibited consistent levels of BTEX compounds or are located in critical downgradient off-site areas. The well points that will be sampled for PAH's and phenols as indicated above will also be sampled for BTEX compounds for the next 2 quarters as requested.

Cations/Anions: Eliminate sampling and analysis for cations/anions.

The next quarterly sampling event is tentatively scheduled for the week of March 20-24, 1995. If you would like to collect split samples during the sampling trip I will contact you the week before to let you know the exact days that our personnel will be on site. If not I will let you know when the sampling will be conducted in the following quarter (June 1995).

The data reduction for the December 1994 sampling event has been completed and I am enclosing copies of the general analytical summary sheets, the individual well summaries, and copies of the raw analytical data. I will also forward a copy of the analytical results to Ms. Kerrie Neet at NMED under cover of a separate letter as per prior agreements.

If you have any comments regarding the proposed modifications to the sampling program at the Brickland Refinery site or the December 1994 analytical results please feel free to contact me at (505) 842-0001.

Very truly yours,
Geoscience Consultants, Ltd. (GCL)

Trent H. Thomas
Program Manager

54159/REX100.LTR

Enclosure

cc: Todd Carver-Rexene Corporation
Rob Sutphen-Rexene Corporation
Reggie Baker-Rexene Corporation
Roger Martin-Rexene Corporation
Ned Kendrick-Montgomery & Andrews

GCL
Environmental Science and Engineering
A BDM International Company

☒ 505 Marquette NW, Suite 1100
Albuquerque, NM 87102
(505) 842-0001
FAX: (505) 842-0595

☐ 4221 Forbes Blvd., Ste. 240
Lanham, MD 20706-4325
(301) 459-9677
FAX (301) 459-3064

☐ 306 West Wall, Ste. 818
Midland, TX 79701
(915) 682-0008
FAX: (915) 682-0028

☐ Urgent ☐ Please Reply By _____ ☐ No Reply Needed **DATE:** 12/7/94

TO: BILL OLSON
OIL CONSERVATION DIV.
2040 SOUTH PACHECO
SANTA FE, N.M. 87505

FROM: TRENT THOMAS

SUBJECT:

REMARKS: THIRD QUARTER MONITORING RESULTS (SEPT 1994)

RECEIVED
DEC 08 1994
OIL CONSERVATION DIV.
SANTA FE

Signed: Trent N. Thomas

Rexene file

Senate Environment panel OKs Superfund bill

A Superfund reauthorization bill easily won approval Aug. 3 from the Senate Environment and Public Works Committee with a provision that would keep voluntary, state-supervised, cleanups off the national priorities list (NPL).

The committee approved an amendment by Sen. Dirk Kempthorne, R-Idaho, prohibiting EPA from placing sites that are undergoing state-monitored voluntary cleanups on the NPL as long as the cleanups are, in Kempthorne's words, "NPL-caliber."

If a release of hazardous substances occurs after the remedy is selected, EPA would be able to restore the site, with the possibility of then placing it on the NPL.

The Kempthorne amendment was similar to a proposal added to the House bill by the Energy & Commerce Committee. The amendments would bar the EPA administrator from proposing to list a site on the NPL while a voluntary response action is under way and is in compliance with the specifications and time table established under a state-approved voluntary action response plan.

The site may be listed later if a potentially responsible party (PRP) has completed work but the facility has not achieved the protective concentration levels established under the plan. Also, the cleanup must adhere to public participation requirements that apply to NPL sites, even though the remediation is not being done under a court order or consent agreement.

Kempthorne said his proposal was aimed at addressing the problem of PRPs often feeling that they are not encouraged to begin cleanups absent the threat of legal action or liability. He said he recognized that other senators may have concerns about how his proposal would be implemented, and was willing to work with them to revise the language.

Also, a committee majority handily rejected yet another attempt by Republicans to eliminate pre-1987 cleanup liability. The votes to defeat the proposal by Sen. Robert Smith, R-N.H., and to give the reauthorization bill — S. 1834 — a favorable report were largely partisan and nearly identical.

On the 12-5 vote to reject the Smith amendment, Sens. John Chafee of Rhode Island and David Durenberger of Minnesota — ranking Republicans on the committee and its Superfund subcommittee, — sided with the committee's 10 Democrats. On the 13-4 vote to give the bill a favorable report, Sen. John Warner, R-Va., swung over to the majority side.

The Senate Finance Committee now must consider the tax title of the Superfund reform bill, including a controversial provision to settle insurance claims with money from a surcharge on both new and old premiums.

The Senate Energy and Natural Resources Committee also may seek jurisdiction over the bill because language was put back in it that would require separate risk-based cleanup standards for chemical carcinogens and radionuclides. The language, sought by the Energy Dept., was stripped from the bill last spring, but was restored Aug. 3 by the Senate Environment Committee at the request of its chairman, Sen. Max Baucus, D-Mont. Although EPA would be implementing both cleanup standards under CERCLA, the Senate Energy Committee has jurisdiction over most nuclear issues and could seek referral of the bill, which might further delay action before the full Senate.

In the House, the Ways & Means Committee still must vote on the tax provisions of a similar bill — H.R. 3800 — that has already cleared the Energy & Commerce and Public Works & Transportation committees.

The Senate Environment Committee approved several other amendments in addition to the "chairman's mark," as the compromise bill crafted by Baucus in conjunction with other committee leaders is called. The other approved amendments were relatively minor and, in some cases, had already been approved by the House committees.

The changes proposed by Baucus were essentially the same as the revisions that his staffers outlined 10 days earlier *(E&PE 8/5)*. Baucus had worked out the revisions during several weeks of private negotiations with Sen. Frank Lautenberg, D-N.J., chairman of the Superfund subcommittee, and with Durenberger and Chafee.

Amendments passed by voice vote

With the bipartisan groundwork laid, approval of the Baucus plan by the full committee consumed little time and came on a voice vote.

Several other amendments were approved on voice votes, including proposals:

- By Sen. Daniel Moynihan, D-N.Y., to allow states to which EPA has delegated control of a site cleanup to impose civil enforcement penalties of up to $25,000 daily.
- By Warner, requiring EPA to offer a *de minimis* settlement to a small business within 120 days of the business being identified as a PRP. If the agency failed to meet the deadline, the business would be exempt from liability.
- By Smith, preventing EPA from listing property on the NPL solely because the property adjoins a listed site.
- By Sen. Harris Wofford, D-Pa., allowing states to create programs establishing certification requirements for environmental professionals. The programs must be funded totally by user fees, at no cost to the federal government.

Durenberger offered but withdrew an amendment that would have eliminated retroactive liability for scrap metal and other recyclable materials. EPA Assistant Administrator Elliott Laws told the committee the amendment could increase the payout from the Hazardous Substance Superfund for orphan shares by about $30 million annually. Baucus said that the amendment had merit and that he would be willing to work with Durenberger on revised language that might be offered on the Senate floor.

The amendment defeated by the narrowest margin was a Smith proposal allowing courts to establish the percentage of attorney fees to be paid to an insurer by a PRP that rejected a settlement from the Environmental Insurance Resolution Fund, only to lose its court challenge.

As rewritten by the administration last spring, the bill says that if a court rules that a PRP should receive less than the settlement offer, the PRP must pay 40% of the legal fees that the insurer spent fighting the claim, capped at 160% of

Calendar

AAPG International Conference & Exhibition, Aug. 21-24, Kuala Lumpur, Malaysia. For information, contact Dr. Khalid Ngah, Petronas, Petroleum Research Institute, Lot 1026, PKNS Industrial Estate, 54200 Hulu Kelang, Selangor Darul Ehsan, Malaysia; telephone: 60-3-407-1022; fax: 50-3-408-7471).

Texas Independent Producers & Royalty Owners Assn. Summer Policy Meeting, Aug. 26-27, The Treemont House, Galveston. For information, contact TIPRO, 515 Congress Ave., Suite 1910, Austin, Texas 78701; telephone: 512-477-4452; fax: 512-476-8070.

University of Tulsa/Society of Petroleum Engineers Centennial Petroleum Engineering Symposium, Aug. 29-31, Tulsa, Okla. For information, contact Dr. James Brill, TU Petroleum Engineering Dept., 600 S. College Ave., Tulsa, Okla. 74104-3189; telephone: 918-631-3040; fax: 918-631-2167.

Environmental Negotiation Skills and Strategies, Sept. 13-14, Washington, D.C. Sponsored by George Washington University. For information, call 202-223-1111, fax: 202-223-6666.

International Assn. of Drilling Contractors Annual Meeting, Sept. 25-27, New Orleans. For information, contact IADC, 15810 Park 10 Place, Suite 242, Houston, Texas 77084-5134; telephone: 713-578-7171; fax: 713-578-0589.

SPE Annual Technical Conference and Exhibition, Sept. 25-28. For information, contact Society of Petroleum Engineers, Box 833836, Richardson, Texas 75083-3836; telephone: 214-952-9393; fax 214-952-9435).

Aboveground Storage Tank '94 Conference, Sept. 26-29, Dallas. Sponsored by EPA. For information, contact AST '94, U.S. EPA, P.O. Box 303, Dallas, Texas 75221-0303; fax: 214-855-0712.

National Ocean Industries Assn. Midyear Meeting, Oct. 2-4, Austin, Texas. For information, call 202-347-6900.

Pacific Coast Oil Show & Conference, Nov. 8-10, Bakersfield, Calif. For information, call 708-241-9873, fax: 708-241-9870.

Seventh International Symposium on Gas, Oil and Environmental Biotechnology, Dec. 12-14, Colorado Springs. Sponsored by the Institute of Gas Technology. For information, call 312-949-3764, fax: 312-949-3700.

Petro-Safe '95 Conference and Exhibition, Jan.31-Feb. 2, 1995, George R. Brown Convention Center, Houston. Sponsored by PennWell Conferences and Exhibitions Co.. For information, write PennWell C&E Co., 3050 Post Oak Blvd., Suite 205, Houston, Texas 77056; telephone: 713-621-8833; fax: 713-963-6284.

the challenger's own legal costs. The amendment was defeated by a 9-8 margin.

Smith proposed his retroactive liability amendment, despite acknowledging that the proposal lacked the votes for passage. "Let me offer the torpedo and get that one out of the way," Smith said, adding that his amendment was intended to "make a point."

Seepage may be natural ... (From page 1)

In coalbed methane production, a well is spudded into the coal horizon, in this case the Fruitland coal, and water is drawn off to reduce the pressure of the formation. As the pressure is reduced, methane is liberated from the coal and produced through the same well that recovers the water.

At the La Plata County site, the landowner's home sits above the Fruitland coal updip from the Amoco production site. The water well is completed into a shale horizon just above the Fruitland which outcrops at the river near the house.

Lovato said there are three possible causes for the methane, each with several explanations.

First, the seepage could be a natural reservoir mechanism. Or it could have a human source such as a septic system or the decay of organic material. The third possibility is that the coalbed methane production is somehow triggering an updip migration of gas.

If the liberation from the coal and pressure differential reach a certain condition, it is possible that gas could flow away from the wellbore and updip to the outcrop area, especially if the pressure at the outcrop were lower than the wellbore, according to Lovato.

Amoco engineers have recorded changes in methane production at the river with variations in outside barometric pressure.

As soon as the methane was discovered in the water, the state directed Amoco to shut in 10 wells surrounding the site. This was never carried out because Amoco argued that shutting in the wells may preclude finding the source of the problem.

Amoco has drilled three monitoring wells nearby and examined cores to unravel the complex geology of the formation, according to Reed Scott, an Amoco petroleum engineer. The company has also gathered data at many home sites in the area.

Deciphering the structure of the formation may be the key to solving the riddle, said Lovato. Specifically, the task force wants to model the hydrology of the formation to determine flow patterns and to see if there may be faults playing a role in the seepage.

Lovato added that even if the production wells were found to cause the gas seepage, merely shutting them in probably would not solve the problem. The reservoir may have to be repressurized.

Meanwhile, Amoco has been developing its own reservoir interpretation. Unfortunately, its explanation doesn't agree completely with that of the task force geologists.

Preliminary results of the task force's reservoir models will be presented at this week's meeting.

At issue in the interpretation is the direction of faults, according to Amoco's Scott. Amoco says they trend northwest-southeast, while the task force geologists say north-south.

What effect, if any, this has on the seepage should be determined by the models.

Much reservoir modeling and interpretation remains to be carried out. The two interpretations will eventually be given to reservoir engineers to model and compare, said Lovato. If the models don't jibe and provide a clear solution, a judge may decide the final solution.

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

December 2, 1994

REX90.LTR

Mr. Bill Olson
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: FINAL REPORT FOR THE REMEDIAL INVESTIGATION CONDUCTED AT THE BRICKLAND REFINERY SITE IN SUNLAND PARK, NEW MEXICO

Dear Mr. Olson:

Enclosed you will find a copy of the final report for the remedial investigation conducted at the Brickland Refinery site in Sunland Park, New Mexico. I am also forwarding a copy to Ms. Kerrie Neet of the NMED Superfund Program for her review. We would like to meet with you sometime in January to respond to any comments you may have and to discuss future activities at the site.

If I can provide any additional information please feel free to contact me at (505) 842-0001.

Very truly yours,
Geoscience Consultants, Ltd. (GCL)

Trent H. Thomas
Program Manager

54159/REX90.LTR

cc: Todd Carver, Rexene Corporation
Rob Sutphen, Rexene Corporation
Reggie Baker, Rexene Corporation
Ned Kendrick, Montgomery & Andrews
Kerrie Neet, NMED

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

October 20, 1994

REX88.LTR

Ms. Kerrie Neet, Manager
Superfund Program
Groundwater Protection & Remediation Bureau
New Mexico Environment Department
PO Box 26110
Santa Fe, NM 87502

RE: BRICKLAND REFINERY SITE IN SUNLAND PARK, NEW MEXICO

Dear Ms. Neet:

Enclosed you will find summary sheets and copies of the quarterly groundwater sampling results from the Brickland Refinery site in Sunland Park, New Mexico.

We anticipate that the report detailing the findings of the recent site investigation will be submitted to NMOCD in late October 1994. As per prior agreements, I will forward a copy to you upon completion.

If I can provide any additional information please feel free to contact me at (505) 842-0001.

Very truly yours,
Geoscience Consultants, Ltd. (GCL)

Trent H. Thomas
Program Manager

THT/jg/54159/REX88.LTR

Enclosure

cc: Todd Carver, Rexene Corporation
Rob Sutphen, Rexene Corporation
Reggie Baker, Rexene Corporation
Ned Kendrick, Montgomery & Andrews
Bill Olson, NMOCD

GCL
Environmental Science and Engineering
A BDM International Company

505 Marquette NW, Ste. 1100 • Albuquerque, NM 87102
(505) 842-0001 • FAX: (505) 842-0595

October 12, 1994

REX87.LTR

Mr. Bill Olson
Oil Conservation Division
Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

RE: ANALYTICAL DATA AND MONITOR WELL SUMMARY

Dear Mr. Olson:

Enclosed you will find copies of the analytical data and monitor well summary sheets for the quarterly sampling event conducted in June 1994. The data for the wells that have been sampled previously do not appear to vary significantly from prior results. The data from the new wells (MW-14, MW-15, MW-16, MW-17) is also included. We will continue to sample these new wells on a quarterly basis also.

We are planning to submit the final report regarding the recent site investigation to NMOCD in late-October. This report will present the physical and chemical data obtained for the soil borings, trenches, and the on-going groundwater sampling program.

One of the composite samples from the trench excavations that were analyzed for hazardous waste characteristics exceeded the TCLP regulatory level for lead. These excavated soils will be shipped off-site for disposal at a permitted facility. We are proposing that the soils that do not exhibit hazardous characteristics be spread out at a suitable location at the site to enhance aeration and degradation and that the trenches be back-filled with clean soil.

We would like to schedule a meeting with you in Santa Fe sometime after you have had a chance to review the site investigation report. We would propose to meet with you sometime in early December to discuss the results and future activities. If I can provide any additional information please feel free to contact me at (505) 842-0001.

Very truly yours,
Geoscience Consultants, Ltd. (GCL)

Trent H. Thomas
Program Manager

THT/jg/54159/REX87.LTR

cc: Todd Carver, Rexene Corporation
Rob Sutphen, Rexene Corporation
Reggie Baker, Rexene Corporation
Ned Kendrick, Montgomery & Andrews
OCD Artesia Office

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1100 hrs.	Date 1/10/1994
Originating Party		**Other Parties**
Bill Olson - Environmental Bureau		Trent Thomas - H+GCL

Subject

Bricktam Refinery Site

Discussion

OCD reviewed documents submitted and have questions on Interim Remedial Action
He Requested OCD defer comment on the 9/28/93 RAP because additional investigations show little product to recover. They have installed many new drive point piezometers. Little product found. Also are working on stormwater diversion program.
I requested historical aerial photos of site as well as recent photos.

Conclusions or Agreements

He will send letter explaining actions taken to date including photos, investigation work, stormwater diversion

Distribution

Signed Bill Olson

MONTGOMERY & ANDREWS
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS AT LAW

POST OFFICE BOX 2307
SANTA FE, NEW MEXICO 87504-2307

325 Paseo de Peralta
Santa Fe, New Mexico 87501
Telephone (505) 982-3873
Telecopy (505) 982-4289

September 17, 1993

ALBUQUERQUE OFFICE
Suite 1300
Albuquerque Plaza
201 Third Street, N.W.
Post Office Box 26927
Albuquerque, New Mexico 87125-6927

Telephone (505) 242-9677
Telecopy (505) 243-2542
or (505) 243-4397

Geoffrey Sloan
Assistant General Counsel
New Mexico Environment Department
Harold Runnels Office Building
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Re: Brickland Refinery Site in Sunland Park, New Mexico

Dear Mr. Sloan:

I am writing to follow up on our August 5, 1993 meeting at the Oil Conservation Division ("OCD") concerning future investigation and remediation of the referenced site. As you recall, the meeting included a brief presentation by Rexene Corporation's ("Rexene") consultants of background information and proposed interim remedial actions concerning the site as well as a discussion of regulatory jurisdiction.

As you are aware, during the past several years Rexene has investigated the site under the supervision of the New Mexico Environment Department's ("NMED") Ground Water Protection & Remediation Bureau staff. As part of this effort, NMED and Rexene have discussed the possibility of entering an Administrative Order on Consent as a framework for performing future work at the site.

Presently, Rexene is prepared to enter a new phase of work at the site that will include certain interim remedial actions while completing site investigations. However, before beginning this work, Rexene sought guidance from NMED and OCD as to the respective jurisdictions of the two agencies over the proposed remediation. We understand from the August 5 meeting that it would be appropriate for either agency to oversee the remediation and that Rexene should make its own determination.

Rexene has reviewed New Mexico law and has determined that the Water Quality Act ("Act") and the Water Quality Control Commission ("WQCC") Regulations implementing the Act apply to the aremediation of the site. Further, the WQCC has delegated to the OCD the authority to enforce the Act and regulations at refinery sites. A continuation of work under the supervision of NMED would require a specific delegation by the WQCC to shift the jurisdiction from the OCD to the NMED. Rexene does not see the need for such an action, considering that OCD already has a process in place for supervising remediation of contamination affecting water quality.

We understand that OCD typically has supervised remediations, including the remediation of refinery sites, through the discharge plan process. The process includes notice to the public and opportunity for public input, including a public hearing.

Since making this determination about OCD jurisdiction, Rexene has met with OCD to discuss future remediation efforts. OCD has directed that Rexene take immediate steps to prevent surface water from running onto or off of the property to prevent the spread of contamination. The OCD has requested that Rexene next recover any free-phase petroleum product that exists on the site.

As requested by Randy Merker of the NMED, Rexene will be providing to the Ground Water Protection & Remediation Bureau copies of its major submissions to the OCD. Roger Anderson of the OCD agrees that such information sharing will be useful and prefers that Rexene, rather than OCD, submit the information directly to NMED.

Please contact me if you have any questions about the planned process for investigation and remediation of the site. Rexene looks forward to progressing rapidly with its interim remedial action.

Sincerely,

Edmund H. Kendrick

EHK:cv
#11305-93-01
cc: Roger Anderson, OCD
Randy Merker, NMED
Robert L. Sutphen, Esq., Rexene
Trent Thomas, H+GCL

8/26/93 OCD/Rexene Meeting 1:00 pm
On Brickland Refinery

participants - Bill Olson - OCD
Roger Anderson - "
Todd Corley - Rexene
Robert Sutphen - "
Neal Kenedrick - Montgomery & Anderson
Randy Hicks - H & GCL
Trent Thomas - "

T.C. - Intro
would like to proceed with OCD on remediation

Rexene
RCA - OCD will need all investigation reports to start with

RH - showed map of site
3-4 surface water outfalls across refinery
showed petro HC map of soils
floating product in south half of refinery
refinery operated since 1932 - 1958
refinery capacity max of 6000 bbls/month
TDS of shallow zone approx 6000 mg/l
GW flows to SE
No dissolved metals prob. in GW

1st issues free product removal
surface water control

- currently doing surface water evaluation at site
- capture on-site surface water to keep out of river

- free product removal with trench & skimmer system
- Gw at 4-8 foot depth
- Want to install pilot trench first to evaluate design

RCA - Need D.P. for Gw. remediation
- Need to address surface flow across site ASAP
- Need free product removal ASAP
- Better define free phase
- " " dissolved phase

B.O. - submit plan ASAP on interim measure can then be folded into D.P.

Summary

Submit - past documents on investigation
interim plan for surface flow
" " " product removal
Prepare D.P. for long term
Will send letter to EPD clarifying Rexene intent on remediation

Will get letter on ~~next~~ past document stating intent in approx 1 week

8/5/93 OCD/NMED/Rexene Bricktand Refinery Meeting 10:30 am

attendees - Bill Olson - NMOCD
Roger Anderson - "
Bob Stovall - "
Randy Mercer - NMED
Jeff Sloan - "

Ned Kendrick - Mont + Andrews
Claude Schlayer - H+GCL
Velda Terands - H+GCL

V.T. Presentation on investigation
Showed - topo
- aerial photo
- map of water wells

Major Impacts - map of impacted areas

C.S. Presentation on remediation
Proposed - pilot system for product recovery
trench system with skimmer
- stormwater control with ditch system around site discharge to river

H+GCL has contract with Rexene for remediation
Problem where to proceed which agency

R.A. 4 options - 1.) NMOCD authority
2.) NMED authority
3.) Joint NMOCD/NMED
4 OCD lead with NMED technical assistance

R.M. How much does Plexus want to do to meet Superfund liability

N.L. - Would recommend OCD authority but open for discussion

- General discussion ensued

- Is there indication of where Superfund would go

R.M. No superfund work ongoing because NMED allowed to work on under state authority
But new EPA admin is expected to be requesting info on site soon.

J.S. Public participation key to state lead

B.S. Problem with Texas possibly in public participation?

NMED/OCD Rexine Meeting 8/3/93 11:00 am

Bickland Refinery - Sunland Park

Participants - Bill Olson - NMOCD
Roger Anderson - "
Rusty Morton - NMED Superfund
Pete Domenici - " "
Jeff Olson - NMED Legal

J.S. Rexine has bankruptcy claim from NMED
NMED produced AOC to preserve claim
Need to determine how to deal with this

RM Superfund still looking at site but not yet ranked

RM Meeting set with Ned & H+GCA on Rexine

Discussion of Superfund, ED, OCD authority

RM Conducted 2 phases of investigation
Contaminated GW at site and soil sediment
Heavy metals in soil & GW
Petro. in GW
Principal threats - soil ingestion
- approx 2 miles to El Paso water supply
- potential for runoff & GW contamination of surface water

NMED working on since 1989
No immediate GW threats (ie - wells)
[illegible] role in investigation

produced 10/31/90 NMED report on site by REder & Assoc.

- NMED requested, EPA allow state to proceed with action then issue AOC

EPA would overlook state actions, would need - public involvement
- risk assessment
- ~~[illegible]~~ Administrating record of decision
- technical assistance grants to public ?
- analysis of alternatives

Options

State
1.) OCD, Lead ~~on~~ cleanup

2.) NMED AOC Cleanups

3.) OCD lead with NMED concurrent authority for superfund concerns (JPA)

4.) NMED/OCD joint authority

~~5.) [illegible]~~