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FILE REC 18 OCT 96

**Materials
Management &
Training Ltd.**

3271 North 84th Street
Milwaukee, Wisconsin 53222
Area Code 414 527-1155

November 7, 1996

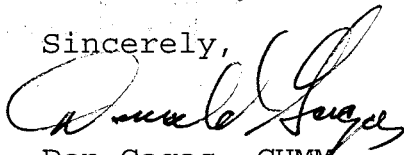
Mr. Chip Krohn
DNR
P.O. Box 12436
4041 N. Richards St.
Milwaukee, WI 53212

Dear Mr. Krohn,

As we discussed I have enclosed two copies of the accidental release documentation report from the Key products property located on 8634 W. Lynx Milwaukee, WI. The spill had occurred due to storage of empty paint and solvent containers in a lugger box for shipment off site. Key Products took immediate action and had the area excavated to remove any contamination and determine the extent. Based on the confirmation analysis and calculations Key Products recommends that the Department of Natural Resources issue a clean closure. Key Product's contact person is Richard Meinburg and located at their facility 10600 W. Glenbrook Ct., Menomonee Falls, WI 53051, phone number 414/355-5399.

If you have any further questions regarding this matter please do not hesitate to call me at 447-4700.

Sincerely,


Don Gagag, CHMM

COPY

ACCIDENTAL RELEASE ASSESSMENT

DOCUMENTATION REPORT

Prepared for:

Key Products, Inc.
8634 W. Lynx Ave.
Milwaukee, Wisconsin 53225
Attn: Mr. Richard Meinburg

Prepared by:

Materials Management & Training Ltd.
3271 N. 84th Street
Milwaukee, WI 53222

November 8, 1996

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EXECUTIVE SUMMARY

Key Products, Inc. confirmed (via laboratory analysis of soil samples) an accidental release had occurred at the former location of a waste disposal dumpster on facility property at 8634 W. Lynx Ave., Milwaukee, WI 53225.

Laboratory analysis of initial soil samples taken from the excavation at the former dumpster location revealed contaminant levels of <5.0, 6.6 mg/kg GRO and DRO respectively, and VOC levels to 48,000 µg/kg (ref. laboratory analyses).

Materials Management & Training Ltd., 3271 N. 84th Street, Milwaukee, WI was retained to perform a release assessment and a decision was made to excavate without delay to minimize the impact to the environment and to delineate the horizontal and vertical extent of contamination and prepare an accidental release assessment report upon completion of field activities.

Laboratory analysis of confirmation soil samples taken following excavation of 226 tons of soil detected VOC levels of non-detect to 3.0 mg/kg (ref. confirmation samples-soil). Additionally, no groundwater was encountered during soil excavation and confirmation sampling. A statistical Risk Based Analysis (ref. Attachments) performed on VOC contaminant levels in confirmation samples demonstrated the measured residual levels do not pose an unacceptable risk to human health or the environment and Key Products, Inc. therefore respectfully requests a clean closure for the reported accidental release of paint related materials on the property located at 8634 W. Lynx Ave., Milwaukee WI 53225.

This release assessment report has been prepared in accordance with federal and state requirements for release reporting (ref. Chapters NR 700 series Wisconsin Administrative Code).

INTRODUCTION

Key Products, Inc. confirmed on January 26, 1996 an accidental release of waste paint and solvent related materials had occurred at the former location of a waste disposal dumpster on facility property at 8634 W. Lynx Ave., Milwaukee, WI 53225. Materials Management & Training Ltd., 3271 N. 84th Street, Milwaukee, WI 53222 was retained by Key Products, Inc. to observe, document and prepare an accidental release assessment documentation report upon completion of field activities.

SITE BACKGROUND

Key Products, Inc., a manufacturer and supplier of machinery spindle drillheads to the automotive industry, owned and previously operated the facility at the 8634 W. Lynx Ave. where waste paint cans and paint related materials from the manufacture of machined products were disposed of in a collection dumpster for subsequent disposal at a secure landfill. Key Products, Inc. confirmed an accidental release of waste paint and solvent related materials had occurred at the location of the waste disposal dumpster located on facility property at 8634 W. Lynx Ave., Milwaukee, WI 53225.

Don Gagas of Materials Management & Training Ltd., 3271 N. 84th Street, Milwaukee, WI 53222, site assessor certification #01275, was retained to observe and document release assessment activities and prepare a report upon completion of field operations. The general contractor providing excavation and soil transportation services was Povlick Inc., 2740 West Cold Spring Rd., Milwaukee, WI 53221, (414)282-8111.

PURPOSE AND SCOPE

The purpose of this report is to document the excavation and sampling activities during the investigative assessment of an accidental release at Key Products, Inc., 8634 W. Lynx Ave., Milwaukee, Wisconsin 53225. This report is being prepared for the owner's records and in fulfillment of the requirements of federal (EPA) and state release assessment guidelines.^{1 2 3 4 5}

The information in this report is based on the following:

- Periodic site visits for the purpose of observing and documenting excavation activities during the investigative assessment of an accidental release at Key Products, Inc., 8634 W. Lynx Ave., Milwaukee, Wisconsin 53225.
- Observation and recording of the type, characteristics, and quantities of backfill materials used.
- Photographic recording of investigative and excavation activities.
- Documentation of subcontractors used during the release assessment project phase.
- Written summary of the observed assessment procedures.

Key Products, Inc. representatives arranged with excavating contractors to provide supervision, coordination, and scheduling during on-site assessment activities. The on-site contractor was responsible for soil removal, excavation, backfilling, soil disposal, and health and safety considerations.

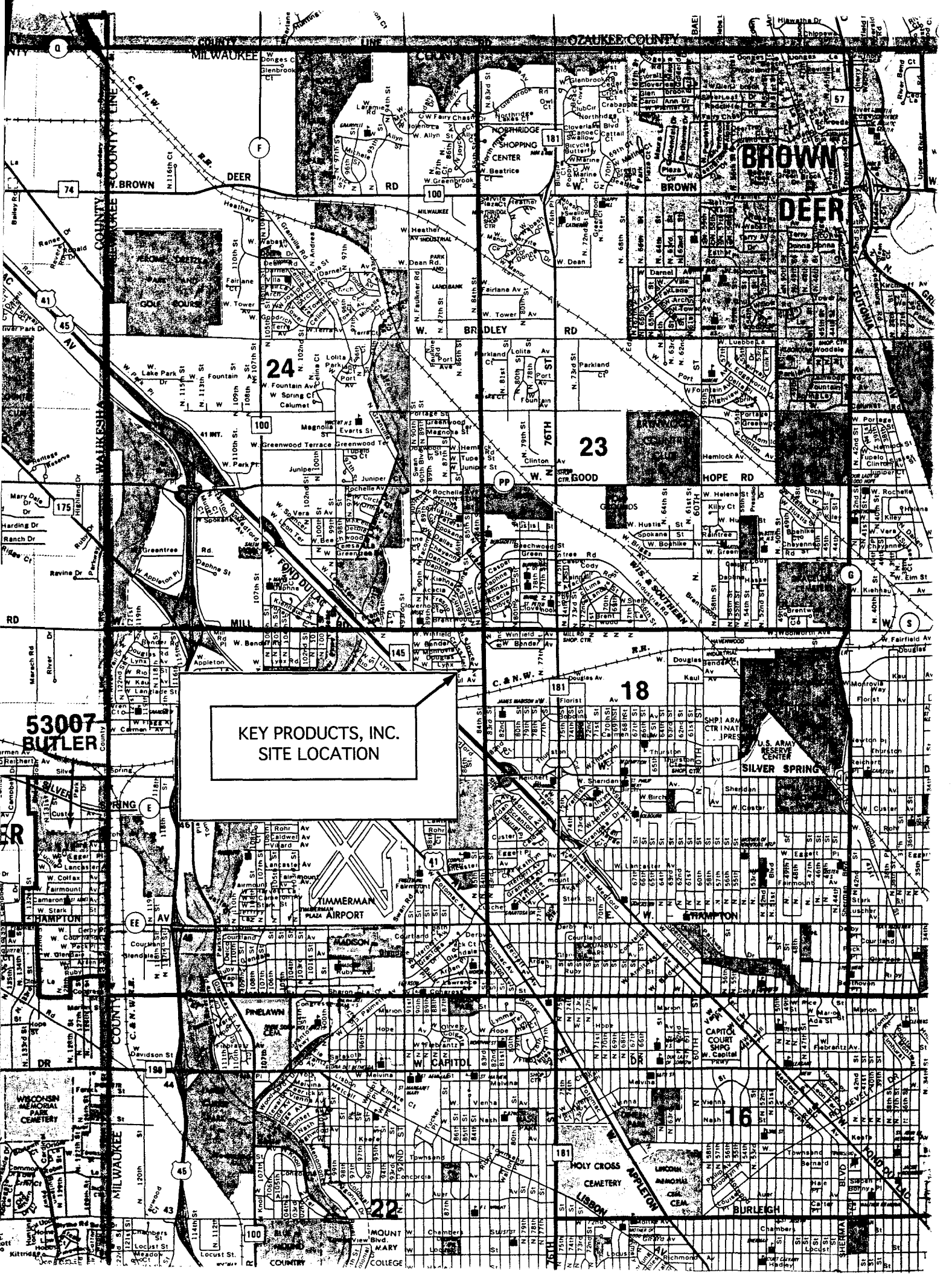
This scope of this report is limited to the on-site release assessment activities occurring during soil excavation at the former location of a waste disposal dumpster owned and operated by Key Products, Inc., 8634 W. Lynx Ave., Milwaukee, Wisconsin 53225.

SOIL EXCAVATION AND CONFIRMATION SAMPLING

Soil excavation and confirmation sampling commenced on May 23, 1996 during which time soil samples were collected from the three walls and the base of the excavation and analyzed for VOC's (method 8260, ref. soil sample locations). As excavation progressed the sandy soils (backfill) and native clay soils were exposed. Soil samples were collected in accordance with the release assessment workplan. The excavated soil was sampled for profiling and subsequent disposal.

Laboratory analysis of confirmation soil samples taken following excavation of 226 tons of soil detected VOC levels of non-detect to 3.0 mg/kg, below the applicable WDNR remedial action limits. ^{6 7} (ref. confirmation samples-soil). Additionally, no groundwater was encountered during soil excavation and confirmation sampling.

SITE LOCATION MAPS



KEY PRODUCTS, INC.
SITE LOCATION

53007
BUTLER

TIMMERMAN
PLAZA AIRPORT

U.S. ARMY
RESERVE CENTER
SILVER SPRING

CAPITOL
COURT SHIP

HOLY CROSS
CEMETERY

BURLEIGH

53007
HAMPDEN

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MOUNTAIN VIEW

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MOUNTAIN VIEW

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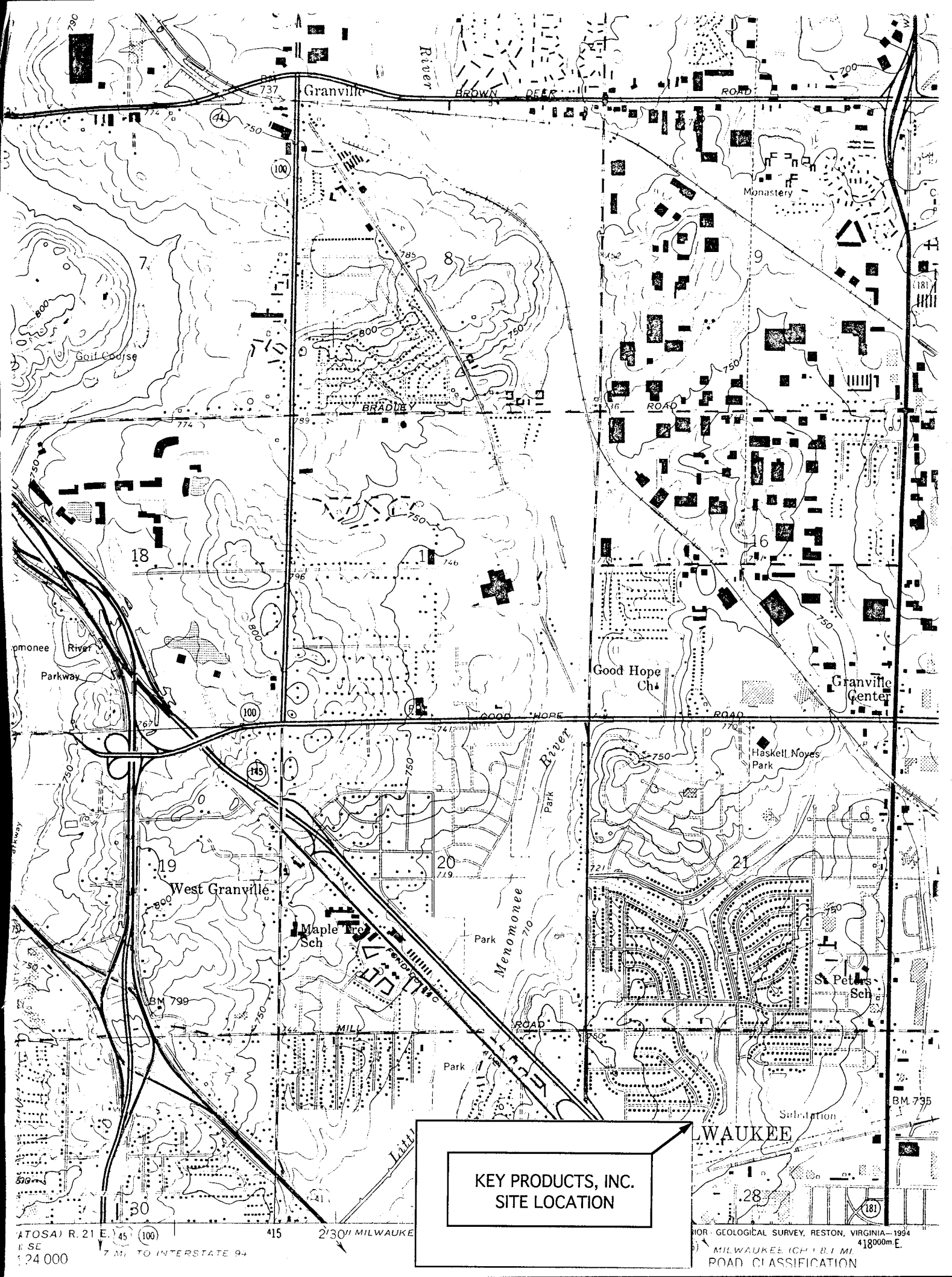
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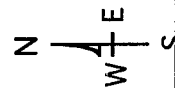
KEY PRODUCTS, INC.
SITE LOCATION

ATOSA) R. 21 E. 45 (100) 415 2/30 MILWAUKEE
1:24 000 7 MI. TO INTERSTATE 94

FOR GEOLOGICAL SURVEY, RESTON, VIRGINIA-1994
MILWAUKEE (CH) 8.1 MI
ROAD CLASSIFICATION
181
418000m.E.

SITE LAYOUT PLAN

Site Layout Plan
Key Products, Inc.
8634 W. Lynx Ave.
Milwaukee, WI 53225



Pg. 7-1

W. Lynx Avenue

DOOR

LOADING DOCK

EXCAVATION AREA

KEY PRODUCTS, INC.
(NOT TO SCALE)

UNPAVED AREA

BUILDING

33.5'

PAVED PARKING AREA

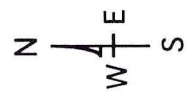
DWG: Site_Lyt_KP
DRWN. BY: D.G., 10/30/96
SCALE: 1" = 10'

SOIL GEOLOGY

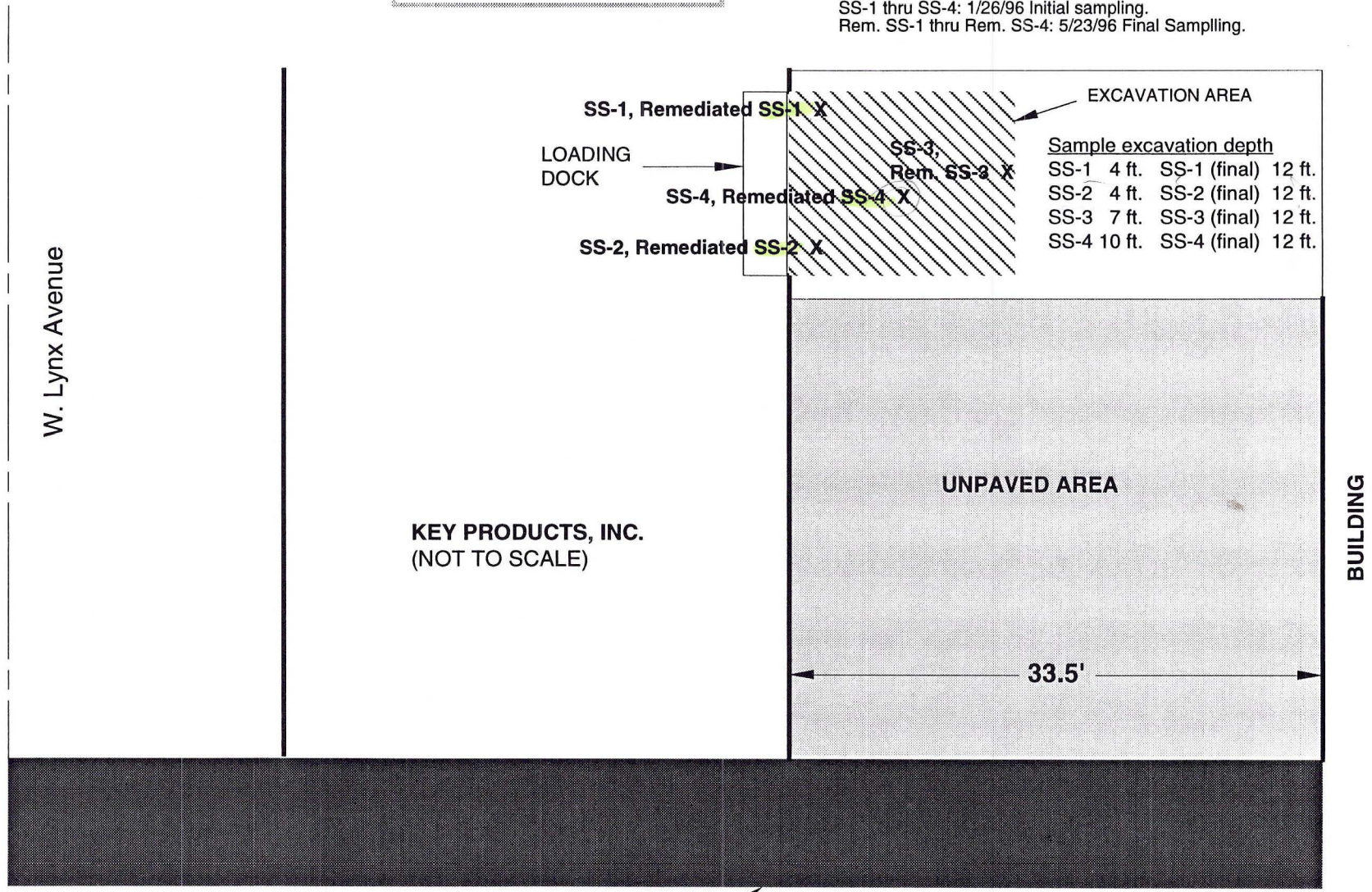
The soil survey of Milwaukee and Waukesha counties from the U.S. Soil Conservation Service indicates the soils in the region of the site are of the Ozaukee-Morley-Mequon association, consisting of well drained to somewhat poorly drained soils with a subsoil of silty clay loam and silty clay. The soils are formed in thin loess and silty clay loam glacial till, and on moraines.

SOIL SAMPLING LOCATIONS

Soil Sampling Locations
 Key Products, Inc.
 8634 W. Lynx Ave.
 Milwaukee, WI 53225



Note:
 SS-1 thru SS-4: 1/26/96 Initial sampling.
 Rem. SS-1 thru Rem. SS-4: 5/23/96 Final Sampling.



Sample excavation depth

SS-1	4 ft.	SS-1 (final)	12 ft.
SS-2	4 ft.	SS-2 (final)	12 ft.
SS-3	7 ft.	SS-3 (final)	12 ft.
SS-4	10 ft.	SS-4 (final)	12 ft.

Pg. 9-1

DWG: Soil_Sm_KP
DRWN. BY: D.G., 10/30/96
SCALE: 1" = 10'

CONFIRMATION SAMPLES - SOIL



**NATIONAL
ENVIRONMENTAL
TESTING, INC.**

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1660
Fax: (414) 261-8120

WDNR No. 128053530

ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996

Job No: 96.04666

Page 1

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
184979	Rem SS1 Key Products	05/23/1996	05/24/1996
184980	Rem SS2 Key Products	05/23/1996	05/24/1996
184981	Rem SS3 Key Products	05/23/1996	05/24/1996
184982	Rem SS4 Key Products	05/23/1996	05/24/1996
184983	MeOH Field Blk Key Products	05/23/1996	05/24/1996

The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

Brian D. DeJong, Organic Operations Manager
Certification No. 128053530



NATIONAL
ENVIRONMENTAL
TESTING, INC.

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1860
Fax: (414) 261-8120

WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184979
Account No: 71290
Page 2

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SSI Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	87.3	%	n/a	S-5030	06/03/1996	1480
Arsenic, GFAA	D <0.48	mg/kg	0.12	S-7060	05/31/1996	13 311
Barium, ICP	22	mg/kg	0.50	S-6010	06/03/1996	641 63
Cadmium, AA	2.1	mg/kg	1.0	S-7130	06/03/1996	641 333
Chromium, AA	7.0	mg/kg	1.0	S-7190	06/04/1996	641 276
Copper, AA	11	mg/kg	1.0	S-7210	06/05/1996	641 205
Lead, AA	6.1	mg/kg	4.0	S-7420	05/30/1996	641 664
Mercury, CVAA	<0.020	mg/kg	0.020	S-7471	06/07/1996	245
Nickel, AA	14	mg/kg	2.0	S-7520	06/05/1996	641 213
Selenium, GFAA	D <0.48	mg/kg	0.12	S-7740	06/03/1996	13 229
Silver, AA	<1.0	mg/kg	1.0	S-7760	06/05/1996	82 104
Zinc, AA	72	mg/kg	1.0	S-7950	06/07/1996	641 216
VOC - METHANOL - 8260						
Benzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromodichloromethane	<25	ug/kg	25	S-8260	06/08/1996	246
Bromomethane	<100	ug/kg	100	S-8260	06/08/1996	246
n-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
sec-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
tert-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Carbon Tetrachloride	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorodibromomethane	<25	ug/kg	25	S-8260	06/08/1996	246
Chloroethane	<35	ug/kg	35	S-8260	06/08/1996	246
Chloroform	<25	ug/kg	25	S-8260	06/08/1996	246
Chloromethane	<30	ug/kg	30	S-8260	06/08/1996	246
2-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
4-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dibromo-3-Chloropropane	<50	ug/kg	50	S-8260	06/08/1996	246
1,2-Dibromoethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,4-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Dichlorodifluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1-Dichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloroethane	<13	ug/kg	13	S-8260	06/08/1996	246



NATIONAL
ENVIRONMENTAL
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Watertown Division
602 Commerce Drive
P.O. Box 288
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Tel: (414) 261-1660
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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184979
Account No: 71290
Page 3

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS1 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
1,1-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
cis-1,2-Dichloroethene	27	ug/kg	25	S-8260	06/08/1996	246
trans-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
2,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
Di-isopropylether	<25	ug/kg	25	S-8260	06/08/1996	246
Ethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Hexachlorobutadiene	<35	ug/kg	35	S-8260	06/08/1996	246
Isopropylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
p-Isopropyltoluene	<25	ug/kg	25	S-8260	06/08/1996	246
Methylene Chloride	L 160	ug/kg	50	S-8260	06/08/1996	246
Methyl-t-butyl ether	<25	ug/kg	25	S-8260	06/08/1996	246
Naphthalene	<25	ug/kg	25	S-8260	06/08/1996	246
n-Propylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2,2-Tetrachloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Tetrachloroethene	3,000	ug/kg	25	S-8260	06/08/1996	246
Toluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,3-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,1-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Trichloroethene	260	ug/kg	25	S-8260	06/08/1996	246
Trichlorofluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3,5-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Vinyl Chloride	<25	ug/kg	25	S-8260	06/08/1996	246
Xylenes, Total	<35	ug/kg	35	S-8260	06/08/1996	246
Surr: Dibromofluoromethane	102.0	%	n/a	S-8260	06/08/1996	246
Surr: Toluene-d8	99.6	%	n/a	S-8260	06/08/1996	246
Surr: Bromofluorobenzene	102.0	%	n/a	S-8260	06/08/1996	246



NATIONAL
ENVIRONMENTAL
TESTING, INC.

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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184980
Account No: 71290
Page 4

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS2 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:15

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	86.5	†	n/a	S-5030	06/03/1996	1480
Arsenic, GFAA	D <0.48	mg/kg	0.12	S-7060	05/31/1996	13 311
Barium, ICP	38	mg/kg	0.50	S-6010	06/03/1996	641 63
Cadmium, AA	2.1	mg/kg	1.0	S-7130	06/03/1996	641 333
Chromium, AA	8.4	mg/kg	1.0	S-7190	06/04/1996	641 276
Copper, AA	11	mg/kg	1.0	S-7210	06/05/1996	641 205
Lead, AA	6.6	mg/kg	4.0	S-7420	05/30/1996	641 664
Mercury, CVAA	<0.020	mg/kg	0.020	S-7471	06/07/1996	245
Nickel, AA	14	mg/kg	2.0	S-7520	06/05/1996	641 213
Selenium, GFAA	D <0.48	mg/kg	0.12	S-7740	06/03/1996	13 229
Silver, AA	<1.0	mg/kg	1.0	S-7760	06/05/1996	82 104
Zinc, AA	71	mg/kg	1.0	S-7950	06/07/1996	641 216
METHANOL - 8260						
Benzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromodichloromethane	<25	ug/kg	25	S-8260	06/08/1996	246
Bromomethane	<100	ug/kg	100	S-8260	06/08/1996	246
n-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
sec-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
tert-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Carbon Tetrachloride	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorodibromomethane	<25	ug/kg	25	S-8260	06/08/1996	246
Chloroethane	<35	ug/kg	35	S-8260	06/08/1996	246
Chloroform	<25	ug/kg	25	S-8260	06/08/1996	246
Chloromethane	<30	ug/kg	30	S-8260	06/08/1996	246
o-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
m-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dibromo-3-Chloropropane	<50	ug/kg	50	S-8260	06/08/1996	246
1,2-Dibromoethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,4-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Dichlorodifluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1-Dichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloroethane	<13	ug/kg	13	S-8260	06/08/1996	246



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WDNR No. 124053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184980
Account No: 71290
Page 5

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS2 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:15

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
1,1-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
cis-1,2-Dichloroethene	53	ug/kg	25	S-8260	06/08/1996	246
trans-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
2,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
Di-isopropylether	<25	ug/kg	25	S-8260	06/08/1996	246
Ethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Hexachlorobutadiene	<35	ug/kg	35	S-8260	06/08/1996	246
Isopropylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
p-Isopropyltoluene	<25	ug/kg	25	S-8260	06/08/1996	246
Methylene Chloride	L 200	ug/kg	50	S-8260	06/08/1996	246
Methyl-t-butyl ether	<25	ug/kg	25	S-8260	06/08/1996	246
naphthalene	<25	ug/kg	25	S-8260	06/08/1996	246
n-Propylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2,2-Tetrachloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Tetrachloroethene	39	ug/kg	25	S-8260	06/08/1996	246
Toluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,3-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,1-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Trichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
Trichlorofluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3,5-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Vinyl Chloride	<25	ug/kg	25	S-8260	06/08/1996	246
Xylenes, Total	<35	ug/kg	35	S-8260	06/08/1996	246
Surr: Dibromofluoromethane	101.2	%	n/a	S-8260	06/08/1996	246
Surr: Toluene-d8	97.0	%	n/a	S-8260	06/08/1996	246
Surr: Bromofluorobenzene	100.2	%	n/a	S-8260	06/08/1996	246



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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184981
Account No: 71290
Page 6

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS3 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:30

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	85.7	%	n/a	S-5030	06/03/1996	1481
Arsenic, GFAA	1.7	mg/kg	0.12	S-7060	05/31/1996	13 311
Barium, ICP	42	mg/kg	0.50	S-6010	06/03/1996	641 63
Cadmium, AA	2.0	mg/kg	1.0	S-7130	06/03/1996	641 333
Chromium, AA	7.3	mg/kg	1.0	S-7190	06/04/1996	641 276
Copper, AA	11	mg/kg	1.0	S-7210	06/05/1996	641 205
Lead, AA	6.3	mg/kg	4.0	S-7420	05/30/1996	641 664
Mercury, CVAA	<0.020	mg/kg	0.020	S-7471	06/07/1996	245
Nickel, AA	13	mg/kg	2.0	S-7520	06/05/1996	641 213
Selenium, GFAA	D <0.48	mg/kg	0.12	S-7740	06/03/1996	13 229
Silver, AA	<1.0	mg/kg	1.0	S-7760	06/05/1996	82 104
Zinc, AA	61	mg/kg	1.0	S-7950	06/07/1996	641 216
VOC - METHANOL - 8260						
Benzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromodichloromethane	<25	ug/kg	25	S-8260	06/08/1996	246
Bromomethane	<100	ug/kg	100	S-8260	06/08/1996	246
n-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
sec-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
tert-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Carbon Tetrachloride	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorodibromomethane	<25	ug/kg	25	S-8260	06/08/1996	246
Chloroethane	<35	ug/kg	35	S-8260	06/08/1996	246
Chloroform	<25	ug/kg	25	S-8260	06/08/1996	246
Chloromethane	<30	ug/kg	30	S-8260	06/08/1996	246
2-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
4-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dibromo-3-Chloropropane	<50	ug/kg	50	S-8260	06/08/1996	246
1,2-Dibromoethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,4-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Dichlorodifluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1-Dichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloroethane	<13	ug/kg	13	S-8260	06/08/1996	246



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ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
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06/11/1996
Job No: 96.04666
Sample No: 184981
Account No: 71290
Page 7

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS3 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 14:30

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
1,1-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
cis-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
trans-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
2,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
Di-isopropylether	<25	ug/kg	25	S-8260	06/08/1996	246
Ethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Hexachlorobutadiene	<35	ug/kg	35	S-8260	06/08/1996	246
Isopropylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
p-Isopropyltoluene	<25	ug/kg	25	S-8260	06/08/1996	246
Methylene Chloride	L 180	ug/kg	50	S-8260	06/08/1996	246
Methyl-t-butyl ether	<25	ug/kg	25	S-8260	06/08/1996	246
Naphthalene	<25	ug/kg	25	S-8260	06/08/1996	246
n-Propylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2,2-Tetrachloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Tetrachloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
Toluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,3-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,1-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Trichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
Trichlorofluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3,5-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Vinyl Chloride	<25	ug/kg	25	S-8260	06/08/1996	246
Xylenes, Total	<35	ug/kg	35	S-8260	06/08/1996	246
Surr: Dibromofluoromethane	104.0	†	n/a	S-8260	06/08/1996	246
Surr: Toluene-d8	98.6	†	n/a	S-8260	06/08/1996	246
Surr: Bromofluorobenzene	100.6	†	n/a	S-8260	06/08/1996	246



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WDNR No. 122053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
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Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184982
Account No: 71290
Page 8

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS4 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 15:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	86.2	%	n/a	S-5030	06/03/1996	1481
Arsenic, GFAA	D <0.48	mg/kg	0.12	S-7060	05/31/1996	13 311
Barium, ICP	27	mg/kg	0.50	S-6010	06/03/1996	641 63
Cadmium, AA	1.8	mg/kg	1.0	S-7130	06/03/1996	641 333
Chromium, AA	8.7	mg/kg	1.0	S-7190	06/04/1996	641 276
Copper, AA	10	mg/kg	1.0	S-7310	06/05/1996	641 205
Lead, AA	7.1	mg/kg	4.0	S-7420	05/30/1996	641 664
Mercury, CVAA	<0.020	mg/kg	0.020	S-7471	06/07/1996	245
Nickel, AA	15	mg/kg	2.0	S-7520	06/05/1996	641 213
Selenium, GFAA	D <0.48	mg/kg	0.12	S-7740	06/03/1996	13 229
Silver, AA	<1.0	mg/kg	1.0	S-7760	06/05/1996	82 104
Zinc, AA	59	mg/kg	1.0	S-7950	06/07/1996	641 216
VOC - METHANOL - 8260						
Benzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromodichloromethane	<25	ug/kg	25	S-8260	06/08/1996	246
Bromomethane	<100	ug/kg	100	S-8260	06/08/1996	246
n-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
sec-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
tert-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Carbon Tetrachloride	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorodibromomethane	<25	ug/kg	25	S-8260	06/08/1996	246
Chloroethane	<35	ug/kg	35	S-8260	06/08/1996	246
Chloroform	<25	ug/kg	25	S-8260	06/08/1996	246
Chloromethane	<30	ug/kg	30	S-8260	06/08/1996	246
2-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
4-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dibromo-3-Chloropropane	<50	ug/kg	50	S-8260	06/08/1996	246
1,2-Dibromoethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,4-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Dichlorodifluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1-Dichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloroethane	<13	ug/kg	13	S-8260	06/08/1996	246



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WDNR No. 128053530

ANALYTICAL REPORT

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TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184982
Account No: 71290
Page 9

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Rem SS4 Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 15:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
1,1-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
cis-1,2-Dichloroethene	37	ug/kg	25	S-8260	06/08/1996	246
trans-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
2,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
Di-isopropylether	<25	ug/kg	25	S-8260	06/08/1996	246
Ethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Hexachlorobutadiene	<35	ug/kg	35	S-8260	06/08/1996	246
Isopropylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
o-Isopropyltoluene	<25	ug/kg	25	S-8260	06/08/1996	246
Methylene Chloride	L 190	ug/kg	50	S-8260	06/08/1996	246
Methyl-t-butyl ether	<25	ug/kg	25	S-8260	06/08/1996	246
Naphthalene	<25	ug/kg	25	S-8260	06/08/1996	246
n-Propylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2,2-Tetrachloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Tetrachloroethene	1,500	ug/kg	25	S-8260	06/08/1996	246
Toluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,3-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,1-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Trichloroethene	39	ug/kg	25	S-8260	06/08/1996	246
Trichlorofluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3,5-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Vinyl Chloride	<25	ug/kg	25	S-8260	06/08/1996	246
Xylenes, Total	<35	ug/kg	35	S-8260	06/08/1996	246
Surr: Dibromofluoromethane	98.6	%	n/a	S-8260	06/08/1996	246
Surr: Toluene-d8	97.4	%	n/a	S-8260	06/08/1996	246
Surr: Bromofluorobenzene	98.4	%	n/a	S-8260	06/08/1996	246



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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
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2711 West Townsend
P. O. Box 16579
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06/11/1996
Job No: 96.04666
Sample No: 184983
Account No: 71290
Page 10

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: MeOH Field Blk Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 16:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
Benzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Bromodichloromethane	<25	ug/kg	25	S-8260	06/08/1996	246
Bromomethane	<100	ug/kg	100	S-8260	06/08/1996	246
n-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
sec-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
tert-Butylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Carbon Tetrachloride	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Chlorodibromomethane	<25	ug/kg	25	S-8260	06/08/1996	246
Chloroethane	<35	ug/kg	35	S-8260	06/08/1996	246
Chloroform	<25	ug/kg	25	S-8260	06/08/1996	246
Chloromethane	<30	ug/kg	30	S-8260	06/08/1996	246
2-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
4-Chlorotoluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dibromo-3-Chloropropane	<50	ug/kg	50	S-8260	06/08/1996	246
1,2-Dibromoethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,4-Dichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Dichlorodifluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1-Dichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloroethane	<13	ug/kg	13	S-8260	06/08/1996	246
1,1-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
cis-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
trans-1,2-Dichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
1,3-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
2,2-Dichloropropane	<25	ug/kg	25	S-8260	06/08/1996	246
Di-isopropylether	<25	ug/kg	25	S-8260	06/08/1996	246
Ethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Hexachlorobutadiene	<35	ug/kg	35	S-8260	06/08/1996	246
Isopropylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
p-Isopropyltoluene	<25	ug/kg	25	S-8260	06/08/1996	246
Methylene Chloride	L 110	ug/kg	50	S-8260	06/08/1996	246
Methyl-t-butyl ether	<25	ug/kg	25	S-8260	06/08/1996	246
Naphthalene	<25	ug/kg	25	S-8260	06/08/1996	246



NATIONAL
ENVIRONMENTAL
TESTING, INC.

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1660
Fax: (414) 261-8120

WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

06/11/1996
Job No: 96.04666
Sample No: 184983
Account No: 71290
Page 11

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: MeOH Field Blk Key Products
Recv'd 4.0 C

Date Taken: 05/23/1996 16:00

Date Received: 05/24/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
VOC - METHANOL - 8260						
n-Propylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2,2-Tetrachloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Tetrachloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
Toluene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,3-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trichlorobenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,1-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,1,2-Trichloroethane	<25	ug/kg	25	S-8260	06/08/1996	246
Trichloroethene	<25	ug/kg	25	S-8260	06/08/1996	246
Trichlorofluoromethane	<25	ug/kg	25	S-8260	06/08/1996	246
1,2,4-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
1,3,5-Trimethylbenzene	<25	ug/kg	25	S-8260	06/08/1996	246
Vinyl Chloride	<25	ug/kg	25	S-8260	06/08/1996	246
Xylenes, Total	<35	ug/kg	35	S-8260	06/08/1996	246
Surr: Dibromofluoromethane	98.8	†	n/a	S-8260	06/08/1996	246
Surr: Toluene-88	99.0	†	n/a	S-8260	06/08/1996	246
Surr: Bromofluorobenzene	101.2	†	n/a	S-8260	06/08/1996	246



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Taylor Industrial
 ADDRESS 7711 W. Tessa Road ST
 PHONE 414 447-4700 FAX 414 447-4990
 PROJECT NAME/LOCATION Key Products
 PROJECT NUMBER _____
 PROJECT MANAGER Don Gargas

REPORT TO: Taylor
 INVOICE TO: Taylor
 P.O. NO. Verbal
 NET QUOTE NO. Verbal

SAMPLED BY Don Gargas
 (PRINT NAME)
 (PRINT NAME)

SIGNATURE Donald Gargas
 SIGNATURE

ANALYSES

To assist us in selecting the proper method

Is this work being conducted for regulatory compliance monitoring? Yes ___ No

Is this work being conducted for regulatory enforcement action? Yes ___ No

Which regulations apply: RCRA ___ NPDES Wastewater ___
 UST ___ Drinking Water ___
 Other None ___

COMMENTS

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers						OTHER	Diss Wt	Metals	VOC's
						HCl	NaOH	HNO ₃	H ₂ SO ₄						
7/24/90	2:00	Rem 551	S	X								3	X	X	X
"	2:15	Rem 552	S	X								4	X	X	X
"	2:30	Rem 553	S	X								4	X	X	X
"	3:00	Rem 554	S	X								4	X	X	X
"	4:30	MeOH Field Blank										2			X
"	4:30	Temp Blank										1			

CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO
 FIELD FILTERED? YES/NO

COC SEALS PRESENT AND INTACT? YES/NO
 VOLATILES FREE OF HEADSPACE? YES/NO

TEMPERATURE UPON RECEIPT: 40°C
 Bottles supplied by NET? YES/NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <u>Donald Gargas</u>	DATE: <u>5/24/90</u>	TIME: <u>5:00</u>	RECEIVED BY: <u>Jerry Schmitz</u>	RELINQUISHED BY:	DATE:	TIME:	RECEIVED FOR NET BY:
METHOD OF SHIPMENT				REMARKS:			

ATTACHMENTS

SUMMARY OF CONFIRMATION SAMPLES

Key Products, Inc. confirmed on January 26, 1996 and reported an accidental release of paint related materials on company property located at 8634 W. Lynx Ave., Milwaukee WI and commenced remedial action excavation on May 23, 1996.

Laboratory analysis of confirmation soil samples taken following excavation of 226 tons of soil detected VOC levels of non-detect to 3000 µg/kg, below the applicable WDNR remedial action limits. ^{8 9} Additionally, no groundwater was encountered at the base of the excavation during assessment activities.

DISCUSSION AND SUMMARY

This report provides documentation of the excavation and sampling protocol during assessment of an accidental release at the Key Products, Inc. facility on 8634 W. Lynx Ave., Milwaukee, Wisconsin 53225. This report is being prepared for Key Products, Incorporated's records and in accordance with *chap. NR 700, General Requirements, Wisc. Admin. Code.*

During assessment activities Materials Management & Training Ltd. arranged with excavating contractors to provide supervision, coordination and scheduling. The on-site contractor was responsible for excavation activities, backfilling, soil transportation, and health and safety considerations.

This assessment report has been performed in compliance with state and local requirements for release documentation reporting. The information in this report is based on the following:

- Periodic site visits for the purpose of observing and documenting assessment excavation activities during determination of the nature, degree and extent, both areal and vertical, of contamination.
- Observation and recording of the type, characteristics, and quantities of backfill materials used.
- Photographic recording of assessment and excavation activities.
- Documentation of subcontractors used during assessment activities.
- Written summary of observed assessment operations.

This report is limited to the on-site assessment activities during soil excavation at the former location of a dumpster owned and operated by Key Products, Inc., 8634 W. Lynx Ave., Milwaukee, Wisconsin 53225. The assessment activities have been performed in accordance with applicable state and local release reporting guidelines.

RECOMMENDATION

Key Products, Inc. reported a confirmed accidental release to the Wisconsin DNR resulting from the storage of waste paint and solvent related materials. Initial investigative activities revealed contaminant levels of <5.0, 6.6 mg/kg as GRO and DRO respectively, and VOC levels of <25 µg/kg to 48,000 µg/kg. Materials Management & Training Ltd. recommended to Key Products, Inc. excavation of impacted soil to minimize the effect to the environment and to delineate the horizontal and vertical extent of contamination. Laboratory analysis of confirmation soil samples taken following excavation of 226 tons of soil detected VOC levels of non-detect to 3.0 mg/kg. Additionally, no groundwater was encountered during soil excavation and confirmation sampling. A Risk Based Analysis (ref. Attachments) performed on VOC contaminant levels in confirmation samples demonstrated the measured residual levels do not pose an unacceptable risk to human health or the environment and Key Products, Inc. therefore respectfully requests a clean closure for the reported accidental release of paint related materials on the property located at 8634 W. Lynx Ave., Milwaukee WI 53225.



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WDNR No. 128053530

ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

02/08/1996

Job No: 96.00664

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
170473	SS-3 Key Products	01/26/1996	01/29/1996
170474	SS-1 Key Products	01/26/1996	01/29/1996
170475	SS-2 Key Products	01/26/1996	01/29/1996
170476	SS-4 Key Products	01/26/1996	01/29/1996

The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

Brian D. DeJong, Organic Operations Manager
Certification No. 128053530





NATIONAL ENVIRONMENTAL TESTING, INC.

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Watertown, WI 53094
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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

02/08/1996
Job No: 96.00664
Sample No: 170473
Account No: 71290
Page 2

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: SS-3 Key Products
Recv'd 4.0 C

Date Taken: 01/26/1996 10:00

Date Received: 01/29/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
ash Point Nonaqueous	>200	F	n/a	S-1010	02/05/1996	237
int Filter Test	nd		n/a	S-9095	02/05/1996	198
lids, Total	80.2	%	n/a	S-5030	02/01/1996	1340
LP ZHE VOLATILE PREP	Complete			S-1311	01/31/1996	106
LP-Lead, AA	<0.10	mg/L	0.10	S-7420	02/05/1996	218 218
ep, TCLP - 1311	c			S-1311	02/01/1996	218
D Extraction	01/30/96			WDNR	02/01/1996	569
DC - NONAQUEOUS						
enzene	<10	ug/kg	10	S-8020	02/01/1996	1295
nylbenzene	<25	ug/kg	25	S-8020	02/01/1996	1295
BE	≥25	ug/kg	25	S-8020	02/01/1996	1295
luene	86	ug/kg	25	S-8020	02/01/1996	1295
2,4-Trimethylbenzene	<25	ug/kg	25	S-8020	02/01/1996	1295
3,5-Trimethylbenzene	<25	ug/kg	25	S-8020	02/01/1996	1295
lenes, Total	<75	ug/kg	75	S-8020	02/01/1996	1295
O	<5.0	mg/kg	5.0	WDNR	02/01/1996	1295
rr: Bromofluorobenzene	92.0	%	n/a	S-8020	02/01/1996	1295
O - NONAQUEOUS	6.6	mg/kg	5.0	WDNR	02/02/1996	569 1070
LP-VOLATILES-8240						
LP-Benzene	<0.020	mg/L	0.020	S-8240	02/02/1996	106 188
rr: Toluene-d8	93.9	%	n/a	S-8240	02/02/1996	106 188
rr: Bromofluorobenzene	98.4	%	n/a	S-8240	02/02/1996	106 188
rr: 1,2-Dichloroethane-d4	76.2	%	n/a	S-8240	02/02/1996	106 188





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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

02/08/1996
Job No: 96.00664
Sample No: 170474
Account No: 71290
Page 3

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: SS-1 Key Products
Recv'd 4.0 C

Date Taken: 01/26/1996 11:00

Date Received: 01/29/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	75.9	%	n/a	S-5030	02/01/1996	1340
VOC - NONAQUEOUS						
Benzene	<500	ug/kg	10	S-8020	02/01/1996	1295
Toluene	2,700	ug/kg	25	S-8020	02/01/1996	1295
o-xylene	<1,200	ug/kg	25	S-8020	02/01/1996	1295
m-xylene	21,000	ug/kg	25	S-8020	02/01/1996	1295
p-xylene	48,000	ug/kg	25	S-8020	02/01/1996	1295
1,2,4-Trimethylbenzene	27,000	ug/kg	25	S-8020	02/01/1996	1295
1,3,5-Trimethylbenzene	37,000	ug/kg	75	S-8020	02/01/1996	1295
Aromatics, Total	M 37,000	ug/kg	75	S-8020	02/01/1996	1295
Chlorides	119.5	%	n/a	S-8020	02/01/1996	1295
Chloride: Bromofluorobenzene						

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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

02/08/1996
Job No: 96.00664
Sample No: 170475
Account No: 71290
Page 4

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: SS-2 Key Products
Recv'd 4.0 C

Date Taken: 01/26/1996 11:30

Date Received: 01/29/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Solids, Total	85.2	%	n/a	S-5030	02/01/1996	1340
VOC - NONAQUEOUS						
Benzene	<10	ug/kg	10	S-8020	02/01/1996	1295
Toluene	55	ug/kg	25	S-8020	02/01/1996	1295
o-xylene	<25	ug/kg	25	S-8020	02/01/1996	1295
m-xylene	<25	ug/kg	25	S-8020	02/01/1996	1295
p-xylene	<25	ug/kg	25	S-8020	02/01/1996	1295
1,2,4-Trimethylbenzene	1,100	ug/kg	25	S-8020	02/01/1996	1295
1,3,5-Trimethylbenzene	610	ug/kg	25	S-8020	02/01/1996	1295
Aromatics, Total	320	ug/kg	75	S-8020	02/01/1996	1295
Surrogate: Bromofluorobenzene	M 130.5	%	n/a	S-8020	02/01/1996	1295





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WDNR No. 128053530

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

02/08/1996
Job No: 96.00664
Sample No: 170476
Account No: 71290
Page 5

JOB DESCRIPTION: Key Products Samples
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: SS-4 Key Products
Recv'd 4.0 C

Date Taken: 01/26/1996 12:00

Date Received: 01/29/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
solids, Total	84.8	%	n/a	S-5030	02/01/1996	1340
VOC - NONAQUEOUS						
benzene	<10	ug/kg	10	S-8020	02/01/1996	1295
ethylbenzene	<25	ug/kg	25	S-8020	02/01/1996	1295
TBE	<25	ug/kg	25	S-8020	02/01/1996	1295
luene	46	ug/kg	25	S-8020	02/01/1996	1295
2,4-Trimethylbenzene	29	ug/kg	25	S-8020	02/01/1996	1295
3,5-Trimethylbenzene	30	ug/kg	25	S-8020	02/01/1996	1295
ylenes, Total	<75	ug/kg	75	S-8020	02/01/1996	1295
urr: Bromofluorobenzene	91.5	%	n/a	S-8020	02/01/1996	1295



COMPANY Taylor Industrial
 ADDRESS 278 W. Townsend St
 PHONE 414/447-4700 FAX 414/447-4990
 PROJECT NAME/LOCATION Key Products
 PROJECT NUMBER _____
 PROJECT MANAGER Don Gargas

REPORT TO: Taylor
 INVOICE TO: Taylor
 P.O. NO. Verbal
 NET QUOTE NO. _____

SAMPLED BY Don Gargas
 (PRINT NAME)
 (PRINT NAME)

Don Gargas
 SIGNATURE
 SIGNATURE

ANALYSES

To assist us in selecting the proper method

Is this work being conducted for regulatory compliance monitoring? Yes ___ No

Is this work being conducted for regulatory enforcement action? Yes ___ No

Which regulations apply: RCRA ___ NPDES Wastewater ___
 UST ___ Drinking Water ___
 Other ___ None

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers					OTHER	Protocol D-1	PDOC	GRO	DRO
						HCl	NaOH	HNO3	H2SO4						
1/24/96	10:00	SS-3	S	X							6	X	X	X	X
1/24/96	11:00	SS-1	S								2	X	X		
1/24/96	11:30	SS-2	S								2	X	X		
1/24/96	12:00	SS-3	S								2	X	X		
		Temp Blank	S	1											

COMMENTS

Sample for say #4

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
 FIELD FILTERED? YES / NO

COC SEALS PRESENT AND INTACT? YES / NO
 VENTILES FREE OF HEADSPACE? YES / NO

TEMPERATURE UPON RECEIPT: 4°C
 Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <u>Don Gargas</u>	DATE: <u>1/24/96</u>	TIME: <u>3:00pm</u>	RECEIVED BY: <u>Jerry Schmidt</u>	DATE: <u>1-29-96</u>	TIME: <u>1430</u>	RECEIVED FOR NET BY: <u>1 Schmidt</u>	DATE: <u>1-29-96</u>	TIME: <u>1745</u>	RECEIVED FOR NET BY: <u>1 Schmidt</u>	DATE: <u>1-30-96</u>
------------------------------------	----------------------	---------------------	-----------------------------------	----------------------	-------------------	---------------------------------------	----------------------	-------------------	---------------------------------------	----------------------

METHOD OF SHIPMENT _____

REMARKS: 12:00 S-4 sample for PDOC per client. Also informed that GRO has 10 ml/overhead on 1/30/96



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Taylor Industrial
 ADDRESS 2711 W. Townsend St
 PHONE 414 447-4700 FAX 414 447-4990
 PROJECT NAME/LOCATION Key products
 PROJECT NUMBER _____
 PROJECT MANAGER Don Gargas

4602755

REPORT TO: Taylor
 INVOICE TO: Taylor (Jodie)
 P.O. NO. Verbal
 NET QUOTE NO. _____

SAMPLED BY Donald Gargas
 (PRINT NAME)

SIGNATURE [Signature]

(PRINT NAME)

SIGNATURE _____

ANALYSES

To assist us in selecting the proper method

Is this work being conducted for regulatory compliance monitoring? Yes _____ No

Is this work being conducted for regulatory enforcement action? Yes _____ No

Which regulations apply: RCRA _____ NPDES Wastewater _____
 UST _____ Drinking Water _____
 Other _____ None _____

COMMENTS

Remaining Analysis
 See Warren.
 received 2 jars
 PH
 Spreads
 T.S.
 TCLP metal list less \leftarrow lead
 20 chlorine
 REA on sample
 TCLP VOC
 TCLP semi VOC
 (10 day test)

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers							OTHER	
						HCl	NaOH	HNO ₃	H ₂ SO ₄					
4/1/96	9:00	Soil Pile	S	X									X	Protocol A see note

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
 FIELD FILTERED? YES / NO

COC SEALS PRESENT AND INTACT? YES / NO
 VOLATILES FREE OF HEADSPACE? YES / NO

TEMPERATURE UPON RECEIPT: 4°C
 Bottles supplied by NET? YES / NO
 DW 413
 0905

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <u>[Signature]</u>	DATE: <u>4/1/96</u>	TIME: <u>10:00 AM</u>	RECEIVED BY: <u>[Signature]</u>	DATE: <u>4/2/96</u>	TIME: <u>11:46 AM</u>	RELINQUISHED BY: <u>[Signature]</u>	DATE: <u>4/2/96</u>	TIME: _____	RECEIVED FOR NET BY: <u>[Signature]</u>	DATE: <u>4/13/96</u>	
METHOD OF SHIPMENT _____			REMARKS: _____								



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WDNR No. 128053530

ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996

Job No: 96.02753

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
178353	Soil Pile	04/01/1996	04/02/1996

The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

Karen R. Wenta, Inorganic Operations Manager
Certification No. 128053530



ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996
Job No: 96.02753
Sample No: 178353
Account No: 71290
Page 2

JOB DESCRIPTION: Key Products
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Soil Pile
Recv'd 4.0 C

Date Taken: 04/01/1996 09:00

Date Received: 04/02/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Chlorine, total	<0.10	%	0.10	E-330.3	04/15/1996	85
Fluoride, Reactive	<50	mg/kg	50	S-Ch7	04/12/1996	124
Non aqueous	8.43	units	n/a	S-9040	04/04/1996	1216
Acids, Total	86.4	%	n/a	M-2540G	04/08/1996	1407
Specific Gravity	1.54		n/a	E-160.4	04/11/1996	73
Fluoride, Reactive	<10	mg/kg	10	S-Ch7	04/10/1996	128
PHENOL VOLATILE PREP	Complete			S-1311	04/09/1996	121
As-Arsenic, ICP	<0.080	mg/L	0.080	S-6010	04/11/1996	254 75
As-Barium, ICP	0.38	mg/L	0.010	S-6010	04/11/1996	254 138
As-Cadmium, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	254 70
As-Chromium, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	254 71
As-Copper, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	15
As-Mercury, CVAA	<0.0020	mg/L	0.0020	S-7470	04/15/1996	254 248
As-Nickel, ICP	<0.050	mg/L	0.050	S-6010	04/11/1996	14
As-Selenium, ICP	<0.15	mg/L	0.15	S-6010	04/11/1996	254 76
As-Silver, ICP	<0.010	mg/L	0.010	S-6010	04/11/1996	254 57
As-Zinc, ICP	0.024	mg/L	0.020	S-6010	04/11/1996	15
As, TCLP - 1311	Complete			S-1311	04/10/1996	254
PHENOL ACID COMPOUNDS - 8270						
As-Cresols, Total	<0.10	mg/L	0.10	S-8270	04/15/1996	216
As-2-Methylphenol (o-Cresol)	<0.10	mg/L	0.10	S-8270	04/15/1996	216
As-4-Methylphenol (p-Cresol)	<0.10	mg/L	0.10	S-8270	04/15/1996	216
As-Pentachlorophenol	<0.50	mg/L	0.50	S-8270	04/15/1996	216
As-Phenol	<0.070	mg/L	0.070	S-8270	04/15/1996	216
As-2,4,5-Trichlorophenol	<0.070	mg/L	0.070	S-8270	04/15/1996	216
As-2,4,6-Trichlorophenol	<0.10	mg/L	0.10	S-8270	04/15/1996	216
As: Phenol-d6	16.9	%	n/a	S-8270	04/15/1996	216
As: 2-Fluorophenol	25.5	%	n/a	S-8270	04/15/1996	216
As: Tribromophenol	63.4	%	n/a	S-8270	04/15/1996	216
PHENOL VOLATILES-8240						
As-Benzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
As-Carbon Tetrachloride	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
As-Chlorobenzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
As-Chloroform	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
As-1,4-Dichlorobenzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220



ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996
Job No: 96.02753
Sample No: 178353
Account No: 71290
Page 3

JOB DESCRIPTION: Key Products
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Soil Pile
Recv'd 4.0 C

Date Taken: 04/01/1996 09:00

Date Received: 04/02/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
TCLP-VOLATILES-8240						
-1,2-Dichloroethane	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
-1,1-Dichloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
-Methyl Ethyl Ketone	<0.20	mg/L	0.20	S-8240	04/11/1996	121 220
-Tetrachloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
-Trichloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
-Vinyl Chloride	<0.20	mg/L	0.20	S-8240	04/11/1996	121 220
: Toluene-d8	92.4	%	n/a	S-8240	04/11/1996	121 220
: Bromofluorobenzene	91.2	%	n/a	S-8240	04/11/1996	121 220
: 1,2-Dichloroethane-d4	97.4	%	n/a	S-8240	04/11/1996	121 220
BASE NEUTRAL COMPOUNDS						
-Hexachloroethane	<0.10	mg/L	0.10	S-8270	04/15/1996	172
-Nitrobenzene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
-Hexachlorobutadiene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
-2,4-Dinitrotoluene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
-Hexachlorobenzene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
-Pyridine	<0.10	mg/L	0.10	S-8270	04/15/1996	172
: Nitrobenzene-d5	76.4	%	n/a	S-8270	04/15/1996	172
: 2-Fluorobiphenyl	59.8	%	n/a	S-8270	04/15/1996	172
: Terphenyl-d14	99.6	%	n/a	S-8270	04/15/1996	172

Takes Effect in August 1995

Ron H

Table 1
Proposed New and Revised Public Health Groundwater Quality Standards

Substance	Enforcement Standard (micrograms per liter- except as noted)	Preventive Action Limit (micrograms per liter except as noted)
Antimony	6	1.2
Benzo(a)pyrene	0.003 0.2	0.0003 0.02
Beryllium	4	0.4
Bromodichloromethane	179 0.6	36 0.06
Bromomethane	10	1
Chloromethane	3	0.3
Dacthal	4 mg/l	0.8 mg/l
Dibromochloromethane	215 60	43 6
1,3-Dichloropropene(cis/trans)	0.2	0.02
Di(2-ethylhexyl) phthalate	3 6	0.3 0.6
Dinoseb	13 7	2.6 1.4
Dioxin (2,3,7,8-TCDD)	0.00000022 0.00003	0.000000022 0.000003
Endrin	2 2	0.2 0.4
Fluorene	400	80
Hexachlorobenzene	1	0.1
Methylene Chloride (Dichloromethane)	150 5	15 0.5
Nickel	100	20
Picloram	500	100
Simazine	1.7 4	0.17 0.4
1,1,2,2-Tetrachloroethane	0.2	0.02
Thallium	2	0.4
2,4-Trichlorobenzene	70	

Post-It™ brand fax transmittal memo 7671 # of pages 1

To	Ron Grove
Co.	
Dept.	
Fax #	414-256-4065

From: STEVE KARKLINS
Co: DNR
Phone: 608-266-5240
Fax: 608-267-2800

Chemical Constituents

Confirmation Sample Analysis [ug/kg]

	REM SS-1	REM SS-2	REM SS-3	REM SS-4
Tetrachloroethylene	3,000	39	(-)	1,500
Cis-1,2-Dichloroethene	27	53	(-)	37
Trichloroethene	260	(-)	(-)	39

(-) = less than detectable limit

RBC's (Risk Based Concentrations) Screening Levels

	Soil Ingestion [mg/kg]		Soil Screening Levels [mg/kg]
	Industrial	Residential	Transfers from soil to groundwater
Tetrachloroethylene	110(c)	12(c)	0.001 E
Cis-1,2-Dichloroethene	2,000(n)	780(n)	0.2 E
Trichloroethene	520(c)	58(c)	0.02 E

(c) = carcinogenic
 (n) = non carcinogenic
 (E) = EPA draft soil screening levels

RBC's (Risk Based Concentrations) Equation

Carcinogens

$$RBC \text{ mg/kg} = \frac{TR \times BWa \times ATc}{EFo \times EDo \times IRSa/10 \text{ mg/kg} \times FC \times CPSo}$$

Algorithm for Ingestion of Carcinogenic Contaminants in Industrial Soil

$$Soil \text{ Conc. mg/kg} = \frac{TR \times BWa \times AT \times 365 \text{ d/yr}}{SFo \times 10 \text{ mg/kg} \times EF \text{ ED IRa}}$$

Where:

- TR = target cancer risk level (unitless) = 1x10
- BWa = average body weight for adult (kg) = 70
- AT = Averaging time (yr) = 70
- SFo = cancer slope factor (mg/kg-d) = chemical specific)
- EF = exposure frequency (d/yr) = 250
- ED = exposure duration (yr) = 25
- IRa = soil ingestion rate for adult (mg/d) = 100

Equation 1: Algorithm for Ingestion of Noncarcinogenic Contaminants in Non-Industrial Soil Based on Childhood Exposure

$$\text{Soil Concentration (mg/kg)} = \frac{\text{THQ} \times \text{BWc} \times \text{AT} \times 365 \text{ d/yr}}{1/\text{RfDo} \times 10^{-6} \text{ kg/mg} \times \text{EF} \times \text{ED} \times \text{IRc}}$$

Parameter/Definition (units)	Default
THQ/target hazard quotient (unitless)	0.2
BWc/average body weight for child (kg)	15
AT/averaging time (yr) ^a	6
RfDo/oral reference dose (mg/kg-d)	chemical-specific
EF/exposure frequency (d/yr)	350
ED/exposure duration (yr)	6
IRc/soil ingestion rate for child (mg/d)	200

= .20 or 20% of ent
1.0 = no observed e
in reference dose.

^a For noncarcinogens, averaging time is equal to exposure duration.

EPA table uses 10^{-6} target cancer risk for carcinogenic non-industrial calculations.

WC

Equation 2: Algorithm for Ingestion of Carcinogenic Contaminants in Non-Industrial Soil

$$\text{Soil Concentration (mg/kg)} = \frac{TR \times AT \times 365 \text{ d/yr}}{SFo \times 10^{-6} \text{ kg/mg} \times EF \times IRs}$$

$$IFs = \frac{IRc \times EDc}{BWc} + \frac{IRa \times EDa}{BWa}$$

where

Parameter/Definition (units)	Default
TR/target cancer risk level (unitless)	1×10 ⁻⁷
AT/averaging time (yr)	70
SFo/oral cancer slope factor (mg/kg-d) ⁻¹	chemical-specific
EF/exposure frequency (d/yr)	350
IFs/age-adjusted soil ingestion factor (mg-yr/kg-d)	114
IRc/ingestion rate of soil age 1-6 (mg/d)	200
EDc/exposure duration during ages 1-6 (yr)	6
BWc/average body weight from ages 1-6 (kg)	15
IRa/ingestion rate of soil age 7-31 (mg/d)	100
EDa/exposure duration during ages 7-31 (yr)	24
BWa/average body weight from ages 7-31 (kg)	70

Equation 3: Algorithm for Ingestion of Noncarcinogenic Contaminants in Industrial Soil

$$\text{Soil Concentration (mg/kg)} = \frac{\text{THQ} \times \text{BWa} \times \text{AT} \times 365 \text{ d/yr}}{1/\text{RfDo} \times 10^{-6} \text{ kg/mg} \times \text{EF} \times \text{ED} \times \text{IRa}}$$

Parameter/Definition (units)	EPA
THQ/target hazard quotient (unitless)	1
BWa/average body weight for adult (kg)	70
AT/averaging time (yr) *	25
RfDo/oral reference dose (mg/kg-d)	chemical-specific
EF/exposure frequency (d/yr)	250
ED/exposure duration (yr)	25
IRa/soil ingestion rate for adult (mg/d)	100

* For noncarcinogens, averaging time is equal to exposure duration.

Equation 4: Algorithm for Ingestion of Carcinogenic Contaminants in Industrial Soil

$$\text{Soil Concentration (mg/kg)} = \frac{TR \times BWa \times AT \times 365 \text{ d/yr}}{SFo \times 10^{-6} \text{ kg/mg} \times EF \times ED \times IRa}$$

Parameter/Definition (units)	Default
TR/target cancer risk level (unitless)	1×10 ⁻⁶
BWa/average body weight for adult (kg)	70
AT/averaging time (yr)	70
SFo/oral cancer slope factor (mg/kg-d) ⁻¹	chemical- specific
EF/exposure frequency (d/yr)	250
ED/exposure duration (yr)	25
IRa/soil ingestion rate for adult (mg/d)	100

Equation 5: Algorithm for Inhalation of Carcinogenic Contaminants in Particulate Matter from Non-Industrial Soil

$$\text{Soil Concentration (mg/kg)} = \frac{TR \times BWa \times AT \times 365 \text{ d/yr}}{SF_i \times EF \times ED \times IRa \times Cp \times 10^{-9} \text{ kg/\mu g}}$$

Parameter/Definition (units)	Default
TR/target cancer risk level (unitless)	1×10^{-7}
BWa/average body weight for adult (kg)	70
AT/averaging time (yr)	70
SF _i /inhalation cancer slope factor (mg/kg-d) ⁻¹	chemical specific
EF/exposure frequency (d/yr)	350
ED/exposure duration (yr)	30
IRa/inhalation rate for adult (m ³ /d)	20
Cp/concentration of particulates less than 10 μm in air (μg/m ³)	1.4

Equation 6: Algorithm for Inhalation of Carcinogenic Contaminants in Particulate Matter from Industrial Soil

$$\text{Soil Concentration (mg/kg)} = \frac{TR \times BWa \times AT \times 365 \text{ d/yr}}{SFi \times EF \times ED \times IRw \times Cp \times 10^{-9} \text{ kg/\mu g}}$$

Parameter/Definition (units)	Default
TR/target cancer risk level (unitless)	1×10 ⁻⁶
BWa/average body weight for adult (kg)	70
AT/averaging time (yr)	70
SFi/inhalation cancer slope factor (mg/kg-d) ⁻¹	chemical specific
EF/exposure frequency (d/yr)	250
ED/exposure duration (yr)	25
IRw/inhalation rate for adult laborer (m ³ /d)	24
Cp/concentration of particulates less than 10 μm in air (μg/m ³)	1.4

Calculate your own
Standard

Equation 7: Algorithm for Determination of NR 140 Enforcement Standard for Noncarcinogenic Compounds

$$\text{Enforcement Standard } (\mu\text{g/L}) = \frac{\text{THQ} \times \text{BW} \times \text{AT} \times 365 \text{ d/yr}}{\text{IRfDo} \times 10^{-3} \text{ mg}/\mu\text{g} \times \text{EF} \times \text{ED} \times \text{IR}}$$

Parameter/Definition (units)	EPA
THQ/target hazard quotient (unitless)	1
BW/body weight (kg)	10
AT/averaging time (yr) *	6
RfDo/oral reference dose (mg/kg-d)	chemical-specific
EF/exposure frequency (d/yr)	365
ED/exposure duration (yr)	6
IR/water ingestion rate (L/d)	1

* For noncarcinogens, averaging time is equal to exposure duration.

Equation 8: Algorithm for Determination of NR 140 Enforcement Standard for Carcinogenic Compounds

$$\text{Enforcement Standard } (\mu\text{g/L}) = \frac{TR \times BWa \times AT \times 365 \text{ d/yr}}{SFo \times 10^{-3} \text{ mg}/\mu\text{g} \times EF \times ED \times IRa}$$

Parameter/Definition (units)	Default
TR/target cancer risk level (unitless)	1×10^{-6}
BWa/average body weight for adult (kg)	70
AT/averaging time (yr)	70
SFo/oral cancer slope factor (mg/kg-d) ⁻¹	chemical-specific
EF/exposure frequency (d/yr)	365
ED/exposure duration (yr)	30
IRa/water ingestion rate for adult (L/d)	2

Preventive action limits (PALs) are determined as a percentage of the enforcement standard (ES):

20% for noncarcinogens and class D carcinogens = $ES \times 0.2$


10% for carcinogens = $ES \times 0.1$

Equation 9: Algorithm for Groundwater Mixing Zone Dilution Attenuation Factor (DAF) for NR 720 Generic Residual Contaminant Levels

(Screening Calc. (not table 1 values - more conservative))
 $\text{Residual Contaminant Level } (\mu\text{g/kg}) = \text{PAL} \times 10^{-3} \text{ mg}/\mu\text{g} \times K_{oc} \times f_{oc} \times \text{DAF}$

Table I = $(S_{\text{soil}}) \times (\text{DAF}) = \frac{d}{\theta t} (K_{oc} f_{oc} \rho + n)$

where

Parameter/Definition (units)	Default
PAL/preventive action limit ($\mu\text{g/L}$)	chemical-specific
K_{oc} /organic carbon:water partitioning coefficient (L/kg)	chemical-specific
f_{oc} /fractional organic carbon content (g/g)	0.001
d /depth of groundwater mixing zone (cm)	152.4
θ /average volumetric soil moisture content of unsaturated zone (cm^3/cm^3)	0.1
t /thickness of  (cm)	15
ρ /soil dry bulk density (g/cm^3)	1.35
n /porosity (cm^3/cm^3)	0.49

ALL PAH numbers Direct Contact Number OK

Groundwater numbers use equation above (screening)

$S_{\text{soil}} \times \text{DAF} = \text{less restrictive number}$

which ever is more
restrictive
direct contact
entire soil
column (be
flexible)

Reference
Dose 5 EPA
Lower Slope
factors
EPA for BA Pot only

PAHXL9

DRAFT



RCL (mg/kg)

Compound	RfDo	RfDi	CSFo	CSFi	non-industrial		Industrial		RCL (mg/kg)					
					non-cancer	cancer	non-cancer	cancer	non-industrial	industrial				
					Ingest	Inhal	Ingest	Inhal	Ingest	Inhal				
acenaphthalene	8.00E-02		7.30E-03	6.10E-03	938.571	na	8.77193	99726.8	61320	na	392	1396175	900	60000
anthracene	3.00E-01				4692.86	na			308600	na			5000	300000
benzo(a)pyrene			7.3	6.1		na	0.00877	99.7268		na	0.392	13961.7	0.009	0.4
benzo(b)fluoranthene			7.30E-01	6.10E-01		na	0.08772	997.268		na	3.92	13961.7	0.09	4
benzo(k)fluoranthene			7.30E-02	6.10E-02		na	0.67719	9972.68		na	39.2	13961.7	0.9	40
benz(a)anthracene			7.30E-01	6.10E-01		na	0.08772	997.268		na	3.92	13961.7	0.09	4
chrysene			7.30E-03	6.10E-03		na	8.77193	99726.8		na	392	1396175	9	400
dibenz(ah)anthracene			7.3	6.1		na	0.00877	99.7268		na	0.392	13961.7	0.009	0.4
			38.5	30.5		na	0.00175	18.8454		na	0.0784	279.235	0.002	0.08
fluoranthene	4.00E-02				625.714	na			40680	na			600	40000
fluorene	4.00E-02				625.714	na			40680	na			600	40000
naphthalene	4.00E-02				625.714	na			40680	na			600	40000
indeno(1,2,3-cd)pyrene			7.30E-01	6.10E-01		na	0.08772	997.268		na	3.92	13961.7	0.09	4
pyrene	3.00E-02				469.206	na			30660	na			500	30000
1-methyl naphthalene			7.30E-03	6.10E-03		na	8.77193	99726.8		na	392	1396175	9	400
2-methyl naphthalene			7.30E-03	6.10E-03		na	8.77193	99726.8		na	392	1396175	9	400
phenanthrene			7.30E-02	6.10E-02		na	0.87719	9972.68		na	39.2	13961.7	0.9	40

High
low

groundwater

Compound	RID	CSF	ES		Koc	DAF	RCL (mg/kg)	
			PAL	PAL			Soil	Water
acenaphthalene	8.00E-02		600	120	2.60E+03	392.684	121.299	120
anthracene	3.00E-01		3000	600	1.40E+04	1970.02	16337.8	20000
benzo(a)pyrene		7.3	0.003	0.0003	6.60E+08	754430	121783	1000
benzo(b)fluoranthene		7.30E-01	0.04795	0.00479	5.50E+06	75487.8	150067	200
benzo(k)fluoranthene		7.30E-02	0.47945	0.04795	5.50E+05	75487.8	1970.87	2000
benz(a)anthracene		7.30E-01	0.04795	0.00479	1.38E+08	189331	1212.78	1300
chrysene		7.30E-03	4.79452	0.47945	2.00E+05	27481.8	2736.22	2500
dibenz(ah)anthracene		7.3	0.00479	0.00048	3.30E+06	452678	718.939	720
		38.5	0.00098	9.8E-05	3.30E+06	452678	43.248	140
fluoranthene	4.00E-02		400	80	3.80E+04	5261.86	18027.2	20000
fluorene	4.00E-02		400	80	7.30E+03	1051.05	620.049	600
naphthalene	4.00E-02		40	8	1.30E+03	228.092	2.50732	3
indeno(1,2,3-cd)pyrene		7.30E-01	0.04795	0.00479	1.60E+08	218506	1683.06	1700
pyrene	3.00E-02		300	60	3.80E+04	5261.88	12020.4	10000
1-methyl naphthalene		7.30E-03	4.79452	0.47945		48.764	0.00177	5
2-methyl naphthalene		7.30E-03	4.79452	0.47945	8.50E+03	1215.64	4.89734	5
phenanthrene		7.30E-02	0.47945	0.04795	1.40E+04	1970.02	1.32934	1.3

SDHHS
Formula 5
PPb

Soil partitioning

SOILS for G.W.A.T.E.R.

720.19 applies for now. Use this for check.
This will go out as release news
Use this in closure meetings only.
Send Mike Barden PAH data for

2 questions

what is direct contact? when would it apply

direct contact

Compound	CAS #	RfDo	RfDI	CSFo	CSFI	Class	non-industrial		industrial				RCL (mg/kg)			
							non-cancer		cancer		non-cancer		cancer		non-industrial	indu
							ingest	inhal	ingest	inhal	ingest	inhal	ingest	inhal		
acenaphthene	83-32-9	6.00E-02	na			D	900	na			60000	na			900	e
acenaphthylene	208-98-8			7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	
anthracene	120-12-7	3.00E-01	na			D	5000	na			300000	na			5000	30
benz(a)anthracene	56-55-3			7.30E-01	6.10E-01	B2			0.088	1000			3.9	14000	0.088	
benzo(a)pyrene	50-32-8			7.3	6.1	B2			0.0088	100			0.39	1400	0.0088	
benzo(b)fluoranthene	205-99-2			7.30E-01	6.10E-01	B2			0.088	1000			3.9	14000	0.088	
benzo(ghi)perylene	191-24-2			7.30E-02	6.10E-02	D			0.88	10000			39	140000	0.88	
benzo(j)fluoranthene	205-82-3															
benzo(k)fluoranthene	207-08-9			7.30E-02	6.10E-02	B2			0.88	10000			39	140000	0.88	
chrysene	218-01-9			7.30E-03	6.10E-03	B2			8.8	100000			390	1400000	8.8	
dibenz(ah)anthracene	53-70-3	high low		7.3	6.1	B2			0.0088	100			0.39	1400	0.0088	
				36.5	30.5	B2			0.0018	20			0.078	280	0.0018	
fluoranthene	208-44-0	4.00E-02	na			D	600	na			40000	na			600	4
fluorene	86-73-7	4.00E-02	na			D	600	na			40000	na			600	4
indeno(123-cd)pyrene	193-39-5			7.30E-01	6.10E-01	B2			0.088	1000			3.9	14000	0.088	
1-methyl naphthalene				7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	
2-methyl naphthalene	91-57-6			7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	
naphthalene	91-20-3	4.00E-02	na			D	600	na			40000	na			600	4
phenanthrene	85-01-8			7.30E-02	6.10E-02	D			0.88	10000			39	140000	0.88	
pyrene	129-00-00	3.00E-02	na			D	500	na			30000	na			500	3

na = not available/not applicable

groundwater

Compound	CAS #	RfD	CSF	Class	ES (ug/L)	PAL (ug/L)	NR 140?	Koc	DAF	RCL (mg/kg)
acenaphthene	83-32-9	6.00E-02		D	800	120		2.50E+03	390	120
acenaphthylene	208-98-8		7.30E-03	D	4.8	0.98		2.50E+03	390	0.98
anthracene	120-12-7	3.00E-01		D	3000	600		1.40E+04	2000	17000
benz(a)anthracene	56-55-3		7.30E-01	B2	0.048	0.0048		1.38E+08	190000	1300
benzo(a)pyrene	50-32-8		7.3	B2	0.003	0.0003	y	5.50E+06	750000	1200
				B2	0.2	0.02	p	5.50E+06	750000	83000
benzo(b)fluoranthene	205-99-2		7.30E-01	B2	0.048	0.0048		5.50E+05	75000	200
benzo(ghi)perylene	191-24-2		7.30E-02	D	0.48	0.098		1.60E+06	220000	34000
benzo(j)fluoranthene	205-82-3									
benzo(k)fluoranthene	207-08-9		7.30E-02	B2	0.48	0.048		5.50E+05	75000	2000
chrysene	218-01-9		7.80E-03	B2	4.8	0.48		2.00E+05	27000	2600
dibenz(ah)anthracene	53-70-3	high low	7.3	B2	0.0048	0.00048		3.30E+06	450000	710
			36.5	B2	0.00098	0.000098		3.30E+06	450000	140
fluoranthene	208-44-0	4.00E-02		D	400	80		3.80E+04	5300	16000
fluorene	86-73-7	4.00E-02		D	400	80		7.30E+03	1100	850
indeno(123-cd)pyrene	193-39-5		7.30E-01	B2	0.048	0.0048	p	1.60E+06	220000	1700
1-methyl naphthalene			7.30E-03	D	4.8	0.98		8.50E+03	1200	9.9
2-methyl naphthalene	91-57-6		7.30E-03	D	4.8	0.98		8.50E+03	1200	9.9
naphthalene	91-20-3	4.00E-02		D	40	8	y	1.30E+03	230	2.5
phenanthrene	85-01-8		7.30E-02	D	0.48	0.098		1.40E+04	2000	2.7
pyrene	129-00-00	3.00E-02		D	300	60		3.80E+04	5300	12000

y = included in NR 140
p = proposed for inclusion in NR 140

Takes Effect in August 1995

Ron J.

Table I
Proposed New and Revised Public Health Groundwater Quality Standards

Substance	Enforcement Standard (micrograms per liter- except as noted)	Preventive Action Limit (micrograms per liter except as noted)
Antimony	6	1.2
Benzo(a)pyrene	0.003 0.2	0.0003 0.02
Beryllium	4	0.4
Bromodichloromethane	170 0.6	36 0.06
Bromomethane	10	1
Chloromethane	3	0.3
Dacthal	4 mg/l	0.8 mg/l
Dibromochloromethane	215 60	43 6
1,3-Dichloropropene(cis/trans)	0.2	0.02
Di(2-ethylhexyl) phthalate	3 6	0.3 0.6
Dinoseb	13 7	2.6 1.4
Dioxin (2,3,7,8-TCDD)	0.00000022 0.00003	0.000000022 0.000003
Endrin	2 2	0.2 0.4
Fluorene	400	80
Hexachlorobenzene	1	0.1
Methylene Chloride (Dichloromethane)	150 5	15 0.5
Nickel	100	20
Picloram	500	100
Simazine	1.7 4	0.17 0.4
1,1,2,2-Tetrachloroethane	0.2	0.02
Thallium	2	0.4
1,2,4-Trichlorobenzene	70	14

Post-It™ brand fax transmittal memo 7671 (9 of pages)	
To	Ron Grove
From	STEVE KARKLUS
Co.	DNR
Phone #	608-266-5240
Fax #	608-267-2800
Dept.	
Fax #	414-256-4065

Soil

- Integrate
 - U.S. E
 - Update
- Health E (HEAST)
 - Update
- Other U.
- U.S. EP/ Table (R

Determining Soil Clean Based on Protection c Health From Direct Co Soil Contaminar

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Bas

- Non-carcin
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 - Any expc
risk

Components of a To

- Animal data
 - NOAEL
 - LOAEL
- Safety factors
 - Extrapolation
 - Uncertainty

space for notes:

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Exposure Factors

- Default values are provided in s. NR 720.19
- Can be modified for site-specific circumstances if adequate justification
 - Alternative land use scenarios
 - ✓ Commercial
 - ✓ Agricultural
 - ✓ Light industry
 - Alternative exposure assumptions are demonstrated to be appropriate for a particular site
 - ✓ Site use surveys
 - ✓ Site data

space for notes:

direct contact

Compound	CAS #	RfDo	RfD	CSFs	CSFI	Class	non-industrial				industrial				RCL (mg/kg)	
							non-cancer		cancer		non-cancer		cancer		non-industrial	industrial
							ingest	inhal	ingest	inhal	ingest	inhal	ingest	inhal		
scenaphthene	83-32-9	6.00E-02	na			D	900	na			60000	na			900	60000
scenaphthylene	208-98-8			7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	390
anthracene	120-12-7	3.00E-01	na			D	5000	na			300000	na		5000	300000	
benz(a)anthracene	56-55-3			7.30E-01	6.10E-01	B2			0.068	1000			3.9	14000	0.068	3.9
benzo(a)pyrene	50-32-8			7.3	6.1	B2			0.0088	100			0.39	1400	0.0088	0.39
benzo(b)fluoranthene	205-99-2			7.30E-01	6.10E-01	B2			0.068	1000			3.9	14000	0.068	3.9
benzo(ghi)perylene	191-24-2			7.30E-02	6.10E-02	D			0.88	10000			39	140000	0.88	39
benzo(j)fluoranthene	205-82-3															
benzo(k)fluoranthene	207-08-9			7.30E-02	6.10E-02	B2			0.88	10000			39	140000	0.88	39
chrysene	218-01-9			7.30E-03	6.10E-03	B2			8.8	100000			390	1400000	8.8	390
dibenz(ah)anthracene	53-70-3	high low		7.3	6.1	B2			0.0088	100			0.39	1400	0.0088	0.39
				36.5	30.8	B2			0.0018	20			0.078	280	0.0018	0.078
fluoranthene	208-44-0	4.00E-02	na			D	800	na			40000	na		600	40000	
fluorene	86-73-7	4.00E-02	na			D	800	na			40000	na		600	40000	
indeno(123-cd)pyrene	193-39-5			7.30E-01	6.10E-01	B2			0.068	1000			3.9	14000	0.068	3.9
1-methyl naphthalene				7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	390
2-methyl naphthalene	91-57-6			7.30E-03	6.10E-03	D			8.8	100000			390	1400000	8.8	390
naphthalene	91-20-3	4.00E-02	na			D	800	na			40000	na		600	40000	
phenanthrene	85-01-8			7.30E-02	6.10E-02	D			0.88	10000			39	140000	0.88	39
pyrene	129-00-00	3.00E-02	na			D	500	na			30000	na		500	30000	

na = not available/not applicable

groundwater

Compound	CAS #	RfD	CSF	Class	ES (ug/L)	PAL (ug/L)	NR 140?	Koc	DAF	RCL (mg/kg)
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anthracene	120-12-7	3.00E-01		D	3000	600		1.40E+04	2000	17000
benz(a)anthracene	56-55-3		7.30E-01	B2	0.048	0.0048		1.38E+06	190000	1300
benzo(a)pyrene	50-32-8		7.3	B2	0.003	0.0003	y	5.50E+06	750000	1200
				B2	0.2	0.02	p	5.50E+06	750000	83000
benzo(b)fluoranthene	205-99-2		7.30E-01	B2	0.048	0.0048		5.50E+05	75000	200
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			36.5	B2	0.00098	0.000098		3.30E+06	450000	140
fluoranthene	208-44-0	4.00E-02		D	400	80		3.80E+04	5300	16000
fluorene	86-73-7	4.00E-02		D	400	80		7.30E+03	1100	650
indeno(123-cd)pyrene	193-39-5		7.30E-01	B2	0.048	0.0048	p	1.80E+06	220000	1700
1-methyl naphthalene			7.30E-03	D	4.8	0.98		8.50E+03	1200	9.9
2-methyl naphthalene	91-57-6		7.30E-03	D	4.8	0.98		8.50E+03	1200	9.9
naphthalene	91-20-3	4.00E-02		D	40	8	y	1.30E+03	230	2.5
phenanthrene	85-01-8		7.30E-02	D	0.48	0.098		1.40E+04	2000	2.7
pyrene	129-00-00	3.00E-02		D	300	60		3.80E+04	5300	12000

y = included in NR 140

p = proposed for inclusion in NR 140

EPA Region III Risk-Based Concentration Table

Background Information



Roy L. Smith, Ph.D.
Senior Toxicologist
February 9, 1995

Development of Risk-Based Concentrations

General

Separate carcinogenic and non-carcinogenic risk-based concentrations were calculated for each compound for each pathway. The concentration in the table is the lower of the two, rounded to two significant figures. The following terms and values were used in the calculations:

Exposure variables	Value	Symbol
<i>General:</i>		
Carcinogenic potency slope oral (risk per mg/kg/d):	*	CPSo
Carcinogenic potency slope inhaled (risk per mg/kg/d):	*	CPSi
Reference dose oral (mg/kg/d):	*	RfDo
Reference dose inhaled (mg/kg/d):	*	RfDi
Target cancer risk:	1e-06	TR
Target hazard quotient:	1	THQ
Body weight, adult (kg):	70	BWa
Body weight, age 1-6 (kg):	15	BWc
Averaging time carcinogens (d):	25550	ATc
Averaging time non-carcinogens (d):	ED*365	ATn
Inhalation, adult (m ³ /d):	20	IRAA
Inhalation, child (m ³ /d):	12	IRAc
Inhalation factor, age-adjusted (m ³ -y/kg-d):	11.66	IFAadj
Tap water ingestion, adult (L/d):	2	IRWa
Tap water ingestion, age 1-6 (L/d):	1	IRWc
Tap water ingestion factor, age-adjusted (L-y/kg-d):	1.09	IFWadj
Fish ingestion (g/d):	54	IRF
Soil ingestion, adult (mg/d):	100	IRSa
Soil ingestion, age 1-6 (mg/d):	200	IRSc
Soil ingestion factor, age adjusted (mg-y/kg-d):	114.29	IFSadj
<i>Residential:</i>		
Exposure frequency (d/y):	350	EFr
Exposure duration, total (y):	30	EDtot
Exposure duration, age 1-6 (y):	6	EDc
Volatilization factor (L/m ³):	0.5	K'

Exposure variables	Value	Symbol
<i>Occupational:</i>		
Exposure frequency (d/y):	250	EFo
Exposure duration (y):	25	EDo
Fraction of contaminated soil ingested (unitless)	0.5	FC

* Contaminant-specific toxicological constants. The priority among sources of toxicological constants was as follows: (1) IRIS, (2) HEAST, (3) HEAST alternative method, (4) EPA Superfund Health Risk Technical Support Center, (5) withdrawn from IRIS or HEAST, and (6) other EPA documents. Each source was used only if numbers from higher-priority sources were unavailable. The EPA Superfund Health Risk Technical Support Center, part of the Chemical Mixtures Branch of ECAO-Cincinnati, develops provisional RfDs and CPSs on request for contaminants not in IRIS or HEAST. These provisional values are labeled "E = EPA-ECAO provisional" in the table. It is possible they may be obsolete. If one of the "E" constants is important to a Superfund risk assessment, consider requesting, through a Regional risk assessor, a new provisional value.

Age-adjusted factors

Because contact rates with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors. These factors approximated the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults. The age-adjusted factor for soil was obtained from RAGS IB; the others were developed by analogy.

Air inhalation

$$IFAadj \frac{m^3 \cdot y}{kg \cdot d} = \frac{EDc \cdot IRAc}{BWc} + \frac{(EDtot - EDc) \cdot IRAa}{BWA}$$

Tap water ingestion

$$IFWadj \frac{L \cdot y}{kg \cdot d} = \frac{EDc \cdot IRWc}{BWc} + \frac{(EDtot - EDc) \cdot IRWa}{BWA}$$

Soil ingestion

$$IFSadj \frac{mg \cdot y}{kg \cdot d} = \frac{EDc \cdot IRSc}{BWc} + \frac{(EDtot - EDc) \cdot IRSa}{BWA}$$

Residential water

Volatilization terms were calculated only for compounds with a mark in the "VOC" column. Compounds having a Henry's Law constant greater than 10^{-5} were considered volatile. The list may be incomplete, but is unlikely to include false positives. The equations and the volatilization factor (K, above) were obtained from RAGS IB. Oral potency slopes and reference doses were used for both oral and inhaled exposures for volatile compounds lacking inhalation values. Inhaled potency slopes were substituted for unavailable oral potency slopes only for volatile compounds; inhaled RfDs were substituted for unavailable

oral RfDs for both volatile and non-volatile compounds. RBCs for carcinogens were based on combined childhood and adult exposure; for non-carcinogens RBCs were based on adult exposure.

Carcinogens

$$RBC \frac{\mu\text{g}}{\text{L}} = \frac{TR \cdot ATc \cdot 1000 \frac{\mu\text{g}}{\text{mg}}}{Efr \cdot ([K \cdot IFAadj \cdot CPSi] + [IFWadj \cdot CPSo])}$$

Non-carcinogens

$$RBC \frac{\mu\text{g}}{\text{L}} = \frac{THQ \cdot BWa \cdot ATn \cdot 1000 \frac{\mu\text{g}}{\text{mg}}}{Efr \cdot EDtot \cdot \left(\frac{K \cdot IRAa}{RfDi} + \frac{IRWa}{RfDo} \right)}$$

Ambient air

Oral potency slopes and references were used where inhalation values were not available. RBCs for carcinogens were based on combined childhood and adult exposure; for non-carcinogens RBCs were based on adult exposure.

Carcinogens

$$RBC \frac{\mu\text{g}}{\text{m}^3} = \frac{TR \cdot ATc \cdot 1000 \frac{\mu\text{g}}{\text{mg}}}{Efr \cdot IFAadj \cdot CPSi}$$

Non-carcinogens

$$RBC \frac{\mu\text{g}}{\text{m}^3} = \frac{THQ \cdot RfDi \cdot BWa \cdot ATn \cdot 1000 \frac{\mu\text{g}}{\text{mg}}}{Efr \cdot EDtot \cdot IRAa}$$

Edible fish

All RBCs were based on adult exposure.

Carcinogens

$$RBC \frac{\text{mg}}{\text{kg}} = \frac{TR \cdot BWa \cdot ATc}{Efr \cdot EDtot \cdot \frac{IRF}{1000 \frac{\text{g}}{\text{kg}}} \cdot CPSo}$$

Non-carcinogens

$$RBC \frac{\text{mg}}{\text{kg}} = \frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{Efr \cdot EDtot \cdot \frac{IRF}{1000 \frac{\text{g}}{\text{kg}}}}$$

Commercial/industrial soil ingestion

RBCs were based on adult occupational exposure, including an assumption that only 50% of total soil ingestion is work-related.

Carcinogens

$$RBC \frac{mg}{kg} = \frac{TR \cdot BWa \cdot ATc}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}} \cdot FC \cdot CPSo}$$

Non-carcinogens

$$RBC \frac{mg}{kg} = \frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFo \cdot EDo \cdot \frac{IRSa}{10^6 \frac{mg}{kg}} \cdot FC}$$

Residential soil ingestion

RBCs for carcinogens were based on combined childhood and adult exposure; RBCs for non-carcinogens were based on childhood exposure only.

Carcinogens

$$RBC \frac{mg}{kg} = \frac{TR \cdot ATc}{EFr \cdot \frac{IFsadj}{10^6 \frac{mg}{kg}} \cdot CPSo}$$

Non-carcinogens

$$RBC \frac{mg}{kg} = \frac{THQ \cdot RfDo \cdot BWc \cdot ATn}{EFr \cdot EDC \cdot \frac{IRSc}{10^6 \frac{mg}{kg}}}$$

Development of Soil Screening Levels**General**

In December 1994 the EPA Office of Solid Waste and Emergency Response proposed Soil Screening Guidance (Document 9355.4-1, PB95-963530, EPA540/R-94/101, available through NTIS at 703-487-4650). This draft 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) soil screening levels for 107 substances.

Consistent with this new guidance, the risk-based concentration table now includes two columns of generic soil screening levels (SSLs). OSWER's 107 proposed soil screening levels have been added verbatim. In addition, the proposed SSL methodology has been used to calculate soil screening levels for more substances, which are also included in the

new table. The table clearly distinguishes the OSWER SSLs from the "unofficial" ones.

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. "Protective" is defined in the same terms as the risk-based concentrations for tap water and air -- that residential contact scenarios will yield a fixed upper bound risk of 10^{-6} or a fixed hazard quotient of 1 (whichever occurs at the lower concentration).

OSWER's SSLs should be used only within the framework proposed in the guidance document. The additional SSLs included in the RBC table are intended for the same uses (although they obviously carry less weight than the formally proposed numbers).

The SSLs are based on the following assumptions:

Input variables	Value	Symbol*
Surface soil moisture content (g/g)	0.1	W_s
Vadose zone soil moisture content (kg/kg)	0.2	W_v
Surface soil bulk density (g/cm ³)	1.5	ρ_{bs}
Vadose zone soil bulk density (kg/L)	1.5	ρ_{bv}
Surface soil particle density (g/cm ³)	2.65	ρ_{ps}
Vadose zone soil particle density (g/cm ³)	2.65	ρ_{pv}
Total surface soil porosity (L pore /L soil)	0.43	N_s
Total vadose zone soil porosity (L pore/L soil)	0.43	N_v
Air-filled surface soil porosity (L air/L soil)	0.28	θ_{sa}
Water-filled surface soil porosity (L water/L soil)	0.15	θ_{sw}
Air-filled vadose zone soil porosity (L air/L soil)	0.13	θ_{va}
Water-filled vadose zone soil porosity (L water/L soil)	0.30	θ_{vw}
Organic carbon fraction of surface soil (g/g)	0.006	FOC _s
Organic carbon fraction of vadose zone soil (g/g)	0.002	FOC _v
Dispersion factor for 0.5 acres (g/m ² s per kg/m ³)	35.1	Q/C
Particulate emission factor (m ³ /kg)	6.79e+08	PEF
Exposure interval (s)	9.50e+08	T
Dilution-attenuation factor (unitless)	10	DAF

*: Symbols were adjusted, variables were rearranged, and derived and chemical-specific variables were omitted for simplicity and clarity. Presentation of the input variables in a single table using the same terms as in the OSWER SSL document would have been confusing. The terms used here are generally similar to OSWER's, and can easily be compared with the SSL guidance document.

With two exceptions described in the following section, SSL calculations were based on the same algorithms presented in the OSWER draft SSL guidance document. For details of the calculations (and for general background information on SSLs), I strongly recommend

consulting that document. The "unofficial" SSLs were developed under the following conditions:

Soil Screening Levels for Inhalation

Inhaled reference doses and potency slopes were used if available. If inhalation values were not available, oral RfDs and potency slopes were substituted. SSLs were calculated only for substances for which aqueous solubility, Koc, Henry's Law constant, and diffusivity in air were available. SSLs were calculated only for substances for which a volatilization factor could be calculated. This was done because OSWER's large proposed particulate emission factor rendered it pointless to estimate SSLs for particulate emissions alone. The final calculated SSL shown in the RBC table is the smaller of the risk-based SSL and the soil saturation concentration. All calculated SSLs were rounded to 2 significant figures.

The OSWER risk algorithms for inhalation were revised in order to be consistent with the rest of the RBC table. Only calculated SSLs were affected by this; SSLs proposed by OSWER are presented verbatim. Calculated SSLs for inhalation of carcinogens were based on an integrated lifetime exposure rather than adult exposure. SSLs for inhalation of noncarcinogens were based on adult exposure for 350 days per year rather than 365 days per year. The following algorithms were used to calculate inhalation SSLs:

Carcinogens

$$SSL \frac{mg}{kg} = \frac{TR \cdot ATc}{Efr \cdot IFAadj \cdot \left(\frac{1}{VF} + \frac{1}{PEF} \right) \cdot CPSi}$$

Non-carcinogens

$$SSL \frac{mg}{kg} = \frac{THQ \cdot BWa \cdot ATn \cdot RfDi}{Efr \cdot EDtot \cdot IRAa \cdot \left(\frac{1}{VF} + \frac{1}{PEF} \right)}$$

Soil Screening Levels for Groundwater Use

All algorithms were as proposed by OSWER. MCLs were used as target groundwater concentrations if available. If MCLs were unavailable the risk-based concentration in the "tap water" column of the RBC table was used as the target groundwater concentration. All SSLs for groundwater are based on a dilution-attenuation factor (DAF) of 10. Since these SSLs scale linearly with DAF, the SSLs for DAF=1 would be ten times lower. They were omitted to conserve space. All groundwater SSLs were rounded to 2 significant figures and capped at unity.

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST E=EPA-ECAO Regional Support provisional value O=Other EPA documents.							Basis: C=carcinogenic effects N=noncarcinogenic effects E=EPA draft Soil Screening Level S=soil saturation concentration.						
Contaminant	CAS	Risk-Based Concentrations				V O C	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:	
		RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg		Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Soil Ingestion Industrial Residential mg/kg mg/kg		Air mg/kg	Groundwater mg/kg
Acephate	30560191	4.00E-03		8.70E-03			7.7 c	0.72 c	0.36 c	660 c	73 c		
Acetaldehyde	75070		2.57E-03		7.70E-03		94 n	0.81 c					
Acetochlor	34256821	2.00E-02					730 n	73 n	27 n	41000 n	1600 n		
Acetone	67641	1.00E-01					3700 n	370 n	140 n	200000 n	7800 n	62000 e	8 e
Acetone cyanohydrin	75865	7.00E-02	4.00E-02	A			2600 n	150 n	95 n	140000 n	5500 n		
Acetonitrile	75078	6.00E-03	1.43E-02	A			220 n	52 n	8.1 n	12000 n	470 n		
Acetophenone	98862	1.00E-01	5.71E-06	w			0.042 n	0.021 n	140 n	200000 n	7800 n		
Acifluorfen	62476599	1.30E-02					470 n	47 n	18 n	27000 n	1000 n		
Acrolein	107028	2.00E-02	5.71E-06				730 n	0.021 n	27 n	41000 n	1600 n		
Acrylamide	79061	2.00E-04		4.50E+00	4.55E+00		0.015 c	0.0014 c	0.0007 c	1.3 c	0.14 c		
Acrylic acid	79107	5.00E-01	1.00E-03				18000 n	3.7 n	680 n	1E+06 n	39000 n		
Acrylonitrile	107131	1.00E-03	5.71E-04		5.40E-01	2.38E-01	0.12 c	0.026 c	0.0058 c	11 c	1.2 c		
Alachlor	15972608	1.00E-02		8.00E-02	n		0.84 c	0.078 c	0.039 c	72 c	8 c		
Alar	1596845	1.50E-01					5500 n	550 n	200 n	310000 n	12000 n		
Aldicarb	116063	1.00E-03					37 n	3.7 n	1.4 n	2000 n	78 n	570 s	0.036 n
Aldicarb sulfone	1646884	1.00E-03					37 n	3.7 n	1.4 n	2000 n	78 n		
Aldrin	309002	3.00E-05		1.70E+01	1.71E+01		0.004 c	0.00037 c	0.00019 c	0.34 c	0.038 c	0.5 e	0.005 e
Allyl	74223646	2.50E-01					9100 n	910 n	340 n	510000 n	20000 n		
Allyl alcohol	107186	5.00E-03					180 n	18 n	6.8 n	10000 n	390 n		
Allyl chloride	107051	5.00E-02	2.86E-04				1800 n	1 n	68 n	100000 n	3900 n		
Aluminum	7429905	1.00E+00	E				37000 n	3700 n	1400 n	1E+06 n	78000 n		
Aluminum phosphide	20859738	4.00E-04					15 n	1.5 n	0.54 n	820 n	31 n		
Amdro	67485294	3.00E-04					11 n	1.1 n	0.41 n	610 n	23 n		
Ametryn	834128	9.00E-03					330 n	33 n	12 n	18000 n	700 n		
m-Aminophenol	591275	7.00E-02	n				2600 n	260 n	95 n	140000 n	5500 n		
4-Aminopyridine	504245	2.00E-05	n				0.73 n	0.073 n	0.027 n	41 n	1.6 n		
Amitraz	33089611	2.50E-03					91 n	9.1 n	3.4 n	5100 n	200 n		
Ammonia	7664417		2.86E-02				1000 n	100 n					
Ammonium sulfamate	7773060	2.00E-01					7300 n	730 n	270 n	410000 n	16000 n		
Aniline	62533		2.86E-04	5.70E-03			10 n	1 n	0.55 c	1000 c	110 c	45 n	0.031 n
Antimony and compounds	7440360	4.00E-04					15 n	1.5 n	0.54 n	820 n	31 n		
Antimony pentoxide	1314609	5.00E-04	n				18 n	1.8 n	0.68 n	1000 n	39 n		
Antimony potassium tartrate	304610	9.00E-04	n				33 n	3.3 n	1.2 n	1800 n	70 n		
Antimony tetroxide	1332316	4.00E-04	n				15 n	1.5 n	0.54 n	820 n	31 n		
Antimony trioxide	1309644	4.00E-04	n				15 n	1.5 n	0.54 n	820 n	31 n		
Apollo	74115245	1.30E-02					470 n	47 n	18 n	27000 n	1000 n		
Aramite	140578	5.00E-02	n	2.50E-02	2.49E-02		2.7 c	0.25 c	0.13 c	230 c	26 c		
Arsenic	7440382	3.00E-04					11 n	1.1 n	0.41 n	610 n	23 n	380 e	15 e
Arsenic (as carcinogen)	7440382			1.75E+00	1.51E+01		0.038 c	0.00041 c	0.0018 c	3.3 c	0.37 c	380 e	15 e
Arsine	7784421		1.43E-05				0.52 n	0.052 n					
Assure	76578148	9.00E-03					330 n	33 n	12 n	18000 n	700 n		

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Contaminant	CAS	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:						
		RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg d/mg	CPSi kg d/mg	V C	Tap Water	Ambient Air	Fish	Soil Ingestion		Air	Groundwater
							µg/L	µg/m3	mg/kg	Industrial mg/kg	Residential mg/kg	mg/kg	mg/kg
sec-Butylbenzene	135988	1.00E-02 E				☒	61 N	37 N	14 N	20000 N	780 N	80 S	0.27 N
tert-Butylbenzene	104518	1.00E-02 E				☒	61 N	37 N	14 N	20000 N	780 N		
Butylphthalyl butylglycolate	85701	1.00E+00 I					37000 N	3700 N	1400 N	1E+06 N	78000 N		
Cacodylic acid	75605	3.00E-03 H					110 N	11 N	4.1 N	6100 N	230 N		
Cadmium and compounds	7440439	5.00E-04 I			6.30E+00 I		18 N	0.00099 C	0.68 N	1000 N	39 N	920 E	6 E
Caprolactam	105602	5.00E-01 I					18000 N	1800 N	680 N	1E+06 N	39000 N		
Captafol	2425061	2.00E-03 I		8.60E-03 H			7.8 C	0.73 C	0.37 C	670 C	74 C		
Captan	133062	1.30E-01 I		3.50E-03 H			19 C	1.8 C	0.9 C	1600 C	180 C		
Carbaryl	63252	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N	0.34 S	23 N
Carbofuran	1563662	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N		
Carbon disulfide	75150	1.00E-01 I	2.86E-03 H			☒	21 N	10 N	140 N	20000 N	7800 N	11 E	14 E
Carbon tetrachloride	56235	7.00E-04 I	5.71E-04 E	1.30E-01 I	5.25E-02 I	☒	0.16 C	0.12 C	0.024 C	44 C	4.9 C	0.2 E	0.03 E
Carbosulfan	55285148	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
Carboxin	5234684	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N		
Chloral	75876	2.00E-03 I					73 N	7.3 N	2.7 N	4100 N	160 N		
Chloramben	133904	1.50E-02 I					550 N	55 N	20 N	31000 N	1200 N		
Chloranil	118752			4.03E-01 H			0.17 C	0.016 C	0.0078 C	14 C	1.6 C		
Chlordane	57749	6.00E-05 I		1.30E+00 I	1.29E+00 I		0.052 C	0.0049 C	0.0024 C	4.4 C	0.49 C	10 E	2 E
Chlorimuron-ethyl	90982324	2.00E-02 I					730 N	73 N	27 N	41000 N	1600 N		
Chlorine	7782505	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N		
Chlorine dioxide	10049044		5.71E-05 I				2.1 N	0.21 N					
Chloroacetaldehyde	107200	6.90E-03 O					250 N	25 N	9.3 N	14000 N	540 N		
Chloroacetic acid	79118	2.00E-03 H					73 N	7.3 N	2.7 N	4100 N	160 N		
2-Chloroacetophenone	532274		8.57E-06 I				0.31 N	0.031 N					
4-Chloroaniline	106478	4.00E-03 I					150 N	15 N	5.4 N	8200 N	310 N	1200 S	0.3 E
Chlorobenzene	108907	2.00E-02 I	5.71E-03 A			☒	39 N	21 N	27 N	41000 N	1600 N	94 E	0.6 E
Chlorobenzilate	510156	2.00E-02 I		2.70E-01 H	2.70E-01 H		0.25 C	0.023 C	0.012 C	21 C	2.4 C		
p-Chlorobenzoic acid	74113	2.00E-01 H					7300 N	730 N	270 N	410000 N	16000 N		
4-Chlorobenzotrifluoride	98566	2.00E-02 H					730 N	73 N	27 N	41000 N	1600 N	86 N	7.5 N
2-Chloro-1,3-butadiene	126998	2.00E-02 A	2.00E-03 H			☒	14 N	7.3 N	27 N	41000 N	1600 N		
1-Chlorobutane	109693	4.00E-01 H				☒	2400 N	1500 N	540 N	820000 N	31000 N		
Chlorodibromomethane	124481	2.00E-02 I		8.40E-02 I		☒	0.13 C	0.075 C	0.038 C	68 C	7.6 C	1900 E	0.2 E
Chlorodifluoromethane	75456		1.43E+01 I			☒	87000 N	52000 N					
Chloroethane	75003	4.00E-01 E	2.86E+00 I			☒	8600 N	10000 N	540 N	820000 N	31000 N	2600 S	33 N
2-Chloroethyl vinyl ether	110758	2.50E-02 O				☒	150 N	91 N	34 N	51000 N	2000 N		
Chloroform	67663	1.00E-02 I		6.10E-03 I	8.05E-02 I	☒	0.15 C	0.078 C	0.52 C	940 C	100 C	0.2 E	0.3 E
Chloromethane	74873			1.30E-02 H	6.30E-03 H	☒	1.4 C	0.99 C	0.24 C	440 C	49 C	0.063 C	0.0066 C
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 H			0.15 C	0.014 C	0.0069 C	12 C	1.4 C		
4-Chloro-2-methylaniline	95692			5.80E-01 H			0.12 C	0.011 C	0.0054 C	9.9 C	1.1 C		
beta-Chloronaphthalene	91587	8.00E-02 I					2900 N	290 N	110 N	160000 N	6300 N	2.8 S	140 N
o-Chloronitrobenzene	88733			2.50E-02 H		☒	0.42 C	0.25 C	0.13 C	230 C	26 C		

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Contaminant	CAS	Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST E=EPA-ECAO Regional Support provisional value O=Other EPA documents.				Basis: C=carcinogenic effects N=noncarcinogenic effects E=EPA draft Soil Screening Level S=soil saturation concentration.							
		RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg-d/mg	CPSi kg-d/mg	V O C	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:	
							Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion		Air mg/kg	Groundwater mg/kg
										Industrial mg/kg	Residential mg/kg		
DDT	50293	5.00E-04 I		3.40E-01 I	3.40E-01 I		0.2 c	0.018 c	0.0093 c	17 c	1.9 c	80 E	1 E
Decabromodiphenyl ether	1163195	1.00E-02 I				☒	61 N	37 N	14 N	20000 N	780 N		
Demeton	8065483	4.00E-05 I					1.5 N	0.15 N	0.054 N	82 N	3.1 N		
Diallate	2303164			6.10E-02 H		☒	0.17 c	0.1 c	0.052 c	94 c	10 c		
Diazinon	333415	9.00E-04 H					33 N	3.3 N	1.2 N	1800 N	70 N	5400 S	2.8 N
Dibenzofuran	132649	4.00E-03 E					150 N	15 N	5.4 N	8200 N	310 N	120 S	120 N
1,4-Dibromobenzene	106376	1.00E-02 I				☒	61 N	37 N	14 N	20000 N	780 N		
1,2-Dibromo-3-chloropropane	96128		5.71E-05 I	1.40E+00 H	2.42E-03 H	☒	0.048 c	0.21 N	0.0023 c	4.1 c	0.46 c	1.9 N	0.00061 N
1,2-Dibromoethane	106934		5.71E-05 H	8.50E+01 I	7.70E-01 I	☒	0.00075 c	0.0081 c	0.00004 c	0.067 c	0.0075 c	0.0058 c	0.00018 N
Dibutyl phthalate	84742	1.00E-01 I					3700 N	370 N	140 N	200000 N	7800 N	100 E	120 E
Dicamba	1918009	3.00E-02 I					1100 N	110 N	41 N	61000 N	2300 N		
1,2-Dichlorobenzene	95501	9.00E-02 I	4.00E-02 A			☒	270 N	150 N	120 N	180000 N	7000 N	300 E	6 E
1,3-Dichlorobenzene	541731	8.90E-02 O				☒	540 N	320 N	120 N	180000 N	7000 N		
1,4-Dichlorobenzene	106467		2.29E-01 I	2.40E-02 H		☒	0.44 c	0.26 c	0.13 c	240 c	27 c	7700 E	1 E
3,3'-Dichlorobenzidine	91941			4.50E-01 I			0.15 c	0.014 c	0.007 c	13 c	1.4 c	52 S	0.01 E
1,4-Dichloro-2-butene	764410				9.30E+00 H	☒	0.0011 c	0.00067 c					
Dichlorodifluoromethane	75718	2.00E-01 I	5.71E-02 A			☒	390 N	210 N	270 N	410000 N	16000 N	37 N	7.5 N
1,1-Dichloroethane	75343	1.00E-01 H	1.43E-01 A			☒	810 N	520 N	140 N	200000 N	7800 N	980 E	11 E
1,2-Dichloroethane (EDC)	107062		2.86E-03 E	9.10E-02 I	9.10E-02 I	☒	0.12 c	0.069 c	0.035 c	63 c	7 c	0.3 E	0.01 E
1,1-Dichloroethylene	75354	9.00E-03 I		6.00E-01 I	1.75E-01 I	☒	0.044 c	0.036 c	0.0053 c	9.5 c	1.1 c	0.04 E	0.03 E
1,2-Dichloroethylene (cis)	156592	1.00E-02 H				☒	61 N	37 N	14 N	20000 N	780 N	1500 E	0.2 E
1,2-Dichloroethylene (trans)	156605	2.00E-02 I				☒	120 N	73 N	27 N	41000 N	1600 N	3600 E	0.3 E
1,2-Dichloroethylene (mixture)	540590	9.00E-03 H				☒	55 N	33 N	12 N	18000 N	700 N		
2,4-Dichlorophenol	120832	3.00E-03 I					110 N	11 N	4.1 N	6100 N	230 N	4800 S	0.5 E
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 I				☒	61 N	37 N	14 N	20000 N	780 N	7000 S	1.7 N
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 I					290 N	29 N	11 N	16000 N	630 N		
1,2-Dichloropropane	78875		1.14E-03 I	6.80E-02 H		☒	0.16 c	0.092 c	0.046 c	84 c	9.4 c	11 E	0.02 E
2,3-Dichloropropanol	616239	3.00E-03 I					110 N	11 N	4.1 N	6100 N	230 N		
1,3-Dichloropropene	542756	3.00E-04 I	5.71E-03 I	1.75E-01 H	1.30E-01 H	☒	0.077 c	0.048 c	0.018 c	33 c	3.7 c	0.1 E	0.001 E
Dichlorvos	62737	5.00E-04 I	1.43E-04 I	2.90E-01 I			0.23 c	0.022 c	0.011 c	20 c	2.2 c	3.5 c	0.00072 c
Dicofol	115322			4.40E-01 W			0.15 c	0.014 c	0.0072 c	13 c	1.5 c		
Dicyclopentadiene	77736	3.00E-02 H	5.71E-05 A			☒	0.42 N	0.21 N	41 N	61000 N	2300 N		
Dieldrin	60571	5.00E-05 I		1.60E+01 I	1.61E+01 I		0.0042 c	0.00039 c	0.0002 c	0.36 c	0.04 c	2 E	0.001 E
Diesel emissions			1.43E-03 I				52 N	5.2 N					
Diethyl phthalate	84662	8.00E-01 I					29000 N	2900 N	1100 N	1E+06 N	63000 N	520 E	110 E
Diethylene glycol, monobutyl ether	112345		5.71E-03 H				210 N	21 N					
Diethylene glycol, monoethyl ether	111900	2.00E+00 H					73000 N	7300 N	2700 N	1E+06 N	160000 N		
Diethylformamide	617845	1.10E-02 H					400 N	40 N	15 N	22000 N	860 N		
Di(2-ethylhexyl)adipate	103231	6.00E-01 I		1.20E-03 I			56 c	5.2 c	2.6 c	4800 c	530 c		
Diethylstilbestrol	56531			4.70E+03 H			0.00001 c	1E-06 c	7E-07 c	0.0012 c	0.00014 c		
Difenzoquat (Avenge)	43222486	8.00E-02 I					2900 N	290 N	110 N	160000 N	6300 N		

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Contaminant	CAS	Risk-Based Concentrations				V O C	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:		
		RfDo	RfDI	CPSo	CPSi		Tap Water	Ambient Air	Fish	Soil Ingestion		Air	Groundwater	
		mg/kg/d	mg/kg/d	kg d/mg	kg d/mg		µg/L	µg/m3	mg/kg	Industrial mg/kg	Residential mg/kg	mg/kg	mg/kg	
Endrin	72208	3.00E-04					11 N	1.1 N	0.41 N	610 N	23 N		16 a	0.4 e
Epichlorohydrin	106898	2.00E-03	2.86E-04	9.90E-03	4.20E-03		6.8 c	1 N	0.32 c	580 c	65 c			
1,2-Epoxybutane	106887		5.71E-03				210 N	21 N						
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03					180 N	18 N	6.8 N	10000 N	390 N			
Ethion	563122	5.00E-04					18 N	1.8 N	0.68 N	1000 N	39 N			
2-Ethoxyethanol acetate	111159	3.00E-01	A				11000 N	1100 N	410 N	610000 N	23000 N			
2-Ethoxyethanol	110805	4.00E-01	H	5.71E-02			15000 N	210 N	540 N	820000 N	31000 N			
Ethyl acrylate	140885			4.80E-02	H		1.4 c	0.13 c	0.066 c	120 c	13 c			
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02					910 N	91 N	34 N	51000 N	2000 N			
Ethyl ether	60297	2.00E-01				☒	1200 N	730 N	270 N	410000 N	16000 N			
Ethyl methacrylate	97632	9.00E-02	H				3300 N	330 N	120 N	180000 N	7000 N			
Ethyl acetate	141786	9.00E-01					33000 N	3300 N	1200 N	1E+06 N	70000 N			
Ethylbenzene	100414	1.00E-01	2.86E-01			☒	1300 N	1000 N	140 N	200000 N	7800 N	260 e	5 e	
Ethylene cyanohydrin	109784	3.00E-01	H				11000 N	1100 N	410 N	610000 N	23000 N			
Ethylene diamine	107153	2.00E-02	H				730 N	73 N	27 N	41000 N	1600 N			
Ethylene glycol	107211	2.00E+00					73000 N	7300 N	2700 N	1E+06 N	160000 N			
Ethylene glycol, monobutyl ether	111762		5.71E-03	H			210 N	21 N						
Ethylene oxide	75218			1.02E+00	3.50E-01	H	0.066 c	0.018 c	0.0031 c	5.6 c	0.63 c			
Ethylene thiourea (ETU)	96457	8.00E-05		1.19E-01	H		0.57 c	0.053 c	0.027 c	48 c	5.4 c			
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05					0.37 N	0.037 N	0.014 N	20 N	0.78 N			
Ethyl nitrosourea	759739			1.40E+02	W		0.00048 c	0.00005 c	0.00002 c	0.041 c	0.0046 c			
Ethylphthalyl ethyl glycolate	84720	3.00E+00					110000 N	11000 N	4100 N	1E+06 N	230000 N			
Express	10120	8.00E-03					290 N	29 N	11 N	16000 N	630 N			
Fenamiphos	22224926	2.50E-04					9.1 N	0.91 N	0.34 N	510 N	20 N			
Fluometuron	2164172	1.30E-02					470 N	47 N	18 N	27000 N	1000 N			
Fluoride	7782414	6.00E-02					2200 N	220 N	81 N	120000 N	4700 N			
Fluoridone	59756604	8.00E-02					2900 N	290 N	110 N	160000 N	6300 N			
Flurprimidol	56425913	2.00E-02					730 N	73 N	27 N	41000 N	1600 N			
Flutolanil	66332965	6.00E-02					2200 N	220 N	81 N	120000 N	4700 N			
Fluvalinate	69409945	1.00E-02					370 N	37 N	14 N	20000 N	780 N			
Folpet	133073	1.00E-01		3.50E-03			19 c	1.8 c	0.9 c	1600 c	180 c			
Fomesafen	72178020			1.90E-01			0.35 c	0.033 c	0.017 c	30 c	3.4 c			
Fonofos	944229	2.00E-03					73 N	7.3 N	2.7 N	4100 N	160 N			
Formaldehyde	50000	2.00E-01			4.55E-02		7300 N	0.14 c	270 N	410000 N	16000 N			
Formic Acid	64186	2.00E+00	H				73000 N	7300 N	2700 N	1E+06 N	160000 N			
Fosetyl-al	39148248	3.00E+00					110000 N	11000 N	4100 N	1E+06 N	230000 N			
Furan	110009	1.00E-03					37 N	3.7 N	1.4 N	2000 N	78 N			
Furazolidone	67458			3.80E+00	H		0.018 c	0.0016 c	0.00083 c	1.5 c	0.17 c			
Furfural	98011	3.00E-03	1.43E-02	A			110 N	52 N	4.1 N	6100 N	230 N			
Furium	531828			5.00E+01	H		0.0013 c	0.00013 c	0.00006 c	0.11 c	0.013 c			
Furmecycloz	60568050			3.00E-02			2.2 c	0.21 c	0.11 c	100 c	11 c			

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg/d/mg	CPSi kg/d/mg	V O C	Risk-Based Concentrations					Soil Screening Levels- Transfer from Soil to:	
							Tap Water µg/L	Ambient Air µg/m3	Fish mg/kg	Soil Ingestion		Air mg/kg	Groundwater mg/kg
										Industrial mg/kg	Residential mg/kg		
Mancozeb	8018017	3.00E-02 H					1100 N	110 N	41 N	61000 N	2300 N		
Maneb	12427382	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N		
Manganese and compounds	7439965	5.00E-03 I	1.43E-05 I				180 N	0.052 N	6.8 N	10000 N	390 N		
Mephsolan	950107	9.00E-05 H					3.3 N	0.33 N	0.12 N	180 N	7 N		
Mepiquat chloride	24307264	3.00E-02 I					1100 N	110 N	41 N	61000 N	2300 N		
Mercury (inorganic)	7439976	3.00E-04 H	8.57E-05 H				11 N	0.31 N	0.41 N	610 N	23 N	7 E	3 E
Mercury (methyl)	22967926	3.00E-04 I					11 N	1.1 N	0.41 N	610 N	23 N		
Merphos	150505	3.00E-05 I					1.1 N	0.11 N	0.041 N	61 N	2.3 N		
Merphos oxide	78488	3.00E-05 I					1.1 N	0.11 N	0.041 N	61 N	2.3 N		
Metalaxyl	57837191	6.00E-02 I					2200 N	220 N	81 N	120000 N	4700 N		
Methacrylonitrile	126987	1.00E-04 I	2.00E-04 A				3.7 N	0.73 N	0.14 N	200 N	7.8 N		
Methamidophos	10265926	5.00E-05 I					1.8 N	0.18 N	0.068 N	100 N	3.9 N		
Methanol	67561	5.00E-01 I					18000 N	1800 N	680 N	1E+06 N	39000 N		
Methidathion	950378	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Methomyl	16752775	2.50E-02 I					910 N	91 N	34 N	51000 N	2000 N		
Methoxychlor	72435	5.00E-03 I					180 N	18 N	6.8 N	10000 N	390 N	41 S	62 E
2-Methoxyethanol acetate	110496	2.00E-03 A					73 N	7.3 N	2.7 N	4100 N	160 N		
2-Methoxyethanol	109864	1.00E-03 H	5.71E-03 I				37 N	21 N	1.4 N	2000 N	78 N		
2-Methoxy-5-nitroaniline	99592			4.60E-02 H			1.5 C	0.14 C	0.069 C	120 C	14 C		
Methyl acetate	79209	1.00E+00 H					37000 N	3700 N	1400 N	1E+06 N	78000 N		
Methyl acrylate	96333	3.00E-02 A					1100 N	110 N	41 N	61000 N	2300 N		
2-Methylaniline hydrochloride	636215			1.80E-01 H			0.37 C	0.035 C	0.018 C	32 C	3.5 C		
2-Methylaniline	95534			2.40E-01 H			0.28 C	0.026 C	0.013 C	24 C	2.7 C		
Methyl chlorocarbonate	79221	1.00E+00 W					37000 N	3700 N	1400 N	1E+06 N	78000 N		
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 I					370 N	37 N	14 N	20000 N	780 N		
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 I					18 N	1.8 N	0.68 N	1000 N	39 N		
2-(2-Methyl-14-chlorophenoxy)propionic aci	93652	1.00E-03 I					37 N	3.7 N	1.4 N	2000 N	78 N		
Methylcyclohexane	108872		8.57E-01 H				31000 N	3100 N				60 S	1500 N
Methylene bromide	74953	1.00E-02 A					61 N	37 N	14 N	20000 N	780 N		
Methylene chloride	75092	6.00E-02 I	8.57E-01 H	7.50E-03 I	1.64E-03 I		4.1 C	3.8 C	0.42 C	760 C	85 C	7 E	0.01 E
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 H		1.30E-01 H	1.30E-01 H		0.52 C	0.048 C	0.024 C	44 C	4.9 C		
4,4'-Methylenebisbenzencamine	101779			2.50E-01 W			0.27 C	0.025 C	0.013 C	23 C	2.6 C		
4,4'-Methylene-bis(N,N'-dimethyl)aniline	101611			4.60E-02 I			1.5 C	0.14 C	0.069 C	120 C	14 C		
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 I				0.035 N	0.021 N					
Methyl ethyl ketone	78933	6.00E-01 I	2.86E-01 I				1900 N	1000 N	810 N	1E+06 N	47000 N		
Methyl hydrazine	60344			1.10E+00 W			0.061 C	0.0057 C	0.0029 C	5.2 C	0.58 C		
Methyl isobutyl ketone	108101	8.00E-02 H	2.29E-02 A				2900 N	84 N	110 N	160000 N	6300 N		
Methyl methacrylate	80626	8.00E-02 H					2900 N	290 N	110 N	160000 N	6300 N		
2-Methyl-5-nitroaniline	99558			3.30E-02 H			2 C	0.19 C	0.096 C	170 C	19 C		
Methyl parathion	298000	2.50E-04 I					9.1 N	0.91 N	0.34 N	510 N	20 N	28 S	0.041 N
2-Methylphenol (o-cresol)	95487	5.00E-02 I					1800 N	180 N	68 N	100000 N	3900 N	12000 S	6 E

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Contaminant	CAS	RfDo mg/kg/d	RfDI mg/kg/d	CPSo kg-d/mg	CPSI kg-d/mg	V O C	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:	
							Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Soil Ingestion		Air mg/kg	Groundwater mg/kg
										Industrial mg/kg	Residential mg/kg		
NuStar	85309199	7.00E-04					26 N	2.6 N	0.95 N	1400 N	55 N		
Octabromodiphenyl ether	32536520	3.00E-03					110 N	11 N	4.1 N	6100 N	230 N		
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02					1800 N	180 N	68 N	100000 N	3900 N		
Octamethylpyrophosphoramidate	152169	2.00E-03					73 N	7.3 N	2.7 N	4100 N	160 N		
Oryzalin	19044883	5.00E-02					1800 N	180 N	68 N	100000 N	3900 N		
Oxadiazon	19666309	5.00E-03					180 N	18 N	6.8 N	10000 N	390 N		
Oxamyl	23135220	2.50E-02					910 N	91 N	34 N	51000 N	2000 N		
Oxyfluorfen	42874033	3.00E-03					110 N	11 N	4.1 N	6100 N	230 N		
Paclobutrazol	76738620	1.30E-02					470 N	47 N	18 N	27000 N	1000 N		
Paraquat	1910425	4.50E-03					160 N	16 N	6.1 N	9200 N	350 N		
Parathion	56382	6.00E-03					220 N	22 N	8.1 N	12000 N	470 N	110 a	3.9 N
Pebulate	1114712	5.00E-02					1800 N	180 N	68 N	100000 N	3900 N		
Pendimethalin	40487421	4.00E-02					1500 N	150 N	54 N	82000 N	3100 N		
Pentabromo-6-chloro cyclohexane	87843			2.30E-02			2.9 c	0.27 c	0.14 c	250 c	28 c		
Pentabromodiphenyl ether	32534819	2.00E-03					73 N	7.3 N	2.7 N	4100 N	160 N		
Pentachlorobenzene	608935	8.00E-04					4.9 N	2.9 N	1.1 N	1600 N	63 N	570 N	48 N
Pentachloronitrobenzene	82688	3.00E-03		2.60E-01			0.041 c	0.024 c	0.012 c	22 c	2.5 c		
Pentachlorophenol	87865	3.00E-02		1.20E-01			0.56 c	0.052 c	0.026 c	48 c	5.3 c	7.9 c	0.2 E
Permethrin	52645531	5.00E-02					1800 N	180 N	68 N	100000 N	3900 N		
Phenmedipham	13684634	2.50E-01					9100 N	910 N	340 N	510000 N	20000 N		
Phenol	108952	6.00E-01					22000 N	2200 N	810 N	1E+06 N	47000 N	21000 a	49 E
m-Phenylenediamine	108452	6.00E-03					220 N	22 N	8.1 N	12000 N	470 N		
p-Phenylenediamine	106503	1.90E-01					6900 N	690 N	260 N	390000 N	15000 N		
Phenylmercuric acetate	62384	8.00E-05					2.9 N	0.29 N	0.11 N	160 N	6.3 N		
2-Phenylphenol	90437			1.94E-03			35 c	3.2 c	1.6 c	3000 c	330 c		
Phorate	298022	2.00E-04					7.3 N	0.73 N	0.27 N	410 N	16 N		
Phosmet	732116	2.00E-02					730 N	73 N	27 N	41000 N	1600 N		
Phosphine	7803512	3.00E-04		8.57E-06			11 N	0.031 N	0.41 N	610 N	23 N		
Phosphorus (white)	7723140	2.00E-05					0.73 N	0.073 N	0.027 N	41 N	1.6 N		
p-Phthalic acid	100210	1.00E+00					37000 N	3700 N	1400 N	1E+06 N	78000 N		
Phthalic anhydride	85449	2.00E+00		3.43E-02			73000 N	130 N	2700 N	1E+06 N	160000 N		
Picloram	1918021	7.00E-02					2600 N	260 N	95 N	140000 N	5500 N		
Pirimiphos-methyl	29232937	1.00E-02					370 N	37 N	14 N	20000 N	780 N		
Polybrominated biphenyls		7.00E-06		8.90E+00			0.0076 c	0.0007 c	0.00035 c	0.64 c	0.072 c		
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00			0.0087 c	0.00081 c	0.00041 c	0.74 c	0.083 c		8.2 E
Aroclor 1016	12674112	7.00E-05					2.6 N	0.26 N	0.095 N	140 N	5.5 N		
Aroclor 1254	11097691	2.00E-05					0.73 N	0.073 N	0.027 N	41 N	1.6 N		
Polychlorinated terphenyls (PCTs)				4.50E+00			0.015 c	0.0014 c	0.0007 c	1.3 c	0.14 c		
Polynuclear aromatic hydrocarbons													
Acenaphthene	83329	6.00E-02					2200 N	220 N	81 N	120000 N	4700 N	120 a	200 E
Anthracene	120127	3.00E-01					11000 N	1100 N	410 N	610000 N	23000 N		

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Contaminant	CAS	Risk-Based Concentrations				Soil Screening Levels- Transfers from Soil to:						
		RfDo mg/kg/d	RfDI mg/kg/d	CPSo kg d/mg	CPSI kg d/mg	Tap Water	Ambient Air	Soil Ingestion		Air	Groundwater	
						µg/L	µg/m ³	Fish mg/kg	Industrial mg/kg	Residential mg/kg	mg/kg	mg/kg
Benzo[b]fluoranthene	205992			7.30E-01 c	6.10E-01 c	0.092 c	0.01 c	0.0043 c	7.8 c	0.88 c	23 s	4 e
Benzo[k]fluoranthene	207089			7.30E-02 e	6.10E-02 e	0.92 c	0.1 c	0.043 c	78 c	8.8 c		4 e
Benzo[a]pyrene	50328			7.30E+00 i	6.10E+00 w	0.0092 c	0.001 c	0.00043 c	0.78 c	0.088 c	11 s	4 e
Carbazole	86748			2.00E-02 n		3.4 c	0.31 c	0.16 c	290 c	32 c	11 s	0.5 e
Chrysene	218019			7.30E-03 e	6.10E-03 e	9.2 c	1 c	0.43 c	780 c	88 c	3.6 s	1 e
Dibenz[ah]anthracene	53703			7.30E+00 e	6.10E+00 e	0.0092 c	0.001 c	0.00043 c	0.78 c	0.088 c	7.2 s	11 e
Fluoranthene	206440	4.00E-02 i				1500 n	150 n	54 n	82000 n	3100 n	68 s	980 e
Fluorene	86737	4.00E-02 i				1500 n	150 n	54 n	82000 n	3100 n	89 s	160 e
Indeno[1,2,3-cd]pyrene	193395			7.30E-01 e	6.10E-01 e	0.092 c	0.01 c	0.0043 c	7.8 c	0.88 c	280 s	35 e
Naphthalene	91203	4.00E-02 w				1500 n	150 n	54 n	82000 n	3100 n	180 s	30 e
Pyrene	129000	3.00E-02 i				1100 n	110 n	41 n	61000 n	2300 n	56 s	1400 e
Prochloraz	67747095	9.00E-03 i		1.50E-01 i		0.45 c	0.042 c	0.021 c	38 c	4.3 c		
Profluralin	26399360	6.00E-03 n				220 n	22 n	8.1 n	12000 n	470 n		
Prometon	1610180	1.50E-02 i				550 n	55 n	20 n	31000 n	1200 n		
Prometryn	7287196	4.00E-03 i				150 n	15 n	5.4 n	8200 n	310 n		
Pronamide	23950585	7.50E-02 i				2700 n	270 n	100 n	150000 n	5900 n		
Propachlor	1918167	1.30E-02 i				470 n	47 n	18 n	27000 n	1000 n		
Propanil	709988	5.00E-03 i				180 n	18 n	6.8 n	10000 n	390 n		
Propargite	2312358	2.00E-02 i				730 n	73 n	27 n	41000 n	1600 n		
Propargyl alcohol	107197	2.00E-03 i				73 n	7.3 n	2.7 n	4100 n	160 n		
Propazine	139402	2.00E-02 i				730 n	73 n	27 n	41000 n	1600 n		
Propham	122429	2.00E-02 i				730 n	73 n	27 n	41000 n	1600 n		
Propiconazole	60207901	1.30E-02 i				470 n	47 n	18 n	27000 n	1000 n		
Propylene glycol	57556	2.00E+01 n				730000 n	73000 n	27000 n	1E+06 n	100000 n		
Propylene glycol, monoethyl ether	52125538	7.00E-01 n				26000 n	2600 n	950 n	1E+06 n	55000 n		
Propylene glycol, monomethyl ether	107982	7.00E-01 n	5.71E-01 i			26000 n	2100 n	950 n	1E+06 n	55000 n		
Propylene oxide	75569		8.57E-03 i	2.40E-01 i	1.29E-02 i	0.28 c	0.49 c	0.013 c	24 c	2.7 c		
Pursuit	81335775	2.50E-01 i				9100 n	910 n	340 n	510000 n	20000 n		
Pydrin	51630581	2.50E-02 i				910 n	91 n	34 n	51000 n	2000 n		
Pyridine	110861	1.00E-03 i				37 n	3.7 n	1.4 n	2000 n	78 n		
Quinalphos	13593038	5.00E-04 i				18 n	1.8 n	0.68 n	1000 n	39 n		
Quinoline	91225			1.20E+01 n		0.0056 c	0.00052 c	0.00026 c	0.48 c	0.053 c		
Resmethrin	10463868	3.00E-02 i				1100 n	110 n	41 n	61000 n	2300 n		
Ronnel	299843	5.00E-02 n				1800 n	180 n	68 n	100000 n	3900 n		
Rotenone	83794	4.00E-03 i				150 n	15 n	5.4 n	8200 n	310 n		
Savey	78587050	2.50E-02 i				910 n	91 n	34 n	51000 n	2000 n		
Selenious Acid	7783008	5.00E-03 i				180 n	18 n	6.8 n	10000 n	390 n		
Selenium	7782492	5.00E-03 i				180 n	18 n	6.8 n	10000 n	390 n		
Selenourea	630104	5.00E-03 n				180 n	18 n	6.8 n	10000 n	390 n		3 e
Sethoxydim	74051802	9.00E-02 i				3300 n	330 n	120 n	180000 n	7000 n		
Silver and compounds	7440224	5.00E-03 i				180 n	18 n	6.8 n	10000 n	390 n		
Simazine	122740	5.00E-03 i				180 n	18 n	6.8 n	10000 n	390 n		

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Contaminant	CAS	Risk-Based Concentrations				V O C	Risk-Based Concentrations					Soil Screening Level- Transfers from Soil to:	
		RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg/d/mg	CPSi kg/d/mg		Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Soil Ingestion		Air mg/kg	Groundwater mg/kg
										Industrial mg/kg	Residential mg/kg		
Sodium azide	26628228	4.00E-03					150 N	15 N	5.4 N	8200 N	310 N		
Sodium diethyldithiocarbamate	148185	3.00E-02		2.70E-01 N			0.25 C	0.023 C	0.012 C	21 C	2.4 C		
Sodium fluoroacetate	62748	2.00E-05					0.73 N	0.073 N	0.027 N	41 N	1.6 N		
Sodium metavanadate	13718268	1.00E-03 N					37 N	3.7 N	1.4 N	2000 N	78 N		
Strontium, stable	7440246	6.00E-01					22000 N	2200 N	810 N	1E+06 N	47000 N		
Strychnine	57249	3.00E-04					11 N	1.1 N	0.41 N	610 N	23 N		
Styrene	100425	2.00E-01	2.86E-01			☒	1600 N	1000 N	270 N	41000 N	16000 N	1400 E	2 E
Systhane	88671890	2.50E-02					910 N	91 N	34 N	51000 N	2000 N		
2,3,7,8-TCDD (dioxin)	1746016			1.56E+05 N	1.16E+05 N		4E-07 C	5E-08 C	C	4E-05 C	4E-06 C		
Tebuthiuron	34014181	7.00E-02					2600 N	260 N	95 N	140000 N	5500 N		
Temephos	3383968	2.00E-02 N					730 N	73 N	27 N	41000 N	1600 N		
Terbacil	5902512	1.30E-02					470 N	47 N	18 N	27000 N	1000 N		
Terbufos	13071799	2.50E-05					0.91 N	0.091 N	0.034 N	51 N	2 N		
Terbutryn	886500	1.00E-03					37 N	3.7 N	1.4 N	2000 N	78 N		
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04				☒	1.8 N	1.1 N	0.41 N	610 N	23 N	91 N	0.69 N
1,1,1,2-Tetrachloroethane	630206	3.00E-02		2.60E-02	2.59E-02	☒	0.41 C	0.24 C	0.12 C	220 C	25 C		
1,1,2,2-Tetrachloroethane	79345			2.00E-01	2.03E-01	☒	0.052 C	0.031 C	0.016 C	29 C	3.2 C	0.4 E	0.001 E
Tetrachloroethylene (PCE)	127184	1.00E-02		5.20E-02 E	2.03E-03 E	☒	1.1 C	3.1 C	0.061 C	110 C	12 C	11 E	0.04 E
2,3,4,6-Tetrachlorophenol	58902	3.00E-02					1100 N	110 N	41 N	61000 N	2300 N		
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 N		☒	0.00053 C	0.00031 C	0.00016 C	0.29 C	0.032 C		
Tetrachlorovinphos	961115	3.00E-02		2.40E-02 N			2.8 C	0.26 C	0.13 C	240 C	27 C		
Tetraethylthiopyrophosphate	3689245	5.00E-04					18 N	1.8 N	0.68 N	1000 N	39 N		
Lead (tetraethyl)	78002	1.00E-07					0.0037 N	0.00037 N	0.00014 N	0.2 N	0.0078 N	0.00068 N	0.000034 N
Thallic oxide	1314325	7.00E-05 W					2.6 N	0.26 N	0.095 N	140 N	5.5 N		
Thallium													0.4 E
Thallium acetate	563688	9.00E-05					3.3 N	0.33 N	0.12 N	180 N	7 N		
Thallium carbonate	6533739	8.00E-05					2.9 N	0.29 N	0.11 N	160 N	6.3 N		
Thallium chloride	7791120	8.00E-05					2.9 N	0.29 N	0.11 N	160 N	6.3 N		
Thallium nitrate	10102451	9.00E-05					3.3 N	0.33 N	0.12 N	180 N	7 N		
Thallium selenite	12039520	9.00E-05 W					3.3 N	0.33 N	0.12 N	180 N	7 N		
Thallium sulfate	7446186	8.00E-05					2.9 N	0.29 N	0.11 N	160 N	6.3 N		
Thiobencarb	28249776	1.00E-02					370 N	37 N	14 N	20000 N	780 N		
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 N					1100 N	110 N	41 N	61000 N	2300 N		
Thiofanox*	39196184	3.00E-04 N					11 N	1.1 N	0.41 N	610 N	23 N		
Thiophanate-methyl	23564058	8.00E-02					2900 N	290 N	110 N	160000 N	6300 N		
Thiram	137268	5.00E-03					180 N	18 N	6.8 N	10000 N	390 N		
Tin and compounds		6.00E-01 N											
Toluene	108883	2.00E-01	1.14E-01			☒	22000 N	2200 N	810 N	1E+06 N	47000 N		
Toluene-2,4-diamine	95807			3.20E+00 N			750 N	420 N	270 N	410000 N	16000 N	520 E	* 5 E
Toluene-2,5-diamine	95705	6.00E-01 N					0.021 C	0.002 C	0.00099 C	1.8 C	0.2 C		
Toluene-2,6-diamine	823405	2.00E-01 N					22000 N	2200 N	810 N	1E+06 N	47000 N		
							7300 N	730 N	270 N	410000 N	16000 N		

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Contaminant	CAS	Risk-Based Concentrations				V O C	Risk-Based Concentrations					Soil Screening Levels- Transfers from Soil to:	
		RfDo mg/kg/d	RfDI mg/kg/d	CPSo kg d/mg	CPSi kg d/mg		Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Soil Ingestion		Air mg/kg	Groundwater mg/kg
										Industrial mg/kg	Residential mg/kg		
Toxaphene	8001352			1.10E+00	1.12E+00		0.061 c	0.0056 c	0.0029 c	5.2 c	0.58 c	5 E	0.04 E
Tralometrin	66841256	7.50E-03					270 n	27 n	10 n	15000 n	590 n		
Triallate	2303175	1.30E-02					470 n	47 n	18 n	27000 n	1000 n		
Triasulfuron	82097505	1.00E-02					370 n	37 n	14 n	20000 n	780 n		
1,2,4-Tribromobenzene	615543	5.00E-03				☒	30 n	18 n	6.8 n	10000 n	390 n		
Tributyltin oxide (TBTO)	56359	3.00E-05					1.1 n	0.11 n	0.041 n	61 n	2.3 n		
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 n			2.3 c	0.22 c	0.11 c	200 c	22 c		
2,4,6-Trichloroaniline	634935			3.40E-02 n			2 c	0.18 c	0.093 c	170 c	19 c		
1,2,4-Trichlorobenzene	120821	1.00E-02	5.71E-02 n			☒	190 n	210 n	14 n	20000 n	780 n	240 E	2 E
1,1,1-Trichloroethane	71556	9.00E-02 w	2.86E-01 w			☒	1300 n	1000 n	120 n	180000 n	7000 n	980 E	0.9 E
1,1,2-Trichloroethane	79005	4.00E-03		5.70E-02	5.60E-02	☒	0.19 c	0.11 c	0.055 c	100 c	11 c	0.8 E	0.01 E
Trichloroethylene (TCE)	79016	6.00E-03		1.10E-02 w	6.00E-03	☒	1.6 c	1 c	0.29 c	520 c	58 c	3 E	0.02 E
Trichlorofluoromethane	75694	3.00E-01	2.00E-01 A			☒	1300 n	730 n	410 n	61000 n	23000 n	790 n	13 n
2,4,5-Trichlorophenol	95954	1.00E-01					3700 n	370 n	140 n	200000 n	7800 n	8200 s	120 E
2,4,6-Trichlorophenol	88062			1.10E-02	1.09E-02		6.1 c	0.57 c	0.29 c	520 c	58 c	150 c	0.05 E
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02					370 n	37 n	14 n	20000 n	780 n		
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03					290 n	29 n	11 n	16000 n	630 n		
1,1,2-Trichloropropane	598776	5.00E-03				☒	30 n	18 n	6.8 n	10000 n	390 n	13 n	0.14 n
1,2,3-Trichloropropane	96184	6.00E-03		7.00E+00		☒	0.0015 c	0.00089 c	0.00045 c	0.82 c	0.091 c	0.00003 c	6.000E-06 c
1,2,3-Trichloropropene	96195	5.00E-03 n				☒	30 n	18 n	6.8 n	10000 n	390 n		
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	3.00E+01	8.57E+00 n			☒	59000 n	31000 n	41000 n	1E+06 n	1000000 n	2400 s	3100 n
Tridiphane	58138082	3.00E-03					110 n	11 n	4.1 n	6100 n	230 n		
Triethylamine	121448		2.00E-03				73 n	7.3 n					
Trifluralin	1582098	7.50E-03		7.70E-03			8.7 c	0.81 c	0.41 c	740 c	83 c		
1,2,4-Trimethylbenzene	95636	5.00E-04 E				☒	3 n	1.8 n	0.68 n	1000 n	39 n		
1,3,5-Trimethylbenzene	108678	4.00E-04 E				☒	2.4 n	1.5 n	0.54 n	820 n	31 n	6.8 n	0.26 n
Trimethyl phosphate	512561			3.70E-02 n			1.8 c	0.17 c	0.085 c	150 c	17 c		
1,3,5-Trinitrobenzene	99354	5.00E-05					1.8 n	0.18 n	0.068 n	100 n	3.9 n		
Trinitrophenylmethylnitramine	479458	1.00E-02 n					370 n	37 n	14 n	20000 n	780 n		
2,4,6-Trinitrotoluene	118967	5.00E-04		3.00E-02			2.2 c	0.21 c	0.11 c	190 c	21 c		
Uranium (soluble salts)	7440611	3.00E-03					110 n	11 n	4.1 n	6100 n	230 n		
Vanadium	7440622	7.00E-03 n					260 n	26 n	9.5 n	14000 n	550 n		
Vanadium pentoxide	1314621	9.00E-03					330 n	33 n	12 n	18000 n	700 n		
Vanadium sulfate	36907423	2.00E-02 n					730 n	73 n	27 n	41000 n	1600 n		
Vernam	1929777	1.00E-03					37 n	3.7 n	1.4 n	2000 n	78 n		
Vinclozolin	50471448	2.50E-02					910 n	91 n	34 n	51000 n	2000 n		
Vinyl acetate	108054	1.00E+00 n	5.71E-02				37000 n	210 n	1400 n	1E+06 n	78000 n	370 E	84 E
Vinyl bromide	593602		8.57E-04			☒	5.2 n	3.1 n				2 n	0.018 n
Vinyl chloride	75014			1.90E+00 n	3.00E-01 n	☒	0.019 c	0.021 c	0.0017 c	3 c	0.34 c	0.002 E	0.01 E
Warfarin	81812	3.00E-04					11 n	1.1 n	0.41 n	610 n	23 n		
m-Xylene	108323	2.00E+00 n	2.00E-01 w			☒	1400 n	730 n	2700 n	1E+06 n	160000 n	950 s	240 n

Sources: I=IRIS H=HEAST A=HEAST alternate W=Withdrawn from IRIS or HEAST E=EPA-ECAO Regional Support provisional value O=Other EPA documents.						Basis: C=carcinogenic effects N=noncarcinogenic effects E=EPA draft Soil Screening Level S=soil saturation concentration.							
Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg·d/mg	CPSi kg·d/mg	V O C	Risk-Based Concentrations					Soil Screening Level	
							Tap Water µg/L	Ambient Air µg/m ³	Fish mg/kg	Soil Ingestion		Transfers from Soil to:	
										Industrial mg/kg	Residential mg/kg	Air mg/kg	Groundwater mg/kg
p-Xylene	106423		8.57E-02 w			☑	520 N	310 N				1000 s	220 M
Xylene (mixed)	1330207	2.00E+00 i				☑	12000 N	7300 N	2700 N	1E+06 N	160000 N	320 E	74 E
Zinc	7440666	3.00E-01 i					11000 N	1100 N	410 N	610000 N	23000 N		42000 E
Zinc phosphide	1314847	3.00E-04 i					11 N	1.1 N	0.41 N	610 N	23 N		
Zineb	12122677	5.00E-02 i					1800 N	180 N	68 N	100000 N	3900 N		

SPECIAL WASTE MANIFEST DISPOSAL TICKET

1 481735

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: Truck Industrial

TRANSPORTER: Truck Inc

GENERATOR: Truck Industrial

GENERATORS SIGNATURE: [Signature] 23/05/96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # 010-110 0417

ACCEPTED BY: [Signature] / 12 / 96
Date

DRIVERS SIGNATURE: [Signature] / 12 / 96
Date

TRUCK NO. 52 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

1083

SPECIAL WASTE MANIFEST DISPOSAL TICKET

4 481738

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: Truck Industrial

TRANSPORTER: Truck Inc

GENERATOR: Truck Industrial

GENERATORS SIGNATURE: [Signature] 23/05/96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # 010-110 2111

ACCEPTED BY: [Signature] / 12 / 96
Date

DRIVERS SIGNATURE: [Signature] / 12 / 96
Date

TRUCK NO. _____ TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

1012

SPECIAL WASTE MANIFEST DISPOSAL TICKET

2

481736

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: W. J. Industrial

TRANSPORTER: W. J. Industrial

GENERATOR: W. J. Industrial

GENERATORS SIGNATURE: [Signature] Date 03/15/96

WASTE DESCRIPTION: Industrial Waste

PROFILE # 100-1110-6917

ACCEPTED BY: [Signature] Date 03/15/96

DRIVERS SIGNATURE: [Signature] Date 03/15/96

TRUCK NO. 3 TONS/YARDS

564

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

SPECIAL WASTE MANIFEST DISPOSAL TICKET

6 481740

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

CALL TO: Hydra Industrial

TRANSPORTER: Product Tank

GENERATOR: Hydra Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # MS - 1100 26417

ACCEPTED BY: [Signature] 11/5, 96
Date

RIVERS SIGNATURE: [Signature] 5, 28, 96
Date

TRUCK NO. 113 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

19.03

SPECIAL WASTE MANIFEST DISPOSAL TICKET

7 481741

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

CALL TO: Hydra Industrial

TRANSPORTER: Product Tank

GENERATOR: Hydra Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # MS - 1100 26417

ACCEPTED BY: [Signature] 11/6, 96
Date

RIVERS SIGNATURE: [Signature] 5, 23, 96
Date

TRUCK NO. 113 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

18.56

SPECIAL WASTE MANIFEST DISPOSAL TICKET

481742

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: Tru-Ind Industrial

TRANSPORTER: Product, Inc.

GENERATOR: W. Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # 100 - 110 26917

ACCEPTED BY: [Signature] 1
Date

DRIVERS SIGNATURE: D. Cornell 5, 23, 96
Date

TRUCK NO. D-3 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

8551

SPECIAL WASTE MANIFEST DISPOSAL TICKET

481743

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: Tru-Ind Industrial

TRANSPORTER: Product, Inc.

GENERATOR: W. Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # 100 - 110 26917

ACCEPTED BY: [Signature] 1
Date

DRIVERS SIGNATURE: [Signature] 5, 23, 96
Date

TRUCK NO. D-3 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

2051

SPECIAL WASTE MANIFEST DISPOSAL TICKET

10

481744

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

TO: Taylor Industrial

TRANSPORTER: Protek Inc

GENERATOR: Waste Products

GENERATORS SIGNATURE: [Signature]
Date

WASTE DESCRIPTION: Industrial Sol

OFFICE # 111-26417

ACCEPTED BY: [Signature]
Date

GENERATORS SIGNATURE: [Signature]
Date

TRUCK NO. 22 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

Handwritten initials: G.F.

SPECIAL WASTE MANIFEST DISPOSAL TICKET

11

481745

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

TO: Taylor Industrial

TRANSPORTER: Protek Inc

GENERATOR: Waste Products

GENERATORS SIGNATURE: [Signature]
Date

WASTE DESCRIPTION: Industrial Sol

OFFICE # 111-26417

ACCEPTED BY: [Signature]
Date

GENERATORS SIGNATURE: [Signature]
Date

TRUCK NO. 476 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

Handwritten initials: G.F.

SPECIAL WASTE MANIFEST DISPOSAL TICKET

12

481746

RICHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

CALL TO: Taylor Industrial

TRANSPORTER: Patrick Ex...

GENERATOR: Weg Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # ARC - 1110 6417

ACCEPTED BY: [Signature] 1
Date

DRIVERS SIGNATURE: Mike K... 5, 23, 96
Date

TRUCK NO. 2496 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

1853

SPECIAL WASTE MANIFEST DISPOSAL TICKET

13

481747

RICHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

CALL TO: Taylor Industrial

TRANSPORTER: Patrick Ex...

GENERATOR: Weg Products

GENERATORS SIGNATURE: [Signature] 23, 05, 96
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # ARC - 1110 26417

ACCEPTED BY: [Signature] 1
Date

DRIVERS SIGNATURE: Mike K... 5, 23, 96
Date

TRUCK NO. 2496 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

1851

SPECIAL WASTE MANIFEST DISPOSAL TICKET

14

481748

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: 74 W. Industrial

TRANSPORTER: Wick Truck

GENERATOR: Wick Products

GENERATORS SIGNATURE: [Signature] 23, 05, 16
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # ORC - MA 26417

ACCEPTED BY: [Signature] 17, 16
Date

DRIVERS SIGNATURE: Mike [Signature] 5, 23, 16
Date

TRUCK NO. 1476 TONS/YARDS

17.14

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-94

SPECIAL WASTE MANIFEST DISPOSAL TICKET

15

481749

ORCHARD RIDGE RECYCLING
and DISPOSAL FACILITY



A Waste Management Company

BILL TO: 74 W. Industrial

TRANSPORTER: Wick Truck

GENERATOR: Wick Products

GENERATORS SIGNATURE: [Signature] 23, 05, 16
Date

WASTE DESCRIPTION: Contaminated Soil

PROFILE # ORC - MA 26417

ACCEPTED BY: [Signature] 17, 16
Date

DRIVERS SIGNATURE: Mike [Signature] 5, 23, 16
Date

TRUCK NO. 1476 TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-9

Total 225.82 Tons ✓



A Waste Management Company

Waste Management of Wisconsin, Inc.
Special Waste Service Center
N96 W13475 County Line Road
Menomonee Falls, WI 53051
(414)253-8620 FAX:(414)253-1322

TELECOPY TRANSMITTAL SHEET

TO: Don Gagas

FAX #: 447-4990

FROM: Peggy Slind

DATE: 5/17

NUMBER OF PAGES: 2 INCLUDING THIS COVER PAGE

COMMENTS/SPECIAL ROUTING:

Please note special conditions
on approval. Volume received at landfill
cannot exceed 59 cubic yards per
hour. Please call me if you have
questions.

Thank you!

IF YOU SHOULD HAVE ANY QUESTIONS, OR IF YOU DO NOT RECEIVE ALL OF THE PAGES, PLEASE CONTACT US IMMEDIATELY. THANK YOU.



MIDWEST REGION SPECIAL WASTE MANAGEMENT DECISION

ORC-MW26417
Waste Profile Sheet Code

I. Request For Decision: Initial Renewal

GENERATOR NAME: Key Products ADDRESS: 8634 West Lynks
CITY, STATE/PROVINCE: Milwaukee, WI 53225
WASTE NAME(S): ~~Paint~~ Paint Contaminated Soil
PROPOSED MANAGEMENT FACILITY: Orchard Ridge RLF
PROPOSED INTERMEDIATE TRANSFER FACILITY: N/A TRANSPORTER: Taylor Industrial Vac
WMNA REQUESTOR: Terry Lind SIGNATURE: Terry Lind

II. TECHNICAL MANAGER DECISION: (circle one) **APPROVED** DISAPPROVED Check if additional information is attached

If Disapproved, Explain:

If Approved, Complete A, B, C and D Below:

A Management Method(s):

LANDFILL (CODISPOSAL)

B Precautions, Conditions, or Limitations on Approval:

Per the Requirements of the site's special waste plan

Waste must not contain free liquids. Volume to be hauled cannot exceed 59 yd³/hour.

C Decision Expiration Date:

5/15/97

D For Type A Wastes, Laboratory Analysis of a Representative Sample Was: (Check only one)

Waived Supplied By Generator From a WMI-Approved Lab From Both Generator and WMI-Approved Lab

TECH. MGR. SIGNATURE:

Richard Fager

NAME: (Print)

Richard Fager

DATE

5/15/96

III. WMI MANAGEMENT FACILITY GENERAL MANAGER DECISION: (circle one)

APPROVED

DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations:

GENERAL MGR SIGNATURE

Robert Borkenhagen

NAME: (Print)

Robert Borkenhagen

DATE

5/15/96

IV. WMI INTERMEDIATE TRANSFER FACILITY GENERAL MANAGER DECISION: (circle one)

APPROVED

DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations:

GENERAL MGR SIGNATURE:

96274

NAME: (Print)

DATE



Waste Management of Wisconsin, Inc.

Parkview RDF / Metro RDF
N96 W13475 County Line Road
Menomonee Falls, WI 53051
414/253-8620 FAX: 414/253-1322

**SERVICE AGREEMENT
NON-HAZARDOUS WASTE DISPOSAL**

The above-named disposal facility and corporation are referred to herein as "Facility" and "Contractor," respectively.

CUSTOMER'S BILLING NAME
Key Products, Inc / Taylor Industrial

CUSTOMER'S BILLING ADDRESS
8039 W. Lynks / 2711 W. Townsend St

CITY, STATE/PROVINCE, ZIP/POSTAL CODE
Milwaukee, WI 53225 / Milw, WI 53216

CUSTOMER CONTACT
Richard Meinburg / Don Gungas

PHONE NUMBER
(414) 355-5399 / 414 447-4700

BANK REFERENCE
NA

BANK CONTACT **PHONE NUMBER**
NA ()

Credit may be extended to Customer after appropriate credit information, in a form acceptable to Contractor, has been presented to and reviewed by Contractor. Contractor may, in its sole discretion, require a collateral deposit (in the form of cash, letter of credit or surety bond) acceptable to Contractor. It is the responsibility of the Customer to keep said collateral deposit current. Collateral deposits, where utilized, may be adjusted when there is an increase in disposal tonnage and/or rates. Collateral deficiencies must be corrected within 30 days of notice of required adjustment.

This is a legally binding contract, and Contractor agrees to provide and Customer agrees to accept the waste disposal services subject to the terms and conditions specified in this contract.

ESTIMATED MONTHLY AMOUNT OF WASTE FOR DISPOSAL:

100 cubic Yards
(Include units e.g., cubic yards, pounds, kilograms)

SPECIAL INSTRUCTIONS:

Follow all conditions for disposal stated on the attached Special Waste Management Decision (Profile No. ^{MW}26417) Section II B, also see section I for the approved facility. All loads must be manifested.

INCIDENTAL SPECIAL WASTE TYPES AND AMOUNTS:

THE TERMS AND CONDITIONS ON REVERSE SIDE AND THE ATTACHED CONTRACTOR'S DEFINITION OF SPECIAL WASTE ARE PART OF THIS AGREEMENT.

CUSTOMER
Richard Meinburg
Authorized Signature
PRES.
Title

CONTRACTOR
Ralph B. ...
Waste Management of Wisconsin, Inc.
Representative
Division President
Title

TERMS AND CONDITIONS OF DISPOSAL SERVICE AGREEMENT

The Agreement. The entire agreement of the parties for the disposal of waste (the "Agreement") shall consist of this Service Agreement and any applicable Generator's Waste Profile Sheet(s).

Wastes Accepted at Facility. Customer warrants that the waste delivered to Contractor hereunder will not contain a regulated quantity of any hazardous, radioactive, or toxic waste or substance as defined by applicable Federal, state, local or provincial laws or regulations.

Special Waste. Customer acknowledges reading the attached Contractor's Definition of Special Waste (dated 02/92), and warrants that the waste delivered to Contractor hereunder will not contain any Special Waste unless and except: (1) as specifically described on Generator's Waste Profile Sheet(s) attached hereto or which Contractor later agrees to accept in writing; or (2) incidental amounts of Special Waste, as listed by Customer in the "Incidental Special Waste Types and Amounts" section of this form. The parties may incorporate additional Special Waste as part of this Agreement if prior to delivery of such waste to Contractor, Customer has provided a Generator's Waste Profile Sheet for such waste and Contractor has approved disposal of such waste in writing. Customer agrees to comply with precautions, limitations, and conditions contained in Contractor's written notice of approval of Special Waste.

Rights of Refusal/Rejection. Contractor has the right to refuse or reject after acceptance any load of wastes delivered to the Facility if the Contractor believes the Customer has breached (or is breaching) its warranties or agreements hereunder. If Customer delivers wastes in breach of any warranty or agreements herein, Contractor may in its sole discretion either remove and dispose of that waste and charge Customer for the costs or require Customer to promptly remove the waste.

Limited License to Enter. During the term of this Agreement, Customer shall have a license to enter the Facility for the limited purpose of, and only to the extent necessary for, off-loading waste at the location and in the manner directed by Contractor. Except in an emergency, or at the express direction of Contractor, Customer's personnel shall not leave the immediate vicinity of their vehicle. After off-loading the waste, Customer's personnel shall promptly leave the Facility. Under no circumstances shall Customer or its personnel engage in any scavenging of waste at the Facility. Contractor may refuse to accept waste from, and shall deny an entrance license to, any of Customer's personnel whom Contractor believes is, under the influence of alcohol or other chemical substances.

Charges and Payment. Unless otherwise agreed in writing by the parties hereto, Customer agrees to pay Contractor's posted disposal rates which may change from time to time. Customer shall be liable for all taxes, fees, or other charges imposed upon the disposal of Customer's waste by Federal, state, local or provincial laws and regulations. Payment shall be made by Customer within ten (10) days after the date of the invoice from Contractor. In the event that any payment is not made when due, Contractor may terminate the Agreement. Customer agrees to pay a late fee for all past due payments not to exceed the maximum rate allowed by applicable law.

Term. This Agreement shall continue in effect until terminated by either party, with or without cause, upon forty-eight (48) hours notice. Customer's representations and warranties regarding the waste delivered and the mutual indemnities set forth herein shall survive termination of this Agreement.

Driver's Knowledge and Authority. Customer warrants that its drivers who deliver waste to the Facility have been advised by Customer of Contractor's prohibition of deliveries of hazardous, radioactive, or toxic waste to the Facility, of Contractor's restrictions on deliveries of Special Waste to the Facility, of the definitions of "hazardous waste" and "Special Waste" herein provided, and of the terms of this license to enter the Facility.

Indemnification. (a) Contractor agrees to indemnify, save harmless, and defend the Customer from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto (including costs of defense, settlement, and reasonable attorneys' fees), which it may hereafter incur, become responsible for, or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations, or orders caused solely by the negligent act, negligent omission or willful misconduct of Contractor's employees, or its subcontractors in the performance of the Agreement.

(b) Customer agrees to indemnify, save harmless, and defend Contractor from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto (including costs of defense, settlement, and reasonable attorneys' fees), which it may hereafter incur, become responsible for, or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations, or orders caused, in whole or in part by the Customer's breach of any warranty, term or provision of the Agreement, or any negligent act, negligent omission or willful misconduct of the Customer, its employees, or subcontractors in the performance of the Agreement.

Attorneys' Fees. In the event of a breach of the Agreement, the breaching party shall pay all reasonable attorneys' fees, collection fees and costs of the other party incident to any action brought to enforce the Agreement.

Assignment. Neither party may assign, transfer or otherwise vest in any other company, entity or person, any of its rights or obligations under the Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld; provided, however, that Contractor may, without any such prior written consent, assign its rights and/or obligations under the Agreement to a subsidiary or affiliate corporation.

Miscellaneous. The Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and permitted assigns. The Agreement shall be governed by and construed in accordance with the laws of the State in which the Facility is located.

Div
tribe



CONTRACTOR'S DEFINITION OF SPECIAL WASTE

1. "Special Waste" means Type A or Type B Special Wastes as defined below.
2. "Type A Special Waste" means any waste from a commercial or industrial activity meeting any of the following descriptions:
 - a. A waste from an industrial process.
 - b. A waste from a pollution control process.
 - c. A waste containing free liquids.
 - d. Residue and debris from the cleanup of a spill of a chemical substance or commercial product or a waste listed in a.-c., or e.-g. of this definition.
 - e. Contaminated residuals, or articles from the cleanup of a facility generating, storing, treating, recycling, or disposing of chemical substances, commercial products, or wastes listed in a.-d., f., or g. of this definition.
 - f. Any waste which is non-hazardous as a result of treatment pursuant to Subtitle C of the Resource Conservation and Recovery Act (RCRA).
 - g. Chemical-containing equipment removed from service, in which the chemical composition and concentration are unknown.
3. "Type B Special Waste" means any waste from a commercial or industrial activity meeting any of the following descriptions:
 - a. **Friable asbestos waste from building demolition or cleaning;** wall board, wall or ceiling spray coverings, pipe insulation, etc. This does not include nonfriable asbestos unless it has been processed, handled, or used in such a way that asbestos fibers may be freely released. Asbestos-bearing industrial process waste is a "Type A Special Waste".
 - b. **Commercial products or chemicals which are off-specification, outdated, unused, or banned.** Outdated or off-specification uncontaminated food or beverage products in original consumer containers are not included in this category, unless management of such containers is restricted by applicable regulations. Containers which once held commercial products or chemicals are included in this category unless an end has been removed (for containers larger than 25 gallons), and the container is empty as defined by RCRA, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), or other applicable regulations.

RCRA considers a container to be empty when: all wastes have been removed that can be removed using the practices commonly employed to remove materials from the type of container (e.g., pouring, pumping or aspirating), and no more than 1 inch (2.54 centimeters) of residue remains on the bottom of the container or inner liner, or no more than 3% by weight of the total capacity of the container remains in the container or inner liner (for containers \leq 110 gallons), or no more than 0.3% by weight of the total capacity of the container remains in the container or inner liner (for containers $>$ 110 gallons). Containers which once held **ACUTELY HAZARDOUS WASTES** must be triple rinsed with an appropriate solvent or cleaned by an equivalent method. The pressure in cylinders of compressed gas and aerosol cans must be substantially equivalent to atmospheric pressure.

Containers which once held pesticides regulated under FIFRA must be empty according to label instructions.
 - c. **Untreated medical waste - Any waste capable of inducing infection due to contamination with infectious agents from bio-medical sources including but not limited to a hospital, medical clinic, nursing home, medical practitioner, mortuary, taxidermist, veterinarian, veterinary hospital, animal testing laboratory, or medical testing laboratory.** Sharps from these sources must be rendered harmless or placed in needle puncture-proof containers.
 - d. **Treated medical waste - Any wastes from a bio-medical source including but not limited to a hospital, medical clinic, nursing home, medical practitioner, mortuary, taxidermist, veterinarian, veterinary hospital, animal testing laboratory, or medical testing laboratory which has been autoclaved or otherwise heat treated or sterilized so that it is no longer capable of inducing infection.** Any sharps from these sources must be rendered harmless or placed in needle puncture-proof containers. Residue from incineration of medical waste is a "Type A Special Waste".
 - e. Residue/sludges from septic tanks, food service grease traps, or washwaters and wastewaters from commercial laundries, laundromats, and car washes, unless these wastes are managed at commercial or public treatment works.
 - f. Chemical-containing equipment removed from service, in which the chemical composition and concentration are known (e.g., acetylene tanks, cathode ray tubes, lab equipment, fluorescent light tubes, etc.).
 - g. Waste produced from the demolition or dismantling of industrial process equipment or facilities contaminated with chemicals from the industrial process. Chemicals or residues removed or drained from such equipment or facilities are "Type A Special Wastes".
 - h. Incinerator ash generated at a Resource Recovery Facility that burned only non-hazardous household, commercial, or industrial waste and qualifies for the hazardous waste exclusion in 40 CFR 261.4(b). If the regulatory authority does not recognize the household hazardous waste exclusion, then the ash is a "Type A Special Waste".



MIDWEST REGION SPECIAL WASTE MANAGEMENT DECISION

15-11
ORC-MW26417
Waste Profile Sheet Code

I. Request For Decision: Initial Renewal

GENERATOR NAME: Key Products ADDRESS: 8634 West Lynks

CITY, STATE/PROVINCE: Milwaukee, WI 53225

WASTE NAME(S): ~~Paint Contaminated Soil~~ Paint Contaminated Soil

PROPOSED MANAGEMENT FACILITY: Orchard Ridge RTSF

PROPOSED INTERMEDIATE TRANSFER FACILITY: N/A TRANSPORTER: Taylor Industrial Vac

WMNA REQUESTOR: Teggy Lind SIGNATURE: Teggy Lind

II. TECHNICAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED Check if additional information is attached.

If Disapproved, Explain: _____

If Approved, Complete A, B, C and D Below: _____

A Management Method(s): _____

LANDFILL (CODISPOSAL)

B Precautions, Conditions, or Limitations on Approval: _____

Per the Requirements of the site's special waste plan

waste must not contain free liquids. Volume to be hauled cannot exceed 59 yd³/hour.

C Decision Expiration Date: 5/15/97

D For Type A Wastes, Laboratory Analysis of a Representative Sample Was: (Check only one)

Waived Supplied By Generator From a WMI-Approved Lab From Both Generator and WMI-Approved Lab

TECH. MGR. SIGNATURE: Richard Payer NAME: (Print) Richard Payer DATE: 5/15/96

III. WMI MANAGEMENT FACILITY GENERAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations: _____

GENERAL MGR SIGNATURE: Robert Borkenhagen NAME: (Print) Robert Borkenhagen DATE: 5/15/96

IV. WMI INTERMEDIATE TRANSFER FACILITY GENERAL MANAGER DECISION: (circle one) APPROVED DISAPPROVED

If Approved, State any Additional Precautions, Conditions or Limitations: _____

GENERAL MGR SIGNATURE: _____ NAME: (Print) _____ DATE: _____

96274



MIDWEST REGION GENERATOR'S WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

MAY 13 1996

MAR 28 1996

Waste Profile Sheet Code

MW 26417

Proposed Management Facility _____

This form is to be used to comply with the requirements of a waste agreement.

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED

Decision Expiration Date: 1 1

A. WASTE GENERATOR INFORMATION

1. Generator Name: Key Products 2. SIC Code: *3599
 3. Facility Address (site of waste generation): 8634 W. Lynds
 4. Generator City, State: Milwaukee, WI 5. Zip/Postal Code: 53225
 6. State ID #: N/A
 7. Technical Contact: Richard Meinburg 8. Phone: (414) 355-5299

B. WASTE STREAM INFORMATION (See Instructions)

1. Name of Waste: Petroleum Contaminated Soil w/ solvents + paint (per phone conversation w/ EPA)
 2. Process Generating Waste: Spilled Solvents/Paints from painting operations
 3. Amount/Units: 100 cubic yards 4. Type A Type B Case
 5. Special Handling Instructions/Supplemental Information: none 5/15/96
RP

6. Incidental Waste Types and Amounts: None

C. TRANSPORTATION INFORMATION

1. Method of Shipment: Bulk Liquid Bulk Sludge Bulk Solid Drum/Box Other _____
 2. Supplemental Shipping Information: None

D. PHYSICAL CHARACTERISTICS OF WASTE (See Instructions) (Omit for Type B)

1. Color: <u>Brown</u>	2. Does the waste have a strong incidental odor? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes; if so, describe: _____	3. Physical State @ 70° F/21°C: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Semi-Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Powder <input type="checkbox"/> Other: _____	4. Layers: <input type="checkbox"/> Multi-layered <input type="checkbox"/> Bi-layered <input checked="" type="checkbox"/> Single Phased	5. Specific Gravity Range: <u>NA</u>	6. Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Volume: _____ %
7. pH: <input type="checkbox"/> ≤2 <input type="checkbox"/> >2-4 <input type="checkbox"/> 4-7 <input type="checkbox"/> 7 <input checked="" type="checkbox"/> 7-10 <input type="checkbox"/> 10- <12.5 <input type="checkbox"/> ≥12.5 <input type="checkbox"/> Range <input type="checkbox"/> NA					
8. Flash Point: <input type="checkbox"/> None <input type="checkbox"/> <140°F/60°C <input type="checkbox"/> 140 - 199°F/60 - 93°C <input checked="" type="checkbox"/> ≥200°F/93°C <input type="checkbox"/> Closed Cup <input type="checkbox"/> Open Cup					

E. CHEMICAL COMPOSITION (Omit for Type B)

RANGE (MIN-MAX)	2. Does the waste contain any of the following? (provide concentration if known):	NO or LESS THAN or ACTUAL
<u>Soil</u> 80 - 90 %	PCBs <input checked="" type="checkbox"/> < 50 ppm	_____ ppm
<u>PVOC's</u> 1 - 2 %	Cyanides <input checked="" type="checkbox"/> < 50 ppm	_____ ppm
<u>*Water</u> 18 - 19 %	Sulfides <input checked="" type="checkbox"/> < 50 ppm	_____ ppm
_____ - %	Phenols <input checked="" type="checkbox"/> < 50 ppm	_____ ppm
_____ - %		
<u>Water - Not a free liquid</u> - %		
_____ - %		
<u>1.5 acid</u> - %		
_____ - %		
Total: <u>100</u> %		

The total composition must be greater than or equal to 100% (0001% = 1 ppm or 1 mg/l)

Completed per Dan Gaggas 5/13/96

7. SAMPLING SOURCE (Omit for Type B) (e.g., Drum, Lagoon, Pit, Pond, Tank, Vat) _____

6. REPRESENTATIVE SAMPLE CERTIFICATION (Omit for Type B)

1. Print Sampler's Name: Donald Gasas 2. Sample Date: 1-26-96

3. Sampler's Title: Chemist

4. Sampler's Employer (if other than Generator): Taylor Industrial

The sampler's signature certifies that any sample submitted is representative of the waste described above pursuant to 40 CFR 261.20(c) or equivalent rules.

5. Sampler's Signature Donald Gasas

8. GENERATOR CERTIFICATION

By signing this profile sheet, the Generator certifies:

- 1. This waste is not "Hazardous Waste" as defined by USEPA and/or state regulation.
- 2. This waste does not contain regulated radioactive materials or regulated concentrations of PCB's (Polychlorinated Biphenyls).
- 3. The waste does not contain regulated concentrations of the following pesticides and herbicides: Chlordane, Endrin, Heptachlor (and it's epoxide), Lindane, Methoxychlor, Toxaphene, 2, 4-D, or 2, 4, 5-TP (Silvex).
- 4. The waste does not contain halogenated compounds such as: tetrachloroethylene, trichloroethylene, methylene chloride, 1, 1, 1-trichloroethane, carbon tetrachloride, chloroform, ortho-dichlorobenzene, dichlorodifluoromethane, 1, 1, 2-trichloro-1, 2, 2-trifluoroethane, trichlorofluoromethane 1, 1-dichloroethylene, and 1, 2-dichloroethylene at greater than 1% (10,000ppm) total solvent concentration. This listing includes any combination of the above named halogenated compounds where the total concentration or the sum of the concentrations of the individual compounds exceed 1% or 10,000 ppm on a weight to weight basis.
- 5. This sheet and the attachments contain true and accurate descriptions of the waste material. All relevant information regarding known or suspected hazards in the possession of the Generator has been disclosed.
- 6. The Generator has read and understands the Contractor's Definition of Special Waste included in Part B.5. of the attached instructions form. All types and amounts of special wastes provided in incidental amounts have been identified in section B.6. of this form.
- 7. The analytical data presented herein or attached hereto were derived from testing a representative sample taken in accordance with 40 CFR 261.20(c) or equivalent rules.
- 8. If any changes occur in the character of the waste, the Generator shall notify the Contractor prior to providing the waste to the Contractor.

9. Signature Richard Meinburg 10. Title PRES.

Name (Type or Print) RICHARD MEINBURG 12. Date 03-26-1996

NOTE: Omit sections D., E., F., and G., for Type B waste.

Comments:



**NATIONAL
ENVIRONMENTAL
TESTING, INC.**

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1660
Fax: (414) 261-8120

WORK NO. 128053530

ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996

Job No: 96.02753

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
178353	Soil Pile	04/01/1996	04/02/1996

The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

Karen R. Wentz

Karen R. Wentz, Inorganic Operations Manager
Certification No. 128053530



NATIONAL
ENVIRONMENTAL
TESTING, INC.

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1680
Fax: (414) 261-8120

FORM No. 198863536

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996
Job No: 96.02753
Sample No: 178353
Account No: 71290
Page 2

JOB DESCRIPTION: Key Products
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Soil Pile
Recy'd 4.0 C

Date Taken: 04/01/1996 09:00

Date Received: 04/02/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
Chlorine, total	<0.10	‡	0.10	E-330.3	04/15/1996	85
Cyanide, Reactive	<50	mg/kg	50	S-Ch7	04/12/1996	124
pH, Non aqueous	8.43	units	n/a	S-9040	04/04/1996	1216
Solids, Total	86.4	‡	n/a	M-2540G	04/08/1996	1407
Specific Gravity	1.54		n/a	E-160.4	04/11/1996	73
Sulfide, Reactive	<10	mg/kg	10	S-Ch7	04/10/1996	128
TCLP ZHE VOLATILE PREP	Complete			S-1311	04/09/1996	121
TCLP-Arsenic, ICP	<0.080	mg/L	0.080	S-6010	04/11/1996	254 75
TCLP-Barium, ICP	0.38	mg/L	0.010	S-6010	04/11/1996	254 138
TCLP-Cadmium, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	254 70
TCLP-Chromium, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	254 71
TCLP-Copper, ICP	<0.020	mg/L	0.020	S-6010	04/11/1996	15
TCLP-Mercury, CVAA	<0.0020	mg/L	0.0020	S-7470	04/15/1996	254 248
TCLP-Nickel, ICP	<0.050	mg/L	0.050	S-6010	04/11/1996	14
TCLP-Selenium, ICP	<0.15	mg/L	0.15	S-6010	04/11/1996	254 76
TCLP-Silver, ICP	<0.010	mg/L	0.010	S-6010	04/11/1996	254 57
TCLP-Zinc, ICP	0.024	mg/L	0.020	S-6010	04/11/1996	15
Prep, TCLP - 1311	Complete			S-1311	04/10/1996	254
TCLP-ACID COMPOUNDS - 8270						
TCLP-Cresols, Total	<0.10	mg/L	0.10	S-8270	04/15/1996	216
TCLP-2-Methylphenol (o-Cresol)	<0.10	mg/L	0.10	S-8270	04/15/1996	216
TCLP-4-Methylphenol (p-Cresol)	<0.10	mg/L	0.10	S-8270	04/15/1996	216
TCLP-Pentachlorophenol	<0.50	mg/L	0.50	S-8270	04/15/1996	216
TCLP-Phenol	<0.070	mg/L	0.070	S-8270	04/15/1996	216
TCLP-2,4,5-Trichlorophenol	<0.070	mg/L	0.070	S-8270	04/15/1996	216
TCLP-2,4,6-Trichlorophenol	<0.10	mg/L	0.10	S-8270	04/15/1996	216
Surr: Phenol-d6	16.9	‡	n/a	S-8270	04/15/1996	216
Surr: 2-Fluorophenol	25.5	‡	n/a	S-8270	04/15/1996	216
Surr: Tribromophenol	63.4	‡	n/a	S-8270	04/15/1996	216
TCLP-VOLATILES-8240						
TCLP-Benzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Carbon Tetrachloride	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Chlorobenzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Chloroform	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-1,4-Dichlorobenzene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220



**NATIONAL
ENVIRONMENTAL
TESTING, INC.**

Watertown Division
602 Commerce Drive
P.O. Box 288
Watertown, WI 53094
Tel: (414) 261-1660
Fax: (414) 261-8120

FORM No. 100003600

ANALYTICAL REPORT

Mr. Don Gagas
TAYLOR INDUSTRIAL VAC, INC
2711 West Townsend
P. O. Box 16579
Milwaukee, WI 53216

04/18/1996
Job No: 96.02753
Sample No: 178353
Account No: 71290
Page 3

JOB DESCRIPTION: Key Products
PROJECT DESCRIPTION: Soil Analysis
SAMPLE DESCRIPTION: Soil Pile
Recy'd 4.0 C

Date Taken: 04/01/1996 09:00

Date Received: 04/02/1996

Parameter	Results	Units	Reporting Limit	Method	Date Analyzed	Prep/Run Batch
TCLP-VOLATILES-8240						
TCLP-1,2-Dichloroethane	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-1,1-Dichloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Methyl Ethyl Ketone	<0.20	mg/L	0.20	S-8240	04/11/1996	121 220
TCLP-Tetrachloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Trichloroethene	<0.020	mg/L	0.020	S-8240	04/11/1996	121 220
TCLP-Vinyl Chloride	<0.20	mg/L	0.20	S-8240	04/11/1996	121 220
Surr: Toluene-d8	92.4	%	n/a	S-8240	04/11/1996	121 220
Surr: Bromofluorobenzene	91.2	%	n/a	S-8240	04/11/1996	121 220
Surr: 1,2-Dichloroethane-d4	97.4	%	n/a	S-8240	04/11/1996	121 220
TCLP BASE NEUTRAL COMPOUNDS						
TCLP-Hexachloroethane	<0.10	mg/L	0.10	S-8270	04/15/1996	172
TCLP-Nitrobenzene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
TCLP-Hexachlorobutadiene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
TCLP-2,4-Dinitrotoluene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
TCLP-Hexachlorobenzene	<0.10	mg/L	0.10	S-8270	04/15/1996	172
TCLP-Pyridine	<0.10	mg/L	0.10	S-8270	04/15/1996	172
Surr: Nitrobenzene-d5	76.4	%	n/a	S-8270	04/15/1996	172
Surr: 2-Fluorobiphenyl	59.8	%	n/a	S-8270	04/15/1996	172
Surr: Terphenyl-d14	99.6	%	n/a	S-8270	04/15/1996	172



NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY: Taylor Industrial
 ADDRESS: 2711 W. Townsend St
 PHONE: 414 447-4700 FAX: 414 447-4990
 PROJECT NAME/LOCATION: Key Products
 PROJECT NUMBER: 8634 W. Links, Milwaukee, WI
 PROJECT MANAGER: Don Gragas

9402753

REPORT TO: Taylor
 INVOICE TO: Taylor (Jodie)
 P.O. NO: Verbal
 NET QUIT NO. 5/3/96

SAMPLED BY: Donald Gragas
 (PRINT NAME)
 SIGNATURE: Donald Gragas
 (PRINT NAME)
 SIGNATURE: _____

ANALYSES

To assist us in selecting the proper method

Is this work being conducted for regulatory compliance monitoring? Yes ___ No X

Is this work being conducted for regulatory enforcement action? Yes ___ No X

Which regulations apply: RCRA ___ NPDES Wastewater ___
 UST ___ Drinking Water ___
 Other ___ None ___

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers					OTHER										
						HCl	NaOH	HNO3	H2SO4	OTHER											
4/1/96	9:00	Soil Pile	S	X																	

COMMENTS

Remaining Analyses
 See Warren.
 received 2 jars
 pH
 Sp. Grav.
 T.S.
 metal list less \leftarrow head
 20 clean
 RBA low surf.
 TELP VOC
 TELP Spent VOC
 (10 day test)

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
 FIELD FILTERED? YES / NO

COC SEALS PRESENT AND INTACT? YES / NO
 VOLATILES FREE OF HEADSPACE? YES / NO

TEMPERATURE UPON RECEIPT: 4°C
 Bottles supplied by NET: YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY: <u>Donald Gragas</u>	DATE: <u>4/1/96</u>	TIME: <u>10:00am</u>	RECEIVED BY: <u>Chris</u>	DATE: <u>4/2/96</u>	TIME: <u>11:46am</u>	RELINQUISHED BY: <u>Chris</u>	DATE: <u>4/2/96</u>	TIME: <u>1:55pm</u>	RECEIVED FOR NET BY: <u>Chris</u>	DATE: <u>4/3/96</u>
METHOD OF SHIPMENT			REMARKS:							



NO. 498 P.005/005 TAYLOR INDUSTRIAL → 4142531322

**ACCIDENTAL RELEASE ASSESSMENT
DOCUMENTATION WORKPLAN**

Prepared for:

Key Products, Inc.
8634 W. Lynx Ave.
Milwaukee, WI 53225

Prepared by:

**MATERIALS MGMT. & TRAINING LTD.
3271 N. 84TH ST.
MILWAUKEE WI 53222**

November 8, 1996

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<u>TITLE</u>	<u>Page</u>
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1.1 Introduction	3
1.2 Notification	3
1.3 Excavation and Confirmation Sampling Activities	4
1.4 Soil Disposal	4
1.5 Soil Sampling	4
1.6 Documentation Requirements	5
1.7 Reporting	7

WRITTEN WORKPLAN FOR ACCIDENTAL RELEASE ASSESSMENT

1.0 Scope of Work

The following written workplan sets forth the procedures to be followed during the assessment activities following an accidental release at Key Products, Inc., 8634 W. Lynx Ave., Milwaukee, WI 53225.

1.1 Introduction

Povlick Inc. proposes to supply the necessary labor, materials and supervision to remove approximately 100 cubic yards of soil at the Key Products Inc property, 8634 W. Lynx Ave., Milwaukee, WI 53225. The tasks for the completion of this project involve the following:

1. Notification
2. Excavation and removal
3. Soil sampling
4. Soil disposal
5. Documentation requirements
6. Reporting

The general contractor for excavation, removal, and disposal of the contaminated soil will be:

Povlick Inc.
2740 W. Cold Spring Rd.
Milwaukee, Wisconsin 53221

The documentation and reporting will be performed by Don Gagas of Materials Management & Training Ltd., who is certified by the State of Wisconsin for assessment documentation reporting (Certification no. 01275).

The general contractor will have a site health and safety plan (HSP) for all on-site activities during the excavation.

1.2 Notification

The contractor will notify the state DNR, in writing, 30 days prior to commencement of excavation activities. The contractor will identify any local ordinances governing assessment activities.

1.3 Excavation and Confirmation Sampling Activities

1. Prior to excavation:
 - a. All utilities and obstructions will be located and visibly marked.
 - b. All access will be restricted and roped off.
 - c. Sources of ignition will be eliminated.
 - d. Non-sparking tools will be used.
 - e. All hoses and motors will be grounded to prevent electrostatic ignition.
2. Excavate soil from the contaminated area.
3. The excavation area will then be visually inspected for signs of contamination. This will involve inspecting for evidence of further contamination such as stained soil, free liquids, and odors which may be indicative of contamination.
4. Excavation and confirmation sampling activities will be documented.
5. Clean soil should be used as backfill after the soil analysis results are obtained and no evidence of contamination is evident.

1.4 Soil Disposal

1. Contaminated soil disposal will be at the Waste Management facility.

1.5 Soil Sampling

1. Obtain a statement of qualifications of the person collecting the samples.
2. Collect soil samples from the following locations:
 - a. Collect soil samples from native soil (not from backfill).
 - b. Collect samples from areas with strong odors.
 - c. Collect samples from areas with soil discoloration.
 - d. If applicable, collect 5 samples from the side walls and base of the excavation.
3. Collect soil samples as follows:
 - a. Collect soil samples with as little disturbance and exposure to air as possible.
 - b. Use trowel or hand auger to sample soil directly from the excavation area.
 - c. Sample soil from backhoe bucket in hazardous situations.
 - d. Clean tools thoroughly between all sampling points. The decontamination steps are: soap water wash; clean water rinse; solvent (ie., hexane) dry.
 - e. Collect samples from unexposed areas by first scraping away 3-4 inches of soil.

4. Sample containers:

- a. Must be of glass or inert material.
- b. Must have teflon (or equivalent) lined cap.
- c. Should be wide-mouth to prevent soil agitation.
- d. Must be filled to the brim with soil.

5. Sample handling:

- a. Label samples prior to or immediately after collection.
- b. Samples should have I.D. number and date.
- c. Seal samples immediately following collection.
- d. Chill samples immediately (4 deg. C)
- e. Follow chain-of-custody procedures.
- f. Ship to lab as soon as possible.
- g. Analyze samples using WI DNR approved methods.

1.6 Documentation Requirements

1. Provide site background information in narrative form:

- a. Site owner and address.
- b. Contact person and telephone number.
- c. Assessment method to determine extent of contamination.
- d. Environmental consultant/firm.
- e. Excavation contractor.
- f. Description of past and present property use.
- g. Results of previous geotechnical investigations, if applicable
- h. Legal description of the site (quarter/quarter section, township range).
- i. Other relevant data.

2. Site Map, Scale 1": 1'-0"

3. Site layout showing the location of:

- a. Pre-existing site conditions.
- b. Piping, if applicable.
- c. Utilities.
- d. Buildings.
- e. Field instrument sampling points (if applicable).
- f. Lab analysis sampling points.
- g. Areal extent of excavation and depth below original grade.
- h. Map scale (1" = 10').
- i. North arrow.
- j. Drawing title.
- k. Name of map draftsman.

4. Tabulated field and lab data showing:
 - a. Lab results for each sample and field readings where applicable.
 - b. Location of each sample or field reading keyed to site layout.
 - c. Depth at which sample(s) was/were taken.
 - d. Relative moisture content of sample(s).
 - e. Petroleum product odor, if present.
 - f. Instrument quenching.

5. Provide copies of:
 - a. Laboratory analysis.
 - b. Chain-of-custody forms.

6. Observations:
 - a. Soil type, USGS classification.
 - b. Excavation depth.
 - c. Suspected leak locations.
 - d. Presence of free standing water.
 - e. Depth to ground water, if known.
 - f. Presence of free product.
 - g. Presence of stained soil.
 - h. Observed odors.
 - i. Signs of impacted/affected vegetation.
 - j. Other signs of contamination.

7. Describe soil sampling procedures/techniques, including:
 - a. Sample collection method.
 - b. Tool cleaning method.
 - c. Sample preservation method.

8. Describe field instruments, methods, and observations, including:
 - a. Instrument make and model.
 - b. Date of factory calibration.
 - c. Date, time, and method of field calibration.
 - d. Lamp energy electron volts (ev) for PID's.
 - e. Instrument settings.
 - f. Outside temperature.
 - g. Weather conditions.
 - h. Lab-headspace split sampling.
 - i. Headspace sample containers.
 - j. Headspace sample collection.
 - k. Polyethylene bag procedure, if used.
 - l. Equilibrium temperature for samples.
 - m. Sample agitation.
 - n. Sample equilibrium.

- o. Erratic instrument readings, if present.
- p. Instrument cleaning or repairs performed in the field.

9. Suitable photographs include:

- a. Color prints.
- b. Color reprints.
- c. Color photocopies.

1.7 Reporting

1. Send copy of release assessment to:

- a. Mr. Chip Krohn
WI Dept. of Natural Resources
4041 N. Richards St.
Milwaukee, WI 53212

PHOTO DOCUMENTATION



Photo #1 - Dumpster location area



Photo #2 - Initial excavation to determine contamination



Photo #3 - Excavation area 10 ft. south of the building



Photo #4 - Excavated soil pile



Photo #5 - Excavation area



Photo #6 - Excavation area after soil removal



Photo #7 - Excavation area near building



Photo #8 - Loading dock area view

REFERENCES

1. EPA Office of Solid Waste and Emergency Response, Soil Screening Guidance Document, EPA 540/R-94/101 December, 1994.
2. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: Discharge Reporting Requirements and Source Confirmation for Underground Storage Tank Systems, Chapter NR 705, Wisc. Admin. Code.
3. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: Site Discovery, Screening, and Ranking, Chapter NR 710, Wisc. Admin. Code.
4. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: Site Investigations, Chapter NR 716, Wisc. Admin. Code.
5. DEPT. OF INDUSTRY, LABOR, AND HUMAN RELATIONS: Chapter ILHR 10, Flammable and Combustible Liquids, Wis. Admin. Code, April, 1991.
6. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: General Requirements, Chapter NR 700, Wisc. Admin. Code.
7. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: Standards for Selecting Remedial Actions, Chapter NR 722, Wisc. Admin. Code.
8. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: General Requirements, Chapter NR 700, Wisc. Admin. Code.
9. WISCONSIN DEPARTMENT OF NATURAL RESOURCES: Standards for Selecting Remedial Actions, Chapter NR 722, Wisc. Admin. Code.