

APPENDIX A

Site Photographs – Characterization



 6/2/06 – Northwest Corner (NWC) prior to investigation, looking west; note 35 staked boring locations.



2. 6/2/06 – NWC soil characterization sample collection, looking west.



3. 6/2/06 – "Silly putty" material and green-colored soil in sample NWC-1-39.



4. 7/20/06 – NWC prior to excavation, looking west.



APPENDIX A
Northwest Corner Affected Soil Removal Report
Former Rhone-Poulenc Site
Tukwila, Washington

Project No. 8769 Page



APPENDIX B

Manifests and Disposal Tickets

rotech gystems. Inc. A 121st STREET SW ÝNŇWOOD. WA 98087 (206) 363-9000

WÓRK ORDER

FOR ACCOUNT

WORK ORDER MIMPER: 71010

> **WORK ORDER DATF:** Jul 27, 2006

> > Page:

SOLD TO:

GEOMATRIX CONSULTANTS INC. ONE UNION SQUARE 600 UNIVERSITY ST. STE. 1020 SEATTLE, WA 98101

SITE:

FORMER BASE RHONE POULENC 9229 EAST MARGINAL WAY SEATTLE, WA 98108

SITE

PHONE:

206-550-3781

PHONE: 206-342-1772

CUSTOMER	PO NUMBER	ESIJOB#	ACCOUNT REP
GEOCONSWA		06-152-15	ROGER
CUSTOMER CONTACT	EPAD#	DATE ORDERED	DATE COMPLETED
JOE MORRICE		7/27/06	7128106

					2 4.00
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DM WASTE FILTERS & WATER FROM TREATMENT SYSTEM/71010 DM CHEVRON GST OIL 190 68 FOR RECYCLE/64890 A BOX SPENT CARBON / 71012 DM OIL CONTAM. DEBRIS/PPE/71013A	1.00 1.00	5 GAL 55 GAL BOXES 55 GAL	N X N N N N N N N N N N N N N N N N N N		ON ACCOUNT
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UNIAZ NEW DRUM 52% FUEL & INSUR SURCHARGE Sycl Drum Hydraulicoil /64890-8	1.00	Bū GAL EA	Ν		
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#6 Soil WHY LIGUID Full

XXXX DRUM Soil HAZ/LiquiD WORKAUTHORIZATION

The undersigned hereby authorizes and awknowledges receipt of the materials and /or commencement the party indicated as "SOLD TO" above (Generator). On behalf of Generator, I hereby make and appoint Envirotech Systems, Inc. Generator' true and lawful agent for the purpose of managing the above waste responsibilities. I understand that this does not relieve Generator of its responsibilities as a generator even though title of the waste transfers to Epvirotech Systems, Inc.. Prices quoted herein are subject to the waste's inspection and acceptangee at the destination waste management facility.

		(208) 383-9000		
	WASTE MANIFEST	1. Generator's US EPA ID No. WAD 0 0 8 2 8 2 3 0 2	Manifest 2. Page Document No. 7 1 0 1 3 of	Information in the shaded areas is not required by Federal law.
GENERAL OR	3. Generator's Name and Mailing Address SIT CONTAINER PROPERTIES LLC PO BOX 1043 KENT. WA 98035 4. Generator's Phone (FORMER BASE RHONE 9229 EAST MARGINAL' TUKWILA. WA 98108 ATTN:	WAY S.	Manuest Doournent, Number:
	5. Transporter 1 Company Name ENVIROTECH SYSTEMS, INC.	6. US EPA ID NU WAH-0-0-0-0	mber C State) 1 2 4 5 00 Trans	Ennsporters ID
	7. Transporter 2 Company Name TRI STATE HOTOR TRANS		3.8.9.9.8	iferepointers ID
	Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT 17629 CEDAR SPRINGS LANE	10. US EPA ID NUI FOF THE N₩		acilly s D
	ARLINGTON, OR 97812 11. US DOT Description (Including Proper Shipping Na	ORDOB94	5 2 3 5 3	S Phone (541),454-2643
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A CHARLES	15. Special Handling Instructions and Additional Informa			
SPACETON CHARLES				-
	 GENERATOR'S CERTIFICATION: I hereby declare the packed, marked, and labeled, and are in all respects in present the packed. 	proper condition for transport by highway according	to applicable international and	national governmental regulations.
	If I am a large quantity generator, I certify that I have a practicable and that I have selected the practicable meth and the environment, OR, if I am a small quantity general available to me and that I can afford.	hod of treatment, storage, or disposal currently ava	eilable to me which minimizes t	he present and future threat to human health.
¥	Printed Typed Name on behalf of car Stelle A La Franca	Hawky profestion Signature	A Franc	Month Day Year
TRANSPORTER	17. Transporter 1 Acknowledgement of Receipt of Materia	Signature 1	14	Month Day Year
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	20. Facility Owner or Operator: Certification of receipt of t	hazardous materials covered by this manifest	except as noted in Item 19.	
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ORIGINAL - RETURN TO GENERATOR



DEMOLITION WASTE SHIPMENT LOG Former Rhone-Pöulenc Site Tukwila, Washington

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APPENDIX C

Analytical Results and Data Validation Memorandum



Memorandum

TO: John Long DATE: July 11, 2006

FROM: Tasya Gray PROJ. NO.: 8769

CC: Project File PROJ. NAME: Former Rhone-Poulenc Site

SUBJECT: Western Parcel Redevelopment Soil Sampling

Summary Data Quality Review – SDGs K0604573, K0604574, and K0604601

This memorandum presents Geomatrix Consultants, Inc. (Geomatrix's), summary data quality review of 61 primary samples and three composite samples (composited by the laboratory from 117 original discrete samples) collected on June 2 and 5, 2006. The samples were submitted to Columbia Analytical Services (CAS), a Washington State Department of Ecology (Ecology)-accredited laboratory, located in Kelso, Washington. The three composite samples were initially analyzed and reported by CAS as sample delivery group (SDG) K0604573. Subsequently, 50 of the original 117 samples submitted to CAS for K0604573 were analyzed and reported by CAS as discrete samples in SDG K0604601. The samples were analyzed for one or more of the following organic and/or inorganic analyses:

- Metals (copper, arsenic, barium, cadmium, chromium, lead, and/or selenium) by EPA Method 6020,
- Mercury by EPA Method 7471A,
- Silver by EPA Method 200.8,
- Flashpoint by Method 1020,
- Total Petroleum Hydrocarbons (TPH) diesel range by Method NWTPH-Dx,
- TPH gasoline range by Method NWTPH-Gx,
- TPH hydrocarbon identification screen (HCID) by Method NWTPH-HCID,
- Semivolatile organic compounds (SVOCs) by EPA Method 8270C.

The analyses were performed in general accordance with methods specified in U.S. Environmental Protection Agency's (EPA) Test Methods for Evaluating Solid Waste (SW-846), January 1995 and associated revisions.

Laboratory SDGs associated with the June 2006 sampling event are listed below:



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Laboratory SDG	Date(s) Collected
K0604573	June 2 and 5, 2006
K0604574	June 2 and 5, 2006
K0604601	June 2 and 5, 2006

The samples associated with each SDG are tabulated at the end of this memeorandum. Upon receipt by CAS, the sample jar information was compared to the chain-of-custody form. Discrepancies were noted by CAS and addressed with Geomatrix personnel prior to sample analyses. The temperatures of the coolers were recorded as part of the check-in procedure. The temperatures of the coolers were within the acceptable range of 4 + /- 2 °C.

Data review is based on method performance criteria and QC criteria as documented in the Soil Sampling Quality Assurance Project Plan (QAPP), May 2006. The laboratory provided validatable packages containing summarized sample results and associated QA/QC data as well as instrument printouts and sample preparation and injection log pages as required by the QAPP. The data review conducted on these SDGs included a review of summarized results and QA/QC data per the requirements set forth in Section D.1 of the QAPP. The control limits provided in the OAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used. Hold times, calibration verification, method blanks, surrogate recoveries, laboratory control samples (LCS), matrix spike/matrix spike duplicate (MS/MSD) results, laboratory duplicate results, field QC results, and reporting limits were reviewed to assess compliance with applicable methods and the QAPP. If data qualification was required, data were qualified in general accordance with the definitions and use of qualifying flags outlined in the following EPA documents: USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, October 1999, and USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review, October 2004.

The following qualifiers may be added to the data:

- U: The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J: The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ: The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.



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• R: The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ORGANIC ANALYSES

Samples were analyzed for TPH diesel and gasoline range, TPH HCID, and SVOCs by the methods identified in the introduction to this report and were evaluated for the following criteria.

- 1. Holding Times Acceptable
- 2. Calibration Verification Acceptable except as noted:

<u>SVOCs by EPA Method 8270C</u>: The laboratory noted in the case narrative that the initial calibration verification exceeded the hold time by one day. Since all analytes were within the method specified criteria, the laboratory determined that the calibration was still valid and no associated data were qualified.

3. Blanks – Acceptable except as noted:

A method blank was prepared with each laboratory sample batch. The laboratory inadvertently did not collect an equipment blank from the grinding equipment as specified in the QAPP.

<u>TPH diesel range by Method NWTPH-Dx</u>: Residual range organics were detected at a concentration between the MDL and the MRL in the method blank for SDG K0604574, at 4.7 mg/kg. This is considered reportable as non-detect (U) at the MRL.

<u>TPH gasoline range by Method NWTPH-Gx</u>: Gasoline was detected at a concentration between the MDL and the MRL in the method blank for SDG K0604574, at 4.5 mg/kg. This is considered reportable as non-detect (U) at the MRL.

SVOCs by EPA Method 8270C: Di-n-butyl phthalate and bis(2-ethylhexyl) phthalate were detected at concentrations between the MDL and the MRL in the method blank for SDG K0604574. These are considered reportable as non-detect (U) at the MRL.

4. Surrogates – Acceptable except as noted:

<u>TPH diesel range by Method NWTPH-Dx</u>: The o-terphenyl surrogate recovery for NWC-2-36W was 49%, slightly below the 50% control limit. Since all other surrogate recoveries were within control limits, no associated data were qualified.



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<u>TPH gasoline range by Method NWTPH-Gx</u>: The 4-bromofluorobenzene surrogate recoveries for samples NWC-2-6W, NWC-2-7W, NWC-2-8W, NWC-2-36W, and NWC-2-42W in SDG K0604574 were all above the control limit. The laboratory reported in the case narrative that these elevated recoveries are due to dilutions required by the analyte concentrations in the sample, which resulted in surrogate concentrations below the calibration range.

<u>TPH HCID by Method NWTPH-HCID:</u> One surrogate recovery was outside the control limits for samples NWC-2-6W, NWC-2-36W, and NWC-2-42W. Since each of these samples was additionally run for full TPH analysis by NWTPH-Dx and NWTPH-Gx and all other surrogates were within control limits, associated results were not qualified.

5. Laboratory Control Samples (LCS or Blank Spike) – Acceptable except as noted:

The LCS recovery for benzoic acid in SDG K0604574 was 9%, below the 10% control limit, and the associated relative percentage difference (RPD) for the LCS/LCSD was 56%, above the 40% limit. Since benzoic acid is not a required LCS analyte and is used for advisory purposes only, associated results were not qualified. The RPD for the LCS/LCSD was also above the 40% limit for 2,4-dimethylphenol, at 53%. Since neither benzoic acid nor 2,4-dimethylphenol was detected in the associated samples, data were not qualified based on the RPD exceedances.

6. Laboratory Duplicates – Acceptable except as noted:

A laboratory duplicate was performed on 10% of samples, as specified in the QAPP, with the exception of SVOCs. A LCS duplicate was reported for SVOCs, but not a laboratory project duplicate. The RPDs for all duplicates were below the project-specific control limit of 30%.

7. Field Duplicates – Acceptable:

Field duplicates were not collected in the field. They were collected in the laboratory after the composite samples were ground and homogenized. A field duplicate was collected by the laboratory for this sampling event for sample NWC-2-42W and was given the sample ID, NWC-2-42WDUP. The RPDs for all duplicates were below the project specific control limit of 30%, as shown in the table below.



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Sample ID/ Lab Duplicate ID	SDG	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD (%)
NWC-2-42W/NWC-2- 42WDUP	K0604574	diesel	1500	1400	7
		residual range	210	190	7
		gasoline	71	74	5

8. Matrix Spike (MS) – Acceptable except as noted:

A matrix spike was not reported with SDG K0604574. Data were reviewed based on the lab control spike, which was within control limits and no associated data were qualified.

9. Reporting Limits – Acceptable except as noted:

<u>TPH diesel range by Method NWTPH-Dx</u>: The laboratory flagged all results in SDG K0604574 for the chromatographic fingerprint not resembling a petroleum product. This result should be evaluated during use of the data.

<u>TPH gasoline range by Method NWTPH-Gx</u>: The laboratory flagged all results in SDG K0604574 as resembling a petroleum product, but the elution pattern does not match the calibration standard.

<u>SVOCs</u> by <u>EPA Method 8270C</u>: The reporting limits for many SVOCs reported in SDG K0604574 are elevated due to high levels of non-target analytes requiring dilution of the samples prior to analysis.

INORGANIC ANALYSES

Samples were analyzed for metals by the methods identified in the introduction to this report and were evaluated for the following criteria.

- 1. Holding Times Acceptable.
- 2. Calibration Verification Acceptable.
- 3. Blanks Acceptable except as noted:



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A method blank was prepared with each laboratory sample batch. Copper was detected at concentrations between the MDL and the MRL in all of the method blanks, ranging from 0.09 to 0.12 mg/kg. Chromium was also detected at a concentration between the MDL and the MRL in the method blank for SDG K0604574. These are considered reportable as non-detect (U) at the MRL. The laboratory inadvertently did not collect an equipment blank from the grinding equipment as specified in the QAPP.

- 4. Laboratory Control Samples (LCS or Blank Spike) Acceptable.
- 5. Laboratory Duplicates Acceptable except as noted:

Metals by EPA 6020: A laboratory duplicate was performed on 10% of samples, as specified in the QAPP. The relative percent differences (RPDs) were below the project-specific control limit of 30%, except for copper in NWC-2-1A and duplicate NWC-2-1AD, and in NWC-1-22W and duplicate NWC-1-22WD, as shown in bold type in the table below. The results for copper in these samples were qualified as estimated and flagged with a "J" because the duplicate RPD was greater than 30 percent.

Sample ID/ Lab Duplicate ID	SDG	Analyte	Primary Result (mg/kg)	Duplicate Result (mg/kg)	RPD (%)
NWC-1 Composite/NWC-1 CompositeD	K0604573	copper	1200	1340	11
NWC-1-22W/NWC-1-22WD	K0604574	arsenic	3.63	4.34	18
		barium	46.2	49.6	7
		cadmium	0.160	0.207	25
		chromiu m	14.4	16.9	16
		copper	2150	2940	31
		lead	23.3	27.9	18
		mercury	1.910	1.630	16
		selenium	0.3	0.4	9
		silver	0.129	0.146	12
NWC-1-37A/NWC-1-37AD	K0604601	copper	3880	3610	7
NWC-2-11A/NWC-2-11AD	K0604601	copper	32.9	36.5	10
NWC-2-1A/NWC-2-1AD	K0604601	copper	14.7	23.8	47
NWC-2-20A/NWC-2-20AD	K0604601	copper	45.5	38	18
NWC-2-30A/NWC-2-30AD	K0604601	copper	28	22.9	20



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6. Matrix Spike (MS) – Acceptable except as noted:

Metals by EPA 6020: Matrix spikes were performed on samples NWC-1 Composite (SDG K0604573), NWC-1-22-W (SDG K0604574), and NWC-1-37AS (SDG K0604601). The percentage recoveries for copper and mercury are not applicable, because the spike concentrations were much lower than the sample analyte concentrations.

The recovery for the spike sample performed on sample NWC-2-30AS (SDG K0604601) was 5%, below the control limit of 52%. A post-digest spike was performed on other samples in the SDG, but not on NWC-2-30AS. The associated result is qualified as estimated low and flagged "J-". Since all other spike recoveries were within control, no other results are qualified based on the spike results.

7. Field Duplicates – Acceptable

Field duplicates were not collected in the field. They were collected in the laboratory after the composite samples were ground and homogenized. The composite samples are evaluated under separate SDGs, though they are a part of this sampling event. The field duplicate frequency of 10% was achieved for this sampling event, though field duplicates were not submitted for inorganic analysis with the samples evaluated in these SDGs.

8. Reporting Limits – Acceptable except as noted:

Selenium was detected at levels between the MDL and the MRL in samples collected as part of SDG 0604574. Associated results are qualified as estimated and flagged "J" (replacing the laboratory qualifier "B").

OVERALL ASSESSMENT OF DATA

The CAS SDGs K0604573, K0604574, and K0604601 are 100 percent complete. The data usability is based on EPA's guidance documents and the QAPP referenced in the introduction to this report. Few problems were identified and analytical performance was generally within specified limits. The data, as qualified, are acceptable and meet the project's data quality objectives.



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Sample	SDG	Qualified Analyte	Qualified Result	Units	Qualifier Reason
NWC-1 Composite	K0604573	none			
NWC-2 Composite	K0604573	none			
NWC-3 Composite	K0604573	none			
NWC-2-1A	K0604601	copper	14.7 J	mg/kg	elevated duplicate RPD
NWC-2-3A	K0604601	none			
NWC-2-4A	K0604601	none			
NWC-2-5A	K0604601	none			
NWC-2-6A	K0604601	none			
NWC-2-7A	K0604601	none			
NWC-1-8A	K0604601	none			
NWC-2-8A	K0604601	none			
NWC-2-9A	K0604601	none			
NWC-2-10A	K0604601	none			
NWC-2-11A	K0604601	none			
NWC-1-13A	K0604601	none			
NWC-2-13A	K0604601	none			
NWC-2-14A	K0604601	none			
NWC-2-15A	K0604601	none			
NWC-1-16A	K0604601	none			
NWC-2-16A	K0604601	none			
NWC-2-17A	K0604601	none			
NWC-2-18A	K0604601	none			
NWC-2-19A	K0604601	none			
NWC-2-20A	K0604601	none			
NWC-2-21	K0604601	none			
NWC-2-22A	K0604601	none			
NWC-2-23A	K0604601	none			
NWC-2-24A	K0604601	none			
NWC-2-25A	K0604601	none			
NWC-2-26A	K0604601	none			
NWC-2-27A	K0604601	none			
NWC-2-28A	K0604601	none			
NWC-2-29A	K0604601	none		_	
NWC-2-30A	K0604601	copper	28.0 J-	mg/kg	low spike recovery
NWC-2-31A	K0604601	none			
NWC-1-32A	K0604601	none			
NWC-2-32A	K0604601	none			
NWC-2-33A	K0604601	none			
NWC-2-34A	K0604601	none			
NWC-1-35A	K0604601	none			
NWC-2-35A	K0604601	none			
NWC-1-36A	K0604601	none			
NWC-2-36A	K0604601	none			
NWC-1-37A	K0604601	none			
NWC-2-37A	K0604601	none			



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Sample	SDG	Qualified Analyte	Qualified Result	Units	Qualifier Reason
NWC-1-38A	K0604601	none			
NWC-2-38A	K0604601	none			
NWC-1-40A	K0604601	none			
NWC-2-40A	K0604601	none			
NWC-1-41A	K0604601	none			
NWC-2-41A	K0604601	none			
NWC-1-42A	K0604601	none			
NWC-2-42A	K0604601	none			
NWC-2-5W	K0604574	none			
NWC-2-6W	K0604574	none			
NWC-2-7W	K0604574	none			
NWC-3-24W	K0604574	none			
NWC-1-22W	K0604574	copper	2150 J	mg/kg	elevated duplicate RPD
		selenium	0.3 J	mg/kg	between MDL and MRL
NWC-1-2W	K0604574	selenium	0.8 J	mg/kg	between MDL and MRL
NWC-2-8W	K0604574	none			
NWC-2-36W	K0604574	none			
NWC-1-12W	K0604574	selenium	0.4 J	mg/kg	between MDL and MRL
NWC-2-39W	K0604574	selenium	0.3 J	mg/kg	between MDL and MRL
NWC-2-42W	K0604574	none			



June 16, 2006

Service Request No: K0604573



John Long Geomatrix Consultants, Incorporated One Union Square 600 University Street, Suite 1020 Seattle, WA 98101

RE: NW Corner - FRP/8769.005/4

Dear John:

Enclosed are the results of the rush sample(s) submitted to our laboratory on June 06, 2006. For your reference, these analyses have been assigned our service request number K0604573.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D. Project Chemist

GS/lmb

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

POL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project: Geomatrix Consultants, Inc. NW Corner-FRP/8769.005/4

Service Request No.: Date Received:

K0604573 06/06/06

Sample Matrix:

Soil

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One hundred seventeen soil samples were received for analysis at Columbia Analytical Services on 06/06/06. As instructed, the discreet samples were composited at the laboratory to create 3 composite samples, NWC-1 Composite, NWC-2 Composite, and NWC-3 Composite. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Copper for sample NWC-1 Composite is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of these samples were observed.

Approved by Child Child Child

Date 6/16/06

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Chain of Custody Documentation

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Be B Ca

Dissolved Metals: Al As Sb Total Metals: Al As

Ва g

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Bill To: John Long (GAN)

i. Routine Report: Method: Blank, Surrogate, as

NWC-1-34

MWC-3-33

NWC-2-33

NWC -1-

-35 33

-32

NWC-2 NWC-3

NWC-1-31

SAMPLET

SAMPLER'S SIGNATURE

E-MAIL ADDRESS CITY/STATE/ZIP

PHONE #

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NWC-2 NWC-3

361.

-31

NWC-1-32

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OTHER OTHER Αĝ

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*INDICATE STATE HYDROCARBON PROCEDURE:

SPECIAL INSTRUCTIONS/COMMENTS:

TURNAROUND REQUIREMENTS

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Standard (10-15 Working days)

5 Day 24.hr.

> Iii. Data Validation Report (includes all raw data)

Provide FAX Results

IV. CLP Deliverable Report

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Requested Report Date

Sn V. Zn

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Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni

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Gennothik

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6/6/06 Date/Time

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Printed Name Signature

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CHAIN OF CUSTODY

REMARKS 문 7 Sr. TI Sn. V Zn > الا F #:000 ത് Se Se 123 K Ag Na Ag Na "INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER 70×9020 [] COD, Totale TK, COO Cd Co Or Cu) Fe Pb Mg Mn Mo Ni K U Pb Mg Mn. Mo·Ni PAGE œ O 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068 ပ် გ გ Ba Be B Ca Ba Be B Ca Circle which metals are to be analyzed: Dissolved Metals: Al As Sb. Total Metals: Al As Sb NUMBER OF CONTAINERS INVOICE INFORMATION BIII TO: JOHN LORGY P.O. # 8769.005/4 MATRIX LAB I.D. 0853 5900 08.0 1240 20/2 TIME 093 6239 627 1001 10/2/0 DATE Congre Routine Report: Method REPORT REQUIREMENTS Blank, Surrogate, as 12 N. - 36 Employee - Owned Company -36 3 NWC-3-35 -2-3 \sim 98 NWC-2-35 3 NVVC-1 245 required SAMPLE NWC-2 -1-JMN 1.60 COMPANY/ADDRESS Muc-3 PROJECT MANAGER SAMPLER'S SIGNAR PROJECT NUMBER PROJECT NAME E-MAIL ADDRESS - 7MN MAX CITY/STATE/ZIP NWC NWA 107 30 (0) S

SPECIAL INSTRUCTIONS/COMMENTS:

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Standard (10-15 working days)

Provide FAX Results

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5 Day 24 hr.

> III. Data Validation Report (includes all raw data)

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Date/Time

RECEIVED BY:

Printed Name Signature

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C/L/OC 705 Date Time

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RECEIVED BY:

Requested Report Date

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Analytical Services Inc. in Employee - Owned Company

CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

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REMARKS Dosel XOV DOC (GIRGIÐ) NOZ+NOĞ) NOĞ- BOD: 1081-P. 7KN, F. N(NOĞ- GIRGIÐ) NOĞ+NOĞ, F. N(SOĞ (GIRGIÐ) NOĞ+NOĞ, F. N(NOĞ- BOD: 1081-P. 7KN, 7C Circle which metals are to be analyzed NUMBER OF CONTAINERS INVOICE INFORMATION 9764,005/14 MATRIX LAB I.D. P.O. # 200 060 <u>.</u> E B TIME 6[5[85] [035 <u>109</u> 90 2 FAX <u>|</u> 500,005 DATE ころのとと I. Routine Report: Method REPORT REQUIREMENTS かられ \$ ファーケーグラ ショントラーチ 1-24 N~1-5-24 コック・ニュダ) SAMPLE I.D アーンアン SWC-アングー PROJECT MANAGER PROJECT NUMBER JWW. SWC! E-MAIL ADDRESS PROJECT NAME CITY/STATE/ZIP PHONE # 10/0 \$0 $\overline{5}$

ģ ര് K Ag Na Se Se ğ OTHER Ag × NORTHWEST ź 'n, ₽ Pb Mg Mn Mo 뒫 М ₹ a CA Fe. ů. <u>ි</u> ර් රි O C ¥ *INDICATE STATE HYDROCARBON PROCEDURE: රි ö ပ္ပ Be B Ca ပ္မ SPECIAL INSTRUCTIONS/COMMENTS: m g Ва Sb. Ba Sb Dissolved Metals: 'Al As Total Metals: Al As TURNAROUND REQUIREMENTS (days) XX Standard (No-15 working Provide FAX Results Bill To: Jahra Lorg

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(CIRCLE ONE) > ŝ

Sn V'Zn

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PCOC #1

6/4/6 7500 Date/Time

Date/Time

Signature

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RECEIVED BY

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PAGE

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

REMARKS 모 Sr TI. Sn V Zn Hg Sn V Zn (CIRCLÉ ONE) RECEIVED BY ζ Se Na Se ğ 170991 XOV OTHER K Ag Å D 0206 XO1 COD, Total-P, TK (circle) NO2+NO3 \mathbf{x} ž ï WI NORTHWEST Mig Mn, Mo ₽ 퇻 Ē 표 정 윤 გ RELINQUISHED BY: 9 3 S ΑK ζο (ος P) ပ် *INDICATE STATE HYDROCARBON PROCEDURE: ၀ ၉ X □198 \$991 Be B Ca Be B Ca SPECIAL INSTRUCTIONS/COMMENTS: Circle which metals are to be analyzed: ga g S Total Metals: Al As Sb Dissolved Metals: Al As RECEIVED BY NUMBER OF CONTAINERS TURNAROUND REQUIREMENTS Standard (10-15 working days) INVOICE INFORMATION Requested Report Date BIII TO: JOHN LOCA 7 Provide FAX Results P.O. # 4769,005 LAB I.D. 5 Day 24 hr. 2 16/66 705 Date Time TIME <u>2</u> <u> 2</u> 1169 Correct PR ,8 125 (/5/26) 769 DATE L. Report Dup., MS, MSD as RELINQUISHED BY Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as NWL-3-43 シャク・ダン NWC-1-A <u>5</u> 3 UW7-2-4 required required SAMPI F EDD COMPANY/ADDRESS PROJECT MANAGER PROJECT NUMBER E-MAIL ADDRESS PROJECT NAME CITY/STATE/ZIP > ≝ PHONE # (A)

BOOD #4 08/03

Date/Time

Signature

6.6.6

Georgania Firm

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Printed Name

Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

PC		

Pro	oject/Client	GEDM	ATPEIX	The state of the s	Service Request	: K06	وحجت بر	·	
Со	oler received on _	6/10/6	and op	pened on $a/b/b$	by_	Ag			
1.	Were custody seal	s on outside of co	olers?				MCD	Y	N
	If yes, how ma	any and where?							
2.	Were custody seals	s intact?			•			¥-	N ->
3.	Were signature and	d date present on t	he custody	seals?				¥	N
4.	Is the shipper's air	rbill available and	filed? If n	o, record airbill numbe	r:			Đ	И
5.	COC#					<u></u>			
	Temperature of	cooler(s) upon re	ceipt: (°C)	5,4	<u> 5,5</u>	3.7	<u> </u>	4	3.5
	Temperature Bla	nk: (°C)		5.1	z'6	2.1	_ ´ <u>~//</u>	7	5:8
	Were samples hand	delivered on the	same day as	collection?			,	Y	N
6.	Were custody pape	rs properly filled	out (ink, sig	med, etc.)?				Q	N
7.				van, CAOZ	DBOARD,	1CE			
8.	Did all bottles arr				, ,	•		Ø	N
9.	Were all bottle labe							Ø	N
10.	Did all bottle labe	ls and tags agree	with custod	y papers?			%	00	N
11.	Were the correct							82	N
12.							¥		
13.						(N		
14.	Were the 1631 Mer	rcury bottles chec	ked for abso	ence of air bubbles, and	l if present, noted l	below?		Y	
15.	Did the bottles orig	-			_			Y	D
16.	_			h >1/2 the 24hr. hold	time remaining fi	rom collection?		<u>, Y</u>	N
17.	Was C12/Res nega		•		_			¥	N
	lain any discrepan								
	Tani any albert pan								· · ·
									
	<u>-</u>				· -··		<u> </u>		
RES	OLUTION:								
				-t -£t			·		
Sam	ples that required	preservation or i	eceived of	it of temperature:					
						Rec'd out of		ľ	
	Sample ID	Reagent	Volume	Lot Number	Bottle Type	Temperature	Initials		
					_	-			
				<u> </u>				,	
		<u> </u>						, .	

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Metals

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Cliént:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.:

8769.005/4

Project Name: NW Corner - FRP

Sample No.	Lab Sample ID.
NWC-1 Composite	K0604573-118
NWC-1 CompositeD	K0604573-118D
NWC-1 CompositeS	K0604573-118s
NWC-2 Composite	K0604573-119
NWC-3 Composite	K0604573-120
Method Blank	K0604573-MB

Were ICP interelement corrections applied?	•	Yes/No YES
Were ICP background corrections applied?		Yes/No YES
If yes-were raw data generated before application of background corrections?	·	Yes/No NO
Comments:	·	
	·	
		·.
Signature:	Date: 6	No
70		

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Date Collected: 06/02/06

-

Date Received: 06/06/06

Project Name: NW Corner - FRP

Units: mg/kg

Basis: Dry

Matrix:

SOIL

Sample Name: NWC-1 Composite

Lab Code: K0604573-118

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	1.91	0.38	100	6/9/06	06/13/06	1200		

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Date Collected:

06/02/06

Project Name: NW Corner - FRP

Date Received:

06/06/06

Matrix:

SOIL

mg/kg

Basis:

Units:

Dry

Sample Name: NWC-2 Composite

Lab Code: K0604573-119

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	1.71	0.34	100	6/9/06	06/13/06	181		

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: NW Corner - FRP

Date Received: 06/06/06

Matrix:

SOIL

Units: mg/kg

Dry Basis:

Sample Name: NWC-3 Composite

Lab Code: K0604573-120

Analyte	Analysis Method	MRL	WDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	1.71	0.34	100	6/9/06	06/13/06	21.0		

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Date Collected:

NA

Project Name: NW Corner - FRP

Date Received:

Matrix:

SOIL

Units: mg/kg

> Basis: Dry

Sample Name: Method Blank

Lab Code: K0604573-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Résult	С	Q.
Copper	6020	0.10	0.02	5	6/9/06	06/13/06	0.09	В	

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

ICV Source: Inorganic Ventures

CCV Source: Various

Concentration Units: ug/I

	Initial	Calibrai	cion		Continu		No. 17 T		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper	12.5	12.2	98	25.0	24.9	100	25.1	100	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

ICV Source:

CCV Source: Various

Concentration Units: ug/I

	Initia	l Calibra	tion	1	Continu				
Analyte	True	Found	%R(1)	True	Found	&R(1)	Found	%R(1)	Method
Copper		•		25.0	25.3	101	24.9	100	6020

METALS - 2b -

CRDL STANDARD FOR AA AND ICP

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

Concentration Units: ug/I

	GDD - 44		CRDL Standard for ICP								
	CRDL St	andard for AA	Init	tial		Final					
Analyte	True	Found %R	True	Found	&R	Found	%R				
Copper			0.20	0.28	142						

METALS - 3 -BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.:

8769.005/4

Project Name: NW Corner - FRP

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	С	Cor 1		ing C nk (u 2		ration 3	С	Preparation Blank C		Method
Copper	0.04	ם	0.0	4 U	0.0	4 U	0.08	B		T	6020

METALS - 3 -

BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.:

8769.005/4

Project Name: NW Corner - FRP

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	С	Coi 1		ing (nk (u		ration 3	С	Preparation Blank C	Method
Copper		T	0.0	5 B		<u> </u>				6020

ICP INTERFERENCE CHECK SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

ICP ID Number:

PQ-S

ICS Source: Inorganic Ventures

Concentration Units):

	Tru	ıe	Initi	al Found	Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	₽R	Sol.A	Sol.AB	₹R
Copper		20	0.33	18.0	90			

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Units: mg/kg

Project Name: NW Corner - FRP

Basis: Dry

Matrix:

SOIL

Sample Name: NWC-1 CompositeS

Lab Code: K0604573-118S

Analyte	Control Limit %R	Spike Result	С	Sample Result	C	Spike Added	&R	Q	Method
Copper		1340		1200		49.2	285		6020

- 5b -

POST DIGEST SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Units: ug/L

Project Name: NW Corner - FRP

Matrix:

SOIL

Sample Name:

NWC-1 CompositeA

Lab Code: K0604573-118A

Analyte	Control	Spiked Sample	_	Sample	~	Spike	-		·	
Analyte	Limit %R	Result (SSR)	ب	Result (SR)		Added	(SA)		М	
Copper	75-125	153		126			25.0	108		MS

Comments:

- 6 -

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Units: mg/kg

Basis: Dry

Matrix:

SOIL

Project Name: NW Corner - FRF

Sample Name: NWC-1 CompositeD

Lab Code: K0604573-118D

Analyte	Control Limit(%)	Sample (S)	С	Duplicate	(D)	С	RPD	Q:	Method
Copper	30	12	200		1340		11		6020

-7-

LABORATORY CONTROL SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source: ERA Lot No. D045540

	Aqueous mg/L				Solid (mg/kg)					
Analyte	True	Found	8R	True	Found	C	Limits	3 .	&R	
Copper				67.0	66.E		53.8	80.2	100	

-9-

ICP SERIAL DILUTIONS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.:

8769.005/4

Units: ug/L

Project Name:

NW Corner - FRP

Sample Name: NWC-1 CompositeL

Lab Code: K0604573-118L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ-	Q Method
Copper	126	141	12	E 6020

-10-

METHOD DETECTION LIMITS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

ICP/ICP-MS ID #: PQ-S

GFAA ID #:

AA ID #:

Analyte	Mass	Back- ground	MRL (ug/L)	MDL (ug/L)	Method
Copper	65		0.20	0.04	6020

Comments	

-12-

ICP LINEAR RANGES (QUARTERLY)

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604573

Project No.: 8769.005/4

Project Name: NW Corner - FRP

ICP ID Number:

PQ-S

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Copper	15.00	400.0	6020



June 26, 2006

Service Request No: K0604574

John Long Geomatrix Consultants, Incorporated One Union Square 600 University Street, Suite 1020 Seattle, WA 98101

RE: NW Corner-FRP/8769.005/4



Dear John:

Enclosed are the results of the rush sample(s) submitted to our laboratory on June 06, 2006. For your reference, these analyses have been assigned our service request number K0604574.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D

Project Chemist

GS/afs

Page 1 of 1575

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case parrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J. The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Project:

Geomatrix Consultants, Inc. NW Corner-FRP/8769.005/4

Service Request No.: Date Received:

K0604574 06/06/06

Sample Matrix:

Water and soil

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water and twelve soil samples were received for analysis at Columbia Analytical Services on 06/06/06. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Total Metals

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recoveries of Copper and Mercury for sample NWC-1-22W are not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of Copper in sample NWC-1-22W was outside the normal CAS control limits. The variability in the results is attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Hydrocarbon Identification by EPA Method 8015B

Surrogate Exceptions:

The control criteria were exceeded for the surrogate 4-Bromofluorobenzene in samples NWC-2-42W and NWC-2-6W due to chromatographic matrix interferences. Accurate quantitations of the surrogate were not possible because the surrogate peaks were not sufficiently resolvable from petroleum product responses. No further corrective action was appropriate.

The control criteria were exceeded for the surrogate o-Terphenyl in sample NWC-2-36W due to chromatographic matrix interferences. Accurate quantitation of the surrogate was not possible because the surrogate peak was not sufficiently resolvable from petroleum product responses. No further corrective action was appropriate.

Date 6/16/06

5

Calibration Range Exceedence:

The results for Gasoline Range Organics has been estimated in samples NWC2-36W, NWC-2-6W and NWC-2-7W because the concentrations exceeded the instrument calibration range. The sample extracts were not (further) diluted because the results are for screening purposes only, and as such are semiquantitative. See NWTPH-GX analyses of the samples for quantitative results.

Diesel Range Organics by EPA Method 8015B

Elevated Method Reporting Limits:

Samples NWC-2-8W, NWC-2-36W, NWC-2-6W and NWC-2-7W required dilutions due to the presence of elevated levels of target analytes. The reporting limits are adjusted to reflect the dilutions.

Surrogate Exceptions:

The control criteria were exceeded for the surrogate o-Terphenyl in sample NWC-2-36W due to chromatographic matrix interferences. Accurate quantitation of the surrogate was not possible because the surrogate peak was not sufficiently resolvable from petroleum product responses. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Gasoline Range Organics by EPA Method 8015B

Elevated Method Reporting Limits:

Samples NWC-3-24W, NWC-2-5W, NWC-2-6W, NWC-2-7W, NWC-2-8W, NWC-2-36W, and NWC-2-42W required dilutions due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilutions.

Surrogate Exceptions:

The control criteria for the 4-Bromofluorobenzene surrogate in samples NWC-3-24W, NWC-2-5W, NWC-2-6W, NWC-2-7W, NWC-2-8W, NWC-2-36W, and NWC-2-42W are not applicable. The analyses of the samples required dilutions which resulted in surrogate concentrations below its calibration range. No further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Semivolatile Organic Compounds by EPA Method 8270C

Second Source Exceptions:

The ICV analyzed for CAL5348 had exceeded the hold time by one day. All analytes were within method specified criteria, indicating that the standard had not degraded significantly and that the ICAL was still valid. No further corrective action was appropriate.

Lab Control Sample Exceptions:

The advisory criterion was exceeded for Benzoic Acid in Laboratory Control Sample (LCS) KWG0609161-10. As per the CAS/Kelso Standard Operating Procedure (SOP) for this method, these compounds are not included in the subset of analyses used to control the analysis. The recovery information reported for these analyses is for advisory purposes only (i.e. to provide additional detail related to the performance of each individual compound). No further corrective action was required.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for Benzoic Acid in the replicate Laboratory Control Sample (LCS) analyses (KWG0609161-10 and KWG0609161-11) was outside control criteria. The analyte in question was not detected in the associated field samples. The data quality is not significantly affected. No further corrective action was appropriate.

The Relative Percent Difference (RPD) for 2,4-Dinitrophenol in the replicate Laboratory Control Sample (LCS) analyses (KWG0609161-10 and KWG0609161-11) was outside control criteria. All spike recoveries for the analyte in question were within acceptance limits in the associated LCS/DLCS, indicating the analytical batch was in

Approved by State State

Date 176/OK

control. The analyte in question was not detected in the associated field samples. The data quality is not significantly affected. No further corrective action was appropriate.

Elevated Method Reporting Limits:

The reporting limits are elevated for all samples. The sample extracts were diluted prior to instrumental analysis due to relatively high levels of non-target background components. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilutions. Semi-quantitative screens were performed prior to final analysis. The results of the screening indicated the need to perform dilutions.

No other anomalies associated with the analysis of these samples were observed.

Approved by Seleville Sulfilly Date 6/76/06

Chain of Custody Documentation

Services INC. - Owned Company Analytica

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

Р PAGE

Pì REMARKS and NWC-1-12W Sei Sr Tl Sn V. Zn Hg Sn V Zn Unknown Vsubstance. Please test small amount RECEIVED BY: F * Samples NWC-1-22W and NWC-17-2W/Contain ঠ Š Cu Fe Pb Mg Mn Mo Ni K Ag Na Cd Co. Cr. Cu. Fe Pb Mg Mn Mo Ni K Ag Na D **MORTHWEST** *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI RELINQUISHED BY: putty-like" ប៉ Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Be B Ca SPECIAL INSTRUCTIONS/COMMENTS: Circle which metals are to be analyzed: Total Metals: Al As Sb Ba ECEIVED BY NUMBER OF CONTAINERS TURNAROUND REQUIREMENTS Bill To: John Land CANK 5 40-15 werkfing days) J Requested Report Date INVOICE INFORMATION Scorners look Conversity St MATRIX Provide FAX Results P.O. # 4769.005, 26-347-1 LAB I.D. Standard L Day 24 hr. 8770 POR10101CE-2-4646106321 NWC- (-12~16/3/36/09/4/6) 64/26 0838 0030 0803 3001 BOK19 TIME 153 7-8-16/43/06/0 Club 105 Date(Time answer Kite, WA 9610 90/6/9 NW-7-4-60 6000 ハシクーター子の「6/2名」 II. Report Dup., MS, MSD as DATE RELINQUISHED BY I. Routine Report: Method CLP Deliverable Report REPORT REQUIREMENTS Data Validation Report (includes all raw data) Blank, Surrogate, as NW Corke 12-3-240 NUCLASI 100-News-SW required required このの V. EDD COMPANY/ADDRESS PROJECT MANAGER 1 PROJECT NUMBER PROJECT NAME: \ 3 2 2 2 ≡ N N

Him Genrahr ANNA SA

06/03 RCOC #1

Printed Name Signature

Date/Time

Date/Time

Signature

Dellory

Printed Name

Analytical Services Inc.

CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

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REMARKS Sr (TI Sn ,V Zn Hg Sr. Tl. Sn. V. Zn (CIRCLE ONE) *RECEIVED BY: Se Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Dissolved Metals: Al As'Sb Ba Be B Ca, Cd Co Cr Cu Fe 'Pb Mg Min, Mo Ni K Ag Na *INDICATE STATE HYDROCARBON RHOCEDURE: AK CA WI. NORTHWEST OTHER d. Ol. SO. PO. F. NY SOD: TSS. TDS (CIPOLE) (CIPCLE) NO. TKN, TC TOX 9020 [] RELINQUISHED BY: of Terp Beaute (2) Mp elele SPECIAL INSTRUCTIONS/COMMENTS: Circle which metals are to be analyzed: RECEIVED BY:

We Date/Time Date/Line

I'm Date/Time NUMBER OF CONTAINERS TURNAROUND REQUIREMENTS $I^{\mathcal{U}}$ Standard (10-15 working days) BIII TO: ITOKE LONG BANK INVOICE INFORMATION ... 8769 OUS A LAB I.D. MATRIX Requested Report Date Provide FAX Results 24 hr. X_{Day} Signature Sattemplick Firms Printed Name P.O.# TIME <u>| 8</u> 980 office line PHOJECT NAME NW CANNAGE - FRE 2-4-6 BS E-MAIL ADDRESS LOTA @ GC Dra ATO } Fred myor 652 J. H. Report Dup., MS, MSD as RELINQUISHED BY: I. Routine Report: Method IV. CLP Deliverable Report REPORT REQUIREMENTS Geomatrix CITVISTATE CIPE LANGE WAS Data Validation Report 30 Journal St. (includes all raw data) Blank, Surrogate, as NWC-7~43W NWI-2-39W SAMPLE I.D. required required THOWARD THE V. EDD PROJECT MANAGER COMPANY/ADDRESS PROJECT NUMBER Ħ

RCOC #1 06/03

Printed Name

Date/Time

Signature

Date/Time

Signature

Signature Shucling Printed Name:

Ē

Printed Name

Greg Salata

From:

John Long [jlong@geomatrix.com]

Sent: To: Wednesday, June 07, 2006 9:57 AM Greg Salata

To: Cc:

Larry McGaughey

Subject:

FW: SKonica506060707360.pdf

Greg:

Larry would like us to resolve the ignitability relatively quickly for the NWC-1-2W, NWC-1-2W, and NWC-1-12W samples so we can get them in the queue. Also, could you please let me know what the turnaround times will be for the organic analyses, or what TA times are available?

- John

----Original Message----

From: Larry McGaughey

Sent: Wednesday, June 07, 2006 9:54 AM

To: John Long

Subject: RE: SKonica506060707360.pdf

John -

We should probably ask him to do the ignitability testing quickly so we can make decisions on the rest.

----Original Message----

From: John Long

Sent: Wednesday, June 07, 2006 9:33 AM

To: 'Greg Salata'

Cc: Larry McGaughey; Zanna Satterwhite; Patrick Hsieh

Subject: RE: SKonica506060707360.pdf

For this batch (and only this batch):

The specific metals are RCRA 8 plus Copper. Please run 8270 full suite, no SIMs.

Samples NWC-1-22W, NWC-1-2W, and NWC-1-12W contain the viscoelastic, silly-putty like, material. Please test a small portion of one of these samples following EPA Method 1030, preceding with the safety procedure outlined in section 7.0 before continuing (Method 1020 is an ASTM method, and I cannot access it without paying a fee -- I assume it also has a similar precaution; if so CAS can substitute Method 1020 instead.)

Once we have the results of this test, we will determine if other analyses are required; please hold these three samples pending analysis for the methods specified on the chain of custody.

- John

----Original Message----

From: Greg Salata [mailto:gsalata@kelso.caslab.com]

Sent: Wednesday, June 07, 2006 7:47 AM

To: John Long

Subject: SKonica506060707360.pdf

<<SKonica506060707360.pdf>> John,

For this batch of samples I need to know 1) the specific metals list and 2) whether the 8270 is the entire suite of analytes or just the PAHs. I wasn't sure from the QAPP. Also, this is marked for low level analysis. Do we have any idea what we are expecting in these samples?

I hate to charge for the low level if the standard will meet your needs.

Gregory Salata, Ph.D.

Project Chemist

Columbia Analytical Services

Phone: 360-577-7222 FAX: 360-636-1068 www.caslab.com

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Thank you for your cooperation and assistance.

Greg Salata

From: Zanna Satterwhite [zsatterwhite@geomatrix.com]

Sent: Monday, June 19, 2006 11:53 AM

To: Greg Salata

Cc: Larry McGaughey; John Long
Subject: FRP sample receipts - review

Greg,

I just reviewed all the confirmations of sample receipt that you sent John. They list all the samples we've submitted for this project. I noted the following issues that you may or may not already be aware of:

> K0604601 (NWC archives): please make sure you analyze selected samples for copper only.

K0604574 (NWC suspects): please add a column for VOCs, and put an "H" for "hold" next to samples NWC-2-5W, NWC-2-6W, NWC-2-7W, NWC-2-25W, NWC-2-36W, and NWC-2-42W. I realize the hold time is 14 days for extraction for VOCs; if Larry or John feel there is a need to extract these just in case we want to analyze, they will let you know soon, because I know we've already exceeded the hold times for some of these samples. WP-1-5W and WP-1-6W (K0604885) are the only other samples which we collected VOCs kits for but decided not to analyze – those samples expire on 6/27/06.

K0604786 (Maint primary): make sure you analyzed both Composite 1 and Composite 1 (dup) for As, Cu, and Hg,

not just As and Cu.

K0604852 (Sulf primary): in our work plan, we specified EPA 9045B for pH analysis; is EPA 9045C a very different method?

Please make sure you hang onto any extra soil volume for all samples that we've submitted so far.

Thank you,

Zanna Satterwhite, L.G. Geologist Geomatrix Consultants 600 University Street, Suite 1020 Seattle, WA 98101 Ph: (206) 342-1772 Fax: (206) 342-1761 Cell: (206) 550-3781

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Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

PC GREG

Pro	oject/ClientGEOMATRIX Service Request K06_04574
	oject/Client GFOMATEIX Service Request K06 04574 oler received on 6/6/6 and opened on 4/6/6 by Ag
1.	Were custody seals on outside of coolers? MCD Y N
	If yes, how many and where?
2.	Were custody seals intact?
3.	Were signature and date present on the custody seals?
4. 5.	Is the shipper's airbill available and filed? If no, record airbill number: OCC#
	Temperature of cooler(s) upon receipt: (°C) 5.4 3.5 3.7 4.4 3.5
	Temperature Blank: (°C) 5.1 2.6 2.1 N/7 5.8
	Were samples hand delivered on the same day as collection?
6.	Were custody papers properly filled out (ink, signed, etc.)?
7.	Type of packing material present FOAM, CARDBOARD, 1CE
8.	Did all bottles arrive in good condition (unbroken)?
9.	Were all bottle labels complete (i.e analysis, preservation, etc.)?
10.	Did all bottle labels and tags agree with custody papers?
11.	Were the correct types of bottles used for the tests indicated?
12.	Were all of the preserved bottles received at the lab with the appropriate pH?
13.	Were VOA vials checked for absence of air bubbles, and if present, noted below?
14.	Were the 1631 Mercury bottles checked for absence of air bubbles, and if present, noted below?
15.	Did the bottles originate from CAS/K or a branch laboratory?
16.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?
17.	Was C12/Res negative?
Ехр	lain any discrepancies:
 RES	OLUTION:
Sam	ples that required preservation or received out of temperature:
	Sample ID Reagent Volume Lot Number Bottle Type Temperature Initials

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
	<u> </u>				: - : - :	
			14			

Total Solids

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Total Solids

Prep Method: Analysis Method: NONE

Test Notes:

160.3M

Units: PERCENT

Basis: Wet

Service Request: K0604574

Date Date Date Result Collected Received Analyzed Notes Result Sample Name Lab Code NWC-2-5W K0604574-001 06/02/2006 06/06/2006 06/07/2006 76.3 06/06/2006 06/07/2006 73.4 K0604574-002 06/02/2006 NWC-2-6W 79.8 NWC-2-7W K0604574-003 06/02/2006 06/06/2006 06/07/2006 06/02/2006 06/06/2006 06/07/2006 81.4 NWC-3-24W K0604574-004 NWC-1-22W K0604574-006 06/02/2006 06/06/2006 06/07/2006 82.7 NWC-1-2W K0604574-007 06/02/2006 06/06/2006 06/07/2006 79.8 K0604574-008 · 06/05/2006 06/06/2006 06/07/2006 80.7 NWC-2-8W 06/05/2006 06/06/2006 06/07/2006 72.9 NWC-2-36W K0604574-009 86.9 06/07/2006 NWC-1-12W K0604574-010 06/05/2006 06/06/2006 NWC-2-39W K0604574-011 06/05/2006 06/06/2006 06/07/2006 83.8 NWC-2-42W K0604574-012 06/05/2006 06/06/2006 06/07/2006 82.6

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006 Date Analyzed: 06/07/2006

Duplicate Sample Summary Total Solids

Prep Method:

Analysis Method:

NONE

Units: PERCENT

Basis: Wet

160.3M Test Notes:

Relative Duplicate Percent Sample Sample Difference Result Result Average

Sample Name NWC-2-5W

Lab Code K0604574-001

76.3

76.1

76.2

Notes

<1

Result

Printed: 06/08/2006 12:16 u:\Stealth\Crystal.rpt\Solids.rpt

SuperSet Reference: W0609322

17

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Solid fuel

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Date Analyzed: 06/07/2006

Duplicate Sample Summary Total Solids

Prep Method:

NONE

Units: PERCENT

Analysis Method: Test Notes:

160.3M

Basis: Wet

Relative

Sample Name NWC-1-12W Lab Code

Sample Result

Sample Result

Duplicate

Average

Percent Difference

K0604574-010

86.9

87,3

87.1

<1

Result Notes

Printed: 06/08/2006 12:16 u:\Stealth\Crystal.rpt\Solids.rpt

SuperSet Reference: W0609322

18

EPA Method 160.3 - Total Solids

Group ID:	KWG0609322					11	
Analyst:	RMcKee			-	Reviewed By:		
Date Acquired:	06/07/2006 17:38	Oven TempStart:	104 DEG C	-	Doto Dorizonod	90131	Ī
Date Completed:	06/08/2006 11:09	Oven TempEnd:	104 DEG C		Date Meyleweu.	X 2 0 19	

TEQ .	Date Completed:	06/08/2006 11:09	Oven TempEnd:	pEnd:	104 DEG C				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
*	Lab Code	Client ID	Matrix	Tare	Tare+Wet	Tare+Dry	% Solids	QC Ref Sample	Comments
1	K0602878-006	G-5	SEDIMENT	1.2168g	6.6251g	2.5565g	24.8		
7	K0602878-009	M-9	SEDIMENT	1.2418g	4.1092g	2.0471g	:28.1		
8	K0603851-001	500	OTIOS	1,24g	2.67g	2.5373g	7.06		Air Dried & Ground
4	K0603917-001	Paperboard	r OEL	1.24g	5.21g	5.01g	95.0		
ا [000 000000		PAPERBOA		,				
	K0604252-008	Composite	- A Codada A di	1.24g	3.04g	2.94g	94.4		
9	K0604538-001	Morton Boiler Ash	ASH	1.24g	4.79g	2.96g	48.5		
7	K0604553-001	Rose Drain	SEDIMENT	1.24g	8.49g	6.16g	6.79		61
_∞	K0604553-003	Central Drain	SEDIMENT	1.24g	13.48g	10,67g	77.0		
6	K0604553-005	Fig Drain	SEDIMENT	1.25g	9.23g	6.34g	63.8		·
10	K0604553-006	New River @ Forresor	SEDIMENT	1.23g	10.62g	8.12g	73.4		
11	K0604553-007	New River @ Horley	SEDIMENT	1.25g	7.95g	5.89g	69.3		
12	K0604553-008	Alamo R. @ Worthington	SEDIMENT	1.24g	11.77g	8.72g	71.0		
13	K0604553-011	Worthington Pond Sed	SEDIMENI	1.24g	9.11g	7.28g	7.97		
7	K0604553-013	Alamo R @ Harris Sed	SEDIMENT	1.24g	7.88g	6.04g	72.3		
15	K0604553-014	Alamo R. @ Rutherford	SEDIMENT	1.24g	8.57g	6.36g	8.69		
16	K0604573-118	NWC-1 Composite	SOIL	1.24g	15.75g	14.18g	89.2		As Received
17	K0604573-119	NWC-2 Composite	SOIL	1.24g	25.19g	20.14g	78.9		As Received
81	K0604573-120	NWC-3 Composite	SOIL	1.24g	10.86g	8.73g	6. <i>LL</i>		As Received
119	K0604574-001	NWC-2-5W	SOIL	1.25g	10.12g	8.02g	76.3		
70	K0604574-002	NWC-2-6W	SOIL	1.25g	7.07g	5.52g	73.4		
21	K0604574-003	NWC-2-7W	SOIL	1.23g	12.65g	10.34g	79.8		
22	K0604574-004	NWC-3-24W	SOIL	1.24g	8.12g	6.84g	81.4		
23	K0604574-006	NWC-1-22W	TOS	1.24g	6.67g	5.73g	82.7		
24	K0604574-007	NWC-1-2W	SOL	1.23g	7.77g	6.45g	79.8		

Ç.	Group ID:	KWG0609322								
Ana	Analyst:	RMcKee						Reviewed By:	10	
Date	Date Acquired:	06/07/2006 17:38	Oven Temp	npStart:	104 DEG C		•	Joseph Darks	7018/2	70
Date	Date Completed:	06/08/2006 11:09	Oven Temp	1pEnd:	104 DEG.C		-	Date Keylewed:	9	2
*	Yab Code	Client ID	Materia	Town	7.441	,				
	2000 000	Catality And	Matrix	Tare	lare+wet	Iare+Dry	% Solids	QC Ref Sample	Comments	
25	K0604574-008	NWC-2-8W	SOIL	1.25g	7.27g	6.11g	80.7			
76	K0604574-009	NWC-2-36W	SOIL	1.23g	13.68g	10.30g	72.9			
27	K0604574-010	NWC-1-12W	SOIL	1.23g	9.40g	8.33g	86.9			
28	K0604574-011	NWC-2-39W	SOIL	1.25g	10.42g	8.93g	83.8			
29	K0604574-012	NWC-2-42W	SOIL	1.24g	8.90g	7.57g	82.6			
30	K0604597-001	Feed Belt	SOLID	10.24g	68.45g	38.25g	48.1		As Received	
_		-	FUEL							
31	K0604597-002	Dewatered Sludge	CITOS	10.46g	63.16g	28.11g	33.5		As Received	
32	K0604598-001	YRLLC Cleanup Fuel	SOLD	10.43g	123.12g	80.51g	62.2		As Received	
33	KWG0609322-1	KWG0609322-1 Duplicate Client Sample	ruer. Solid	1.2412g	9.0974g	3.2470g	25.5	K0602878-006		
34	KWG0609322-2	KWG0609322-2 Duplicate Client Sample	SOIL	1.24g	11.23g	8.02g	67.9	K0604553-001		
35	KWG0609322-3	KWG0609322-3 Duplicate Client Sample	SOIL	1.24g	10.02g	7.92g	76.1	K0604574-001		
36	KWG0609322-4	Duplicate Client Sample	SOLID	1.25g	10.38g	9.22g	87.3	K0604574-010		
37	KWG0609322-5	KWG0609322-5 Duplicate Client Sample	FUEL	1.25g	15.48g	12.29g	77.6	K0604573-120		

General Chemistry Parameters

- 5b -

POST DIGEST SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Units: ug/L

Project Name: NW Corner-FRP

Matrix:

SOIL

Sample Name:

NWC-1-22WA

Lab Code: K0604574-006A

Analyte	Control	Spiked Sample C	Sample	Spike		
Anaryce	Limit %R	Result (SSR)	Result (SR)	Added (SA)	8R	Q 1
Arsenic	75-125	22.5	6.00	20.0	· 83	MS
Barium	75-125	101	76.4	20.0	123	MS
Cadmium	75-125	18.5	0.264	20.0	91	MS
Chromium	75-125	42.8	23.8	20.0	95	MS
Copper	75-125	198	178	20.0	100	MS
Lead	75-125	60.1	38.5	20.0	108	MS
Selenium	75-125	16.3	0.5 B	20.0	79	MS
Silver	75-125	23.8	0.213	25.0	94	MS

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Units: mg/kg

Project Name: NW Corner-FRP

Basis: Dry

Matrix:

SOIL

% Solids: 82.7

Sample Name: NWC-1-22WS

Lab Code: K0604574-006S

Analyte	Control Limit &R	Spike Result	Sample Result	Spike Added	₽R	Q	Method
Arsenic	74 - 120	119	3.63	121	95		6020
Barium	79 - 117	537	46.2	484	101		6020
Cadmium	63 - 136	12.1	0.160	12.1	98		6020
Chromium	53 - 147	60.7	14.4	48.4	96		6020
Copper	i	5940	2150	60.5	6275		6020
Lead	66 - 134	155	23.3	121	108	ľ	6020
Mercury	i	2.630	1.910	0.486	148	٠.	7471A
Selenium	74 - 119	109	0.3 B	121	90		6020
Silver	83 - 107	11.4	0.129	12.1	93		200.8

- 4 -

ICP INTERFERENCE CHECK SAMPLE

Geomatrix Consultants, Incorporated

Service Request:K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP ID Number:

PQ-S

ICS Source: Inorganic Ventures

ug/L Concentration Units):

	Tru	e	Initi	al Found		Final	Found	
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	8R	Sol.A	Sol.AB	%R
Arsenic		20	0.11	18.0	90			
Barium			-0.01	-0.01				
Cadmium		20	0.394	20.3	102			
Chromium		20	0.25	20.2	101			
Copper		20	0.33	18.0	90			
Lead			0,23	0.19				
Selenium			0.6	0.9				-

-4-

ICP INTERFERENCE CHECK SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request:K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP ID Number:

Excell ICPMS

ICS Source: Inorganic Ventures

Concentration Units):

	Tru	e	Initi	al Found		Final	Found	
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	8R
Silver		20	0.017	17.4	87			

METALS - 3 -BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.:

8769.005/4

Project Name: NW Corner-FRP

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

	Initial Calib. Blank		Con		uing Ca ank (ug			n		Preparation Blank	Method
Analyte	(ug/L)	С	1	C	2	C	3	C		C	
Arsenic			0.10	ט		-					6020
Barium			0.06	ט		Π					6020
Cadmium			0.040	U		Π			Π		6020
Chromium			0.06	Ū							6020
Copper	<u> </u>		0.05	B.					Г		6020
Lead			0.04	ָט							6020
Selenium		Ī	0.2	ט			* * * * * * * * * * * * * * * * * * * *		Γ		6020
Silver			0.008	ט	0,008	טן					200.8

METALS - 3 -BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.:

8769.005/4

Project Name:

NW Corner-FRP

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib Blank (ug/L)	С	Cont		uing Calil ank (ug/L 2 C			Preparation Blank C	Method
	0.10	ט	0.10	_	0.10	0.10 U	╀	 	6020
Arsenic		<u> </u>	<u> </u>	!			+		6020
Barium	0.06	ט	0.06	ט	0.06	0.06 บ	┸		
Cadmium	0.040	ט	0.040	ש	0.04 U	0.040 บ			6020
Chromium	0.06	U	0.06	ש	០.06 ប	០.០៩ ប			6020
Copper	0.04	ט	0.04	ט	0.04	0.08 B			6020
Lead	0.04	U	0.04	υ	0.04 U	0.04 U	Ί.		6020
Mercury	0.008	ט	0.008	Ū	០.008 ប	០.០០ខ ប			7471A
Selenium	0.2	บ	0.2	U	0.2 0	0.2 U			6020
Silver	0.015	В	0.008	שׁ	0.008	០.០០ខ ប			200.8

METALS - 2b -CRDL STANDARD FOR AA AND ICP

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

Concentration Units: ug/I

	CRDL Stan	dard for A	Δ		CRDL Stand	ard for	ICP	•
		dard ror m		Init	ial		Final	
Analyte	True	Found	8R	True	Found	8R	Found	₽R
Arsenic				1.0	1.03	103		_ [
Barium				0.10	0.10	96		
Cadmium				0.04	0.018	45		1
Chromium			1	0.40	0.41	103		
Copper				0.20	0.28	142		
Lead	İ	ĺ		0.04	0.04	111		
Mercury	0.20	0.170	85					
Selenium				2.0	1.99	100		
Silver			H	0.04	0.039	97		

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICV Source:

CCV Source: Various

Concentration Units: ug/I

	Initial	l Calibra	tion		Continu	ing Cal	ibration		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R (1)	Method
Silver		10-0	1	25.0	25.0	100			200.8

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICV Source:

CCV Source: Various

Concentration Units: ug/L

. <u>-</u>	Initia	l Calibra	tion		Continu	ing Cal	ibration		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Arsenic				25.0	25.0	100	24.0	96	6020
Barium		-		25.0	25.1	100	24.5	98	6020
Cadmium				25.0	25.0	100	25.0	100	6020
Chromium				25.0	25.2	101	24.3	97	6020
Copper				25.0	25.3	101	24.9	100	6020
Lead	1			25.0	25.3	101	25.2	101	6020
Mercury				5.0	5.07	101			7471A
Selenium				25.0	25.8	103	24.2	97	6020
Silver	1	·		25.0	25.3	101	25.0	100	200.8

METALS - 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICV Source: Inorganic Ventures

40 mg/300 g

CCV Source: Various

Concentration Units: ug/I

	Initial	Calibrat	ion		Continu	ing Cal	ibration		_
Analyte	True	Found %R(1)		True	Found	%R(1)	Found	%R(1)	Method
Arsenic	25.0	25.6	102	25.0	25.1	100	24.9	100	6020
Barium	100	101	101	25.0	24.8	99	25.1	100	6020
Cadmium	12.5	12.8	102	25.0	24.9	99	25.1	100	6020
Chromium	10.0	10.1	101	25.0	25.2	101	25.0	100	6020
Copper	12.5	12.2	98	25.0	24.9	100	25.1	100	6020
Lead	25.0	25.3	101	25.0	24.9	100	24.6	98	6020
Mercury	5.0	5.26	105	5.0	4.82	96	5.02	100	7471A
Selenium	25.0	25.7	103	25.0	25.0	100	24.0	96	6020
Silver	12.5	12.0	96	25.0	25.0	100	25.1	100	200.8

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Date Collected:

Project Name: NW Corner-FRP

Date Received:

Matrix:

SOIL

Units: MG/KG

Basis: Dry

Sample Name: Method Blank

Lab Code: K0604574-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	c	Q
Arsenic	6020	0.50	0.05	5	6/7/06	6/12/06	0.05	Ū	
Barium	6020	0.05	0.03	5	6/7/06	6/12/06	0.03	Ū	
Cadmium	6020	0.050	0.020	5	6/7/06	6/12/06	0.020	U	
Chromium	6020	0.20	0.03	5	6/7/06	6/12/06	0.05	В	
Copper	6020	0.10	0.02	5	6/7/06	6/13/06	0.06	В	*
Lead	6020	0.05	0.02	5	6/7/06	6/12/06	0.02	U	
Mercury	7471A	0.020	0.001	1	6/13/06	6/14/06	0.001	Ū	
Selenium	6020	1.0	0.1	5	6/7/06	6/12/06	0.1	υ	
Silver	200.8	0.020	0.004	5	6/7/06	6/13/06	0.004	Ū	

% Solids: 100.0

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

06/05/06 Date Collected:

Date Received: 06/06/06

Project Name: NW Corner-FRP

MG/KG

Matrix:

SOIL

Units:

Basis: Dry

Sample Name: NWC-2-39W

Lab Code: K0604574-011

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Arsenic	6020	0.60	0.06	5	6/7/06	6/12/06	2.32		
Barium	6020	0.06	0.04	5	6/7/06	6/12/06	169	Γ'	
Cadmium	6020	0.060	0.024	5	6/7/06	6/12/06	0.288		Γ΄
Chromium	6020	0.24	0.04	5	6/7/06	6/12/06	14.5		
Copper	6020	23.90	4.77	1000	6/7/06	6/13/06	18200		*
Lead	6020	0.06	0.02	5	6/7/06	6/12/06	28.2		<u> </u>
Mercury	7471A	0.020	0,001	1	6/13/06	6/14/06	0.745		
Selenium	6020	1.2	0.1	5	6/7/06	6/12/06	0.3	В	
Silver	200.8	0.024	0.005	5 🐔	6/7/06	6/13/06	0.099		

% Solids: 83.8

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: NW Corner-FRP

Date Received: 06/06/06

Matrix:

SOIL

Units: MG/KG

Basis: Dry

Sample Name: NWC-1-12W

Lab Code: K0604574-010

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	.Date Analyzed	Result	c ·	Q
Arsenic	6020	0.57	0.06	5	6/7/06	6/12/06	4.53		
Barium	6020	0.06	0.03	5	6/7/06	6/12/06	78.2		
Cadmium	6020	0.057	0.023	5	6/7/06	6/12/06	0.234		
Chromium	6020	0.23	0.03	5	6/7/06	6/12/06	15.1		-
Copper	6020	2.28	0.46	100	6/7/06	6/13/06	3290]	*
Lead	6020	0.06	0.02	5	6/7/06	6/12/06	21.8		
Mercury	7471A	0.020	0.001	1	6/13/06	6/14/06	0.564		
Selenium	6020	1.1	0.1	5	6/7/06	6/12/06	0.4	В	
Silver	200.8	0.023	0.005	5	6/7/06	6/13/06	0.219		

% Solids: 86.9

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Date Collected: 06/02/06

Date Received: 06/06/06

Project Name: NW Corner-FRP

Matrix:

SOIL

MG/KG Units:

Basis: Dry

Sample Name: NWC-1-2W

Lab Code: K0604574-007

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ω
Arsenic	6020	1.04	0.10	10	6/7/06	6/12/06	3.90		j
Barium	6020	0.10	0.06	10	6/7/06	6/12/06	65.7		
Cadmium	6020	0.104	0.042	10	6/7/06	6/12/06	0.181		
Chromium	6020	0.42	0.06	10	6/7/06	6/12/06	14.4		
Copper	6020	2.09	0.42	100	6/7/06	6/13/06	696		*
Lead	6020	0.10	0.04	10	6/7/06	6/12/06	13.0		
Mercury	7471A	0.020	0.001	1	6/13/06	6/14/06	0.787		
Selenium	6020	2.1	0.2	10	6/7/06	6/12/06	0.8	В	
Silver"	200.8	0.021	0.004	5	6/7/06	6/13/06	0.204		

% Solids: 79.8

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: NW Corner-FRP

Date Received: 06/06/06

D.

Units: MG/KG

Basis: Dry

Matrix: SOIL

Sample Name: NWC-1-22W

Lab Code: K0604574-006

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result C	Q
Arsenic	6020	0.61	0.06	5	6/7/06	6/12/06	3.63	1
Barium	6020	0.06	0.04	5	6/7/06	6/12/06	46.2	
Cadmium	6020	0.061	0.024	5	6/7/06	6/12/06	0.160	Ī .
Chromium	6020	0.24	0.04	5	6/7/06	6/12/06	14.4	
Copper	6020	2.42	0.48	100	6/7/06	6/13/06	2150	*
Lead	6020	0.06	0.02	5	6/7/06	6/12/06	23.3	i
Mercury	7471A	0.097	0.004	5	6/13/06	6/14/06	1.910	
Selenium	6020	1.2	0.1	5	6/7/06	6/12/06	0.3 B	
Silver	200.8	0.024	0.005	5	6/7/06	6/13/06	0.129	1

% Solids: 82.7

Comments:

761

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Lab Sample ID.

K0604574-006

K0604574-006D

K0604574-006S

K0604574-007 K0604574-010

K0604574-011

K0604574-MB

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.:

8769.005/4

Sample No.

NWC-1-22W

NWC-1-2W

NWC-1-12W

NWC-2-39W

Method Blank

NWC-1-22WD NWC-1-22WS

Project Name: NW Corner-FRP

e ICP interelement corrections applied?	YES YES
e ICP background corrections applied?	Yes/No $\underline{ ext{YES}}$
If yes-were raw data generated before application of background corrections?	Yes/No NO
ments:	
nature:	Date: 4/14/06

Metals

Columbia Analytical Services

Service Request:			_	
Analysis For:	Flashpoint		Method:	EPA 1020
Sample #: K4574	-7 Sample #: 14574-10 S	Sample #:	Sample #:	Sample #:
°C Yes No		°C Yes	No °C Yes No	°C Yes No
₹0	20	20	20	20
25	(25	25	25	25
30\	30	30	30	30
35	35	35	35	35
40	40	40	40	40
45	45	45	45	45
50	50	50	50	50
55	55	55	55	55
60	60	60	60	60
65	65	65	65	65
70	70	70	70	70
75	75	75	75	75
80	80	80	80	80
85	85	85	85	85
90 🗙	90 🗴	90	90	90
95	95 🗡	95	95	95
100	100	100	100	100
105	105	105	105	105
110	110	110	110	110
	1 1 1 1 1		-	
 				
Verification	Verification	Verification	Verification	Verification
Vermeadon	Verification	Verification	Vermeaton	Volumenten
 	1			
	╢╟┈┼┼╢╟╸			
	1 1 1			
Obs. Flash = >1(0)	Obs. Flash = $\frac{1}{10}$ Ob	bs. Flash =	Obs. Flash =	Obs. Flash =
Flashpoint = $\frac{100}{100}$		ashpoint =	Flashpoint =	Flashpoint =
riashpoint - >//U	I rashbont - > 110	ashpoint –	i lashpoint –	Пазировк
Comments:				
···				
				
Analyst: 🔗		Date:	6/10/06	Time: 0415
Reviewed By:	ĪÑ	Date:	6/12/06	

Service Request: K	4574	•		
Analysis For:	Flashpoint		Method:	EPA 1020
p-xylene STD 1 C Yes N 20	T-butanol STD 2 C Yes No	DI Water Blank C Yes No 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 X 110 Verification Verification Obs. Flash = > 110 Flashpoint = > 100 Lot #: Ao 74144 Lot #: B24 B05	Sample #: 14574-6 C Yes No 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 X 110 Verification Verification Verification Verification Verification Verification Verification	Sample #: 1574-0 C Yes No 20 25 30 35 40 45 50 55 60 65 70 75 80 95 100 105 110 Verification Verification Verification Sample #: 1574-0 Verification Verification Verification Verification Verification 75 80 95 100 X 105 110 N Plashpoint = 100 Barometric Pressure Reginning: 766
Standard 2: 1-1	outanol T.V. = 37.0 °C ±1.0 °C	Lot#: B21805	%rec= 103 _	
Actual Flashpoint	°C) = Observed flashpoint + 0.	.03 (760 - Avg. barometric	pressure (mm Hg))	End: 740
Comments:	K4574-6+6D X	= >110 RAN= <	.(
	المساق والانام	C110 PO(40)	· · · · · · · · · · · · · · · · · · ·	
Analyst:		Date: 6/10	100 Tir	ne: 0015
Reviewed By:	M	Date:	6/12/00	<u> </u>

Work	c Request #	(K-4574)	
Тіег:		TIL	: •
	Analyzed:	6/10/06	
•	•		•
Analy	yst:	\	
Analy	ysis:	F. Paint	
		DATA QUALITY REPORT INORGANICS	
Expla	in any "no'	responses to questions below, and any corrective actions in the com-	ments section below.
1.	Is the m	anethod name and number correct and appropriate?	(ye)/no/NA
2.	~ ~ .	times met for all analyses and for all samples?	(yes/no/NA
3.		culations correct?	(yes/no/NA
4.	Is the re	eporting basis correct? (Dry Weight)	yes/no/NA
5.	All qual	lity control criteria met?	yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no(NA)
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no(NA)
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/noNA
6.	Are all s	service requests that apply attached?	yes/no/NA
7.	Are all s	samples labelled correctly?	ve)/no/NA
8.		l instructions on the service request been followed? ecial MRLs, QC on a specific sample)	ýes no/NA
9.	Are dete	ection limits and units reported correctly?	yesmo/NA
10.	Are prop	per Analysis/Extraction stickers included on report?	yes/no/NA
11.	Is the un	nused space on the benchsheet crossed out?	vesmo/NA
12.	Was ana	alysis turned in by the due date? (n-2) (If not record SR#)	(yes/ŋo/NA
COM	MENTS:	•	
٠	K457	14- Rush due 6/13	
Final A	Approved b	y:Date:	6/12/06

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Service Request:

K0604574

Project Name:

NW Corner-FRP

Date Collected:

NA

Project Number:

8769.005/4

Date Received:

NA ΝA

Sample Matrix:

SOIL

Date Prepared: 06/10/06 Date Analyzed:

Laboratory Control Sample Summary Inorganic Parameters

Sample Name:

Lab Control Sample

Units: DEG C

Lab Code:

Basis: NA

Test Notes:

K0604574-LCS

CAS Percent Recovery Acceptance Result Percent Prep Analysis Limits Notes True Value Result Recovery Method Method Analyte 85-115 1020 26 27 96 Flashpoint None

QA/QC Report

Client:

Project Name:

Sample Matrix:

Geomatrix Consultants, Incorporated

Service Request: K0604574

NW Corner-FRP Project Number: 8769.005/4

SOIL

Date Collected: 06/02/06 Date Received: 06/06/06

Date Prepared: NA

Date Analyzed: 06/10/06

Duplicate Summary Inorganic Parameters

Sample Name:

NWC-1-22W

Lab Code:

Units: DEG C

Test Notes:

K0604574-006DUP

Basis: NA

Duplicate Relative Analysis Sample Sample Percent Result Analyte Method Result Average Difference Notes MRL Result

Flashpoint

1020

>110

>110

>110

Analytical Report

Client:

Geomatrix Consultants, Incorporated

K0604574-MB

Service Request: K0604574

Project Name:

NW Corner-FRP

Date Collected: 06/02-05/06

>110

Sample Matrix:

Project Number: 8769.005/4

SOIL

Date Received: 06/06/06

Flashpoint

Units: DEG C

Analysis Method: 1020

Test Notes:

Method Blank

Basis: NA

06/10/06

Result Date Dilution Notes Analyzed Result Lab Code MRL Factor Sample Name >110 06/10/06 1 K0604574-006 NWC-1-22W >110 06/10/06 NWC-1-2W K0604574-007 1 >110 06/10/06 K0604574-010 1 NWC-1-12W

1

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DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Units: mg/kg

Project Name: NW Corner-FRP

Basis: Dry

Matrix:

SOIL

% Solids: 82.7

Sample Name: NWC-1-22WD

Lab Code: K0604574-006D

Analyte	Control Limit(%)	Sample (S)	С	Duplicate (D)	С	RPD	Q	Method
Arsenic	30	3.63		4.34		18		6020
Barium	30	46.2	İ	49.6		7		6020
Cadmium	İ	0.160		0.207		25	Ţ	6020
Chromium	30	14.4	i	16.9		16	i	6020
Copper	30	2150		2940		31	*	6020
Lead	30	23.3	İ	27.9		18		6020
Mercury	30	1.910	İÌ	1.630	Γ	16	Ì	7471A
Selenium	i	0,3	В	0.4	В	9	Ť	6020
Silver	30	0.129	i	0.146	Ī	12	İ	200.8

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LABORATORY CONTROL SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source: ERA Lot No. D045540

	Aque	eous mg/L	Solid (mg/kg)							
Analyte	True	Found %R	True ·	Found C	Limi	ts	8R			
Arsenic	i		146	137	112	180	9.4			
Barium	T		_ 339	356	266	412	105			
Cadmium	1		92.8	93.5	73.9	112	101			
Chromium	Ī —		172	172	135	209	100			
Copper	T		67.0	66.2	53.8	80.2	. 99			
Lead	T		67.5	67.7	53.1	81.9	100			
Mercury	[1.77	1.88	1.21	2.34	106			
Selenium	<u> </u>		70.5	72.3	53.3	87.7	103			
Silver	Ī		93.0	86.1	57.0	129	93			

-9-

ICP SERIAL DILUTIONS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.:

B769.005/4

Units: ug/L

Project Name:

NW Corner-FRP

Sample Name: NWC-1-22WL

Lab Code: K0604574-006L

Analyte	Initial Sample Result (I)	Serial Dilution Result (S)	C	% Differ-	Q	Method
Arsenic	6.00	8.03		34	E	6020
Barium	76.4	89.5		17	E	6020
Cadmium	0.264	0.231	В	12		. 6020
Chromium	23.8	30.0		26	E	6020
Copper	178	172		3		6020
Lead	. 38.5	46.3		20	E	6020
Selenium	0.5	1.00	U			6020
Silver	0.213	0.225		5		200.8

-10-

METHOD DETECTION LIMITS

Client:

Geomatrix Consultants, Incorporated

Project No.: 8769.005/4

Project Name: NW Corner-FRP

Service Request: K0604574

ICP/ICP-MS ID #:

GFAA ID #:

AA ID #: CETAC-1

Analyte	Wave- length	Back- ground	MRL (ug/L)	MDL (ug/L)	Method
Mercury	253.70	BD	0.200	0.008	7471A

Comments	 ·

-10-

METHOD DETECTION LIMITS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP/ICP-MS ID #: Excell ICPMS

GFAA ID #:

AA ID #:

Analyte	Mass	Back- ground	MRL (ug/L)	MDL (ug/L)	Method
Silver	107		0.040	0.008	200.8

Comments	 		

-10-

METHOD DETECTION LIMITS

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP/ICP-MS ID #: PQ-S

GFAA ID #:

AA ID #:

Analyte	Mass	Back- ground	MRL (ug/L)	MDL (ug/L)	Method
Arsenic	. 75		1.00	0.10	6020
Barium	137		0.10	0.06	6020
Cadmium	111		0.100	0.040	6020
Chromium	52		0.40	0.06	6020
Copper	65		0.20	0.04	6020
Lead	208	<u> </u>	0.10	0.04	6020
Selenium	77		2.0	0.2	6020

-12-

ICP LINEAR RANGES (QUARTERLY)

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP ID Number:

Excell ICPMS

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Silver	15.00	300.0	200.8

-12-

ICP LINEAR RANGES (QUARTERLY)

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project No.: 8769.005/4

Project Name: NW Corner-FRP

ICP ID Number:

PQ-S

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Arsenic	15.00	200.0	6020
Barium	15.00	500.0	6020
Cadmium	15.00	300.0	6020
Chromium	15.00	200.0	6020
Copper	15.00	400.0	6020
Lead	15.00	400.0	6020
Selenium	15.00	200.0	6020

Organic Analysis: <u>Diesel and Residual Range Organics</u>

Summary Package

Sample and QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request:

K0604574

Cover Page - Organic Analysis Data Package Diesel and Residual Range Organics

Sample Name	Lab Code	Date Collected	Date Received
NWC-2-5W	K0604574-001	06/02/2006	06/06/2006
NWC-2-6W	K0604574-002	06/02/2006	06/06/2006
NWC-2-7W	K0604574-003	06/02/2006	06/06/2006
NWC-2-8W	K0604574-008	06/05/2006	06/06/2006
NWC-2-36W	K0604574-009	06/05/2006	06/06/2006
NWC-2-42W	K0604574-012	06/05/2006	.06/06/2006
NWC-2-42W	KWG0609367-1	06/05/2006	06/06/2006

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Date:

Cover Page - Organic 295

Page 1 of

RR60620

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-5W

Lab Code:

K0604574-001

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL.	MDL	Factor	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	120 Z	33	3.6	1	06/08/06	06/09/06	KWG0609367	-
Residual Range Organics (RRO)	57 J	130	⁻ 5.9	I	06/08/06	06/09/06	'KWG0609367	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note		
o-Terphenyl n-Triacontane	78 81	50-150 50-150	06/09/06 06/09/06	Acceptable Acceptable	-	-

Comments:

Printed: 06/21/2006 12:46:02

Page

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project: Sample Matrix: NW Corner-FRP/8769.005/4

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-6W

Lab Code:

K0604574-002

Units: mg/Kg Basis: Dry

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1800 DZ	170	19	5	06/08/06	06/10/06	KWG0609367	
Residual Range Organics (RRO)	470 Z	140	6.2	1	06/08/06	06/09/06	KWG0609367	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	62	50-150	06/09/06	Acceptable	
n-Triacontane	65	50-150	06/09/06	Acceptable	

Comments:

Printed: 06/21/2006 12:46:03

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-7W

Lab Code:

K0604574-003

Extraction Method:

EPA 3550B

Units: mg/Kg

Basis: Dry

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1400 DZ	160	17	5	06/08/06	06/10/06	KWG0609367	.**
Residual Range Organics (RRO)	380 Z	130	5.7	I	06/08/06	06/09/06	KWG0609367	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	·
o-Terphenyl n-Triacontane	75 84	50-150 50-150	06/09/06 06/09/06	Acceptable Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-8W

Lab Code:

K0604574-008

Extraction Method: Analysis Method:

NWTPH-Dx

EPA 3550B

Units: mg/Kg Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	820 DZ	160	17	5	06/08/06	06/12/06	KWG0609367	
Residual Range Organics (RRO)	130 Z	130	5.6	1	06/08/06	06/10/06	KWG0609367	

Surrogate Name	%Rec	Control Limits	Date Analyzed.	Note	
o-Terphenyl	86	50-150	06/10/06	Acceptable	
n-Triacontane	80	50-150	06/10/06 ፣	Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-36W

Lab Code:

K0604574-009

Extraction Method:

EPA 3550B

Units: mg/Kg Basis: Dry

Level: Low

Analysis Method:

NWTPH-Dx

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	2100 DZ	170	19	5	06/08/06	06/10/06	KWG0609367	
Residual Range Organics (RRO)	360 Z	140	6.2	1	06/08/06	06/12/06	KWG0609367	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	49	50-150	06/12/06	Outside Control Limits Acceptable
n-Triacontane	63	50-150	06/12/06	

Comments:

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Form IA - Organic 300

SuperSet Reference:

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006 Date Received: 06/06/2006

Diesel and Residual Range Organics

Sample Name:

NWC-2-42W

Lab Code:

K0604574-012

Extraction Method: EPA 3550B

Units: mg/Kg

Basis: Dry

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1500 DZ	150	17	5	06/08/06	06/10/06	KWG0609367	
Residual Range Organics (RRO)	210 Z	120	5.5	1	06/08/06	06/12/06	KWG0609367	-

Surrogate Name	%Rec .	Control Limits	Date Analyzed	Note	
o-Terphenyl n-Triacontane	95 74	50-150 50-150	06/12/06 06/12/06	Acceptable Acceptable	i.

Comments:

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: NA

Date Received: NA

Diesel and Residual Range Organics

Sample Name:

Method Blank

Lab Code:

KWG0609367-3

Extraction Method:

EPA 3550B

Units: mg/Kg

Basis: Dry

Level: Low

Analysis Method:

NWTPH-Dx

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor_	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	ND U	25	2.7	I	06/08/06	06/09/06	KWG0609367	
Residual Range Organics (RRO)	4.7 J	100	4.5	1 ,	06/08/06	06/09/06	KWG0609367	

Surrogate Name	%Rec	Centrol Limits	Date Analyzed	Note		 	
o-Terphenyl n-Triacontane	82 87	50-150 50-150	06/09/06 06/09/06	Acceptable Acceptable	•	•	

Comments:

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Form 1A - Organic

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SuperSet Reference: RR60620

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Surrogate Recovery Summary Diesel and Residual Range Organics

Extraction Method: EPA 3550B

Analysis Method:

NWTPH-Dx

Units: PERCENT

Level: Low

Sample Name	Lab Code	<u>Sur1</u>	Sur2
NWC-2-5W	K0604574-001	78	81
NWC-2-6W	K0604574-002	62	65
NWC-2-7W	K0604574-003	75	84
NWC-2-8W	K0604574-008	86	80
NWC-2-36W	K0604574-009	49 *	63
NWC-2-42W	K0604574-012	95	74
NWC-2-42WDUP	KWG0609367-1	93	7 0
Method Blank	KWG0609367-3	82	87
Lab Control Sample	KWG0609367-2	90	90

Surrogate Recovery Control Limits (%)

Surl = o-Terphenyl 50-150 Sur2 = n-Triacontane 50-150

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page

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SuperSet Reference: RR60620

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/08/2006 Date Analyzed: 06/10/2006 -

06/12/2006

Duplicate Sample Summary Diesel and Residual Range Organics

Sample Name:

NWC-2-42W

Lab Code:

K0604574-012

Extraction Method:

Analysis Method:

NWTPH-Dx

EPA 3550B

Units: mg/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG0609367

NWC-2-42WDUP

Percent **RPD** Limit

Relative KWG0609367-1 Sample **Duplicate Sample** وء يه Difference Result Result Average MDL MRL **Analyte Name** 7 40 1400 1500 Diesel Range Organics (DRO) 150 17 1500 7 # 40 200 Residual Range Organics (RRO) 5,5 210 190 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Printed: 06/21/2006 12:46:17

Form 3B - Organic

SuperSet Reference:

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RR60620

Page

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/08/2006

Date Analyzed: 06/09/2006

Lab Control Spike Summary Diesel and Residual Range Organics

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG0609367

Lab Control Sample KWG0609367-2

Lab Control Spike

%Rec Result Limits **Analyte Name** Expected %Rec Diesel Range Organics (DRO) 258 267 97 62-159 Residual Range Organics (RRO) 135 133 101 53-143

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

Page SuperSet Reference:

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RR60620

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QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/08/2006 Date Analyzed: 06/09/2006

Time Analyzed: 00:33

Method Blank Summary Diesel and Residual Range Organics

Sample Name: Lab Code:

Method Blank

File ID: J:\GC21\DATA\060806\0608F027.D

KWG0609367-3

Instrument ID: GC21

Level: Low

Extraction Method: Analysis Method:

EPA 3550B NWTPH-Dx

Extraction Lot: KWG0609367

This Method Blank applies to the following analyses:

Canala Nama	Lab Code	. File ID		Date Analyzed	Time Analyzed
Sample Name	KWG0609367-2	J:\GC21\DATA\060806\0608F026.D	•	06/09/06	00:13
Lab Control Sample		****			
NWC-2-5W	K0604574-001	J:\GC21\DATA\060806\0608F028.D		06/09/06	00:53
NWC-2-6W	K0604574-002	J:\GC21\DATA\060806\0608F029.D		06/09/06	01:13
NWC-2-7W	K0604574-003	J:\GC21\DATA\060806\0608F030.D	-	06/09/06	01:33
NWC-2-8W	K0604574-008	J:\GC21\DATA\060906\0609F028.D		06/10/06	00:16
NWC-2-6W	K0604574-002	J:\GC21\DATA\060906\0609F029.D		06/10/06	00:36
NWC-2-7W	K0604574-003	J:\GC21\DATA\060906\0609F030.D	Not take!	06/10/06	00:56 }
NWC-2-36W	K0604574-009	J:\GC21\DATA\060906\0609F031.D		06/10/06	01:16 ' '
NWC-2-42W	K0604574-012	J:\GC21\DATA\060906\0609F032.D	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	06/10/06	01:36
NWC-2-42WDUP	KWG0609367-1	J:\GC21\DATA\060906\0609F033.D	- , , , <u>, , , , , , , , , , , , , , , ,</u>	06/10/06	01:56
NWC-2-8W	K0604574-008	J:\GC21\DATA\061206\0612F007.D	N 1 (1)	06/12/06	22:02 😳 "
NWC-2-36W	K0604574-009	J:\GC21\DATA\061206\0612F008.D	· (*)	06/12/06	22:22
NWC-2-42W	K0604574-012	J:\GC21\DATA\061206\0612F009.D	13. C. 3. FEE.	06/12/06	22:43
NWC-2-42WDUP	KWG0609367-1	J:\GC21\DATA\061206\0612F010.D	2.W.C	06/12/06	23:03

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QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Extraction Method: EPA 3550B

Soil

Service Request: K0604574

Date Extracted: 06/08/2006
Date Analyzed: 06/09/2006

Time Analyzed: 00:13

Lab Control Sample Summary Diesel and Residual Range Organics

Sample Name:

Analysis Method:

Lab Control Sample

Lab Code:

KWG0609367-2

NWTPH-Dx

rnem;

File ID: J:\GC21\DATA\060806\0608F026.D

Instrument ID: GC21

Level: Low

Extraction Lot: KWG0609367

This Lab Control Sample applies to the following analyses:

							Date	Time
Sample Name	<u>.</u>	Lab Code		File ID			Analyzed	Analyzed
Method Blank		KWG0609367-3		J:\GC21\DATA\060806\0608F027.D			06/09/06	00:33
NWC-2-5W		K0604574-001		J;\GC21\DATA\060806\0608F028.D			06/09/06	00:53
NWC-2-6W		K0604574-002		J:\GC21\DATA\060806\0608F029.D			06/09/06	01:13
NWC-2-7W		K0604574-003	•	J:\GC21\DATA\060806\0608F030.D			06/09/06	01:33
NWC-2-8W		K0604574-008		J:\GC21\DATA\060906\0609F028.D			06/10/06	00:16
NWC-2-6W	÷	K0604574-002		J:\GC21\DATA\060906\0609F029.D			06/10/06	00:36
NWC-2-7W		K0604574-003	ì	J:\GC21\DATA\060906\0609F030.D	À.1	- *	06/10/06	00:56
NWC-2-36W		K0604574-009	. 1	J:\GC21\DATA\060906\0609F031.D			06/10/06	01:16
NWC-2-42W		K0604574-012	· . i	J:\GC21\DATA\060906\0609F032.D	* 12"	÷ ,	06/10/06	01:36
NWC-2-42WDUP	" - "2-" - "	KWG0609367-1	100	J:\GC21\DATA\060906\0609F033.D			06/10/06	01:56
NWC-2-8W	•	K0604574-008		J:\GC21\DATA\061206\0612F007.D			06/12/06	22:02
NWC-2-36W	***** *	K0604574-009	»	J:\GC21\DATA\061206\0612F008.D		:	06/12/06	22:22
NWC-2-42W		K0604574-012		J:\GC21\DATA\061206\0612F009.D		*	06/12/06	22:43
NWC-2-42WDUP		KWG0609367-1	•	J:\GC21\DATA\061206\0612F010.D		î	06/12/06	23:03

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 04/22/2006

Initial Calibration Summary Diesel and Residual Range Organics

Calibration ID: Instrument ID:

CAL5295

GC21

Column: Equity-1 15 m

Level ID A B C D	File ID J:\GC21\DATA\CALIBRAT\042306.SEC\0423P005.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P007.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P009.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P011.D	Level ID H I J	File ID J:\GC21\DATA\CALIBRAT\042306.SEC\0423P019.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P021.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P023.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P025.D J:\GC21\DATA\CALIBRAT\042306.SEC\0423P027.D
E	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P013.D	L	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P027.D
F	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P015.D	M	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P029.D
G	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P017.D	N	J:\GC21\DATA\CALIBRAT\042306.SEC\0423P031.D

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF -	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)	A	20	51400				С	50	48500				Е	200	44500
				G	500	44800				I	2000	43200	<u> </u>		
	*****									N	1000	41900			
Residual Range Organics (RRO)							1	•		D	50	29800			
	F ,	200	26600		7		Н	500	27200				J	2000	26400
			·	. •	,	; ,	М	1000	25500	}				•	
o-Terphenyl	A	1.0	55100			·	è	2.5	56500				E	10	53800
1		ş. ±		G	25	53600		,,,,,		Ι.	- 100	52900			
and for the state of the state	K	250	52900·			ا الم	-	ř		N	50	51500		٠.	. •
n-Triacontane	A	1.0	44700				C >	2.5	44100	情心,		i a	E	10	43800
			,	G	25	43600			;	I	100	41800	<u> </u>		
	K	250	39900	**			; ; ;			N_	50	40600			

Results flagged with an asterisk (*) indicate values outside control criteria.

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Form 6A - Organic

SuperSet Reference: RR60620

Page 1 of 2

308

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 04/22/2006

Initial Calibration Summary Diesel and Residual Range Organics

Calibration ID:

CAL5295

Instrument ID:

GC21

Column: Equity-1 15 m

		Calibration Evaluation						
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria		
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	7.8		≤ 20		
Residual Range Organics (RRO)	MS	AverageRF	% RSD	6.1		≤ 20		
o-Terphenyl	SURR	AverageRF	% RSD	3.0		≤20		
n-Triacontane	SURR	AverageRF	% RSD	4.4		≤20		

Results flagged with an asterisk (*) indicate values outside control criteria.

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Form 6A - Organic

SuperSet Reference: RR60620

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309

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 04/22/2006

Date Analyzed: 04/23/2006

Second Source Calibration Verification Diesel and Residual Range Organics

Calibration Type:

External Standard

Analysis Method:

NWTPH-Dx

Calibration ID: CAL5295

Units: ppm

File ID:

J:\GC21\DATA\CALIBRAT\042306.SEC\0423P035.D

J:\GC21\DATA\CALIBRAT\042306.SEC\0423P037.D

J:\GC21\DATA\CALIBRAT\042306.SEC\0423P039.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	910	45700	41600	-9	NA -	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	930	27100	25 300	-7	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6B - Organic 310

SuperSet Reference:

RR60620

Page 1 of 1

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/08/2006

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Type:

External Standard

Analysis Method:

NWTPH-Dx

Calibration Date: 04/22/2006

Calibration ID: CAL5295

Analysis Lot: KWG0609516

Units: ppm

File ID:

J:\GC21\DATA\060806\0608F021.D

J:\GC21\DATA\060806\0608F022.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	.940	45700	43000	-6	NA	±.15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	27100	27500	1	NA	± 15 %	AverageRF
o-Terphenyl	50	48	53800	51500	-4	NA	\pm 15 %	AverageRF
n-Triacontane	50	50	42600	42400	-1	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/21/2006 12:46:46 u:\Stealth\Crystal.rpt\Form7.rpt

Form 7 - Organic 311

SuperSet Reference:

RR60620

1 of 1 Page

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/09/2006

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Type:

External Standard

Analysis Method: NWTPH-Dx

Calibration Date: 04/22/2006

Calibration ID: CAL5295

Analysis Lot: KWG0609516

Units: ppm

File ID:

J:\GC21\DATA\060806\0608F037.D

J:\GC21\DATA\060806\0608F038.D

Column ID: Equity-1 15 m

			Average	CCV				C F#4
Analyte Name	Expected	Result	RF	\mathbf{RF}	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	930	45700	42500	-7.	NA .	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1100	27100	30500	13	NA	\pm 15 %	AverageRF
o-Terphenyl	50	46	53800	49800	-7	NA	± 15 %	AverageRF
n-Triacontane	50	49	42600	41700	-2	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/21/2006 12:46:49 Form 7 - Organic 312

SuperSet Reference:

1 of 1 Page

RR60620

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/09/2006

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Type:

External Standard

Calibration Date: 04/22/2006

Analysis Method:

NWTPH-Dx

Calibration ID: CAL5295

Analysis Lot: KWG0609517

Units: ppm

File ID:

J:\GC21\DATA\060906\0609F024.D

J:\GC21\DATA\060906\0609F025.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	970	45700	44400	-3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	970	27100	26300	-3	NA	± 15 %	AverageRF
o-Terphenyl	50	. 50	<i>5</i> 3800	53300	-1	NA	± 15 %	AverageRF
n-Triacontane	50	48	42600	41300	-3	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

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Form 7 - Organic 313

RR60620

SuperSet Reference:

Page 1 of 1

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574 Date Analyzed: 06/10/2006

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Type: Analysis Method:

External Standard

Calibration Date: 04/22/2006 Calibration ID: CAL5295

NWTPH-Dx

Analysis Lot: KWG0609517

Units: ppm

File ID:

J:\GC21\DATA\060906\0609F035.D

J:\GC21\DATA\060906\0609F036.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	CCV RF	% D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO) Residual Range Organics (RRO) o-Terphenyl n-Triacontane	1000	970	45700 -	44200	-3	NA -	± 15 %	AverageRF
	1000	960 -	27100	26000	-4	NA	± 15 %	AverageRF
	50	49	53800	52800	-2	NA	± 15 %	AverageRF
	50	49	42600	41800	-2	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/21/2006 12:46:57 u:\Stealth\Crystal.rpt\Form7.rpt

Form 7 - Organic

SuperSet Reference:

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QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/12/2006

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Type:

External Standard

Analysis Method:

NWTPH-Dx

Calibration Date: 04/22/2006

Calibration ID: CAL5295

Analysis Lot: KWG0609610

Units: ppm

File ID:

J:\GC21\DATA\061206\0612F005.D

J:\GC21\DATA\061206\0612F006.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	900	45700	41000	-10	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	940	27100	25500	-6	NA	± 15 %	AverageRF
o-Terphenyl	50	46	53800	49500	-8	NA	± 15 %	AverageRF
n-Triacontane	50	45	42600	38300	-10	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/21/2006 12:47:00

Form 7 - Organic 315

SuperSet Reference:

Page RR60620

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QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574 Date Analyzed: 06/13/2006

Project:

NW Corner-FRP/8769.005/4

Continuing Calibration Verification Summary Diesel and Residual Range Organics

Calibration Date: 04/22/2006

Calibration Type:

External Standard

Calibration ID: CAL5295

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG0609610

Units: ppm

File ID:

J:\GC21\DATA\061206\0612F014.D

J:\GC21\DATA\061206\0612F015.D

Column ID: Equity-1 15 m

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO) Residual Range Organics (RRO) o-Terphenyl n-Triacontane	1000	910	45700	41600	-9	NA	± 15 %	AverageRF
	1000	910	27100	24600	-9	NA	± 15 %	AverageRF
	50	47	53800	50300	-6	NA	± 15 %	AverageRF
	50	44	42600	37700	-11	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

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Form 7 - Organic 316

SuperSet Reference:

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RR60620

Organic Analysis: Gasoline Range Organics

Summary Package

Sample and QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request:

K0604574

Cover Page - Organic Analysis Data Package Gasoline Range Organics

Sample Name	Lab Code	Date Collected	Date Received
NWC-2-5W	K0604574-001	06/02/2006	06/06/2006
NWC-2-6W	K0604574-002	06/02/2006	06/06/2006
NWC-2-7W	K0604574-003	06/02/2006	06/06/2006
NWC-3-24W	K0604574-004	06/02/2006	06/06/2006
NWC-2-8W	K0604574-008	06/05/2006	06/06/2006
NWC-2-36W	K0604574-009	06/05/2006	06/06/2006
NWC-2-42W	K0604574-012	06/05/2006	06/06/2006
NWC-3-24W	KWG0609604-1	06/02/2006	06/06/2006

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: M Culu	Name: Mike Exitson
Date: 6/20/06	Title: Supervisor

Cover Page - Organic 528

Page 1 of 1

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-5W

Lab Code:

K0604574-001

Extraction Method: EPA 5035/5030B Analysis Method:

NWTPH-Gx

Units: mg/Kg Basis: Dry

Level: Med

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPH	1500 Y	30	3.5	1	06/13/06	06/14/06	KWG0609604	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	91	50-150	06/14/06	Acceptable

Comments:

Printed: 06/20/2006 15:40:47 u:\Stealth\Crystal.rpt\Form1m.rpt

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-6W

Lab Code:

Extraction Method:

K0604574-002

EPA 5035/5030B

Units: mg/Kg

Basis: Dry

Level: Med

Analysis Method:

NWTPH-Gx

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPH	13000 Y	140	16	1	06/13/06	06/14/06	KWG0609604	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
4-Bromofluorobenzene	673	50-150	06/14/06	Outside Control Limits	

Comments:

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-7W

Lab Code:

K0604574-003

Extraction Method:

Analysis Method:

EPA 5035/5030B NWTPH-Gx

Units: mg/Kg

Basis: Dry

Level: Med

Date Date Extraction Dilution Analyzed Lot Note Factor Extracted MDL MRL Result O Analyte Name KWG0609604 06/14/06 58 6.8 1 06/13/06 6800 Y Gasoline Range Organics-NWTPH

Control Date Limits Note %Rec Analyzed Surrogate Name Outside Control Limits 06/14/06 559 50-150 4-Bromofluorobenzene

Comments:

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Form 1A - Organic 531

1 of 1 Page

SuperSet Reference:

RR60575

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006 Date Received:

06/06/2006

Gasoline Range Organics

Sample Name:

NWC-3-24W

Lab Code:

K0604574-004

Extraction Method: Analysis Method:

NWTPH-Gx

EPA 5035/5030B

Dilution

Basis: Dry

Level: Med

Units: mg/Kg

Analyte Name

Result Q

MRL

MDL

Factor

Date Date Analyzed Extracted

Extraction Lot

Gasoline Range Organics-NWTPH

71 Y

31

3.6

06/13/06

06/14/06

Note KWG0609604

Surrogate Name

4-Bromofluorobenzene

%Rec

88

Control Limits 50-150

Date Analyzed

06/14/06

Note

Acceptable

1

Comments:

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Form 1A - Organic

SuperSet Reference:

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Merged

532

RR60575

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received:

06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-8W

Lab Code:

K0604574-008

Units: mg/Kg Basis: Dry

Extraction Method:

EPA 5035/5030B

Level: Med

Analysis Method:

NWTPH-Gx

Augheta Marra	Result O	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name Gasoline Range Organics-NWTPH		130	15	1	06/13/06	06/14/06	KWG0609604	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
4-Bromofluorobenzene	714 -	50-150	06/14/06	Outside Control Limits	

Comments:

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Form 1A - Organic

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SuperSet Reference: RR60575

Merged

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-36W

Lab Code:

K0604574-009

Extraction Method:

Analysis Method:

EPA 5035/5030B

Units: mg/Kg

Basis: Dry

Level: Med

NWTPH-Gx

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPH	3500 Y	65	7.7	1	06/13/06	06/14/06	KWG0609604	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note .
4-Bromofluorobenzene	178	50-150	06/14/06	Outside Control Limits

Comments:

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Merged

Form 1A - Organic

SuperSet Reference:

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RR60575

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

06/05/2006 Date Collected:

Date Received: 06/06/2006

Gasoline Range Organics

Sample Name:

NWC-2-42W

Lab Code:

K0604574-012

Extraction Method:

Analysis Method:

EPA 5035/5030B NWTPH-Gx

Units: mg/Kg Basis: Dry

Level: Med

Analyte Name

Result Q

MRL

MDL 7.1

Dilution Factor 1

Date Extracted

Date Analyzed

Extraction Lot Note

Gasoline Range Organics-NWTPH

4800 Y

483

60

06/13/06

KWG0609604 06/14/06

Surrogate Name

4-Bromofluorobenzene

Control %Rec Limits

50-150

Date Analyzed

Note

Outside Control Limits 06/14/06

Comments:

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Merged

Form 1A - Organic

535

SuperSet Reference:

1 of 1

RR60575

Page

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project: Sample Matrix: NW Corner-FRP/8769.005/4

Date Collected: NA Date Received: NA

Service Request: K0604574

Gasoline Range Organics

Sample Name:

Method Blank

Soil

Lab Code:

KWG0609604-3

Units: mg/Kg Basis: Dry

Extraction Method:

Analysis Method:

EPA 5035/5030B

Level: Med

NWTPH-Gx

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPH	4.5 J	5.0	0.59	1	06/13/06	06/14/06	KWG0609604	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	92	50-150	06/14/06	Acceptable

Comments:

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QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Surrogate Recovery Summary Gasoline Range Organics

Extraction Method:

EPA 5035/5030B

Analysis Method:

NWTPH-Gx

Units: PERCENT

Level: Med

Sample Name	Lab Code		
NWC-2-5W	K0604574-001	91	#
NWC-2-6W	K0604574-002	673	#
NWC-2-7W	K0604574-003	559	#
NWC-3-24W	K0604574-004	88	#
NWC-2-8W	K0604574-008	714	#
NWC-2-36W	K0604574-009	178	#
NWC-2-42W	K0604574-012	483	#
NWC-3-24WDUP	KWG0609604-1	89	#
Method Blank	KWG0609604-3	92	
Lab Control Sample	KWG0609604-2	96	

Surrogate Recovery Control Limits (%)

Surl = 4-Bromofluorobenzene

50-150

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

537

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SuperSet Reference:

RR60575

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/13/2006

Date Analyzed: 06/14/2006

Duplicate Sample Summary Gasoline Range Organics

Sample Name:

NWC-3-24W

Lab Code:

K0604574-004

Extraction Method:

Analysis Method:

Analyte Name

EPA 5035/5030B

Level: Med

NWTPH-Gx

Extraction Lot: KWG0609604

Basis: Dry

Units: mg/Kg

NWC-3-24WDUP

KWG0609604-1

Relative

Percent

Sample Result MRL MDL

31

Duplicate Sample Result Average

RPD Limit Difference

Gasoline Range Organics-NWTPH

3.6

71

74

73

5

40

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3B - Organic

SuperSet Reference:

RR60575

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538

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/13/2006

Date Analyzed: 06/14/2006

Lab Control Spike Summary Gasoline Range Organics

Extraction Method:

EPA 5035/5030B

Analysis Method:

NWTPH-Gx

Units: mg/Kg

Basis: Dry

Level: Med

Extraction Lot: KWG0609604

Lab Control Sample KWG0609604-2

Lab Control Spike

%Rec

Analyte Name

Gasoline Range Organics-NWTPH

Expected %Rec Result

Limits

52.6

50.0

105

63-116

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

539

SuperSet Reference:

Page

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RR60575

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QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

. .

Service Request: K0604574

Date Extracted: 06/13/2006
Date Analyzed: 06/14/2006

Time Analyzed: 12:34

Method Blank Summary Gasoline Range Organics

Sample Name:

Lab Code:

Method Blank

KWG0609604-3

File ID: J:\GC06\DATA\061406.FID\0614R004.D

Instrument ID: GC06

Extraction Method: EPA 5035/5030B

Analysis Method:

NWTPH-Gx

Level: Med

Extraction Lot: KWG0609604

This Method Blank applies to the following analyses:

. Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG0609604-2	J:\GC06\DATA\061406.FID\0614R005.D	06/14/06	13:05
NWC-3-24W	K0604574-004	J;\GC06\DATA\061406.FID\0614R007.D	06/14/06	14:29
NWC-3-24WDUP	KWG0609604-1	J:\GC06\DATA\061406.FID\0614R008.D	06/14/06	15:00
NWC-2-5W	K0604574-001	J:\GC06\DATA\061406.FID\0614R009.D	06/14/06	15:32
NWC-2-42W	K0604574-012	J:\GC06\DATA\061406.FID\0614R011.D	06/14/06	16:35
NWC-2-7W	K0604574-003	J:\GC06\DATA\061406.FID\0614R013.D	06/14/06	17:38
NWC-2-36W	K0604574-009	J:\GC06\DATA\061406.FID\0614R015.D	06/14/06	18:41
NWC-2-8W	K0604574-008	J:\GC06\DATA\061406.FID\0614R017.D	06/14/06	19:44
NWC-2-6W	K0604574-002	J:\GC06\DATA\061406.FID\0614R019.D	06/14/06	20:47

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/13/2006

Date Analyzed: 06/14/2006

Time

Time Analyzed: 13:05

Lab Control Sample Summary Gasoline Range Organics

Sample Name:

Lab Control Sample

File ID: J:\GC06\DATA\061406.FID\0614R005.D

Lab Code:

KWG0609604-2

Instrument ID: GC06

Extraction Method:

EPA 5035/5030B

Level: Med

Analysis Method:

NWTPH-Gx

Extraction Lot: KWG0609604

This Lab Control Sample applies to the following analyses:

			Date Analyzed	Analyzed
Sample Name :	Lab Code	File ID	•	-
Method Blank	KWG0609604-3	J:\GC06\DATA\061406.FID\0614R004.D	06/14/06	12:34
NWC-3-24W	K0604574-004	J:\GC06\DATA\061406.FID\0614R007.D	06/14/06	14:29
NWC-3-24WDUP	KWG0609604-1	J:\GC06\DATA\061406.FID\0614R008.D	06/14/06	15:00
NWC-2-5W	K0604574-001	J:\GC06\DATA\061406.FID\0614R009.D	06/14/06	15:32
NWC-2-42W	K0604574-012	J:\GC06\DATA\061406.FID\0614R011.D	06/14/06	16:35
NWC-2-7W	K0604574-003	J;\GC06\DATA\061406.FID\0614R013.D	06/14/06	17:38
NWC-2-36W	K0604574-009	J:\GC06\DATA\061406.FID\0614R015.D	06/14/06	18:41
	K0604574-008	J:\GC06\DATA\061406.FID\0614R017.D	06/14/06	19:44
NWC-2-8W NWC-2-6W	K0604574-008	J:\GC06\DATA\061406.FID\0614R019.D	06/14/06	20:47
				4

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 11/11/2005

Initial Calibration Summary Gasoline Range Organics

Calibration ID:

CAL5090

Column: DB-624

Instrument ID:

GC06

Level ID	File ID	Level ID	File ID
Α	J:\GC06\DATA\111105.FID\1111R004.D	G	J:\GC06\DATA\111105.FID\1111R017.D
В	J:\GC06\DATA\111105.FID\1111R005.D	H	J:\GC06\DATA\012706A.FID\0127R003.D
С	J:\GC06\DATA\111105.FID\1111R006.D	I	J:\GC06\DATA\012706A.FID\0127R004.D
D	J:\GC06\DATA\111105.FID\1111R007.D	J	J:\GC06\DATA\012706A.FID\0127R005.D
E	J:\GC06\DATA\111105.FID\1111R008.D	K	J:\GC06\DATA\012706A.FID\0127R006.D
F	J:\GC06\DATA\111105.FID\1111R009.D	L	J:\GC06\DATA\012706A.FID\0127R007.D

	Leve	I		Level			Level			Level			Level		
Analyte Name	4ID	Amt	RF	\mathbf{m}	Amt	\mathbf{RF}	\mathbf{ID}	Amt	RF	ID	Amt	RF	\mathbf{D}	Amt	$\cdot \mathbf{RF}$
Gasoline Range Organics-NWTPH	Α	100	6970	В	200	6050	С	500	5980	D	1000	6060	Е	5000	5870
	F	10000	5830	G	50	7010	<u>.</u>			j					
				<u> </u>			<u> </u>			<u> </u>			<u></u>		
4-Bromofluorobenzene				<u> </u>			<u> </u>			<u> </u>					
				<u> </u>			Н	13	7780	I	25	7270	J	50	7740
	K.	100	7930	L	150	7810									

Results flagged with an asterisk (*) indicate values outside control criteria.

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Form 6A - Organic 542

Page

1 of 2

SuperSet Reference: RR60575

QA/QC Results

Initial Calibration Summary Gasoline Range Organics

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 11/11/2005

Column: DB-624

Calibration ID:

CAL5090

Instrument ID:

GC06

			Calibratio	n Evaluati	on	
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria
Gasoline Range Organics-NWTPH	MS	AverageRF	% RSD	8.1		≤ 20
4-Bromofluorobenzene	SURR	AverageRF	% RSD	3,3		≤20

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 06/20/2006 15:41:19 u:\Stealth\Crystal.rpt\Form6ii5.rpt

Form 6A - Organic

SuperSet Reference: RR60575

Page 2 of 2

543

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 11/11/2005 Date Analyzed: 11/12/2005

Second Source Calibration Verification Gasoline Range Organics

Calibration Type: Analysis Method:

External Standard

NWTPH-Gx

Calibration ID: CAL5090

Units: ug/L

File ID:

J:\GC06\DATA\111105.FID\1111R018.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	560	6250	7030	12	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Printed: 6/20/2006 15:41:26 u:\Stealth\Crystal.rpt\Form6SS.rpt

Form 6B - Organic 544

SuperSet Reference:

RR60575

1 of 1

Page

QA/QC Results

Client:

File ID:

Geomatrix Consultants, Incorporated

J:\GC06\DATA\061406.FID\0614R001.D

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/14/2006

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type: Analysis Method:

External Standard

NWTPH-Gx

Calibration Date: 11/11/2005

Calibration ID: CAL5090

Analysis Lot: KWG0609800

Units: ug/L

Column ID: DB-624

Analyte Name	Expected	Result		Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH 4-Bromofluorobenzene	500 100	560 92	Kama King di	6250 77-10	6960 7090	11 -8	NA NA	± 20 % ± 20 %	AverageRF AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/20/2006 15:41:29 u:\Stealth\Crystal.rpt\Form7.rpt

Form 7 - Organic

SuperSet Reference:

RR60575

Page

1 of 1

545

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/14/2006

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type:

External Standard

Analysis Method:

NWTPH-Gx

Calibration Date: 11/11/2005

Calibration ID: CAL5090

Analysis Lot: KWG0609800

Units: ug/L

File ID:

J:\GC06\DATA\061406.FID\0614R022.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH 4-Bromofluorobenzene	500	550	6250	6860	10	NA	± 20 %	AverageRF
	100	89	7710 -	6830	-11	NA	± 20 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Printed: 6/20/2006 15:41:32 u:\Stealth\Crystal.rpt\Form7.rpt

Form 7 - Organic

SuperSet Reference:

Page 1 of 1

RR60575

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Analysis Run Log Gasoline Range Organics

Analysis Method:

NWTPH-Gx

Analysis Lot: KWG0609800

Instrument ID: GC06

Column: DB-624

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0614R001.D	Continuing Calibration Verification	KWG0609800-3	6/14/2006	09:56		6/14/2006	10:12
0614R003.D	Instrument Blank	KWG0609800-1	6/14/2006	10:58		6/14/2006	11:14
0614R004.D	Method Blank	KWG0609604-3	6/14/2006	12:34		6/14/2006	12:50
0614R005.D	Lab Control Sample	KWG0609604-2	6/14/2006	13:05		6/14/2006	13:21
0614R007.D	NWC-3-24W	K0604574-004	6/14/2006	14:29		6/14/2006	14:45
0614R008 D	NWC-3-24WDUP	KWG0609604-1	6/14/2006	15:00		6/14/2006	15:16
0614R009.D	NWC-2-5W	K0604574-001	6/14/2006	15:32		6/14/2006	15:48
0614R011.D	NWC-2-42W	K0604574-012	6/14/2006	16:35		6/14/2006	16:51
0614R013.D	NWC-2-7W	K0604574-003	6/14/2006	17:38		6/14/2006	17:54
0614R015.D	NWC-2-36W	K0604574-009	6/14/2006	18:41		6/14/2006	18:57
0614R017.D	NWC-2-8W	K0604574-008	6/14/2006	19:44		6/14/2006	20:00
0614R019.D	NWC-2-6W	K0604574-002	6/14/2006	20:47	<u> </u>	6/14/2006	21:03
0614R021.D	Instrument Blank	KWG0609800-2	6/14/2006	21:50		6/14/2006	22:06
0614R022.D	Continuing Calibration Verification	KWG0609800-4	6/14/2006	22:22		6/14/2006	22:38

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 6/13/2006

Extraction Prep Log Gasoline Range Organics

Extraction Method: EPA 5035/5030B

Extraction Lot: KWG0609604

Analysis Method:

NWTPH-Gx

Level: Med

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	MeOH Volume	MeOH Aliquot	Final Volume	% · Solids	Note
NWC-2-5W	K0604574-001	06/02/06	06/06/06	5.53g	10.0 mI	$200 \mathrm{uL}$	50ml	76.3	
NWC-2-6W	K0604574-002	06/02/06	06/06/06	5.15g	10.0ml	50uL	50ml ·	73.4	
NWC-2-7W	K0604574-003	06/02/06	06/06/06	5.44g	10.0 mL	100uL	50ml	79.8	
NWC-3-24W	K0604574-004	06/02/06	06/06/06	5.08g	10.0ml	200uL	50ml	81.4	
NWC-2-8W	K0604574-008	06/05/06	06/06/06	5.14g	$10.0 \mathrm{ml}_{\odot}$	50uL	$50 \mathrm{ml}$	80.7	
NWC-2-36W	K0604574-009	06/05/06	06/06/06	5.28g	10.0ml	100uL	50ml	72.9	
NWC-2-42W	K0604574-012	06/05/06	06/06/06	5.05g	10.0ml	$100 \mathrm{uL}$	50ml	82.6	
NWC-3-24WDUP	KWG0609604-1	06/02/06	06/06/06	5.08g	10.0ml	200uL	50ml	81.4	
Method Blank	KWG0609604-3	NA	NA	5.00g	10.0m1	1000uL	50ml	NA	
Lab Control Sample	KWG0609604-2	NA	NA	5.00g	10.0ml	$1000 \mathrm{uL}$	50ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

NWTPH-HCID

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/2/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-2-5W

Units: mg/Kg (ppm)

Lab Code:

K0604574-001

Basis: Dry

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	20	1	6/8/2006	6/9/2006	D	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	1	6/8/2006	6/9/2006	D	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	1	6/8/2006	6/9/2006	ND	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

1S22/020597p

K0604574phc.kcl - 1 6/21/2006

Date: _______ 6 (3

Page No..

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project: Sample Matrix: NW Corner-FRP/8769.005/4

Soil

Service Request: K0604574

Date Collected: 6/2/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-2-6W

Lab Code:

K0604574-002

Test Notes:

Units: mg/Kg (ppm)

Basis: Dry

Analyte	Prep — Method	Analysis Method	MRL	Dilution Factor		Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	20	1	. 6/8/2006	6/9/2006	Ď	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	1	6/8/2006	6/9/2006	D	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	1	6/8/2006	6/9/2006	D	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

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1S22/020597p

K0604574phc.kcl - 2 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/2/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-2-7W

Lab Code:

K0604574-003

Test Notes:

Units: mg/Kg (ppm)

Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor		Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	20	1	6/8/2006	6/9/2006	D	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	1	6/8/2006	6/9/2006	D	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	1	6/8/2006	6/9/2006	. : D	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

M andy

Date: 6 (21/06

1S22/020597p

K0604574phc.kcl - 3 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Collected: 6/2/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-3-24W

Lab Code:

K0604574-004

Test Notes:

Units: mg/Kg (ppm)

Basis: Dry

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Analyte	Prep Method	Analysis Method	MRL		Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	20			6/8/2006	6/9/2006	D	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	3		6/8/2006	6/9/2006	ND	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	· ·		6/8/2006	6/9/2006	ND .	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

1S22/020597p

K0604574phc.kcl - 4 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/5/2006

Date Received: 6/6/2006

· Hydrocarbon Identification Screen

Sample Name:

NWC-2-8W

Lab Code:

K0604574-008

Basis: Dry

Units: mg/Kg (ppm)

Test Notes:

Analyte	Prep Method	Analysis Method	MRL		Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics Diesel Range Organics	EPA 3550B EPA 3550B	NWTPH-HCID NWTPH-HCID	20 50		1 1	6/8/2006 6/8/2006	6/10/2006 6/10/2006	D D	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	-	1	6/8/2006	6/10/2006	D	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

1S22/020597p

auch

Date:

6/21/06

K0604574phc.kc2 - 8 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/5/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-2-36W

Units: mg/Kg (ppm)

Lab Code:

K0604574-009

Basis: Dry

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics Diesel Range Organics Residual Range Organics	EPA 3550B EPA 3550B EPA 3550B	NWTPH-HCID NWTPH-HCID	. 20 . 50 <i>r</i> 100	1 1 1	6/8/2006 6/8/2006 6/8/2006	6/12/2006 6/12/2006 .6/12/2006	D D D	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

1S22/020597p

M Curla

Date: 6/21/06

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K0604574phc.kc2 - 9 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/5/2006

Date Received: 6/6/2006

Hydrocarbon Identification Screen

Sample Name:

NWC-2-42W

Lab Code:

. K0604574-012

Test Notes:

Units: mg/Kg (ppm)

Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	20	1	6/8/2006	6/12/2006	D	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	1	6/8/2006	6/12/2006	D	
Residual Range Organics	EPA 3550B	NWTPH-HCID	100	1	6/8/2006	6/12/2006	D	

D

Detected at or above the method reporting limit. Follow-up analyses are required for quantitative results.

Approved By:

M Guln

Date

6/21/06

1S22/020597p

K0604574phc.ke2 - 12 6/21/2006

Analytical Report

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604574

Project:

NW Corner-FRP/8769.005/4

Date Collected: NA

Sample Matrix:

Soil

Date Received: NA

Hydrocarbon Identification Screen

Sample Name:

Method Blank

Units: mg/Kg (ppm)

Lab Code:

KWG0609367-3

Basis: Dry

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Gasoline Range Organics	EPA 3550B	NWTPH-HCID	:20	1	6/8/2006	6/9/2006	ND	
Diesel Range Organics	EPA 3550B	NWTPH-HCID	50	1	6/8/2006	6/9/2006	ND	
Residual Range Organics	, EPA 3550B	NWTPH-HCID	.100	: 1	6/8/2006	6/9/2006	ND	•

K0604574phc.kcl - MB 6/21/2006

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 6/2-5/2006

Date Received: 6/6/2006

Date Extracted: 6/8/2006 Date Analyzed: 6/9-12/2006

Surrogate Recovery Summary Hydrocarbon Identification Screen

Prep Method:

EPA 3550B

Analysis Method: NWTPH-HCID

Units: PERCENT

Basis: NA

Comula Nome	Tak Cada	Test	Perc		•
Sample Name	Lab Code	Notes	o-Terphenyl	4-Bromofluorobenzene	n-Triacontane
NWC-2-5W	K0604574-001	· · · ·	78	87	81
NWC-2-6W	K0604574-002		62	212 *	65
NWC-2-7W	K0604574-003		75	136	84
NWC-3-24W	K0604574-004		88	89	92
NWC-2-8W	K0604574-008		86	143	80
NWC-2-36W	K0604574-009	:	49 *	109	63
NWC-2-42W	K0604574-012		95	247 *	74
Method Blank	KWG0609367-3		82	÷ 60°	87

CAS Acceptance Limits:

50-150

20-150

50-150

Approved By:

Crista

Date: 6/2/06

SUR3/111397p K0604574phc.kct - SUR3 6/21/2006

Organic Analysis: Semi-Volatile Organic Compounds by GC/MS

Summary Package

Sample and QC Results

Client: Project:

Geomatrix Consultants, Incorporated NW Corner-FRP/8769.005/4

Service Request:

K0604574

Cover Page - Organic Analysis Data Package Semi-Volatile Organic Compounds by GC/MS

Sample Name	Lab Code	Date Collected	Date Received
NWC-1-22W	K0604574-006	06/02/2006	06/06/2006
NWC-1-2W	K0604574-007	06/02/2006	06/06/2006
NWC-1-12W	K0604574-010	06/05/2006	06/06/2006
NWC-2-39W	K0604574-011	06/05/2006	06/06/2006

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Cover Page - Organic

Page 1 of

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Collected: 06/02/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-1-22W

Lab Code:

K0604574-006

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

•				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	13	5.9	2	06/08/06	06/11/06	KWG0609161	
Phenol	17 JD	37	4.6	2	06/08/06	06/11/06	KWG0609161	
2-Chlorophenol	ND U	13	4.2	2	06/08/06	06/11/06	KWG0609161	
1,3-Dichlorobenzene	ND U	13	3.9	2	06/08/06	06/11/06	KWG0609161	
1,4-Dichlorobenzene	ND U	13	4.6	2	06/08/06	06/11/06	KWG0609161	
1,2-Dichlorobenzene	ND U	13	3.2	2	06/08/06	06/11/06	KWG0609161	
Benzyl Alcohol	ND U	13	9.0	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroisopropyl) Ether	ND U	13	3.0	2	06/08/06	06/11/06	KWG0609161	
2-Methylphenol	ND U	13	8.3	2	06/08/06	06/11/06	KWG0609161	
Hexachloroethane	ND U	13.	5.4	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodi-n-propylamine	ND U	13	7.8	2	06/08/06	06/11/06	KWG0609161	
4-Methylphenol†	ND U	13	7.1	2	06/08/06	06/11/06	KWG0609161	
Nitrobenzene	ND U	13	4.9	2	06/08/06	06/11/06	KWG0609161	-
Isophorone	ND U	13	3.9	2	06/08/06	06/11/06	KWG0609161	•
2-Nitrophenol	ND U	13	6.3	2	06/08/06	06/11/06	KWG0609161	
2,4-Dimethylphenol	ND U	61	14	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroethoxy)methane	ND U	13	3.2	2	06/08/06	06/11/06	KWG0609161	
2,4-Dichlorophenol	ND U	13	4.4	2	06/08/06	06/11/06	KWG0609161	
Benzoic Acid	ND U	250	240	2	06/08/06	06/11/06	KWG0609161	*
1,2,4-Trichlorobenzene	ND U	13	3.7	2	06/08/06	06/11/06	KWG0609161	
Naphthalene	. 14 D	13	3.2	2	06/08/06	06/11/06	KWG0609161	
4-Chloroaniline	ND U	13	5.1	2	06/08/06	06/11/06	KWG0609161	
Hexachlorobutadiene	ND U	13	3.4	2	06/08/06	06/11/06	KWG0609161	
4-Chloro-3-methylphenol	ND U	13	5.1	2	06/08/06	06/11/06	KWG0609161	
2-Methylnaphthalene	13 D	13	3,0		06/08/06	06/11/06	KWG0609161	
Hexachlorocyclopentadiene	ND U	61	37	2	06/08/06	06/11/06	KWG0609161	
2,4,6-Trichlorophenol	ND U	13	4.4	2	06/08/06	06/11/06	KWG0609161	
2,4,5-Trichlorophenol	7.9 JD	13	7.3	2	06/08/06	06/11/06	KWG0609161	
2-Chloronaphthalene	ND U	13	8.8	2	06/08/06	06/11/06	KWG0609161	
2-Nitroaniline	ND U	25	6.6	2	06/08/06	06/11/06	KWG0609161	
Acenaphthylene	ND U	13	3.4		06/08/06	06/11/06	KWG0609161	
Dimethyl Phthalate	ND U	13	4.4	2	06/08/06	06/11/06	KWG0609161	
2,6-Dinitrotoluene	ND U	13	6.8	$\overline{2}$	06/08/06	06/11/06	KWG0609161	
2,0 2 224401024024								

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project: Sample Matrix: NW Corner-FRP/8769.005/4 Soil

Service Request: K0604574

Date Collected: 06/02/2006 Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

NWC-1-22W

Extraction Method: EPA 3541

K0604574-006

Level: Low

Basis: Dry

Units: ug/Kg

Analysis Method:

8270C

	·				Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND	U	13	2.5	2	06/08/06	06/11/06	KWG0609161	
3-Nitroaniline	ND	U	. 25	6.3	2	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrophenol	ND	U	250	88	2	06/08/06	06/11/06	KWG0609161	
Dibenzofuran	· ND	U	13	3.2	2	06/08/06	06/11/06	·KWG0609161	
4-Nitrophenol		U .	. 130	73	2	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrotoluene	ND	U	13	6.8	2	06/08/06	06/11/06	KWG0609161	
Fluorene	ND		13	4.2	2	06/08/06	06/11/06	KWG0609161	
4-Chlorophenyl Phenyl Ether	ND		13	4.9	2	06/08/06	06/11/06	KWG0609161	
Diethyl Phthalate	ND	Ū	13	8.5	2	06/08/06	06/11/06	KWG0609161	
4-Nitroaniline	ND	U	25	8,3	2	06/08/06	06/11/06	KWG0609161	
2-Methyl-4,6-dinitrophenol	ND	Ū	130	4.2	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodiphenylamine	ND	U	13	5.4	2	06/08/06	06/11/06	KWG0609161	
4-Bromophenyl Phenyl Ether	ND		13	3.4	2	06/08/06	06/11/06	KWG0609161	
Hexachlorobenzene	ND		13	5.1	2	06/08/06	06/11/06	KWG0609161	
Pentachlorophenol	550	D	. 130	21	2	06/08/06	06/11/06	KWG0609161	-96 -
Phenanthrene	15		13	3.2	2	06/08/06	06/11/06	KWG0609161	
Anthracene	NĎ	U	13	3.4	2	06/08/06	06/11/06	KWG0609161	
Di-n-butyl Phthalate	15	D	13	6.3	2.	06/08/06	06/11/06	KWG0609161	-
Fluoranthene	16		13	5.4	2	06/08/06	06/11/06	KWG0609161	
Pyrene	20		13	3.2	2	.06/08/06	06/11/06	KWG0609161	
Butyl Benzyl Phthalate	ND	U	. 13	3.7	2	06/08/06	06/11/06	KWG0609161	
3,3'-Dichlorobenzidine	. ND		130_	9.0	2	06/08/06	06/11/06	KWG0609161	•
Benz(a)anthracene	3.7	ТD	13	3.4	2	06/08/06	06/11/06	KWG0609161	
Chrysene	8.7	JD	13	3.4	2	06/08/06	06/11/06	KWG0609161	
Bis(2-ethylhexyl) Phthalate	25	JD	250	4.2	2	06/08/06	06/11/06	KWG0609161	
Di-n-octyl Phthalate	ND	U	13	3.0	2	06/08/06	06/11/06	KWG0609161	
Benzo(b)fluoranthene	9.4	JD	13	6.1	2	06/08/06	06/11/06	KWG0609161	
Benzo(k)fluoranthene	ND	Ú	13	6.1	2	06/08/06	06/11/06	KWG0609161	
Benzo(a)pyrene	4.2	D	13	3.9	2	06/08/06	06/11/06	KWG0609161	
Indeno(1,2,3-cd)pyrene	4.8	JD	13	4.6	2	06/08/06	06/11/06	KWG0609161	
Dibenz(a,h)anthracene		U	13	5,4	2	06/08/06	06/11/06	KWG0609161	
Benzo(g,h,i)perylene	6.0 .	D	13	5.6	2	06/08/06	06/11/06	KWG0609161	

* See Case Narrativ

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code: NWC-1-22W K0604574-006 Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	33	12-88	06/11/06	Acceptable	
Phenol-d6	53	20-101	06/11/06	Acceptable	
Nitrobenzene-d5	38	10-97	06/11/06	Acceptable	
2-Fluorobiphenyl	53	10-107	06/11/06	Acceptable	
2,4,6-Tribromophenol	55	16-122	06/11/06	Acceptable	
Terphenyl-d14	60	28-135	06/11/06	Acceptable	

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

SuperSet Reference:

RR60410

Page

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/02/2006 Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

NWC-1-2W

K0604574-007

Extraction Method: Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	13	6.1	2	06/08/06	06/11/06	KWG0609161	
Phenol	ND U	38	4.8	2	06/08/06	06/11/06	KWG0609161	
2-Chlorophenol	ND U	13	. 4.3	2	06/08/06	06/11/06	KWG0609161	
1,3-Dichlorobenzene	ND U	13	4.1	- 2	06/08/06	06/11/06	KWG0609161	
1,4-Dichlorobenzene	ND U	13	4.8	2	06/08/06	06/11/06	KWG0609161	
1,2-Dichlorobenzene	U CIN	13	3.3	2	06/08/06	06/11/06	KWG0609161	
Benzyl Alcohol	ND U	13	9.3	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroisopropyl) Ether	ND U	13	3.1	2	06/08/06	06/11/06	KWG0609161	
2-Methylphenol	ND U	13	8.6	2	06/08/06	06/11/06	KWG0609161	
Hexachloroethane	ND U	13	5.6	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodi-n-propylamine	ND U	13	8.1	2	06/08/06	06/11/06	KWG0609161	
4-Methylphenol†	ND U	. 13	7.3	2	06/08/06	06/11/06	KWG0609161	
Nitrobenzene	ND U	13	<u></u> 5.1, .	2	06/08/06	06/11/06	KWG0609161	
Isophorone	ND U	13	4.1	2	06/08/06	06/11/06	KWG0609161	
2-Nitrophenol	ND U	13	6.6	2	06/08/06	06/11/06	KWG0609161	
2,4-Dimethylphenol	ND U	63	. 14	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroethoxy)methane	ND U	13	3.3	2	06/08/06	06/11/06	KWG0609161	
2,4-Dichlorophenol	ND U	13	4.6	2	06/08/06	06/11/06	KWG0609161	
Benzoic Acid	ND U	260	250	2	06/08/06	06/11/06	KWG0609161	*
1,2,4-Trichlorobenzene	ND U	13	3.8	2	06/08/06	06/11/06	KWG0609161	
Naphthalene	6.2 JD	13	3.3	2	06/08/06	06/11/06	KWG0609161	
4-Chloroaniline	ND U	13	5,3	2	06/08/06	06/11/06	KWG0609161	
Hexachlorobutadiene	ND U	13	3,6	2	06/08/06	06/11/06	KWG0609161	
4-Chloro-3-methylphenol	ND U	13	5. 3	2	06/08/06	06/11/06	KWG0609161	
2-Methylnaphthalene	5.6 JD	13	3.1	2	06/08/06	06/11/06	KWG0609161	
Hexachlorocyclopentadiene	ND U	63	38	2	06/08/06	06/11/06	KWG0609161	
2,4,6-Trichlorophenol	ND U	13	4.6	2	06/08/06	06/11/06	KWG0609161	
2,4,5-Trichlorophenol	ND U	13	7.6	2	06/08/06	06/11/06	KWG0609161	
2-Chloronaphthalene	ND U	13	9.1	2	06/08/06	06/11/06	KWG0609161	
2-Nitroaniline	ND U	26	6.8	2	06/08/06	06/11/06	KWG0609161	
Acenaphthylene	ND U	13	3.6	2	06/08/06	06/11/06	KWG0609161	
Dimethyl Phthalate	ND U	13	4.6	2	06/08/06	06/11/06	KWG0609161	
2,6-Dinitrotoluene	ND U	13	7.1	2	06/08/06	06/11/06	KWG0609161	

Comments:	 · · · · · · · · · · · · · · · · · · ·	

1 of 3

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Collected: 06/02/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

. . . .

MDL

Dilution

Factor

Date

Extracted

Date

Analyzed

Sample Name:

NWC-1-2W

Lab Code:

K0604574-007

Extraction Method:

EPA 3541

Units: ug/Kg Basis: Dry

Level: Low

Extraction

Lot

Note

Analysis Method:	8270C		
Analyte Name		Result Q	MRL
Acenaphthene		ND U	13
3-Nitroaniline		ND U	26
2,4-Dinitrophenol		ND U	260

			2.6	~	07/00/07	06/11/06	KWG0609161
Acenaphthene	ND U	13	2.6	2	06/08/06	06/11/06	KWG0609161
3-Nitroaniline	ŅD U	26	6.6	2	06/08/06		KWG0609161
2,4-Dinitrophenol	ND U	260	91	2 `	06/08/06	06/11/06	
Dibenzofuran	ND U	13	3.3	2	06/08/06	06/11/06	KWG0609161
4-Nitrophenol	ND U	130	76 ÷	2	06/08/06	06/11/06	KWG0609161
2,4-Dinitrotoluene	ND U	13	7.1	2	06/08/06	06/11/06	KWG0609161
Fluorene	ND U	13	4.3	2	06/08/06	06/11/06	KWG0609161
4-Chlorophenyl Phenyl Ether	ND U	13	5.1	2	06/08/06	06/11/06	KWG0609161
- ·	ND U	13	8.8	2	06/08/06	06/11/06	KWG0609161
Diethyl Phthalate						06/11/06	KWG0609161
4-Nitroaniline	ND U	26	8.6	2	06/08/06	06/11/06	KWG0609161
2-Methyl-4,6-dinitrophenol	ND U	130	4.3	2	06/08/06		KWG0609161
N-Nitrosodiphenylamine	ND U	13	5.6	2	06/08/06	06/11/06	
4-Bromophenyl Phenyl Ether	ND U	13	3.6	2	06/08/06	06/11/06	KWG0609161
Hexachlorobenzene	ND U	13	5.3	. 2-	06/08/06	06/11/06	KWG0609161
Pentachlorophenol	36 JD	130	22	2	06/08/06	06/11/06	KWG0609161
Pheñanthrene	. 12 JD	13	3.3	2	06/08/06	06/11/06	KWG0609161
Anthracene	ND U	13	3,6	2	06/08/06	06/11/06	KWG0609161
	8.4 JD	13 [.]	6.6	2	06/08/06	06/11/06	KWG0609161
Di-n-butyl Phthalate					06/08/06	06/11/06	KWG0609161
Fluoranthene	14 D	13	5.6	2	06/08/06	06/11/06	KWG0609161
Pyrene	12 JD	13	3.3	2		06/11/06	KWG0609161
Butyl Benzyl Phthalate	ND U	13	3.8	2 .	06/08/06		
3,3'-Dichlorobenzidine	ND U	130	9.3	2	06/08/06	06/11/06	KWG0609161
Benz(a)anthracene	4.6 JD	13	3.6	2	06/08/06	06/11/06	KWG0609161
Chrysene	15 D	13	3.6	2	06/08/06	06/11/06	KWG0609161
Bis(2-ethylhexyl) Phthalate	34 JD	260	4,3	2	06/08/06	06/11/06	KWG0609161
Di-n-octyl Phthalate	ND U	13	3.1	2	06/08/06	06/11/06	KWG0609161
-	11 JD	13	6.3	2	06/08/06	06/11/06	KWG0609161
Benzo(b)fluoranthene					06/08/06	06/11/06	KWG0609161
Benzo(k)fluoranthene	ND U	13	6.3	2		06/11/06	KWG0609161
Benzo(a)pyrene	5.6 JD	13	4.1	2	06/08/06		KWG0609161
Indeno(1,2,3-cd)pyrene	ND U	13	4.8		06/08/06	06/11/06	
Dibenz(a,h)anthracene	ND U	13	5.6	2	06/08/06	06/11/06	KWG0609161
Benzo(g,h,i)perylene	7.3 JD	13	5.8	2	06/08/06	06/11/06	KWG0609161
(B))-/-F J							

* See Case Narrative

	•	
Comments:		

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project: Sample Matrix: NW Corner-FRP/8769.005/4 Soil

Service Request: K0604574

Date Collected: 06/02/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

NWC-1-2W K0604574-007

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	30	12-88	06/11/06	Acceptable
Phenol-d6	53	20-101	06/11/06	Acceptable
Nitrobenzene-d5	38	. 10-97	06/11/06	Acceptable
2-Fluorobiphenyl	56	10-107	06/11/06	Acceptable
2,4,6-Tribromophenol	54	16-122	06/11/06	Acceptable
Terphenyl-d14	70 -	28-135	06/11/06	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic

SuperSet Reference:

Page 3 of 3 RR60410

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-1-12W

Lab Code:

K0604574-010

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

					Dilution	Date	Date	Extraction	Note
Analyte Name	Result		MRL	MDL_	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND		12	5.6	2	06/08/06	06/11/06	KWG0609161	•
Phenol	7.8	JD .	35	4.4	2	06/08/06	06/11/06	KWG0609161	•
_2-Chlorophenol	ND	U	12	4.0	2	06/08/06	06/11/06	KWG0609161	
1,3-Dichlorobenzene	ND	U,	12	3.7	2	06/08/06	06/11/06	KWG0609161	
1,4-Dichlorobenzene	ND	Ų	12	4.4	2	06/08/06	06/11/06	KWG0609161	
1,2-Dichlorobenzene	ND	U	12	3.0	2	06/08/06	06/11/06	KWG0609161	<u>-</u>
Benzyl Alcohol	ND	Ū	12	8.6	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroisopropyl) Ether	ND	U	12	2.8	2	06/08/06	06/11/06	KWG0609161	
2-Methylphenol	ND	U	12	7.9	2	06/08/06	06/11/06	KWG0609161	
Hexachloroethane	ND	Ū ·	12	5.1	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodi-n-propylamine	ND	Ū	12	7.4	2	06/08/06	06/11/06	KWG0609161	
4-Methylphenol†	ND		12	6.7	2	06/08/06	06/11/06	KWG0609161	
Nitrobenzene	ND	U	12	4.7	2	06/08/06	06/11/06	KWG0609161	
Isophorone	ND	Ü	12	3.7	2	06/08/06	06/11/06	KWG0609161	
2-Nitrophenol	ND	Ū	12	6.0	2	06/08/06	06/11/06	KWG0609161	
2,4-Dimethylphenol	ND	·* · · · ·	58	13	2	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroethoxy)methane	ND	Ŭ	12	3.0	2	06/08/06	06/11/06	KWG0609161	
2,4-Dichlorophenol	ND		12	4.2	2 .	06/08/06	06/11/06	KWG0609161	
Benzoic Acid	ND		240	230	2	06/08/06	06/11/06	KWG0609161	*
1,2,4-Trichlorobenzene	ND		12	3.5	2	06/08/06	06/11/06	KWG0609161	
Naphthalene	9.6		12	3.0	2	06/08/06	06/11/06	KWG0609161	
4-Chloroaniline		U	12	4.9	2	06/08/06	06/11/06	KWG0609161	
Hexachlorobutadiene	ND	Ü	12	3.3	2	06/08/06	06/11/06	KWG0609161	
4-Chloro-3-methylphenol		Ŭ	, 12	4.9	2	06/08/06	06/11/06	KWG0609161	
2-Methylnaphthalene	10		12	2,8	2	06/08/06	06/11/06	KWG0609161	
Hexachlorocyclopentadiene	ND		58	35	2	06/08/06	06/11/06	KWG0609161	
2,4,6-Trichlorophenol	ND		12	4.2	2	06/08/06	06/11/06	KWG0609161	
	ND		12	7.0	2	06/08/06	06/11/06	KWG0609161	
2,4,5-Trichlorophenol 2-Chloronaphthalene	ND		12	8.3	2	06/08/06	06/11/06	KWG0609161	
2-Chloronaphthalene 2-Nitroaniline	ND		24	6.3	2	06/08/06	06/11/06	KWG0609161	
			12	3,3		06/08/06	06/11/06	KWG0609161	
Acenaphthylene	3.7 ND		12 12	3.3 4.2	2	06/08/06	06/11/06	KWG0609161	
Dimethyl Phthalate	ND		12	6.5	2	06/08/06	06/11/06	KWG0609161	
2,6-Dinitrotoluene	עוו			-0.5					

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769,005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-1-12W

Lab Code:

K0604574-010

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Acenaphthene	ND		12	2.4	2	06/08/06	06/11/06	KWG0609161	rtote
3-Nitroaniline	ND ND		24	6.0	2	06/08/06	06/11/06 [*]	KWG0609161	
2,4-Dinitrophenol	ND		240	83	2	06/08/06	06/11/06	KWG0609161	
Dibenzofuran	4.1	M	12	3.0	2	06/08/06	06/11/06	KWG0609161	
4-Nitrophenol	ND		120	70	2	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrotoluene	ND		12	6.5	2	06/08/06	06/11/06	KWG0609161	
Fluorene	ND	U	12	4.0	2	06/08/06	06/11/06	KWG0609161	
4-Chlorophenyl Phenyl Ether	ND	U	12	4.7	2	06/08/06	06/11/06	KWG0609161	
Diethyl Phthalate	ND	U	12	8.1	2	06/08/06	06/11/06	KWG0609161	
4-Nitroaniline	ND	U	24	7.9	2	06/08/06	06/11/06	KWG0609161	
2-Methyl-4,6-dinitrophenol	ND	U	120	4.0	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodiphenylamine	ND	U	12	5.1	2	06/08/06	06/11/06	KWG0609161	_
4-Bromophenyl Phenyl Ether	ND	U	12	3.3	-2	06/08/06	06/11/06	KWG0609161	
Hexachlorobenzene	ND	U	12	4.9	2	06/08/06	06/11/06	KWG0609161	
Pentachlorophenol	190	D	120	20	2	06/08/06	06/11/06	KWG0609161	
Phenanthrene	36		12	3.0	2	06/08/06	06/11/06	KWG0609161	
Anthracene	7.5	JD	12	3.3	2	06/08/06	06/11/06	KWG0609161	
Di-n-butyl Phthalate	9.6	JD	12	6.0	_ 2	06/08/06	06/11/06	KWG0609161	
Fluoranthene		D. 7-7	12	5.1	2	06/08/06	06/11/06	KWG0609161	•
Pyrene		D	12	3.0	2	06/08/06	06/11/06	KWG0609161	
Butyl Benzyl Phthalate	23	D	. 12	3.5	2	06/08/06	06/11/06	KWG0609161	
3,3'-Dichlorobenzidine	ND	U	120	8.6	2	06/08/06	06/11/06	KWG0609161	
Benz(a)anthracene	55	D	12	3.3	2	06/08/06	06/11/06	KWG0609161	
Chrysene	79	D	12	3.3	2	06/08/06	06/11/06	KWG0609161	
Bis(2-ethylhexyl) Phthalate	29	JD	240	4.0	2	06/08/06	06/11/06	KWG0609161	
Di-n-octyl Phthalate	ND	U	12	2.8	2	06/08/06	06/11/06	KWG0609161	
Benzo(b)fluoranthene	97	D	12	5.8	2	06/08/06	06/11/06	KWG0609161	
Benzo(k)fluoranthene	31	D	12	5.8	2	06/08/06	06/11/06	KWG0609161	
Benzo(a)pyrene	75	D	12	3.7	2	06/08/06	06/11/06	KWG0609161	
Indeno(1,2,3-cd)pyrene	63	D	12 -	4.4	2	06/08/06	06/11/06	KWG0609161	
Dibenz(a,h)anthracene	13		12	5.1	2	06/08/06	06/11/06	KWG0609161	
Benzo(g,h,i)perylene	68	D	12	5.3	2	06/08/06	06/11/06	KWG0609161	

k	See	Case	Narrative	

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006 Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

NWC-1-12W

K0604574-010

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2-Fluorophenol	28	12-88	06/11/06	Acceptable
Phenol-d6	51	20-101	06/11/06	Acceptable
Nitrobenzene-d5	37	10-97	06/11/06	Acceptable
2-Fluorobiphenyl	56	10-107	06/11/06	Acceptable
2,4,6-Tribromophenol	62	16-122	06/11/06	Acceptable
Terphenyl-d14	79	28-135	06/11/06	Acceptable

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 756

SuperSet Reference:

Page

3 of 3

RR60410

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-2-39W

Lab Code:

K0604574-011

Analysis Method:

Extraction Method: EPA 3541

8270C

Units: ug/Kg Basis: Dry

Level: Low

Bis(2-chloroethyl) Ether ND U 12 5.8 2 06/08/06 06/11/06 KWG0609161					Dilution	Date	Date	Extraction	===
Phenol	Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
2-Chlorophenol	Bis(2-chloroethyl) Ether	ND U	12	5.8	2	06/08/06	06/11/06	KWG0609161	
1,3-Dichlorobenzene	Phenol	ND U	36	4.6	2	06/08/06	06/11/06	KWG0609161.	رتيجه والمرازات
1,4-Dichlorobenzene	2-Chlorophenol	ND Ú	12	4.1	2	06/08/06	06/11/06	KWG0609161	
1,2-Dichlorobenzene	1,3-Dichlorobenzene	ND U	12	3.9	2	06/08/06	06/11/06		
Benzyl Alcohol	1,4-Dichlorobenzene	ND U	12	4.6	2	06/08/06	06/11/06		
Bis(2-chloroisopropyl) Ether ND U	1,2-Dichlorobenzene	ND U	12	3.2	2	06/08/06	06/11/06	KWG0609161	
2-Methylphenol			12	8.9	2	06/08/06	06/11/06		
Hexachloroethane	Bis(2-chloroisopropyl) Ether	ND U	12	2.9	2	06/08/06	06/11/06		
N-Nitrosodi-n-propylamine	2-Methylphenol	ND U	12	8.2	2	06/08/06	06/11/06	KWG0609161	
4-Methylphenol† ND U 12 7.0 2 06/08/06 06/11/06 KWG0609161 Nitrobenzene ND U 12 4.8 2 06/08/06 06/11/06 KWG0609161 Isophorone ND U 12 3.9 2 06/08/06 06/11/06 KWG0609161 2-Nitrophenol ND U 12 6.3 2 06/08/06 06/11/06 KWG0609161 2,4-Dimethylphenol ND U 60 14 2 06/08/06 06/11/06 KWG0609161 2,4-Dichlorophenol ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 3,4-Dichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 4-Chicroaniline ND U 12 3.6 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 3.4 2 </td <td>Hexachloroethane</td> <td>ND U</td> <td>12</td> <td>5,3</td> <td>2</td> <td>06/08/06</td> <td>06/11/06</td> <td></td> <td>•</td>	Hexachloroethane	ND U	12	5,3	2	06/08/06	06/11/06		•
Nitrobenzene	N-Nitrosodi-n-propylamine	ND U	12	7.7	2	06/08/06	06/11/06		
Isophorone	4-Methylphenol†	ND U	12	7.0	2	06/08/06	06/11/06	KWG0609161	
2-Nitrophenol ND U 12 6.3 2 06/08/06 06/11/06 KWG0609161	Nitrobenzene	ND U	12		2	06/08/06	06/11/06	KWG0609161	
2,4-Directhylphenol ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 Bis(2-chloroethoxy)methane ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 2,4-Dichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 Benzoic Acid ND U 240 230 2 06/08/06 06/11/06 KWG0609161 Benzoic Acid ND U 12 3.6 2 06/08/06 06/11/06 KWG0609161 Naphthalene ND U 12 3.6 2 06/08/06 06/11/06 KWG0609161 Naphthalene ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 Hexachlorobutadiene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Exachlorocyclopentadiene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthalene ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthalene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthalene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloronaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161	Isophorone	ND U	12	3.9	2	06/08/06	06/11/06	KWG0609161	:
Bis(2-chloroethoxy)methane	2-Nitrophenol	ND U	12	6.3	. 2	06/08/06	06/11/06	KWG0609161	
2,4-Dichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 Benzoic Acid ND U 240 230 2 06/08/06 06/11/06 KWG0609161 * 1,2,4-Trichlorobenzene ND U 12 3.6 2 06/08/06 06/11/06 KWG0609161 Naphthalene ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 Hexachlorobutadiene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U		ND -U	60	14	2	06/08/06	06/11/06		
Benzoic Acid	Bis(2-chloroethoxy)methane	ND U	12	3.2	2	06/08/06	06/11/06	KWG0609161	
1,2,4-Trichlorobenzene ND U 12 3.6 2 06/08/06 06/11/06 KWG0609161 Naphthalene ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 Hexachlorobutadiene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2,4-Dichlorophenol	ND U	12	4.3	2	06/08/06	06/11/06	KWG0609161	
Naphthalene ND U 12 3.2 2 06/08/06 06/11/06 KWG0609161 4-Chloroaniline ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 Hexachlorobutadiene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 12 <td>Benzoic Acid</td> <td>ND U</td> <td>240</td> <td>230</td> <td>2</td> <td>06/08/06</td> <td>06/11/06</td> <td></td> <td>*</td>	Benzoic Acid	ND U	240	230	2	06/08/06	06/11/06		*
4-Chloroaniline ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 Hexachlorobutadiene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	1,2,4-Trichlorobenzene		12	3.6	2	06/08/06	06/11/06		
Hexachlorobutadiene	Naphthalene	ND U	12	3.2	2	06/08/06	06/11/06	KWG0609161	
4-Chloro-3-methylphenol ND U 12 5.1 2 06/08/06 06/11/06 KWG0609161 2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	4-Chloroaniline	ND U	12	5.1	2	06/08/06	06/11/06	•	
2-Methylnaphthalene ND U 12 2.9 2 06/08/06 06/11/06 KWG0609161 Hexachlorocyclopentadiene ND U 60 36 2 06/08/06 06/11/06 KWG0609161 2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	Hexachlorobutadiene	ND U	12	3.4	2	06/08/06	06/11/06		
Hexachlorocyclopentadiene	4-Chloro-3-methylphenol	ND U	12	5.1	2	06/08/06	06/11/06	KWG0609161	
2,4,6-Trichlorophenol ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161 2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2-Methylnaphthalene	ND U		2.9	2	06/08/06	06/11/06		
2,4,5-Trichlorophenol ND U 12 7.2 2 06/08/06 06/11/06 KWG0609161 2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	Hexachlorocyclopentadiene	ND U	60	36	2	06/08/06	06/11/06		
2-Chloronaphthalene ND U 12 8.6 2 06/08/06 06/11/06 KWG0609161 2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2,4,6-Trichlorophenol	ND U	12	4.3	2	06/08/06	06/11/06	KWG0609161	
2-Nitroaniline ND U 24 6.5 2 06/08/06 06/11/06 KWG0609161 Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2,4,5-Trichlorophenol	ND U	12	7.2	2	06/08/06	06/11/06		
Acenaphthylene ND U 12 3.4 2 06/08/06 06/11/06 KWG0609161 Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2-Chloronaphthalene	ND U	12	8.6	2	06/08/06	06/11/06	KWG0609161	
Dimethyl Phthalate ND U 12 4.3 2 06/08/06 06/11/06 KWG0609161	2-Nitroaniline	ND U	24	6.5	2	06/08/06	06/11/06	KWG0609161	
——————————————————————————————————————									
2,6-Dinitrotoluene ND U 12 6.7 2 06/08/06 06/11/06 KWG0609161							-		
	2,6-Dinitrotoluene	ND U	12	6.7	2	06/08/06	06/11/06	KWG0609161	

Comments:

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1 of 3

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006 Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-2-39W

Lab Code:

K0604574-011

Extraction Method:

Analysis Method:

EPA 3541 8270C

Units: ug/Kg Basis: Dry

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	\mathbf{MDL}	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND	U	12	2.4	2	06/08/06	06/11/06	KWG0609161	
3-Nitroaniline	ND		24	6.3	2	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrophenol	ND	U	240	86	2	06/08/06	06/11/06	KWG0609161	
Dibenzofuran	ND	U	12	3.2	2	06/08/06	06/11/06	KWG0609161	
4-Nitrophenol	ND	U	120	72	2	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrotoluene	ND	U	12	6.7	2	06/08/06	06/11/06	KWG0609161	
Fluorene	ND	Ŭ	12	4.1	2	06/08/06	06/11/06	KWG0609161	
4-Chlorophenyl Phenyl Ether	· ND	U	12	4.8	2	06/08/06	06/11/06	KWG0609161	
Diethyl Phthalate	ND	U	12	8.4	. 2	06/08/06	06/11/06	KWG0609161	
4-Nitroaniline	ND	U	24	8.2	2	06/08/06	06/11/06	KWG0609161	
2-Methyl-4,6-dinitrophenol		U	120	4.1	2	06/08/06	06/11/06	KWG0609161	
N-Nitrosodiphenylamine	ND	υ	12	5.3	2	06/08/06	06/11/06	KWG0609161	
4-Bromophenyl Phenyl Ether	. ND	U	. 12	3.4	2	06/08/06	06/11/06	KWG0609161	
Hexachlorobenzene	ND	U	12	5.1	2	06/08/06	06/11/06	KWG0609161	
Pentachlorophenol	33	JD	120	21	. 2	06/08/06	06/11/06	KWG0609161	
Phenanthrene	4.1	JD	12	3.2	2	06/08/06	06/11/06	KWG0609161	
Anthracene	ND	Ū	12	3.4	2	06/08/06	06/11/06	KWG0609161	
Di-n-butyl Phthalate	11	JD.	12	6.3	2	06/08/06	06/11/06	KWG0609161	
Fluoranthene	6.1	ID	. 12	5.3	2	06/08/06	06/11/06	KWG0609161	
Pyrene	6.9	ТD	12	3.2	2	06/08/06	06/11/06	KWG0609161	
Butyl Benzyl Phthalate	ND	U	12	3.6	2	06/08/06	06/11/06	KWG0609161	
3,3'-Dichlorobenzidine	ND	U	120	8.9	2	06/08/06	06/11/06	KWG0609161	
Benz(a)anthracene	ND	U	12	3.4	2	06/08/06	06/11/06	KWG0609161	
Chrysene	5.6	JD	12	3.4	2	06/08/06	06/11/06	KWG0609161	
Bis(2-ethylhexyl) Phthalate	16	JD	240	4.1	2	06/08/06	06/11/06	KWG0609161	
Di-n-octyl Phthalate	ND	U	12	2.9	2	06/08/06	06/11/06	KWG0609161	
Benzo(b)fluoranthene	9.8	\mathbb{D}	12	6.0	2	06/08/06	06/11/06	KWG0609161	
Benzo(k)fluoranthene	ND	U	12	6.0	2	06/08/06	06/11/06	KWG0609161	
Benzo(a)pyrene	4.0	${ m I\!D}$	12	3.9	2	06/08/06	06/11/06	KWG0609161	•
Indeno(1,2,3-cd)pyrene	5.4	JD	12	4.6	2	06/08/06	06/11/06	KWG0609161	
Dibenz(a,h)anthracene	ND	Ū	12	5.3	2	06/08/06	06/11/06	KWG0609161	
Benzo(g,h,i)perylene	ND	U	12	5.5	2	06/08/06	06/11/06	KWG0609161	

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* See Case Narrative

Comments:

Form 1A - Organic

758

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SuperSet Reference:

RR60410

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: 06/05/2006

Date Received: 06/06/2006

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

NWC-2-39W

Lab Code:

K0604574-011

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note		
2-Fluorophenol	33	12-88	06/11/06	Acceptable		
Phenol-d6	55	20-101	06/11/06	Acceptable		
Nitrobenzene-d5	44	10-97	06/11/06	Acceptable	£7.	
2-Fluorobiphenyl	50	10-107	06/11/06	Acceptable	E	
2,4,6-Tribromophenol	49	16-122	06/11/06	Acceptable		
Terphenyl-d14	60	28-135	06/11/06	Acceptable	400 4	٠

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 759

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SuperSet Reference:

RR60410

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: NA

Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0609161-9

Extraction Method: Analysis Method:

EPA 3541

8270C

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	Note
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Bis(2-chloroethyl) Ether	ND U	5.0	2.4	1	06/08/06	06/11/06	KWG0609161 KWG0609161 ··	
Phenol	ND U	15	1.9		06/08/06	06/11/06	KWG0609161	•
2-Chlorophenol	ND U	5.0	1.7	1	06/08/06	06/11/06		
1,3-Dichlorobenzene	ND U	5.0	1.6	1	06/08/06	06/11/06	KWG0609161 ·	
1.4-Dichlorobenzene	ND U	5.0	1.9	1	06/08/06	06/11/06	KWG0609161	
1,2-Dichlorobenzene	ND U	5.0	1.3	1	06/08/06	06/11/06	KWG0609161	
Benzyl Alcohol	ND U	5.0	3.7	1	06/08/06	06/11/06	KWG0609161	
Bis(2-chloroisopropyl) Ether	ND U	5.0	1.2	1	06/08/06	06/11/06	KWG0609161	
2-Methylphenol	ND U	5.0	3.4	1	06/08/06	06/11/06	KWG0609161	
Hexachloroethane	ND U	5.0	2.2	1	06/08/06	06/11/06	KWG0609161	
N-Nitrosodi-n-propylamine	ND U	5.0	3.2	1	06/08/06	06/11/06	KWG0609161	
4-Methylphenol†	ND U	5.0	2.9	1	06/08/06	06/11/06	KWG0609161	
Nitrobenzene	ND U	5.0	2,0	1.	06/08/06	06/11/06	KWG0609161	
Isophorone	ND U	5.0	1.6	1	06/08/06	06/11/06	KWG0609161	
2-Nitrophenol	ND U	5.0	2.6	ĩ	06/08/06	06/11/06	KWG0609161	
	ND U	25	5.5	1	06/08/06	06/11/06	KWG0609161	
2,4-Dimethylphenol Bis(2-chloroethoxy)methane	ND U	5,0	1.3	1	06/08/06	06/11/06	KWG0609161	
· · · · · · · · · · · · · · · · · · ·	ND U	5.0	1.8	1	06/08/06	06/11/06	KWG0609161	
2,4-Dichlorophenol			96		06/08/06	06/11/06	KWG0609161	*
Benzoic Acid	ND U	100 5.0	1.5	1	06/08/06	06/11/06	KWG0609161	
1,2,4-Trichlorobenzene	ND U	5.0 5.0	1.3	1	06/08/06	06/11/06	KWG0609161	
Naphthalene	ND U				06/08/06	06/11/06	KWG0609161	
4-Chloroaniline	ND U	5.0	2.1	. 1		06/11/06	KWG0609161	
Hexachlorobutadiene	ND U	5.0	1.4	1	06/08/06 06/08/06	06/11/06	KWG0609161	
4-Chloro-3-methylphenol	ND U	5.0	2.1	1			KWG0609161	
2-Methylnaphthalene	ND U	5.0	1.2	1	06/08/06	06/11/06	KWG0609161	
Hexachlorocyclopentadiene	ND U	25	15	1	06/08/06	06/11/06	KWG0609161	
2,4,6-Trichlorophenol	ND U	5.0	1,8	1	06/08/06	06/11/06		
2,4,5-Trichlorophenol	ND U	5.0	3.0	1	06/08/06	06/11/06	KWG0609161	
2-Chloronaphthalene	ND U	5.0	3.6	1	06/08/06	06/11/06	KWG0609161	
2-Nitroaniline	ND U	10	2.7	1	06/08/06	06/11/06	KWG0609161	
Acenaphthylene	ND U	5.0	1.4	1 .	06/08/06	06/11/06	KWG0609161	
Dimethyl Phthalate	ND U	5.0	1.8	1	06/08/06	06/11/06	KWG0609161	
2.6-Dinitrotoluene	ND U	5.0	2.8	1	06/08/06	06/11/06	KWG0609161	
w, v							<u> </u>	

Comments:

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Form 1A - Organic 760

SuperSet Reference:

Page RR60410

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Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

KWG0609161-9

Extraction Method: Analysis Method:

EPA 3541

8270C

Units: ug/Kg Basis: Dry

Level: Low

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Acenaphthene	ND U	5.0	1.0	1	06/08/06	06/11/06	KWG0609161	
3-Nitroaniline	ND U	10	2.6	1	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrophenol	ND U	100	36	1 -	06/08/06	06/11/06	KWG0609161	
Dibenzofuran	ND U	5.0	Ĩ.3	1	06/08/06	~06/11/06	KWG0609161	
4-Nitrophenol	ND U	50	30	1	06/08/06	06/11/06	KWG0609161	
2,4-Dinitrotoluene	ND U	5.0	2.8	1	06/08/06	06/11/06	KWG0609161	
Fluorene	ND U	5.0	1.7	1	06/08/06	06/11/06	KWG0609161	
4-Chlorophenyl Phenyl Ether	ND U	5.0	2.0	1	06/08/06	06/11/06	KWG0609161	
Diethyl Phthalate	ND U	5.0	3.5	1	06/08/06	06/11/06	KWG0609161	
4-Nitroaniline	ND U	10	3.4	1	06/08/06	06/11/06	KWG0609161	
2-Methyl-4,6-dinitrophenol	ND U	50	1.7	1	06/08/06	06/11/06	KWG0609161	
N-Nitrosodiphenylamine	ND U	5.0	2.2	1	06/08/06	06/11/06	KWG0609161	
4-Bromophenyl Phenyl Ether	ND U	5.0	.1,4	1	-06/08/06	06/11/06::	KWG0609161	
Hexachlorobenzene	ND U	5.0	2.1	1	06/08/06	06/11/06	KWG0609161	
Pentachlorophenol	ND U	50	8.5	1	06/08/06	06/11/06	KWG0609161	
Phenanthrene	ND U	5.0	1.3	1	06/08/06	06/11/06	KWG0609161	
Anthracene	ND U	5.0	1.4	1	06/08/06	06/11/06	KWG0609161	
Di-n-butyl Phthalate	2.7 J	5.0	2.6	1	06/08/06	06/11/06	KWG0609161	
Fluoranthene	ND U	5.0	2.2	1	06/08/06	06/11/06	KWG0609161	
Pyrene	ND U	5.0	1.3	1	06/08/06	06/11/06	KWG0609161	
Butyl Benzyl Phthalate	ND U	5.0	1.5	1	06/08/06	06/11/06	KWG0609161	
3,3'-Dichlorobenzidine	ND U	50	3.7	1	06/08/06	06/11/06	KWG0609161	
Benz(a)anthracene	ND U	5.0	1.4	1	06/08/06	06/11/06	KWG0609161	
Chrysene	ND U	5.0	1.4	1	06/08/06	06/11/06	KWG0609161	
Bis(2-ethylhexyl) Phthalate	2.4 J	100	1.7	1	06/08/06	06/11/06	KWG0609161	<u>-</u>
Di-n-octyl Phthalate	ND U	5.0	1.2	1	06/08/06	06/11/06	KWG0609161	
Benzo(b)fluoranthene	ND U	5,0	2.5	1	06/08/06	06/11/06	KWG0609161	
Benzo(k)fluoranthene	ND U	5.0	2.5	1	06/08/06	06/11/06	KWG0609161	
Benzo(a)pyrene	ND U	5.0	1.6	1	06/08/06	06/11/06	KWG0609161	
Indeno(1,2,3-cd)pyrene	ND U	5.0	1.9	1	06/08/06	06/11/06	KWG0609161	
Dibenz(a,h)anthracene	ND U	5.0	2.2	1	06/08/06	06/11/06	KWG0609161	
Benzo(g,h,i)perylene	ND U	5.0	2.3	1	06/08/06	06/11/06	KWG0609161	

^{*} See Case Narrative

Comments:

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Form 1A - Organic 761

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SuperSet Reference: RR60410

Analytical Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Collected: NA Date Received: NA

Semi-Volatile Organic Compounds by GC/MS

Sample Name: Lab Code:

Method Blank

KWG0609161-9

Units: ug/Kg Basis: Dry

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
2-Fluorophenol	33	12-88	06/11/06	Acceptable	
Phenol-d6	51	20-101	06/11/06	Acceptable	
Nitrobenzene-d5	39	10-97	06/11/06	Acceptable	
2-Fluorobiphenyl	46	10-107	06/11/06	Acceptable	·
2,4,6-Tribromophenol	60	16-122	06/11/06	Acceptable	
Terphenyl-d14	67	28-135	06/11/06	Acceptable	•

† Analyte Comments

4-Methylphenol

This analyte cannot be separated from 3-Methylphenol.

Comments:

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Form 1A - Organic 762

SuperSet Reference:

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RR60410

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Surrogate Recovery Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2	<u>Sur3</u>	<u>Sur4</u>	<u>Sur5</u>	<u>Sur6</u>
NWC-1-22W	K0604574-006	33 D	53 D	38 D	53 D	55 D	60 D
NWC-1-2W	K0604574-007	30 D	53 D	38 D	56 D	54 D	70 D
NWC-1-12W	K0604574-010	28 D	51 D	37 D	56 D	62 D	79 D
NWC-2-39W	K0604574-011	33 D	55 D	44 D	50 D	49 D	. 60 D
Method Blank	KWG0609161-9	33	51	39	46	60	67
Batch QC	K0604453-001	36	56	54	51	55	. 57
Batch QCMS	KWG0609161-13	44	64	58	61	70	-69
Batch QCDMS	KWG0609161-14	43	64	59	61	69	65
Lab Control Sample	KWG0609161-10	33	48	45	48	52	57
Duplicate Lab Control Sample	KWG0609161-11	34	53	46	46	59	68

Surrogate Recovery Control Limits (%)

Sur1 = 2-Fluorophenol	12-88	Sur5 = 2,4,6-Tribromophenol	16-122
Sur2 = Phenol-d6	20-101	Sur6 = Terphenyl-d14	28-135
Sur3 = Nitrobenzene-d5	10-97		
Sur4 = 2-Fluorobiphenyl	10-107		

Results flagged with an asterisk (*) indicate values outside control criteria. Results flagged with a pound (#) indicate the control criteria is not applicable.

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Form 2A - Organic

Page 1 of 1

SuperSet Reference:

RR60410

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574 Date Analyzed: 06/11/2006

Time Analyzed: 06:34

Internal Standard Area and RT Summary Semi-Volatile Organic Compounds by GC/MS

File ID:

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Lab Code: KWG0609518-2

Instrument ID:

MS10

Analysis Method:

8270C

Analysis Lot: KWG0609518

	•	1,4-Dichlorober	zene-d4	Naphthaler	ne-d8	Acenaphther	ne-d10
-a		Area	RT	Area	RT	Area .	RT
`-	Results ==>	249,856	8.60	832,649	10.52	446,535	13.32
	Upper Limit ==>	499,712	9.10	1,665,298	11.02	893,070	13.82
	Lower Limit ==>	124,928	8.10	416,325	10.02	223,268	12.82
an sol	ICAL Result ==>	335,999	8.62	1,091,617	10.55	580,767	13.34
Associated Analyses							
Method Blank	KWG0609161-9	262,124	8.60	905,187	10.52	469,858	13.31
Lab Control Sample	KWG0609161-10	255,768	8.60	919,094	10.52	480,142	13.32
Duplicate Lab Control Sample	KWG0609161-11	255,685	8.60	914,594	10.52	489,659	13.32
Batch QCMS	KWG0609161-13	258,262	8.60	879,486	10.52	448,348	13.31
Batch QCDMS	KWG0609161-14	265,396	8.60	929,502	10.52	485,977	13.32
Batch QC	K0604453-001	271,195	8.61	947,289	10.52	519,253	13.32
NWC-1-22W	K0604574-006	267,710	8.61	941,581	10.53	464,108	13.33
NWC-1-2W	K0604574-007	286,837	8.61	908,023	10.53	439,974	13.33
NWC-1-12W	K0604574-010	268,747	8.62	885,215	10.54	439,738	13.34
NWC-2-39W	K0604574-011	269,684	8.62	951,021	10.54	510,150	13.34

Results flagged with an asterisk (*) indicate values outside control criteria.

Page

QA/QC Report

Client: Project:

Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574 Date Analyzed: 06/11/2006

Time Analyzed: 06:34

Internal Standard Area and RT Summary Semi-Volatile Organic Compounds by GC/MS

File ID:

Instrument ID:

MS10

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Lab Code: KWG0609518-2

Analysis Method:

8270C

Analysis Lot: KWG0609518

	_	Phenanthre	ne-d10	Chrysene-	·d12	Perylene-	d12
		Area	RT	<u>Area</u>	<u>RT</u>	<u>Area</u>	<u>RT</u>
	Results ==>	709,869	15.71	694,819	20.08	468,688	23.60
	Upper Limit ==>	1,419,738	16.21	1,389,638	20.58	937,376	24.10
	Lower Limit ==>	354,935	15.21	347,410	19.58	234,344	23.10
. 2-02	ICAL Result ==>	951,084	15.74	828,513	20.11	602,544	23,65
Associated Analyses							
Method Blank	KWG0609161-9	728,015	15.71	688,499	20,06	469,162	23.59
Lab Control Sample	KWG0609161-10	758,950	15.71	686,793	20.07	485,299	23.60
Duplicate Lab Control Sample	KWG0609161-11	762,326	15.70	671,639	20,07	494,939	23.60
Batch QCMS	KWG0609161-13	733,431	15.71	662,505	20.07	492,137	23.61
Batch QCDMS	KWG0609161-14	767,003	15.71	692,279	20.08	499,380	23.61
Batch QC	K0604453-001	790,971	15.71	733,688	20.07	533,155	23.62
NWC-1-22W	K0604574-006	692,315	15.73	682,824	20.10	485,996	23.65
NWC-1-2W	K0604574-007	734,032	15.73	641,272	20.10	472,323	23.69
NWC-1-12W	K0604574-010	684,198	15.74	638,310	20.12	466,181	23.71
NWC-2-39W	K0604574-011	745,149	15.74	686,981	20.11	510,947	23.67

Results flagged with an asterisk (*) indicate values outside control criteria.

Page

2 of 2

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

06/08/2006

Date Extracted: Date Analyzed: 06/11/2006

Matrix Spike/Duplicate Matrix Spike Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Batch QC

Lab Code:

K0604453-001

Extraction Method:

EPA 3541

Analysis Method:

8270C

Units: ug/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG0609161

Batch QCDMS **Batch QCMS** KWG0609161-14 KWG0609161-13

t and	Sample		Matrix Spike		Duplic	ate Matrix S	pike	%Rec		RPD
Analyte Name	Result	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Phenol	7.7	157	250	60	153	249	58	14-114	3	40
2-Chlorophenol	ND	142	250	57	135	249	54	10-116	5	40
1,4-Dichlorobenzene	ND	86.1	250	3 5	92.5	249	37	10-72	7	40
N-Nitrosodi-n-propylamine	ND	162	250	65	159	249	64	18-111	2	40
1,2,4-Trichlorobenzene	ND	129	250	52	129	249	52	10-80	0	40
4-Chloro-3-methylphenol	ND	166	250	66	164	249	66	17-120	1	40
Acenaphthene	ND	164	250	66	157	249	63	10-132	4	40
4-Nitrophenol	ND	187	250	75	167	249	67	22-128	12	40
2,4-Dinitrotoluene	ND	187	250	75	181	249	73	30-120	4	40
•		201	250	80	181	249	73	10-145	10	40
Pentachlorophenol Pyrene	8.5	190	250	73	175	249	67	10-136	8	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3A - Organic

SuperSet Reference:

Page RR60410

1 of

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769,005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Extracted: 06/08/2006

Date Analyzed: 06/11/2006

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Extraction Lot: KWG0609161

	KW Lab	Control Samp G0609161-1 Control Spik	0	KW	Lab Control G0609161-1 Lab Control	1	%Rec		RPD
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	Limit
Bis(2-chloroethyl) Ether	113	250	45	113	250	45	41-89	0	40
Phenol	130	250	52	132 -	250	53	35-102	1	40
2-Chlorophenol	114	250	46	115	250	46	35-98	1	40
1,3-Dichlorobenzene	91.9	250	37	91.4	250	37	36-89	1	40
1,4-Dichlorobenzene	93.9	250	38	95.7	250	38	37 -87	2	40
1,2-Dichlorobenzene	102	250	41	108	250	43	39-91	5	40
Benzyl Alcohol	160	250	64	162	250	65	35-88	1	40
Bis(2-chloroisopropyl) Ether	116	250	46	124	250	49	35-90	6 .	40
2-Methylphenol	128	250	51	126	250	50	30-91	2	40
Hexachloroethane	99.4	250	40	102	250	41	37 - 90	3	40
N-Nitrosodi-n-propylamine	131	- 250	52	133	250	5 3	40-100	2	40
4-Methylphenol	137	250	55	138	250	55	28-94	1	40
Nitrobenzene	129	250	51	127	250	51	40-91	2	40
Isophorone	131	250	53	129	250	51	47-101	2	40
2-Nitrophenol	119	250	48	115	250	46	37-100	4	40
2,4-Dimethylphenol	111	250	44	96.5	250	39	10-63	14	40
Bis(2-chloroethoxy)methane	128	250	51	121	250	48	42-89	6	40
2,4-Dichlorophenol	127	250	51	129	250	52	36-100	1	40
Benzoic Acid	66.6	750 ⁻	9 *	119	750	16	10-88	56 *	40
1,2,4-Trichlorobenzene	108	250	43	110	250	44	40-91	- 2	40
Naphthalene	112	250	45	115	250	46	41-90	3	40
4-Chloroaniline	105	250	42	102	250	41	26-78	3	40
Hexachlorobutadiene	102	250	41	103	250	41	37-92	2	40
4-Chloro-3-methylphenol	135	250	54	133	250	53	36-102	1	40
2-Methylnaphthalene	122	250	49	121	250	48	41-87	1	40
Hexachlorocyclopentadiene	82.1	250	33	87.0	250	35	21-98	6	40
2,4,6-Trichlorophenol	137	250	55	132	250	53	37-100	4	40
2,4,5-Trichlorophenol	136 ·	250	55	136	250	55	37-103	0	40
2-Chloronaphthalene	124	250	50	125	250	50	40-94	1	40
2-Nitroaniline	138	250	55	136	250	54	44-96	1	40
Acenaphthylene	143	250	57	133	250	53	49-100	8	40
Dimethyl Phthalate	140	250	56	140	250	56	48-99	0	40
2,6-Dinitrotoluene	159	250	64	152	250	61	50-98	4	40
Acenaphthene	142	250	57	131	250	52	44-92	8	40
3-Nitroaniline	144	250	58	130	250	52	43-93	10	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

SuperSet Reference: RR60410

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Extracted: 06/08/2006

Date Analyzed: 06/11/2006

Lab Control Spike/Duplicate Lab Control Spike Summary Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Units: ug/Kg Basis: Dry

Level: Low

Dunlicate Lab Control Sample

Extraction Lot: KWG0609161

	KW	Control Samp G0609161-10 Control Spik	0 e	KW	Lab Control (G0609161-1) Lab Control	1	%Rec	pph	RPD Limit
Analyte Name	Result	Expected	%Rec	Result	Expected	%Rec	Limits	RPD	
2,4-Dinitrophenol	96.0	250	. 38	165	250	66	14-111	53 *	40
Dibenzofuran	140	250	56	136	250	54	44-91	3	40
4-Nitrophenol	129	250	52	148	250	59	35-120	13	40
2,4-Dinitrotoluene	162	250	65	158	250	63	52-107	2	40
Fluorene	139	250	56	138	250	55	46-97	1	40
4-Chlorophenyl Phenyl Ether	141	250	56	134	250	54	44-97	5 ·	40
Diethyl Phthalate	139	250	56	146	250	58	48-107	4	40
4-Nitroaniline	146	250	59	138	250	55	40-100	6	40
2-Methyl-4,6-dinitrophenol	132	250	53	169	250	68	30-114	25	40
N-Nitrosodiphenylamine	140	250	56	137	250	55	47-108	2	40
4-Bromophenyl Phenyl Ether	146	250	59	. 142	250	57	47-96	3	40
Hexachlorobenzene	149	250	60	146	250	58	46-103	2	40
Pentachlerophenol	138	250	55 -	159	250	63	22-100	14	40
Phenanthrene	159	250	63	154	250	61	50-96	3	40
Anthracene	162	250	65	159	250	64	51-97	2	40
Di-n-butyl Phthalate	173	250	69	182	250	73	51-111	5	40
Fluoranthene	156	250	62	16 5	250	66	53-108	.5	40
Pyrene	165	250	66	176	250	70	50-108	6	40
Butyl Benzyl Phthalate	162	250	65	179	250	71	48-119	10	40
3,3'-Dichlorobenzidine	116	250	46	96.2	250	38	22-94	18	40
Benz(a)anthracene	175	250	70	183	250	73	58-106	5	40
Chrysene	172	250	69	183	250	73	57-111	6	40
Bis(2-ethylhexyl) Phthalate	182	250	73	186	250	75	47-124	2	40
Di-n-octyl Phthalate	174	250	70	180	250	72	41-123	3	40
Benzo(b)fluoranthene	171	250	69	178	250	71	56-104	4	40
Benzo(k)fluoranthene	180	250	72	180	250	72	58-106	0	40
Benzo(a)pyrene	175	250	70	178	250	71	56-107	2	40
Indeno(1,2,3-cd)pyrene	176	250	70	182	250	73	55-107	3	40
Dibenz(a,h)anthracene	175	250	70	181	250	72	55-107	4	40
Benzo(g,h,i)perylene	182	250	73	183	250	73	27-121	1	40

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Form 3C - Organic

SuperSet Reference:

Page RR60410

2 of 2

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574

Date Extracted: 06/08/2006 Date Analyzed: 06/11/2006

Time Analyzed: 07:11

Method Blank Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Method Blank

Lab Code:

File ID: J:\MS10\DATA\061106\0611F002.D

KWG0609161-9

Instrument ID: MS10

Level: Low

Analysis Method:

Extraction Method: EPA 3541 8270C

Extraction Lot: KWG0609161

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	1 ime Analyzed
Lab Control Sample	KWG0609161-10	J:\MS10\DATA\061106\0611F003.D	06/11/06	07:48
Duplicate Lab Control Sample	KWG0609161-11	J:\MS10\DATA\061106\0611F004.D	06/11/06	08:26
Batch QCMS	KWG0609161-13	J:\MS10\DATA\061106\0611F005.D	06/11/06	09:04
Batch QCDMS	KWG0609161-14	J:\MS10\DATA\061106\0611F006.D	06/11/06	09:41
Batch QC	K0604453-001	J:\MS10\DATA\061106\0611F007.D	06/11/06	10:19
NWC-1-22W	K0604574-006	J:\MS10\DATA\061106\0611F014.D	06/11/06	14:15
NWC-1-2W	K0604574-007	J:\MS10\DATA\061106\0611F015.D	06/11/06	14:53
NWC-1-12W	K0604574-010	J:\MS10\DATA\061106\0611F016.D	06/11/06	15:31
NWC-2-39W	K0604574-011	J:\MS10\DATA\061106\0611F017.D	06/11/06	16:09

QA/QC Report

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Lab Control Sample/Duplicate Lab Control Sample Summary Semi-Volatile Organic Compounds by GC/MS

Sample Name:

Lab Control Sample

Lab Code:

KWG0609161-10

File ID:

J:\MS10\DATA\061106\0611F003.D

Instrument ID: Date Extracted:

MS10 06/08/2006 06/11/2006

Date Analyzed: Time Analyzed:

07:48

Sample Name: Duplicate Lab Control Sample

Lab Code: KWG0609161-11

File ID: J:\MS10\DATA\061106\0611F004.D

Service Request: K0604574

Instrument ID: MS10

Date Extracted: 06/08/2006 Date Analyzed: 06/11/2006

Time Analyzed: 08:26

Extraction Method: EPA 3541

Analysis Method:

8270C

Level: Low

Extraction Lot: KWG0609161

These Lab Control Samples apply to the following analyses:

		Date	Time
Lah Code	File ID	Analyzed	Analyzed
		06/11/06	07:11
KWG0609161-9		• • • • • • •	
KWG0609161-13	J:\MS10\DATA\061106\0611F005.D	06/11/06	09:04
KWG0609161-14	J:\MS10\DATA\061106\0611F006.D	06/11/06	09:41
==::=		06/11/06	10:19
		06/11/06	14:15
K0604574-006	J:\MS10\DATA\061106\0611F014.D	00/11/00	
K0604574-007	J:\MS10\DATA\061106\0611F015.D	06/11/06	14:53
120604574 010	I-\M910\DATA\061106\0611F016 D	06/11/06	15:31
		06/11/06	16:09
K0604574-011	J:\MS10\DATA\061106\0611F017.D	00/11/00	10.07
	KWG0609161-14 K0604453-001 K0604574-006	KWG0609161-9 J:\MS10\DATA\061106\0611F002.D KWG0609161-13 J:\MS10\DATA\061106\0611F005.D KWG0609161-14 J:\MS10\DATA\061106\0611F006.D K0604453-001 J:\MS10\DATA\061106\0611F007.D K0604574-006 J:\MS10\DATA\061106\0611F014.D K0604574-007 J:\MS10\DATA\061106\0611F015.D K0604574-010 J:\MS10\DATA\061106\0611F016.D	Lab Code File ID Analyzed KWG0609161-9 J:\MS10\DATA\061106\0611F002.D 06/11/06 KWG0609161-13 J:\MS10\DATA\061106\0611F005.D 06/11/06 KWG0609161-14 J:\MS10\DATA\061106\0611F006.D 06/11/06 K0604453-001 J:\MS10\DATA\061106\0611F007.D 06/11/06 K0604574-006 J:\MS10\DATA\061106\0611F014.D 06/11/06 K0604574-007 J:\MS10\DATA\061106\0611F015.D 06/11/06 K0604574-010 J:\MS10\DATA\061106\0611F016.D 06/11/06

Page

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/11/2006 Time Analyzed: 06:34

Tune Summary Semi-Volatile Organic Compounds by GC/MS

File ID:

J:\MS10\DATA\061106\0611T001.D

Analysis Method: 8270C

Instrument ID:

MS10

Analysis Lot: KWG0609518

Column:

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail	
51	198	30	80	60.7	187040	PASS	
68	69	. 0	2	0.0	0	PASS	
69	198	0	100	64.9	200209	PASS	
70	69	0	. 2	0.0	0	PASS	
127	198	25	75	45.4	140095	PASS	
197	198	0	I	0.0	0	PASS	
198	198	100	100	100.0	308275	PASS	
199	198	5	. 9	6.8	20819	PASS	
275	198	10	30	22.0	67797	PASS	
365	198	1.	100	2.8	8672	PASS	
441	. 443	0	100	34.8	13184	PASS	
442	198	40	110	64.7	199453	PASS	
443	442	15	24	19.0	37898	PASS	

•-			Date	1 me	
Sample Name	Lab Code	File ID	Analyzed	Analyzed	Q
Continuing Calibration Verification	KWG0609518-2	J:\MS10\DATA\061106\0611F001.D	06/11/2006	06:34	
Method Blank	KWG0609161-9	J:\MS10\DATA\061106\0611F002.D	06/11/2006	07:11	
Lab Control Sample	KWG0609161-10	J:\MS10\DATA\061106\0611F003.D	06/11/2006	07:48	
Duplicate Lab Control Sample	KWG0609161-11	J:\MS10\DATA\061106\0611F004.D	06/11/2006	08:26	
Batch QCMS	KWG0609161-13	J:\MS10\DATA\061106\0611F005.D	06/11/2006	09:04	
Batch QCDMS	KWG0609161-14	J:\MS10\DATA\061106\0611F006.D	06/11/2006	09:41	
Batch QC	K0604453-001	J:\MS10\DATA\061106\0611F007.D	06/11/2006	10:19	
NWC-1-22W	K0604574-006	J:\MS10\DATA\061106\0611F014.D	06/11/2006	14:15	
NWC-1-2W	K0604574-007	J:\MS10\DATA\061106\0611F015.D	06/11/2006	14:53	
NWC-1-12W	K0604574-010	J:\MS10\DATA\061106\0611F016.D	06/11/2006	15:31	
NWC-2-39W	K0604574-011	J:\MS10\DATA\061106\0611F017.D	06/11/2006	16:09	

Results flagged with an asterisk (*) indicate the analysis performed outside specified tune window

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Form 5 - Organic

1 of 1 Page SuperSet Reference:

771

QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Level

Service Request: K0604574

Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Level

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Level

Level ID	File ID
A .	J:\MS10\DATA\051106\0511F003.D
В	J:\MS10\DATA\051106\0511F004.D
C	J:\MS10\DATA\051106\0511F005.D
D	J:\MS10\DATA\051106\0511F006.D
F	J:\MS10\DATA\051106\0511F007.D

Level ID	File 1D
F	J:\MS10\DATA\051106\0511F008.D
G	J:\MS10\DATA\051106\0511F009.D
H	J:\MS10\DATA\051106\0511F010.D
I	J:\MS10\DATA\051106\0511F011.D·

Level

Level

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	ID ID	Amt	RRF	ID	Amt	RRF	ID	Amt	RRF
Bis(2-chloroethyl) Ether	A	100	1.48	В	200	1.27	С	500	1.34	D	1000	1.29	E	2000	1.34
	F	3000	1.22	G	4000	1.23	Н	5000	1.16	I	6000	1.14			
‡ Phenol	A	100	1.90	В	200	1.57	С	500	1.63	D	1000	1.59	E	2000	1.50
	F	3000	1.33	G	4000	1.37	Н	5000	1.28	I	6000	1.26	<u>.</u>		
2-Chlorophenol		100	1.38	В	200	1.27	С	500	1.31	D	1000	1.30	E	2000	1.34
•	F	3000	1.28	G	4000	1.28	Н	5000	1.20	I	6000	1.21			
1,3-Dichlorobenzene	A	100	1.67	В	200	1.51	С	500	1.53	D	1000	1.51	Е	2000	1.52
	F	3000	1.38	G	4000	1.42	H	5000	1.38	I	6000	1.36			
‡ 1,4-Dichlorobenzene	A	100	1.71	В	200	1.56	С	500	1.51	D	1000	1.50	E	2000	1.51
	F	3000	1.37	Ğ	4000	1.41	Н	5000	1.36	I	6000	1.34			
1,2-Dichlorobenzene	A	- 100	. 1.62	В	200	1.39	С	500	1.38	D	1000	1.37	E	2000	1.30
· ·	F	3000	1.20	. G	4000	1.23	Н	5000	1.18	I	6000	1.14			
Benzyl Alcohol	A	100	0.548	В	200	0.557	С	500	0.615	D	1000	0.623	E	2000	0.618
•	F	3000	0.579	G	4000	0.595	Н	5000	0.567	<u>I</u>	6000	0.561			·
Bis(2-chloroisopropyl) Ether	A	100	2.86	В	200	2.52	С	500	2.50	D	1000	2.41	E	2000	2.25
many frage of the second	F	3000	2.10	G	4000	2.15	Н -	5000	2.03	1	6000	1.98			<u> </u>
2-Methylphenol	A	100	1.01	В	200	0.917	c	500	0.919	D	1000	0.918	Ε	2000	0.886
	F	3000	0.831	G	4000	0.823	H	5000	0.785	I	6000	0.755			<u></u>
Hexachloroethane	A	100	0.736	В	200	0.646	С	500	0.618	D	1000	0.627	Е	2000	0.634
·	F	3000	0.592	G	4000	0.583	H	5000	0.574	I	6000	0.560			·
N-Nitrosodi-n-propylamine	A	100	0.952	В	200	0.870	С	500	0.839	D	1000	0.878	E	2000	0.887
	F	3000	0.806	G	4000	0.821	Η	5000	0.815	I	6000	0.772			
4-Methylphenol	A	100	1.47	В	200	1.20	С	500	1.27	D	1000	1.26	E	2000	1.25
	F	3000	1.18	. G	4000	1.15	H	5000	1.15	I	6000	1.13			
Nitrobenzene	A	100	1.43	В	200	1.29	С	500	1.23	D	1000	1.27	E	2000	1.25
	F	3000	1.21	G	4000	1.26	Н	5000	1.21	I	6000	1.20			
Isophorone	A	100	0.747	В	200	0.710	С	500	0.714	D	1000	0.706	E	2000	0.692
	F	3000	0.652	G	4000	0.672	H	5000	0.671	I	6000	0.652			

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6A - Organic

1 of 7 Page SuperSet Reference:

772

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769,005/4

Service Request: K0604574

Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Analyte Name	Level ID	Amt	RRF	Level ID		RRF	Level ID	Amt	RRF	Level ID		RRF	Level ID	Amt	RRF
‡ 2-Nitrophenol	A	100	0.189	В	200	0.185	С	500	0.189	D	1000	0.203	Е	2000	0,214
	F	3000	0.198	G	4000	0.198	Н	5000	0.200	I	6000	0.191			
2,4-Dimethylphenol	A	100	0.301	В	200	0.280	С	500	0.285	D	1000	0.286	E	2000	0.269
<u> </u>	F	3000	0.260	G	4000	0.251	Н	5000	0.247	I	6000	0.246			
Bis(2-chloroethoxy)methane	A	100	0.482	В	200	0.424	С	500	0.430	D	1000	0.422	E	2000	0.446
	F	3000	0.385	G	4000	0.389	Н	5000	0.391	I	6000	0.374		.g7 ="·	<u> </u>
‡ 2,4-Dichlorophenol	A	100	0.310	В	200	0.302	С	500	0.293	D	1000	0.301	Ε	2000	0.305
· ·	F	3000	0.282	G	4000	0.289	Н	5000	0.282	I	6000	0.272			
Benzoic Acid		+					,			D	1000	0.0903	E	2000	0.138
	F	3000	0.137	G	4000	0.169	H	5000	0.167	1	6000	0.171			
1,2,4-Trichlorobenzene	A	100	0.375	В	200	0.350	С	500	0.345	D	1000	0.342	E	2000	0.353
	F	3000	0.318	G	4000	0.326	Η	5000	0.326	I	6000	0.314			
Naphthalene	A	100	1.07	В	200	0.928	С	500	0.955	D	1000	0.974	Ε	2000	0.978
	F	3000	0.875	G	4000	0.888	H	5000	0.855	I	6000	0.852			
4-Chloroaniline	A	100	0.457	В	200	0.414	С	500	0.408	D	.1000	0.408	E	2000	0.412
-	F	3000	0.399	G	4000	0.391	H	5000	0.387	1	6000	0.380	,		•
‡ Hexachlorobutadiene	A	100	0:209	В	. 200	0.197	C	500	0.187	D	1000	0.192	E	2000	0.199
	F	3000	0.183	G	4000	0.190	H	5000	0.189	I	6000	0.189			
‡ 4-Chloro-3-methylphenol	A	100	0.311	В	200	0.287	С	500	0.287	D	1000	0.291	E	2000	0.295
	F	3000	0.274	G	4000	0.265	H	5000	0.278	I	6000	0.271			
2-Methylnaphthalene	A	100	0.607	В	200	0.553	С	500	0.564	D	1000	0.569	E	2000	0.571
	F	3000	0.514	G	4000	0.525	H	5000	0.505	I	6000	0.499			
† Hexachlorocyclopentadiene							С	500	0.286	D	1000	0.327	Ε	2000	0.381
	F	3000	0.376	G	4000	0.399	H	5000	0.403	I	6000	0.426			
‡ 2,4,6-Trichlorophenol	A	100	0.425	В	200	0.391	С	500	0.375	D	1000	0.389	E	2000	0.413
	F	3000	0.390	G	4000	0.409	Н	5000	0.399	I	6000	0.424			
2,4,5-Trichlorophenol	<u>A</u>	100	0.424	В	200	0.403	C	500	0.407	D	1000	0.416	E	2000	0.461
	F	3000	0.429	G	4000	0.459	H	5000	0.440	I	6000	0.465			
2-Chloronaphthalene	<u>A</u>	100	0.508	В	200	0.455	С	500	0.429	D	1000	0.426	E	2000	0.463
	F	3000.	0.429	G	4000	0.437	H	5000	0.436	I	6000	0.436			
2-Nitroaniline	A	100	0.462	В	200	0.390	С	500	0.417	D	1000	0.410	È	2000	0.439
· · · · · · · · · · · · · · · · · · ·	F	3000	0.426	G	4000	0.443	H	5000	0.449	I	6000	0.460			
Acenaphthylene	A	100	1.98	В	200	1.78	С	500	1.77	D	1000	1.65	Е	2000	1.80
	F	3000	1.60	G	4000	1.75	H	5000	1.75	Ι	6000	1.67			

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6A - Organic

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SuperSet Reference:

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Analyte Namé	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
Dimethyl Phthalate	A	100	1.53	В	200	1.39	С	500	1.30	D	1000	1.34	Е	2000	1.40
Dimenty i maaato	F	3000	1.33	G	4000	1.39	Н	5000	1.37	I	6000	1.39			
2,6-Dinitrotoluene	A	100	0.298	В	200	0.294	С	500	0.299	D	1000	0.323	Е	2000	0.350
2,0 Diminololiono	F	3000	0.347	G	4000	0.357	Н	5000	0.347	I	6000	0.360			
‡ Acenaphthene	A	100	1.20	В	200	1.06	С	500	1.06	D	1000	1.04	E	2000	1.09
· riconaphanone	F	3000	1.00	G	4000	1.01	Н	5000	0.994	I	6000	1.03			
3-Nitroaniline	A	100	0.386	В	200	0.348	С	500	0.350	D	1000	0.369	Е	2000	0.391
J IIII	F	3000	0.363	G	4000	0,381	Н	5000	0.386	I	6000	0.384			
† 2,4-Dinitrophenol					•					D	1000	0.0666	E	2000	0.117
э, г эминории	F	3000	0.146	G	4000	0.173	Н	5000	0.182	1	6000	0.213			
Dibenzofuran	A	100	1.92	В	200	1.73	С	500	1.71	D	1000	1.71	Е	2000	1.68
	F	3000	1.60	G	4000	1.62	Н	5000	1.61		6000	1.62			
† 4-Nitrophenol			<u>,</u>	В	200	0.178	С	500	0.198	D	1000	0.212	Е	2000	0.241
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F	3000	0.242	G	4000	0.253	Н	5000	0.257	I	6000	0.266			
2,4-Dinitrotoluene	A	100	0.403	В	200	0.376	С	500	0.414	D	1000	0.443	Е	2000	0.472
-, · 	F	3000	0.462	G	4000	0.485	Н	5000	0.483	<u> 1</u>	6000	0.506			
Fluorene	A	100	1.51	В	200	1.36	С	500	1.29	D	1000	1.31	E	2000	1.34
	F	3000	1.26	G	4000	1.28	.Н_	5000	1.27	ľ	6000	1.29			
4-Chlorophenyl Phenyl Ether	A	100	0.743	В	200	0.662	С	500	0.641	D	1000	0.636	E	2000	0.656
• •	F	3000	0.624	G	4000	0.640	H_	5000	0,649	Ι	6000	0.667			
Diethyl Phthalate	A .	100	1.66	В	200	1.49	c	500	1.39	D	1000	1.42	. E	2000	1.49
•	Ė	3000	1.40	G	4000	1.45	Н_	5000	1.41	I	6000	1.43		·	
4-Nitroaniline	A	100	0.365	В	200	0.347	С	500	0.356	D	1000	0.381	E	2000	0.402
• •	F	3000	0.397	G	4000	0.406	H	5000	0.404	I	6000	0.416			
2-Methyl-4,6-dinitrophenol							С	500	0.124	D	1000	0.173	E	2000	0.234
	F	3000	0.255	G	4000	0.273	Н	5000	0.268	I	6000	0.289			
N-Nitrosodiphenylamine	A	100	1.16	В	200	1.06	С	500	1.04	D	1000	1.07	E	2000	1.05
• ,	F	3000	1.02	G	4000	1.03	H	5000	1,04	I	6000	1.08			
4-Bromophenyl Phenyl Ether	A	100	0.249	В	200	0.236	С	500	0.237	D	1000	0.239	E	2000	0.247
	F	3000	0.231	G	. 4000	0.235	Н	5000	0.229	I		0.228		.	
Hexachlorobenzene	A	100	0.296	В	200	0,266	С	500	0.256	D	1000	0.258	E	2000	0.274
	F	3000	0.254	G	4000	0.268	H	5000	0.262	I		0.264			
Pentachlorophenol							С	500	0.116	D	1000	0.135	Е	2000	0.157
*	F	3000	0.152	G	4000	0.162	Н	5000	0.164	I	6000	0.165			

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6A - Organic

RR60410 SuperSet Reference:

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QA/QC Results

Client: Project:

Geomatrix Consultants, Incorporated

NW Corner-FRP/8769,005/4

Service Request: K0604574
Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Analyte Name	Leve ID	el Amt	RRF	Level ID	l Amt	RRF	Level ID	Amt	RRF	Level ID		RRF	Level ID	Amt	RRF
Phenanthrene	A	100	1.37	В	200	1.21	С	500	1.21	D	1000	1.18	Е	2000	1.24
	F	3000	1.14	G	4000	1.12	Н	5000	1.11	I	6000	1.08	i		
Anthracene	Α	100	1.32	В	200	1.21	С	500	1.23	D	1000	1.20	E	2000	1.25
	F	3000	1.17	G	4000	1.17	Н	5000	1.13	I	6000	1.10]	••••••	
Di-n-butyl Phthalate	A	100	1.57	В	200	1.45	С	500	1.48	D	1000	1.47	Е	2000	1.51
	F	3000	1.39	G	4000	1.39	Н	5000	1.34	I	6000	1.31			
‡ Fluoranthene	A	100	1.37	В	200	1.24	С	500	1.21	ם	1000	1.19	E	2000	1.25
	F	3000	1.14	G	4000	1.19	Н	5000	1.17	I	6000	1.13			
Pyrene	Α	100	1.48	В	200	1.41	С	500	1.37	D	1000	1.37	E	2000	1.41
	F	3000	1.32	G	4000	1.32	Н	5000	1.32	I	6000	1.29			
Butyl Benzyl Phthalate	A	100	0.736	В	200	0.680	С	500	0.672	D	1000	0.678	Ε	2000	0.719
<u> </u>	F	3000	0.668	G	4000	0.662	·Н	5000	0.652	I	6000	0.635			
3,3'-Dichlorobenzidine	<u>A</u>	100	0.456	В	200	0.427	С	500	0.435	D	1000	0.442	E	2000	0.467
	F	3000	0.440	G	4000	0.465	н	5000	0.469	I	6000	0.458			
Benz(a)anthracene	A	100	1.20	В	200	1.10	С	500	1.10	D	1000	1.10	E	2000	1.16
-	F	3000	1.07	G	4000	1.11	н	5000	1.11	I	6000	1.09			
Chrysene	<u>A</u>	100	1.15	В	200	1.06	C	500	1.07	D	1000	1.07	Е	2000	1.12
	F	3000	1.05	G	4000	1.06	H	5000	1.07	I	6000	1.04			
Bis(2-ethylhexyl) Phthalate	Α	100	0.911	В	200	0.869	С	500	0.884	D	1000	0.909	Е	2000	0.941
	F	3000	0.885	G	4000	0.887	H	5000	0.856	I	6000	0.838			
Di-n-octyl Phthalate	A	100	1.89	В	200	1.82	-c	500	2.00	D	1000	2.04	E	2000	2.18
	F	3000	2.00	G	4000	2.04	Н -	5000	1.98	I	6000	1.94			
Benzo(b)fluoranthene	Α	100	1.33	В	200	1.24	C	500	1.28	D	1000	1.30	E	2000	1.39
	F	3000	1.31	G	4000	1.35	H	5000	1.36	I	6000	1.30			
Benzo(k)fluoranthene	<u>A</u>	100	1.36	В	200	1.28	С	500	1.36	D	1000	1.35	E	2000	1.46
	F	3000	1.34	G	4000	1.39	H	5000	1.37	I	6000	1.35			
Benzo(a)pyrene	<u>A</u>	100	1.31	В	200	1.16	С	500	1.23	D	1000	1.25	E	2000	1.33
	F	3000	1.22	G	4000	1.28	H	5000	1.26	I	6000	1.25			
Indeno(1,2,3-cd)pyrene	A	100	1.13	В	200	0.968	С	500	1.03	D	1000	1.06	Е	2000	1.13
	F		1.09	G	4000	1.15		5000	1.13	I	6000	1.15			
Dibenz(a,h)anthracene	A	100	1.05	В	200	0.977	C	500	1.03	D	1000	1.07	Е	2000	1.16
	F		1.09	G		1.19			1.18	I	6000	1.19			
Benzo(g,h,i)perylene	<u>A</u>	100		В	200	1.11	С	500	1.13	D	1000	1.15	E	2000_	1.25
	F	3000	1.16	G	4000	1.24	Н	5000	1.22	I	6000	1.22			

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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SuperSet Reference: RR60410

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574 Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Analyte Name	Level ID	Amt	RRF	Level ID	Amt	RRF	Level ID,	Amt	RRF	Level ID	Amt	RRF	Level ID	Amt	RRF
2-Fluorophenol	A	100	1.40	В	200	1.26	C	500	1.30	D	1000	1.33	E	2000	1.42
2 I Iudiophonor	F	3000	1.36	G	4000	1.38	H	5000	1.34	I	6000	1.35			
Phenol-d6	A	100	1.58	В	200	1.43	С	500	1.52	D	1000	1.54	E	2000	1.50
1 Honor do	F	3000	1.34	G	4000	1.36	Н	5000	1.25	I	6000	1.23	<u> </u>		.,
Nitrobenzene-d5	A	100	1.51	В	200	1.34	С	500	1.34	D	1000	1.38	Е	2000	1.39
THEODOREOUS US	F	3000	1.35	G	4000	1.39	H	5000	1.33	I	6000	1. <u>34</u>	İ 		
2-Fluorobiphenyl	A	100	1.45	В	200	1.34	C	500	1.28	D	1000	1.30	Е	2000	1.38
z ruo.corpionji	F	3000	1.27	G	4000	1.30	Н	5000	1.31	I	6000	1.31	<u>.</u>		
2,4,6-Tribromophenol	A	100	0.130	В	200	0.135	· C	500	0.132	D	1000	0.139	Е	2000	0.150
L, 1, 0 IIIOIOMOPHONO	F	3000	0.144	G	4000	0.150	Н	5000	0.151	I	6000	0.154			
Terphenyl-d14	A	100	1.01	В	200	0.959	С	500	0.911	D	1000	0.935	Е	2000	0.955
rochionite ar i	 F	3000	0.885	G	4000	0.928	Н	5000	0.910	I	6000	0.909			

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

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Form 6A - Organic

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

			Calibration	on Evaluat	ion		RRF	Evalı	ıation
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
Bis(2-chloroethyl) Ether	TRG	AverageRF	% RSD	8.2		≤ 15	1.27	•	0.01
‡ Phenol	MS	AverageRF	% RSD	13.9		≤ 15	1.49		0.01
2-Chlorophenol	MS	AverageRF	% RSD	4.4		≤ 15	1.28		0.01
1,3-Dichlorobenzene	TRG	AverageRF	%RSD	6.7		≤ 15	1.47		0.01
‡ 1,4-Dichlorobenzene	MS	AverageRF	% RSD	8.0		≤ 15	1.48	•	0.01
1,2-Dichlorobenzene	TRG	AverageRF	% RSD	11.3		≤ 15	1.31		0.01
Benzyl Alcohol	TRG	AverageRF	% RSD	4.9		≤ 15	0.585		0.01
Bis(2-chloroisopropyl) Ether	TRG	AverageRF	% RSD	12.3		≤ 15	2.31		0.01
2-Methylphenol	TRG	AverageRF	% RSD	9.2		≤ 15	0.872		0.01
Hexachloroethane	TRG	AverageRF	% RSD	8.5		≤ 15	0.619		0.01
† N-Nitrosodi-n-propylamine	MS	AverageRF	%RSD	6.3		≤ 15	0.849		0.05
4-Methylphenol	TRG	AverageRF	% RSD	8.5		≤15	1.23		0.01
Nitrobenzene	TRG	AverageRF	% RSD	5.5		≤ 15	1,26		0.01
Isophorone	TRG	AverageRF	% RSD	4.6		≤ 15	0.691		0.01
‡ 2-Nitrophenol	TRG	AverageRF	% RSD	4.6		≤ 15	0.196		0.01
2,4-Dimethylphenol	TRG	AverageRF	% RSD	7.3		≤ 15	0.269		0.01
Bis(2-chloroethoxy)methane	TRG	AverageRF	% RSD	8.3		≤ 15	0.416		0.01
[‡] 2,4-Dichlorophenol	TRG	AverageRF	% RSD	^ 4.4		≤ 15	0.293		
Benzoic Acid	TRG	Quadratic	COD	0.995		≥0.990	0.145	ŝ	0.01
1,2,4-Trichlorobenzene	MS	AverageRF	% RSD	5.8		≤ 15	0.339		0.01
Naphthalene	TRG	AverageRF	% RSD	7.8		≤ 15	0.931		0.01
4-Chloroaniline	TRG	AverageRF	% RSD	5.5		≤ 15	0.406		0.01
Hexachlorobutadiene	TRG	AverageRF	% RSD	4.1		≤ 15	0.193		0.01
4-Chloro-3-methylphenol	MS	AverageRF	% RSD	5.0		≤ 15	0.284		0.01
2-Methylnaphthalene	TRG	AverageRF	% RSD	6.7		≤ 15	0.545		0.01
Hexachlorocyclopentadiene	TRG	AverageRF	% RSD	13.1		≤ 15	0.371		0.05
2,4,6-Trichlorophenol	TRG	AverageRF	% RSD	4.3		≤ 15	0.402		0.01
2,4,5-Trichlorophenol	TRG	AverageRF	% RSD	5.5		≤ 15	0.434		0.01
2-Chloronaphthalene	TRG	AverageRF	% RSD	5.8		≤ 15	0.447		0.01
2-Nitroaniline	TRG	AverageRF	% RSD	5.6		≤ 15	0,433		0.01
Acenaphthylene	TRG	AverageRF	% RSD	6.2		≤ 15	1.75		0.01
Dimethyl Phthalate	TRG	AverageRF	% RSD	4.6		≤ 15	1.38		0.01
2,6-Dinitrotoluene	TRG	AverageRF	% RSD	8.2		≤ 15	0.330		0.01
Acenaphthene	MS	AverageRF	% RSD	6.0		≤15	1.05		0.01
3-Nitroaniline	TRG	AverageRF	% RSD	4.4		≤15	0.373		0.01
2,4-Dinitrophenol	TRG	Quadratic	COD	0.998		≥0.990	0.150		0.05
Dibenzofuran	TRG	AverageRF	% RSD	5.9		≤15	1,69		0.01
4-Nitrophenol	MS	AverageRF	% RSD	13.6		≤ 15	0.231		0.05
2,4-Dinitrotoluene	MS	AverageRF	% RSD	9.7		≤ 15	0.449		0.01
Fluorene	TRG	AverageRF	% RSD	5.8		= 15 ≤ 15	1.32		0.01
4-Chlorophenyl Phenyl Ether	TRG	AverageRF	% RSD	5.3		- 15 ≤ 15	0.658		0.01
Diethyl Phthalate	TRG	AverageRF	% RSD	5.6		≤ 15	1.46		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6A - Organic

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Calibration Date: 05/11/2006

Initial Calibration Summary Semi-Volatile Organic Compounds by GC/MS

Calibration ID: Instrument ID:

CAL5348

MS10

Column: MS

Instrument ID. 141510		<u> </u>	Calibratio	n Evaluat	ion		RRF	Evalt	ation
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
4-Nitroaniline	TRG	AverageRF	% RSD	6.4		≤ 15	0.386		0.01
2-Methyl-4,6-dinitrophenol	TRG	Quadratic	COD	0.999		≥0.990	0.231		0.01
N-Nitrosodiphenylamine	TRG	Linear	R2	0.999		≥0.990	1.06		0.01
4-Bromophenyl Phenyl Ether	TRG	AverageRF	% RSD	3.3		≤ 15	0.237		0.01
Hexachlorobenzene	TRG	AverageRF	% RSD	4.8		≤ 15	0.266		0.01
‡ Pentachlorophenol	MS	AverageRF	% RSD	12.3	•	≤ 15	0.150		0.01
Phenanthrene	TRG	AverageRF	% RSD	7.6		≤15	1.18		0.01
Anthracene	TRG	AverageRF	% RSD	5.5	٠.	≤ 15	1.20		0.01
Di-n-butyl Phthalate	TRG	AverageRF	% RSD	5.9		≤ 15	1.44		0.01
‡ Fluoranthene	TRG	AverageRF	% RSD	5.9		≤ 15	1.21		0.01
Pyrene	MS	AverageRF	% RSD	4.5		≤ 15	1.37		0.01
Butyl Benzyl Phthalate	TRG	AverageRF	% RSD	4.6		≤ 15	0,678		0.01
3,3'-Dichlorobenzidine	TRG	AverageRF	% RSD	3.4		≤ 15	0.451		0.01
Benz(a)anthracene	TRG	AverageRF	% RSD	3.5	•	≤ 15	1.11		0.01
Chrysene	TRG	AverageRF	% RSD	3.4		≤ 15	1.08		0.01
Bis(2-ethylhexyl) Phthalate	TRG	AverageRF	% RSD	3.5		≤ 15	0,887		0.01
Di-n-octyl Phthalate	TRG	AverageRF	% RSD	5.1		≤15	1.99		0.01
Benzo(b)fluoranthene	TRG	AverageRF	% RSD	3.4	*	≤ 15	1.32		0.01
Benzo(k)fluoranthene	TRG	AverageRF	% RSD	3.5		≤15	1.36		0.01
‡ Benzo(a)pyrene	TRG	AverageRF	% RSD	4.1		≤ 15	1.25		0.01
Indeno(1,2,3-cd)pyrene	TRG	AverageRF	% RSD	5.8		≤ 15	1.09		0.01
Dibenz(a,h)anthracene	TRG	AverageRF	% RSD	7.1		≤ 15	1.10		0.01
Benzo(g,h,i)perylene	TRG	AverageRF	% RSD	4.4		≤15	1.19		0.01
2-Fluorophenol	SURR	AverageRF	% RSD	3.7		≤ 15	1.35		0.01
Phenol-d6	SURR	AverageRF	% RSD	8.9		≤ 15	1.42		0.01
Nitrobenzene-d5	SURR	AverageRF	% RSD	4.0		≤ 15	1.37		0.01
2-Fluorobiphenyl	SURR	AverageRF	% RSD	4.2		≤15	1.33		0.01
2,4,6-Tribromophenol	SURR	AverageRF	% RSD	6.1		≤15	0.143		0.01
Terphenyl-d14	SURR	AverageRF	% RSD	4.1		≤15	0.934		0.01

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

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Form 6A - Organic

RR60410 SuperSet Reference:

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574 Calibration Date: 05/11/2006

Date Analyzed: 05/11/2006

Units: ng/ml

Second Source Calibration Verification Semi-Volatile Organic Compounds by GC/MS

Calibration Type: Analysis Method:

Internal Standard

8270C

Calibration ID: CAL5348

File ID:

J:\MS10\DATA\051106\0511F012,D

J:\MS10\DATA\051106\0511F013.D

Analyte Name	Expected	Result	Average RF	SSV RF	% D	%Drift	Criteria	Curve Fit
Bis(2-chloroethyl) Ether	3000	2700	1.27	1.14	-10	NA	± 30 %	AverageRF
‡ Phenol	3000	2600	1.49	1.30	-13	NA	± 20 %	AverageRF
2-Chlorophenol	3000	2800	1.28	1.20	-7	NA	± 30 %	AverageRF
1,3-Dichlorobenzene	3000	2700	1.47	1.32	-10	NA	± 30 %	AverageRF
‡ 1,4-Dichlorobenzene	3000	2700	1.48	1.33	-10	NA	± 20 %	AverageRF
1,2-Dichlorobenzene	3000	2600		1.14	-13	NA	± 30 %	AverageRF
Benzyl Alcohol	3000	3200	0.585	0.625	7	NA	± 30 %	AverageRF
Bis(2-chloroisopropyl) Ether	3000	2500	2.31	1.96	-15	NA	± 30 %	AverageRF
2-Methylphenol	3000	2700	0.872	0.790	-9	NA	± 30 %	AverageRF
Hexachloroethane	3000	2700	0.619	0.563	-9	NA	± 30 %	AverageRF
† N-Nitrosodi-n-propylamine	3000	2600	0.849	0.744	-12	NA	\pm 30 %	AverageRF
4-Methylphenol	3000	2800	1.23	1.15	- 6	NA	± 30 %	AverageRF
Nitrobenzene	3000	2700	1.26	1.15	-8	NA	\pm 30 %	AverageRF
Isophorone	3000	2400	0.691	0.547	-21	NA.	± 30 %	AverageRF
‡ 2-Nitrophenol	3000	2900	0.196	0.191	-3	NA .	± 20 %	AverageRF
2,4-Dimethylphenol	3000	2900	0.269	0,256	-5	NA	± 30 %	AverageRF
Bis(2-chloroethoxy)methane	3000	2600	0.416	0.356	-14	NA	±30 %	AverageRF
‡ 2,4-Dichlorophenol	3000	2800	0.293	0.274	-6	NA	± 20 %	AverageRF
Benzoic Acid	3000	2600	0.145	0.124	NA	-14	± 30 %	Quadratic
1,2,4-Trichlorobenzene	3000	2600	0.339	0.298	-12	NA	± 30 %	AverageRF
Naphthalene	3000	2800	0.931	0.857	-8	NA	± 30 %	AverageRF
4-Chloroaniline	3000	2800	0.406	0.381	-6	NA	± 30 %	AverageRF
‡ Hexachlorobutadiene	3000	2800	0.193	0.177	-8	NA.	± 20 %	AverageRF
‡ 4-Chloro-3-methylphenol	3000	2900	0.284	0.271	-5	NA	\pm 20 %	AverageRF
2-Methylnaphthalene	3000	2900	0.545	0.522	-4	NA	\pm 30 %	AverageRF
† Hexachlorocyclopentadiene	3000	2400	0.371	0.292	-21	NA	± 30 %	AverageRF
‡2,4,6-Trichlorophenol	3000	2800	0.402	0.371	-8	NA	\pm 20 %	AverageRF
2,4,5-Trichlorophenol	3000	2800	0.434	0.404	-7	NA	\pm 30 %	AverageRF
2-Chloronaphthalene	3000	2600	0.447	0.392	-12	NA	± 30 %	AverageRF
2-Nitroaniline	3000	3100	0.433	0.442	2	NA	\pm 30 %	AverageRF
Acenaphthylene	3000	2400	1.75	1.41	-20	NA	\pm 30 %	AverageRF
Dimethyl Phthalate	3000	2700	1.38	1.23	-11	NA	± 30 %	AverageRF
2,6-Dinitrotoluene	3000	2800	0.330	0.313	-5	NA	\pm 30 %	AverageRF
‡ Acenaphthene	3000	2600	1.05	0.907	-14	NA	± 20 %	AverageRF
3-Nitroaniline	3000	2900	0.373	0.358	-4	NA	± 30 %	AverageRF
† 2,4-Dinitrophenol	3000	3100	0.150	0.152	NA	3	\pm 30 %	Quadratic
Dibenzofuran	3000	2800	1.69	1.56	-8	NA	± 30 %	AverageRF
† 4-Nitrophenol	3000	2900	0.231	0.223	-3	NA	\pm 30 %	AverageRF
2,4-Dinitrotoluene	3000	2800	0.449	0.419	-7	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6B - Organic

Page 1 of 2 SuperSet Reference: RR60410

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574 Calibration Date: 05/11/2006

Date Analyzed: 05/11/2006

Second Source Calibration Verification Semi-Volatile Organic Compounds by GC/MS

Calibration Type: Analysis Method:

Internal Standard

8270C

Calibration ID: CAL5348

Units: ng/ml

And Late Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Analyte Name					-11	NA	± 30 %	AverageRF
Fluorene	3000	2700	1.32	1.18	-11 -12	NA NA	± 30 %	AverageRF
4-Chlorophenyl Phenyl Ether	3000	2600	0.658	0.576		NA NA	± 30 %	AverageRF
Diethyl Phthalate	3000	2600	1.46	1.26	-14 1	NA NA	± 30 %	AverageRF
4-Nitroaniline	3000	3000	0.386	0.389		3	± 30 %	Quadratic
. 2-Methyl-4,6-dinitrophenol	3000	3100	0.231	0.263	NA .		± 20 %	Linear
‡ N-Nitrosodiphenylamine	3000	2400	1.06	0.846	NA.	-19	± 20 %	AverageRF
4-Bromophenyl Phenyl Ether	3000	2800	0.237	0.217	-8 .	NA		AverageRF
Hexachlorobenzene	3000	2700	0.266	0.235	-12	NA	± 30 %	AverageRF
‡ Pentachlorophenol	3000	3300	0.150	0.163	9	NA	± 20 %	
Phenanthrene	3000	2600	1.18	1.04	-12	NA	± 30 %	AverageRF
Anthracene	3000	2700	1.20	1.07	-11	NA	± 30 %	AverageRF
Di-n-butyl Phthalate	3000	2600	1.44	1.25	-13	NA	± 30 %	AverageRF
‡ Fluoranthene	3000	2600	1.21	1.05	-13	NA	± 30 %	AverageRF
Pyrene	3000	3000	1.37	1.35	-1	NA	± 30 %	AverageRF
Butyl Benzyl Phthalate	3000	3000	0.678	0.684	1	NA	± 30 %	AverageRF
3,3'-Dichlorobenzidine	3000	2800	0.451	0.424	- 6	NA	± 30 %	AverageRF
Benz(a)anthracene	3000	2900	1.11	1.06	-4	NA	± 30 %.	AverageRF
Chrysene	3000	2900	1.08	1.06	-2	NA	± 30 %	AverageRF
Bis(2-ethylhexyl) Phthalate	3000	3100	0.887	0.905	2	NA	± 30 %	AverageRF
‡ Di-n-octyl Phthalate	3000	3300	1.99	2.21	11	NA	± 20 %	AverageRF
Benzo(b)fluoranthene	3000	3300	1.32	1.47	· 11	NA	± 30 %	AverageRF
Benzo(k)fluoranthene	3000	3200	1,36	1.45	6	NA	± 30 %	AverageRF
‡ Benzo(a)pyrene	3000	3300	1.25	1.37	9	NA	± 20 %	AverageRF
Indeno(1,2,3-cd)pyrene	3000	3500	1.09	1.27	16	NA	± 30 %	AverageRF
Dibenz(a,h)anthracene	3000	3300	1.10	1.23	12	NA	± 30 %	AverageRF
Benzo(g,h,i)perylene	3000	3300	1.19	1.30	10	· NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 6B - Organic

RR60410 SuperSet Reference:

Page

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574 Date Analyzed: 06/11/2006

Continuing Calibration Verification Summary Semi-Volatile Organic Compounds by GC/MS

Calibration Type:

Internal Standard

Analysis Method:

8270C

CCV Standard ID:

SVM22-11C

Calibration Date: 05/11/2006

Calibration ID: CAL5348

Analysis Lot: KWG0609518

Units: ng/ml

File ID:

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Analyte Name	Emported	Result	Min RF	Average RF	CCV RF	%D	%Drift	Marte at a	C Tit
·	Expected							Criteria	Curve Fit
Bis(2-chloroethyl) Ether	3000	2900	0.01	1.27	1.23	- 3	NA	± 30 %	AverageRF
‡ Phenol	3000	2900	0.01	1.49	1.42	-5	NA	± 20 %	AverageRF
2-Chlorophenol	3000	2900	0.01	1.28	1.25	-3	NA	± 30 %	AverageRF
1,3-Dichlorobenzene	3000	2900	0.01	1.47	1.45	-2	NA	± 30 %	AverageRF
† 1,4-Dichlorobenzene	3000	2900	0.01	1.48	1.42	-4	NA	± 20 %	AverageRF
1,2-Dichlorobenzene	3000	2900	0.01	1.31	1.27	-3	NA	± 30 %	AverageRF
Benzyl Alcohol	3000	3300	0.01	0.585	0.649	11	NA	\pm 30 %	AverageRF
Bis(2-chloroisopropyl) Ether	3000	3200	0.01	2.31	2.43	5	NA	± 30 %	AverageRF
2-Methylphenol	3000	3000	0.01	0.872	0.885	1	NA	\pm 30 %	AverageRF
Hexachloroethane	3000	3000	0.01	0.619	0.623	. 1	NA	± 30 %	AverageRF
† N-Nitrosodi-n-propylamine	3000	3200	0.05	0.849	0.905	7	NA	\pm 30 %	AverageRF
4-Methylphenol	3000	3000	0.01	1.23	1.22	-1	NA	± 30 %	AverageRF
Nitrobenzene	3000	3200	0.01	1.26	1.34	7	NA	± 30 %	AverageRF
Isophorone	3000	3000	0.01	0.691	0.685	-1	NA	± 30 %	AverageRF
‡ 2-Nitrophenol	3000	3300	0.01	0.196	0.213	9	NA	± 20 %	AverageRF
2,4-Dimethylphenol	3000	2900	0.01	0.269	0.260	-3	NA	± 30 %	AverageRF
Bis(2-chloroethoxy)methane	3000	3100	0.01	0.416	0.435	5	NA	± 30 %	AverageRF
‡ 2,4-Dichlorophenol	3000	3100	0.01	0.293	0.303	3	NA	± 20 %	AverageRF
Benzoic Acid	3000	2800	0.01	0.145	0.139	NA	-6	± 30 %	Quadratic
1,2,4-Trichlorobenzene	3000	3000	0.01	0.339	0.341	1	NA	± 30 %	AverageRF
Naphthalene	3000	2900	0.01.	0.931	0.901	- 3	NA	± 30 %	AverageRF
4-Chloroaniline	3000	3000	0.01	0,406	0.403	-1	NA	± 30 %	AverageRF
‡ Hexachlorobutadiene	3000	3100	0.01	0.193	0.200	4	NA	± 20 %	AverageRF
‡ 4-Chloro-3-methylphenol	3000	3000	0.01	0.284	0.283	-1	NA	± 20 %	AverageRF
2-Methylnaphthalene	3000	3000	0.01	0.545	0.548	0	NA	± 30 %	AverageRF
† Hexachlorocyclopentadiene	3000	2900	0.05	0.371	0.357	-4	NA	± 30 %	AverageRF
‡ 2,4,6-Trichlorophenol	3000	2900	0.01	0.402	0.390	- 3	NA	± 20 %	AverageRF
2,4,5-Trichlorophenol	3000	3100	0.01	0.434	0.447	3	NA	± 30 %	AverageRF
2-Chloronaphthalene	3000	2900	0.01	0.447	0.431	-4	NA	± 30 %	AverageRF
2-Nitroaniline	3000	3100	0.01	0.433	0.440	2	NA	± 30 %	AverageRF
Acenaphthylene	3000	3000	0.01	1.75	1.75	0	NA	± 30 %	AverageRF
Dimethyl Phthalate	3000	2900	0.01	1.38	1.33	-3	NA	± 30 %	AverageRF
2,6-Dinitrotoluene	3000	3200	0.01	0.330	0.354	7	NA	± 30 %	AverageRF
‡ Acenaphthene	3000	3000	0.01	1.05	1.05	-1	NA	± 30 %	AverageRF
3-Nitroaniline	3000	3000	0.01	0.373	0.369	-1	NA	± 30 %	AverageRF
† 2,4-Dinitrophenol	3000	2400	0.05	0.150	0.104	NA	-19	± 30 %	Quadratic
Dibenzofuran	3000	2900	0.01	1.69	1.64	-3	NA	± 30 %	AverageRF
† 4-Nitrophenol	3000	2800	0.05	0.231	0.219	-5 -5	NA	± 30 %	AverageRF
.			2,02	J.201	V14417	-2	1 12 7	- 50 70	Try crag crut.

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 7 - Organic

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QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Service Request: K0604574

Date Analyzed: 06/11/2006

Continuing Calibration Verification Summary Semi-Volatile Organic Compounds by GC/MS

Calibration Type:

Internal Standard

Analysis Method:

8270C

CCV Standard ID:

SVM22-11C

Calibration Date: 05/11/2006

Calibration ID: CAL5348 Analysis Lot: KWG0609518

Units: ng/ml

			Min	Average	CCV				
Analyte Name	Expected	Result	RF	RF	RF	%D	%Drift	Criteria	Curve Fit
	3000·	3200	0.01	0.449	0.481	7	NA	± 30 %	AverageRF
2,4-Dinitrotoluene	3000	2900	0.01	1.32	1.29	-2	NA	± 30 %	AverageRF
Fluorene 4-Chlorophenyl Phenyl Ether	3000	3000	0.01	0.658	0.648	-2	NA	± 30 %	AverageRF
	3000	2800	0.01	1.46	1.38	-6	NA	\pm 30 %	AverageRF
Diethyl Phthalate 4-Nitroaniline	3000	3000	0.01	0.386	0.390	1	NA	\pm 30 %	AverageRF
2-Methyl-4,6-dinitrophenol	3000	2700	0.01	0.231	0.227	NA	- 9	\pm 30 %	Quadratic
‡ N-Nitrosodiphenylamine	3000	3000	0.01	1.06	1.04	NA	-1	$\pm 20 \%$	Linear
4-Bromophenyl Phenyl Ether	3000	3000	0.01	0.237	0.234	-1	NA	\pm 30 $\%$	AverageRF
Hexachlorobenzene	3000	3100	0.01	0.266	0.272	2	NA	\pm 30 %	AverageRF
‡ Pentachlorophenol	3000	3100	0.01	0.150	0,156	4	NA	\pm 20 %	AverageRF
Phenanthrene	3000	3000	0.01	1.18	1.17	-1	NA	± 30 %	AverageRF
Anthracene	3000	3000	0.01	1.20	1.21	1	NA	\pm 30 %	AverageRF
Di-n-butyl Phthalate	3000	3200	0.01	1.44	1.52	6	NA	\pm 30 %	AverageRF
‡ Fluoranthene	3000	3200	0.01	1.21	1.28	5	NA	$\pm 20 \%$	AverageRF
Pyrene .	3000	2900	0.01	1.37	1.31	-4	NA	\pm 30 %	AverageRF
Butyl Benzyl Phthalate	3000	3000	0.01	0.678	0,668	-1	NA	\pm 30 %	AverageRF
3,3'-Dichlorobenzidine	3000	2900	0.01	0.451	0,432	-4	NA	± 30 %	AverageRF
Benz(a)anthracene	- 3000	2900	0.01	1,11	1.08	-3	NA	\pm 30 %	AverageRF
Chrysene	3000	3000	0.01	1.08	1.08	0	NA	\pm 30 %	AverageRF
Bis(2-ethylhexyl) Phthalate	3000	2900	0.01	0.887	0.867	-2	NA	\pm 30 %	AverageRF
‡ Di-n-octyl Phthalate	3000	3100	0.01	1.99	2.02	2	NA	\pm 20 $\%$	AverageRF
Benzo(b)fluoranthene	3000	3000	0.01	1.32	1.32	0	NA	\pm 30 %	AverageRF
Benzo(k)fluoranthene	3000	3100	0.01	1.36	1.41	3	NA	\pm 30 %	AverageRF
‡ Benzo(a)pyrene	3000	3000	0.01	1.25	1.27	1	NA	\pm 20 %	AverageRF
Indeno(1,2,3-cd)pyrene	3000	3100	0.01	1.09	1.13	3	NA	\pm 30 %	AverageRF
Dibenz(a,h)anthracene	3000	3100	0.01	1.10	1.15	4	NA	\pm 30 %	AverageRF
Benzo(g,h,i)perylene	3000	3200	0.01	1.19	1.27	7	NA	\pm 30 %	AverageRF
2-Fluorophenol	3000	2600	0.01	1.35	1.17	-13	NA	\pm 30 $\%$	AverageRF
Phenol-d6	3000	3000	0.01	1.42	1.42	0	NA	\pm 30 %	AverageRF
Nitrobenzene-d5	3000	3200	0.01	1.37	1.47	7	NA	\pm 30 %	AverageRF
2-Fluorobiphenyl	3000	3000	0.01	1.33	1.31	-1	NA	\pm 30 %	AverageRF
2,4,6-Tribromophenol	3000	3100	0.01	0.143	0.147	3	NA	± 30 %	AverageRF
Terphenyl-d14	3000	2900	0.01	0.934	0.918	-2	NA	± 30 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

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Form 7 - Organic

SuperSet Reference: RR60410

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QA/QC Results

Client:

Geomatrix Consultants, Incorporated

Project:

NW Corner-FRP/8769.005/4

Service Request: K0604574

Analysis Run Log

Semi-Volatile Organic Compounds by GC/MS

Analysis Method:

8270C

Analysis Lot: KWG0609518

Instrument ID: MS10

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0611F001.D	Continuing Calibration Verification	KWG0609518-2	6/11/2006	06:34		6/11/2006	07:02
0611T001.D	GC/MS Tuning - Generic	KWG0609518-1	6/11/2006	06:34		6/11/2006	07:02
0611F002.D	Method Blank	KWG0609161-9	6/11/2006	07:11	· · · ·	6/11/2006	07:39
0611F003.D	Lab Control Sample	KWG0609161-10	6/11/2006	07:48		6/11/2006	08:16
0611F004.D	Duplicate Lab Control Sample	KWG0609161-11	6/11/2006	08:26		6/11/2006	08:54
0611F005.D	Batch QCMS	KWG0609161-13	6/11/2006	09:04		6/11/2006	09:32
0611F006.D	Batch QCDMS	KWG0609161-14	6/11/2006	09:41		6/11/2006	10:09
0611F007.D	Batch QC	K0604453-001	6/11/2006	10:19		6/11/2006	10:47
0611F008.D	ZZZZZZ	ZZZZZZ	6/11/2006	10:56		6/11/2006	11:24
0611F009.D	ZZZZZZ	ZZZZZZ	6/11/2006	11:34		6/11/2006	12:02
0611F012.D	ZZZZZZ	ZZZZZZ	6/11/2006	13:00		6/11/2006	13:28
0611F013.D	ZZZZZZ	ZZZZZZ	6/11/2006	13:38		6/11/2006	14:06
0611F014.D	NWC-1-22W	K0604574-006	6/11/2006	14:15		6/11/2006	14:43
0611F015.D	NWC-1-2W	K0604574-007	6/11/2006	14:53		6/11/2006	15:21
0611F016.D	NWC-1-12W	K0604574-010	6/11/2006	15:31		6/11/2006	15:59
0611F017.D	NWC-2-39W	K0604574-011	6/11/2006	16:09		6/11/2006	16:37

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

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Form 8 - Organic

Page 1 of 1

QA/QC Results

Client: Project: Geomatrix Consultants, Incorporated

NW Corner-FRP/8769.005/4

Sample Matrix:

Soil

Service Request: K0604574 Date Extracted: 06/08/2006

Extraction Prep Log Semi-Volatile Organic Compounds by GC/MS

Extraction Method: EPA 3541 Analysis Method:

8270C

Extraction Lot: KWG0609161

Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
NWC-1-22W	K0604574-006	06/02/06	06/06/06	40.00g	2ml	82.7	
NWC-1-2W	K0604574-007	06/02/06	06/06/06	40.05g	2ml	79.8	
NWC-1-12W	K0604574-010	06/05/06	06/06/06	40.01g	2ml	86.9	
NWC-2-39W	K0604574-011	06/05/06	06/06/06	40,03g	2ml	83.8	
Method Blank	KWG0609161-9	NA	NA	40.05g	2ml	NA	
Batch QC	K0604453-001	NA	NA	23,39g	2ml	86.0	
Batch QCMS	KWG0609161-13	NA	NA	23.29g	2ml	86.0	
Batch QCDMS	KWG0609161-14	NA	NA	23.36g	2ml	86.0	
Lab Control Sample	KWG0609161-10	NÁ	NA	20.00g	2ml	NA	
Duplicate Lab Control Sample		NA	NA	20,00g	2ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

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June 23, 2006

Service Request No: K0604601



John Long Geomatrix Consultants, Incorporated One Union Square 600 University Street, Suite 1020 Seattle, WA 98101

RE. Former RP site/8769.005/4

Dear John:

Enclosed are the results of the sample(s) submitted to our laboratory on June 07, 2006. For your reference, these analyses have been assigned our service request number K0604601.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAC standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376.

Respectfully submitted,

Columbia Analytical Services, Inc.

Project Chemist

GS/lmb

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the POL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- B The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL has been elevated due to a matrix interference.
- X See case narrative.
- * The duplicate analysis not within control limits. See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
- U' The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
- i The MRL/MDL has been elevated due to a chromatographic interference.
- X See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Case Narrative

Client:

Geomatrix Consultants, Inc. Former RP Site/8769.005/4

Project: Sample Matrix:

Soil

Service Request No.:

K0604601

Date Received:

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One hundred seventeen soil samples were received for analysis at Columbia Analytical Services on 06/07/06. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Total Metals

Matrix Spike Recovery Exceptions:

The control criteria for matrix spike recovery of Copper for sample NWC-1-37A is not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

The matrix spike recovery of Copper for sample NWC-2-30A was outside the CAS control criteria as a result of a heterogeneous distribution of this analyte in the sample. The associated QA/QC results (e.g. control sample, additional matrix spike, calibration standards, etc.) indicate the analysis was in control. No further corrective action was appropriate.

Relative Percent Difference Exceptions:

The Relative Percent Difference (RPD) for the replicate analysis of Copper in sample NWC-2-1A was outside the normal CAS control limits. The variability in the results is attributed to the heterogeneous distribution of this analyte in the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

No other anomalies associated with the analysis of these samples were observed.

Approved h

Date 1/7

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Chain of Custody Documentation

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SIGNATURE:	SINTED NAMED SETTEN	white 6/4/06 705			4		-
PRINTED NAME: COMPANY: COMP	GONATURE:						
SigNaTiffe SignaTiffe SigNaTiffe SignaTiffe Sig	RINTED NAME:		PRINTED NAME:				
SIGNATURE: SIGNATURE OF Union Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 University Street, Suite 1020 Performed by Management of Square, 600 Performed by Management of Squar	OMPANY:		COMPANY:				
COMPANY: CMTS Tel 206.342.1760 Fax 206.342.1761	IGNATORE: RINTED NAME:		water of the same	(30)	niversity Street, Suite 1020 aton 98101-4107		7:24
	OMPANY:		1	<u>a</u>	Fax 206.342.1761	כע ווייי	OHACTIX

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PROJECT NAME: /U.C. COLLY - TOY PROJECT NUMBER:	Former Charle borlens	11	DATE: 6/5106	PAGE 9 OF 9
DECI 11 TO TO	LABORATORY NAME:	CLIENT INFORMATION:	REPORTING REQUIREMENTS:	
	. LABORATORY ADDRESS:	7.00		
TURNAROUND TIME:				
SAMPLE SHIPMENT METHOD:	LABORATORY CONTACT:			
	LABORATORY PHONE NUMBER:		GEOTRACKER REQUIRED	YES NO
SAMPLERS (SIGNATURE):	ANAIX	YSES.	SITE SPECIFIC GLOBAL ID NO.	
(C) (C) (C) (C) (C) (C) (C) (C) (C) (C)			(
2 8	77- J	-	er (W), O) terhO	
DATE TIME SAMPLE NUMBER	me dan	CONT	bered	soled SimsD
-		305	N A	W C
25/08 1130 Nuc-2-4)				
MODIO ILANONE - 2-APK		7	>.	
		300		
		909/2		
			 	
				/
RELINQUISHED BY: DATE TIME	\rightarrow	DATE TIME TOTAL NUMBER OF CONTAINERS:	AINERS:	
SPANA TUREO	SIGNATURE: CHI	SAMPLING COMMENTS:	500 000	
PERINTED NAME THE PARTICULA (1/6/0/2)	ME: J	18/18/18]	
Egenature.	SIGNATURE:	2		
PRINTED NAME:	PRINTED NAME:		76.0	77.00
COMPANY:	COMPANY:			
SIGNATURE:	SIGNATURE	One Union Section 600 Univ	Ocot office of the 4000	
PRINTED NAME:	PRINTED NAME A P.C.	$\theta/\theta/\theta$ 13.22 Seattle, Washington 98101-4107	on 98101-4107	Goomstriv
		·	_	

Columbia Analytical Services Inc. Cooler Receipt and Preservation Form

PC.	Reg
	7

Pro	oject/ClientGEOMATRIX Service Request K06	
Co	oler received on 6/6/6 and opened on 4/6/6 by Ag	
1.	Were custody seals on outside of coolers? MCD	Y (N)
	If yes, how many and where?	
2.	Were custody seals intact?	¥N->
3.	Were signature and date present on the custody seals?	YN
4.	Is the shipper's airbill available and filed? If no, record airbill number:	И
5.	COC#	· · · · · ·
	Temperature of cooler(s) upon receipt: (°C) 5, 4 3,5 3,7 4 Temperature Blank: (°C) 5.1 2.6 2.1 A	3.5
	Temperature Blank: (°C) 5.1 Z'6 Z.1 A	Sig 5:8:
	Were samples hand delivered on the same day as collection?	YN
6.	Were custody papers properly filled out (ink, signed, etc.)?	A N
7.	Type of packing material present from CATEDISOARD 1 CE	_
8.	Did all bottles arrive in good condition (unbroken)?	Ø и
9.	Were all bottle labels complete (i.e analysis, preservation, etc.)?	Ø n
10.	Did all bottle labels and tags agree with custody papers?	Ø N
11.	Were the correct types of bottles used for the tests indicated?	N (S
12.	Were all of the preserved bottles received at the lab with the appropriate pH?	X
13.	Were VOA vials checked for absence of air bubbles, and if present, noted below?	M N
14.	Were the 1631 Mercury bottles checked for absence of air bubbles, and if present, noted below?	YN
15.	Did the bottles originate from CAS/K or a branch laboratory?	Y
16.	Are CWA Microbiology samples received with >1/2 the 24hr. hold time remaining from collection?	<u></u>
17.	Was C12/Res negative?	¥N
Exp	lain any discrepancies:	<u> </u>
RES	SOLUTION:	

Samples that required preservation or received out of temperature:

Sample ID	Reagent	Volume	Lot Number	Bottle Type	Rec'd out of Temperature	Initials
	 -					
<u> </u>	 					
	+					<u> </u>
			16		·	

Metals

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

	Sample No.	Lab Sample ID.	
	NWC-2-1A		
•	NWC-2-1AD	K0604601-002 K0604601-002D	
	NWC-2-1AS	K0604601-0025	
	NWC-2-3A	K0604601-005	
	NWC-2-4A	K0604601-008	
	NWC-2-5A	K0604601-011	
	NWC-2-6A	K0604601-014	·
	NWC-2-7A	K0604601-017	
	NWC-1-8A	K0604601-019	
	NWC-2-8A	K0604601-020	
	NWC-2-9A	K0604601-023	
	NWC-2-10A	K0604601-026	
	NWC-2-11A	K0604601-029	
	NWC-2-11AD	K0604601-029D	
	NWC-2-11AS	K0604601-029S	
	NWC-1-13A	K0604601-031	
	NWC-2-13A	K0604601-032	
	NWC-2-14A	K0604601-035	
	NWC-2-15A	K0604601-038	
	NWC-1-16A	K0604601-040	
•	NWC-2-16A	K0604601-041	
	NWC-2-17A	K0604601-044	
	NWC-2-18A	K0604601-047	
Were	ICP interelement corrections applied?		Yes/No YES
Were	ICP background corrections applied?		Yes/No YES
	If yes-were raw data generated before		
	application of background corrections?	· ·	Yes/No NO
			
Comm	ents:		
	- · · · · · · · · · · · · · · · · · · ·		
			
	<u> </u>	· · · · · · · · · · · · · · · · · · ·	
	\sim	<i>f</i> 1	
Siona	ture:	Date: 6/22 kg	SI -
			140

- Cover Page - INORGANIC ANALYSIS DATA PACKAGE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Sample No.	Lab Sample ID.	
NWC-2-19A	K0604601-050	
NWC-2-20A	K0604601-053	
NWC-2-20AD	K0604601-053D	
NWC-2-20AS	K0604601-053s	
NWC-2-21A	K0604601-056	·
NWC-2-22A	K0604601-059	
NWC-2-23A	K0604601-062	
NWC-2-24A	K0604601-065	
NWC-2-25A	K0604601-068	
NWC-2-26A	K0604601-071	
NWC-2-27A	K0604601-074	
NWC-2-28A	K0604601-077	
NWC-2-29A	K0604601-080	
NWC-2-30A	K0604601-083	·
NWC-2-30AD	K0604601-083D	
NWC-2-30AS	K0604601-083S	
NWC-2-31A	K0604601-086	
NWC-1-32A	K0604601-088	_
NWC-2-32A	K0604601-089	
NWC-2-33A	K0604601-092	
NWC-2-34A	K0604601-095	
NWC-1-35A	K0604601-097	<u> </u>
NWC-2-35A	K0604601-098	
Were ICP interelement corrections applied?		Yes/No YES
Were ICP background corrections applied?		Yes/No YES
If yes-were raw data generated before		
application of background corrections?		Yes/No NO
Comments:		
	<u> </u>	<u></u>
		<u> </u>
•		
Signature:	Date: 627	- labo
700		

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Sample No.	Lab Sample ID.
NWC-1-36A	K0604601-100
NWC-2-36A	K0604601-101
NWC-1-37A	K0604601-103
NWC-1-37AD	K0604601-103D
NWC-1-37AS	K0604601-103S
NWC-2-37A	K0604601-104
NWC-1-38A	K0604601-106
NWC-2-38A	K0604601-107
NWC-1-40A	K0604601-109
NWC-2-40A	K0604601-110
NWC-1-41A	K0604601-112
NWC-2-41A	K0604601-113
NWC-1-42A	K0604601-115
NWC-2-42A	K0604601-116
Method Blank	K0604601-MB
Method Blank 2	K0604601-MB2
Method Blank 3	K0604601-MB3

Were ICP interelement corrections applied?	Yes/No YES
Were ICP background corrections applied?	Yes/No YES
If yes-were raw data generated before application of background corrections?	Yes/No NO
Comments:	
	
Signature:	Date: Le 22 2
orginature.	Date. CILUPS

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-1A

Lab Code: K0604601-002

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q	
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	14.7		*] コ

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-3A

Lab Code: K0604601-005

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	c	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	17.1		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIĹ

Sample Name: NWC-2-4A

Basis: Wet

Lab Code: K0604601-008

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Õ
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	180		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-5A

Lab Code: K0604601-011

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ō
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	15.8		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-6A

Lab Code: K0604601-014

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	36.9		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-7A

Lab Code: K0604601-017

Analyte	Analysis Method	MRL	WDГ	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	16.6	*	c

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix: SOIL

Basis: Wet

Sample Name: NWC-1-8A

Lab Code: K0604601-019

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	94.8		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-8A

Lab Code: K0604601-020

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	ð
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	116	Ì	*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-9A

Lab Code: K0604601-023

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result (2 Ω
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	24.2	*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-10A

Lab Code: K0604601-026

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	39.7		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-11A

Lab Code: K0604601-029

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result C	Ş.
Copper	6020	0.79	0.24	20	6/16/06	6/19/06	32.9	*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-1-13A

Lab Code: K0604601-031

Analyte	Analysis Method	MRL	WDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	3.31	0.99	100	6/16/06	6/19/06	716		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-13A

Lab Code: K0604601-032

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	c	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	23.0		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-14A

Lab Code: K0604601-035

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Õ
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	20.3		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

Units: MG/KG

SOIL

Basis: Wet

Sample Name: NWC-2-15A

Lab Code: K0604601-038

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ō
Copper	6020	3.85	1.15	100	6/16/06	6/19/06	591		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected:

06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-1-16A

Lab Code: K0604601-040

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.33	0.10	10	6/16/06	6/19/06	89.4		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-16A

Lab Code: K0604601-041

Analyte	Analysis Method	MRL	WDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	137		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Date Received: 06/07/06

Project Name: Former RP site

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-17A

Lab Code: K0604601-044

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	39,8		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-2-18A

Lab Code: K0604601-047

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.77	0.23	20	6/16/06	6/19/06	31.3		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

Units: MG/KG

SOIL

Basis: Wet

Sample Name: NWC-2-19A

Lab Code: K0604601-050

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.38	0.11	10	6/16/06	6/19/06	23.B		*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Lab Code: K0604601-053

Sample Name: NWC-2-20A

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	45.5		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

MG/KG Units:

Basis: Wet

Sample Name: NWC-2-21A

Lab Code: K0604601-056

Analyte .	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	39.8		И

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-22A

Lab Code: K0604601-059

	Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
t	Copper	6020	0.40	0.12	10	6/16/06	6/19/06	45.6		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-23A

Lab Code: K0604601-062

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Õ
Copper	6020	20.00	6.00	500	6/16/06	6/19/06	4190		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Basis: Wet

Matrix:

SOIL

Lab Code: K0604601-065

Sample Name: NWC-2-24A

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q ·
Copper	6020	0.39	0,12	10	6/16/06	6/19/06	15.1		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-25A

Lab Code: K0604601-068

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	19.4		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-26A

Lab Code: K0604601-071

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	22.0		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-27A

Lab Code: K0604601-074

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ω
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	25.5		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Date Collected: 06/02/06

Project No.: 8769.005/4

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Wet Basis:

Sample Name: NWC-2-28A

Lab Code: K0604601-077

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	13.1		N

% Solids: NA

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-29A

Lab Code: K0604601-080

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	19.8		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Date Received: 06/07/06

Project Name: Former RP site

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-30A

Lab Code: K0604601-083

Analyte	Analysis Method	MRL	WDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q	
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	28.0		N	[]

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client: Geomatrix Consultants, Incorporated

Matrix:

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/02/06

Project Name: Former RP site

Date Received: 06/07/06

riojece name. Poimer Kr Bree

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-31A

Lab Code: K0604601-086

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	50.8		И

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: B769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-1-32A

Lab Code: K0604601-088

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	7.92	2.38	200	6/16/06	6/19/06	1500		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-32A

Lab Code: K0604601-089

Analyte	Analysis Method	MRL	MDI,	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	64.0		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-33A

Lab Code: K0604601-092

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	υ	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	36.1		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix;

SOIL

MG/KG Units:

Basis: Wet

Sample Name: NWC-2-34A

Lab Code: K0604601-095

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Ď
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	23.0		И

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Date Collected: 06/05/06

Project No.: 8769.005/4

Date Received: 06/07/06

Project Name: Former RP site

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-1-35A

Lab Code: K0604601-097

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	7.62	2.29	200	6/16/06	6/19/06	1330		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-35A

Lab Code: K0604601-098

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	ð
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	22.9		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Collected.

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Matrix: SOIL

Basis: Wet

Sample Name: NWC-1-36A

Lab Code: K0604601-100

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	4.00	1.20	100	6/16/06	6/19/06	820		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-36A

Lab Code: K0604601-101

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	32.2		N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Date Collected: 06/05/06

Project No.: 8769.005/4

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

Matrix:

SOIL

Basis: Wet

Sample Name: NWC-1-37A

Lab Code: K0604601-103

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	19.80	5.94	500	6/16/06	6/19/06	3880		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Matrix:

Project Name: Former RP site

Sample Name: NWC-2-37A

Units: MG/KG

Basis: Wet

SOIL

Lab Code: K0604601-104

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	85.4		

% Solids: NA

-1- -

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-1-38A

Lab Code: K0604601-106

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	39.20	11.80	1000	6/16/06	6/19/06	7750		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-38A

SOIL

Lab Code: K0604601-107

Analyte	Analysis Method	MRL	MD L	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	20.9		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-1-40A

Lab Code: K0604601-109

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	υ	Q
Copper	6020	19.40	5.83	500	6/16/06	6/19/06	3110		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units:

MG/KG

Basis:

Wet

Sample Name: NWC-2-40A

Lab Code: K0604601-110

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Q
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	91.7		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Units: MG/KG

Wet

Matrix:

SOIL

Basis:

Sample Name: NWC-1-41A

Lab Code: K0604601-112

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	3.85	1.15	100	6/16/06	6/19/06	598	<u> </u>	

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client: -

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

Units: MG/KG

SOIL

Basis: Wet

Sample Name: NWC-2-41A

Lab Code: K0604601-113

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.40	0.12	10	6/16/06	6/19/06	96.9		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Matrix:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: B769.005/4

Date Collected: 06/05/06

Date Received: 06/07/06

Project Name: Former RP site

Units: MG/KG

SOIL

Basis: Wet

Sample Name: NWC-1-42A

Lab Code: K0604601-115

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	c	Q
Copper	6020	3.77	1.13	100	6/16/06	6/19/06	957		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected: 06/05/06

Project Name: Former RP site

Date Received: 06/07/06

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: NWC-2-42A

Lab Code: K0604601-116

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	C	Õ
Copper	6020	0.39	0.12	10	6/16/06	6/19/06	187		

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected:

Project Name: Former RP site

Date Received:

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: Method Blank

Lab Code: K0604601-MB

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.20	0.06	5	6/16/06	6/19/06	0.12	В	*

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected:

Project Name: Former RP site

Date Received:

Units: MG/KG

Basis: Wet

Matrix:

SOIL

Lab Code: K0604601-MB2

Sample Name: Method Blank 2

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.20	0.06	5	6/16/06	6/19/06	0.09	В	N

% Solids: NA

-1-

INORGANIC ANALYSIS DATA SHEET

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Date Collected:

Project Name: Former RP site

Date Received:

Matrix:

SOIL

Units: MG/KG

Basis: Wet

Sample Name: Method Blank 3

Lab Code: K0604601-MB3

Analyte	Analysis Method	MRL	MDL	Dil.	Date Extracted	Date Analyzed	Result	С	Q
Copper	6020	0.20	0.06	5	6/16/06	6/19/06	0.10	В	

% Solids: NA

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source: Inorganic Ventures

CCV Source: Various

•	Initial	Calibrat	ion		Continu	ing Cal	ibration		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper	12.5	12.7	102	25.0	24.8	99	24.7	99	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source:

CCV Source: Various

	Initial	L Calibra	tion	(Continu	ing Cal	ibration		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper				25.0	24.9	99	24.7	99	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source:

CCV Source: Various

	Initial	Calibra	tion	- (Continu				
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper				25.0	24.9	100	24.7	99	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source:

CCV Source: Various

	Initial	Calibra	tion		Continu	ing Cal	ibration		
Analyte	True	Found	&R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper		·········	Ī	25.0	24.9	99	25.	102	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source:

CCV Source: Various

	Initia	Initial Calibration			Continu	ing Cal	ibration		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper				25.0	25.1	100	25.1	100	6020

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICV Source:

CCV Source: Various

	Initial	tion		Continu	ing Cal	ibration			
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	Method
Copper				25.0	24.6	98			6020

- 2b -

CRDL STANDARD FOR AA AND ICP

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

	CRDL St	tandard for AA		Tni	CRDL Stand	ard fo	r ICP Final	
Analyte	True	Found %R	Tı	rue	Found	8R	Found	8R
Copper			Ī	0.20	0.26	131	<u>, , , , , , , , , , , , , , , , , , , </u>	

METALS - 3 -

BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) C	Bla	ing Calibr ink (ug/L) 2 C	ation 3 C	Preparation Blank C	-	Method
Copper	0.12 U	0.12 U	0.12U	0.12 U		T	6020

METALS - 3 -BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) C	Continuing Calibra Blank (ug/L) 1 C 2 C	ation 3 C	Preparation Blank C	Method
Copper		0.12 U 0.12 U	0.12 U		6020

METALS - 3 -**BLANKS**

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	С	Con 1		iing Ca ink (ug 2		ration 3	С	Preparation Blank C	Method
Copper		T	0.12	ט	0.36	B	0.2	БВ		6020

METALS - 3 -BLANKS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Project Name: Former RP site

Preparation Blank Matrix (soil/water): WATER Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Cor 1		ing C nk (u 2		ration 3	С	Preparation Blank C	Method	
Copper	<u> </u>		0.1	2 U	0.1	ן ט 2				6020	٦

-4-

ICP INTERFERENCE CHECK SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request:K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICP ID Number: X Series

ICS Source: Inorganic Ventures

	Tru	ıe	Initi	al Found		Final	Found	
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Copper		20	0.25	22.0	110			

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

9 005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-1-37AS

Lab Code: K0604601-1035

Analyte	Control Limit %R	Spike Result	Sample Result	C	Spike Added	₽R	Q	Method
Copper		1540	3880		47.2	-4958		6020

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-11AS

Lab Code: K0604601-029S

Analyte	Control Limit %R	Spike Result	Sample Result	Spike Added	₽R	Q	Method
Copper	52 - 153	68.8	32.9	47.2	76		6020

METALS - 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site ·

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-1AS

Lab Code: K0604601-002S

Analyte	Control Limit %R	Spike C Result	Sample Result	Spike Added	%R	Q	Method
Copper	52 - 153	64.1	14.7	48.1	103		6020

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-20AS

Lab Code: K0604601-053S

Analyte	Control Limit %R	Spike Result	Sample Result	Spike Added	8R	Q	Method
Copper	52 - 153	91.8	45.5	47.6	97		6020

- 5a -

SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-30AS

Lab Code: K0604601-083S

Analyte	Control Limit %R	Spike Result	C	Sample C Result	Spike Added	₽R	Q	Method
Copper	52 - 153	30.5		28.0	48.1	5	N	6020

- 5b -

POST DIGEST SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: ug/L

Project Name: Former RP site

Matrix:

SOIL

Sample Name:

NWC-2-1AA

Lab Code: K0604601-002A

3 - 4 -	Control	Spiked Sample	\Box	Sample		Spike				
Analyte	Limit %R	Result (SSR)	١	Result (SR)	٠	Added (SA)	₽R	Q	М
Copper	75-125	32.5		15.3			20.0	86		MS

Comments:

- 5b -

POST DIGEST SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: ug/L

Project Name: Former RP site

Matrix:

SOIL

Sample Name:

NWC-2-20AA

Lab Code: K0604601-053A

Analyte	Control Limit %R	Spiked Sample C Result (SSR)	Sample Result (SR)	Spike Added (SA)	8R Ç	м
Copper	75-125	64.7	47.4	20.0	86	MS

Comments:

- 5b -

POST DIGEST SPIKE SAMPLE RECOVERY

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

· Units: ug/L

Project Name: Former RP site

Matrix:

SOIL

Sample Name:

NWC-2-38AA

Lab Code: K0604601-107A

33	Control	Spiked Sample	Sample	Spike		\top
Analyte	Limit &R	Result (SSR)	Result (SR)	Added (SA)	%R Q	M
Copper	75-125	37.5	20.9	20.0	83	MS

Comments:

-6-

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-1-37AD

Lab Code: K0604601-103D

Analyte	Control Limit(%)	Sample (S)	С	Duplicate (D)	С	RPD	Q.	Method
Copper	30	3880		3610		7		6020

Columbia Analytical Services

METALS

- 6 -

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-11AD

Lab Code: K0604601-029D

Analyte	Control Limit(%)	Sample	(S)	C	Duplicate (D)	С	RPD	Q	Method
Copper	30		32.9		36.	5	10		6020

-6-

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-1AD

Lab Code: K0604601-002D

Analyte	Control Limit(%)	Sample (S)	С	Duplicate (D)	С	RPD	Q	Method
Copper	30	14.7		23.8	Γ	47	*	6020

-6-

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Project Name: Former RP site

Basis: Wet

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-20AD

Lab Code: K0604601-053D

Analyte	Control Limit(%)	Sample (S)	С	Duplicate (D)	С	RPD	Q	Method
Copper	30	45.5		38.0		18		6020

-6-

DUPLICATES

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Units: mg/kg

Basis: Wet

Project Name: Former RP site

Matrix:

SOIL

% Solids: NA

Sample Name: NWC-2-30AD

Lab Code: K0604601~083D

Analyte	Control Limit(%)	Sample (S)	ŋ	Duplicate (D) C	RPD	Q	Method
Copper	30	28.0)	2:	2.9	20	·	6020

-7-

LABORATORY CONTROL SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source: ERA Lot #D045540

	Aque	ous mg/L			Solid (m	g/kg)	
Analyte	True	Found	8R	True	Found C	Limits	5 %R
Copper]		ļ	67.0	68.1	53.8	80.2 102

- 7 -

LABORATORY CONTROL SAMPLE

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source: ERA Lot #D045540

	Aque	ous mg/L			Soli	i (1	ng/kg)		
Analyte	True	Found	8R	True	Found	С	Limits	5 !	8R
Copper	1			67.0	69.3	3	53.8	80.2	103

- 7 -

LABORATORY CONTROL SAMPLE

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

Aqueous LCS Source: Inorganic Ventures

Solid LCS Source: ERA Lot #D045540

	Aque	ous mg/L			Soli	.d (n	ng/kg)		
Analyte	True	Found	%R	True	Found	C	Limi	ts &	R
Copper	İ		<u> </u>	67.0	64.	7	53.8	80.2	96

-9-

ICP SERIAL DILUTIONS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Units: ug/L

Project Name:

Former RP site

Sample Name: NWC-2-1AL

Lab Code: K0604601-002L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	કૃ Differ-	Q	Method
Copper	15.3	12.3	19	臣	6020

-9-

ICP SERIAL DILUTIONS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Units: ug/L

Project Name:

Former RP site

Sample Name: NWC-2-20AL

Lab Code: K0604601-053L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S)	% Differ-	Q.	Method
Copper	47.4	57.0	20	E	6020

METALS - 9 ICP SERIAL DILUTIONS

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.:

8769.005/4

Units: ug/L

Project Name:

Former RP site

Sample Name: NWC-2-38AL

Lab Code: K0604601-107L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ-	Q	Method
Copper	20.9	22.1	6		6020

-10-

METHOD DETECTION LIMITS

Client:

Geomatrix Consultants, Incorporated Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICP/ICP-MS ID #: X Series

GFAA ID #:

AA ID #:

Analyte	Mass	Back- ground	MRL (ug/L)	MDL (ug/L)	Method
Copper	65		0.40	0.12	6020

Comments	

-12-

ICP LINEAR RANGES (QUARTERLY)

Client:

Geomatrix Consultants, Incorporated

Service Request: K0604601

Project No.: 8769.005/4

Project Name: Former RP site

ICP ID Number:

X Series

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Copper	15.00	400.0	6020



APPENDIX D

 ${\bf Site\ Photographs-Excavation}$



7/20/06 – NWC boring NWC-X-39, prior to excavation, looking northwest.



 7/20/06 – Excavation of upper 2 feet, looking northeast. Note barrier wall on right.



3. Northwest corner of NWC excavation, looking northwest, showing deeper excavation to 5 feet.



4. Excavation, looking northeast from southwest corner. Note areas of deeper excavation to 5 feet. Note barrier wall on east side of excavation.

Project No. 8769

Page 1 of 3



APPENDIX D Northwest Corner Affected Soil Removal Report	Former Rhone-Poulenc Site	Tukwila, Washington
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5. 7/21/06 – Excavation looking southeast from northwest corner. Note barrier wall on east side of excavation.



6. 7/21/06 – Excavation complete to 5 feet, looking northeast. Concrete pile in left foreground.



7. 7/21/06 – Stockpiled soil from NWC excavation (to be disposed of off site).

Project No. 8769

Page **2 of 3**



APPENDIX D	Northwest Corner Affected Soil Removal Repor	Former Rhone-Poulenc Site	Tukwila, Washington
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8. 7/21/06 – NWC after excavation and backfill.



9. 7/21/06 – Backfill and compaction of northwest corner using vibratory roller.



APPENDIX D
Northwest Corner Affected Soil Removal Report
Former Rhone-Poulenc Site
Tukwila, Washington

Page 3 of 3

Project No. 8769



APPENDIX E

MTCA Cleanup Criteria Calculations

Worksheet for Calculating Soil Cleanup Levels for Unrestricted & Industrial Land Use

<u>Date:</u> 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Note: If no data is available for any of the following inputs, then leave the input box blank

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Acenaphthylene	ne
Measured Soil Concentration, if any:	Ċ,		mg/kg
Natural Background Concentration for Soil:	NB		mg/kg
Practical Quantitation Limit for Soil:	POL_{χ}		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF , ABS_d , GI :	• <u> </u>)
2. Toxicological Properties of the Chemical: Chemical-Specific]		
Oral Reference Dose:	RfD.	6.00E-02	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{σ}		kg-day/mg
Inhalation Reference Dose:	RfD i		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters			
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS_i		unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	1	unitless
Adherence Factor (default = " 0.2 "); for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	$\mathcal{C}_{\mathcal{I}}$		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	4.900E+03	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} lack$	6.400E-03	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m 3/mol", enter value here:	H_{rr}	00 1 11000 0	atm.m³/mol
*Converted unitiess form of H $_{cc}$ (a) 13° C: (Enter this converted value into "H $_{cc}$ input Box" above for a calculation)	H cc	0.000E + 00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit 5. Target Ground Water Cleanup Level	S	4.200E+00 mg/1]mg/l
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation: *Results from the Ground Water Cleanup Level Worksheet are	Č	9.90E+02	l/gu
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = " 0.43 "):	u	0.43	unitless
Volumetric Water Content (default = " 0.30 "):	Ð	0.3	unitless
Volumetric Air Content (default = "0.13"):	B	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	2 O	1.5]kg/l
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{oc} value here	, Je	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "I" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			1
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

B. SUMMARY OF SOIL CLEANUP LEVEL CALCULATIONS

Acenaphthylene Chemical of Concern:

1. Summary of Results

5 To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: To calculate a soil concentration based on Method C vapor pathway, check here:

_				
	basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			Warning: Soil Cleanup Level is higher than Soil Saturation
	Contact & Ground Water Protection:	2.523E+02	mg/kg Limit!	Cimit!
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	2.523E+02	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	otective of vap	or exposure	
	pathway - evaluate vapor pathway further.	y further.		
	Soil concentration based on Vapor Pathway			C _{sat} corresponds to the total soil chemical concentratio
•	(informational purposes only):	0.0005+00	mg/kg	saturated in soil,

emical concentration

R is the ratio of the ground water flow velocity to the

Page 3

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. unitless mg/kg 5.353E+01 44.8 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	way			:
			Method B	nd B	Method	od C
			Unrestricted Land Use	l Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; RISK =1.0E-6	1SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	4.800E+03	N/A	2.100E+05	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	d B	Meth	Method C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK = 1.0E-5
Protection of	Under the Current	Predicted Ground Water Conc? ug/l		N/A	γ, Α	
Potable	Condition	HQ? @ Exposure Point	A/V.	Ą	A/N	/A
Ground Water		RISK? @ Exposure Point	N/A	A	Ż	N/A
	Target Ground Water CUL?	er CUL? ug/l		9.900E+02	E+02	
The state of the s	Target Soil CUL?	mg/kg		2.523E+02	E+02	
			Method B	$\frac{\partial dB}{\partial t}$	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK=1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
:		Predicted Air Conc? ug/m³		½	N/A	
Protection of	Under the Current	@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	N/A	A	Ż	N/A
(for informational		RISK? @ Exposure Point	N/A	A	N/A	٧,
gor agoraationa purpose only)	Target Air	@ HQ=1.0	N/A	A	Ż	N/A
(f)	CUL ? ug/m^3	@ RISK=1.0E-6 or 1.0E-5	N/A	A	Ż	N/A
	Target Soil	@ HQ=1.0	N/A	A	Ż	N/A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	/A

NOTES: "CUL" = Cleanup Level; "Conc" = concentration; "HQ" = hazard quotient; "RISK" = carcinogenic risk.

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i))
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

Worksheet for Calculating Soil Cleanup Levels for Unrestricted & Industrial Land Use

12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Note: If no data is available for any of the following inputs, then leave the input box blank

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Anthracene	
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB,		mg/kg
Practical Quantitation Limit for Soil:	POL_{s}		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS, GI:	. <u> </u>)
2. Toxicological Properties of the Chemical: Chemical-Specific]		
Oral Reference Dose:	RID	3.00E-01	mg/kg-day
Oral Carcinogenic Potency Factor:	$CPF_{_{g}}$		kg-day/mg
Inhalation Reference Dose:	RfD_i		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters	•		,
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS_i		unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	,(unitless
Adherence Factor (default = " 0.2 "); for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	E		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	2.300E+04	I/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} lack$	2.700E-03	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m 3/mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13° C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	بر	4.300E-02 mg/l	l/aul
5. Target Ground Water Cleanup Level		-)
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	Č	4.00E+04	l/gn
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	77	0.43	mifless
Volumetric Water Content (default = "0.30"):	(E)	0.3	unitless
Volumetric Air Content (default = "0.13"):	E	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	3 O	1.5]kg/1
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{ac} value here	· •	وا	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF		unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			-
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		mitless

B. SUMMARY OF SOIL CLEANUP LEVEL CALCULATIONS

Anthracene

Chemical of Concern:

1. Summary of Results

[] To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: > To calculate a soil concentration based on Method C vapor pathway, check here: Soil Saturation

	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			Warning: Soil Cleanup Level is higher than S
	Contact & Ground Water Protection:	4.726E+04	mg/kg Limit!	Limit
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway): 4.726E+04	4.726E+04	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.		
4	Soil concentration based on Vapor Pathway	1000		C _{sat} corresponds to the total soil chemic
	(informational purposes only):	0.000E+00	mg/kg	saturated in soil.

ical concentration R is the ratio of the ground water flow velocity to the

MTCASGL10-anthracene.XLS

R is the ratio of the ground water flow velocity to the mg/kg unitless 2.540E+00 206.4 Soil Saturation Limit, Csnt: Retardation Factor, R:

contaminant migration velocity in saturated zone.

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	Wav			
			\parallel	-		
			Method B Unrestricted La	<u>Method B</u> Unrestricted Land Use	Method C Industrial Land Use	<u>sa C</u> Land Use
			@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct		•	Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	2.400E+04	N/A	1.050E+06	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	·	Predicted Ground Water		Ż	N/A	
D ~ 4 ~ L 1	Under the Current	Conc? ug/l				
rotable	Condition	HQ? @ Exposure Point	Ŋ	N/A	N/A	A
Ground Water		RISK? @ Exposure Point	Z	N/A	N/A	A
	Target Ground Water CUL?	er CUL? ug/l		4.000	4.000E+04	
	Target Soil CUL?	mg/kg		4.726	4.726E+04	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK = 1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³ @Exposure Point		Ż	N/A	
-	Condition	HQ? @ Exposure Point	N/A	Α,	N/A	A
(for informational		RISK? @ Exposure Point	Ŋ	N/A	N/A	A
purpose only)	Target Air	@ HQ=1.0	Ż	N/A	N/A	A
//	CUL? ug/m³	@ RJSK=1.0E-6 or 1.0E-5	Ż	N/A	N/A	A
	Target Soil	@ HQ=1.0	Z	N/A	N/A	A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	Ż	N/A	N/A	A

NOTES: "CUL" = Cleanup Level; "Conc" = concentration; "HQ" = hazard quotient; "RISK" = carcinogenic risk.

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i))
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

Worksheet for Calculating Soil Cleanup Levels for Unrestricted & Industrial Land Use

<u>Date:</u> 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Note: If no data is available for any of the following inputs, then leave the input box blank

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Benzo(a)anthracene	racene
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB.		mg/kg
Practical Quantitation Limit for Soil:	POL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS_d , GI :	• <u> </u>))
2. Toxicological Properties of the Chemical: Chemical-Specific	•		
Oral Reference Dose:	RfD		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{a}	7.30E+00	kg-day/mg
Inhalation Reference Dose:	RD_i		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF		kg-day/mg
3. Exposure Parameters	•)
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNI	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS_i		unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	-	unitless
Adherence Factor (default = " 0.2 "); for dermal exposure pathway.	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	<i>E5</i>		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			1
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	3.600E+05	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	H^{cc}	1.400E-04	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13" C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	9.400E-03 mg/l	7mg/1
5. Target Ground Water Cleanup Level)]
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			_
*Results from the Ground Water Cleanup Level Worksheet are	ů	1.80E-02	l/gn
not automatically transferred into this worksheet.			_
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43");	11	0.43	Imitless
Volumetric Water Content (default = " 0.30 "):	Ē	0 3	unitless
Volumetric Air Content (default = "0.13"):	E	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	ρ 0	15]kg/l
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{oe} value here	, °	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	_ unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		Innitless

B. SUMMARY OF SOIL CLEANUP LEVEL CALCULATIONS

Chemical of Concern: Benzo(a)anthracene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

•				
	Basis for Soil Concentration	Conc	Units	
_	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	3.318E-01	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	3.318E-01	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.		
- 4	Soil concentration based on Vapor Pathway	0000		C sat col
	(informational purposes only):	0.00010	mg/kg	sa

saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 8.665E+00 3,215.9 Soil Saturation Limit, Cser: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	VEW			
		1 ~ 1 — Locaro - c				
			Method B	od B	Method	od C
			Unrestricted Land Use	l Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; R	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	A/Z	N/A
	Target Soil	@HQ=1.0	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
			Method B	$\frac{Dd}{B}$	Method C	2d C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK = 1.0E-5
Protection of	inder the other	Predicted Ground Water Conc? ug/l		Ž	N/A	
Potable	Condition	HQ? @ Exposure Point	N/A	A	A/N	A
Ground Water		RISK? @ Exposure Point	A/N	A	N/A	A
	Target Ground Water CUL?	r CUL? ug/l		1.800	1.800E-02	
	Target Soil CUL?	mg/kg		3.318E-01	E-01	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK=1.0E-5
Protection of	ئىيمىيىنى مىلئىسدال	Predicted Air Conc? ug/m³		N/A	Ą	
	Condition	HO? @ Exposure Point	A/X	A	A/N	V
All Cuality		RISK? @ Exposure Point	N/A	A	N/A	A
(Jor algormanoma)	Target Air	@ HQ=1.0	N/A	A	N/A	A
Constant de la consta	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	A
	Target Soil	@ HQ=1.0	N/A	A	N/A	A
	CUL? mg/kg	@ RUSK=1.0E-6 or 1.0E-5	N/A	A	N/A	A

NOTES: "CUL" = Cleanup Level; "Conc" = concentration; "HQ" = hazard quotient; "RISK" = carcinogenic risk.

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - · Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - · Total site risk (see WAC 173-340-750(5)(a)).

12/7/2006

Date: 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

T.			
ıtem	Symbol	Value	Units
1. General information			
Name of Chemical:		Benzo(b)fluoranthene	ranthene
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB		mg/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF , ABS_d , GI :	· >))
Oral Reference Dose:	RfD.		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{a}	7.30E+00	kg-day/mg
Inhalation Reference Dose:	RD^{i}		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters			1
Inhalation Correction Factor (default = "2" for volatiles; "I" for all others): for target ground water cleanup level	HNI	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS_i	_	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	_	unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	\mathcal{E}		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			i
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	$K_{\sigma c}$	1.200E+06	I/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} lack$	4.600E-03	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m ³ /mol", enter value here:	H		atm.m³/mol
$ *Converted unitless form of H_{cc} (a) 13° C$: (Enter this converted value into "H _{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	1.500E-03 mg/l	lmg/l
5. Target Ground Water Cleanup Level			;)
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	۽ ٽ	1.80E-02	ug/1
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43");	z	0.43	Junitless
Volumetric Water Content (default = "0.30");	3) (°	unitless
Volumetric Air Content (default = "0.13"):	Ē	0.13	unitless
Dry Soil Bulk Density (default = "1.50");	o o	1.5	Jkg/i
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{nc} value here	, ,	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern: Benzo(b)fluoranthene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: 5 To calculate a soil concentration based on Method C vapor pathway, check here:

-	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	1.106E+00	ing/kg	
•	Natural Background concentration for Soil:	N/A	ıng/kg	
	Practical Quantitation Limit for Soil:	N/A	gyl/gm	
	Soil Cleanup Level (not considering vapor pathway):	1.106E+00	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	stective of vap	or exposure	
_	pathway - evaluate vapor pathway further.	further.		
	Soil concentration based on Vapor Pathway	1		C sat con
_	(informational purposes only):	0.000E+00	mg/kg	satı

sat corresponds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 4.608E+00 10,717.3 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

		v hy Francius Doth	110/11			
	Cumman	Summary by Exposure Lamway	ı			
			. Method B	<u>ad B</u>	Method	od C
			Unrestricted Land Use	l Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; R	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
			Method B	od B	Meth	Method C
	,		@ HQ=1.0; RISK =1.0E-6	SK ≠1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK = 1.0E-5
Protection of	0 1 1.11	Predicted Ground Water		Ż	N/A	
Potable	Condition	HQ? @ Exposure Point	N/A	, A	Ż	N/A
Ground Water		RISK? @ Exposure Point	N/A	.A	ン	N/A
	Target Ground Water CUL?	er CUL? ug/l		1.800	I.800E-02	
	Target Soil CUL?	mg/kg		1.106	1.106E+00	
			Method B	od B	Meth	Method C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³ @Exposure Point		Ż	N/A	
	Condition	HQ? @ Exposure Point	N/A	A.	Ż	N/A
(for informational		RISK? @ Exposure Point	N/A	'A	Ż	N/A
Uor agormanona nurnose onto	Target Air	@ HQ=1.0	Ņ/A	'A	Ż	N/A
(fine and m)	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	Ż	N/A
	Target Soil	@ HQ=1.0	N/A	'A	Ž	N/A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	Ż	N/A	Z	N/A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

12/7/2006 Site Name: Date:

Former Rhone-Poulenc Site Northwest Corner

Z. Satterwhite Evaluator:

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

women too andre are a mar ware from deep form of the first form			
Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Benzo(k)fluoranthene	anthene
Measured Soil Concentration, if any:	ڒؖ		mg/kg
Natural Background Concentration for Soil:	NB		mg/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS _d , GI:	. [5	,	;
2. Toxicological Properties of the Chemical: Chemical-Specific	3		
Orai Reference Dose:	RD		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{ρ}	7.30E+00	kg-day/mg
Inhalation Reference Dose:	RD_i		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_{i}		kg-day/mg
3. Exposure Parameters	•		·
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	INH	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"). for target air cleanup level	ABS_i		unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	1-	unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	IJ		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter $I\!\!R_d$ value here and enter "1" for f_{ac} value	K oc	1.200E+06	I/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} \blacklozenge$	3.400E-05	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} (B13" C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	ζ	8.000E-04 mg/l]mg/]
5. Target Ground Water Cleanup Level			;)
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	ڻ	1.80E-02	ug/I
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			·
Total Soil Porosity (default = " 0.43 "):	**	0.43	unitless
Volumetric Water Content (default = " 0.30 "):	£	0.3	unitless
Volumetric Air Content (default = "0.13"):	: ; E	0 13	unitless
Dry Soil Bulk Density (default = "1.50");	β Q	1.5]kg/]
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{oc} value here	. J.	0.00256	unitiess
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			, .
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern: Benzo(k)fluoranthene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

>

_		· · · · · · · · · · · · · · · · · · ·]
	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	1.106E+00	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	1.106E+00	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	stective of vap	or exposure	
	pathway - evaluate vapor pathway further.	, further.		
	Soil concentration based on Vapor Pathway	1		C sat corres
	(informational purposes only):	0.000E+00	mg/kg	sature

Seat corresponds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 2.458E+00 10,717.3 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	w hw Evnoemen Doth	7 × 0 × ×			
	Cummai	Summary by Exposure Laurway				
			Meth	Method B	Method	od C
			Unrestricte	Unrestricted Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; I	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of		Predicted Ground Water		Z	N/A	
Dotable	Under the Current	Collet ug/1				
r otable	Condition	HQ? @ Exposure Point	Ż	N/A	N/A	A
Ground Water		RISK? @ Exposure Point	Z	N/A	N/A	A
	Target Ground Water CUL?	er CUL? ug/l		1.800	1.800E-02	
	Target Soil CUL?	mg/kg		1.106	1.106E+00	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
		Predicted Air Conc? ug/m³		Z	N/A	
Frotection of	Under the Current	@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	Z	N/A	N/A	A
for informational		RISK? @ Exposure Point	Z	N/A	A/N	A
purpose only)	Target Air	@ HQ=1.0	Z	N/A	N/A	А
(C	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	Ż	N/A	N/A	A
	Target Soil	@ HQ=1.0	Ž	N/A	N/A	A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	Ż	N/A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - · Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

12/7/2006

Former Rhone-Poulenc Site Northwest Corner Site Name: Date:

Z. Satterwhite Evaluator: Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Bis(2-ethylhexyl)phthalat	cyl)phthalat
Measured Soil Concentration, if any:	ပံ		me/ke
Natural Background Concentration for Soil:	NB,		mg/kg
Practical Quantitation Limit for Soil:	POL_{ϵ}		mg/kë
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS _d , GI:	າ [ີ }		0
2. Toxicological Properties of the Chemical: Chemical-Specific	2]		
Oral Reference Dose:	RED	2.00E-02	me/ke-dav
Oral Carcinogenic Potency Factor:	CPF_s	1.40E-02	ke-dav/me
Inhalation Reference Dose:	RD.		mg/kg-dav
Inhalation Carcinogenic Potency Factor:	CPF		kg-dav/mg
3. Exposure Parameters	7		g
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNI	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS,	1	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	1	unitless
Adherence Factor (default \approx "0.2"); for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	IS		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	1.100E+05	J/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	H_{cc}	4.200E-06	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
$ $ *Converted unitless form of H_{cc} (2.13 $^{\circ}$ C: (Enter this converted value into "H, input Box" above for a calculation)	H	0.000E+00 unitless	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	3.400E-01 mg/l]mg/l
5. Target Ground Water Cleanup Level			,
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	_د	2.20E+00	l/gn
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	11	0.43	Junitless
Volumetric Water Content (default = "0.30"):	3	0.3	unitless
Volumetric Air Content (default = "0.13"):	D	0.13	_ unitless
Dry Soil Bulk Density (default = "1.50"):	g Q	15]ke/l
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{ac} value here	, °	0.00256	- unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil laver) Mechanisms			7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern: Bis(2-ethylhexyl)phthalate

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: - To calculate a soil concentration based on Method C vapor pathway, check here:

•				
	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	1.240E+01	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
•	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway): 1.240E+01	1.240E+01	ıng/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	, further.		
- 4	Soil concentration based on Vapor Pathway			ပ င ^{sat} ပ
<u> </u>	(informational numoses only).	0.00E+00	mg/kg	U.

saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 9.581E+01 983.3 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	Vew			
	A 44 A 44 A 44 A 44 A 44 A 44 A 44 A 4	o of the population				
			Method	od B	Method	od C
			Unrestrictea Lana Use	ı Lana Use	Industrial Land Use 	Lana Use
			@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct		٠	Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	1.600E+03	N/A	7.000E+04	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	7.143E+01	N/A	9.375E+03	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	1 (1 molecules)	Predicted Ground Water Conc? ug/l		Ż	N/A	
Potable	Condition	HQ? @ Exposure Point	N/A	Y.	N/A	Y.
Ground Water		RISK? @ Exposure Point	N/A	Y,	N/A	YA.
-	Target Ground Water CUL?	er CUL? ug/l		2.200	2.200E+00	•
	Target Soil CUL?	mg/kg		1.240	1.240E+01	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Dector		Predicted Air Conc? ug/m3		Z	N/A	
roncenon or	Under the Current	(@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	N/A	'A	Ż	N/A
(for informational		RISK? @ Exposure Point	N/A	,A	Ż	N/A
nurnose only)	Target Air	@ HQ=1.0	N/A	'A	Ż	N/A
77	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	Ż	N/A
	Target Soil	@ HQ=1.0	'N	N/A	Ż	N/A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	Z	N/A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - · Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

<u>Date:</u>

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Butyl benzyl phthalate	phthalate
Measured Soil Concentration, if any:	Ċ.		mg/kg
Natural Background Concentration for Soil:	NB		mg/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS d, GI:	· [>))
2. Toxicological Properties of the Chemical: Chemical-Specific			
Oral Reference Dose:	R/D 。	2.00E-01	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{s}		kg-day/mg
Inhalation Reference Dose:	RD_i	2.00E-01	mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters	•		; ,
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS_i	_	unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default $=$ "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	<u>E</u>		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "I" for f_{ac} value	K oc	1.400E+04	l/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} \blacklozenge$	5.200E-05	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13 o C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E + 00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	5	2.700E+00 mg/l	Jme/I
5. Target Ground Water Cleanup Level			
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
	ů	1.90E+03	ug/I
not automatically transferred into this worksheet.	:)
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	u	0.43	Junitless
Volumetric Water Content (default = "0.30");	E	0.15	unitless
Volumetric Air Content (default = "0.13"):	<u>}</u>	0.3	diff.
Dry Soil Bulk Density (default = "1.50").) (CI.V	
	h^b	1.5	Kg/l
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{oc} value here	f oc	0.00256	unitless
Dilution Factor (default $=$ "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms	[7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Butyl benzyl phthalate Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here:

 \Box

	Warning: Soil Cleanup Level is higher than Soil Saturation	Limit						C _{sat} corresponds to the total soil chemical concentration	saturated in soil.
Units		mg/kg	mg/kg	mg/kg	mg/kg	or exposure		H	mg/kg
Conc		1.370E+03	N/A	N/A	1.370E+03	tective of vap	/ further.	00000	0.00015
Basis for Soil Concentration	Most stringent soil concentration based on Soil Direct	Contact & Ground Water Protection:	Natural Background concentration for Soil:	Practical Quantitation Limit for Soil:	Soil Cleanup Level (not considering vapor pathway):	Warning! Soil Cleanup Level above may not be protective of vapor exposure	pathway - evaluate vapor pathway further.	Soil concentration based on Vapor Pathway	(informational purposes only):

A is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 9.731E+01 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	wav			
		, , , , , , , , , , , , , , , , , , ,	$\ $	1.0	3.6.4	7
			Unrestricted La	Unrestricted Land Use	Industrial Land Use	oa C Land Use
			@ HQ=1.0; I	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	1.600E+04	N/A	7.000E+05	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Meth	Method B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of		Predicted Ground Water		Ž	N/A	
	Under the Current	Conc? ug/l		, k T	***	
rotable	Condition	HQ? @ Exposure Point	Z	N/A	N/A	Ą
Ground Water		RISK? @ Exposure Point	Z	N/A	N/A	Ą
	Target Ground Water CUL?	er CUL? ug/l		1.900	1.900E+03	
	Target Soil CUL?	ing/kg		1.370	.370E+03	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	(SK =1,0E-5
;		Predicted Air Conc? ug/m3		Ž	N/A	
Protection of	Under the Current	@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	N	N/A	N/A	A
for informational		RISK? @ Exposure Point	Ž	N/A	N/A	A
yor myormanomu purpose only)	Target Air	@ HQ=1.0	3.200	3.200E+02	7.000	7.000E+02
(f a x x	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5		N/A	N/A	A
	Target Soil	@ HQ=1.0	0.000	0.000E+00	0.000	0.000E+00
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5		N/A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i);
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

12/7/2006 Site Name: Date:

Former Rhone-Poulenc Site Northwest Corner Evaluator:

Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Chrysene	
Measured Soil Concentration, if any:	Ċ		mg/kg
Natural Background Concentration for Soil:	NB		ing/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS_d , GI :))
2. Toxicological Properties of the Chemical: Chemical-Specific			
Oral Reference Dose:	RfD		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_a	7.30E+00	kg-day/mg
Inhalation Reference Dose:	RD_i	l	mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters	•		}
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS_i	I	unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cm ² -day
. Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	<i>I</i> 5		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			ī
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	4.000E+05	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} \blacklozenge$	3.900E-03	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} (@13° C: (Enter this converted value into "H," input Box" above for a calculation)	H_{cc}	0.000E+00 unitless	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit 5. Target Ground Water Cleanup Level	Ŋ	1.600E-03]mg/I
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation: *Results from the Ground Water Cleanup I evel Worksheet are	<u>.</u> ن	1.80E-02	1/611
not automatically transferred into this worksheet.	≜ !		, b
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	u	0.43	unitless
Volumetric Water Content (default = "0.30"):	Ē	0.3	unitless
Volumetric Air Content (default = "0.13");	3	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	p b	1.5]kg/1
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_{oc} value here	for	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			'n
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern:

Chrysene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: To calculate a soil concentration based on Method C vapor pathway, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

5

•				
	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	3.687E-01	ıng/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	3.687E-01	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.		
4	Soil concentration based on Vapor Pathway			C _{sat} corres
	(informational purposes only):	0.000E+00	mg/kg	satura

sat corresponds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 1.639臣+00 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	Wav	:		
			Mathoda	AB	Mathod	040
			Unrestricted Land Use	oa <u>b</u> 1 Land Use	Industrial Land Use	oa C Land Use
			@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
			Ī	Method B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of		Predicted Ground Water		Ż	N/A	
Dotoble	Under the Current	Collet ug/1		,		į
Fotable	Condition	HQ? @ Exposure Point	N/A	Α,	N/A	'A
Ground Water		RISK? @ Exposure Point	N/A	'A	N/A	'A
	Target Ground Water CUL?	ar CUL? . ug/l	_	1.800	1.800E-02	E
	Target Soil CUL?	mg/kg		3.687	3.687E-01	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³ @Exposure Point		Ż	N/A	
Air Onality	Condition	HQ? @ Exposure Point	N/A	Α,	N/A	'A
(for informational		RISK? @ Exposure Point	N/A	Α,	N/A	Α,
nurnose only)	Target Air	@ HQ=1.0	N/A	'A	'N	N/A
(C) J J	CUL? ug/m³	@ RUSK=1.0E-6 or 1.0E-5	N/A	'A	N/A	'A
	Target Soil	@ HQ=1.0	Ŋ	N/A	N/A	'A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5		N/A	Ż	N/A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a))

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i);
- Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

12/7/2006 Site Name:

Former Rhone-Poulenc Site Northwest Corner Z. Satterwhite

Evaluator:

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

The state of the s			
Item	Symbol	Value	Units
1. General information			
Name of Chemical:		Dibenzo(a,h)anthracene	anthracene
Measured Soil Concentration, if any:	ێ		mg/kg
Natural Background Concentration for Soil:	NB_s		mg/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS _a , GI:	· [<u>.</u>		, ,
2. Toxicological Properties of the Chemical: Chemical-Specific]		
Oral Reference Dose:	RID		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{a}	7.30E+00	kg-day/mg
Inhalation Reference Dose:	R/D ,		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters			7
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS_i		unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	\mathcal{E}_{I}		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			,
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	. K oc	1.800E+06	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} +$	6.000E-07	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13°C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	2.500E-03 mg/l]me/l
5. Target Ground Water Cleanup Level			ָ ס
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	ů	1.80压-02	l/gu
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	2	0.43	mitless
Volumetric Water Content (default = "0.30"):	£	0.3	unitless
Volumetric Air Content (default = " 0.13 ");	Ē	0.13	Junit less
Dry Soil Bulk Density (default = "1.50");	ρα	1.5	 kg/
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{ac} value here	o 5	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms	!		7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern: Dibenzo(a,h)anthracene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: To calculate a soil concentration based on Method C vapor pathway, check here:

_	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	1.659E+00	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	1.659E+00	mg/kg	٠
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	ective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.		
A	Soil concentration based on Vapor Pathway	1000		C sat corr
_	(informational purposes only):	0.000E+00	mg/kg	satn

saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 1.152E+01 16,075.4 Soil Saturation Limit, Csat: Retardation Factor, R:

y of Calculation for each Exposure Pathway	
ry of Calculation for ea	
2. Summan	

	Summar	Summary by Exposure Pathway	Wav		-	
		o ~ o — I ~ ~ ~ o				
			Method B	<u>od B</u> 4 I and Hua	Method C	$\frac{2d}{C}C$
			@ HQ=1.0; R	@ HQ=1.0; RISK =1.0E-6	(a) HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	0.1=ÇHØ	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	,	Predicted Ground Water		Ż	N/A	
Data Li	Under the Current	Colic: ug/1				
Fotable	Condition	HQ? @ Exposure Point	N/A	A	N/A	Ą
Ground Water		RISK? @ Exposure Point	N/A	A.	N/A	A
	Target Ground Water CUL?	er CUL? ug/l		1.800	1.800E-02	
	Target Soil CUL?	mg/kg		1.659	1.659E+00	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	Tinder the Current	Predicted Air Conc? ug/m³		Ż	N/A	
	Condition	HQ? @ Exposure Point	N/A	Ą	N/A	A
Gor informational		RISK? @ Exposure Point	N/A	Ą	N/A	A
yor agornamona parpose only)	Target Air	@ HQ=1.0	N/A	Ą	N/A	A
	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	¥
	Target Soil	@ HQ=1.0	N/A	A	N/A	A
	CUL? mg/kg	@ RUSK=1.0E-6 or 1.0E-5	N/A	A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

Date: 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		di-butyIphthalate	ılate
Measured Soil Concentration, if any:	ێ		mg/kg
Natural Background Concentration for Soil:	NB		mg/kg
Practical Quantitation Limit for Soil:	PQL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS d, GI:)
2. Toxicological Properties of the Chemical: Chemical-Specific			
Oral Reference Dose:	RID.	1.00E-01	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_{n}		kg-day/mg
Inhalation Reference Dose:	R(D)		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters	•) ;
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level] HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS_i	_	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults); for dermal exposure pathway	CT.		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific	'		
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{ac} value	K oc	1.600E+03	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} left$	3.900E-08	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m ³ /mol", enter value here:	Н		atm.m³/mol
*Converted unitless form of H_{cc} @13 o C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	1.100E+01 mg/l	7mg/1
5. Target Ground Water Cleanup Level			j 7
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			_
*Results from the Ground Water Cleanup Level Worksheet are	ڻ	4.50E+03	l/gu
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = " 0.43 "):	"	0.43	Imitless
Volumetric Water Content (default = "0.30"):	3	0.3	unitless
Volumetric Air Content (default = "0.13"):	E	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	ρ η	1.5]kg/1
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_{ac} value here	, ,,	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "I" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil laver) Mechanisms			7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

di-butylphthalate Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: > -To calculate a soil concentration based on Method C vapor pathway, check here:

[>]

Basis for Soil Concentration	Сопс	Units	
Most stringent soil concentration based on Soil Direct			Warning: Soil Cleanup Level is higher than Soil Saturation
Contact & Ground Water Protection:	3.866E+02	mg/kg Limitl	Limiti
Natural Background concentration for Soil:	N/A	mg/kg	
Practical Quantitation Limit for Soil:	N/A	mg/kg	
Soil Cleanup Level (not considering vapor pathway): 3.866E+02	3.866E+02	mg/kg	
Warning! Soil Cleanup Level above may not be protective of vapor exposure	rotective of vap	or exposure	
pathway - evaluate vapor pathway further.	ay further.		
Soil concentration based on Vapor Pathway (informational purposes only):	0.000E+00	mg/kg	C _{set} corresponds to the total soil chemical concentration saturated in soil.

lacksquare R is the ratio of the ground water flow velocity to the

contaminant migration velocity in saturated zone. R is the ratio of the ground water flow velocity to the mg/kg unitless 4.726E+01 Soil Saturation Limit, Csat: Retardation Factor, R:

ardation Factor, K: unitless

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	Wav			
		, , , , , , , , , , , , , , , , , , ,	Method	od B	Method	od C
			Unrestricted Land Use	d Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	8.000E+03	N/A	3.500E+05	N/A
	CUL? mg/kg	@RISK=1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	Under the Current	Predicted Ground Water Conc? ug/l		Ż	N/A	
Potable	Condition	HQ? @ Exposure Point	N/A	Ą	A/N	A
Ground Water		RISK? @ Exposure Point	N/A	Ą	A/N	A
	Target Ground Water CUL?	er CUL? ug/l		4.500	4.500E+03	
	Target Soil CUL?	mg/kg		3.866	3.866E+02	
-			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³ @Exposure Point		Ŋ	N/A	
Air Onality	Condition	HQ? @ Exposure Point	N/A	A	N/A	A
(for informational		RISK? @ Exposure Point	N/A	А	N/A	A
purpose only)	Target Air	@ HQ=1.0	N/A	Ą	N/A	A
, a	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	A
	Target Soil	@ HQ=1.0	N/A	A	N/A	A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

<u>Date:</u>
Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

T.	,		
Arem	Symbol	Value	Units
1. General information			
Name of Chemical:		fluoranthene	
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB_s		mg/kg
Practical Quantitation Limit for Soil:	POL_s		mg/kg .
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS _d , GI:	· [>)
2. Toxicological Properties of the Chemical: Chemical-Specific			
Oral Reference Dose:	R/D,	4.00E-02	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_s		kg-day/mg
Inhalation Reference Dose:	R(D)		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_{i}		kg-day/mg
3. Exposure Parameters	•) ,
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others); for target ground water cleanup level	HNI	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS_i	-	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	_	unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cm²-day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	\mathcal{B}		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			1
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K oc	4.900E+04	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	H_{cc}	6.600E-04	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13° C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E + 00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	S	2.100E-01 mg/l] mg/1
5. Target Ground Water Cleanup Level) T
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	Ċ	1.40E+02	l/gu
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = $"0.43"$):	u	0.43	Tunifless
Volumetric Water Content (default = "0.30"):	: (3)	0.3	unitless
Volumetric Air Content (default = "0.13"):	Ē.	0.13	umitless
Dry Soil Bulk Density (default = "1.50"):	х ч 9	C	
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{aa} value here	, t	0.00256	
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	1
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil laver) Mechanisms	I I		7
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern:

fluoranthene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: > To calculate a soil concentration based on Method C vapor pathway, check here:

 $\overline{\Sigma}$

Warning: Soil Cleanup Level is higher than Soil Saturation Limit Warning! Soil Cleanup Level above may not be protective of vapor exposure mg/kg mg/kg Units mg/kg mg/kg 3.518E+02. 0.000E+00 3.518E+02 Conc N/A N/A pathway - evaluate vapor pathway further. Most stringent soil concentration based on Soil Direct Soil Cleanup Level (not considering vapor pathway): Natural Background concentration for Soil: Soil concentration based on Vapor Pathway Basis for Soil Concentration Practical Quantitation Limit for Soil: Contact & Ground Water Protection: (informational purposes only):

C sat corresponds to the total soil chemical concentration saturated in soil.

 ${m R}$ is the ratio of the ground water flow velocity to the

contaminant migration velocity in saturated zone. R is the ratio of the ground water flow velocity to the mg/kg 2.638E+01 438.6 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

Under Conditi Target CUL?	he Current on Soil mg/kg	Unr (@1	Method	d B	Method	77
	Current		Melli	Da B	Moth	
	Current Sykg		Unrestricted Land Use	l Land Use	Industrial Land Use	Land Use
	Current J/kg		@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
	Jurrent //kg		Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Condition Target S	g/kg	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
Target CUL?] g/kg	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
CUL?	g/kg	@HQ=1.0	3.200E+03	N/A	1.400E+05	N/A
		@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
		-	Method B	nd B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of Under the Current		Predicted Ground Water Conc? ug/l		Ż	N/A	
Fotable Condition		HQ? @ Exposure Point	N/A	Ą	N/A	A
Ground Water		RISK? @ Exposure Point	A/N	A	N/A	A
	Target Ground Water CUL?	CUL? ug/l		1.400	1.400E+02	
Target Soil CUL?		mg/kg		3.518E+02	E+02	
61 61 61 61 61 61 61 61 61 61 61 61 61 6			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	3K =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of Under the Curent		Predicted Air Conc? ug/m³ @Exposure Point		N/A	, Y	
Air Onality Condition		HQ? @ Exposure Point	N/A	A	N/A	A
(for informational		RISK? @ Exposure Point	Y/N	A	Y/N	A
nurnose only)		@ HQ=1.0	N/A	A	N/A	Ą
CUL? ug/m³	/m³	@ RISK=1.0E-6 or 1.0E-5	W/N	A	N/A	A
Target Soil		@ HQ=1.0	N/A	A	N/A	A
CUL? mg/kg	g/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup'Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i))
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a))

<u>12/7/2006</u>

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information	2		
Name of Chemical:		indeno(1.2,3-cd)nyrene	cd)nyrene
Measured Soil Concentration, if any:	ບັ		me/kg
Natural Background Concentration for Soil:	NB.		mg/kg
Practical Quantitation Limit for Soil:	POL_{c}		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS,, GI:			D
2. Toxicological Properties of the Chemical: Chemical-Specific	3		
Oral Reference Dose:	R/D,		mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_s	7.30E+00	kg-dav/mg
Inhalation Reference Dose:	RID.		mø/kø-dav
Inhalation Carcinogenic Potency Factor:	CPF		kg-dav/mg
3. Exposure Parameters	•		
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS	-	unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	-	unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	U		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			1
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	3.500E+06	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} lack$	6.600E-05	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m 3/mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13" C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc}	0.000E + 00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	S	2.200E-05 mg/l	mg/l
5. Target Ground Water Cleanup Level			1
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	ڻ ت	1.80E-02	ng/l
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43");	z	0.43	Junitless
Volumetric Water Content (default = "0.30"):	E	200	unitless
Volumetric Air Content (default = "0.13"):	÷ (2	0.13	unitless
Dry Soil Bulk Density (default = "1.50");	р Q	1.5]ke/l
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_{n} , value here	, j	0.00256	unitless
Dilution Factor (default $=$ "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil laver) Mechanisms			1
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

indeno(1,2,3-cd)pyrene Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

its	Warning: Soil Cleanup Level is higher than Soil Saturation	mg/kg Limit	/kg	/kg	/kg	ə.mso		C _{set} corresponds to the total soil chemical concentration	/kg saturated in soil
Units		[/gm	mg/kg	mg/kg	mg/kg	oor expo			mg/kg
Conc		3.226E+00	N/A	N/A	3.226E+00	otective of vap	y further.	1000	0.000E+00
Basis for Soil Concentration	Most stringent soil concentration based on Soil Direct	Contact & Ground Water Protection:	Natural Background concentration for Soil:	Practical Quantitation Limit for Soil:	Soil Cleanup Level (not considering vapor pathway): 3.226E+00	Warning! Soil Cleanup Level above may not be protective of vapor exposure	pathway - evaluate vapor pathway further.	Soil concentration based on Vapor Pathway	(informational mirroses only).

ncentration

R is the ratio of the ground water flow velocity to the

contaminant migration velocity in saturated zone. $\mid R \mid$ is the ratio of the ground water flow velocity to the 1.971E-01 mg/kg 31,256.8 unitless Soil Saturation Limit, Csar: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summer	Summary by Exposure Dathway	V. 0.7XY			
		y by Eaples and	∦			
			Meth	Method B	Method	od C
			Unrestricte	Unrestricted Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; l	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	N/A	N/A	N/A	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	1.370E-01	N/A	1.798E+01	N/A
		-	Meth	Method B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	15K = 1.0E - 5
Protection of		Predicted Ground Water		之	N/A	
Detable	Under the Current	Come; ag/1				-
rotable	Condition	HQ? @ Exposure Point	Z	N/A	N/A	, Y
Ground Water		RISK? @ Exposure Point	N	N/A	N/A	V,
	Target Ground Water CUL?	er CUL? ug/l		1.800	I.800E-02	
	Target Soil CUL?	mg/kg		3.226	3.226E+00	
			Meth	Method B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Dector		Predicted Air Conc? ug/m³		Ż	N/A	ĺ
TO HOLLON OF	Under the Current	@Exposure Foint				
Air Onality	Condition	HQ? @ Exposure Point	N	N/A	N/A	'A
(for informational		RISK? @ Exposure Point	Ž	N/A	N/A	V,
purpose only)	Target Air	@ HQ=1.0	N	N/A	N/A	Ą
(C X X X	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N .	N/A	N/A	'A
	Target Soil	@ HQ=1.0	Z	N/A	N/A	'A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N	N/A	N/A	'A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494), and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i))
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

<u>Date:</u> 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Units
1. General information			
Name of Chemical:		pentachlorophenol	loue
Measured Soil Concentration, if any:	ບໍ	7	mg/kg
Natural Background Concentration for Soil:	NB.		me/ke
Practical Quantitation Limit for Soil:	POL_{ς}		me/ke
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS, GI:	· 🗅		0
2. Toxicological Properties of the Chemical: Chemical-Specific	•		
Oral Reference Dose:	RED	3.00E-02	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_s	Ī	kg-day/mg
Inhalation Reference Dose;	R(D)		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF		kg-day/mg
3. Exposure Parameters	•)
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS;	1	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	_	unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cin²-day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	E		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{ac}	5.900E+02	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} +$	1.000E-06	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} @13°C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H _{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	S	2.000E+03 mg/l	mg/l
5. Target Ground Water Cleanup Level)
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	ڻ	7.90E+00	ug/l
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = "0.43"):	и	0.43	unitless
Volumetric Water Content (default = "0.30");	3	0.3	unitless
Volumetric Air Content (default = "0.13");	Đ	0.13	⊐ unitless
Dry Soil Bulk Density (default = "1.50");	o Q	1.5	kg/l
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_{oc} value here	f_{ac}	0.00256	unitless
Dilution Factor (default = " 20 " for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms * Vanor Attenuation Factor is the metical formula of the second of			1
apol antenuación i actor is the ratio of vapor-phase contaminant concentration within the sout at the source to the air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

pentachlorophenol Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: To calculate a soil concentration based on Method C vapor pathway, check here:

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•				
	Basis for Soil Concentration	Сопс	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	2.702E-01	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	ıng/kg	
	Soil Cleanup Level (not considering vapor pathway):	2.702E-01	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.		
4	Soil concentration based on Vapor Pathway	1 C C C C		C sat COTT
	(informational purposes only):	0.000五十00	mg/kg	satn

responds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg 3.421E+03 Soil Saturation Limit, Csat Retardation Factor, R:

	Į.	3				
	Summar	Summary by Exposure Pathway	ıway			
			Meth	Method B	Method	<u>id C</u>
			Unrestricte	Unrestrictea Land Use	Industrial Land Use	Land Use
			@ HQ=1.0;]	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	2.400压+03	N/A	1.050E+05	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	8.333E+00	N/A	1.094E+03	N/A
			Method B	od B	Method	dC
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of		Predicted Ground Water		N/A	'A	
Potable	Condition	HO? @ Exnosure Point	V/N	Δ,	A1/A	
-		Target of Lancauch	/47	t :	ZNI	4
Ground Water		KISK? @ Exposure Point	N/A	Α,	N/A	4
	Target Ground Water CUL?	er CUL? ug/l		7.900E+00	E+00	
	Target Soil CUL?	mg/kg		2.702E-01	E-01	
			Method B	od B	Method C	id C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³		N/A	Ą	
Air Onality	Condition	HQ? @ Exposure Point	N/A	Y.	A/V	
(for informational		RISK? @ Exposure Point	A/N	'A	N/A	
purpose only)	Target Air	@ HQ=1.0	N/A	'A	N/A	4
	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	A	W/N	
	Target Soil	@ HQ=1.0	N/A	A	W/N	
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	N/A	4

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- · Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i))
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a))

Date: 12/7/2006
Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

ltem	Symbol	Value	Units
1. General information			
Name of Chemical:		phenol	
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB_s		mg/kg
Practical Quantitation Limit for Soil:	POL_s		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS, GI:	· [3))
2. Toxicological Properties of the Chemical: Chemical-Specific	•]		
Oral Reference Dose:	RID,	6.00E-01	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_s		kg-day/mg
Inhalation Reference, Dose:	RID.		me/ke-day
Inhalation Carcinogenic Potency Factor:	CPF		kg-day/mg
3. Exposure Parameters	•) ,
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others); for target ground water cleanup level	HNII	2.00E+00	unitless
Inhalation Absorption Fraction (default $=$ "1"): for target air cleanup level	ABS_i	,	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI	1	unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABSa		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	\mathcal{E}		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			Ī
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K oc	2.900E+01	I/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} \blacklozenge$	1.600E-05	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m." (mol", enter value here:	Ħ		atm.m³/mol
$ $ *Converted unitless form of H_{cc} (2)13° C: (Enter this converted value into "H _{cc} input Box" above for a calculation)	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	Ŋ	8.300E+04 me/1	lmg/1
5. Target Ground Water Cleanup Level	ı.		
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	Č	1.70E+06 ug/i	ug/i
not automatically transferred into this worksheet.)
6. Site-Specific Hydrogeological Characteristics			
Total Soil Porosity (default = " 0.43 ");	2	0.43	Imitlese
Volumetric Water Content (default = "0.30"):	3	0 3	unitless
Volumetric Air Content (default = "0.13"):	E	0.13	unithes
Dry Soil Bulk Density (default = "1.50");	8 4 0	7 1	T _[co/]
Fraction Soil Organic Carbon (default = "0.001"); for metals, enter "1" for f_{∞} value here	· •	0.00756	nnitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-snecific)) ac	2000	umitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms	į	21	
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

B. SUMMARY OF SOIL CLEANUP LEVEL CALCULATIONS

phenol

Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

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	and a support of the	umad rada .	ay, curoon us	į
	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	9.324E+03	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	9.324E+03	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	otective of vap	or exposure	
	pathway - evaluate vapor pathway further.	y further.		
4	Soil concentration based on Vapor Pathway			C
	(informational purposes only):	0.000E+00	mg/kg	

corresponds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 2.276E+04 Soil Saturation Limit, Csat: Retardation Factor, R:

2. Summary of Calculation for each Exposure Pathway

	Summar	Summary by Exposure Pathway	way			
			$rac{Method B}{Unrestricted Land Use}$	od <u>B</u> I Land Use	Method C Industrial Land Use	<u>od C</u> Land Use
			@ HQ=1.0; F	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	4.800E+04	N/A	2.100E+06	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Under the Current	Predicted Ground Water Conc? ug/l		Ż	N/A	; ;
Potable	Condition	HQ? @ Exposure Point	N/A	Ą,	N/A	A
Ground Water		RISK? @ Exposure Point	N/A	,A	A/N	Ą
	Target Ground Water CUL?	er CUL? ug/l		1.700	1.700E+06	
	Target Soil CUL?	mg/kg		9.324E+03	E+03	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
•		Predicted Air Conc? ug/m3		Ż	N/A	
Protection of	Under the Current	@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	N/A	,A	N/A	A
for informational		RISK? @ Exposure Point	N/A	A	N/A	Ą
purpose only)	Target Air	@ HQ=1.0	N/A	A	N/A	Ą
(f	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	.A	N/A	Ą
	Target Soil	@ HQ=1.0	N/A	Ą	N/A	Ą
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	N/A	Α .

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i)
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a))

<u>Date:</u> 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Tfpn	0	47.	
	Symbol	value	Units
1. General information			
Name of Chemical:		outen	
Managed Coll Constitution 16	(рутеме	
iveasured 30th Collectinguith, it any:	ڻ		mg/kg
Natural Background Concentration for Soil;	NB		me/ko
Practical Quantitation Limit for Soil:	POI		- me/ne me/ka
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS, GI:	5 E		J***/8***[
	5		
Oral Reference Dose:	RfD	3 00F-02	Imo/ko-day
Oral Carcinogenic Potency Factor:	CPF	7000	lca-dav/ma
Inhalation Reference Dose:	RfD.		me/ka-day
Inhalation Carcinogenic Potency Factor:	CPF.		has/ng-day
3. Exposure Parameters	1 4 45		اساریت عبد[
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	HNI	1.00E+00	Junitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS:	-	unitless
Gastrointestinal Absorption Fraction (default = "1"): for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mø/cm²-dav
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS,		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults); for dermal exposure pathway	E		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			-
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	6.800E+04	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} \blacklozenge$	4.500E-04	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m." /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} (\$\overline{Q}13\ove	H.	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	ζ.	1.400E-01 mg/l	l'aul
5. Target Ground Water Cleanup Level	-		, b
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	Č	4.00匝+03	ug/1
not automatically transferred into this worksheet.			
6. Site-Specific Hydrogeological Characteristics			-
Total Soil Porosity (default = " 0.43 "):	"	0.43	Tunitlese
Volumetric Water Content (default = "0.30"):	Ð	0.3	unitless
Volumetric Air Content (default = "0.13");	 È	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	, O	2.15 7.15	
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_a , value here) ; ;	0.00256	unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms	_ [<u> </u>
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		unitless

Chemical of Concern:

pyrene

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: > Fo calculate a soil concentration based on Method C vapor pathway, check here:

 \Box

Warning: Soil Cleanup Level is higher than Soil Saturation Limit Warning! Soil Cleanup Level above may not be protective of vapor exposure mg/kg mg/kg mg/kg mg/kg mg/kg Units 1.394E+04 0.000压+00 1.394臣+04 Conc N/A N/A pathway - evaluate vapor pathway further. Most stringent soil concentration based on Soil Direct Soil Cleanup Level (not considering vapor pathway): Soil concentration based on Vapor Pathway Natural Background concentration for Soil: Basis for Soil Concentration Contact & Ground Water Protection: Practical Quantitation Limit for Soil: (informational purposes only):

C_{set} corresponds to the total soil chemical concentration saturated in soil.

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 2.440E+01 608.3 Soil Saturation Limit, Csat: Retardation Factor, R:

	Summar	Summary by Exposure Pathway	Wav			
			$\ $,	
			Meth	Method B	Method	2d C
			Unrestricte	Unrestricted Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; I	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	2.400E+03	N/A	1.050E+05	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	od C
			@ I-IQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of		Predicted Ground Water		Ż	V/V	
10.4.1.1.	Under the Current	Conc? ug/l		/k1	¢.	
Fotable	Condition	HQ? @ Exposure Point	N/A	'A	A/N	Ą
Ground Water	·	RISK? @ Exposure Point	N/A	'A	N/A	Ą
	Target Ground Water CUL?	er CUL? 'ug/l		4.000	4.000E+03	
	Target Soil CUL?	mg/kg		1.394	1.394E+04	
			Method B	od B	Method C	ρd C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
		Predicted Air Conc? ug/m3		N/A	\ A \	
Frotection of	Under the Current	@Exposure Point				
Air Onality	Condition	HQ? @ Exposure Point	N/A	'A	N/A	Ą
(for informational	1	RISK? @ Exposure Point	N/A	A	N/A	A
purpose only)	Target Air	@ HQ=1.0	N/A	'A	N/A	A
*	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	N/A	A
	Target Soil	@ HQ=1.0	N/A	'A	N/A	Ą
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	'A	N/A	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i);
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i);
- Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

<u>Date:</u> 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol	Value	Unite
1. General information			
Name of Chemical:	1 02	selenium	
Measured Soil Concentration, if any:	ێ		mg/kg
Natural Background Concentration for Soil:	$NB_{\rm c}$		mg/kg
Practical Quantitation Limit for Soil:	POL		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS _d , GI:) • [2		0
]		
Oral Reference Dose:	RfD,	5.00E-03	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF"		kg-day/mg
Inhalation Reference Dose:	R(D)		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF_i		kg-day/mg
3. Exposure Parameters) ,
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level] HNI	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"): for target air cleanup level	ABS	-	unitless
Gastrointestinal Absorption Fraction (default = "I"): for ingestion & dermal exposure pathways	ABI		unitless
Adherence Factor (default = " 0.2 "): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS_d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	T5		unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific	I		1
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K oc	5.000E+00	1/kg ·
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc.} lack$	0.000E+00	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m" /mol", enter value here:	H		atm.m³/mol
*Converted unitless form of H_{cc} (2) (Enter this converted value into " H_{cc} input Box" above for a calculation)	H^{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	لکر		mg/l
5. Target Ground Water Cleanup Level			ı 1
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:	(<u> </u>
*Results from the Ground Water Cleanup Level Worksheet are	ؿ	7.10E+01	ng/l
not automatically transferred into this worksheet.			-
6. Site-Specific Hydrogeological Characteristics			
. Total Soil Porosity (default = "0.43"):	u	0.43	Tunitless
Volumetric Water Content (default = " 0.30 "):	Ē	0.3	unitless
Volumetric Air Content (default = " 0.13 "):	· ~	0.13	J unitless
Dry Soil Bulk Density (default = "1.50"):	D h	1.5]kg/l
Fraction Soil Organic Carbon (default = "0.001"): for metals, enter "1" for f_{∞} value here	, , ,		unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
7. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil layer) Mechanisms			٦
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		mitless

Chemical of Concern:

selenium

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here:

[]

- To calculate a soil concentration based on Method C vapor pathway, check here:

basis for Soil Concentration	Conc	Units	
Most stringent soil concentration based on Soil Direct			Warning: Soil Cleanup Level is higher than Soil Saturation
Contact & Ground Water Protection:	7.384E+00	mg/kg	Limit
Natural Background concentration for Soil:	A/X	mg/kg	
 Practical Quantitation Limit for Soil:	N/A	mg/kg	
 Soil Cleanup Level (not considering vapor pathway):	7.384E+00	mg/kg	
 Warning! Soil Cleanup Level above may not be protective of vapor exposure	otective of vap	or exposure	
pathway - evaluate vapor pathway further.	ty further.		
 Soil concentration based on Vapor Pathway	00000		C _{sat} corresponds to the total soil chemical concentration
(informational purposes only):	0.00000	ing/kg	saturated in soil.

 $oldsymbol{-}R$ is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 0.000臣+00 18.4 Soil Saturation Limit, Csat: Retardation Factor, R:

	Summar	Summary by Exposure Pathway	wav			
			Method	od B	Method	od C
			Unrestricted Land Use	l Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; R	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	4.000E+02	N/A	1.750E+04	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	od C
			@ HQ=1.0; RUSK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Under the Current	Predicted Ground Water Conc? ug/l		N/A	'A	
Potable	Condition	HQ? @ Exposure Point	N/A	A	N/A	A
Ground Water		RISK? @ Exposure Point	Y/N	A	N/A	Ą
	Target Ground Water CUL?	er CUL? ug/l		7.100	7.100E+01	
	Target Soil CUL?	mg/kg		7.384E+00	E+00	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Under the Current	Predicted Air Conc? ug/m³ @Exposure Point		N/A	Α,	
Air Onality	Condition	HQ? @ Exposure Point	N/A	A	A/N	, A
(for informational		RISK? @ Exposure Point	N/A	A	N.	N/A
ourpose only)	Target Air	@ HQ=1.0	N/A	A	Ż	N/A
(C 444)	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	N/A	A	Ż	N/A
	Target Soil	@ HQ=1.0	N/A	A	Ŋ	N/A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	Ż	N/A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- · Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a))

Date: 12/7/2006 Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

7.1	,		
ltem	Symbol	Value	Units
1. General information			
Name of Chemical:		silver	
Measured Soil Concentration, if any:	ڻ		mg/kg
Natural Background Concentration for Soil:	NB,		mg/kg
Practical Quantitation Limit for Soil:	POL		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS_d , GI :	, [<u>5</u>))
2. Toxicological Properties of the Chemical: Chemical-Specific]		
Oral Reference Dose:	RPD,	5.00E-03]mg/kg-day
Oral Carcinogenic Potency Factor:	CPF_s		kg-day/mg
Inhalation Reference Dose:	RfD,		mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF		kg-day/mg
3. Exposure Parameters	•) ,)
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others); for target ground water cleanup level	HNII	1.00E+00	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS_i	1	unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	-	unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF	0.2	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS _d		unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	CI	:	unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			1
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K_{oc}	8.300E+00 1/kg	1/kg
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	$H_{cc} lack$	0.000E+00	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m 3 /mol", enter value here:	H		atm.m³/mol
$ *Converted unitless form of H_{cc} \otimes 13^{\circ} C: (Enter this converted value into "H_{cc} input Box" above for a calculation)$	H_{cc}	0.000E+00	unitless

Solubility of the Chemical in Water: for the calculation of soil saturation limit	ک م]ms/I
Target Ground Water Cleanup Level	!		
Target Ground Water Cleanup Level applicable for a soil cleanup level calculation:			
*Results from the Ground Water Cleanup Level Worksheet are	ů	1.90E+00	ug/1
not automatically transferred into this worksheet.	ŧ)
Site-Specific Hydrogeological Characteristics			•
Total Soil Porosity (default = "0.43");	,	0.43	1
Volumetric Water Content (default = "0.30"):	₹ @	0.40	minitess
V	Ė	0.3	untriess
Volumentic Air Content (default = "0.13");	Œ	0.13	unitless
Dry Soil Bulk Density (default = "1.50"):	3 4	1.5	Tca/I
Fraction Soil Organic Carbon (default == "0 001"). for matein and a second to the second of the sec	,	J. 1	, voi
$\frac{1}{2}$	f oc		unitless
Dilution Factor (default = "20" for unsaturated zone soil; "1" for saturated zone soil; or site-specific)	DF	20	unitless
. Vapor Attenuation Factor due to Advection (building structure) & Diffusion (soil laver) Mechanisms			-
* Vapor Attenuation Factor is the ratio of vapor-phase contaminant concentration within the soil at the source to the			
air concentration at the exposure point (e.g., within the building)			
Enter Vapor Attenuation Factor: for the evaluation of vapor exposure pathway	VAF		14:

Chemical of Concern:

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here: -To calculate a soil concentration based on Method C vapor pathway, check here:

>

	Basis for Soil Concentration	Conc	Units	,
	Most stringent soil concentration based on Soil Direct			Warning: Soil Cleanun Level is higher than Soil Sannation
	Contact & Ground Water Protection:	3.230E-01	ıng/kg	Limit
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	3.230E-01	mg/kg	
•	Warning! Soil Cleanup Level above may not be protective of vapor exposure	otective of vap	or exposure	
	pathway - evaluate vapor pathway further.	y further.	4	
_1	Soil concentration based on Vapor Pathway		,	C _{sat} corresponds to the total soil chemical concentration
	(informational purposes only):	0.000E+00	mg/kg	saturated in soil.

MTCASGL10-silver.XLS

R is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg 0.000E+00 30.0 Soil Saturation Limit, Csal: Retardation Factor, R:

	Summar	Summary by Fyngeure Dothway	180787			
	THE CHANGE	y my mapposance a ann				
			Meth	Method B	Method (od C
			Unrestricte	Unrestricted Land Use	Industrial Land Use	Land Use
			@ HQ=1.0; I	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK = 1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	4.000E+02	N/A	1.750E+04	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
			Method B	od B	Method C	2d C
ļ			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
Protection of		Predicted Ground Water		V/N	→	
T) < 4 - 1. 1.	Under the Current	Conc? ug/l		/AT	ζ .	
Fotable	Condition	HQ? @ Exposure Point	N/A	,A	A/N	A
Ground Water		RISK? @ Exposure Point	A/N	Y.	Y/N	A
	Target Ground Water CUL?	er CUL? ug/l		1.900	1.900E+00	
The second secon	Target Soil CUL?	mg/kg		3.230E-01	E-01	
			Method B	od B	Method C	od C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	SK =1.0E-5
		Predicted Air Conc? ug/m3		N/A	Ā	
Frotection of	Under the Current	@Exposure Point			4.7	
Air Onality	Condition	HQ? @ Exposure Point	N/A	A	Y/N	Ą
(for informational		RISK? @ Exposure Point	N/A	A	N/A	V
purpose only)	Target Air	@ HQ=1.0	N/A	A	N/A	A
``	$CUL7 ext{ ug/m}^3$	@ RISK=1.0E-6 or 1.0E-5	N/A	A	Y/N	A
	Target Soil	@ HQ=1.0	N/A	A	N/A	A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	A	A/N	A

environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-740, 173-340-745, 173-340-747 and 173-340-7490 CAUTION: The requirements and procedures for establishing soil cleanup levels that are protective of human health and the through 173-340-7494). The use of this Workbook is not sufficient to establish soil cleanup levels under the regulation. Specifically, the soil cleanup levels derived using this Workbook do not account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-740(3)(b)(i) and 173-340-745(5)(b)(i));
 - Soil residual saturation (see WAC 173-340-747(10));
- Ecological impacts (see WAC 173-340-7490 through 7494); and
- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

Other exposure pathways may also need to be evaluated on a site-specific basis to establish soil cleanup levels.

sufficient to establish air cleanup levels under the regulation. Specifically, the air cleanup levels derived using this Workbook do not environment are specified in the MTCA Cleanup Regulation (see WAC 173-340-750). The use of this Workbook may not be CAUTION: The requirements and procedures for establishing air cleanup levels that are protective of human health and the account for the following:

- · Concentrations based on applicable state and federal laws (see WAC 173-340-750(3)(b)(i) and (4)(b)(i));
- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).

Date: 12/7/2006

Site Name: Former Rhone-Poulenc Site Northwest Corner

Evaluator: Z. Satterwhite

Refer to WAC 173-340-720, 740, 745, 747 and 750 for details.

A. INPUT PARAMETERS FOR SOIL CLEANUP LEVEL CALCULATIONS

Item	Symbol Va	Value U	Units
1. General information			
Name of Chemical:	2,4,5-t	2,4,5-trichlorophenol	henoi
Measured Soil Concentration, if any:	رً		mg/kg
Natural Background Concentration for Soil;	NB.	8	mg/kg
Practical Quantitation Limit for Soil:	PQL,		mg/kg
To evaluate the ingestion and dermal pathways concurrently, check here and input values for AF, ABS, GI:) · [])
2. Toxicological Properties of the Chemical: Chemical-Specific			
Oral Reference Dose:	R(D) 1.00	1.00E-01 m	mg/kg-day
Oral Carcinogenic Potency Factor:	CPF	I	kg-day/mg
Inhalation Reference Dose:	RfD,	<u> </u>	mg/kg-day
Inhalation Carcinogenic Potency Factor:	CPF,		kg-day/mg
3. Exposure Parameters		1	
Inhalation Correction Factor (default = "2" for volatiles; "1" for all others): for target ground water cleanup level	INH 2.00	2.00E+00 u	unitless
Inhalation Absorption Fraction (default = "1"); for target air cleanup level	ABS,	1 🖺	unitless
Gastrointestinal Absorption Fraction (default = "1"); for ingestion & dermal exposure pathways	ABI	1 m	unitless
Adherence Factor (default = "0.2"): for dermal exposure pathway	AF 0	0.2 m	mg/cm ² -day
Dermal Absorption Fraction (chemical-specific or defaults): for dermal exposure pathway	ABS _d	IN IN	unitless
Gastrointestinal Absorption Conversion Factor (chemical-specific or defaults): for dermal exposure pathway	Œ	m	unitless
4. Physical and Chemical Properties of the Chemical: Chemical-Specific			
Soil Organic Carbon-Water Partitioning Coefficient: for metals, enter K_d value here and enter "1" for f_{oc} value	K oc 1.60(1.600E+03 1/kg	_E
Henry's Law Constant: for the evaluation of ground water and vapor exposure pathway	_	1.800E-04 m	unitless
*If the value for Henry's Law Constant is given in the unit of "atm.m ³ /mol", enter value here:	H	at	atm.m³/mol
*Converted unitless form of H_{cc} @13° C: (Enter this converted value into " H_{cc} input Box" above for a calculation)	H_{cc} 0.000	0.000E+00 ui	unitless

Chemical of Concern: 2,4,5-trichlorophenol

1. Summary of Results

To calculate a soil cleanup level based on Industrial Land Use (Method C) for Direct Soil Contact, check here:
-To calculate a soil concentration based on Method C vapor pathway, check here: To calculate a soil concentration based on Method C vapor pathway, check here:

 \Box

-]
	Basis for Soil Concentration	Conc	Units	
	Most stringent soil concentration based on Soil Direct			
	Contact & Ground Water Protection:	3.093E+02	mg/kg	
	Natural Background concentration for Soil:	N/A	mg/kg	
	Practical Quantitation Limit for Soil:	N/A	mg/kg	
	Soil Cleanup Level (not considering vapor pathway):	3.093E+02	mg/kg	
	Warning! Soil Cleanup Level above may not be protective of vapor exposure	tective of vap	or exposure	
	pathway - evaluate vapor pathway further.	further.	ı	
4	Soil concentration based on Vapor Pathway			C sat corresp
\	(informational purposes only):	0.000E+00	mg/kg	saturate

sat corresponds to the total soil chemical concentration saturated in soil.

 ${\it R}$ is the ratio of the ground water flow velocity to the

R is the ratio of the ground water flow velocity to the contaminant migration velocity in saturated zone. mg/kg unitless 5.155E+03 Soil Saturation Limit, Csat: Retardation Factor, R:

	Summar	Summary by Evnosure Dothway	7×07×1			
	Camana	y by Exposure Lau	ı			
			Method B	od B	Method (od C
			Unrestricted	Unrestricted Land Use	Industrial	Industrial Land Use
			@ HQ=1.0; I	@ HQ=1.0; RISK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Soil Direct			Ingestion only	Ingestion & Dermal	Ingestion only	Ingestion & Dermal
Contact	Under the Current	HQ? @ Exposure Point	N/A	N/A	N/A	N/A
	Condition	RISK? @ Exposure Point	N/A	N/A	N/A	N/A
	Target Soil	@HQ=1.0	8.000E+03	N/A	3.500E+05	N/A
	CUL? mg/kg	@RISK =1.0E-6 or 1.0E-5	N/A	N/A	N/A	N/A
	·		Meth	Method B	Meth	Method C
			@ HQ=1.0; RISK =1.0E-6	SK = 1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	Tinder the Current	Predicted Ground Water Conc? ug/l		N/A	'A	
Potable	Condition	HQ? @ Exposure Point	Z	N/A	Ż	N/A
Ground Water		RISK? @ Exposure Point	N/A	'A	Ż	N/A
	Target Ground Water CUL?	er CUL? ug/l		3.600E+03	E+03	
	Target Soil CUL?	mg/kg		3.093E+02	E+02	
			Method B	od B	Meth	Method C
			@ HQ=1.0; RISK =1.0E-6	SK =1.0E-6	@ HQ=1.0; RISK =1.0E-5	ISK =1.0E-5
Protection of	7.11	Predicted Air Conc? ug/m ³	-	N/A	Ą	
TO TOTOTO T	Condition	TO @ Emonine Delict	7			
Air Chality		TIC: (@ TYDOSME LOTH	W/W	*	/NT	N/A
(for informational		RISK? @ Exposure Point	N/A	'A	N/A	Α,
purpose only)	Target Air	@ HQ=1.0	N/A	Α,	N/A	Α,
//	CUL? ug/m³	@ RISK=1.0E-6 or 1.0E-5	Ŋ	N/A	Ż	N/A
	Target Soil	@ HQ=1.0	N/A	'A	Ż	N/A
	CUL? mg/kg	@ RISK=1.0E-6 or 1.0E-5	N/A	Α,	之	N/A

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- Total site risk (see WAC 173-340-740(5)(a) and 173-340-745(6)(a)).

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- · Concentrations based on natural background and the practical quantitation limit (see WAC 173-340-750(5)(c));
 - Total site risk (see WAC 173-340-750(5)(a)).