

0045462

B08NT5-TMA-6A0

000001



WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

ORGANICS  
 CASE NO. 10-063  
 (TMA/ARLI Work Order # A3-10-063)

Organic results are presented for the following  
 WHC SOIL sample(s):

B08NT5  
 B08NT7

B08NT6  
 B08NT8

Norcal Work Order # N3-10-153

Thermo Analytical Inc.  
 160 Taylor Street  
 Monrovia, CA 91016  
 (818) 357-3247

Date submitted:

1 2 / 2 3 / 9 3



PAGE 1

TMA/Norcal

CHAIN OF CUSTODY

ORD # N3-10-153

RCVD: 10/28/93 DUE: 11/07/93

10/28/93 13:31:37

KEEP: 11/07/94 DISP: S

DASH SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY
01A-S BOBNT5	ARLI	: MH195
02A-S BOBNT6	ARLI	: MH195
03A-S BOBNT7	ARLI	: MH195
04A-S BOBNT8	ARLI	: MH195
04B-S BOBNT8 MS	ARLI	: MH195
04C-S BOBNT8 MSD	ARLI	: MH195

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
<i>Pat M. Lantz</i>	<i>10-28-93</i>	<i>ARLI</i>	<i>10-28-93</i>	<i>C. Harris</i>	<i>10/29/93</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

DDDD02A

Westinghouse  
Hanford  
Company

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

005023

Collector **M.L.MYERS/L.GUERRA** Company Contact **C.E.HEIDEN** Telephone **376-2640**  
 SAF No. **93-181** Project Designation **Operable Unit - 100-IU-1** Sampling Location **RIVERLAND**  
 Ice Chest No. **SM 416** Bill of Lading/Airbill No. **997-33-2652** Offsite Property No.  
 Method of Shipment **AIR OVERNIGHT** Field Logbook No. **WHC-N-205-26**  
 Shipped to **TMA LABORATORIES, RICHMOND CALIFORNIA**  
 Possible Sample Hazards/Remarks **UNKNOWN, SUBJECT TO ANALYSIS/PRIORITY TURNAROUND REQUESTED/CERCLA PROTOCOL**  
 Special Handling and/or Storage **Shipped on WET ICE. KEEP AT 4 DEGREES C**

Sample Number	*	Date Collected	Time	Number and Type of Containers	Analysis Required	Preservative
<del>B08NT5</del>						
<del>B08NT</del>	S	10-26-93	09:45	1, Gs 125ML	TPH-DIESEL RANGE, METHOD 8015M	N/A
<del>B08NT6</del>		10-26-93	09:55	1, Gs 125ML	TPH-DIESEL RANGE, METHOD 8015M	
<del>B08NT7</del>		10-26-93	10:05	1, Gs 125ML	TPH-DIESEL RANGE, METHOD 8015M	
<del>B08NT8</del>	V	10-26-93	10:00	1, Gs 125ML	TPH-DIESEL RANGE, METHOD 8015M	
				<del>1, Gs 125ML</del>	<del>TPH-DIESEL RANGE, METHOD 8015M</del>	
				<del>1, Gs 125ML</del>	<del>TPH-DIESEL RANGE, METHOD 8015M</del>	
			10-27-93	1, Gs 125ML	TPH-DIESEL RANGE, METHOD 8015M	
				<del>1, Gs 125ML</del>	<del>TPH-DIESEL RANGE, METHOD 8015M</del>	
				<del>1, Gs 125ML</del>	<del>TPH-DIESEL RANGE, METHOD 8015M</del>	

Chain of Possession		(Sign and Print Names)		<b>PRIORITY TURNAROUND,</b>	<b>*Matrix</b> SE = Sediment SL = Sludge SO = Solid DL = Drum Liquids T = Tissue DS = Drum Solids W = Water L = Liquid WI = Wipe O = Oil X = Other
Relinquished By <i>L GUERRA</i>	Date/Time <i>10-26-93/13:00</i>	Received By <i>Alvin TMA/HANFORD</i>	Date/Time <i>10-28-93 1:00</i>		
Retinquished By	Date/Time	Received By	Date/Time		

<b>LABORATORY SECTION</b>	Received By	Title	Date/Time
<b>Final Sample Disposition</b>	Disposal Method:	Disposed by:	Date/Time:

SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI

PAGE : \_\_\_\_\_ OF \_\_\_\_\_

RECEIVED BY (PRINT NAME): RAYAN SHAIK

LOG-IN-DATE : 10-29-93

RECEIVED BY (SIGNATURE): [Signature]

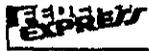
ICE CHEST NO. <u>682</u>	CORRESPONDING			REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC
	EPA SAMPLE #	SAMPLE TAG #	ASSIGNED LAB #	
REMARKS:		B09D82	A310067	
1. Custody Seal(s) <input checked="" type="radio"/> Present / <input type="radio"/> Absent* <input checked="" type="radio"/> Intact / <input type="radio"/> Broken		B09DK5	A310064	
2. Custody Seal Nos: _____		B08NT5	A310063	
		B08NT6	A310063	
3. Chain of Custody Records <input checked="" type="radio"/> Present / <input type="radio"/> Absent*		B08NT7	A310063	
		B08NT8	A310063	
4. Traffic Reports or Packing List <input checked="" type="radio"/> Present / <input type="radio"/> Absent*		B09D82	A310067	
5. Airbill <input checked="" type="radio"/> Airbill Present / <input type="radio"/> Sticker Absent*				
6. Airbill No.: <u>228 9153410</u>				
7. Sample Tags <input checked="" type="radio"/> Present / <input type="radio"/> Absent*				
8. Sample Tag Numbers <input checked="" type="radio"/> Listed / <input type="radio"/> Not Listed <input checked="" type="radio"/> on Chain of Custody				
9. Sample Condition: <input checked="" type="radio"/> Intact / <input type="radio"/> Broken* / <input type="radio"/> Leaking				
10. Does information on custody records, traffic reports, and sample tags agree? <input checked="" type="radio"/> Yes / <input type="radio"/> No*				
11. Date Received at Lab: <u>10-29-93</u>				
12. Temp of ice chest: <u>3°C</u>				
13. Time Received: <u>10:00AM</u>				
<b>SAMPLE TRANSFER</b>				
Fraction: _____				
Area #: _____				
By: _____				
On: _____				

\* Contact SMO and attach record of resolution

Reviewed By: \_\_\_\_\_ Logbook No.: \_\_\_\_\_

Date: \_\_\_\_\_ Logbook Page No.: \_\_\_\_\_

000004



QUESTIONS? CALL 800-238-5355 TOLL FREE

TRACKING NUMBER

160 TAYLOR ST

30954

7289153410

**RECIPIENT'S COPY**

From (Your Name) Please Print <b>SAMPLE CONTROL</b>		Your Phone Number (Very Important) (707) 35-2633		To (Recipient's Name) Please Print <b>CAROLE HARRIS</b>		Recipient's Phone Number (Very Important) (818) 357-3247	
Company SAMPLE CONTROL		Department/Floor No. 2		Company <b>TMA/ARLI</b>		Department/Floor No.	
Street Address 2500 S. MOUNTAIN VIEW		City ICH		Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.) <b>160 TAYLOR STREET</b>		City <b>MONROVIA,</b>	
State CA		ZIP Required 91016		State <b>CA.</b>		ZIP Required <b>91016</b>	
YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.) <b>2340-6406</b>				IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required			
PAYMENT 1 <input checked="" type="checkbox"/> Bill Sender 2 <input type="checkbox"/> Bill Recipient's FedEx Acct. No. 3 <input type="checkbox"/> Bill 3rd Party FedEx Acct. No. 4 <input type="checkbox"/> Bill Credit Card 5 <input type="checkbox"/> Cash/Check							
<b>SERVICES</b> (Check only one box)		<b>DELIVERY AND SPECIAL HANDLING</b> (Check services required)		<b>PACKAGES</b>		<b>WEIGHT</b> in Pounds Ounces	
<b>Priority Overnight</b> (Delivery by next business morning) 11 <input checked="" type="checkbox"/> OTHER PACKAGING 16 <input type="checkbox"/> FEDEX LETTER 12 <input type="checkbox"/> FEDEX PAK™ 13 <input type="checkbox"/> FEDEX BOX 14 <input type="checkbox"/> FEDEX TUBE		1 <input type="checkbox"/> HOLD FOR PICK-UP (Fill in Box 1) 2 <input checked="" type="checkbox"/> DELIVER WEEKDAY 3 <input type="checkbox"/> DELIVER SATURDAY (Extra charge) (Not available to all locations) 4 <input type="checkbox"/> DANGEROUS GOODS (Extra charge) 5 <input type="checkbox"/> 6 <input type="checkbox"/> DRY ICE (Dangerous Goods Shipper's Declaration not required)		3 Total Total Total 3 210		YOUR DECLARED VALUE (See 4910) DIM SHIPMENT (Chargeable Weight) L x W x H ... L x W x H	
<b>Standard Overnight</b> (Delivery by next business afternoon, no Saturday delivery) 51 <input type="checkbox"/> OTHER PACKAGING 56 <input type="checkbox"/> FEDEX LETTER™ 52 <input type="checkbox"/> FEDEX PAK™ 53 <input type="checkbox"/> FEDEX BOX 54 <input type="checkbox"/> FEDEX TUBE		7 <input type="checkbox"/> OTHER SPECIAL SERVICE 8 <input type="checkbox"/> 9 <input type="checkbox"/> SATURDAY PICK-UP (Extra charge) 12 <input type="checkbox"/> HOLIDAY DELIVERY (if allowed) (Extra charge)		1 <input type="checkbox"/> Regular Stop 3 <input type="checkbox"/> Drop Box 2 <input type="checkbox"/> On-Call Stop 5 <input type="checkbox"/> Station		Emp. No. Date Federal Express Use <input type="checkbox"/> Cash Received <input type="checkbox"/> Return Shipment <input type="checkbox"/> Third Party <input type="checkbox"/> Chg. To Del. <input type="checkbox"/> Chg. To Hold Street Address City State Zip Received By: <b>X</b> Date/Time Received FedEx Employee Number	
<b>Economy Two-Day</b> (Delivery by second business day) 30 <input type="checkbox"/> ECONOMY™ <small>Economy Letter rate not available. Maximum charge: One pound economy rate.</small>		<b>Government Overnight</b> (Restricted for industrial uses only) 45 <input type="checkbox"/> GOVT LETTER 41 <input type="checkbox"/> GOVT PACKAGE		70 <input type="checkbox"/> OVERTNIGHT FREIGHT™ <small>(Confirmed reservation required)</small>		80 <input type="checkbox"/> TWO-DAY FREIGHT™ <small>(Confirmed reservation required)</small>	
<b>Freight Service</b> (For packages over 150 lbs.) 70 <input type="checkbox"/> OVERTNIGHT FREIGHT™ <small>(Confirmed reservation required)</small>		80 <input type="checkbox"/> TWO-DAY FREIGHT™ <small>(Confirmed reservation required)</small>		155 <small>© 1992-93 FEDEX PRINTED IN U.S.A.</small>			

RADIATION DOSE RATE SURVEY FORM

Date 10/29<sup>m</sup>/93 COMPANY TMA/NORCAL OTHER ORD # 7289153410

Surveyor's Name MARK S. MCCRAY

Model No. HP-210 / ESP-1 Model No. AC-37 / ESP-1

Serial No. 710289 / 07619 Serial No. 40776 / 07678

Calibration Date 4/26/93 Calibration Date 9/16/93

Instrument Calibration Factor 0.280 Instrument Calibration Factor 0.192

Sample	Location	HP-210 CPM	HP-210 Factor	HP-210 DPM	AC-37 CPM	AC-37 Factor	AC-37 DPM	Setting of Instruments	Activity of Soil or Rock
Background		31.0			1.0				
Container		7340	0.2833		4,096	0.1505			
SMOKE 682		69.0			14.0			NONE	
LAB 19		34.0			2.0			NONE	
Reported Riverland SAF, (2) samples each <del>250</del> 750cpm									

ALL OK  Approved MSM Comment: \_\_\_\_\_  
Date 10/29/93

## CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 10-063

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : October 28, 1993

## 1.0 DESCRIPTION OF CASE :

Four soil samples were analyzed for Total Petroleum Hydrocarbons (Diesel Range) according to USEPA SW-846 Method 8015 Modified.

## 2.0 SAMPLE LIST :

<u>WESTINGHOUSE ID</u>	<u>LAB ID</u>	<u>ANALYSIS REQUESTED</u>	<u>MATRIX</u>
B08NT5	A3-10-063-01A	TPH	SOIL
B08NT6	A3-10-063-02A	TPH	SOIL
B08NT7	A3-10-063-03A	TPH	SOIL
B08NT7	A3-10-063-03B	TPH	SOIL
B08NT7	A3-10-063-03C	TPH	SOIL
B08NT8	A3-10-063-04A	TPH	SOIL

TPH by 8015 Modified

## 3.0 COMMENTS :

## 3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received unbroken and properly documented.

## 3.2 ANALYSIS

## 3.2.1 TOTAL PETROLEUM HYDROCARBONS ANALYSIS COMMENTS :

## SEQUENCE NOTES :

The sequence was started on 11/03/93 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of five different levels of the Diesel standard that ranged from 188 to 1884 ppm. The continuing calibration at the 1200 level was injected before and after the samples were analyzed, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

## LOW LEVEL WATER :

The samples were extracted and analyzed within the SW-846 holding times. Approximately 20g of each sample were extracted with Methylene Chloride, and the sample extracts were then concentrated to 5mL, to be analyzed by GC/FID.

Originally, the samples were analyzed on 11/05/93 and these preliminary results were reported. No TPH in the Diesel-Range was detected in the preliminary analyses. Samples B08NT5, B08NT6, and B08NT7 had TPH that was heavier than the Diesel Range. Due to the carry-over of Biphenyl- and Diphenyl-oxide as single response analytes, all of the samples were reanalyzed on 11/09/93, within the extract hold time. Only the reanalyses results were reported in the data package.

The reanalyses confirmed the original results of no TPH in the Diesel Range. The results for TPH that was heavier than the Diesel Range were higher than the original results. The concentration for those compounds were calculated using a Diesel standard.

Sample B08NT7 was spiked with approximately 250 mg/Kg of Diesel standard for the MS and the MSD. The matrix spike recoveries in both the MS and MSD samples were at 71% and 80%, respectively, whereas the blank spike had a 108% recovery.

All of the results were within the QC criteria specified by the SW-846 Method 8015M.

We 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 above. Release of the data in this hardcopy data package is authorized by the Laboratory Manager or his designee, as verified by the following signature.

*Nicole Roth*  
Nicole Roth  
Program Manager  
12/23/93

*Maureen Parrish*  
Maureen Parrish  
Program Manager  
12-23-93

000012

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT5FRACTION 01ATEST CODE 8015MSNAME EPA 8015M EXTRACT.Date & Time Collected 10/26/93

Category \_\_\_\_\_

## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOILDate Analyzed: 11/09/93Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	850	10

ND = Not detected at the specified limits

Form I

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT6FRACTION 02A TEST CODE 8015MS NAME EPA 8015M EXTRACT.Date & Time Collected 10/26/93

Category \_\_\_\_\_

## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOILDate Analyzed: 11/09/93Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	640	10

ND = Not detected at the specified limits

Form I

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT7 FRACTION 03A TEST CODE 8015MS NAME EPA 8015M EXTRACT.  
 Date & Time Collected 10/26/93 Category \_\_\_\_\_

## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOILDate Analyzed: 11/09/93Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	154	10

ND = Not detected at the specified limits

Form I

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT8FRACTION 04A TEST CODE 8015MS NAME EPA 8015M EXTRACT.Date & Time Collected 10/26/93

Category \_\_\_\_\_

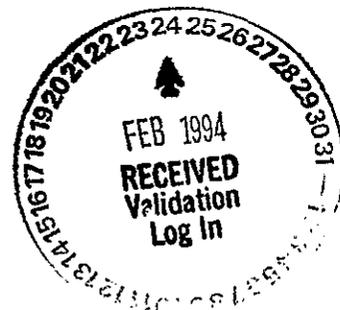
## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOILDate Analyzed: 11/09/93Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA

ND = Not detected at the specified limits

Form I



## 1.0 INTRODUCTION

The following samples were obtained from the 100-IU-1 Operable Unit Riverland ERA Sampling event:

B08NP7	B08NR2	B08NR9	B08NT1	B08NT8
B08NQ6	B08NR3	B08NS0	B08NT2	B08NT9
B08NQ7	B08NR4	B08NS6	B08NT3	B08NV0
B08NQ8	B08NR5	B08NS7	B08NT4	B08NV3
B08NQ9	B08NR6	B08NS8	B08NT5	B08NV4
B08NR0	B08NR7	B08NS9	B08NT6	B08NV5
B08NR1	B08NR8	B08NT0	B08NT7	B08NV7

Westinghouse-Hanford originally requested that 100% of the data associated with the 100-IU-1 Operable Unit Riverland ERA Sampling Event be validated. However, the final ten samples (B08NT5, B08NT6, B08NT7, B08NT8, B08NT9, B08NV0, B08NV3, B08NV4, B08NV5 AND B08NV7) were not included in the original request. Per Westinghouse-Hanford instructions, these samples are included in this project as unvalidated samples only. Due to field errors the analysis of sample number B08NS0 was canceled, therefore, there are no results for this sample.

Sample numbers B08NR8 and B08NT4 are field split samples which were erroneously submitted to the same laboratory as the original field samples. Westinghouse-Hanford requested analysis of the samples for "informational purposes only". Therefore, the data from the chemical analysis of twenty-four samples from this sampling event and their related quality assurance samples were reviewed and validated to verify that reported sample results were of sufficient quality to support decisions regarding remedial actions performed at this site. The samples were analyzed by Thermo-Analytic Laboratories (TMA) and Roy F. Weston Laboratories (WESTON) using U.S. Environmental Protection Agency (EPA) CLP and SW-846 protocols.

Sample analyses included:

- Pesticide/PCB organics
- Herbicides
- Total petroleum hydrocarbons/diesel range organics

The table below lists the Sample Delivery Groups (SDGs) that were validated for this sampling event. The validated data and the non-validated results for the remaining samples are included in this report.

SDG No.	Matrix	No. of Samples Validated	Parameters
B08NP7	S	4	Pest/PCB, Herbicides
B08NQ8	S	1	Pest/PCB, Herbicides
B08NR0	S	9	TPH/DRO
B08NR3	S	8	TPH/DRO
B08NS8	S	1	TPH/DRO

Data quality was reviewed and analytical results validated using Westinghouse-Hanford procedures and related EPA CLP protocols and guidelines. Data were qualified based upon their quality and the guidance provided by these sources. In instances where the two protocols differed, the Westinghouse-Hanford guidance was followed.

Two sets of split samples were submitted to TMA and Roy F. Weston Laboratories as shown below:

Set 1:

<u>Sample No.</u>	<u>Split Sample No.</u>	<u>Location</u>
B08NQ6	B08NQ8	139315/554285

Set 2:

<u>Sample No.</u>	<u>Split Sample No.</u>	<u>Location</u>
B08NS6	B08NS8	Drain Ditch

The samples and split samples for both locations were included in the validated data. However, in all cases except for the Pesticide/PCB analyses of sample numbers B08NQ6 and B08NQ8, one or the other set of results were rejected and therefore no comparisons could be made. The pesticide/PCB analyses were compared using the sample guidelines for determining the RPD between a sample and its duplicate. The results were within QC limits and appear in the summary tables within this report.

Two additional sets of split samples were also collected. However, due to field errors, these samples were all sent to TMA for analysis. Therefore, the sample numbers B08NR6 and B08NR8, and B08NT2 and B08NT4 have been included in the discussion of field duplicates below.

Four sets of field duplicate samples were submitted to TMA as shown below.

## Set 1:

<u>Sample No.</u>	<u>Duplicate Sample No.</u>	<u>Location</u>
B08NQ6	B08NQ7	139315/554285

## Set 2:

<u>Sample No.</u>	<u>Duplicate Sample No.</u>	<u>Location</u>
B08NR6	B08NR7, B08NR8	Drain Ditch

## Set 3:

<u>Sample No.</u>	<u>Duplicate Sample No.</u>	<u>Location</u>
B08NS6	B08NS7	Drain Ditch

## Set 4:

<u>Sample No.</u>	<u>Duplicate Sample No.</u>	<u>Location</u>
B08NT2	B08NT3, B08NT4	Pad Soil

The duplicate sample results for all locations were included in the validated data. The results were compared using the sample guidelines for determining the RPD between a sample and its duplicate. However, in all cases except for the Pesticide/PCB analyses of sample numbers B08NQ6 and B08NQ8, one or the other set of results were rejected and therefore no comparisons could be made. The pesticide/PCB results were within QC limits and appear in the summary tables within this report.

Two equipment blanks, soil sample numbers B08NP7 and B08NR4, were submitted to TMA for analysis. Under EPA protocol, equipment blanks are water samples used to indicate whether or not decontamination procedures were adequate or that contamination was not inherent in the equipment used. The equipment blank information provided was inadequate to determine what contamination, if any, was a result of the equipment used. Equipment blanks require locations and associated sample numbers in order to make such a determination.

The report is broken down into sections for each chemical analysis type. Each section addresses the data package completeness, holding time adherence, instrument calibration and tuning acceptability, blank results, accuracy, precision, system performance, as well as compound identification and quantitation. In addition, each section has an overall assessment and summary for the data packages reviewed for the particular analyses. Detailed backup information is provided to the reader by SDG No.

and sample number. For each data package, a matrix of chemical analyses per sample number is presented, as well as data qualification summaries.

Laboratory and data validation personnel added qualifiers to the reported data based on specified data quality objectives. The data reporting qualifiers are summarized as follows:

- U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for dilutions and moisture content. It should be noted that the sample quantitation limit may be higher or lower than the contract or method required detection limit, depending on instrumentation, matrix and concentration factors.
- J - Indicates the analyte was analyzed for and detected. However, the associated value is considered to be an estimate due to identified QC deficiencies. Data flagged with a "J" may be usable for decision making purposes, depending upon the DQOs of the project. Laboratories qualify all reported organic detects below CRQL with a "J" per the CLP procedures.
- UJ - Indicates the analyte was analyzed for and not detected. However, the associated detection limit is considered to be an estimate due to identified QC deficiencies. Detection limits flagged with a "UJ" may be usable for decision making purposes, depending upon the DQOs of the project.
- JN - Indicates the analyte was analyzed for and that there is presumptive evidence of the presence of the compound. The concentration reported is considered an estimate which should be used for informational purposes only.
- R - Indicates the analyte was analyzed for and due to a significant QC deficiency, the data are deemed unusable. Analytic results flagged "R" are invalid and provide no information as to whether or not the analyte is present.

It should be noted that results will frequently bear two qualifiers - one given by the laboratory and one given during the validation process. For example, a "U" qualifier is given by the laboratory when the compound has not been detected during the analysis, and a "J" qualifier may be added during the validation to qualify the result due to minor quality problems. Therefore, the resulting qualification is "UJ", where the "U" qualifier has been given by the laboratory and the "J" qualifier given by the validator.

The results of data validation performed for the 100-IU-1 Operable Unit Sampling Investigation are contained in the tables following each of the chapters in this report.

Several general quality trends which resulted in data qualification were observed. These include:

- The herbicides results from one SDG and all TPH/DRO results in two SDGs were rejected due to incomplete supporting documentation and significant deviations from the corresponding methods. In all cases method non-compliance was sufficiently severe to warrant complete rejection of the data.
- The holding times were exceeded for the pesticide/PCB and herbicide analyses of one sample in one SDG. All associated results were qualified accordingly.
- The pesticide/PCB results for the two samples in one SDG and for one sample in one SDG were qualified as estimates due to the low surrogate recovery of tetrachloro-m-xylene.
- The herbicide initial and continuing calibration verification percent recovery results were below the QC limit for four compounds in one SDG. All associated results were qualified as estimates.

In general, the protocol-specific QA/QC requirements were met for all other samples analyzed in this investigation with a few minor exceptions as discussed in the chapters to follow. All requested analyses were performed. With the exceptions noted above, the protocol-specific data quality objectives in terms of precision, accuracy, completeness, representativeness, and comparability have been met.

000012

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT5

FRACTION 01A

TEST CODE 8015MS

NAME KPA 8015M EXTRACT.

Date & Time Collected 10/26/93

Category \_\_\_\_\_

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL

Date Analyzed: 11/09/93

Dilution factor: 1.00

Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	850	10

2/17/94 - NV  
*[Signature]*

ND = Not detected at the specified limits

Form I

000016

Received: 10/28/93

TMA Inc. REPORT  
Results by Sample

Work Order # A3-10-063

SAMPLE ID B08NT6 FRACTION 02A TEST CODE 8015MS NAME EPA 8015M EXTRACT,  
Date & Time Collected 10/26/93 Category \_\_\_\_\_

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL  
Date Analyzed: 11/09/93  
Dilution factor: 1.00  
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	640	10

*2/17/94 - NV*  
*[Signature]*

ND = Not detected at the specified limits

TMA Inc.

REPORT

Work Order # A3-10-063

Received: 10/28/93

Results by Sample

SAMPLE ID B08NT7FRACTION 03ATEST CODE 8015MSNAME EPA 8015M EXTRACT.Date & Time Collected 10/26/93

Category \_\_\_\_\_

## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOILDate Analyzed: 11/09/93Dilution factor: 1.00Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA
Heavier than Diesel	154	10

2/17/94 - NV  


ND = Not detected at the specified limits

Form I

Received: 10/28/93

TMA Inc. REPORT  
Results by Sample

Work Order # A3-10-063

SAMPLE ID B08NTB FRACTION 04A TEST CODE 8015MS NAME EPA 8015M EXTRACT.  
Date & Time Collected 10/26/93 Category \_\_\_\_\_

## MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL  
Date Analyzed: 11/09/93  
Dilution factor: 1.00  
Concentration Units: mg/Kg

Compound	Sample Result	PQL
Kerosene Range	NA	NA
C10 - C16 Jet Fuel Range	NA	NA
C9 - C22 Diesel Range	ND	10
Hydraulic Range	NA	NA

2/17/94 - NV  
*[Signature]*

ND = Not detected at the specified limits

Form I